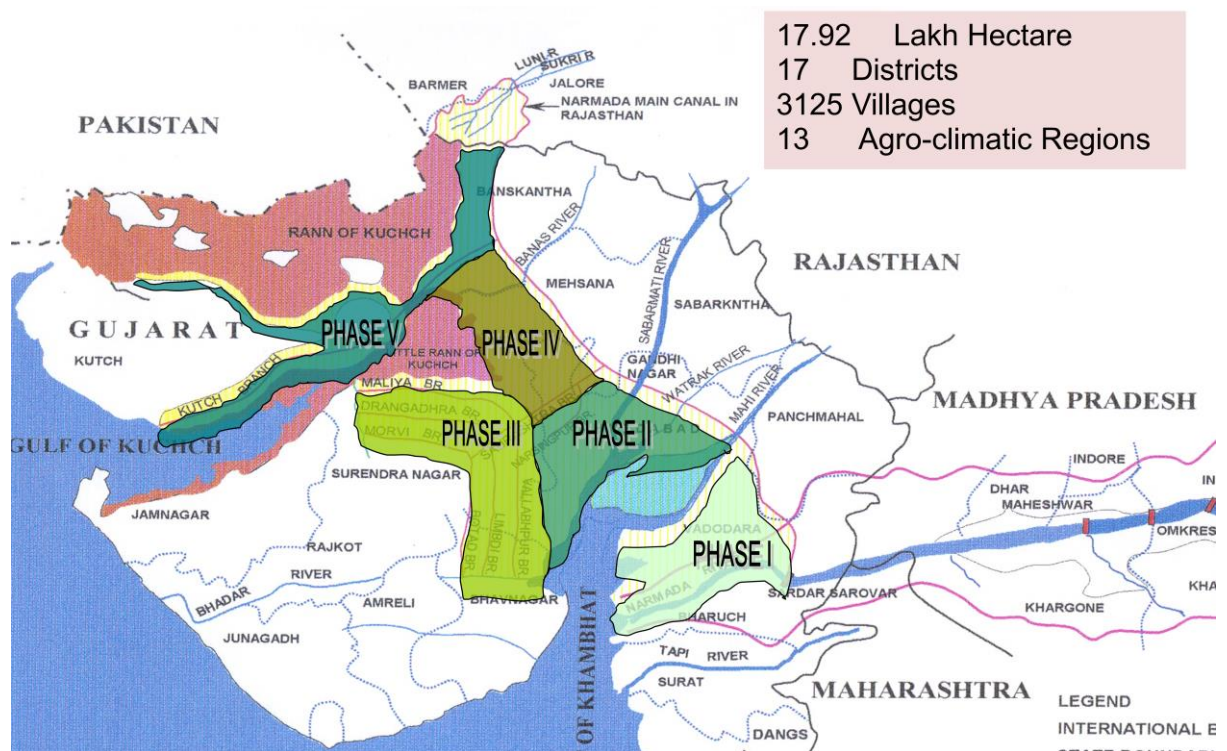


Report on Best Practices being followed in Water Resources/Irrigation – The UGPL Initiative in Sardar Sarovar Project, Gujarat

1. Introduction

The Sardar Sarovar Project (SSP) has a command area of around 17.92 lakh hectares. It covers 17 districts, 3125 villages & 13 agro-climatic regions. In the first phase of implementation, more than 15,500 km length of Underground Pipelines (UGPL) Sub-Minors was completed in just two years' time in 54 Talukas of 16 Districts with an average cost Rs. 41,081 per hectare. In the second phase, the work is in progress in another 4 lakh hectare area, out of which 1,35,480 hectares is completed by laying UGPL of 3620 km length.



SSP has largest irrigation canal network having a length of 71,748 km. Sub-Minors (the fifth level canal in the hierarchical canal network) form a major part – 48,320 km. (67%)

- Acquisition of private land was a major constraint in implementation of Sub-Minors and that was responsible for the gap between IP created and IP utilized.
- Government of Gujarat formed a new policy for Underground Pipelines (UGPL) Sub Minors with farmers' participation
- 97.5% cost is borne by the Government and 2.5% is contributed by the beneficiary farmers. It saves precious land as only Right of Use is required.

