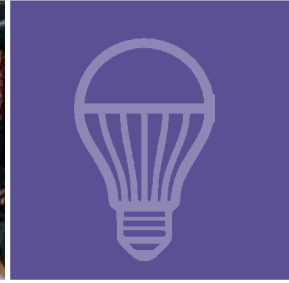
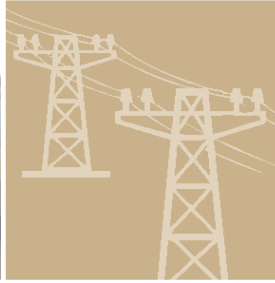
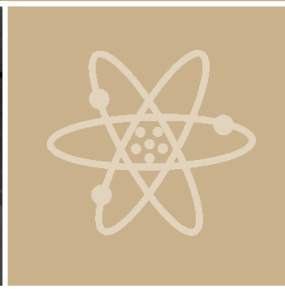


# LIGHTING THE WAY IN MANIPUR

Manipur: Post Unbundling Reforms in Distribution



**Case Study on Institutional Strengthening and Capacity Building Reforms  
for Manipur State Power Distribution Company Limited**



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## Acknowledgement

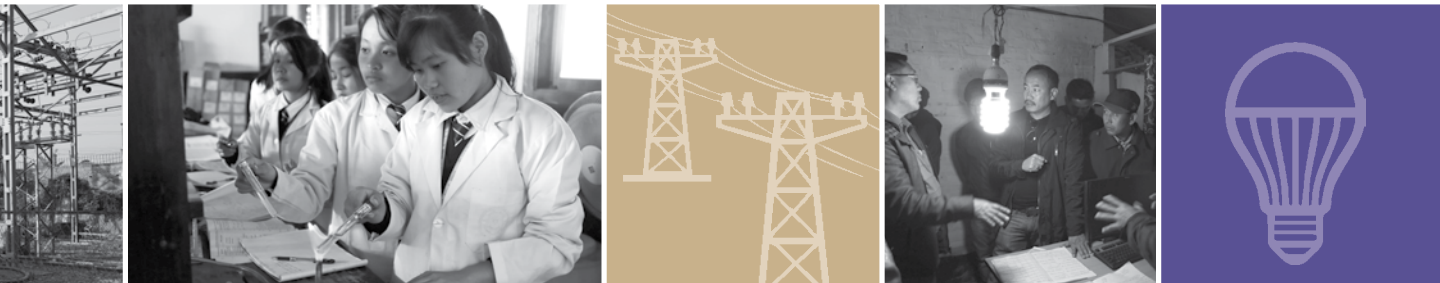
This working paper has been prepared by Rohit Mittal, Kavita Saraswat, Amol Gupta and Kwawu Mensan Gaba of the World Bank's Energy & Extractives Global Practice. The work was supervised by Julia Bucknall.

The working paper draws from the background work done by M/s Deloitte Touche Tohmatsu India Private Limited, who were engaged as consultants to the Manipur State Power Distribution Company Limited (MSPDCL) for providing Institutional Strengthening support. The team is grateful to the management of MSPDCL for its valuable inputs and support in preparation of this working paper.

Funding support from Partnership for South Asia (PFSA) Umbrella Fund is also gratefully acknowledged. PFSA is set up in collaboration with Australia's Department of Foreign Affairs and Trade (DFAT) by the South Asia Region of the World Bank to contribute to sustainable development and poverty reduction in Afghanistan, India, Pakistan, Nepal, Bangladesh, Bhutan, Sri Lanka and the Maldives.

# LIGHTING THE WAY IN MANIPUR

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February 2016







# Overview



Simple economic principles tell us that investment begets investment and wealth creates wealth. Investment of money alone, however, is seldom enough to trigger this virtuous cycle – time, effort and substantial planning are also critical elements.

The change that Manipur has undergone since the middle of 2014 supports the belief that any organization, institution or region can rise above the average if the right systems are put in place and an enabling environment created.

With focused interventions under the World Bank-supported Technical Assistance (TA) and sufficient support from the state, Manipur State Power Distribution Company Limited (MSPDCL) has taken a significant leap – from the unviable to the viable – and contributed to Manipur’s development in the process. The utility, which has a consistent history of poor operations, is poised for a turnaround. Building on this foundation of development in the energy sector, the state has initiated efforts for the sustained



Evening service at the Baptist Church in Senapati District

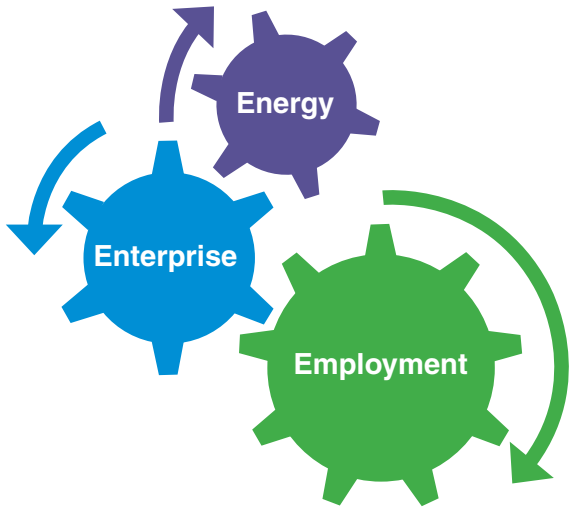


development of the enterprise. Increased availability of reliable power is facilitating:

- Mechanization of farming activity which, in turn, will lead to improvements in harvesting, storage and processing of agricultural produce while generating employment;
- Electrification and mechanization of looms and small machines which will facilitate further development in cottage industries, in general, and in handlooms, in particular; and
- Investment in the state – both from within and outside. Combined with an improved telecommunication network, it will also assist in state government efforts towards establishing Manipur as an Information Technology (IT)/Information Technology enabled Services (ITeS) hub in North East India.

