



Subsidised tariff rates coupled with high geographic dispersion and remoteness makes power supply to rural consumers a loss making proposition. Conventional revenue collection and monitoring systems do not work well in rural areas. This leads to a vicious cycle of increasing neglect of rural power supply and discontentment and non-payment among consumers.

Micro-retailing of rural power supply through recognized user groups called *village bidyut sangha* has been tried with great success in western Orissa. Microprivatisation has resulted in marked improvement in quality of power supply for consumers and streamlining of revenue collection for the utility.

Now, even local private entrepreneurs are being involved in Orissa and variants of the model are being tried out in other states like Karnataka.

Water Policy Research

Highlight

Community Intermediation in Rural Power distribution

D. N. Rao
S. Govindarajan

Download this paper from
<http://www.iwmi.org/iwmi-tata>

Community Intermediation in Rural Power Distribution¹

RESEARCH HIGHLIGHT BASED ON A PAPER TITLED:

“COMMUNITY INTERMEDIATION IN RURAL POWER DISTRIBUTION”

PROBLEMS IN SERVING DOMESTIC RURAL CONSUMERS

In April 1999, Orissa became the first state where electricity distribution was privatised. The state was divided into four zones and a separate distribution company was formed for each zone. Three of the four companies (WESCO, NESCO, and SOUTHCO) were taken over by BSES (Bombay Suburban Electric Supply Company) while the fourth (CESCO) was taken over by AES (American Electricity Supply Company).

A rural area of the size of Bhubaneswar will have 4000 power consumers with a revenue potential of Rs. 0.7 million a month while Bhubaneswar has 96,000 consumers and a revenue potential of Rs. 22 millions. Geographic dispersion and remoteness of rural consumers ensure that traditional revenue collection techniques that work in urban areas will not work in rural areas.

The electricity tariff structure in Orissa, like the rest of India, operates on cross subsidies. For example in WESCO for the period 1999-2000, average tariff for large industries was Rs. 3.77 per unit while that for a domestic rural consumer was Rs. 1.52 per unit. Also, the recovery of dues from large industrial consumers is much easier than that of domestic consumers. Hence, we have a situation

where large industries (EHT+HT) show a collection recovery of 91 percent while domestic rural consumers show a collection recovery of 31 percent². The cost of the power purchased by WESCO for supply to domestic rural consumers is estimated to be worth Rs. 81.50 crore. WESCO was able to bill only Rs. 33.11 crore to these consumers and the collection was Rs. 10.38 crore. Geographic dispersion and remoteness of rural consumers ensure that traditional revenue collection techniques that work in urban areas will not work in rural areas. To illustrate, a rural area of the size of Bhubaneswar will have approximately 4,000 consumers. Bhubaneswar has 96,000 consumers. In addition, collection efforts in rural areas can be unremunerative. The same rural area described above will show a collection potential of Rs. 0.7 million a month. The collection figure for Bhubaneswar is Rs. 22.0 millions a month.

The implication of these figures is clear: electric supply to rural domestic consumers is a loss-making proposition and urgent steps are needed to be taken to make this viable. Due to problems in collection and the low revenue potential, the utility has been ignoring this sector. The quality of power supply is appalling. Power breakdowns are frequent, voltages are low (in many cases, as low as 40 volts) and transformer breakdowns are endemic. Poor quality of power supply in rural

¹The research covered by this IWMI-Tata Research Highlight was carried out with generous support from Sir Ratan Tata Trust, Mumbai under IWMI-Tata Water Policy Programme. The research paper can be downloaded from the IWMI-Tata Website <http://www.iwmi.org/iwmi-tata>.

This is a pre-publication paper prepared for the IWMI-Tata Annual Partners' Meet. Most papers included represent work carried under or supported by the IWMI-Tata Water Policy Program. This is not a peer reviewed paper; views contained in it are those of the author(s) and not of the International Water Management Institute or Sir Ratan Tata Trust.

²All figures are for WESCO for the year 1999-2000.

areas affects the economy of the village since they cannot use any form of mechanisation. Hence, unless a situation is devised in which the consumers as well as the utility gain, this has the potential to spiral into a vicious cycle where the power situation in villages keeps getting worse and revenue streams dry up.

THE SOLUTION TO THE PROBLEM

Any solution to this problem will have to benefit both stakeholders: rural consumers and the utility. The consumer has to see benefits of better quality electricity supply while the utility has to see better cash flows in the short run and lower T&D losses in the long run.

