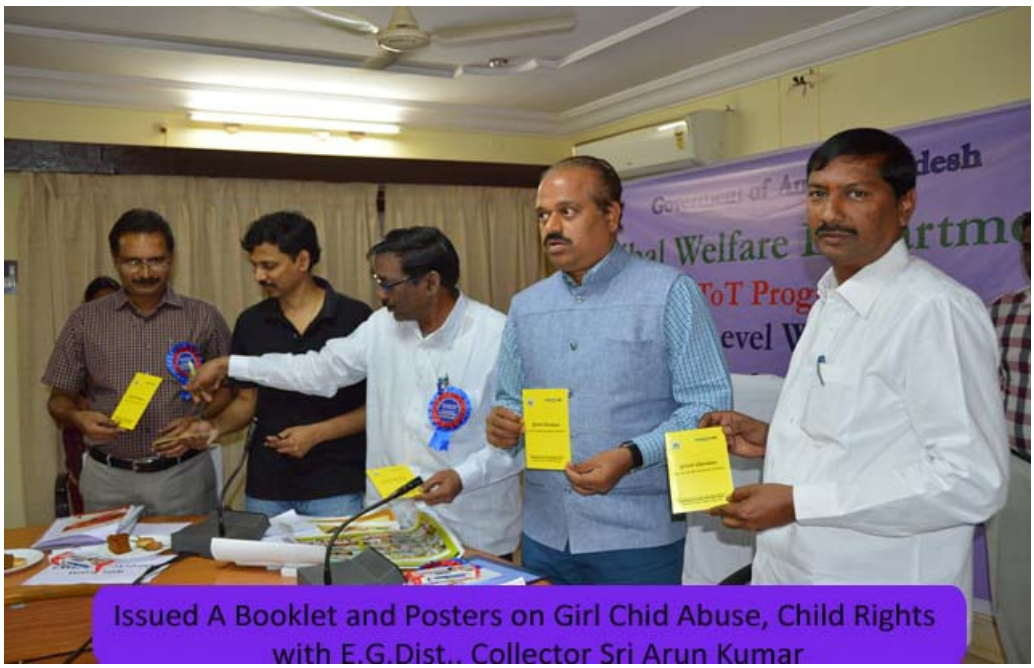
Annual Report 2016 - 2017

Agricultural and Social Development Society (ASDS)
REKHAPALLY – 533 349, V.R.Puram Mandal, E.G.Dist.,



Agriculture and Social Development Society (ASDS) registered under A.P. Cooperative societies Act (Societies Registration Act) 1860(presently A.P.S.R.A., 2011) is a nongovernmental organization registered under this. Similarly registered under foreign contributions Regulation Act (F.C.R.A) 1976. Working for tribal development

Our Dream

Equality with dignity on wider spectrum, improved lively hood conditions, a better society for the tribal's and reputable an empowered status for the tribal's.

Aim

Impoverished poverty, exploitation because of caste, class systems, discrimination, violation of human rights organizing the Adivasi(tribal) groups who are fighting against these, developing them as a social capital and establishing a community based organisation.

Main objectives

- Integrated development of Tribal communities, empowerment and enhancing leadership qualities.
- Creating authority to tribal communities over their resources, providing legal support for protection of their rights, protection of natural resources, determined for their development
- Protection of various sections like children, youth, women, initiating required capacity building programmes, concentrating on girl child staying in remote areas. Taking up formal and non formal literacy activities. Abolition of child labor.
- Disaster reduction interventions during natural calamities, providing essential services during the time of disaster.
- Protection of tribal culture, knowledge and traditional lifestyles.
- Establishing linkages with likeminded organizations, networks working on development of tribal communities

The MGNREGA was initiated with the objective of "enhancing livelihood security in rural areas by providing at least 100 days of guaranteed wage employment in a financial year, to every household whose adult members volunteer to do unskilled manual work. Another aim of MGNREGA is to create durable assets (such as roads, canals, ponds, wells). Employment is to be provided within 5 km of an applicant's residence, and minimum wages are to be paid. If work is not provided within 15 days of applying, applicants are entitled to an unemployment allowance. Thus, employment under MGNREGA is a legal entitlement.

1. 33 new SSS groups formed to utilize hundred and twenty days work through NREGS within 2011 year
2. Wage payments paid through Velugu (Indira Kranthi Department) Staff after that through Village Revenue Officer (VRO). ASDS identified corruption and misappropriation in wage payments and send reports to government. Then wage payments paid through Post office / Banks
3. Utilization of the right to work through MGNREGS benefited 7600 people with an amount of Rs 71, 38, 000 as wages from government @ each Rs.110/-
4. ASDS organized trainings and interface meetings with APOs, Project Officer ITDA and Project Director DRDA.
5. ASDS organized meetings and orientations to mates and Srama Sakthi Sanghas team members.
6. Job card to be issued for everyone who demands job, failing which, after 15 days employment benefits should be given.
7. Minimum 100 days of work should be ensured to all card holders
8. Minimum wage act should be strictly implemented. Delay in wage payment should be resolved
9. 9 farmers had benefitted through Indra Jala Prabha Under NREGS and 310 acres land developed under this scheme. Subsequently ground water level increase. 60 farmers had planted Mangoes and Cashew nut trees in 8 villages.
10. In 4 mandals Rs.97,48,316/- pending wage payments with government, in October 2015 ASDS organize Mandal level and Rallys and submitted the representations to APO, MPDO, Project Officer, ITDA, Project Director, District Rural Development Agency (DRDA).
11. With efforts of ASDS In 2016, 2072 workers got Rs.38,48,316.00 Lacks out of Rs.97,48,316/-
12. Up to 2017 Total 13,491 Families having Job Cards and 1351 SSS formed, and 4,624 were done NREGS work with average Rs.155.60 @ each wage day.
13. Constructed Personal toilets in 3 mandals, In 2017 ASDS had identified contractor has not followed the estimation and design in Kunavaram Mandal area, ASDS staff orientated and explain about the issues and raise at APO and APD, immediately Project Officer, ITDA responded and had given instructions.

1. The problems with state bifurcation issues highlighted and ASDS wrote a letter to Hon'ble Chief Minister of Andhra Pradesh, and also highlighted through media finally a

new ITDA sanctioned in Chinturu which is central to the project villages and all 4 submerge Mandal.

2. ASDS also highlighted health issues & Problems in 4 submerge mandals, Government appointed chair persons as suggested by ASDS in PHCs in these 4 mandals

After state bifurcation, in these 4 mandals administration was going negligible. ASDS had submitted letters and representations to Government for separate Revenue Division. After efforts of ASDS the Government sanctioned a revenue division at Yetapaka, vide G.O. No. 198

1. **NPM:**

Non Pesticide Management Method/ Sustainable Agriculture:

In 2013 ASDS selected and started 50 farmers from 10 Villages for NPM method agriculture. ASDS selected villages who have NADAP practices in villages. After selection completed ASDS had organized orientation meetings and explain the importance of Non Pesticide Method. ASDS conducted and organize trainings to these farmers for preparing Natural decoctions using cow dung and cow urine and other roots. ASDS Organized meetings and interface meetings with Agriculture department. ASDS has supported Drums and other basic needs for promoting NPM method like erect the cow sheds for cow urine, and 200 ltrs and 100 lrts drums and cow urine and other decoction stalls at village level. ASDS organized village level meetings and trainings for NPM method. ASDS has taken 3 model villages (Valumurugondi, Chokkanapally and Adavi Venkanna gudem). **One of our NPM farmers has got Best NPM Farmer Award from Government of Andhra Pradesh while celebrating Sankranthi Sambaralu Government festival 2017.**

Sri.G.Vijay Kumar - Retd., IAS Chief Advisor to Govt., of A.P ZBNF Project, Sri.Subba Rao Joint Director Agriculture Valumurugondi NPM field visit

Drip Unit in Valumurugondi NPM farm

Valmurigondhi Village -Report

1. 10 members of famers in 4 acres - vegetable garden
2. Distributed 2HP Motors from ASDS
3. 200 ltrs Drums – 10 from ASDS
4. 100 ltrs drums – 15 from ASDS
5. Cow Shelter – 1 from ASDS
6. Distributed 13 types of Vegetable seeds -35 packets from PO ITDA
7. Sanctioned 5 cents in yerrampeta to 5members of farmers from ITDA
8. PO ITDA visited 4 times this village
9. Agriculture department AD and team also visited this village
10. NABARD AGM visited this village
11. Sanctioned 5 HP motors and 3phase power from PO ITDA
12. Distributed sprinklers in 6 acres
13. Supported 200 kits of Jowar seeds to 24 farmers, Red gram seeds to 14 farmers of Valumugondi and Lakkavaram by KVK Rampachodavaram

Chokkanapally Village

1. With the support of KVK distributed Red Chilly Seed to14 members of farmers in 14 acres.
2. Cultivate Vegetable garden in 4 acres
3. 200ltrs drums – 6 from ASDS