The state is also undertaking activities such as:

- The Make in Manipur initiative to improve the Micro, Small and Medium Enterprises



(MSME) sector in the state. Manipur is planning to establish Common Facility Centers for processing of spices. A Detailed Project Report has been prepared and is being submitted to the Government of India (GoI);

- Boosted with potential 24x7 power supply in Imphal, the IT/ITes department is establishing an IT Special Economic Zone (SEZ) in Imphal and is looking at private sector participation. Accordingly, the first of



High tech facilities at a diagnostic Center in Imphal



A garment manufacturing unit at Takyel Industrial Estate in Imphal



A Food Park at Nilakuthi in Manipur

its kind skilling and employment programs in the IT/ITes sector are under way; and

- The state is also in touch with the Clothing Manufacturers Association of India for skilling and employment of local Manipuri youth.

With the boost that enterprise thus receives, an improvement in the employment scenario is a natural progression, both in terms of quantum and quality. Slowly but surely, Manipur is beginning to show promise, not just as an active participant in the Indian economy but also as an attractive investment destination.

The critical need now is for this momentum to be sustained – Manipur will then be proof positive that, through the establishment of processes, systems, accountabilities

and threshold performance, institutions labelled ‘mediocre’ can rise well above the ordinary.

This working paper captures the story of transformation of Manipur’s electricity distribution sector which has laid the foundation for a slow but sure transformation of a state that has seen more than its share of troubled times. This paper is about a World Bank-supported Government of Manipur’s initiative to improve and institutionalize efficient commercial, Operation and Maintenance (O&M), project-related systems and processes, institutional strengthening and creation of a robust review and monitoring mechanism for the electricity distribution sector. The result is that Manipur is – gradually but steadily – moving forward on the road to socioeconomic development.







# Energy in Manipur: Then and Now



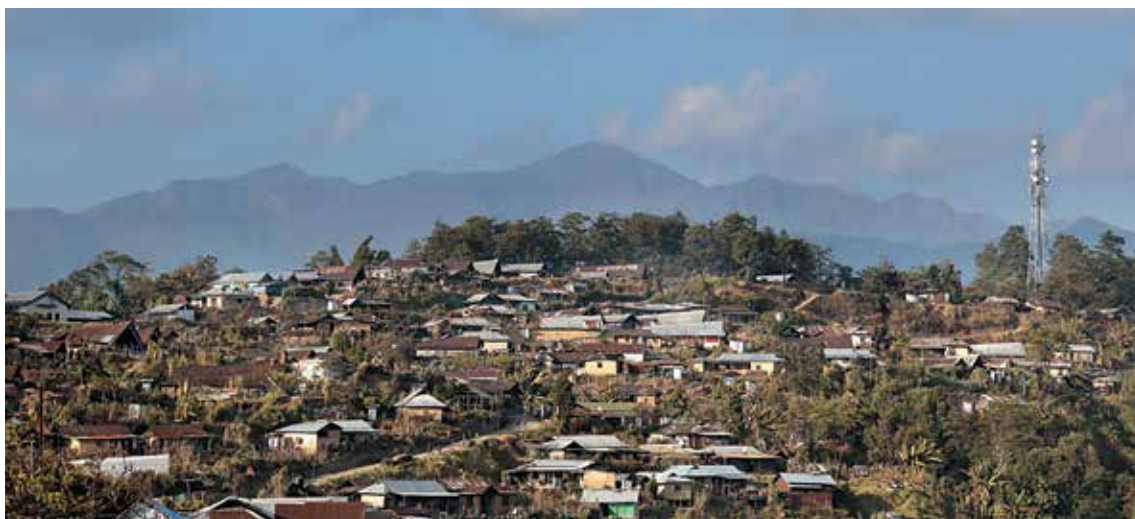
Nestled in the hills of North East India, the state of Manipur – or the Jewelled Land – had been grappling with an underdeveloped power sector. While consumer expectations and demand were growing steadily, the power sector in Manipur was grappling with continued poor performance on account of multiple commercial and operational issues.

Till March 2013, the Manipur power sector fared poorly on performance and reforms required under the Electricity Act, 2003.

As the first step towards transformation of the sector, the Electricity Department of Manipur (EDM) was unbundled into two corporate entities with effect from February 2014:

1. Manipur State Power Company Limited (MSPCL): holding company and deemed transmission licensee for the state of Manipur; and
2. Manipur State Power Distribution Company Limited (MSPDCL): power distribution licensee for the state of Manipur.