The first initiative was taken by a group of villagers in Sahajbahal, Balangir district in 1996. This village was without power for two years since their transformer had burnt down. The utility refused to change the transformer unless the villagers paid half the dues – a standard practice in those days. The villagers refused to pay since they felt that the arrears shown against their name should not be paid because of the poor quality of supply. Two opinion leaders of this village (a school teacher and the village Sarpanch) proposed a way to break the deadlock. Their solution was: a village committee to manage the electricity related affairs of the village. This committee called *village bidyut sangh* (VBS), would first convince consumers to pay the arrears to get the transformer reconnected. Then, it would act as a complaint cum collection centre for the utility. Over time, this committee started applying peer pressure to stop illegal consumption of electricity and sanctioning new connections. It has been instrumental in getting better quality of power supply to the village, speedy solving of complaints, and better revenue for the utility – a classic win-win situation.

The question at this stage was whether the Sahajbahal experiment was an isolated incident or could the method be replicated over a larger area?

To test this, the consulting wing of the Xavier Institute of Management (XIM) presented a proposal to WESCO for replicating this model in 100 villages. WESCO commissioned the pilot project in August 1999. The objective was to form village committees (*bidyut sanghas*) to look after the interests of both consumers and WESCO. The roles and responsibilities of the village committees would include:

- Functioning as a customer care centre in the village.
- Appointing and monitoring a person from the village who will take meter readings and distribute bills in the village. This person is called the village contact person.
- Functioning as a one point collection centre for WESCO.
- Exercising judgement on issues pertaining to sanction of new connections, installment agreements, disconnections, and regularisation of unauthorised consumers.

XIM-B had to form 100 village committees in six months and train them so that they could interact directly with WESCO and act as a nodal agency between the villagers and WESCO. Showing improvement in collections was another important goal. Collection prior to the project was Rs. 1.5 million for the six-month period for the 100 villages. WESCO contributed in the process by giving formal recognition to village committees formed by XIM; improving the infrastructure in critical areas identified by village committees; and installing meters and sanctioning new connections in areas identified by village committees.

MAJOR BREAKTHROUGHS ACHIEVED IN THE PILOT PROJECT

After project implementation, collection in the project area has increased from the baseline of Rs. 1.5 million to Rs. 3.11 million in the project

period an increase of 107 percent. This growth is to be viewed keeping in mind two important things:

- 1) This collection was achieved without a single threat of disconnection. In some cases, the village committees themselves recommended disconnections.
- 2) The region where the pilot took place is a predominantly agrarian area. Historically, collections have a strong correlation with crop yield. The crop yield this year has not been very good. This is borne out by the fact that overall collection in this area has actually dropped by 1 percent over last year.

The success in the pilot areas highlights the validity of the concept and the extent of customer delight with the concept. People paid voluntarily even when their disposable incomes were lower than anticipated.

In addition to the increase in collections, there were other significant breakthroughs achieved during the project. Some of these are given below:

- In most areas, consumers resist installation of meters. In the project area, since consumers had been educated about the tariff structure, they welcomed metering of their premises.
- Because of the metering exercise, consumers stopped using heaters and in many villages, voltage showed a dramatic improvement. In the four villages where 100 percent metering has taken place, the voltage is sufficient for tubelights during evening peak load hours.
- The metering exercise has led to conservation of power.
- System improvement activity coupled with metering led to voltage improvement over a 30-km stretch (from 40/60 volts to 180/200 volts).
- The formation of village committees transfers a sense of ownership to the villagers. In seven villages, the village committees themselves