2. Need of UGPL

The Conventional System of Open Gravity Channels which was adopted earlier had many limitations. Due to which the effectiveness of such huge channel network reduces significantly. The followings are the main issues related to the Conventional System of Open Gravity Channels:

Limitations

- a) Permanent loss of land
- b) More time for construction
- c) Large nos. of Drainage Structures and Bridges
- d) Low Water Use Efficiency
- e) Vulnerable to damages / flooding
- f) Liable to Water-Logging and Soil Deterioration
- g) Reluctance of farmers due to limited land holding and fragmentation



Damaged Open Gravity channel

At that stage, the UGPL seemed a better alternative, which might be more efficient. The low vulnerability of UGPL to damage as compared to the open gravity channel makes it more practical in such conditions. The other advantages of UGPL are as mentioned below:

Benefits of UGPL

- a. Land saving and water saving (up to 10-20 %).
- b. Less implementation period.
- c. Feasible even in flood zone / Undulating area.
- d. Land fragmentation can be avoided.
- e. Field Channels can be integrated with the Sub-Minors & Minors
- f. Less expenditure.
- g. Future integration with PINS/MIS possible.

3. Underground Pipelines (UGPL) 2014

In alignment with the objectives of PMKSY, in 2012 the Government of Gujarat formed a policy for the construction of sub-minor UGPL with effective participation of Water Users' Associations (WUAs); the policy was revised in August-2014. The key aspects of the policy are:

- a) The group of farmers decides the alignment of sub minor.
- b) If sub-minor is underground, no land acquisition is involved; however, if open channel is opted by farmers, they contribute the land.
- c) 97.5% cost is borne by the Government and 2.5% is contributed by the beneficiary farmers (earlier, farmers' contribution was kept at 10% aiming for inculcating greater sense of ownership in farmers).
- d) Operation and maintenance (O&M) of the sub-minor will be responsibility of the WUA formed by concerned farmers.
- e) After finalization of agency by project authority, the agency has to consult beneficiary farmers and obtain consent of more than 50% beneficiaries for alignment of the pipeline and location of turnout.
- f) Letter of Intent (LOI) to the agency is issued after Tri-partite agreement is signed amongst agency, project authority, and beneficiary farmers. On payment of security deposit of 5% by the agency, work can be started.