The distribution utility (MSPDCL), vested with the responsibility of improving power supply in the state, focussed on purchasing more power, including short-term purchases from power exchanges. While power input in the state improved, the utility was still faced with numerous challenges. (Table 1).



A view of Senapati District in Manipur



Linesmen stringing the Aerial Bunch Cable (ABC) in Senapati District

TABLE 1: Challenges faced by MSPDCL

Parameters	Key challenges faced by MSPDCL (2012-13 and 2013-14) <sup>1</sup>
Infrastructure Development/ Projects	MSPDCL had to implement several central government funded projects under the Government of India’s (GoI’s) Restructured Accelerated Power Development and Reform Program (RAPDRP) – Part A, RAPDRP – Part B, Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) and other state government schemes. However, MSPDCL lacked the capability to implement multiple large projects. The utility had a track record of 107 percent cost overrun (INR 47,000 million) for projects handled between the years 2009 and 2014 and was further executing projects costing around INR 6,340 million under various state and central schemes. There were general delays in project execution and closure.
Reliability of Supply	A weak transmission and distribution network was impacting the reliability and quality of supply. Lack of regular preventive/scheduled maintenance had led to an inadequate infrastructure. Maintaining the quality of power to meet consumer expectations and maintaining commercial viability were proving to be major challenges. On an average, power supply in the hills was available only for six to eight hours per day and in the District Headquarters and Valley for around 10 to 12 hours per day. Per capita power consumption was amongst the lowest in the country at 207 units.

*Contd. on next page*

<sup>1</sup> Source: Deloitte Analysis, Annual Revenue Requirement (ARR) filings and PricewaterhouseCoopers diagnostic study report.



Parameters	Key challenges faced by MSPDCL (2012-13 and 2013-14)
Commercial	<p>High Aggregate Technical and Commercial (AT&amp;C) losses were impacting the commercial viability of the utility especially with increases in power purchase costs and poor revenue recovery. The actual revenue collected by MSPDCL was only 40 percent of the power purchase cost. To achieve its business goals, MSPDCL needed to improve revenue collection drastically. The key challenges were:</p> <ol style="list-style-type: none"> <li>1. Improve access: consumer coverage was only about 68 percent of the total households in the state;</li> <li>2. Improve metering: a significant number of unmetered consumers existed in Manipur; and</li> <li>3. Reduce AT&amp;C loss: AT&amp;C loss in Manipur was around 50 percent (2013-14).</li> </ol>
Organizational Structure & Manpower	<p>MSPDCL found its organizational structure and manpower skills inadequate to meet the business requirements of a modern distribution utility in the absence of key functions and processes required to improve commercial and O&amp;M performance. An ageing manpower and lack of defined Human Resource (HR) systems were hampering employee performance and constraining sector growth and development.</p>

Overall, despite the unbundling, the power sector in Manipur was far from being reliable or commercially viable and thus also a constraint to attracting investments into the state. It was against this backdrop that the state requested World Bank support for TA focused on institutional strengthening and capacity building of power distribution utility in the state.



Karong substation in Senapati District



Students at the Human Resource Development (HRD) Academy in Imphal



# Institutional Strengthening of MSPDCL: Focus Areas and Outcomes

The World Bank-supported institutional strengthening exercise for MSPDCL was initiated in October 2014 and was focussed on Commercial, Projects and O&M functions based on priorities indicated by MSPDCL. A brief timeline of the initiatives undertaken by MSPDCL is shown in Figure 1.

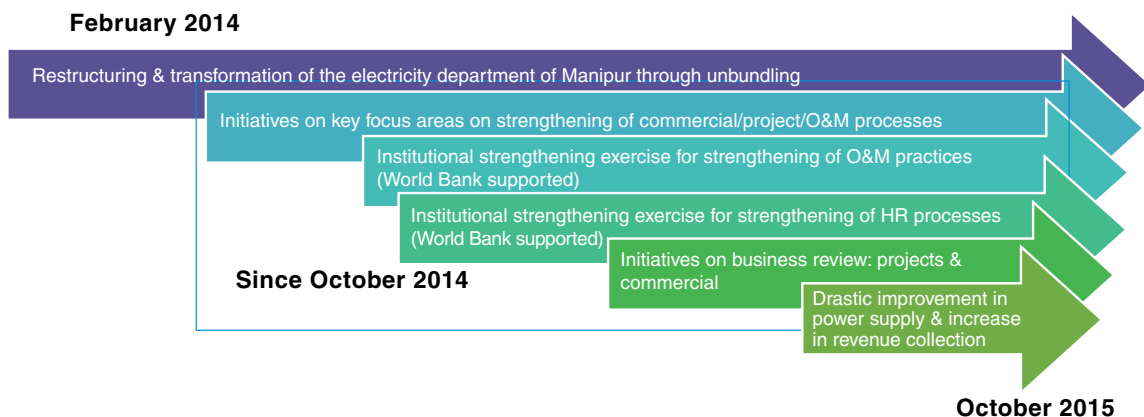
As part of the exercise, As-Is analysis of organization structure, roles and responsibilities, manpower strength, skill gaps, and HR policies and mapping of business processes - at corporate, circle, division and sub-division level was undertaken covering projects, planning, commercial, O&M and support functions. Subsequently a benchmarking exercise was done against distribution utilities of hill states and those catering to a mix of rural and semi-urban consumers, to do a



Students in a classroom at the HRD Academy in Imphal

Gap analysis. Based on the gap analysis, initiatives were identified and implemented to address the same.

