

BEYOND EXPECTATIONS

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# SMART WATER & WASTE WORLD

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# SMART & RESILIENT CITIES

TECH FOCUS: AMI, LEAK DETECTION,  
MICROPLASTICS, SEWAGE, ZLD



**TALK OF THE TOWN**  
COVID-19 AND WATER ENTREPRENEURS

**PROJECT TRACKER**  
ABENGOA, DUPONT/USAID, WPL

**OUT OF THE BOX**  
CONSERVE, RECYCLE AND INNOVATE

**MUNICIPAL WATER**  
SAVINGS THROUGH SERVICEABILITY



# SMART & RESILIENT CITIES

Will the smart cities projects prove to be a much-needed engine of growth for the water industry? Technology providers, project companies, urban water experts, and consultants share their experiences.

COVER IMAGE: MIKE RASCHING FROM PIXABAY

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# DARRIPAR POND RESTORATION PROJECT

In June 2019, the Public Health Department disqualified five ponds located in ward-two under the Janjgir-Naila Municipality Council. Pathogenic bacteria were found in the water of these ponds.

By Madhukar Swayambhu



Darripar Lake, Janjgir, Chhattisgarh

Janjgir-Champa, the district of Chhattisgarh, the reservoir state, and the city Janjgir-Naila in it. The city is the same as the district and the state, full of water bodies. That's why the state ranks numero-uno in the count of water bodies among all the states in the country.

This story started in Janjgir-Naila town when, suddenly, people started reaching the state hospital, suffering from diseases like diarrhea, vomiting, severe indigestion, and loose motions. The nightmare of the Public Health Department had started and the investigation of the case started almost on a war footing. It was found that the cause of contamination of diseases was water used for "Nistari". Now it becomes very important to understand the process of "Nistari", otherwise both the subject and the solution will go beyond the scope of this article.

Today, we all know that the supply of clean water is a basic requirement for humans. Around 150 to 200 liters of water per person per day (35 to 40 gallons) is sufficient for human needs.

The consumption of water varies according to the climate and standard of living of the person. The supply of pure water is very important for human health.

About 95 percent of the people living in rural areas use the pond water in some form, whether it is the act of bathing, washing or defecation, or even cooking.

In the state of Chhattisgarh, about 70 percent of the population lives in rural habitats and 30 percent in urban areas. Therefore, in almost all the small towns except the capital Raipur, the practice of rural customs is still established. One of the main customs in these customary is "Nistari".

In rural areas, pond-water is mainly used in the disposal works, such as bathing, washing, cleaning (in clothes, utensils and any other cleaning work, etc), or for drinking and cooking. The use of water is well known for irrigation, for industries and for meeting various needs. The reservoir is used here for all these requirements, and this process has been termed as "Nistari".

In June 2019, the Public Health Department disqualified five ponds located in ward-two under the Janjgir-Naila Municipality Council. Pathogenic bacteria were found in the water of these ponds. The deadliest contamination of these was found in two ponds - Darripar Talab and Juna

Talab. And this is the story of the Darripar Lake.

The water of the Darripar pond was found to be infested with various lethal bacteria, the main ones being - Escherichia Coli, Klebsiella, Enterobacter, Cyntrabacter, Edwardsville, Streptococci, Clostridium, etc. And these bacteria are the cause of lethal diseases like Diarrhea, Cholera, and Typhoid, etc.

The Public Health Department instructed the Janjgir-Naila Nagar Palika Parishad to dry these ponds with the immediate effect, desilt from the bottom by dredging, and at the same time discharge the silt and recharge the water. All five ponds should be declared prohibited for use, because their water is harmful to public health.

Now, where this development was happening at the local level, the Ministry of Jal Shakti was formed at the national level, the water crisis in Chennai was al-

## PROJECT FACT-FILE

- **Project Name:** Ecological restoration of the lake
- **Lake:** Darripar Lake
- **Place:** Janjgir-Naila, Janjgir, Chhattisgarh, India
- **Longitude, Latitude:** 22°01'25.6"N, 82°34'06.7" E
- **Surface Area:** 3.06 Acre
- **Technology:** Cownomics®
- **Period:** 02.09.2019 - 01.10.2019

ready at a catastrophic level, the meteorological department had announced the delayed arrival of monsoon, the complete country was apprehensive of the disaster of drought and a huge water stress. Meanwhile, Jal Shakti Minister Shri Gajendra Singh Shekhawat announced the Jal Shakti



Pre-Treatment Situation and Early Stages of the Lake



One Month Challenge to Make it Fit for "Nistari"

Abhiyan from the first of July, whose main objective was water harvesting, water conservation and recharge of groundwater by collecting rainwater. Now, under these circumstances, it wasn't an appropriate decision to waste 37 million liters of water, so the exploration of alternatives started.

