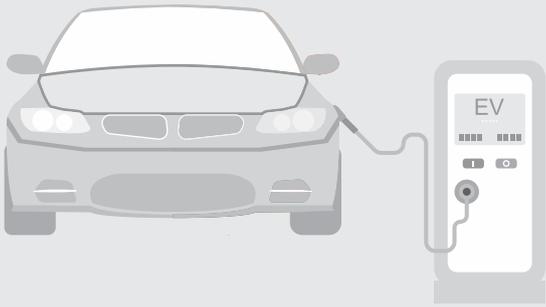


TRANSFORMATIVE
STEPS TOWARDS
SUSTAINABLE
PLANET

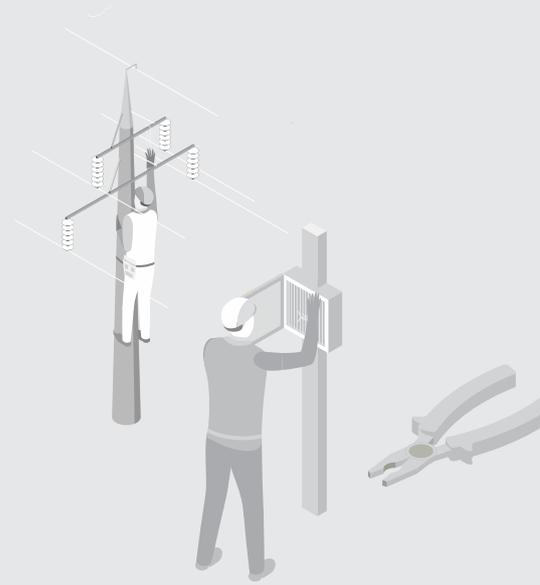
Tata Power
SDG Compendium
2020





Tata Power and the SDGs





Contents

Introduction: About the SDGs	04
Foreword by MD & CEO	05
Tata Power's alignment to UNSDG	06
- SDG Mapping Study	06
- Progressive Case Stories on Prioritized SDGs	08
- Case Stories on CSR SDGs	12
- Case Stories on Business SDGs	36



About the SDGs



As we experience global transformation, the international community, through the United Nations (UN), has set in motion a historic plan inclusive of 17 Sustainable Development Goals (SDGs) – that aims to build a more prosperous, more equal, and more secure world by the year 2030.

The SDGs are a set of goals which have been adopted by all the members of the UN in 2015 in order to accomplish sustainable development for all. These 17 SDGs represent an urgent call to end poverty, environment protection and ensure development for all people globally. On September 2015, 193 countries adopted the SDGs for taking action on global challenges. The main agenda of these goals is to ensure that no one is left behind. The SDGs build on the Millennium Development Goals (MDGs) and address newer challenges like climate change, social inequality and economic crisis. These 17 goals and 169 targets are interconnected and are expected to be attained by 2030. The 2030 Agenda for Sustainable Development is an international framework of unprecedented scale that is guiding development efforts worldwide until 2030.

Each SDG hosts a number of indicators and targets that describe its strategic intent and transformative steps to make the planet more sustainable. The 2030 Agenda of the SDGs provide a chance for businesses to align their operations with the adoption of sustainability. They also help to overcome major threats of natural

disasters induced by climate change, managing natural resources, eradicating poverty, fostering peace and reducing inequalities. Businesses are essential contributors towards sustainable development. The next decade is considered crucial for countries who have signed the declaration on the 2030 agenda for sustainable development adhering to the SDGs. Businesses that take action to help achieve the SDGs stand to benefit by increasing the potential to improve or maintain social license to operate, enhance relationships with customers, employees and other critical stakeholders, and the opportunity to develop a sustainability strategy that zeroes in on the business's biggest societal impacts.

India played a prominent role in the formulation of SDGs and much of the country's National Development Agenda is mirrored in the SDGs. As a signatory to the 2030 Agenda for Sustainable Development, India is committed to 17 Goals, 169 targets and 306 national indicators to make positive heads towards achieving them. Adopting these goals, India has set out supremely ambitious and transformational vision for itself.

Foreword by MD & CEO

Making SDGs actionable!



Dear Stakeholder,

As the global winds of change gain traction, businesses are changing gears and are shifting towards global configuration by integrating sustainability into the core of the business in ways that transform the company. On September 2015, 193 countries adopted the Sustainable Development Goals by the United Nations for taking action on global challenges and India has been the forerunner in adopting realistic targets on SDGs. The SDGs and the 2030 development agenda is the most ambitious vision for achieving Sustainable development holistically around the world. The SDGs are expected to put the concepts of Sustainability into practice with the active participation of stakeholders; governments, businesses, and civil society.

