



## *Gujarat Technological University, Ahmedabad, Gujarat.*

A Brief Report of

### Vishwakarma Yojana: An Approach towards Rurbanization

#### **Background of the Project:**

The **Gujarat Technological University** has been allotted an important and prestigious project of Vishwakarma Yojana by the Government of Gujarat for the year 2012-13. Vishwakarma Yojana would provide “Design to Delivery” solution for development of villages in ‘Rurban’ areas. The developmental work in villages that could under taken as per the need of the village in particular includes **Physical infrastructure facilities** (Water, Drainage, Road, Electricity, Solid waste Management, Storm Water Network, Telecommunication & other), **Social infrastructure facilities** (Education, Health, Sanitation) **Socio-Cultural Facilities** (Community Hall, Library, Recreation Facilities & other) and **Sustainable Infrastructures** (Rain water harvesting, Biogas plant, Eco Toilets, Solar Street lights & other) for effective development of Villages. “Vishwakarma Yojana” has provided the platform for real world experience to engineering students and simultaneously apply their technical knowledge in the rural infrastructure development. From the Techno Economic survey, Students have been identified the existing issues prevailing in villages and made the recommendations on the application of technology to achieve integrated and comprehensive development, through detail project report preparation and management. The approach like Vishwakarma Yojana is step towards nation development.

**Project Team:** Students from Civil Engineering (Degree & Diploma Course) and Electrical Engineering (Degree & Diploma Course) formed a team for each village.

#### **Rational of the Project:**

The Project has divided in two phase. In the **PHASE-I**, **Detail project reports of 68 villages during 2012-13** which have been prepared by 65 students of Degree Engineering, 126 Students Diploma Engineering & 18 PG students successfully submitted to all respective DDO in which present status and techno-economic survey of villages in 25 Districts of the state in terms of

basic and public amenities, essential commodities, other infrastructural facilities for the need of people and on the adequacy of the available resource with reference to the population of the village and growth of the area with the consultation of Local revenue authorities, TDO and DDO the future need of the village keeping to mind the need of days, future targeted population growth, growth of surrounding town or Taluka places etc.

Detailed Project reports have included the developmental work in villages that could under taken as per the need of the village in particular Physical infrastructure facilities (Water, Drainage, Road, Electricity, Solid waste Management, Storm Water Network, Telecommunication & Other), Social infrastructure facilities (Education, Health, Community Hall, Library, Recreation Facilities & other) and renewable energy (Rain water harvesting, Biogas plant, Solar Street lights & Other) for Sustainable development which were timely submitted to all the respective DDO for effective development of the villages in their authorities.

The comprehensive report of Phase-I has successfully submitted to the **Hon’ble Education Minister Shri Bhupendrasinh Chudasamaji** in the felicitation program of Vishwakarma Yojana Phase- I on 23<sup>rd</sup> November, 2013.

Success of phase I has led GTU to include 187 villages in phase II during 2013-14.

In the **PHASE-II**, 393 Students from 26 Diploma Institutes & 366 students from 23 Degree Institutes participated and prepared Detail Project Report with development strategies and action plan by have been divided Techno-economic survey of villages, Plan and estimate of proposed development by finding Gap analysis. Detailed Project reports have been included the developmental work in villages that could under taken as per the need of the village in particular Physical, Social, Socio- Cultural, Sustainable infrastructure facilities and repair & maintenance of existing facilities.

## **Aim of the Project:**

**“Developing village with a ‘rural soul’ but with all urban amenities that a city may have”**

Aim of the project is to provide urban amenities in rural areas while maintaining the rural soul. This will help in developing villages in sustainable manner, reduce migration from villages and prevent the cities from the urban pressure.

