

# WATER AUDIT: A CASE STUDY OF GOVT. DIGVIJAY AUTONOMOUS POST GRADUATE COLLEGE RAJNANDGAON, CHHATTISGARH

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## ABSTRACT

Water audit is a part of green or environmental audit which are identified with the inspection of work directed inside the organizations whose movement can make risk to the health of inhabitants and environment. The National assessment and accreditation council (NAAC) take a genuine note of this angle while reviewing the educational institute. Along these lines, water audit is performed in the college with various aspects of water such as sources, supply, utilization, disposal etc. On location perception and talk with the related staff was taken up to get the information. Bore wells satisfy the all necessities of institute while prerequisite of staff colonies is fulfill by municipality supply. Institutional water is devoured by the laboratories (30-35%), gardens (20-25%), Bathrooms (15-20%), boys hostel (15-20%), drinking water (10-15%) and sports ground and other (5-10%). The seepage in the old construction, reutilization of water and unavailability of rain water harvesting are the destinations of change in institute. Concluded that, institute has own and necessity based source and supply of water then again locales of improvement was likewise observed.

**KEYWORDS:** Govt. Digvijay College; Rajnandgaon; Water audit; Water pollution; Water conservation

Water is basic forever. From the time that primeval species ventured from the oceans to live ashore. Chemically, it is transparent, colorless, tasteless compound of hydrogen and oxygen (H<sub>2</sub>O). Water is additionally found in strong state as ice and gaseous state as vapors (Popkin et al., 2010 and Linton 2010). All living beings, including humans require water for their survival. Therefore, guaranteeing that sufficient supplies of water are accessible is fundamental for person. A typical clarification is that despite the fact that there is a considerable measure of water on earth, just around 2.5% is freshwater, and in light of the fact that the majority of water is put away as icy masses or profound ground water just a little measure of water is effortlessly available (Oki and Kanae, 2006). The more prominent part of this fresh water (68.7%) is as ice and perpetual snow cover in the Antarctic, the Arctic, and in the mountainous regions. Next, 29.9% exists as fresh groundwaters. Only 0.26% of the total amounts of fresh waters on the Earth are concentrated in lakes, reservoirs and river systems where they are most effortlessly open for economic needs and totally imperative for water biological systems (Shiklomanov, 1998).

Industries, educational and research institution, commercial complexes and many other government and non-government organizations utilize water for their different purposes. Its needful utilization, supply and disposal are directly related to wastage and health of nearby flora and fauna as well as effect in the environment. Therefore routinely monitoring the water

status of such organizations is very important. Keeping in this mind inspection of water situation of Govt. Digvijay Autonomous PG College Rajnandgaon (GDACR) was done. The water audit includes incorporates examination of water assets, its supply, utilization, status and purity of drinking water, disposal and conservation of water and so forth.

## MATERIALS AND METHODS

### Study Sites

Govt. Digvijay Autonomous Post Graduate College Rajnandgaon (GDACR) is one of the most seasoned educational institute of Chhattisgarh and old Madhya Pradesh come into existence on 13<sup>th</sup> July 1957 as the consequence of donation of visionary identity Late Mahant Raja Digvijay Das who donated his own palace, land of more than 10 acres and cash. Presently the college has more than 20 post graduate courses and around 6,000 college and non college students. Water is all around the college in light of the fact that the campus is situated sandwiched between two large ponds Ranisagar and Budasagar.

### Survey

The survey site includes laboratories of botany, zoology, microbiology, chemistry and biotechnology, botanical and other gardens, boy's hostel, bathrooms, water coolers (RO and UV system), play ground and auditorium. The auditor was also visited to staff colonies.

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Survey includes on site observation and discussion with charge staff and officers.

## RESULTS AND DISCUSSION

In view of the above study the results of the water audit is abridged here with different subheads –

### Water Resource and Supply

The GDACR has own resource of water to supply the entire establishment aside from staff settlement. The water necessity of staff settlement is satisfy by Municipal Corporation of Rajnandgaon city. The organization asset incorporates two bore well (21°5.47'N to 81°1.836'E and 21°5.483'N to 81°1.798'E) and two hand pumps (21°5.524'N to 81°1.737'E and 21°5.504'N to 81°1.785'E). Institutional water supply includes laboratories, gardens, boys hostel, library, girls common room, bathrooms, water coolers, auditorium so on while city supply covers staff province phase 1 and phase 2. The water is supplied by galvanized steel (metal) pipe lines, it is about 12,000 to 1,500 meter.

The bore well 1 arranged close cycle stand planned from morning 08 am to 04 pm (08hr) fulfill the 75-80% institutional requirement while bore well 2 situated near chemistry department scheduled for 03hr fulfill the 20-25% prerequisite. The hand pumps are slightest used wellspring of water contributed just 1-3% of water supply. The administration of pipe lines and capacity tanks were done already on June 2016. The city supply to the staff province planned morning and night 1 and half hour.

GDACR is facilitated with water coolers with reverse osmosis (RO) and ultra violet (UV) treatment for drinking water. The drinking water facility is accessible in the accompanying areas Administration Office (81°5.481'N to 81°1.844' E), IQAC (81°5.494'N to 81°1.806' E), Chemistry department (81°5.485'N to 81°1.818' E), Mathematics department (81°5.465'N to 81°1.795' E), Botany department (81°5.509'N to 81°1.771' E) and Botanical garden (81°5.513'N to 81°1.813' E).

### Water Consumption

For the most part institutional water is devoured by laboratory (30-35%) which includes laboratory of chemistry (300 liter/day), zoology (200 liter/day), botany (200 liter/day), biotechnology (50 liter/day), and microbiology (50 liter/day). The different gardens

including botanical garden consume 20-25% of total followed by bathrooms (15-20%), boys hostel (15-20%), drinking water (10-15%) and sports ground and other (5-10%). Pandit and Magan (2015) comparably assessed the water utilization amid green audit of Arts, Science and Commerce College, Manmad. The authors reported garden, laboratory and canteen were the most water expending destinations of college. Comparable finding was likewise found in present overview.

### Waste Water Disposal and Water Conservation

GDACR is running in the building donated by Raja Mahant Digvijay Das subsequently it is not an arranged working for institutional reason. The present building was the fort of old Rajnandgaon state. Thus, appropriate waste water transfer framework is not accessible in the college. Water releases from botany laboratory, boy's bathroom specifically join to the Budasagar pond. Only few overflow tanks and waste water utilizes in garden irrigation. National Service Scheme (NSS) routinely make deal with filtration of Ranisagar pond.

### Improvement Sites

As the main building is excessively old so seepage of water is observed during investigation. Laboratory squander water join to the Budasagar pond ought to be kept away from and oversee. Rain water harvesting is need in the coming construction and furthermore to the old building. Reutilization and reusing is extremely constrained.

## CONCLUSION

The green audit is not only necessary to NAAC evaluation but more to care the environment. The educational institute utilizes water, energy, chemicals, gases, metal equipments and some time radioactive and carcinogens. Their proper utilization is always necessary because it may harmful to the people surrounding and environment. Water is very essential because it is utilizes in laboratories, canteens, gardens, hostels etc. The college utilizes water from own sources. Its utilization was found as per the need. Maximum water is utilizes in laboratories, washrooms, gardens etc. The pipelines and tanks were maintained periodically. But it is needed to make a effective plan for water recycling, wastage from outflow and rain water harvesting.

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