Adivi Venkanna Gudem Village –Report

1. Cow Shelter – 1 from ASDS
2. 200ltrs drums – 2 from ASDS
3. 100ltrs drums – 2 from ASDS
4. Distributed Paddy, Redgram, Greengram and Groundnut seed
5. Agriculture department AD and team also visited this village
6. Hearty culture department has given Sprayers with 90% subsidy

7. In 2017 Karam Dharmaraju, has gotten Best Farmer from Government of Andhra Pradesh using Non Pesticide Management Method (He gotten yield 29 Bags for one acre

1. 250 kgs Jowar, 250 Kgs Millet and 60 Kgs of Redgram supported to 125 farmers by ATMA
2. 17 Drip Irrigation Units Sanctioned in 8 villages each Unit cost Rs.80,000/- (17 X 80,000/- = Rs.13,60,000/-)
3. 15 women and 45 men farmers attended 10 days training on Zero Budget Agriculture by Subhash Palekar at Kakinada, East Godavari district.
4. 60 men and 11 women farmers attended training on water saving techniques by the department of Irrigation and 3 women farmers attend National Women Farmers convention (MAKAAM).
5. 9 farmers got 9 Oil engines and 5 farmers got 5 Sprayers charges with 90% subsidy
6. Construct fire vehicle shed at Kunavaram

   In view of phase out of LRP programme in 2017 December, ASDS has linked with Government scheme Zero Based Natural Forming (ZBNF) in 17 villages of 3 clusters.

Rights of the disabled – Activities :

7. Under the LRP programme, ASDS has been working with disable persons from 2011. ASDS had surveyed in November 2011 and identified 254 disabled persons from 35 villages.
8. While ASDS conducting survey, disable persons do not have a proper understanding about government schemes and acts. Even government officials and public representatives also did not have disable acts and schemes. This meant that disable persons lost the Government incentives Rs.10,000/- before 2010. Now this incentive is Rs.50,000/-

In 2013, ASDS organized World's Disable Day programme and orientation at Rekhapally and invited Government Officials and Public Representatives. In that programme some of them told that we really not known that the disabled people have a special day. Some of following are our achievements

1. ASDS organized meetings and orientations for their rights and Government Schemes
2. ASDS orientated, those who lost their hands or the legs in accidents, and arranged artificial parts in Birds Hospital, Thirumala Thirupathi devasthanams, Thirupathi. With these parts, some people feed their families also.
3. At the risk, the legs were found to be stimulating to those who lost hands.
4. 9 disable persons got marriage incentives and 3 members got Aarogysri cards
5. 100 members got Janasri Insurance scheme from Government
6. 4 disable Self Groups formed and inked with Indira Kranthi Pathakam. 2 Groups got Rs.2,25,000/- loan from government.
7. ASDS, every year gives education support and basic needs of disable persons, like distributed food plates, water glasses, food carrier boxes
8. 8 disable committees formed in 3 mandals and conduct 36 Mandal level committee meetings and interface meetings with government officers
9. 6 persons had taken wheel chairs and 19 tri cycles from government
10. Out 17, 12 disable person couples had gotten Rs.50,000/- disable marriage incentives.

World disabled day Rally

Plates & Glasses Distribution to Mentally Disabled Children

NATWAN SANGHAM, PAPI KONDALA KONDAREDDY MAHILA SAMAKHYA & SABHARI VIKALAMGUAL SANGHAM

Background of Natwan Sangham:

The focus of the project is two-fold, violence against tribal women and lack of sustainable livelihoods for them. While these problems are deep rooted and need long-term solutions, organizing women to reflect on their own lives and supporting them to find solutions is the best way to overcome the exploitation and violence faced by them. VR Puram Mandal witnesses extreme form of tribal women exploitation by non-tribal men. These men establish relationships with tribal women, without marrying them, which is an accepted social norm amongst Koya and Konda Reddi tribes here. Over a period of time, the non-tribal man gains access to the property of the tribal woman and before she realizes the man desserts her or disappears from the area, after availing himself of many benefits that accrue out of the woman's Scheduled Tribe status. There is positive discrimination in the area of government programmes and facilities for Scheduled Castes / Tribes, about which the tribes in general and their women in particular are least aware or unaware. Such deserted women are left in lurch, not accepted by her community either (she is stigmatized thereafter). In the end, even the state services would have reached only the non-tribes in some form or the other, whereas, for the tribes, it is non-existent. There is a need to identify the extent of this exploitation in all its forms and fight against it.

As an entry point for all its development work, ASDS organized tribal women in VR Puram Mandal into 112 Self Help Groups (SHGs). In 2000, ASDS supported these groups to collectivize themselves into a Mandal level federation, called **'Natwan Sangham.'** With the gracious support of the Christian Aid, through Gramya Resource Centre for Women (Gramya), Secunderabad, ASDS implemented a three-year project, since January 2002, to strengthen the Natwan Sangham for its self-reliance. With facilitation from ASDS, the Natwan Sangham started working on wide-ranging issues, encompassing agriculture, education, gender, health, natural resources management, etc., for holistic development of tribal communities. Gramya, Centre for People's Forestry (CPF), Centre for World Solidarity (CWS) and NABARD played a greater role in taking forward the agenda of the Natwan Sangham. Today, the Sangham has a membership base of 2,910 (June 2008) and is self-managed with a 23-member Core

Committee. It has become the voice of tribal women in VR Puram, Kunavaram and Dummugudem Mandals. The notable achievements of Natwan Sangham are;

- Networking with other CBOs and NGOs at Mandal level
- Community led campaigns on domestic violence, girl child rights, child labour, dowry, child marriage and women's property rights, girl child education, etc.
- Leveraging resources from state and other sources
- Provision of legal aid, medical aid and counseling to members
- Liaison with the district administration
- Actively participated in flood relief activity implemented by ASDS NGO with support of donor agencies like CWS, Actionaid, CPF.
- Capacity building of core group members on different themes, like legal literacy, state programmes and schemes, gender, sustainable agriculture, Panchayati Raj Institutions and local governance, livelihood enhancement, sustainable natural resources management and on managerial skills (book keeping and accounting skills)
- Established identity in Mandal and District level forums and NGO Networks. Staff of Care India's ongoing project, namely, Sustainable Tribal Empowerment Project, from Srikakulam, Visakhapatnam and East Godavari districts visited the Sangham for learning
- Members serving as Resource Persons for AP Forest Academy at Dulapally, IKP.
- As part of the Disaster Preparedness Network, Natwan Sangham is actively involved in spearheading tribal movement against Polavaram Project in VR Puram
- Monitoring of girls hostels in V.R. Puram and Kunavaram Mandals
- Filed 185 court cases and got decree for 12 cases to get monthly maintenance
- 133 never enrolled and dropout girl children were admitted in residential schools following a Bridge Course at Rekhapally.
- Case studies of 134 exploited women are developed
- 26 expectant and nursing mothers were provided with health care
- 17 girls who failed in Class 10 have been supported with examination fee and study material to encourage continued education
- 12 widows / physically challenged single women were benefitted with housing program implemented by ASDS supported by CAPART
- Imparting training and skill building in livelihood enhancement activities for 56 women.

- Actively worked and participated anti polavaram movement, published polavaram magazine focusing displacement issues jointly with APVVU.

7. Rationale for Consolidation

As mentioned above, Natwan Sangham accomplished significantly in addressing a number of women/tribal issues. In its Review Meeting during January this year, the Sangham Core Committee realized that the achievements of the Natwan Sangham need consolidation, scale up and move on to level the play field. The Core Committee took following decisions:

- Need to scale up similar efforts of organizing village sanghas/women groups/SHGs in other Mandals, namely Chintoor, Dummugudem and Kunavaram, into Mandal level federations and strengthening these federations as a Network and evolve as a regional platform to address the issues of tribal women, their rights and livelihoods
- Organize greater number of women from VR Puram and neighboring Mandals, in terms of membership base, increased number of women's groups and registered cooperatives
- Relate itself to the wider socio-economic, political, cultural and historical environment and be able to lead structural interventions for reduced physical and social vulnerability of tribal women. For instance, addressing issues such as Polavaram project at macro-level, which uproot tribes from their traditional forest-based habitations, push them further interior and shatter their basic social and cultural fabric
- Networking with other likeminded CBOs, federations, NGOs, Networks at district, regional and state level

In nutshell, the social capital of Natwan Sangham needs to be built so that it consolidates whatever good work it has done, scale up and move on to level its play field from self-reliance to empowerment. It is in this context that a consolidation programme is concretized in consultation with the Natwan Sangham leadership with following goals and objectives:

9. Goal:

To evolve as a regional platform so that Natwan Sangham is able to empower tribal women in all spheres of life, social, economic, political and cultural.