FIGURE 1: Initiatives undertaken by MSPDCL



Subsequent to the World Bank-supported TA intervention, the power sector in Manipur has shown significant improvements on various fronts (infrastructure development, availability of power, reliability of supply and commercial viability). The key to the success

of this initiative is its seamless integration with the other initiatives undertaken by the utility and establishment of monitoring systems to ensure effective implementation. Table 2 showcases the various areas of intervention and outcomes.

**Focus Area 1: Infrastructure Development/Projects**

TABLE 2: Initiatives undertaken and outcomes - infrastructure development/projects

Initiatives undertaken by MSPDCL	Institutional strengthening initiatives as part of World Bank-supported TA
<p>Implementation of RAPDRP – Part A, RAPDRP – Part B, RGGVY and other state government schemes for the development of infrastructure at an overall outlay of ~ INR 6,340 million</p>	<p>Given the transition environment in MSPDCL, it was extremely critical that changes in processes, structures and roles be reviewed regularly. Accordingly, TA initiatives focussed on establishing mechanisms and improving institutional capacity for implementation of infrastructure development projects. The following initiatives were undertaken as part of institutional strengthening:</p> <ul style="list-style-type: none"> <li>• Re-engineering of project processes;</li> <li>• Establishment of a project review framework to build accountability of execution monitoring;</li> <li>• Institutionalization of a review mechanism through structural realignment, review meetings, stakeholder interactions and employee capacity building;</li> <li>• Establishment of dashboards at the division level and Managing Director’s (MD’s) level; and</li> <li>• Conducting organization-wide workshops/training on project monitoring and review.</li> </ul>



MD, MSPDCL interacting with his team in Imphal

**Outcomes**

**Outcome 1: Clearly Established Mechanism for Project Monitoring and Associated Escalations/Data Flow**

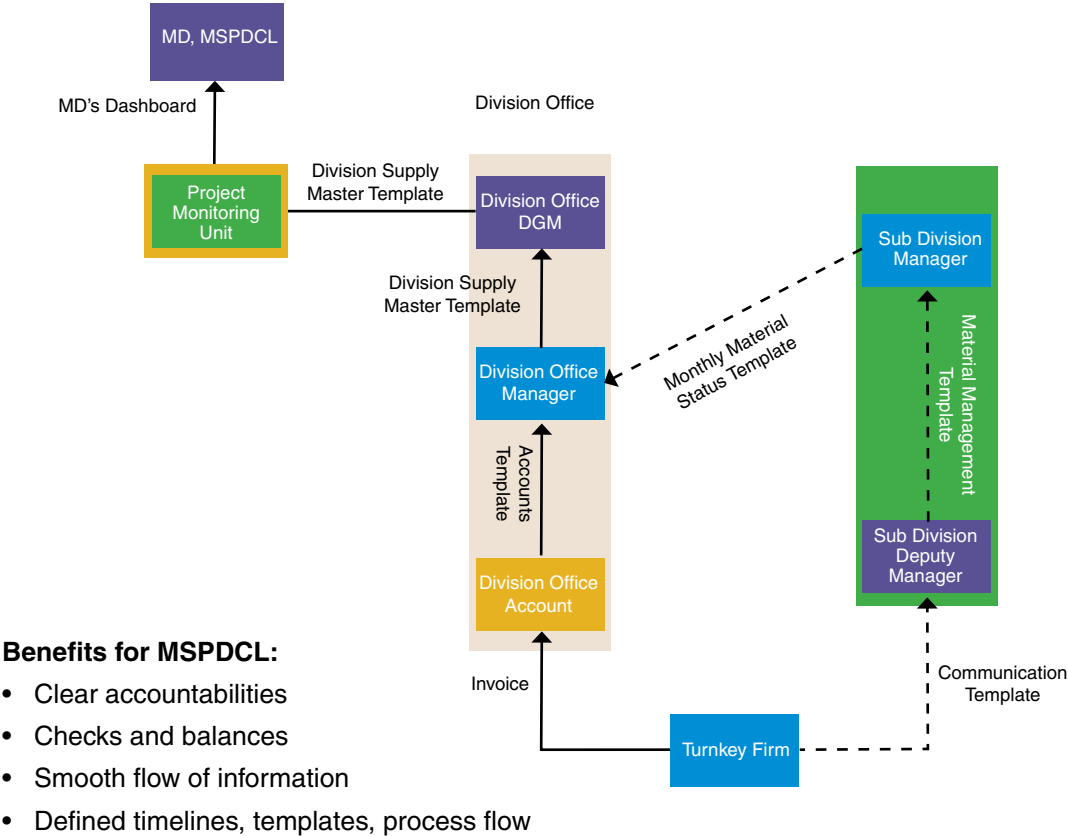
- Mechanism established with clear responsibilities for progress monitoring and escalations at various levels;
- Progress review meetings institutionalized at the field level and consolidated review of project progress established through the MD’s Review Meetings with contractors; and
- Establishment of division-wise and MD-level dashboards for regular monitoring of project performance.





