



Oriental University, Indore (M.P.)

7.1.4 Water conservation facilities available in the Institution:

Response:

1. Rain Water Harvesting System

Rainwater harvesting system, also called rainwater collection system or rainwater catchment system is a technology that collects and stores rainwater for human use. Rainwater is collected from a roof-like surface and redirected to a tank, cistern, deep pit, aquifer, or a reservoir with percolation, so that it seeps down and restores the ground water. The university has a well-established roof top rainwater harvesting system installed in Boy's & Girl's hostel as shown in figure below. The total hostel rooftop area is about 2800 m². The average annual rainfall is 1 meter in Indore city and considered runoff coefficient as 0.95 for commercial buildings. Estimated rainwater harvesting potential is 2,660 m³/year.



(a)



(b)

Figure.1: Rain Water Harvesting System



ORIENTAL UNIVERSITY

(Established under M.P. Niji Vishwavidyalay (Sthapana avam Sanchalan), Adhiniyum 2007)
(Recognized by University Grants Commission, New Delhi)
Opp. Rewati Range Gate no. 1, Post Aurobindo
Sanwer Road, Jakhya, Indore-453555 (M.P.)
Website: oui.edu.in E-Mail: registrar@orientaluniversity.in Ph.-0731-3565700

Ref. No. OU/2020-2021/1108

Date: 03/06/2021

To,
M/s Water Warriors
108, B2 Sch. No. 114 B/H Shalimar Township,
Vijay Nagar, Indore
Email: choudharyawadhkishore@gmail.com

Sub: - Work Order for Roof Top Rainwater Harvesting System at Hostel blocks.

Dear Sir,

With reference to your quotation/Estimate No. : 357 date 03/04/2021 and Subsequent discussions, we are pleased to place work order for rain water harvesting as per rates & other items conditions as given in the quotations for the Hostel blocks.

Sr. No.	Particulars	Total Amounts (In Rs.)
1.	Supply, Installation, testing and commissioning of rain water harvesting system on roof top of hostel buildings generally as per line drawing submitted by you.	Rs. 4,51,114/- (Including GST)

Terms and Conditions:-

1. Consignee - Oriental University Opp. Rewati Rang Gate No. 1, Sanwer Road, Indore
2. Freight - Included
3. Taxes - Included
4. Delivery - Delivery of material within 7 days and completion of work order within 3 weeks of acceptance of this work order.
5. Payment - (i) 50% of order value will be paid on receipt of complete material as per your quotation.
(ii) 40% will be paid on satisfactory installation, testing, commissioning handing over the rain water harvesting system.
(iii) Full and final payment will be made after reviewing actual performance of the system during the rainy season.
6. Penalty - A penalty @1% per week shall be levied if the contract is not completed in stipulated three weeks of your acceptance of this work order.
7. Reuse of dismantled piping system - You will try to reinstall existing pipes in the new layout after due inspection of the same.

Please acknowledge receipt & acceptance of the order.

Thanking You

Yours truly,

V.Sharma
CEO
For Oriental University, Indore

Akshay
Prasad
03/06/2021

Figure.2 Purchase Order of Rainwater Harvesting System

2. Borewell/Open Well Recharge

In Borewell recharging, a natural filter made up of large and small stones is used to filter runoff water from surface water (obtained from rainfall or nearby bodies of water). Water also passes through another layer of sand, eventually perforating the Borewell pipe via a fine mesh wrapped around the casing pipe. Borewell water is cleaned with the fine mesh to ensure big and small impurities are removed before entering the borehole.

In the Oriental University campus the rain water is led into a pit around a Borewell and drained into underground water table, as shown in figure.3.