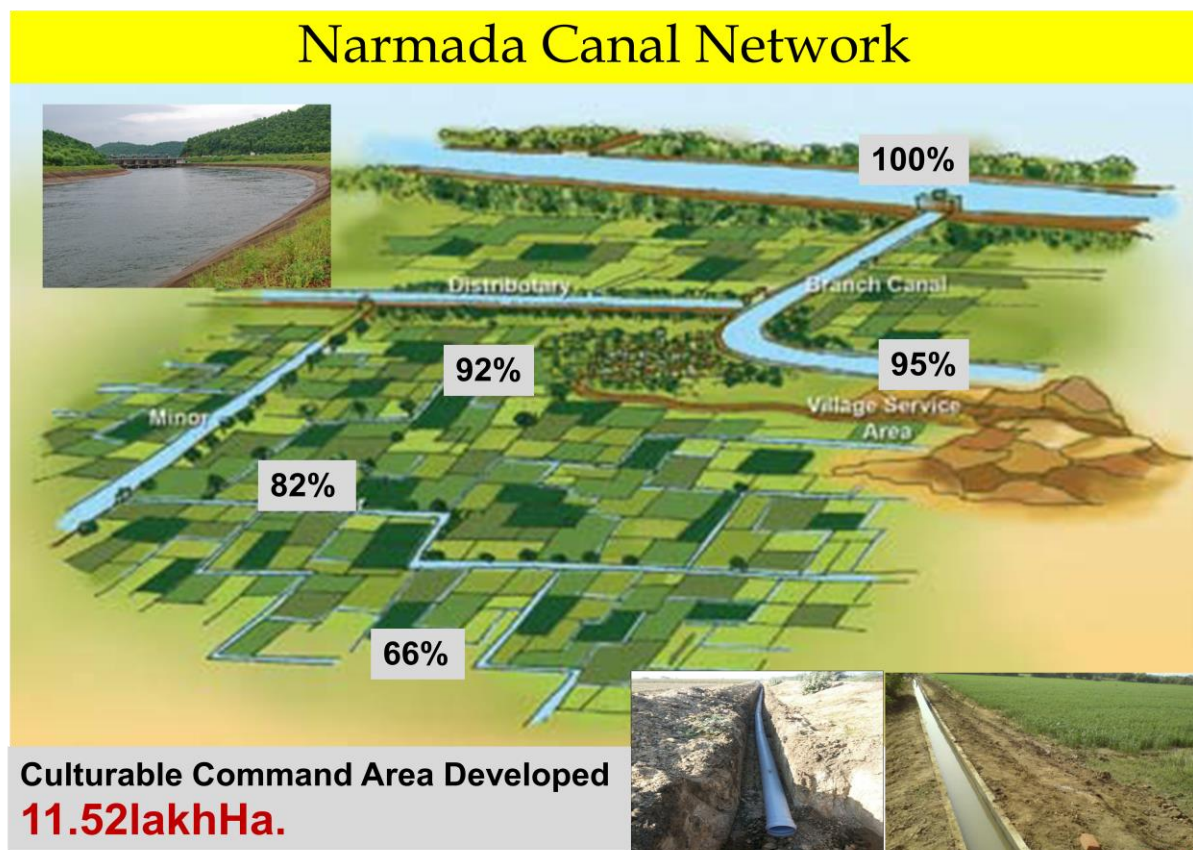


Laying & Stacking of PVC Pipes: Sokli U.G.P.L. Ta. Viramgam, Dist. Ahmedabad

4. Need of a Sound Policy for UGPL

The implementation of such a huge project requires a sound policy, which plays a very crucial role at different phases of the project. In SSP, several points have taken care of while deciding the policy, which has to be adopted for making the UGPL initiative successful. The key features of which are mentioned below:

- a) Alignment of UGPL and locations of Turn-outs to be decided in consultation with Farmers.
- b) Tri-partite Agreement (Beneficiary Farmers, Implementing Agency & SSNNL) for each Chak.
- c) Time-limit for UGPL Work – 3 Months.
- d) 5 years' Defect Liability to ensure Quality.



5. Irrigation Potential Created and Irrigation Potential Utilized

- a) Total Irrigation Potential Created by completing Canal network up to Minor till February-2018 is 14,86,854 hectare
- b) Total Command Area Developed by constructing Sub Minor till February-2018 is 11,51,856 hectares (1,64,080 ha up to Feb 2018 in 2017-18)

- c) Irrigation Potential Utilized during Financial year 2016-17- 6 is 28,011 hectare
- d) Irrigation Potential Utilized during Financial year 2017-18 (upto February-2018) is 6,64,000 hectare
- e) Irrigation Potential Utilized (as per Satellite imageries taken by Bhaskaracharya Institute for Space Applications and Geo-Informatics (BISAG) during Rabi) - 8,32,254 hectares.

6. Under Ground Pipe Line (UGPL) - Implementation procedure includes following steps:

- a) Consultation with Beneficiary Farmers after finalizing Chak and Sub-chak
- b) Fixing the UGPL Alignment and locations of Turnouts
- c) Preparation of Drawings
- d) Preparation of Estimates
- e) Technical Sanction to the Estimates
- f) Collecting 2.5% contribution from the Beneficiary Farmers
- g) Issuance of Letter of Intent (LOI)
- h) Tri-partite Agreement (Farmers, Agency & SSNNL)
- i) Payment of 5% Security Deposit by the Agency
- j) Issuance of Work Order



Jashpura UGPL, Ta. Detroj Dist. Ahmedabad



Turnout 2 of Sub-minor (FC) ex.-1610m left of Devgadh Minor

7. *Participation & Awareness of the people*

The active participation of the farmers, concerned officials and people is extremely important in these types of pilot initiatives. For creating awareness among the farmers frequent seminars & workshops were organized at village level. Through these the farmers may understand the importance of such Government schemes & policies and how much beneficial these initiatives are for their financial & social development.



8. Conclusion

The intervention using UGPL has brought immense benefits to the farmers of Sardar Sarovar Project, which includes:

- a) Saving of precious land as only right of use is required.
- b) Saving of precious water due to less conveyance losses due to evaporation and seepage.
- c) Tail-enders getting the water first.
- d) Less maintenance requirement.

The success story of UGPL in SSP is being appreciated by many participating States under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY); and some more States are expected to make use of UGPL in implementation in near future.