10.Objectives

- To increase the membership base of Natwan Sangham to 5,000 members with representations from Chintoor, Dummugudem, Kunavaram and VR Puram Mandals
- To build the human, institutional, advocacy and lobbying capacities of Natwan Sangham
- To build the capacities of CBOs (village sanghas/women groups/SHGs) in 4 Mandals and federate them at mandal level to integrate women issues with livelihoods and sustainable natural resources management (SNRM)
- To broad base the participation of NGOs and civil society in the campaigns against domestic violence exploitation and proper utilization of government schemes meant for tribal women.
- To establish linkages with various service / commodity delivery systems, programmes and schemes in government and non-government sector to gain sustainable livelihood and social security for tribal communities.

11. Approach

Natwan Sangham use a rights-based approach that includes community led advocacy and lobbying for better local governance. This project recognizes that the need is not simply to pursue various progammes for improvement of the quality of lives of tribal women, but also to address problems related to inequity, differential distribution of power to affect changes in sustainable livelihoods for the impoverished majority.

The project responds to this through individual and collective actions. To this end it binds various civil society constituents through work-based identity, mutual learning, grassroots alliances and commitment for learning and working together.

12.Synergies and Linkages

Apart from its own inputs, ASDS would link up with external resource agencies to ensure that the capacities of the Natwan Sangham are built. Some of the collaborating organizations would be CWS, ACTIONAID, AID, APVVU, CPF, ANTHRA, AP State NGOs Forum for JFM, NABARD and related state institutions. It will also use in house capacities of the NGO Networks and related agencies in the region on issues of common interest and facilitating collective action.

Papi Kondala Kondareddy Mahila Samakhya :

Papi kondala Kondareddy Mahila Samakhya formed in 2013 from 10 villages of V.R.Puram Mandal with 100 women members. 10 village women elected core committee and pass resolution for this committee is acted as division committee.

This committee mainly formed for better development and improving their livelihood and family recast. The main needs were fed by this federation to meet the needs of Health, Agriculture and Education and other needs.

With the help of ASDS this committee had opened an account in Bank account in State Bank, Rekhapally in January 2014 with 3 joint signatures.

This committee conduct monthly meetings regularly both village level and mandal level. In this meeting they discuss the personal and village issues. Committee pass resolution for loans and other issues.

After notifying the minutes in village level and mandal level, loans gives to those with needs, 3 joint signatures and give check to concerned community person with conditions. This committee distributed loans in 3 villages for agriculture and one village for education. Based on minutes 31 persons got Rs.1,30,000/- loan with Rs.1/- interest for fulfill their needs and amenities. If they take the loan from outside persons, they will pay huge interest for small amount also. Seeds and pesticides are also borrowed in the shop. The Kondareddy Mahila Samakhya has given with low interest rates without such a problem. Finally they escaped from middleman or brokerage. Now they are very happy.

The Sanghas members are now attending meetings and trainings without shy. They are expressing their opinions in village level meetings.

ASDS has given trainings and orientations to Kondareddy Mahila Samakhya for Farmers Produced Organizations and will be link with NABARD, then they are able market their crops without middleman or brokerages.

Shabari Vikalamgula Samakhya:

Shabari Vikalamgula Samakhya formed in 2017 for solving disable persons problems. The main concept of this Samakhya is increasing awareness of government schemes and Acts in village level and Mandal level. To ensure participate in Sadaram Camps. Increasing awareness on artificial parts and Physio therapy. Submitting representations and applications to Mandal level and District level Officers for their problem without support from others.

Displacement :

Government of India is constructing the Indira Jala Sagar (Polavaram) dam at Polavaram village. 125 villages are effected and submerged villages in Chinturu, V.R.Puram and

Kunavaram mandals of East Godavari district. So, government announced package in the shape of Relief and Rehabilitation.

1. Conduct village level committees for better package
2. Who has 18 years of age must pay compensation
3. Government will provide Job for each house holder or educated in the family
4. Government has given notification for 17 villages
5. Government has appointed Director, ASDS as R&R committee member


Conducted Meeting with People's Representatives and Village level leaders of East and West Godavari Districts on implementation of R & R

Joint Collector, PO ITDA - Rampachodavaram, PO ITDA Chintur, MLA Bhadrachalam in Kunavaram R & R Meeting


R & R Survey in Thustivarigudem village of V.R.Puram Mandal

Entitlements :

Beside the PDS the status of other seven food security schemes such as; Antyodaya Anna Yojana, Mid day Meal, National Old age Pension , Annapurna Anna Yojana, ICDS, National maternity benefit scheme and National Family benefit scheme are also hardly reaches the Kondareddy and Koya families.

Public Distribution System (PDS) :

When the ration shop opens the Kondareddy do not know this and there is no system to inform them. They always become last to get their ration, some time they don't even get ration due to shortage. There are also cases where they get lesser quantity. As a result these tribals were not given the full quota and deprived from their benefits. Supreme Court orders to provide Anthyodaya to these PTGs seems to be totally ignored in the area.

1. Submitted concerned pension application to M.P.D.O., Village Secretary, Project Officer, ITDA, offices and Grama Sabha, Janma Bhoomi programmes held in village wise.
2. Identified 280 names deleted in the PDS cards due to mismatch of Aadhar Cards. So, they did not accesses the full ration.
3. ASDS lobbying with Revenue department. Then department had given modified cards.

ICDS :

1. 398 ICDS centers in 4 mandal are main streamed and getting food regularly after visit of Project Director, ICDS, Kakinada with the help of Director, ASDS.
2. Due to for distance, children and Pregnant women did not go away from their village, so they suffered from malnutrition, With efforts of ASDS 9 new mini centers sanctioned. Now they are getting food regularly.
3. Distributed Plyaing material for 6 schools and floor mats for 2 schools with Gift fund
4. With efforts of ASDS team, Dharapally School Reopened after 2 months

Health :

The major PHCs are in Mandal head quarters, V.R.Puram, Kunavaram and Chnturu. Only one village Annavaram is 2 Km from VRPuram PHC, 3 villages are with in3 to 5 km, 7 villages are within 6 to 10 km and 24 are more than 10 km.

There are 4 sub-centres: Kunduluru, Jeediguppa, Kuturu and godlagudem 21 villages are with in 0 to 2 km, 11 villages are between 3to 5 km, 2 villages are between 6 to 10 km and 1 village is more than 10 km. Tummileru is far away even from sub centre as it is on the river bank and the means of conveyance is only boat. ANM services are available from sub centres. Every village has a Community Health Worker who is available, but lack of medicine supply and house visits are lacking during rainy season.

Making public health functional and effective : After the new government took over, a detailed meeting was held between all AA partners and the son of the Chief Minister of AP, in Nov 2014. During the meet ASDS made a presentation and suggested to involve interested local NGOs in the PHC development committees to make public primary health in rural and forest areas efficient. Somehow, AP Govt issued a GO to strengthen PHC by involving NGOs and authorized district collector to nominate such posts. Accordingly two community leaders (active part of ASDS) and the director ASDS became chairpersons for 2 hospital development committees and other 4 community leaders became members of the committees in the operational areas. This helped a lot to bring lot of changes to make public health to reach out more. The impact on this front can be summarized as:

- In these three hospitals institutional deliveries increased to 25 per month as against earlier average of 6-9. This enabled immediate immunization, breast feed in an hour's time, including Rs 1000 incentive.
- Per day OP increased from 50 per day average to 200 in all the hospitals.
- ANMs visiting the pregnant tribal women very regularly
- 5 PHCs and 1 CHNC delivering prompt services and to more than 1 lakh population.
- This change saved lakhs of rupees at the community level, which earlier they were spending for health and it has significantly decreased private health practice in the area. Notably it saved the tribal communities from the unwarranted treatment which is common in private health sector.

ASDS has given orientation on health and seasonal diseases in village level meetings and conduct interface meetings with Medical officers.

1. ASDS personally conduct village level medical camps.
2. ASDS organized 11 medical camps and medical officer checkup and refer to Area Hospital, Bhadrachalam. ASDS has sent them to Area Hospital and Private Hospitals for better treatment
3. 173 children, 18 Pregnant women and 13 Lactating Mothers referred to Area Hospital and Private Hospitals, Bhadrachalam for better treatment. In Area Hospital blood infused to of 5 pregnant women during deliveries
4. 22 Children referred for Emergency health care (Brain Malaria, Operations, accidents, Blood transfusion)
5. Boys.74, Girls.177, total 261 covered in medical camp organized by ASDS held at ASDS office, Rekhapally and 26 children suffered from eye problems and prescribed spectacles.

PO ITDA Conducted Hospital Development Committee Meeting with Deputy DM & HO, MRO, MPDO and Medical Staff

Hospital Development Committee Meeting in Jeediguppa PHC

Before formation of Hospital Development Committees

Present Status after regular HDC meetings

Education :

1. ASDS identified dropout rate is high in schools and hostels
2. 2 Inter face Meetings Conducted with D.E.O (Agency) and education department for teachers appointments and streamlining of midday meal programme in our area (proposal prepared and submitted to ITDA) it is under process
3. 150 Non local Regular Teachers appointed for 3 mandals. 15 schools having drinking water with our efforts.
4. 1735 children got 2 pairs of shoes with support of Goonj with worth of Rs. 6,94,000/-
5. Boys - 14, Girls – 32, total 46 drop out children rejoined at schools
6. 5 male Child labour rejoined in APR, Chinturu
7. Distributed note books total children - 1440 (Male - 788, Female – 652)
8. Encouraging the children in their studies. Introducing new educational games and skills. Importing group activities, identifying drop outs and rejoin them in schools.