The private sector has a very important role to play in fulfilling the SDG ambitions and Tata Power has embraced the fact with utmost compassion. It gives me immense pleasure to present our compendium highlighting Tata Power's alignment to the SDGs. Tata Power is India's largest Integrated Power Company, and is proud of its legacy of serving the nation for 105 years, with constant stakeholder trust.

Tata Power is proudly committed to support our country's energy independence and sustainability. As a pioneer in technology adoption, our journey over a century has been a fascinating saga of revolutionary initiatives, responsible business practices that have a minimal impact on the environment and initiating several socio-economic changes in our community.

To further the value creation of Sustainability for the business, Tata Power has also adopted the SDGs which provide a business case for staying invested in the Sustainability journey for long term. Tata Power is steadfast to become an energy solutions company and is steering the transformation of utilities to integrated solutions by looking at new business growth in EV charging & storage, distributed generation & rooftops, microgrids and home automation & smart meters.

Our focus on building lasting and trusting relationships with our customers, partners, employees and other stakeholders, and the legacy of caring for our communities, remains the bedrock of our sustainability commitment 'Leadership with care'. Our Sustainability efforts range from establishing Tata Power Renewable Microgrid Ltd, with the Rockefeller Foundation, to implement 10,000 microgrids by 2026 and provide power to 800 million people; significant shift to renewable portfolio of 32% generation capacity in FY 20. which is targeted to increase beyond half of our capacity in the next few years to mitigate Climate Change; expanding distribution business which has lower Carbon footprint; low carbon solutions to customer solutions like solar rooftop, solar pumps to EV charging infrastructure and solutions.

One of the biggest trials facing humanity today is that of fighting climate change. Halting, and eventually reversing, global warming requires reconciliation of economic growth with the decrease in GHG emissions. This will only be possible through the transition to a decarbonised energy model and serve our consumers sustainably!

The compendium consists of Tata Power's shining case studies as examples, elaborating achievements on SDGs during our noteworthy journey on sustainability. This document is a testament to the fact that, businesses can contribute to the SDGs significantly. While the scale and outreach of the SDGs is remarkable, it can't be met without meaningful action from all stakeholders. Therefore, stakeholder's orientation towards SDGs is highly essential for businesses and communities to thrive across time horizons.

Yours sincerely,
Praveer Sinha
CEO & MD, Tata Power

Tata Power's alignment to UNSDG



than a century ago. We are proud in achieving this milestone with constant stakeholder trust as we continue to serve the nation.

To further the concept of Sustainability in business, Tata Power adopted the Global Goals or Sustainable Development Goals (SDGs) by United Nations for taking action and contributing to the global challenges. These 17 SDGs represent an urgent call to end poverty, environment protection and ensure development for all people globally.

Tata Power envisions SDGs as an excellent framework to build resilience into our respective businesses across the value chain. With this compendium, I am happy to present Tata Power's journey on the United Nations Sustainable Development Goals. During this journey, we traversed through various choices and reached our milestones with remarkable results.

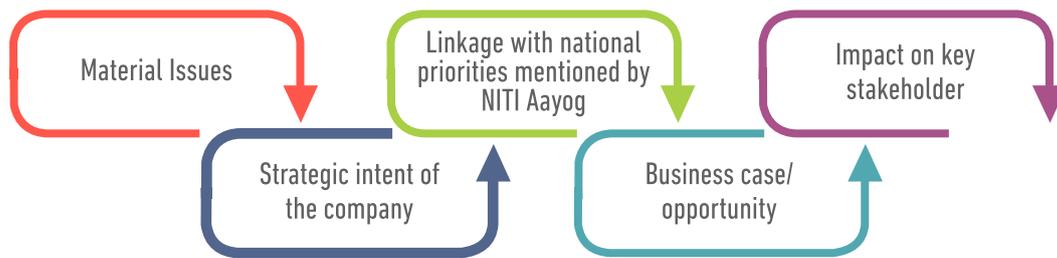
Tata Power conceptualized an inhouse methodology on the SDG journey by following the steps of **SDG mapping—SDG Prioritization—SDG Roadmap**.

Dear Readers,

At the Tata Group, we have inherited the rich legacy of our Founder, Jamsetji Tata, who once said, clean, cheap and abundant power is one of the basic ingredients for the economic progress of a city, a state, or a country. Beginning our journey in 1915, by commissioning India's first hydroelectric project in Khopoli, Maharashtra, we started off with sustainable generation of power more



SDG Mapping Process included compiling initiatives with respect to 17 SDGs; identifying key stakeholders including leaders for insights on the status and scale of major sustainability initiatives aligned to SDGs.



Initiatives along with their corresponding SDGs showing a direct linkage with all of the above mentioned parameters were finalized to be the top SDGs for Tata Power

Classification of prioritized SDGs as Business SDGs and CSR SDGs: The prioritization study resulted in SDGs which has maximum impact on the business. The Business SDG derived from the exercise and adopted for Tata Power are SDG 7, SDG 9, SDG 12, SDG 13. The CSR SDGs have been identified as a result of the Need assessment study conducted by Tata Power.



