



Coromandel



SECURE CROPS FROM DRY SPELLS THROUGH HYBRID MODE OF DIVERSE BASED IRRIGATION SYSTEMS

A CASE STUDY OF SUNNAMMETTA, SAGARA GRAM PANCHAYAT OF DUMBRIGUDA MANDAL, ALLURI SEETHARAMARAJU DISTRICT, ANDHRA PRADESH

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Sunnammetta, a small tribal settlement in Sagara Grampanchayat of Dumbriguda Mandal, is home to 45 families from the Nukadora tribal community. The total geographical area of Sunnammetta village spans 558.57 acres, distributed across various land uses. Podu land constitutes the largest portion at 243.35 acres (43.5%), followed by 115.6 acres (20.6%) of Coffee plantations and 66.55 acres (12%) of Mettu land. Additionally, the village includes 30.65 acres (5.4%) of Jolli, 36.46 acres (6.5%) of forest land, 23 acres (4%) of Sariya lands, and 18.46 acres (3.3%) under Mango orchards. Other land uses include 9.38 acres (1.6%) of grazing land, 4.98 acres of built-up area, 0.94 acres of permanent fallow land, and 10 acres dedicated to roads.



Farmers in Sunnammetta own an average of 2.5 acres each of Coffee and Pepper orchards, which serve as their primary income source. In the Podu and Mettu lands, they cultivate a variety of crops,

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including millets, sweet potatoes, niger, ginger, and pulses, diversifying their agricultural practices. Additionally, each farmer owns about 1 acre of lowland where paddy is predominantly grown. However, these lowland fields are often left fallow during the summer season, highlighting the need for improved irrigation management and the promotion of diversified cropping practices to enhance agricultural productivity.

In 2022, As part of landscape planning exercise farmers from this village identified the issue of a damaged check dam during participatory planning exercises conducted as part of the GP-level planning process, led by trained tribal youth. Several rounds of discussions were held with the community of Sunnammetta regarding the rejuvenation of the water harvesting structure, repair of the diversion canal, and establishment of a pipeline network to ensure water access when needed. The farmers agreed to the preliminary proposal and made a self-declaration to shift to Natural Farming. Following their consent, a survey of the plots was conducted, and the land was grouped into compact blocks. A senior engineering team then reassessed the damaged water harvesting structure and estimated the project cost for its renovation.

As per the Detailed Project Report (DPR), the total estimated project cost is Rs. 12.1 lakhs. This includes the renovation of the check dam wall, the repair of the canal, and the establishment of a pipeline network to benefit 24.4 acres of land owned by 22 farmers. Additionally, the project involves the excavation of a farm pond in the upper portion of the agricultural lands, with the aim of utilizing farm pond water for irrigation through gravity force. Two farmers, Gemmeli Seetharam & Gemmeli Nukaraju took the lead in mobilizing the community to implement the project. The farmers collectively contributed ₹75,000, which was used for earthworks and labor components. An underground pipeline network was established, covering the 24.42 acres, with irrigation outlets provided every 50 meters. WASSAN has pooled 75% of the total estimated budget, amounting to Rs. 9.12 lakhs, to establish the gravity irrigation system extending 512mts underground pipeline with 22 outlets. The remaining funds have been contributed by the community and deposited into the DIMSA FPO account, to be utilized for the execution of the project.

The community also provided additional labor support for extending the length of diversion channels and trench work required for the installation of the underground pipeline network. A hybrid mode of gravity-based irrigation system was



established to bring 48 acres of *Rabi* fallow lands into production. The two-member committee oversees and governs the irrigation system, ensuring its smooth operation. Under their management, approximately seven acres of land is irrigated daily, optimizing water usage and supporting sustainable agricultural practices in the village.

Since 2022, farmers in the village have been utilizing the irrigation system effectively, especially during the *Rabi* season. To address the challenges posed by limited water resources, they established norms prohibiting the cultivation of paddy during *Rabi*. Instead, they collectively decided to focus on vegetable cultivation during both the *Rabi* and summer seasons. Additionally, all paddy growers adopted the **SYSTEM OF RICE INTENSIFICATION (SRI) METHOD**, which minimizes water usage while enhancing crop productivity. As a result of these initiatives, the village has emerged as a resource hub for farmers interested in learning about natural farming practices and community-managed irrigation systems.

May 2023, the farmers established a shared *Drava Jeevamruth* (DJ) unit powered by solar energy. Four farmers owning cattle renovated their sheds and constructed urine collection pits to ensure a steady supply of raw materials. The unit is managed by Gemili Seetharam, with farmers collectively procuring the necessary materials for the

preparation of DJ. This initiative supports natural farming practices while promoting community-driven resource management.

The hybrid mode of Gravity Irrigation systems is highly recommended for areas with diverse canal irrigation needs, particularly in the high-altitude regions of the Eastern Ghats. A group of tribal farmers from Sunnam Metta village adopted this irrigation system and successfully managed to cover a larger area compared to traditional open canal irrigation methods. This innovative approach has helped them effectively save their crops and improve agricultural productivity.



The local DIMSA FPO stepped in to provide essential assistance, particularly in post-project maintenance, such as annual maintenance contracts (AMC). Farmers anticipate generating an

additional ₹25,000 per acre annually by cultivating summer crops, with the project expected to yield ₹5-6 lakhs from 24.42 acres every year.



“Expressing gratitude, Mr. Seetharam, a leader of Sagara Gram Panchayat, shared, “We had requested ITDA for the renovation of the check dam and a gravity irrigation facility but received no response.

Now, with the support of Coromandel CSR and WASSAN, our dreams have been fulfilled, and we are deeply thankful to the supporting agencies.”



THAMARLA SANJEEVARAO, a 65-year-old farmer from Sunnammetta village, owns 3.27 acres of land: 1.80 acres under podu cultivation, 0.34 acres of mettu land, and 1.13 acres of wetland. Traditionally, he cultivated paddy and millets during the *Kharif* season, leaving his land fallow in the *Rabi* season due to the lack of irrigation facilities. A diversion structure constructed by ITDA, 30 years ago had become non-functional, diverting water to another village. However, with joint efforts from the villagers and WASSAN, the structure was repaired, providing irrigation to Sanjeevarao's 1.13 acres of wetland.

With this renewed irrigation facility, Sanjeevarao, along with his son and daughter-in-law, began cultivating vegetables during the *Rabi* season. They grew chili, tomato, maize, coriander, and brinjal, earning Rs. 37,800 om total: Rs. 9,000 from chilli (30 cents), Rs. 6,300 from tomato (15 cents), Rs. 18,000 from maize (40 cents), Rs. 2,600 from coriander (10 cents) and Rs. 1,900 from brinjal (18 cents). Having adopted natural farming practices, Sanjeevarao now guides fellow villagers to grow multiple vegetable crops during the *Rabi* season, promoting sustainable agriculture and diversified income generation.