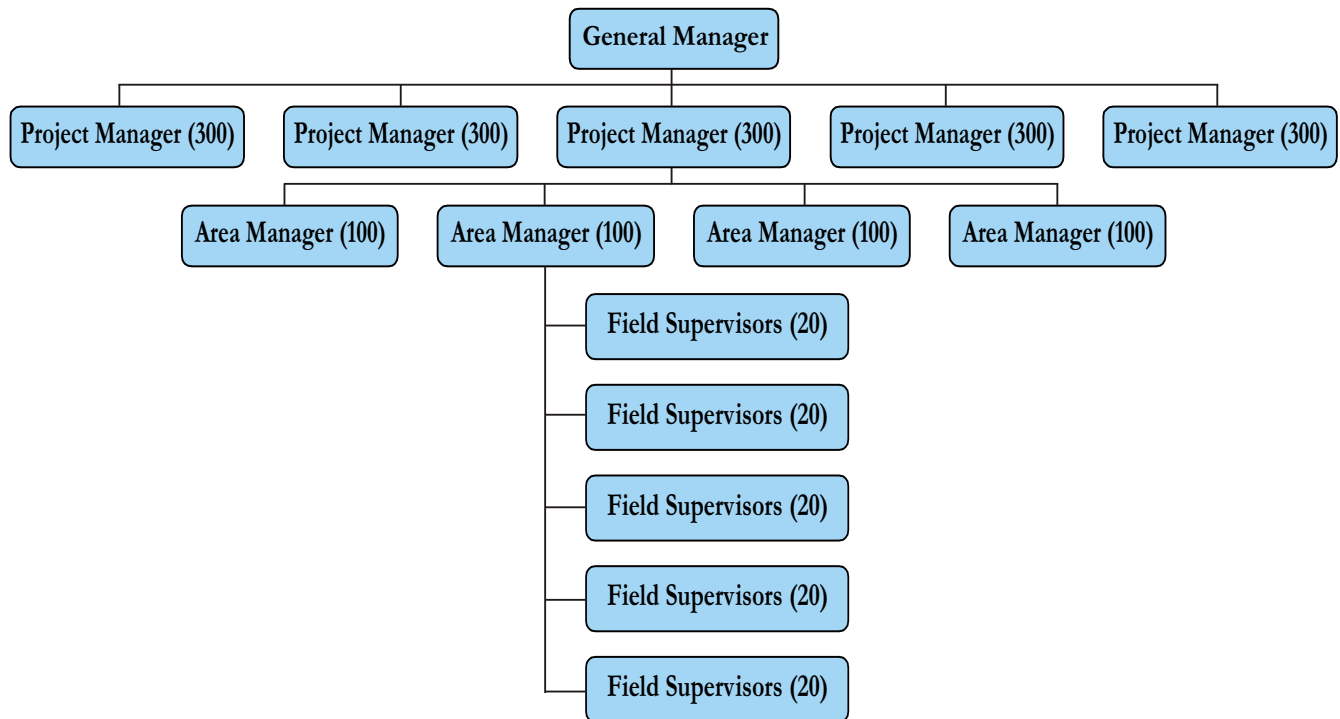
- recommended disconnection. In many villages, the committee members patrol the village as “vigilant squads” to prevent illegal reconnection.
- The power of the village committee can be gauged by the fact that even influential people in villages were penalised in cases of theft. In one case, the village committee penalised and fined a doctor for bypassing his meter. Given the high social status a doctor enjoys in a village, this drove home the message that nobody is above the law.
- The section and sub-divisional staff of WESCO, who initially opposed the project, have admitted in public forums that this project has made their job much easier and streamlined.
- Not a single transformer has burnt down in the pilot project area.

The main motive for the villagers to cooperate in this project was solely improvement in quality of power and quick service delivery. There was no other financial incentive for the committee. The village contact person (VCP) however was paid Re. 1 for meter reading and bill distribution. These operations were anyway outsourced even before. Instead of employing contractors from towns, WESCO entrusted this responsibility to villagers themselves. The VCP reports to the committee and hence works under its direct supervision.

FIELD ORGANISATION

Almost a parallel network of project support working hand in hand with the utility staff was created for the project. The quantum of historical problems in the villages is such that such an elaborate network was initially required. This structure gives WESCO the benefit of utilising the services of qualified and talented professionals without having to employ them directly. As the project gains momentum and the committees and the VCPs become strengthened, the project structure can withdraw.

Figure1: Organisational Structure of the Project Unit



N.B: Figures in brackets indicate number of villages

LOOKING AHEAD

While the pilot project demonstrated that scope for system improvement and collection improvement exists, there are three major areas where considerable work needs to be done:

- Strengthening the village committees so that they are able to exercise their rights and responsibilities in a more forceful way and interface effectively with WESCO staff.
- In the long run, bring up collections to 80 percent of input. This however, would be possible only when 100 percent metering is done and all villages have their transformers metered. This objective becomes relevant only after these two activities have been completed.
- In the long run, the project will have to also put in place mechanisms for sustaining the achievements of the project. It will be impossible for any utility to directly deal with so

- many committees without the help of an intermediary organisation.
- It is to be noted that simple improvements in collection will not lead to dramatic improvements in the bottom line of the utilities. The electricity theft due to hooking (visible theft) and bypassing of meters (invisible theft) needs to be tackled. It is felt by the utility that, unless the local community is made a partner in loss reduction, the experiment will not be successful.