## **Objectives:**

**Creation of infrastructure - connectivity, civic and social infrastructure along with provision of alternative livelihood generation are the key pillars.**

- Basic **Physical Infrastructure** – Water Supply, Transport, Sewerage and Solid Waste Management should be the priority focus and be provided.
- Basic **Social Infrastructure** – Health and Education facilities should be provided and ensure proper delivery of facilities to village dwellers.
- Promote integrated development of rural areas with provision of quality **housing**, better **connectivity**, **employment** opportunities and supporting physical and social infrastructure.
- Reduce **migration** from rural to urban areas due to lack of basic services and sufficient economic activities in rural areas.
- Internal roads within village settlement, Efficient **Mass Transportation systems** to improve connectivity between urban and rural areas, Public transportation facilities that need to be developed like bus stops, transport depot etc
- Identification of **sanitation** facilities that need improvement – sewerage and drainage line for household connection, door to door solid waste collection & dumping facilities
- **Electricity** connections like street lighting that is energy efficient and eco-friendly
- Refurbishing of village lakes, water tanks and wells, construction of **rain water harvesting structures** for sustainable Development.
- Development of **socio culture facilities** like **community hall, public library, recreational activities** and repairing of existing amenities
- **Repair & maintenance** of Existing Public Buildings like Gram Panchayat, Public Library, School Buildings, Health Center, Public Toilet Block & Other.

**Methodology-Implementation:** The techno-economic survey of villages has been conducted in different districts of the Gujarat state in terms of basic and public

amenities, other infrastructural facilities. The project had been divided into three parts:

**Techno-economic survey of villages:** Collected all essential information from village such as: Household data, Occupational detail, Water facilities, Drainage facilities, Sanitation availability, Storm water network, Solid waste Management facilities, Electricity Networks, Recreation facilities, Education facilities, Health Facilities, Transportation facilities, Road network, Irrigation system, Use of non-conventional energy sources, Migration rate, Literacy rate and other necessary data.

**Development document preparation:** Plan and estimate of proposed development by assessing gap analysis

**Detailed Project report (DPR):** Preparation of development strategies and action plan

**Data Analysis:** GAP analysis for all the selected villages were performed by comparing existing with the required facilities. Rural Planning Norms and UDPFI (Urban Development Plans, Formulation and Implementation) guidelines were taken as a reference for providing infrastructure facilities.

**Design Proposals:** As per the gap analysis the proposed development and planning strategies have been designed as per all the regulations and norms along with the consultation of concerned Government Officials (TDO, DDO & Sarpanch). Students of all respective villages have prepared design proposals for essential infrastructure facilities, prepared ready to execute documents, Detail estimates with abstract sheet, Measurement sheets, Recapitulation Sheet and Detail Drawings.

In the designing Phase, the students have proposed various designs from the

- **Physical infrastructure facilities** (Water, Drainage, Road, Electricity & Solid- liquid waste Management)
- **Social infrastructure facilities** (Education, Health & Sanitation facilities)
- **Socio-cultural facilities** (Community Hall, Library, Recreation Facilities & other)
- **Sustainable infrastructures** (Rain water harvesting, Biogas plant, Solar Street lights, Eco sanitation & other) and
- **Repair & Maintenance** of public buildings for overall development of village.

## Recommendations & Suggestions:

On the basis of Data analysis students have suggested various recommendations and suggestions for over all development of villages.