Pensions :

1. ASDS identified the eligible Old Age, Widow and Single woman for getting pensions from government
2. Submitted concerned pension application to M.P.D.O., Village Secretary, Project Officer, ITDA, offices and Grama Sabha, Janma Bhoomi programmes held in village wise.
3. Getting pension, they are accessing Ration and other essentials, otherwise they would be borrowed.

Women & Girls Rights :

1. Periodical visits by Natwan Sangham members to local Girls hostels.
1. Monetary support from ASDS..
2. Formation of groups through interaction and meetings. Child Club set up in girls hostel and their problems are brought to the attention of the authorities. Visits and representations to ITDA-P.O.
3. House visits, fact findings, creating awareness among girl children, moral, livelihood support and legal support.
4. Celebrating International Women's Day addressing all the issues

5. Natwaan Sangham members visited 5 hostels and oriented around 1000 Adoloscent girls on Health and Sanitaion, Sex Ratio, and Hygienic conditions. 585 AG girls are using safe practices (good washed cloth) compare to Project Starting during their monthly sick.
6. Safe Drinking water scheme repaired within 15 days, ASDS has provided Safe Drinking water and other basic needs in girls hostel.
7. KGBV Rekhapally hostel is beside Rekhapally main road, children felt inconvenience for play ground. With efforts of ASDS and child club ITDA sanctioned Rs.10,00,000/- for Play ground repair works under NREGS
8. ASDS drilled 1 borewell at KGBV, Rekhapally with own resources
9. Conducted Rallies in 4 Kondareddy villages on Dropouts

Women's Day Rally


Best Women Employ Award Received from Smt.V.Rukmini Rao in Women's day Function at ASDS - Rekhapally


Natwan Sangham Member P.Jyothi raised her voice on RoFR in Indira Sagar (Polavaram) Project R & R Meeting at Kunavaram

పీహెచ్‌సీకి సెకండ్ హ్యాండ్ సామగ్రి

- అర్ధరాత్రి చేర్చడంతో అడ్డుకున్న గ్రామస్తులు
- తిప్పి పంపిన ఆస్పత్రి అభివృద్ధి కమిటీ చైర్మన్
- అవి ఓ సంస్థ వితరణ అంటున్న శేషిరెడ్డి

సామగ్రితో ఆస్పత్రికి వచ్చిన టాటా ఏస్ వాహనం

వీఆర్‌పురం : మండలంలోని జీడిగుప్ప పీహెచ్‌సీకి సోమవారం రాత్రి ఫ్రిజ్, పేషెంట్ వెయింగ్ స్కేల్, వీల్‌చైర్ తదితర పరికరాలతో టాటా ఏస్ వాహనం వచ్చి ఆగింది. ఇంత రాత్రి సమయంలో ఆస్పత్రికి పరికరాలతో వాహనం రావడం ఏమిటని సమీప గృహాల వారు అక్కడికి చేరుకొని ఈ పరికరాలేమిటని డ్రైవర్‌ను ప్రశ్నించారు. వీటిలో కొన్నింటిని పెద్ద డాక్టర్ ఇక్కడ దింపి రమ్మన్నారని అతడు సమాధానమిచ్చాడు.ఇంతలో విషయం తెలుసుకున్న ఆస్పత్రి అభివృద్ధి కమిటీ చైర్మెన్ కదల మోహన్‌రెడ్డి అక్కడికి చేరుకొని ఆ వస్తువులను పరిశీలించి అవి సెకండ్ హ్యాండ్ వస్తువులని గుర్తించారు. వాటిని వెనుకకు తీసుకువెళ్లిపోవాలని డ్రైవర్‌తో చెప్పాడు .దీంతో డ్రైవర్ వాహనాన్ని తీసుకొని అక్కడ నుంచి వెళ్లిపోయాడు. కాగా ఈ పీహెచ్‌సీ అభివృద్ధి కమిటీ సమావేశం జరిగి ఐదు నెలలకు పైగా అయిందని అభివృద్ధి కమిటీ చైర్మన్ మోహన్‌రెడ్డి అన్నారు. నిధులు మంజూరైనా ఆస్పత్రికి అవసరమైన వస్తువులు, సామగ్రి కొనుగోలుకు ఇప్పటికీ సంబంధిత అధికారులు చర్యలు తీసుకోలేదని ఆయన ఆరోపించాడు.

సెకండ్ హ్యాండ్ వస్తువులను ఎలా అంగీకరిస్తాం?

ఆస్పత్రికి ఏయే వస్తువులు అవసరమో వాటిస్తుంటే కొనుగోలుకు గత కమిటీ సమావేశంలో తీర్మానం చేశాం. ఆస్పత్రి అభివృద్ధి నిధులు మంజూరైనా అవసరమైన సామగ్రి కొనుగోలు చేయడంలో డిప్యూటీ డీఎంఅండ్ హెచ్‌ఓ శేషిరెడ్డి నిర్లక్ష్యంగా వ్యవహరించారు. ఇప్పుడేమో ఎక్కడో వాడేసిన వస్తువులను ఆస్పత్రి ఇవ్వాలని చూస్తుంటే ఎలా అగీకరిస్తాం? అది కూడా అర్ధరాత్రి సమయంలో డాక్టర్లు ఎవరూ లేకుండా ఎలా తీసుకువస్తారు? ఈ వ్యవహారం పై ఉన్నతాధికారులకు ఫిర్యాదు చేస్తాం .

– కదల మోహన్‌రెడ్డి
ఆస్పత్రి అభివృద్ధి కమిటీ చైర్మన్,జీడిగువ్వ

అవి వితరణ వస్తువులు మాత్రమే

జీడిగువ్వ పీహెచ్‌సీకి సోమవారం వంపిన వస్తువులు ఒక సంస్థ వితరణగా ఇచ్చినవే తప్ప ఆస్పత్రి అభివృద్ధి నిధులతో కొనుగోలు చేసినవి కావు . ఈ వస్తువులకు ఆ నిధులకు ఎలాంటి సంబంధం లేదు .

– డాక్టర్ శేషిరెడ్డి
(ఇటీవలే వైద్యులిగిన డిప్యూటీ డీఎంఅండ్ హెచ్‌ఓ)

సాక్షి Wed, 24 May 2017
epaper.sakshi.com//c/19477653

పిల్లల్లో నైపుణ్యాన్ని ఉపాధ్యాయులే పెంపొందించాలి

కార్యక్రమంలో మాట్లాడుతున్న అడిషనల్ డైరెక్టర్ చినవీరభద్రం

వరరామచంద్రాపురం: చిన్నతనం నుంచే పిల్లల్లో ఉన్న నైపుణ్యాన్ని ఉపాధ్యాయులే పెంపొందించాలని గిరిజన సంక్షేమ శాఖ అడిషనల్ డైరెక్టర్ చిన్న వీరభద్రం అన్నారు. శుక్రవారం రేఖపల్లిలోని వ్యవసాయ, సాంకేతిక అభివృద్ధి సంస్థ (ఏఎస్‌డీఎస్) డైరెక్టర్ వి.గాంధీబాబు అధ్యక్షతన డివిజన్ స్థాయి బాలల దినోత్సవ వేడుకలు ఏఎస్‌డీఎస్ కార్యాలయం ఆవరణలో ఘనంగా నిర్వహించారు. ఈసందర్భంగా వీరభద్రం, చింతూరు ఐటీడీఏ పీవో చినబాబు మాట్లాడుతూ గిరిజన విద్యార్థినీ, విద్యార్థులు ఫైదాన ప్రాంతాల్లో చదువుకునే గిరిజనేతరుల విద్యార్థులతో సమానంగా విద్యలో, ఆటపాటల్లో పోటీ పడుతున్నారన్నారు. ఎక్కడ కష్టపడి శ్రమిస్తారో అక్కడే ఫలితం ఉంటుందన్నారు. రాష్ట్ర విభజన తరువాత ఈనాలుగు మండలాల ప్రజల సమస్యలను దృష్టిలో ఉంచుకుని ప్రభుత్వం చింతూరులో ఐటీడీఏను ఏర్పాటుచేయడం గొప్ప విషయమన్నారు. రాష్ట్రంలోనే ఈఐటీడీఏ ఆదర్శంగా నిలవాలన్నారు. నాలుగు మండలాల నుంచి నలుగురు గిరిజన విద్యార్థులు విదేశాల్లో చదివి ఈప్రాంత ప్రజల్లో చైతన్యం తేవాలన్నారు. బాలల దినోత్సవం పురస్కరించుకుని గిరిజన చిన్నారుల ఆటపాటలతో అందర్ని ఆకటుకున్నారు. అనంతరం నాలుగు మండలాల్లోని ఉత్తమ ఉపాధ్యాయులకు, విద్యార్థినీ, విద్యార్థులకు జ్ఞాపికలు అందచేశారు. కార్యక్రమంలో ఎంపీపీ కారం శిరమయ్య, వీఆర్‌పురం ఎస్‌ఐ రామకృష్ణ, ఐసీడీఎస్ వీఆర్‌పురం, కూనవరం, చింతూరు సీడీపీవోలు శంశాద్‌బేగమ్, గజలక్ష్మి, గీత, రేఖపల్లి సర్పంచ్ మడకం జోగమ్మ, మాజీ జడ్పీటీసీ సభ్యురాలు ముత్యాల రామారావు, ఉత్తమ ఉపాధ్యాయులు సాయిబొజ్జి, ఎస్.పెద్దబ్బులు, ఎం.వెంకటలక్ష్మి, రామతులసి, పూసమ్మ, నాలుగు మండలాల ఉపాధ్యాయులు, విద్యార్థినీ, విద్యార్థులు పాల్గొన్నారు.