SDG Roadmap with Action Plans and SDG Dashboard

For each prioritized Business and CSRSDG, a detailed 3-year roadmap with Targets and KPIs have been adopted. The progress on these targets is monitored quarterly through SDG dashboard. The annual results demonstrate the contribution Tata Power has made in achieving the national goals and global goals.

Tata Power is probably the only company in India which has not only mapped its initiatives with SDGs but charted a way forward by creating roadmap and adopted targets on each of the prioritized business

SDGs. This publication is yet another milestone in our journey to achieve SDG targets. These have been enumerated as case stories in this document and hope you find them to your liking.

This document illustrates the ways Tata Power supports sustainable and meaningful actions against each SDG and the progress it has achieved so far. Besides, it describes the measurable impact that these initiatives can have on improving the quality of life and enhancing stakeholder value across communities they touch. Look forward to learn from your feedback and be future ready!

Progressive Case Stories on Prioritized SDGs

CSR SDGs



SDG #1

Case Study 1 - Adhikaar (Financial Inclusivity)



SDG #2

Case Study 2 - Dhaaga (Women Garment Enterprise for Empowerment)

Case Study 3 - TPSDI (Skilling India's Youth)



SDG #3

Case Study 5 - Mamta (Maternal and Child Care)



SDG #4

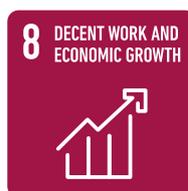
Case Study 6 - Vidya (Quality Education for Children)



SDG #6

Case Study 7 - Sammaan (Community Based Sanitation Campaign)

Case Study 8 - Amrutdhara (Participatory Ground Water Management)



SDG #8

Case Study 4 - Maval Dairy (Women Dairy Enterprise for Self-Reliance)

Business SDGs



SDG #7

Case Study 9 - Solar powered solutions for customers

Case Study 10 - Managing Energy Demand

Case Study 11 - Micro-Grid Solar Solutions



SDG #9

Case Study 12 - Solar Powered Digital Literacy Intervention Project

Case Study 13 - Solar Integrated rain-water harvesting



SDG #12

Case Study 14 - Club Enerji

Case Study 15 - Micro Hydro Turbine



SDG #13

Case Study 16 - Tree Mittra

Case Study 17 - Greenolution

Case Study 18 - Switch Off to Switch On

Case Study 19 - Be Green

Case Stories with respect to other SDGs



SDG #5

Case Study 20 - Actively promoting Gender Equality



SDG #10

Case Study 21 - Roshni (Women Skilling for Sustainable Livelihood)



SDG #11

Case Study 22 - Making Indian cities EV ready



SDG #14

Case Study 23 - Saving the Mighty Mahseer



SDG #15

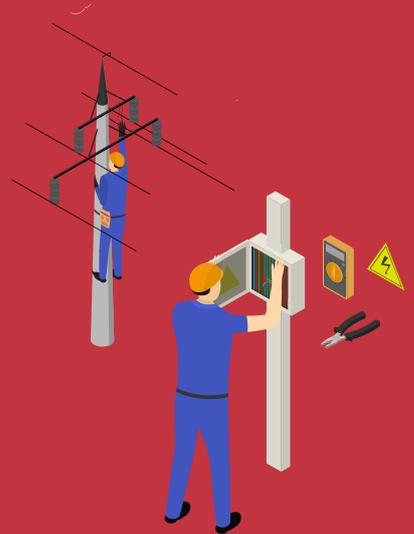
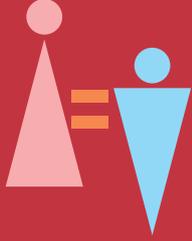
Case Study 24 - Use of Napier Bajra (NB 21) species



SDG #17

Case Study 25 - Sustainable Partnerships







PROGRESSIVE CASE STORIES ON CSR AND BUSINESS SDGs





SDG #1 No Poverty

End poverty in all its forms everywhere

Status in India



27.5%
OF THE POPULATION IS
MULTIDimensionALLY POOR



1
IN EVERY FOUR
PERSONS
IN INDIA IS POOR



38.4%
CHILDREN UNDER
5 YEARS ARE
STUNTED



42%
OF THE POPULATION
IN INDIA HAVE ACCESS
TO INTERNET



14.6%
HOUSEHOLDS
ARE HEADED
BY WOMEN



35.8%
CHILDREN UNDER
5 YEARS ARE
UNDERWEIGHT

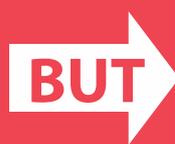


PASSBOOK

89.4%
HAVE A
BANK / POST
OFFICE ACCOUNT



74%
PEOPLE ARE
LITERATE



42 MILLION HOUSEHOLDS
DO NOT HAVE A LITERATE ADULT
ABOVE THE AGE OF 25 YEARS

Case Study #1 Adhikaar

(Financial Inclusivity)



What did Tata Power do?