- For essential water distribution-**Rain Water Harvesting, Artificial Recharge, Recycled water from Sewage Treatment plant** can be effective future solutions.
- **Rain water harvesting system** has been suggested and planned for all the **Public Buildings** in Phase-I & Phase- II.
- 'Low-cost sewerage and sewage treatment system with total sanitation' has been suggested for few villages having problem of Land and water pollution.
- **Village approach road and internal road** for better Transport conditions of villages has been recommended.
- Identified **Electricity network problems & Energy audit** have been performed for various public buildings and solutions given with various non-conventional energy sources.
- **Integrated Sustainable Solid & Liquid Resource Management** - TAPI Model has been suggested for efficient Sewerage and Water Management services with less input, more outcome and livelihood generation for Villages.
- The Gujarat Government is promoting the **Total Sanitation Campaign (TSC) and Community Rural Sanitation Program** which is about to be implemented in all the selected villages for better sanitation facility.
- **Education facilities** from grass root level- **Aaganwadi to ITI** has been suggested and planned as per requirement.
- **Health facilities** such as **Dispensaries, Child welfare & Maternity homes, Primary Health Center and Community Health Centre** are recommended and planned as per norms and population growth.
- **Socio cultural facilities** like **Community hall, play grounds, Parks, Library, Garden, Eco parks, Beautification of pond**(water can be stored in monsoon), **Natural water sources beautification** and others have been suggested and planned for some villages.
- **Eco sanitation, Biogas Plant, waste to energy models** can be implemented in villages for sustainable development.
- **Fish markets, Agro based activity centers, politory farms, vegetable markets** and other proposals according to the locations have been suggested for

**livestock management.** More participation in scheme like Mahatma Gandhi National Employment Guarantee Act can become the better solutions for employment as well as village development.

## Project Activities:

The hard work, put in by the GTU students and faculty members, has made this project a great success. The design of the process, building capacities through state-wide seminar, meetings, workshop and a continuous set of motivational visits as in table have contributed to making the project a success during the second year as in Table. DDOs, TDOs and the local authorities have freely given their time and discussed with the students and Nodal Officers their vision for the future of the village. These discussions have formed an important resource for the success of the project.

## Achievements:

The contribution and the hard work put up by the GTU Students has made this project going on a smooth sail and indeed it is a huge success.

Pond development & Sunset point development is already implemented in the **Ahwa** village of Dang district by the authorities. Also the design proposed by students are going to be implemented by village authorities of **Bholav, Zadeshwar, & Palej** villages.

## Future Action plan:

- ✓ Maximum participation from NGO, Public Private Partnership authorities and other need to be identified for development process
- ✓ Involvement of stake holders from planning phase
- ✓ Developing new technologies for effective development
- ✓ Designing of Model Rurban Town
- ✓ More Expert sessions and Technical skill enhancement of Students

**Conclusion:** Long-range planning must take place in a public forum, with opportunities for public participation, if it is to be representative. The support of the community can also foster improved implementation opportunities. An approach that has been used successfully when planning for the future of a community involves preceding the planning process with an exercise designed to develop vision of the future for the "Vishwakarma Yojana". By developing Rural India, the future scenario for urbanization can be change in Sustainable manner.

## VISHWAKARMA YOJANA PROJECT

### *Highlights of the projects under Village Development*

Sr. No.	Particulars	VY Phase - I (2012-13)	VY Phase -II (2013-14)	MGNREGA & Clean Village : A step towards Clean India (2014-15)	VY Phase - III (2015-16)	VY Phase - IV (2016-17)	VY Phase - V (2017-18)
1.	No. of Villages	68	187	242	232	209	251
2.	Total no. of Institutes	28	49	33	59	58	43
	Degree Institutes	10	23	18	37	49	35
	Diploma Institutes	18	26	15	22	9	08
3.	Total no. of Students Enrolled	200 + 18 PG students	800	458	862	805	493
4.	Nodal Officers	32	61	33	74	94	65
5.	Orientation Program (To understand the concept of Project and work to be done for Village development)	---	05	01	02	02	01
7.	Technical workshop	---	04	01	02	---	01
14.	DPR Includes	Designs from <b>Physical infrastructure</b> facilities (Water, Drainage, Road, Electricity & Solid- liquid waste Management) <b>Social infrastructure</b> facilities (Education, Health & Sanitation facilities) <b>Socio-cultural facilities</b> (Community Hall, Library, Recreation Facilities & other) <b>Sustainable infrastructures</b> (Rain water harvesting, Biogas plant, Solar Street lights, Eco sanitation & other) and <b>Repair &amp; maintenance of public buildings &amp; Smart Village infrastructure facilities, Actual Village Survey, SAGY survey</b>					