PERFORMANCE CONTRACTS

Even local private entrepreneurs are now being involved to play the role of intermediation between communities and the utility. Such entrepreneurs have to be compensated based on their performance in reducing loss which requires metering of feeders and transformers.

One way of handling the problem of sustainability is to encourage local entrepreneurs to come forward and play the role of intermediation between the village committees and the utility. Ideally such entrepreneurs need to be local and have to be compensated based on performance in reducing loss. However, working out such contracts will need metering of all feeders and distribution transformers. WESCO, with the help of XIMB, has designed two types of contracts: one being a simple collection efficiency improvement contract and input based loss reduction model for contracting.

The collection efficiency based contracts are in operations with two parties in 700 villages. Here the entrepreneur is compensated on the basis of the collection to billing ratio of the LT (low tension) sector of the area. There is a monthly target set for collection. The entrepreneur is paid 7-8 percent of the collection as incentive. There is a system of penalty for shortfalls. The entrepreneur will also get a bonus for collections beyond the target. It is estimated that gross earnings for the entrepreneur (if he does get any incentive) will be Rs. 5,000 a month (with a take-

home income of about Rs. 2,000 a month). If he achieves the start of the 35 percent slab, gross earnings will be approximately Rs. 8,500 a month with a take-home income of about Rs. 4000 a month. If he achieves start of the 49 percent slab, his gross earnings will be approximately Rs. 15,000 a month (with a take home income of about Rs. 8,000 a month).

SPREAD TO OTHER AREAS

Microprivatisation is a method of ensuring that the consumer gets what he/she is entitled to. This results in gains to the utility as also as a satisfied consumer is more willing to pay. Thus, microprivatisation is also a driver of collection growth for the utility.

Based on the results of the pilot project, WESCO is now operating in 1,600 villages (covering 50,000 consumers) in Kalahandi and Nawapara. WESCO appointed intermediaries are working in Bargarh and Deogarh divisions. Given below are some of the achievements in Kalahandi and Nawapara districts:

Fixed Payment

- Rs. 1/consumer for meter reading. Rs 1/consumer for distribution of bills. Meter reading and distribution of bills will be monthly (instead of bi-monthly in other areas).
- Rs. 1.50 a month/money receipt cut (subject to a maximum of Rs. 1.50 per consumer. In other words, if a consumer pays in three installments in a month, it will still amount to one money receipt).

Incentive

- 0% if collections/input is less than 35 percent. Collection is cash collection in the area assigned to the franchisee. Input is the cost of input energy supplied to the franchisee's area, which is measured at the 11 kV feeder, supplying energy to the franchisee's area. This is computed at the retail supply tariff (total billing in the area in rupees divided by the total billing in the area in electrical units).
- Using the same definitions above, 1 percent of cash collected if the collection/input is between 35 percent and 49 percent and 2 percent of cash collected if the collection/input is greater than 49 percent.

- The consumer base has increased from 19,506 to 31,248 – an increase of 60.20 percent. All the new connections have been given at the prescribed WESCO rate of Rs. 652 (earlier premium charged was Rs. 2,000 - Rs. 2,500 per connection).
- The consumer base for SC/ST consumers has increased from 7,266 consumers to 11,839 consumers – an increase of 62.94 percent. This increase is higher than that of general consumers (which is at 58.57 percent).
- The number of metered consumers at the start of the project was 8,295 (out of a total of 19,506 – a total of 42.52 percent). Today, there are 20,417 metered consumers (out of a total of 31,248 consumers – a total of 65.34 percent).

- The maxim “a satisfied consumer will pay” has been proven by a simple fact: cash collection (from April 2002 to November 2002) was Rs. 22.29 million compared to Rs. 9.73 million collected in the previous year – a staggering growth of 129.12 percent.

It can be seen quite clearly that microprivatisation is a method of ensuring that the consumer gets what he/she is entitled to. This results in gains to the utility also as a satisfied consumer is more willing to pay. Thus microprivatisation is also a driver of collection growth for the utility. The results of the project has attracted considerable attention in India. Karnataka has invited XIMB to explore the feasibility of the proposition. Andhra Pradesh, West Bengal, Punjab and Gujarat are some other states which have shown interest.