ఆంధ్రజ్యోతి Sat, 26 November 2016
epaper.andhrajyothy.com//c/15159737

సేంద్రియ సాగుకు చేయూత : పీవో

రైతులతో మాట్లాడుతున్న పీవో చినబాబు

వాలమూరుగొంది (చింతూరు): సేంద్రియ వ్యవసాయానికి అన్నివిధాలా చేయూత అందిస్తామని ఐటీడీఏ పీవో గుగ్గిలి చినబాబు అన్నారు. మండలంలోని వాలమూరుగొంది గ్రామంలో సుస్థిర వ్యవసాయ పద్ధతిలో పండిస్తున్న కూరగాయలను ఆయన గురువారం పరిశీలించారు. ఈ సందర్భంగా ఆయన మాట్లాడుతూ రైతులు పండిస్తున్న కూరగాయలను మండల సమాఖ్యల ద్వారా కొనుగోలు చేసి హాస్టళ్లకు సరఫరా చేసేలా చర్యలు తీసుకుంటామన్నారు. కూరగాయల రవాణాకు వీలుగా ట్రాక్టర్ల కొనుగోలుకు ట్రైకార్ రుణాల మంజూరుకు కృషి చేస్తానని పీవో తెలిపారు. పట్టు పురుగుల పెంపకంపై ఆసక్తి ఉన్న రైతులకు వంద శాతం సబ్సిడీ అందిస్తామని ప్రకటించారు. పైలెట్ ప్రాజెక్టుగా ఈ గ్రామానికి చెందిన రామిశెట్టి అనే రైతుకు రెండెకరాల్లో మల్బరీ తోట పెంచేందుకు ఈ సబ్సిడీని మంజూరు చేస్తామని పీవో తెలిపారు. వ్యవసాయానికి అవసరమైన నీటి బోర్లు, త్రీ ఫేస్ విద్యుత్ కల్పించాలని రైతులు పీవోను కోరారు. పీవో వెంట ఏఎస్‌డీఎస్ డైరెక్టర్ గాంధీ బాబు, సీడీపీవో గీత, ఏపీవో గణపతి, ఏపీఎం భాస్కర్ ఉన్నారు.

సాక్షి Fri, 20 January 2017
epaper.sakshi.com//c/16267295

DEVELOPMENT OF
"SOLAR PV BASED MICRO GRIDS"
IN
ANDHRA PRADESH

(VILLAGE ELECTRIFICATION)

Final Report

Prepared By:	Prepared For:
Agricultural and Social Development Society (ASDS), Rekhapally, West Godavari District, Andhra Pradesh	**Godrej Consumer Products Limited,** Vikhroli, Mumbai, Maharashtra

Contents

ACKNOWLEDGMENT

We are sincerely thankful to “Godrej Consumer Products Limited (GCPL)” for their everlasting support in implementation of the Solar PV based micro grids in the state of Andhra Pradesh.

We express our gratitude to “Godrej Consumer Products Limited (GCPL)” for giving us the opportunity to be a part of this first of its kind large scale initiative in the “Village Eectrification”. We also acknowledge the support and guidance provided by the GCPL team during the feasibility study, Training support, implementation of the solar PV based micro grids for village electrification. We are also thankful to the Forest Department, ITDC and Government of Andhra Pradesh for their immense support.

The implementation would not have been completed on time without GCPL team’s interaction and timely support. We are grateful for their cooperation during the in the project area.

EXECUTIVE SUMMARY

Agricultural and Social Development Society (ASDS) is implementing the Village Electrification projects by developing Solar PV based micro grids in East and West Godavari Districts of Andhra Pradesh. The project is developed under Corporate Social Responsibility (CSR) scheme of Godrej Consumer Products Limited (GCPL). In the first phase, first phase 18 numbers of villages covering 460 households were electrified. The detailed list of villages and the projects is discussed in the next chapters. A total of 22 kWp was installed in the first phase, the last system was commissioned in Pusugumpuvillage on 7 May 2017.

1 INTRODUCTION

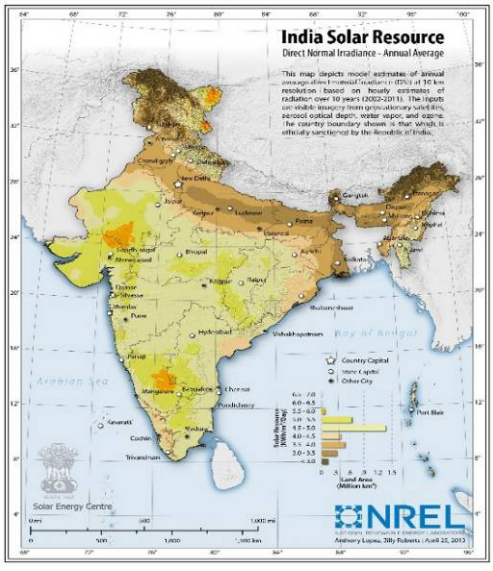
The Ministry of New and Renewable Energy (MNRE) aims to attain a sustainable growth in the country by securing the energy needs through Renewable Energy (RE) sources such as Solar, Wind, Biomass, Hydro etc. Along with the support to large scale RE generators, the Ministry also promotes the Decentralized Energy Generation solutions based on sources such as Solar, Wind, Biomass, Hydro etc for meeting the Electrical and Thermal energy requirements especially in rural areas.

Renewable Energy in India:

India has set an ambitious target of reaching 175 GW of installed capacity from renewable energy sources including 100 GW from solar and 60 GW from wind by the year 2022. Various policy initiatives have been taken to achieve this target.

Solar and wind power being infirm in nature impose certain challenges on grid security and stability. Studies revealed that solar and winds are almost complementary to each other and hybridization of two technologies would help in minimizing the variability apart from optimally utilizing the infrastructure including land and transmission system.

2 SOLAR POTENTIAL IN INDIA



India, with its large population and rapidly growing economy, needs access to clean, cheap and reliable sources of energy. India lies in the high solar insolation region, endowed with huge solar energy potential with most of the country having about 300 days of sunshine per year with annual mean daily global solar radiation in the range of 4 - 7 kWh/m^2/day. Solar power can also help meet

energy requirements for both grid connected as well as off-grid applications such as solar powered agricultural pump sets.

3 PRESENT SCENARIO

Agriculture and Social Development Society (ASDS) is actively working in developmental activities in East and West Godavari districts of Andhra Pradesh State, India. ASDS identified 25 villages for electrification in the first phase. In the first phase 460 houses were electrified in 18 villages. At present, the identified villages do not have any electricity supply. The main source of revenue to the villagers is by way of daily labour to nearby towns. The identified villages do not have any educational institutions, community centres, etc. The villagers walk for at least 3 kms for purchasing any grocery items etc. The villagers return back to their houses and complete their daily activities before sunset. Some of the households lit the houses with kerosene lamps while most of the houses cannot afford. There is a good potential for installation of micro grids and electrify the villages.

4 MICRO GRIDS

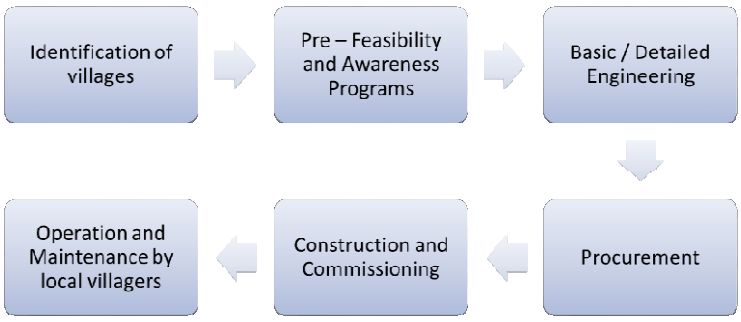
A 'Micro Grid' system is similar to a mini grid but having a RE based generation capacity of below 10 kW. Micro and mini gridsgenerally operate in isolation to the electricity networks of the DISCOM grid (standalone), but can also interconnect with the grid to exchange power. If connected to grid they are termed as grid connected mini/ micro grid.

