

**INTEGRATED RURAL DEVELOPMENT
OF WEAKER-SECTIONS IN INDIA
(WIDA)**



Power to People:
The Putsil way...

**A case study
On
Community based Micro-Hydro**
*(Promoting livelihood activities
post electrification of remote villages in Orissa)*

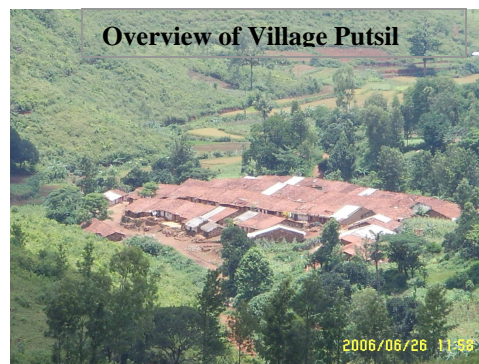
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INTRODUCTION

Often, there is an increasing need for power supply in rural areas, partly to supply industries, and partly to provide illumination at night. Mostly, energy scarcity is not viewed as a problem by the target groups because there are more serious and impending issues that need to be tackled first. For that reason it may be useful to explore energy that can generate income at some level, or contribute towards augmenting the productivity of household work. Often mini-hydro power project is the most dependable and efficient means to meet the requirements. Though they are small, comparatively they are effective. They are used in remote areas where the power grid does not extend.

PROFILE OF THE VILLAGE PUTSIL:

The village of Putsil lies at the intersection of 82 59 37 longitude and 18 42 08 latitude. The micro hydro scheme uses water from the stream Kodramb that runs close to the village. Kodramb, which is a tributary of the Karandi river, is a perennial stream which drains an area of approximately 3 sq. km. The rain climate in the region is mainly characterised by the southwest monsoon, which accounts for 1158 mm of the total annual average rainfall of 1366 mm (based on rainfall data 1970 – 1997) or nearly 85% of the annual rainfall.



The landscape in the region is characterised largely by barren mountains consisting of metamorphous rock overlain by stony-gravelly soil. It is, therefore, reasonable to expect a high surface run-off during the rainy season resulting in a heavy silt load in stream waters.

At the present the stream serves as a source of irrigation water for paddy cultivation, which is the main agricultural activity of the local population. Paddy cultivation is practice in the form of terraced blocks sloping down almost following the stream path.

HABITAT

Putsil village covers an area of 5 sq. km. The village is situated near the Deomali Hills. The twin peaks of the hill is the highest point in the whole of Orissa State. Geographically, it is located approximately 20 km north-east of Semiliguda block, Koraput district, Orissa state. Semiliguda is a small town on the Vizianagram – Jeypore road, 126 km from Vizianagram towards west and 48 km from Jeypore towards east.

POPULATION

The population of the village is 369 in total, consisting of 182 males and 187 females. The female population is more than the male population. If the age group of 14 to 45 forms the working force, 187 (50%) of the population are available for labour. In every age group the gender comparison is mainly uniformed. Above 60 years of age is considerably low. It can be presumed that lack of sufficient nutrients in their diet is the cause of short life expectancy.

TYPES OF PEOPLE

Most of the people are the original settlers of the village. Cases of migration within and outside the village is very less. They are homogeneous Adivasi Kondh of central Koraput district. They have patriarchal society. The type of family is nuclear family.

HOUSES

In the village there are 79 houses. The types of houses are mainly tile roofs with mud walls. Some of them have cement floorings. However, most of the houses consisted of mud floorings. Houses are arranged in a stretch of four lines. They shared the same wall partitions. Narrow lanes were preserved for movement among the four lines. The narrow lane like corridor is also used for community gatherings besides the existing community hall.

LITERACY

Less importance was given to female education. Despite the considerable figure of women, the educational turn out of women is very less. Female education in the primary level is slightly better. Low importance given to education and the non-functioning of the village school were the main barrier for the low educational status as a whole. Financial constraint and lack of teaching staff were the factors responsible for its close down. Through 3 of them qualified for teaching they were posted in other villages. On the other hand, the absence of educational facility rather seems to be convenient for most of them. As most of the young girls are big enough to support their family in their economic activities either within or outside the family they proved to be useful in supporting their family higher for the young women in the age group of six to thirteen years attending schools. There are also substantial disparities in the enrolment of young women, and boys at the higher level.