IWMI-Tata Water Policy Program

The IWMI-Tata Water Policy Program was launched in 2000 with the support of Sir Ratan Tata Trust, Mumbai. The program presents new perspectives and practical solutions derived from the wealth of research done in India on water resource management. Its objective is to help policy makers at the central, state and local levels address their water challenges – in areas such as sustainable groundwater management, water scarcity, and rural poverty – by translating research findings into practical policy recommendations.

Through this program, IWMI collaborates with a range of partners across India to identify, analyse and document relevant water-management approaches and current practices. These practices are assessed and synthesised for maximum policy impact in the series on Water Policy Research Highlights and IWMI-Tata Comments.

The policy program's website promotes the exchange of knowledge on water-resources management, within the research community and between researchers and policy makers in India.

IWMI-Tata WATER POLICY PROGRAM

Elecon, Anand-Sojitra Road
Vallabh Vidyanagar, 388120, Gujarat, India
Telephone: 91-2692-229311-12-13
Fax : 91-2692-229310
E-mail: iwmi-tata@cgiar.org
Website: <http://www.iwmi.org/iwmi-tata>



FUTURE
HARVEST
IWMI is a Futures Harvest Center
Supported by the CGIAR

HEADQUARTERS

127 Sunil Mawatha, Pelawatte, Battaramulla, Sri Lanka
Mailing Address : P. O. Box 2075, Colombo, Sri Lanka
Telephone : +94 1 787404,784080 ; Fax : +94 1 786854
E mail : iwmi@cgiar.org

REGIONAL OFFICE FOR ASIA

(Bangladesh, China, Nepal and Sri Lanka)
127 Sunil Mawatha, Pelawatte, Battaramulla, Sri Lanka
Mailing Address : P. O. Box 2075, Colombo, Sri Lanka
Telephone : +94 1 787404,784080,1 ; Fax : +94 1 786854
E mail : iwmi-asia@cgiar.org

CHINA

Center for Chinese Agricultural Policy,
Chinese Academy of Sciences
Building 917, Datun Road, Anwai, Beijing, 100 101, China
Telephone : +86 -10 64889440,64856535,64856837
Fax : +86 -10 64856533
E mail : j.wang@cgiar.org

NEPAL

GPO 8975 EPC 416, Kathmandu, Nepal
Telephone : +977-1 535382 (Ext. 486)
Mobile Tel : 9810 - 22573 ; Fax : +977-1 523996
E Mail : d.pant@cgiar.org

REGIONAL OFFICE FOR AFRICA

141, Cresswell Street, 0184 Silverton, Pretoria, South Africa
Mailing Address: Private Bag X813, Silverton 0127, South Africa
Telephone : +27-12 - 845 9100 ; Fax : +27-12 - 845 -9110
E Mail : iwmi-africa@cgiar.org

KENYA

C/o. ICRAF, United Nations Avenue, P. O. Box 30677, Nairobi, Kenya
Telephone : +254 - 2 - 524751,524000 ; Fax : + 254 -2 - 524001
E Mail : f.gichuki@cgiar.org

GHANA

IWMI Ghana, CSIR campus, Odeh Block,
Airport Res. Area, Accra
IWMI Ghana, PMB CT 112, Cantments, Accra, Ghana
Telephone : +233-(0) 21-784752/53/54 ; Fax : +233-(0) 21-784752
E mail : iwmi-ghana@cgiar.org

REGIONAL OFFICE FOR INDIA

C/o. ICRISAT, Patancheru, AP 502 324, India
Telephone : +91-40 -329-6161 ; Fax : +91-40 - 324-1239
E mail : iwmi-india@cgiar.org

REGIONAL OFFICE FOR PAKISTAN, CENTRAL ASIA AND MIDDLE EAST

12KM Multan Road, Chowk Thokar Niaz Baig,
Lahore 53700, Pakistan
Telephone : +92 - 42 - 5410050-53(4 lines) ; Fax : +92-42-5410054
E mail : iwmi-pak@cgiar.org

UZBEKISTAN

Apartment NO.103, Home No.6, Murtazaeva Street,
Tashkent 700000, Uzbekistan
Telephone : +998 - 71-1370445 ; Fax : +998 -71-1370317
E mail : v.hornikova@cgiar.org

REGIONAL OFFICE FOR SOUTHEAST ASIA

(Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam)
P. O. Box 1025, Kasetsart University Jatujak,
Bangkok 10903, Thailand
Telephone : +66 2 561- 4433 ; Fax : +66 2 561-1230
E mail : iwmi-sea@cgiar.org