5 ROAD MAP

PROJECT DEVELOPMENT PROCESS

The team of experienced people will be working on Renewable Energy based projects from conception to commissioning. The systematic approach will enable for reliable project development in this specialized market with maximum involvement in decision making by the stakeholders.

For any project, it is proposed to follow the following procedure for development of the project. The following phases, carefully concluded at the end of each phase with the Owner, Operator and Stakeholders:



S No	Activity	Description
1	Pre – Feasibility	A top-Line Evaluation of the possibilities, requirements and objectives for a specific site. The pre-feasibility includes financial cost and revenue estimation and is intended as a bases for strategic decision making.
2	Awareness programs	Conduct Awareness programs and Training Programs about the proposed projects
3	Basic Engineering	During basic engineering, final technical decisions are made and the documentation for procurement is generated
4	Detailed Engineering / Design	All engineering documentation, Layout drawings, Electrical schemes, Civil and Structural drawings, instructions in 'good for construction' status
5	Procurement	Procurement of all the Equipment as per Bill of Material (BOM)
6	Construction	To carry out the supervision of construction activity and quality of the works as per the standards
7	Commissioning and Start up	Commissioning and operation of wide range of Power Projects

6 EMPLOYMENT GENERATION

Installation and commissioning of micro grids generates the employment both for unskilled and skilled labour. The unskilled people can be used for Mechanical and Civil works such as erection of module mounting structures, solar modules, civil foundation, etc. During the construction of the micro grids, local villagers were employed.

Three people were shortlisted at the district level for providing the rigorous training on the installation and commissioning, O&M of the Solar PV based micro grids. The trained professions will be responsible for carrying out the maintenance and also train the youth. The trained youth on Solar PV micro grids can get placed in Solar PV power plants in India and abroad.

7 SKILL SET REQUIRED AND CHALLENGES

Installation of renewable energy power project is a step in the right direction, it poses few challenges and at the same time provides a plethora of opportunities. One of the major challenges is to meet the growing need for skilled manpower, both in terms of quality and quantity.
Some of the key issues related to manpower are:

Availability of adequate skilled manpower

The sector is facing challenges in sourcing skilled manpower in many functional areas like manufacturing, production, installation, operation & maintenance, marketing and research & development. As the sector is relatively new and fast growing, there is a shortage of experienced or skilled manpower. It is also important to note that the renewable energy sector is more manpower-intensive than the conventional energy sector.

Attracting talent

There is a general lack of awareness amongst the student community on the challenging career and entrepreneurial opportunities that exist in this sector. There is an opportunity to attract students, enthusiastic young entrepreneurs, and experienced professions in this sector.

Training and capacity building

The installation, operation and maintenance of renewable energy systems need specific skills and knowledge. To impart this skill and knowledge to those entering the sector as well as continuously upgrading them, there is a need for training and capacity building. Currently there is a shortage of renewable energy trainers or training centres, who can offer this service to the industry. Also, there is a need to setup institutional mechanisms to offer intensive and comprehensive training in all aspects of renewable energy.

8 COMMUNITY OWNERSHIP

Apart from creating improved access to electricity, the plan is to generate a sense of ownership to the project from the community by ensuring their participation from the very beginning. This enables long term ownership of the system and hence its sustainability. Essentially the idea is that each household contributes a certain amount per month as decided by the Gram Sabhas to contribute towards basic maintenance of the system even though in practise this might pose as a challenge particularly with regards to regularity in contribution.

It is in this context, that we propose a metering system along with the solar system (at least one per village, which is not considered at this stage) so that the community can be made aware of their consumption patterns and accordingly be willing to make corresponding contribution towards maintenance.

In addition, in the long term the government's policy on net metering (when installed) policy may facilitate the community to augment their contribution towards maintenance of the solar project by contributing to grid electricity.

WOMEN SUPPORT:

In the first phase, the local villages cooperated in installation and commissioning of the projects at different villages. Women of the local villages actively supported in Civil and Mechanical works while installation of the project. The involvement of women during the project construction phase shows the need of electricity for the villages.

Photographs: Women helping in installation and commissioning of the project

8.1 Community Organization and Exposure

Since the community is quite unaware of the efficacy of such a solar system, capacity building programs with the community before and after the installation is imperative. Several meetings were organized with representatives of the villages that will receive power from the project.

The initial attempt was to explain how the Solar system works and will power the village along with its limitations. One person from each village was identified to create awareness about the solar powered systems. Eventually we envisage informal committees in each village to emerge to carry out the responsibilities related to running and maintaining the system.

8.2 Operational committee

Youth normally come forward to learn how to run the system. One youth from each village invited to take responsibility to ensure collections every month and take care of basic issues that may arise in the electricity distribution. The youth will also be responsible for training the fellow villagers. The idea is that he is given basic training in the precautions necessary to run the system and take care of minor

repair issues. Additionally, when there is a major problem they could get in touch with implementing agency and seek consultation from qualified engineers to make the necessary repairs.

Each household contributed a onetime amount of Rs 150 towards the project. Village level committee will be responsible for managing the corpus fund for any repair and maintenance of the system.

9 CAPACITY BUILDING

During the implementation of the Solar PV based micro grids, the local villagers were also trained on the installation of the systems. The following people were trained both class room as well as onsite.

S No	Name of the villager	Village Name	Mandal	Nature of work
1	NupaChukkaiah	Yedugurallapalle	Chintooru	Installation of BoS – House wiring, installation of boards, Micro Grids, holders etc
2	PallalaSomraju	Rekhapally	Rekhapalle	
3	NallarapuPavan Kumar	Suddagudem	Chintooru	

The identified trainers were given training in the following areas

- Electrical circuits
- Installation of Micro Grids
- Household electric connections
- Connecting the Solar PV systems
- Installation of Solar PV systems
- Maintenance of Solar PV systems

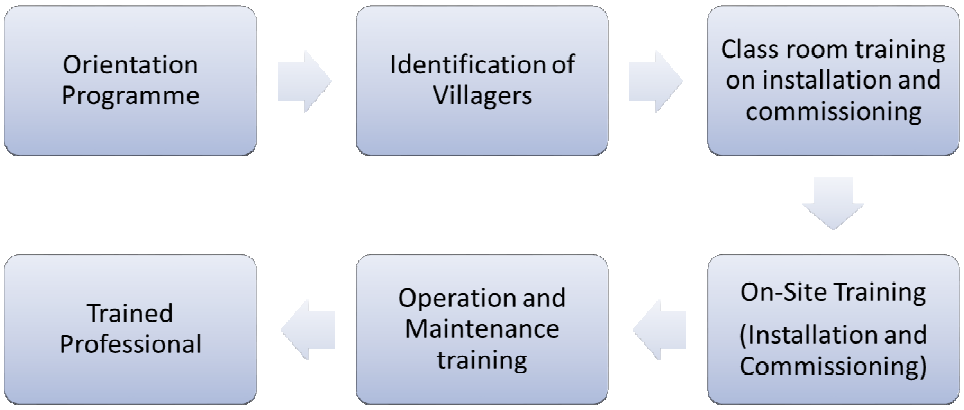
The above local villagers are now familiar about the micro grids installation and commissioning. The team is also familiar with general Operation and Maintenance (O&M) of the micro grids.

The three member team was trained on installation and commissioning training from 19th March 2017 to 7th May 2017. The tree member team was also given stipend for their support towards the installation and commissioning.

Awareness programme:

Orientation training programme was conducted in ASDS office on the village electrification.

Details of the Solar PV micro grid systems and the operation and maintenance requirements were discussed in detail with all the villagers. The load limitations and the system configuration was also discussed in detail. Villagers actively participated in the discussion and showed interest in installation of the micro grids for villages.



10 PROJECT BACKGROUND

The programme intends to establishment of mini grids in the state of Andhra Pradesh. The micro grids will be established in East Godavari and West Godavari districts. It was proposed to electrify the identified villages in four phases.

A total of 18 villages were identified for electrification in the first phase. The details of the houses:

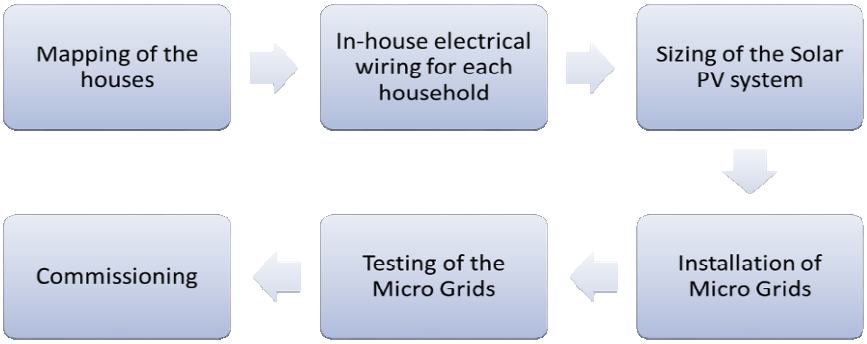
S No	Name of the Village	Total H/H	In house wiring and Micro Grid connected Nos (No of H/H)
1	Mallavaram	14	14
2	Gollaguppa	44	44
3	Bandirevu	21	21
4	ThatiGondi	18	18
5	Chukkalapadu	30	30
6	NarsingPadu	23	23
7	ChimulaVagu	26	26
8	Chandranna camp	9	9
9	Ramachandrapuram	39	39
10	Rajiv Camp	9	9
11	Venkatapuram	21	21
12	Allivagu	35	35
13	Errabore	16	16
14	ChupuruChilaka	31	31
15	Regula Cheruvu	34	34
16	Reddy Gudem	43	44
17	Jaggaram	41	41
18	Pusugumpu	6	6
	Total	**460**	**460**

In the Phase – 1, a total of 18 numbers of villages are electrified using a Solar PV based system. 460 households were given electrical connections and fully electrified.