Interestingly 8 males from the community taught themselves how to read and write. In their life's they never attended any formal education. The literacy rate of the village is 35%, consisting of 76 males and 17 females, according to which the literacy rate very low. There is a trend towards narrowing down the ratio or literacy between males and females. Currently, most of the village community stress the importance of giving more priority to education particularly female education to enhance their economic and social status in the society.

Education holds the key to the progress of an individual and is the most important intervention for social transformation. Education along with health and nutrition is a very strong instrument for human resource development. It is also an indication of women's status. In women development, it is necessary to study women's education from different angles formal, non-formal etc.

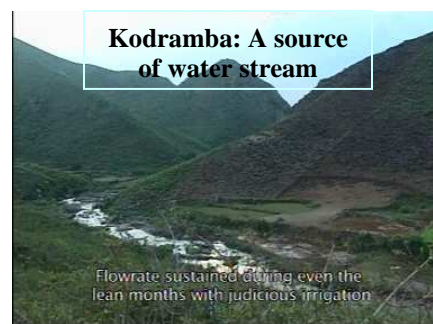
OCCUPATION

The primary source of economic livelihood is from agricultural activities. Agriculture is the main occupation of the people. The types of occupation are agricultural and non-agricultural activities. The nature of employment in agricultural sectors is cultivators and agricultural laborers. About 83% were engaged in various agricultural activities. Most of them are cultivated in their own

farms. In the non-agricultural activities only 13 people, about 17% of the total employment was involved. This sector consists of small time business, teachers and government workers. During the peak season their agricultural products to the market. Significantly, those households engaged in non-agricultural activities still possessed a patch of agricultural farms.

WATER

The existence of natural spring water preserved their source of drinking water facilities. They used the stream water for other domestic purpose and irrigation requirements. Currently they have abundant water supply in the region.



MICRO HYDRO PLANT: The catalyst:

The Micro Hydro Plant has catalysed visible changes in Putsil: increase in income, work sharing, leisure time, community initiatives; sanitation and cleanliness; awareness and empowerment; management of local natural resources, forest protection, sustainable practices of land utilization; so on and so forth.

The main beneficiaries of electrification are women. No more backbreaking hours of pounding and grinding of cereals – now they have their Mill. No more they come hurriedly from the field to do the evening cooking before it is too dark. By seven in the evening people used to go to bed in order to save on kerosene. Now they have time to attend to household chores leisurely, discuss with friends, watch TV in community center and so on. Houses are kept clean – dirt and cobwebs are easily seen with light. Children take interest in study. Leisurely cooking has improved the quality of food. Now husbands stay home in the evenings, they watch TV together or help in different work. There has been an increase in leisure time income-generating activities – most families generate additional income of about Rs.2000 in a year.



Powerhouse: At day & Night



Access to information and the world outside has become much easier. There is TV, time and facility to read books, newspapers. About ten families own TV sets; number of tape recorders and radios have also increased. The village community centre has a computer and a TV for community viewing.



The Micro Hydro also benefits the neighbouring villages. They charge batteries and use the Mill. The Mill helps in community income – out of each rupee; 0.50 paise goes to the community fund. Four young men get direct employment 2 in the Mill, 2 in



the Plant. As trained electricians, the plant operators now earn about Rs.4000 per annum out of

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wiring and allied activities in and outside their village. Recently, the community has started pisciculture-using husk generated from the Mill as fish feed. The women group has plan to augment income by processing of local produces through the Mill – they would start marketing of varieties of dal and oil through the apex women’s federation. In nighttime the people are engaged to process the Non-timber Forest Produces like; hill brooms, sikakai powder, tamarind etc. Some of the youths are trained to make the woodcrafts mounted with elegant natural colure and lac by the power operated lathe.

In order to sustain the water flow in the streams, reduce silt load as well as restore the bio diversity the villagers have taken forest protection and plantation seriously over 300 hectares of forests are protected. The community is in to a process of capacity building for sustainable use of land. They have ear marked 10 acres of land to learn nursery management, raising saplings for regeneration of endangered or lost species. They are aware of the bulk cash they would need to replace the major components after a decade or two. They have already started planting traditional cash generating trees to raise money. To take care of recurring maintenance they have bank savings of about 90,000 rupees.



COMMUNITY MANAGEMENT: Effective Adaptation of Traditional Values:

Establishment of the Plant was preceded by series of intensive interaction with the community for about two years. The objective was to build capacity of the community in management of the Micro Hydro Project; effective use of power and other end use applications; build future vision for sustainable control and management of other resources and create space for technologists, scientists, NGO’s to interface with the communities on decentralized energy options. Technical consultations and feasibility studies were carried out in participation of the community and the construction work began towards January 1999.

