# Solar lift irrigation turns around farmers' fortunes in tribal village...

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Pedagaruvu, a tribal hamlet, Hukumpeta mandal (newly formed Alluri Sitharama Raju district), A.P.

Pedagaruvu is a tribal hamlet comprising just 74 families. It comes under Hukumpeta mandal in the newly formed Alluri Sitharama Raju district of Andhra Pradesh. Despite receiving good monsoon, agricultural lands in this village are left fallow during the summer and the winter seasons (November-May) when most of its residents migrate to cities in search of work.

o prevent migration, Hyderabad-based non-profit WASSAN helped develop and design a community-based solar lift irrigation project in the village last year. The aim was to help farmers cultivate lands during these seven months in the absence of rainfall and ensure additional income generation. For this, the water of a nearby perennial stream was diverted to farmers' fields on a sharing basis through a network of outlet pipes.

Pedagaruvu's dominant Adivasi communities are the Konda, Kammara, Kotia, Konda Dora and Valmiki. Agriculture is the mainstay in the village with people also depending on labour work offered through MGNREGA, masonry jobs and goat rearing activity. A total of 200 acres of land is available in the village. Farmers mainly grow crops like groundnut, Korrasama, a short-duration variety of little millet, turmeric, ginger, ragi and paddy during the Kharif season, thanks to good monsoon.

Apart from these crops, indigenous varieties of turmeric and long pepper are also cultivated. The duration of these crops is 18 months. Farmers choose specific plots which offer shade to these crops and can retain moisture for a longer period of time. About 20 percent of the total land area in the village is occupied by these crops and the remaining 80 percent of the land is left fallow from November to May.



the upper portion, the rainwater which falls on the ground also directly goes and joins this stream. For a long time, farmers were unable to use this water. But the solar irrigation project has given them access to irrigation. Last November when the project started, they earned an additional income of Rs 30,000-Rs 40,000 per acre.

For this, WASSAN's field team

# **Coming to farmers'**

#### rescue

WASSAN has carried out several initiatives in the tribal areas of Andhra Pradesh for utilising surface water either through means of gravity or by lifting it. Due to the lack of three-phase electricity connectivity in the village, farmers in Pedagaruvu were unable to use pump sets to lift water from the perennial stream for irrigating fallow lands. A few farmers tried using diesel pump sets but could not continue due to an increase in production cost.

In Pedagaruvu, the perennial stream which flows close to farmlands goes and joins the main river. As the lands are in

undertook a participatory planning with Pedagaruvu's farmers and explored several possibilities on how to secure crops in the summer and winter months when lands remained fallow. A transect walk was done during which lands and water source points mapped.

The perennial stream, known as Pedda Gedda, flows 15 metres below the elevation of the lands. In the absence of electricity, farmers decided to use solar power to lift water from this stream and supply it to their fields. As per technical experts, 10 Hp solar power can be used to irrigate 50 to 60 acres of land. The beneficiary farmers have divided their lands into two patches to an extent of almost 60 acres each.



The total project estimate is worth Rs 13 lakh. Farmers started exploring possibilities to invest as part of their contribution towards the project. With support from the Azim Premji Philanthrophic Initiatives (APPI), WASSAN mobilised approximately Rs 6.5 lakh of funds and the remaining project cost was borne by the community. Farmers paid 10% of the project cost as contribution and they agreed to pay remaining amount later, treating it as loan. On the whole, thus farmers have contributed nearly 50% of the project cost equaling to Rs.6,36,135/-. This amount would be repaid by the farmers in 4 years.

## **Growing extra crops**

Farmers have identified their fields through Google Earth and marked their individual plots for clubbing them into two groups as per the compactness of the lands. In one patch there are 22 farmers who own 48.8 acres together. The solar panel channelize it to fallow, now sola from October-N turned to cabba

Uplands (Garuvulu)

out of 200acres)

Uplands (Garuvulu)

Uplands (Garuvulu)

Rainfed paddy fields (80

acres) approx. available

The solar panel helps lift channelize it to fields. W fallow, now solar energy from October-November turned to cabbage, carro	water from the stream and /hereas earlier, the lands remaine is being used to sow extra crops r onwards. Most farmers have ot and tomato in the winter.	ed Ferroret and the second sec	armer Navaghana Mu heficiary. He owns fiv
Current scenario of crop	oping pattern in the project area		
Type of Land	April-July (first crop)	August - December Second crops or Kharif continue	January to A
Uplands ( Garuvulu)	Groundnut+ Raddish +Beans+ Bhindi and Maize as border crop	Farmers grow crops in August soon after harvesting the first crop. Farmers can choose between Cab- bage/ Brinjal/Cauliflower/ Rajma Harvest crops in December.	Fallow
Uplands ( Garuvulu	Pumpkin, Bastar beans, Maize+Red gram+ Cowpea	The first crop continues till December as Red gram and Pumpkin	Fallow
Uplands ( Garuvulu	Brinjal+ Beans+ Raddish	Beans and Radish are harvested and then brinjal is grown and harvested in December	Fallow
Uplands (Garuvulu)	Korrasama	Convert this plot to grow Rajma/ Niger/ Horse gram in September Fallow	

Continues till December

into Paddy land

**Turmeric continues** 

Pippali continues

Harvest groundnut and convert lands

Farmer Navaghana Murthy owns five acres of land on which he grows paddy and vegetables. According to him, he has one acre of Podu land which is usually uplands in Araku. He added that on an average Rs 40,000 extra income has been ensured for all beneficiaries under this project. However, till now only 15 acres have been covered since last November out of a total of 48.8 acres. It is hoped that by this year winter, more lands would be irrigated with the help of solar.



pril

Fallow

Fallow

Turmeric

Pippali

Ragi with or without Red

gram

Groundnut

Turmeric

Pippali

#### Budget Estimation | Consolidation of the Proposal

SI.	Mosk dataila	Estimate	Source of fund	
No.	WORK details	budget (Rs.)	Project support	Farmer Share (Rs)
1	10HP solar equipment	600000	0	600000
2	<u>Civil work</u>	189868	153733	36135
	• Pipeline work: PVC pipes	347183	347183	0
	<ul> <li>Pipeline work: pipeline installation and fittings</li> </ul>	136255	136255	0
Total		1273306	637171	636135
Percentage of each stakeholder		100.00	50.04	49.96



### For more details, please contact

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