11 INSTALLATION AND COMMISSIONING

Installation and Commissioning of the project was divided in to different phases.

1. Mapping of the houses
2. Electrical wiring for households
3. Sizing of the systems
4. Installation of Micro Grids
5. Testing
6. Commissioning



Installation of micro grids and electrical BOS started on 19th March 2017. The first village was commissioned on 3rd April 2017 and the last micro grid was commissioned on 7th May 2017. The details:

S No	Name of the Village	Total H/H	No of PV Systems Commissioned	Commissioning Date
1	Mallavaram	14	1	04-Apr-17
2	Gollaguppa	44	2	03-Apr-17
3	Bandirevu	21	1	06-Apr-17
4	ThatiGondi	18	1	06-Apr-17
5	Chukkalapadu	30	1	19-Apr-17
6	NarsingPadu	23	1	02-May-17
7	ChimulaVagu	26	1	26-Apr-17
8	Chandranna camp	9	1	17-Apr-17
9	Ramachandrapuram	39	2	19-Apr-17, 1-May-17
10	Rajiv Camp	9	1	17-Apr-17
11	Venkatapuram	21	1	03-May-17
12	Allivagu	35	1	03-May-17
13	Errabore	16	1	02-May-17
14	ChupuruChilaka	31	1	21-Apr-17
15	Regula Cheruvu	34	2	22-Apr-17
16	Reddy Gudem	43	1	23-Apr-17
17	Jaggaram	41	2	06-May-17
18	Pusugumpu	6	1	07-May-17

The commissioning of the micro grids was done only after complete testing of the system. Some of the photographs:

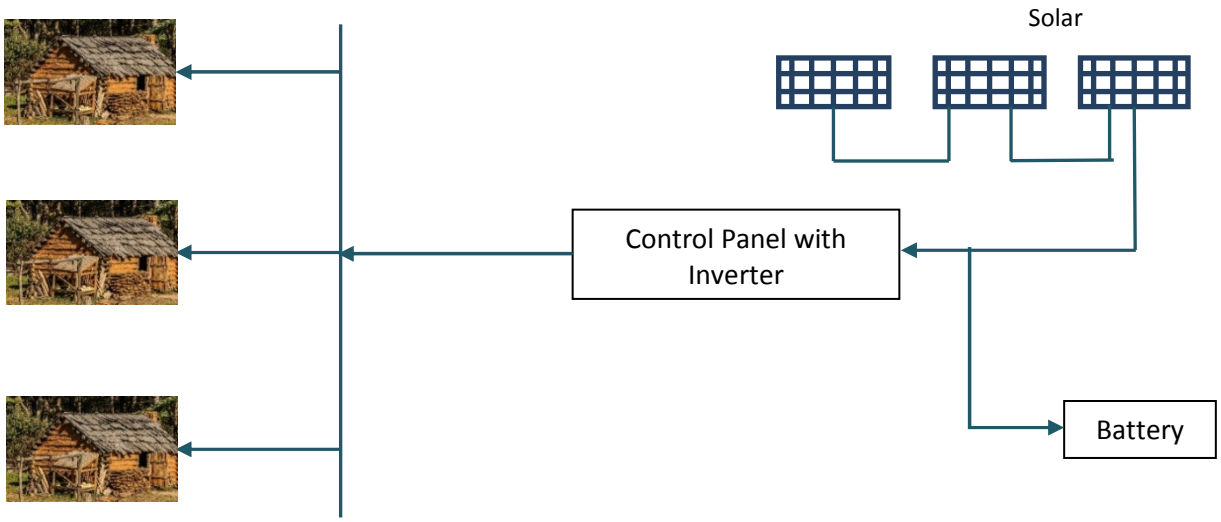
12 SYSTEM MAPPING

System mapping was carried out for all the villages. All the households are marked with house numbers. The distance between the houses was measured and recorded. Based on the mapping study, the optimal sizing of the system design was carried out. The details are annexed as an annexure to this report.

13 MICRO GRID PROJECT

Details of the each equipment:

The key components of a solar photovoltaic power system are the photovoltaic cells (solar cells) interconnected and encapsulated to form a photovoltaic module (the commercial product), the mounting structure for the module or array, the inverter and a battery system for storage. The typical line diagram is given below:



Solar PV technologies:

Crystalline silicon technologies currently account for most of the overall cell production. Single crystal PV cells are manufactured using a single-crystal growth method and have commercial efficiencies between 15 % and 20%.

Thin film cells, constructed by depositing extremely thin layers of photovoltaic semi-conductor materials onto a backing material such as glass, stainless steel or plastic, show stable efficiencies in the range of 7 % to 15 %. Thin film materials commercially used are amorphous silicon (a-Si), cadmium telluride (CdTe), and copper-indium-gallium-diselenide (CIGS) and Copper Indium Selenium (CIS).

The PV modules must confirm to IEC 61215 or equivalent BIS Standards, IS14286, for PV module design Qualification and type approval.

The crystalline technology is chosen for the proposed project due to its advantages in terms of technology, efficiency, ease of production / availability etc. For the proposed project it is proposed to deploy 250 Wp. For a building a 1,000 Wp system 4 numbers of 250 Wp solar PV modules will be utilized. The modules will be

Inverter:

Inverters are used for DC voltage to AC voltage conversion. According to output voltage form they could be rectangle, trapezoid or sine shaped. The most expensive, yet at the same time the best quality inverters, output voltage in sine wave. Inverters connecting a PV system and the public grid are purposefully designed, allowing energy transfers to and from the public grid. Inverters connected to module strings are used in wide power range applications allowing for more reliable operation.

MNRE empanelled inverters, MPPT type of capacity to be installed for any project.

For the project it is proposed to deploy 1,250 VA inverter, the modules connected in series and parallel will connected to the inverter for converting DC to AC. The output voltage of the inverter is connected to the LT side (~ 230 V) for domestic applications.

Module Mounting Structures:

The module mounting structure is designed for holding suitable number of modules in series. The frames and leg assembles of the array structures is made of mild steel hot dip galvanized of suitable sections of Angle, Channel, Tubes or any other sections for steel structure to meet the design criteria. All nuts and bolts considered for fastening modules with this structure are of very good quality of Stainless Steel. The array structure is designed in such a way that it will occupy minimum space without sacrificing the output from SPV panels at the same time.

Standards: Modules shall be mounted on a non-corrosive support structures towards due south and at a suitable inclination to maximize annual energy output. Mounting structure should be withstand for 180 Kmph wind speed with sustainability certificate. Support structures shall be manufactured with steel angles and channels; hot dip galvanization to IS 1416.716.7 Part -1. Structure shall be designed for mounting of offered Solar Modules with angle adjustment facility from 5° to 45° with an interval of 5°. All fasteners shall be of Stainless steel - SS 304.

Batteries:

Batteries convert chemical energy directly to electrical energy. A battery consists of some number of voltaic cells. Each cell consists of two half-cells connected in series by a conductive electrolyte containing anions and cations. One half-cell includes electrolyte and the negative electrode, the electrode to which anions (negatively charged ions) migrate; the other half-cell includes electrolyte and the positive electrode to which cations (positively charged ions) migrate. Cations are reduced (electrons are added) at the cathode during charging, while anions are oxidized (electrons are removed) at the anode during charging. During discharge, the process is reversed. The electrodes do not touch each other, but are electrically connected by the electrolyte. Some cells use different electrolytes for each half-cell. A separator allows ions to flow between half-cells, but prevents mixing of the electrolytes.

MNRE Empanelled Batteries shall be Flooded Electrolyte Type, Positive Tubular Plate; low maintenance or Tubular gel Valve Regulated Lead Acid (VRLA) type batteries of 2 or 12 Volts cell of capacity as indicated in the scope of works of the system to be installed.

For the project it is proposed to deploy four numbers of 150 AH batteries for each 1000 Wp system to make sure that the battery provides necessary power backup. The DC energy generated from the Solar PV panels will be used for charging the battery during the sunny hours. The batteries will supply power during the night time or when required based on the energy demand.