The Putsil Micro Hydro Committee comprising of 21 members (includes six women) manages the power generation and distribution. Each of the 80 families in the village is a consumer. The consumers are divided in to six groups and each group is assigned with specific tasks such as repair, catchment area management, etc.



One incredible aspect about the Putsil Micro Hydro is the depth of Community participation. The Community contributed about 213 thousand in form of labour towards the establishment of the plant. The approach employed by the community to manage the plant has effective combination of traditional values of concern and flexibility. This is reflected in timing of power supply, collection of fees, compensation for services to operate the plant and other end use machineries.

Since 1998, each family has been paying average Rs.20 towards electricity fund, but they are free to give less during lean season and more when they have opportunity for cash income. For

the family use, electricity is supplied from 6 pm in the evening to 10 pm; again from 3 am to 6 am, and then from 6 am to 8 am to run the Mill. The early morning power supply was initiated as per the demand of women to complete household chores before leaving for the field. During marriage, childbirth, serious illness, festivities and other such occasions power supply is given as per the need.

Initially, two youth from Putsil were trained to run the plant – they in turn train other incumbents. Against their services, the ‘barefoot engineers’ get free labour of 25 person days every month from the community for any land development or agricultural activities. Every night one or two persons from the village carry food for the operators and stay with them at the plant located about 1 km away from the habitation. Selection of persons from land less families to manage the Mill and other responsibilities shows community’s concern for justice and sharing.

PLANT OPERATION & MAINTENANCE:

Selected persons from the village community received training on the operation and maintenance of the plant, putting electrical fixtures at the household level and operation and maintenance of end use machineries. Prior to the commissioning of the plant the village community was also made aware regarding the overall aspects of the production and caution in the use of electricity, its maintenance, management and distribution of power.



Barefoot engineer in action

The project commissioned in August 1999 at present generates 10 Kws, which is sufficient for all the 80 families to have lighting, run TV/Radio during the night and the mill and machines for grinding and oil extraction, lathe for woodcrafts during daytime. The plant has potential to generate 25 Kws. During more than four years in operation power generation was discontinued for a total period of 21 days for repair and maintenance. All the equipments are insured with the Insurance Company. Otherwise hardly annual maintenance comes around Rs.7, 000/-.

ENERGY AND THE SUSTAINABLE DEVELOPMENT DILEMMA:

Development means a process by which we attempt to improve all aspects of the human condition – economic, social, political, and more. It should be obvious from the outset that the environment and the economy are both essential ingredients of development. When we think of sustainable development, it often means conducting improvement processes through ways and means that are consistent with maintaining improved conditions indefinitely. This is one of the most, if not the most, demanding challenge under the sustainability criteria in its environmental conditions and processes. The role of energy in this is fundamentally two sided. Energy in adequate quantities and affordable forms is clearly an indispensable ingredient of economic improvement. At the same time, energy is the dominant ingredient, and contributor to most of the difficult and intractable environmental



Child Education in Night

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problems at every level, from the global, through the regional, down to the very local. Therefore, at the heart of the sustainable development dilemma, in its economic aspirations but in ways that does not lead to intolerable environmental damage.

CONCLUSION:

In dwelling on the implication of technology for women in the rural areas and recommendation options and methods for technology adoption, certain ideological factors must be kept in mind. Exercising intelligence choice, which pre suppose discrimination and deliberation becomes possible only from an ideological base. We must be clear about what we are aiming at and how we are to get about it. Do we want economic gain and increased productivity leading to material we are to get about it? Do we want economic gain and increased productivity leading to material development alone or are we also aiming at social development and evolution of better human beings? With the dwindling natural non-renewable resources, human resources could be of immense value. In some spheres, like power technology, new methods are essential to increase production of optimal level; here discrimination of women could be encounter with upgrading of skills and provision of alternative employment or what so ever it may be. Introduction of appropriate technology does not necessarily lead to liberate condition of women. It calls for change in social values and norms. Technology should be developed and used in such a manner those woman scans uses them with confidence and reduce their drudgery.

With zero submergence, zero displacement the Micro Hydro Plant in Putsil has achieved cent percent integration to a sustainable development process. Along with power generation, it has made the Community realize the Power with collective dream and determination. The Micro Hydro Plant has provided a road map and Putsil has just begun the Journey.

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