

Effective Water Management in Draught Prone Area: A Case of Successful Farmer's Co-operative Intervention in Warud Block, District of Amravati, Maharashtra State

(Under the scheme of Nagthana Small Irrigation Scheme)



The Innovation Described

Background:

Vidarbha region is located in the eastern part of the State of Maharashtra. Western districts of Vidarbha are known for their notorious draught prone climate. Historically parts of Amravati district are well known for mandarin productions in entire India. This region is the mandarin basket of India. Warud Block is located at N-E of Amravati district. Block inhabitants are dependent on primary sector for their livelihood. The average annual rainfall in Warud region is in the neighbourhood of 800-900 mm while storage/catchment of water is minimal. Over the past several decades' erratic rainfall, shrinking river tables has substantially reduced the water table in the block, thus, posing a major threat to its primary sector and thus socio-economic status of inhabitants. Lack of irrigation facilities left farmers to depend on rain-fed farming. Poor viability of agriculture left many to farmers to migrate to cities for work and few committed suicide, which is an aggravated problem in Western Vidarbha. Once known for its rich agricultural produce the region is struggling with grave issues like

effective water management. In this context this water saving initiative is very unique and is helping to change the agriculture landscape in Warud.

Project:

In mid 80s the irrigation department built series of weirs (KT weris) on the local river “Chudamani”. The project was expected to deliver 0.6 mill meter cube of water to 59 beneficiaries and 82 Ha of landowners in Warud. The project used lift irrigation method to deliver water to the beneficiaries. Due to poor grid connectivity, often the diesel pumps were used causing additional cost burden on the delivery mechanism. In addition, water wastage was rampant and in peak monsoon season extra water management was a big issue.

This mechanism worked till 2009-10. The losses caused during the water flow affected the overall throughput of the entire project and desired benefits could not be achieved.

Farmers Intervention through institutional set up:

In 2006, the farmers collectively came through an institutional set up “Dr.Sharad Drip Irrigation Water Utilization Co-operative Society Limited” at Warud. The members discussed the disadvantages of existing system and decided to modify using their own capital. They borrowed and invested Rs. 11,457,205 from local financial institution (Union Bank of India and Bank of Maharashtra) and built distribution chamber along the way, invested heavily into piping and filtration system. They decided to avoid water loss from earlier system by using drip irrigation method. By bringing water from 11 kms via 200 mm pipeline the distribution chamber was built in such a way that it provided natural head for the drip irrigation system, thus eliminating the use of electricity/diesel pump. Four water filtration units were installed which use sand to filter the water. To increase the transparency, water meter is provided at the off take. At present 0.5 mill meter cube of water is reserved for this project. One of the features of this project is that during the high monsoon period the added water is also diverted to the wells so that ground water table can be recharged. In addition, the government gets added revenues using water metering mechanism.

In 2011 the first test was conducted, the results were encouraging. Today, the area under irrigation has doubled to 145 Ha and number of beneficiaries has increased to 165 which is an outstanding growth. The availability of water has increased their socio-economic status. From the government’s stand point the revenue collection has gone up as the water use is metered. Rise in economic status has led to prompt payment of water dues by all the beneficiaries.

The project is currently being operated on cooperative basis and all day to day decisions are made by the committee.

Project Benefits:

- No carbon foot print. The current project saves approximately 159,524 Kwh of electricity or Rs. 1,595,246. This calculation is based on 6 months of drip irrigation. Thus, over the life of the project the entire savings could outweigh substantially the investment costs, making it highly profitable venture as well as environment friendly.

- Financially viable project. At present the water is charged at Rs. 10000 per MT yielding an income of Rs. 14,500,000 (based on 145 Ha. of irrigated capacity).
- The recharging of water table during peak monsoon table will ensure sustainability of water resources in the long run.
- Sand based water filtration.
- The use of drip irrigation will avoid the soil erosion.
- At present out of 140 Ha, 87 Ha. is under citrus fruits like oranges and citrus limetta (called mousambi). The project will enable farmers to switch remaining 53 Ha. To citrus fruits. The assured water availability will increase yield per Ha.
- Water usage efficiency is between 95%-100%, thus, minimising the wastage.
- This intervention will attract government interest as micro irrigation is priority agenda of government in draught prone areas.
- Drip irrigation helps reduce dependence on labour.
- It is estimated that average farmer's income will rise between 35%-42% p.a.

This project highlights the successful intervention by farmers on cooperative basis not only to save the water by optimising its usage but also to contribute to the government by paying their water dues on time. Increased productivity has yielded handsomely to the farmer's community and it is one of its kind of project which can be replicated in draught prone sectors of India and other countries.

Many visitors and farmers have visited the project. The project also won award from State Government of Maharashtra under water saving category.

Scope for Further Expansion:

The institutional set up currently prohibits extra water commitment from the irrigation department. The farmers down the weirs can avail benefits of existing scheme by setting up farmers' cooperative society and following the similar innovative irrigation model. The existing capacity of project is 212 Ha. this can be expanded up to 360 Ha. The model is very simplistic and can be replicated by building cooperative farmers institutions and extensive capacity building among the farmers. Government must also encourage/incentivise such farmer's cooperatives to take advantage of innovation in raising their socio-economic status. The financing required for project can be secured easily and shall not be a constraint. The farmers' cooperative society can share his best practices and train future beneficiaries across draught prone areas of India and World.

Key success factors:

- Strong visionary leadership of participating farmer themselves setting up as a role model incorporating best practices in water management.
- Co-operative work among farmers towards achieving shared vision of achieving maximum through put using limited water usage.
- Effective Public Private Partnership model to convince government officials of expected benefits of proposed scheme (as compared to the existing scheme deployed by irrigation department).

- Understanding of project and its benefits convinced banks to lend credit to the project, thus, enhancing its viability.
- Regular payment of water charges helped society to fulfil its financial obligations towards the creditors.
- Government's revenue increased as area under irrigation more than doubled with same amount of water committed to the project.
- Zero carbon foot print, low maintenance and sustainable project.
- Effective agriculture practices towards limiting the use of water.