Executives responding to consumers at Lamphel Consumer Care Center in Imphal

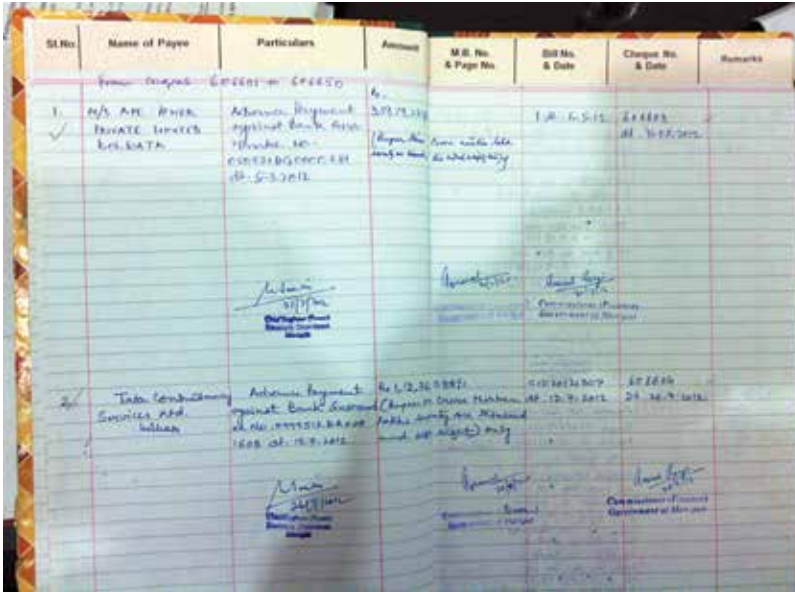
FIGURE 2: Project monitoring and data flow mechanisms



**Outcome 2: Project Monitoring Capability – Transformation**

FIGURE 3: Comparison of monitoring capability, before and after the TA

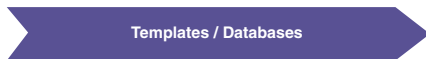
Then



Processes re-engineered and capacities developed through workshops and handholding support to improve field-level project tracking systems.

Now

Role	Task	When
Sub Division Office	Deputy General Manager (DGM) Signs in the Liability Certificate & sends to General Manager (GM) Circle in corporate office.	Only after the liability certificate is verified by Projects & Commercial Manager & entry made in Accounts template.
	Projects Commercial Manager Validates the liability certificate, signs and makes entry in the Master database & forwards to DGM.	Only after verifying the entry made by Accounts officer in accounts template.
	Accounts Officer Verify the invoice & supporting documents against record of all duplicate copies of lorry receipt, Delivery Challan, Packing list, Inspection/Testing certificate.	Only after receipt of all original documents from Turn Key Firm & supporting documents from sub division office.
	Makes entry in the Accounts template.	Only after verifying all the documents from Turn Key Firm.



Task	Item	Unit	LOA* Quantity	Material supplied Till Previous Month	Material supplied in This Month	Total Supply	Material issued till Previous Month	Material Issued this month	Total Material Issued	Material Balance	Material to be supplied as per LOA
Augmentation of LT line using 3 Phase 4 Wire AB cable of size (3x95+1x70)	1.1 kV AB Cable (3x95+1x70) sq. mm Al Conductor PVC	KM	100	20	20	40	10	7	17	23	60
	1.1 kV AB Cable (3x70+1x50) sq. mm Al Conductor PVC	KM	100	20	25	45	10	10	20	25	55

\* LOA - Letter of Award

Outcomes (1) and (2) have had a clear impact on the overall pace of project execution as is evident from the table below.

Projects	Completion status as on 2013-14 (% completion)	Completion status as on 2014-15 (% completion)	Completion status as on January 2016 (% completion)
R-APDRP – Part A	40%	70%	95%
R-APDRP – Part B	0%	20%	85%
GGVY Xth and XIth Plan	50%	80%	95%
GGVY XIIth Plan	NA	NA	15%
Integrated Power Development Scheme (IPDS)	NA	NA	Initiated in 2015-16