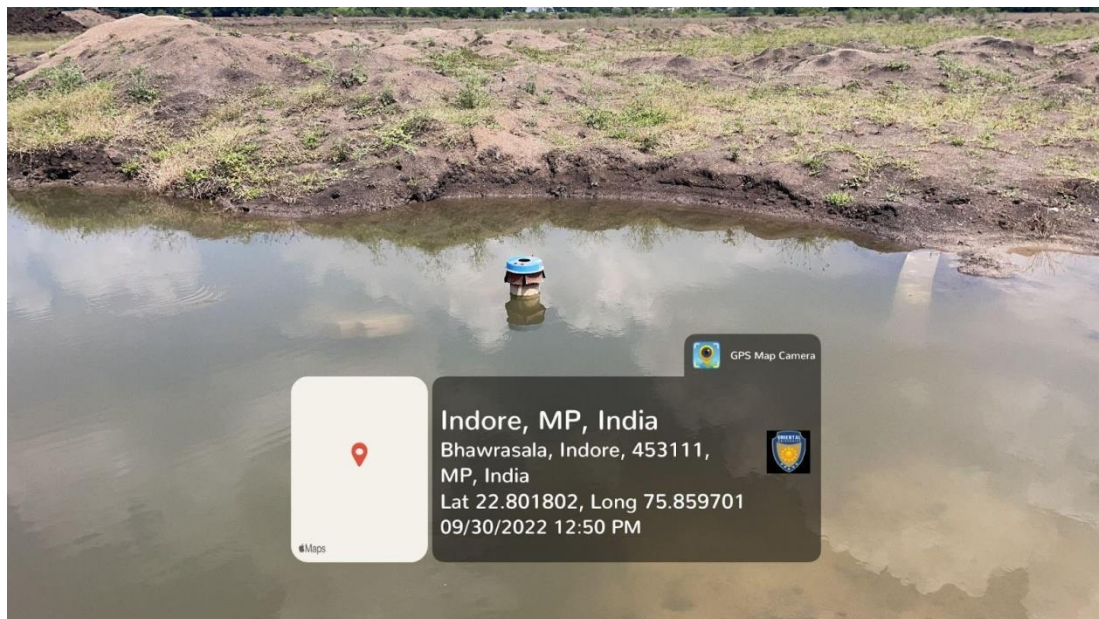


Figure.3: Borewell Recharge

3. Construction of Tanks and Bunds

Tanks and bunds, both are used to collect rainwater. At Oriental University Indore, water gets stored in the tanks located at different convenient points with different capacities. From tanks, the water is supplied to different outlets in university areas like drinking water facilities, washrooms, hostels, residency quarters, etc.



Figure.4: Snapshot of Tanks available at different locations



Figure.5: Snapshot of a Bund at the University

4. Waste Water Recycling

The recycling of water is the process of reusing treated wastewater for beneficial uses, such as irrigation, industrial processes, toilet flushing, and replenishing groundwater basins. Sewage treatment is a type of wastewater treatment which aims to remove contaminants from sewage to produce an effluent that is suitable for discharge to the surrounding environment or an intended reuse application, thereby preventing water pollution from raw sewage discharges. For waste water (which comes from hostels and residential apartment of the university), a Sewage Treatment Plant (STP) of **capacity 150 KLD** has been installed in the hostel area, the purchase order and photographs of the STP are enclosed below:



ORIENTAL UNIVERSITY, INDORE

Established under M.P. NijiVishwavidyalay (SthapanaavamSanchalan), Adhiniyam2007

Purchase Order

Ref: -OUI/Reg./004/PO/156)

May 05, 2022

To,
H₂O Scientific
Mahadev Wadi Main Road
Opp. School No. 47 Laxmi Nagar
Rajkot (G.J.) - 360004

Sub: PO no. OUI/IND/202-21/3178 dated 10/03/2021 for 100 KLD STP System.

Dear Sir,
With reference to your revised quotation no H₂O/STP/229/2021 dated 24/01/2022 and telephonic discussions, we are pleased to amend the PO no. OUI/IND/202-21/3178 dated 10/03/2021 as per following rates and other terms: -

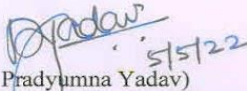
Capacity	:	150 KLD
Process	:	MBBR Based System
Scope and technical's details	:	As per item no 4 of your quotation.
Process design basis	:	As per item no "B" of your quotation.
Power Consumption	:	11.0 kw approximately
Exclusions	:	As per your quotation.

Terms & Conditions:

1. Price : Rs. 12, 60,000/- (Rs. 15, 75,000 - less 20 %)
2. Taxes : GST @ 18% extra
3. Erection and commissioning : Included in price.
4. Freight : Extra as actual cost.
5. Delivery : 30 days from the receipt of confirm order
6. Payment : (i) 20% advance along with order
(ii) 60 % at the time of delivery with all taxes
(iii) 20% after installation.

Please acknowledge receipt & acceptance of the order for processing advance payment.