Cables and Connectors:

The size of the cables between array interconnections, array to junction boxes, junction boxes to inverters etc shall be so selected to keep the voltage drop and losses to the minimum. Our effort will be to source the bright annealed 99.97% pure bare copper conductors that offer low conductor resistance, they result in lower heating thereby increase in life and savings in power consumption. These wires are insulated with a special grade PVC compound formulated. The skin coloration offers high insulation resistance and long life. Cables are flexible and of annealed electrolytic grade copper conductor and shall confirm to standards and are extremely robust and resist high mechanical load and abrasion.

Civil works:

The civil engineering works shall include the design, detailing, and construction of all foundations, structures, installation and service of facilities required for the installation, commissioning, operation and maintenance of all equipment associated with the Power Plant.

The civil works includes the following: preliminaries, additional survey, soil exploration, piling if needed, ground improvement, foundations, and all necessary site investigation associated with the operations. Site leveling and grading with boundary fences, and gates (if required). In order to avoid flooding, rain water drainage system may be considered while designing the plant layout.

Other Accessories:

The energy generated from the solar PV modules is directed to the central inverters through the DC combiner boxes and from the inverters it is routed though the Low voltage panel / loads.

The BoS items / components of the Solar PV Power Plants/ systems must conform to the latest edition of IEC/ equivalent BIS Standards as specified:

BoS item/component	**Applicable IEC/equivalent BIS Standard**	
	Standard Description	**Standard Number**
Power Conditioners/ Inverters	Efficiency Measurements Environmental Testing	IEC 61683 IEC 60068 2 (6,21,217,30,778)
Charge controller/ MPPT units	Design Qualification Environmental Testing	IEC 62093 IEC 60068 2 (6,21,27,30,75,78)
Cables	General Test and Measuring Methods PVC insulated cables for working Voltages up to and including 1100 V-Do-, UV resistant for outdoor installation	IEC 60189 IS 694/ IS 1554 IS/IEC 69947
Switches/Circuit Breakers / Connectors	General Requirements Connectors – safety	IS/IEC 60947 part I,II,III EN 50521
Junction Boxes/	General Requirements	IP 65 IP 21 IEC 62208

Enclosures		
SPV System Design	PV Stand-alone System design verification	IEC 62124
Installation Practices	Elect. installation of building requirements for SPV power supply systems	IEC 60364-7-712

14 PROPOSED PROJECT CAPACITY

The sizing of the project was carried out based on the number of households and also the connected load. The electrical appliances supplied to each household is tabulated below

S No	Particulars	Wattage	No of equipment
1	LED Bulbs	5 W	2 Nos
2	Mobile phone Charging Point	5 W	1 No
3	TV Charging Point (village level)	50 W	1 No
4	Losses (T&D and others)	25%	-

Sample Calculation for Sizing the Project

Particulars	Value	Unit
No of LED Bulbs	2	Nos
Each LED bulb Wattage	5	W
Charging point	5	W
Total Load	**17**	**W**
No of houses	34	
Total load for 40 households	510	W
Losses (T&D and Conversion)	25%	
Gross load	**638**	**W**
Inverter Voltage	24	V
Inverter size	1200	VA
Battery Voltage	12	V
Operating hours (Autonomy)	10	hrs
Minimum battery Capacity required	266	Ah
Battery capacity considered	150	Ah
No of Batteries in Series	2	Nos
No of Batteries in Parallel	2	Nos
Total No of Batteries required	4	Nos

Hence a 1 kW system will have a minimum of 4 Nos of 150 Ah /24V batteries and the 1.2 kW inverter for providing 10 hours backup.

15 BILL OF MATERIAL

Bill of Material and make of each equipment is tabulated below:

S No	Particulars	Description	Quantity	Make
1	Solar PV Modules	1000 Wp, Poly Crystalline, MNRE approved specifications	1	HBL / equivalent with 250Wp or above as per MNRE standard specifications
2	Solar Inverter	1.2 kVA/24V Solar PCU with MPPT feature and accessories	1	Photolite / equivalent
3	Batteries	12 V, 150 Ah of 4 Nos	1	HBL / equivalent
4	Mounting Structure	Hot dipped Galvanized Iron structure more than 70 Microns	Lot	Reputed local made
5	Cables	MC4 Connectors, 2.5 sq.mm Copper cables with associated pipes	Lot	Reputed local made
6	Accessories	Installation materials including Array Junction Boxes (AJBs), boxes, stands etc	Lot	Reputed local made

16 TECHNICAL SPECIFICATIONS

The technical specifications of each equipment are tabulated.

SOLAR PV MODULES:

S No	Particulars	Value
1	Make	HBL Power Systems Limited
2	Pmax	250 Wp
3	Voc	36 Volts
4	Isc	8.57 Amps
5	Vmpp	31.14 Volts
6	Impp	8.04 Amps
7	No of cells in series	60 No's
8	Max system voltage	1000 V_{DC}
9	Mechanical Specifications	1660 mm x 990 mm x 42 mm

- All modules are made with POLY CRYSTALLINE SOLAR CELLS
- All measured tolerances on electrical parameters lies within ± 5%
- All electrical parameters specified above are measured at STC conditions (Cell0 2 temperature 25 C, 1000W/ m irradiance and 1.5 AM spectrum)
- Modules are supplied with 3 bypass diodes, 1 meter length Cables and MC4connectors

Certifications for solar PV panels:

- IEC : 61215
- IEC : 61730 - 1 & 2
- IEC : 61701
- RDSO : upto 100 W

BATTERY:

S No	Particulars	Value
1	Make	HBL Power Systems Limited
2	Model	PL 150 (C10 Tubular Batteries)
3	Voltage	12 V
4	Capacity	150 AH
5	Dimensions	522 mm x 281 mm x 317 mm
6	Weight (Wet)	60.8 kg
7	Weight (Dry)	38 kg
	Electrolyte volume (approx.)	18.2 ltr

INVERTERS:

S No	Particulars	Value
1	Make	HBL Power Systems Limited
2	Type	1.2 kVA MPPT based solar inverter / PCU
3	Rating	1200 VA
4	Battery	24 V_{DC}
5	SPV VOC	90 Vmax
6	SPV Current	30 A max
7	SPV charger type	MPPT
8	Model	HBL_1.2KVA_24VDC_MPPT

17 IDENTIFICATION OF PROJECT MATERIAL

The 22 numbers of systems are installed in 18 villages. The each and every equipment has a serial number on it so that in case of any service maintenance, the equipment can be easily traced. The name of the village and the serial number of the solar panels, batteries and inverters are tabulated.

18 IMPACT ON LOCAL ECONOMY INCLUDING CO_2e REDUCTION

Renewable Energy projects are cleaner energy generation options in comparison to other technologies. The zero dependence on fossil fuels makes it a preferred choice in comparison to non-renewable energy options.

Social benefits:

The following social benefits are

(i) Improved health,
(ii) Consumer choice,
(iii) Greater self-reliance,
(iv) Work opportunities and
(v) Technological advances

Environmental benefits:

Environmental aspects and quality of life indicate that environmental pollution is largely linked to the increasing use of energy, presently the climate changes due to heavy use of fossil fuel with emissions in to the atmosphere.

Water pollution is another aspect of environmental problem. Water pollution includes any detrimental alteration of surface waters, underground waters or the marine environment with a thermal or material pollution. Water pollution occurs primarily from:

1. Effluents such as water discharges from households, industries, trade or polluted rain,
2. Discharge of used oils,
3. Discharge of liquid substances containing poisonous chemicals including heavy metals (mercury, lead, etc.), also products like arsenic, zinc, copper nickel, cadmium, etc., and
4. Pollution by acid rain precipitation.

The following environmental benefits are

(i) Reduced air pollution,
(ii) Lower greenhouse gas emissions,
(iii) Lower impacts on watersheds,
(iv) Reduced transportation of energy resource and
(v) Maintaining natural resources for the long term

Economic benefits:

Using renewable energy generates a wide variety of economic benefits like

(i) Job creation:

It is a key part of economic development activity and for healthy economies. With the new and innovative projects coming in the villages, results in increased job creation. This will stop the migration of villagers to nearby towns or cities.

(ii) Increased agricultural produce:

With the sustainable power supply to local villages, three crops can be cultivated in the identified villages resulting in increased revenue to the villages.

(iii) Entrepreneurial initiatives:

Entrepreneurship can lead to poverty reduction. Benefits occur when workers spend part of their income in the local economy, generating spin-off benefits known as the ‘‘multiplier effect.’’ This increased spending creates economic activity in other sectors such as agro, retail, restaurant, entertainment, eco-tourism etc.

(iv) Skilled manpower:

With the increased number of industries being setup in the nearby villages, the skill set of man power may be enhanced by way of establishing industrial training centers, workshops, etc. This will not only reduce the migration of the villagers to nearby towns but also increase the skill set of the manpower of villagers.

Carbon Dioxide emissions:

By implementing a 22 kWpSolar power plant, it is estimated that the project will reduce 30 tCO_2e per annum.