On the other hand, the problems of the local residents were also increasing, although the lake was not being used for "Nistari", but the entire vicinity of the lake was filled with a decaying odor, innumerable mosquitoes, and aquatic insects thriving in the water, the itching on the skin just by coming in contact with water, etc, remained formidable obstacles for the inhabitants. Apart from these, the fear of the outbreak of epidemic vector-borne diseases (like Dengue, Chicken Guinea, Malaria, Filariasis, etc) was also feared. They took a two-pronged approach, on one hand they started drying the lake while on the other hand, the search for

other options started on a war footing.

Under this option's search, CEO, Zilla Panchayat, Tirath Raj Agarwal found a unique alternative in an ongoing ecological restoration project at Motipur Kai Pond in Rajnandgaon. That was Cownomics®.

At first, this technique appeared to be purely revolutionary and unconventional, so it was difficult to believe.

But if it proves to be effective, then there was no better alternative - just one solution to fix all the issues in the most effective and sustainable way.

Therefore, the administration came out with a unique method, so that snake dies and yet the stick also doesn't get broken.

The administration took it as an experiment, and contracted with the service provider that if they made the pond free of contamination and fit for "Nistari", then only the service fee would be payable, and the given condition

was accepted by the service provider without even raising an eyebrow. And thus began the revival of the Darripar lake.

It was very easy to work in this method, perhaps the development of the Cownomics® methodology was done keeping in mind the facilities and available arrangements of the local bodies. The key requirement was of 5,000 liters of fresh water tanker and a pump, which is anyways available with every panchayat, municipal council and Municipal Corporation. The project implementation group, simply dilute the Cownomics® mother concoction material into fresh Water of the tanker and this dilution is sprayed through the pipe on to the surface of the water body.

When sunlight falls on the surface of the reservoir, it acts as a trigger and boosts up the positive energy to restart the aquatic ecosystem, thereby restoring the aquatic food chain and eradicating the biological contamination, balancing the living Water internal chemical and biological structure. And making it free from chemical pollution and biological contamination, ecologically. Thus being the most sustainable, fastest and yet most effective too.

The third phase of treatment

was completed on 9<sup>th</sup> September 2019 and during the treatment, it was found that people had already started using the pond water. The administration itself was stunned to hear the experience of the local residents. There was no foul odor, no itch, no mosquitoes, no insects, and no algae - And to top it all, this wasn't being certified by any test laboratory (because the lab's test report had not yet arrived), but the local residents had their direct experience. Those residents who were not even going near the lake earlier, were now bathing with the same water, washing clothes and utensils, the water was now suitable for use (Nistari) for all practical purposes.

The next phase of treatment was completed on 12<sup>th</sup> September 2019, amid torrential rains.

Thus, the reservoir was found "Good for Nistari" in mere one month of the pre-decided time frame.

**About the Author**

**Madhukar Swayambhu** has been an IT professional for 25 years. The Environment, Ecology, Vedic Sciences, Sanskrit, and Indic knowledge have been his passion. It started taking formal shape in 2011 while research and studies continued along with the profession. By 2014, the R&D and studies had taken some shape to create a formal legal entity. In the year 2016, they decided to take a full-time plunge and convert their passion into a profession.



**Vedic Cownomics Pvt Ltd** is a result of this journey in which "They make ecology alive".

Parameter	Pre-Treatment	Post-Treatment (After 30 Days)
Cheela (A Kind of Water Weed)	Lake was heavily infested with the water weeds that grow from bottom towards surface.	It had dried down in the entire lake.
Itching on Skin	Just the touch of water caused epidermal layer itching.	This had gone by the 7 <sup>th</sup> day of treatment itself.
Foul Odor	There was unbearable decaying smell all across the lake vicinity.	This disappeared just by the 3 <sup>rd</sup> day.
Mosquitoes & Aquatic Insects	Uncountable population was there.	Mosquitoes disappeared quite fast, probably within a week and by the end of the treatment all insects also disappeared.
Heavy Water	They call it "heavy water" in local language, there are no waves in such water. Bathing and washing is a very unpleasant experience in such water.	That "heaviness" is gone now. Water is light, wavy, and pleasant. Completely in its natural state.