## Focus Area 2: Reliability of Supply

TABLE 3: Initiatives undertaken and outcomes - reliability of supply

Initiatives undertaken by MSPDCL	Institutional strengthening initiatives as part of World Bank-supported TA
<p>Energy purchase with the support of the state government to reduce the demand-supply gap.</p> <p>Strengthening of 11 kilovolt (kV) distribution system:</p> <ul style="list-style-type: none"> <li>• Replacement of bamboo poles, wooden poles, broken poles, wear and tear poles and short poles with suitable poles; and</li> <li>• Replacement of small size conductors with those of bigger sizes to enable them to carry the full load from distribution transformers.</li> </ul> <p>MSPDCL undertook the following initiatives to improve O&amp;M processes:</p> <ul style="list-style-type: none"> <li>• Completed subdivision-wise asset mapping including development of feeder-wise transformer database;</li> <li>• Deployed personnel at the subdivision level to maintain distribution assets;</li> <li>• Created a preventive and regular maintenance schedule and is planning to implement it through an outsourcing model;</li> <li>• Planning to refurbish/replace the old distribution assets to reduce technical loss; and</li> <li>• Initiated consumer care centers to capture consumer complaints related to prepaid and non prepaid meter (fuse of call) related complaints.</li> </ul>	<p>The TA initiatives included study and reengineering of O&amp;M processes.</p> <p>The initiatives are also currently focussed on establishing mechanisms for:</p> <ul style="list-style-type: none"> <li>• Designing preventive maintenance systems;</li> <li>• Grievance redressal through consumer care centers;</li> <li>• Community involvement in O&amp;M including prevention of theft;</li> <li>• Establishing structural and role accountability for O&amp;M processes; and</li> <li>• Conduct of workshops on improvement of processes.</li> </ul>



## Outcomes:

### Outcome 1: Improvement in the Power Supply Situation in the State

- With improvement in the availability of energy, MSPDCL has been able to improve supply of power from 10 to 12 hours at District Headquarters to about 18 to 24 hours.
- Similarly, power availability in the hill areas has improved from about six to eight hours to about 15 to 18 hours a day; and
- Efforts to make 24x7 power supply available in Imphal, District Headquarters, bazaars, markets, the Nagar Panchayat, and so on, are in progress.

### Focus Area 3: Commercial Processes

TABLE 4: Initiatives undertaken and outcomes - commercial processes

Initiatives undertaken by MSPDCL	Institutional strengthening initiatives as part of World Bank-supported TA
<p>MSPDCL has taken multiple steps to reduce AT&amp;C losses:</p> <ul style="list-style-type: none"> <li>• 100 percent metering of 11 kV feeders, distribution transformers and domestic one-phase and three-phase consumers;</li> <li>• Provision of energy meters for ring fencing of 13 census towns (Census 2001) under RAPDRP;</li> <li>• Introduction of single-phase and three-phase prepaid meters;</li> <li>• Detection and disconnection of unauthorized connections and tappings;</li> <li>• Effective control of energy theft with the help of special courts and police forces;</li> <li>• Introduction of computerized billing and revenue collection system;</li> <li>• Online payment of electricity bills, ITZ cash outlets/counters for easy payment of electricity bills;</li> <li>• Energy accounting and auditing at distribution voltage levels with SAP-generated online energy audit reports;</li> <li>• ICICI Point of Sale (POS) for easy payment of electricity bills; and</li> <li>• Automation of no dues certificates</li> </ul>	<p>The TA initiatives focussed on establishing mechanisms and improving institutional capacity for the implementation of commercial processes. The focus was on establishing processes to reduce AT&amp;C losses and establish accountabilities for metering, billing and collections. The following initiatives were undertaken as part of institutional strengthening:</p> <ul style="list-style-type: none"> <li>• Reengineering of commercial processes;</li> <li>• Creation of templates, information systems, Management Information System (MIS), etc.;</li> <li>• Establishment of a commercial review framework to build accountability of metering, billing and collections;</li> <li>• Institutionalization of a review mechanism through structural realignment, review meetings, stakeholder interactions and employee capacity building;</li> <li>• Establishment of division-wise and MD dashboard for continuous review and monitoring of commercial performance; and</li> <li>• Conduct of workshops and training to create awareness on commercial performance.</li> </ul>



