**Shivaur Project Page Content**

**1. Renewable Energy**

**Solar Pumping Plant Projects**

What It Is:

Set of solar panels and solar-powered pumps for water supply systems in most rural and off-grid areas.

How It's Done:

Starting with a site assessment that directs the best angle the panel will face to capture maximum energy, the design of such a system consists of a solar panel, an inverter, and a solar pump. The panels are fixed on rooftops or ground-mounted structures, with pumps connected to the water supply system. Solar-powered systems reduce energy costs and ensure a reliable water supply. Testing of the system to meet the requirements of energy output and pumping capacity is done before commissioning.

Solar Pumping Plant Projects were successfully executed in the following areas:

Ichak - Hazaribag DW&S Division

Ranchi - DW&S Division

**Rainwater Harvesting Project**

**What It Is:**

Rainwater harvesting gathers rainwater falling on rooftops and other surfaces for utilization at later times. A good part of this harvested water in some of the projects has been used to irrigate dug wells, thus replenishing the groundwater level and sustainable use of water for agriculture and the like.

**How It's Done:**

Rainwater is collected through gutter systems from rooftops or exposed surfaces, filtered, and directed into storage tanks. For example, the locally stored water in certain projects is transferred to dug wells to replenish the groundwater table so that wells for irrigation or domestic consumption have a steady supply of water. This eliminates a partial loss of water through underutilized sources of water and thus reduces reliance on foreign sources of water. The system collects the maximum amount of water during the rainy seasons and distributes it efficiently for well irrigation and all nonpotable purposes.

**Rainwater Harvesting projects were successfully executed in the following areas:**

Police Academy Rajgir

Aaranya Bhawan Patna

Sikh Bhawan Patna​

Different Places of Jharkhand

**2. PHED Water Supply Projects (Har Ghar Nal Ka Jal / Jal Jivan Mission)**

**What It Is:**

These are the projects that are part of the government programs for clean drinking water to reach every household through a network of pipelines and water supply systems.

**How It Is Done:**

The development process starts with the planning of the distribution network, including laying pipelines, establishing reservoirs, and installing water meters. The engineers survey the area, design the pipeline routes, and select appropriate materials such as HDPE, MS, and CI pipes. Constructions are basically carried out by trenching, laying pipes, and connecting them with water sources and distribution points. Pumping stations may be put in place to keep the water at pressure. It is also put through rigorous testing before induction into use so as to ensure the constant supply of water at each household connected with it.

**This Project is successfully executed in the following areas:**

Nonhi - Jahanabad PHED

Waina - Jahanabad PHED

Maharajpur Panchayat - Purnea PHED

Amor Panchayat - Purnea PHED

Kaja Panchayat - Purnea PHED

Saharsa PHED - Saharsa

Ichak - Hazaribagh DW&S Division

Ranchi - DW&S Division

PHED Sasaram - Sasaram

**3. Irrigation Projects**

**What It Is:**

Irrigation projects are supposed to supply regulated amounts of water to farmlands, parks, or green spaces, among others; this is also aimed at the cultivation of plants. Such systems are mainly utilized in areas with a small amount of rain, besides where good sources of clean water are limited.

**How It Is Done:**

The simple irrigation system often comprises pipelines, pumps, and distribution networks whereby water is provided to targeted areas. According to crop-specific demands, other methods, such as drip irrigation or sprinkler systems, are utilized in an effort to apply water and conserve water without waste efficiently. Water used for irrigation could be from available rivers, reservoirs, or rainwater harvesting systems supplied to crops at convenient supplies.

**Irrigation projects were successfully executed in the following areas:**

Danapur Cantt

Bateshwarsthan

**4. Sewage Treatment Plant (STP) Projects**

**What It Is:**

The sewage treatment plant project encompasses designing, constructing, and installing mechanisms for sewage or wastewater treatment, thereby purifying the water for discharge into the environment or even for re-use.

**How It's Done:**

The work includes a site survey and an analysis of the quantity of sewage, along with its characteristics. The STP design, by the engineer, will consider the needed treatment capacity, MBBR technology, or conventional methods. The civil construction may be prefabricated in-situ civil construction or at any other site and installed at this place. Settling tanks, bio-reactors, filtration units, and disinfection systems are some major components. Further, the sewage inflow and outflow systems are connected to the STP, followed by testing and adjustment to achieve the regulatory standards.

**This Project is successfully executed in the following areas:**

Prakash Punj - Patna (100 KLD Prefabricated STP)

Purnea Polytechnic College - Purnea (160 KLD STP)

Sasaram Engineering College - Sasaram (300 KLD STP)

**5. WTP Project (Water Treatment Plants)**

**What It Is:**

A water treatment plant is basically used to purify raw water for drinking, irrigation, or industrial supply. It removes any harmful contaminants, impurities, and microorganisms from water so that it can be utilized as per a quality standard for drinking, irrigation, or even industrial purposes. WTPs will be of extreme importance in supporting a safe supply of healthful drinking water, providing irrigation support, and serving the water needs of the industry. Depending upon the local water conditions and requirements, as well as government and regulatory requirements, each water treatment plant is designed differently and hence customized according to purpose and environment.

**How It's Done:**

A general WTP begins by conducting a basic raw water analysis to derive the different treatment processes necessary, such as filtering, settling, and disinfection. This plant is then designed on a customer-to-customer basis or based on the requirement of filters, chemical dosing systems, and storage. Then comes the testing after installation and subsequent operations after construction or renovation.

**This Project is successfully executed in the following areas:**

Patna High Court - Patna

WFP Sheohar - Sheohar

PHED Purnea - Purnea

PHED Saharsa - Saharsa

Sasaram Engineering College - Sasaram

AIIMS - Patna

Bapu Tower - Patna

Lord Buddha Koshi Medical College - Saharsa

CPWD Birpur & Fatehpur - Birpur & Fatehpur

Govt. Engineering College - Sheikhpura

**6. HYPN Project (Hydropneumatic Systems)**

**What It Is:**

Hydropneumatic (HYPN) systems are designed to maintain water pressure in the distribution system, which causes the water to run continuously.

**How It's Done:**

A hydropneumatic system is a design that actually draws up the demand for water in a facility so as to maintain constant pressure. Tanks and pumps are installed with the explicit purpose of regulating action given by the pressure on the water. When fitted, the pressure of the system is tested and monitored over time to ensure that it can maintain the parameters required for an effective water supply.

**This Project is successfully executed in the following areas:**

Patna Airport - Patna