

Building Urban Waters For Water Management And Resources In India.



Project Overview

Wipro foundation (Our client) requested for a platform that could encourage collaboration from different cities for urban water resource management. The initiative's focus was to build a shared space that connects practitioners, researchers, citizen activists, and communities who want to raise concerns about the water-related challenges in Indian cities.

DRC Systems was assigned the design and development of this platform from scratch. Our primary objective was to transform the Urban Waters vision into an efficient digital platform that can support information sharing, community engagement, resource discovery, and collaboration across different cities, while being user-friendly and interactive.

Key Objectives

Besides building the platform from scratch, the project also demanded several specific requirements for raising awareness and topic discussions with different user groups across cities. These objectives included:

- Role-Based Access Control:** A secure login system with access levels available for super admins and city-specific admins.
- Multi-City Admin Panels:** Admin panels were built for every city (Bangalore, Chennai, Hyderabad, and Pune only) to manage local content, contacts, events, and articles.
- Service Provider Directory:** Create a listing page for water-based service providers, with information like contact details and the solutions they provide.
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- Event Management:** Tool integration that helps schedule and book events based on water resource management and awareness sessions.
- Community Forum:** Creating a portal for users to publicly discuss and engage in water-related topics, share insights, and raise awareness at the community level.
- City-Wise Article Publishing:** Building a page dedicated to the latest posts and articles published based on individual cities, allowing localized knowledge transfer.
- Case Studies and Featured Resources:** Implementing a section for users to view real-life projects and case studies from different cities.

Key Challenges

Some of the challenges that we faced while developing Urban Waters for our client are:

Multi-Tiered Access Control

Developing a safe and secure access system divided into super admin and city-specific admin control without breaching data privacy between cities.

Localized Content Handling

Ensuring that articles, resources, service providers, and events are segmented individually across different city dashboards.

UI/UX Interface

Building an intuitive user interface for both administrators and public users for different requirements in functionality and accessibility.

Advanced Filtering

Creating a filter that could handle dynamic data sets, including service providers and resources, without impacting site performance or user experience.

Security Concerns

Safeguarding the platform from online threats like XSS attacks, login abuse, and host header injection, while also managing IP-based access controls without third-party reliance.

Solution Provided

We designed and developed a fully customized website on WordPress as both the content management system and development framework

Admin And Access Control

- We provided role-based access through WordPress backend services developed with custom PHP logic, allowing super admins complete control while city-level admins have region-specific control.
- Backend access was also secured through IP restrictions that were configured with server-side settings and validated through PHP backend logic.

User Interface Development

- From wireframes to the final layout was developed with custom WordPress plugins and jQuery for dynamic interactions.

Resource And Service Provider Development

- The directory of service providers was developed with custom post types and meta fields in WordPress using PHP backend logic with jQuery to develop interactive content blocks.
- We also provided an advanced filtering system using AJAX calls with jQuery and custom PHP queries for users to sort information based on city and services provided.
- We added city-based categories to organize case studies by location in WordPress, as frontend templates rendered city-based stories with PHP and MySQL.

Content And Information Management

- With WordPress' built-in publishing system, we made a web page for articles and blog posts that delivers city-specific information to the viewers using custom fields for tagging and categorization.
- We also made a publishing portal using WordPress' customization tools and PHP that helped city admins to post updates, insights, or news.

Community Engagement

- A forum section was built using WordPress plugin to maintain performance and moderation on the platform, allowing logged-in users to participate in conversations.
- We also integrated event creation and scheduling tools with custom post types and backend forms through jQuery pickers and filters that help admins create, edit, and manage events through the dashboard.

Security Measures

- Across all forms and inputs, preventive coding practices were used through validation that prevents the addition of harmful scripts in forum replies or article content.
- CAPTCHA integration was added to registration and login forms with WordPress' security plugins that were manually configured for bot protection and performance.

Tech Stack



Business Impact

The website for Urban Waters was beneficial to Wipro because:

Local participation

The website delivered region-specific content and forums, allowing the logged-in users to participate in the conversations about water-related activities in their cities.

Water sector-related knowledge

The platform became a public knowledge hub on water sector-based case studies, information, and service providers, which made the information accessible through a single place.

City-level management

Creating independent panels for each city allowed admins to gain full control over local content without the risk of data overlaps. This allows them to respond to their regions more efficiently.

Improved information access

Simple organization, public access to service directories, and open forums help the website to raise awareness about water resource efforts and community development.

Conclusion

This project allowed the organization to bring together region-based information, community engagement, and admin management in a unified system. It almost serves like an engagement platform for the audience that supports urban water awareness and management, simplifies local administrations, and allows public participation within a digital platform.