A family watching television in the evening in Senapati District

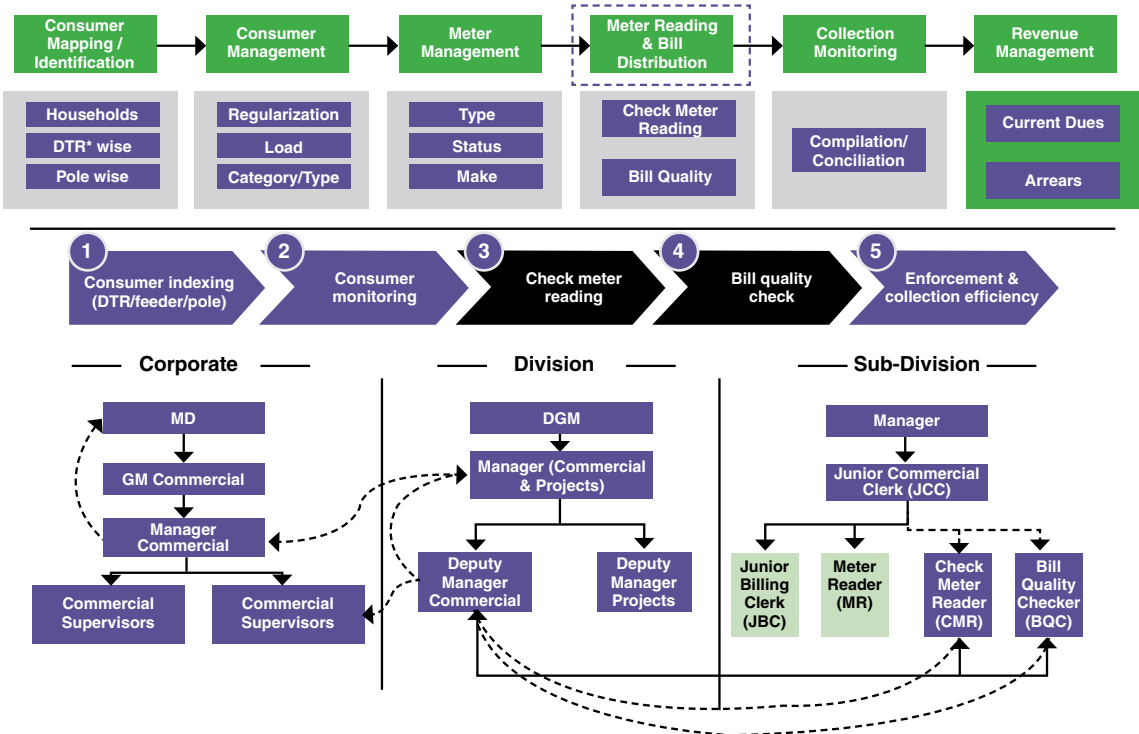


A female using a rice cooker in Maram Khullen village in Senapati District

**Outcomes:**

**Outcome 1: Clearly Established Mechanism for Commercial Monitoring and Associated Escalations/Data Flow**

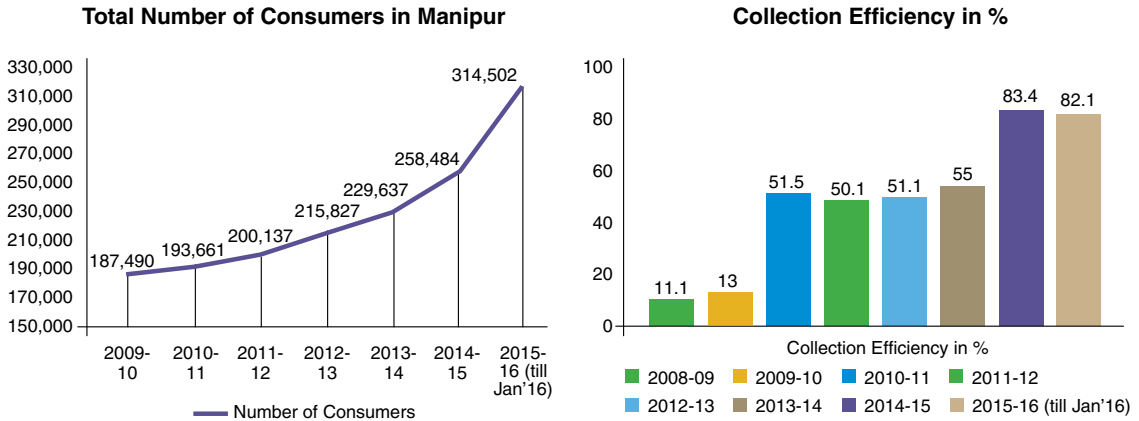
FIGURE 4: Commercial monitoring and data flow mechanisms



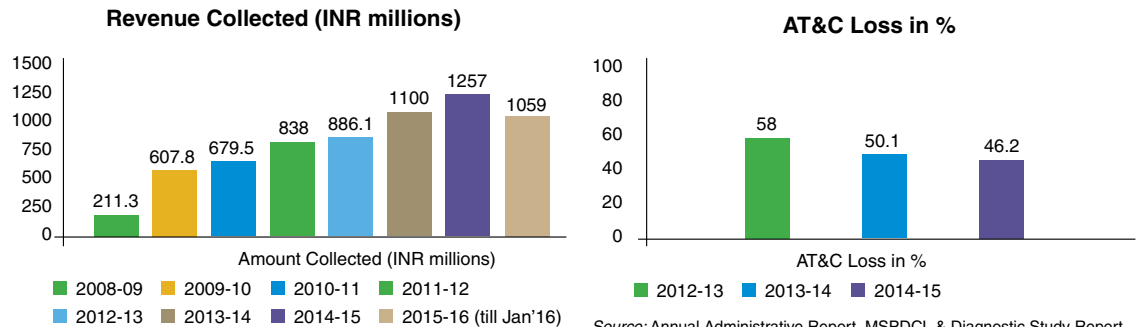
\* DTR - Distribution Transformer

Built on the mechanisms established and key initiatives undertaken by MSPDCL, commercial parameters have shown significant improvement in the period. This is shown through various parameters in Figure 5.<sup>2</sup>

FIGURE 5: Improvement in commercial parameters



MSPDCL estimates collection efficiency to further improve in 2015-16.



Source: Annual Administrative Report, MSPDCL & Diagnostic Study Report by PWC

The upward trend in revenue collection is expected to continue in 2015-16.

MSPDCL estimates AT&C loss level for FY2015-16 to reduce further to around 44 percent.

<sup>2</sup> Source: Annual Administrative Report, MSPDCL Corporate Office.