With regards,


(Dr. Pradyumna Yadav)
Registrar
REGISTRAR
ORIENTAL UNIVERSITY
INDORE

Opp. Reoti Range Gate no. 1, Post Aurobindo Sanwer Road, Jakhya, Indore 453 555 (M.P.)
Website: www.oui.edu.in e-mail: registrar@orientaluniversity.in Phone 0731-3565000

Figure.6: Purchase order of Sewage Treatment Plant (STP)



Figure.7: Geotag Photographs of Sewage Treatment Plant (STP)

5. Maintenance of water bodies and distribution system in the campus

All the water bodies are well maintained by university staff, and a proper distribution of water supply has been provided for the fulfilment of needs of all institutional members.



Figure.8: Geotag Photographs of storage tank in hostel areas



Figure.9: Geotag Photographs of an Open well

Following is the flow diagram for water sources and water distribution lines

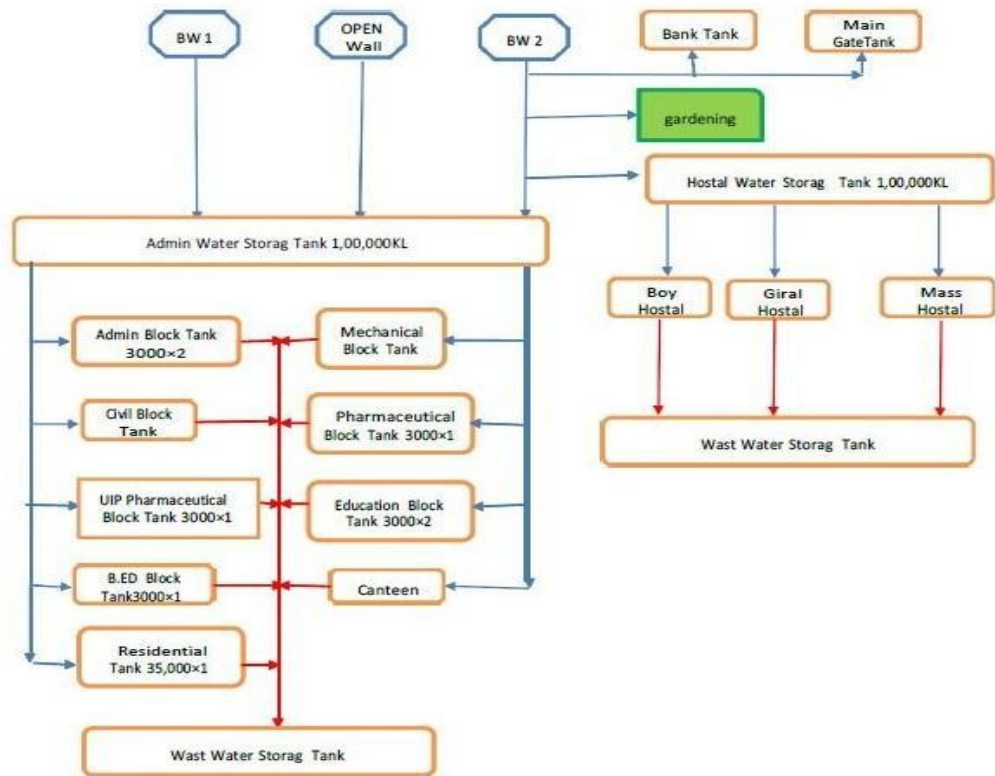


Figure.10: Fresh water distributions in university campus

Our University has two Reverse Osmosis (RO) Plants. One plant is in the administration building roof tap and the other one is in the hostel building rooftop. The details of supply of RO water in the university campus are prepared and represented in figure given below:

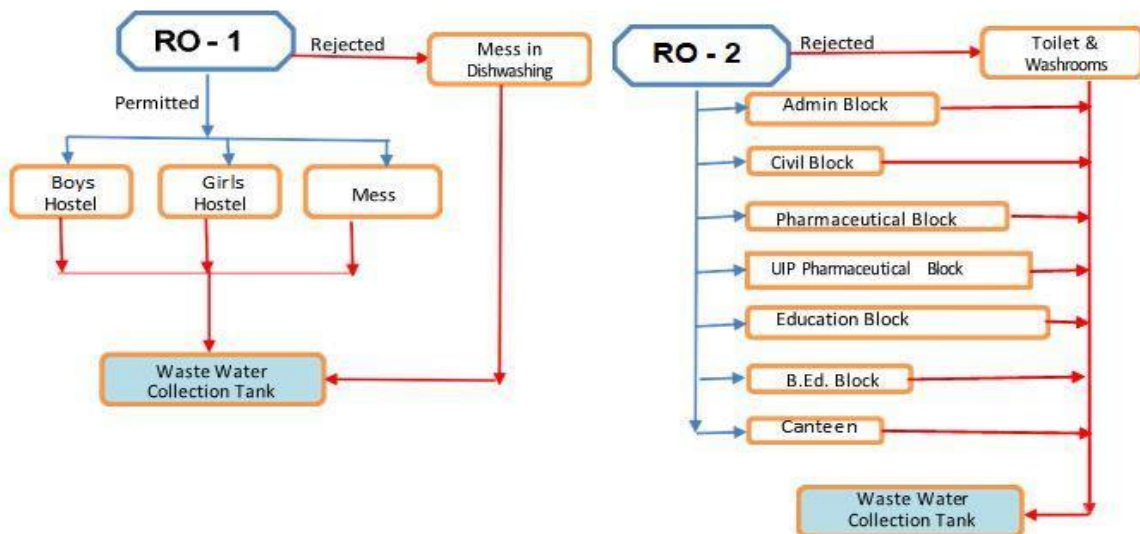


Figure.11: Drinking water flow diagram



Figure.12: Reverse Osmosis (RO) Plant

Past, Present and Future Scenarios:

Past Scenario	Present Scenario	Future Scenario
In last years, university faced some problems in water supply, due to lack of availability of ground water in the university premises.	Now, the university enjoys plenty of water with the help of harvested rainwater.	For future, university is planning for more bunds, and adoption of modern water monitoring techniques.

Oriental University, Indore (M. P.)



Additional Information

Policy Document

Water Management Policy

STATEMENT

Water is the fundamental requirement of life. It touches all life activities such as agriculture, domestic and all socio-economic activities. The water management policy of OUI includes following points:

- Rain water harvesting
- Bore well /Open well recharge
- Construction of tanks and bunds
- Waste water recycling
- Maintenance of water bodies and distribution system in the campus

OBJECTIVES

- To provide adequate water supplies to meet demands of the campus.
- To provide clean, safe, reliable drinking water at all times.
- To increase water availability through recycling.
- To enable water storage and propose conjunctive management of surface and groundwater.
- To provide for groundwater recharge while protecting groundwater resources from overdraft.
- To protect the groundwater resources from contamination.
- To control excessive erosion and manage sedimentation/situation.
- To protect, restore, and rehabilitate watershed and bay processes.
- To protect, restore and rehabilitate the habitat for species protection.
- To enhance monitoring network and information sharing to support proper management of watersheds through community outreach.
- Increase water resources related recreational opportunities.

PROCEDURE

A team is formed to create and implement the water management policy in the OUI campus. The team should visually inspect all the water conservation system in the campus periodically. This team ensures primarily on the regular monitoring of quality of drinking water, maintenance of water distribution system and effective utilization of the waste water. The water demand, wastage of water and the quantity of the water in the reservoirs should be quantified periodically.

The layout of water distribution system should be developed. This map will help the team to identify potential hazard condition of the water distribution system. The up-to-date plumbing drawings should be available to assess the performance of plumbing components. New technologies should be developed to protect and restore the water in the reservoirs and to improve the facilities for ground water recharging and waste water recycling. Various information is to be collected from the experts who are working in the area of water conservation system. The collected information should be presented in the meeting and it should open for discussions.

Productive and efficient methods should be implemented to improve the reservoir capacity & drinking water quality and these methods should be monitored and the efficiency should be evaluated.

ROLES

The Water Management Team comprises of the following:

- Vice Chancellor
- NAAC Coordinators
- Faculty Coordinators from all Departments
- Interested Faculties and Technical Staff of OUI
- Plumbing Supervisor of OUI

RESPONSIBILITIES

- Conduct meeting regularly and review the policy.
- Update the maintenance register.
- Conduct the water audit.
- Monitor the water levels of all conservation system.
- Verify the water quality periodically.
- Measures to be taken to improve the water quality.