## Focus Area 4: Utility Structure and Manpower

TABLE 5: Initiatives undertaken and outcomes - utility structure and manpower

Initiatives undertaken by MSPDCL	Institutional strengthening initiatives as part of World Bank-supported TA
<p>Recruitment patterns at different stages of the intervention are a reflection on the progressively high caliber of MSPDCL.</p> <p>MSPDCL has recruited both regular and contractual employees in critical positions for daily operations. Managers have been hired to monitor projects and commercial activities from division offices, while Assistant Managers have been brought in for projects and O&amp;M to strengthen field-level inspection. A younger team has also been inducted into the Head Office to play a monitoring and review role.</p>	<p>As part of the TA initiative, structure, manpower and training requirements aligned to functional requirements have been defined and implemented.</p> <p>Inclusive development of the Manipuri community needs to be supported ably through institutional tie-ups for training of resources. To this end, the consultants, Deloitte, have facilitated a tie-up with the Power Sector Skill Council (PSSC), an organization set up recently under the Ministry of Skill Development and Entrepreneurship, Govt. PSSC's first power sector skill development program in India has been launched in Manipur. The Memorandum of Understanding (MoU) was signed between the Manipur Government and PSSC on July 14, 2015, in the presence of the Chief Minister of Manipur and MD, MSPDCL.</p> <p>The Department of Labour and Employment, Manipur, has supported the training program by providing a facility within the Industrial Training Institute (ITI), Takyel, to conduct the training program. MSPDCL has also supported the local training agency by providing various tools and machines required for the training program.</p> <p>The first batch of linemen has completed training and received certification of completion. Training of the second batch has been completed recently. In total, 116 linemen have been certified till now.</p> <p>In addition the MSPDCL is focused on engaging local outsourcing agencies for manpower outsourcing at MSPDCL. Availability of trained linemen in Manipur will ensure a requisite resource base for such outsourcing.</p>



Training of linemen at the State Academy of Training, Takyelpat in Imphal

### **Outcome: Institutional Strengthening**

Resource mobilization has been initiated with a new vigour. Detection and disconnection of unauthorized consumers and spot collection of revenue are in full swing. Outstanding dues to different government departments have been collected at source. Clearance of electricity consumption dues has been made mandatory before certificates, and so on, are issued by Deputy Commissioners. To realize arrears from consumers who are government employees, production of no dues certificates in respect of payment of their electricity consumption charges, for preparation of their salary bills, has been made mandatory.

The establishment of a periodic review mechanism for projects has helped build accountability at the field level. This has enabled MSPDCL to monitor each activity

closely from the Head Office and guide the Field Offices when needed. This review mechanism also ensures seamless flow of data between the Field and Head Offices, enabling Field Offices to take swift decisions based on stakeholder interactions. This has significantly reduced roadblocks to execution. Quicker resolution of issues has also had a direct impact on timeliness in completion of projects. Vehicles and additional allowances, which were a constraint earlier, have been sanctioned to empower officials further in the discharge of their duties. The corporate office and divisions now have access to around 102 vehicles entailing an expenditure of around INR 3.77 million per month.

In a step that speaks volumes of the utility's increased confidence since the start of the intervention, MSPDCL has also initiated a consumer care center (CCC) under the aegis

of the R-APDRP – Part A scheme to capture and resolve all complaints from different consumers in the Imphal region. This CCC is the first of its kind in the state and has achieved 99.9 percent complaint resolution in December 2015 and January 2016. Feedback Infra and Tata Consultancy Services (TCS) are engaged in project management, infrastructure establishment and software customization for this initiative. While TCS is scheduled to conduct a training program on customer relationship management with the executives at the CCC, Deloitte has been engaged by MSPDCL as management consultant advisor.

With support from consultants, MSPDCL is also planning a Ring 1, Ring 2 and Ring 3 strategy across Imphal, Hill District Headquarters and remote villages, respectively. Ring 1 will focus on prepaid

metering and performance monitoring; Ring 2 on postpaid metering and outsourcing of meter reading and collection; and finally Ring 3 on single point metering and community involvement in commercial processes at villages. The strategy's implementation will need capacity building, local outsourcing, training and employment of local youth. Of the total number of electricity consumers in the state, around 125,000 are located in Imphal, of which approximately 77,000, that is, 62 percent, have been converted to prepaid consumers. Installation of prepaid meters in other areas has also started with more than an additional 50,000 prepaid meters installed. Ring 2, that is, District Headquarters and connected villages, will have postpaid meters. Finally, Ring 3, that is, unconnected remote villages, will be served through single point metering.



Prepaid meter





Employees at work at a substation in Manipur

# Next Steps



The utility is now focusing on an integrated feeder-wise performance monitoring system to continuously improve systems. MSPDCL is also taking steps to outsource commercial operations on the basis of Service Level Agreements (SLAs), the first being the launch of a pilot on outsourcing on SLA basis in the Takyel subdivision under IED II Division in Imphal.

The utility is now focused on improving O&M performance and working on establishing preventive breakdown maintenance systems. In parallel, it is also formulating a roadmap for managing O&M through outsourced manpower, which may pave the way for India's first PSSC-certified linemen to be recruited by outsourced agencies thus seamlessly tying Energy with Enterprise with Employment.



An employee at work at Karong substation in Senapati District







Loktak Lake, Manipur