In order to understand the needs of community in contemporary context, Tata Power undertook need assessment post the roll out of UN SDGs in 2017. This offered gainful insights which stated that the marginalized community members in particular are unable to access their entitlements and take benefits from various Government Schemes. The biggest drawback being the lack of proper documents availability with the community to file their application under various Government Schemes. Post this finding, Tata Power rolled out its flagship initiative Adhikaar. Adhikaar is a people centric development initiative which works to ensure that community is facilitated through the process by helping them with all required documentation and linking them to various state and national Government development schemes. Tata Power partners with Haqdarshak and local NGOs to channelize their efforts for this cause. Employee volunteering also played a big role in providing enabling support to the community by helping them fill their application forms and follow up with Government Offices to get their entitlements.

Project Impact

- Due to these efforts, 0.4 Million community members have been benefitted under various Government Schemes.
- Mass sensitization and awareness efforts were made to also educate community on the Government Schemes, so that they can also become part of this mission and spread the message among other community members.
- The schemes ranged from effective Public Distribution System, Educational Scholarship, LPG Gas Connection under Ujjwala Scheme, Health Insurance and Life Insurance coverage, Agriculture related Schemes for Farmers, Bank Linkages with SHG, PAN Card, Aadhar card, caste certificate etc.
- Tata Power employee volunteers and their families, better known as Adhikaar Champions also came forward to conduct awareness session among the community and also help them become part of mainstream development process.
- In total more than 500 Adhikaar Champions across

the country are committed to the same in an ongoing basis.

Key Success Factors: What worked?

The key success factors which worked in this initiative are as follows:

- The community willingness to actively engage in this initiative to become part of the inclusivity process based on stakeholder engagement conducted by Tata Power across its locations
- Use of technology was a major factor in screening and identifying the Government Schemes and its eligibility criteria for the community.
- Development of App through Haqdarshak which was deployed across multiple locations pan India which captured the basic demographic data of the community and accordingly map them to the various Government Schemes as per their eligibility and entitlements.
- Reduced cycle time for processing the application through Adhikaar Champion (Volunteers) involvement in documentation process for community particularly for old age and illiterate members.

Challenges

- The arduous task of finding relevant paper/documents which was not available with community which was overcome through facilitation for getting the paper done redone by Adhikaar Champions.
- Regular follow-up with Government Departments to get the applications processed.
- Ensuring functional literacy of women SHG members so that they could operate their bank accounts on regular basis. For the same, women literacy centres were also established under SHG initiative.

Community Testimonial

27,000 families benefitted

Adhikaar



Case Study of Anita-Mumbai



Anita Waghari is one of the beneficiary of Right to Food Camp organized at Kurla location. Anita is a single mother and working with local saree shop. Her monthly salary is ₹ 8,000/-. Recently, her daughter was detected with severe kidney problem. Doctor recommended immediate operation. She is an eligible for Rajiv Gandhi Bima Yojana for free operation available at nominated hospital. But to avail this scheme she was not having ration card. Agent demanded ₹ 10,000 for issuing new ration card. She came to Ration Camp organized at Kurla under employee volunteering. We have filled her form and supported for necessary documentation.

She received her new ration card in ₹ 22.50/-. She admitted her daughter for kidney operation.

Anita represents thousands of those benefitted under financial Inclusion initiative of Trombay under employee volunteering.

Adhikaar Champion - Financial Inclusivity

Adhikaar

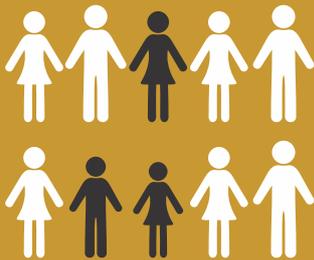




SDG #2 Zero Hunger

End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Status in India



3 IN 10 STUNTED CHILDREN ARE INDIAN

53%



WOMEN BETWEEN 15-49 YEARS ARE ANAEMIC

OVER 80%



INFANT AND YOUNG CHILDRENS DO NOT GET MINIMUM DIETARY DIVERSITY

OVER 40% OF THE TOTAL INDIAN WORKFORCE IS EMPLOYED



IN THE AGRICULTURAL SECTOR



IF GLOBAL FOOD PRICES DOUBLES, INDIA COULD LOSE UP TO

US\$ 49 BILLION IN GDP



SDG #8 Decent Work and Economic Growth

Promote sustained, inclusive and sustainable economy growth, full and productive employment and decent work for all

Status in India



MORE THAN 10 MILLION CHILDREN ARE EMPLOYED IN SOME FORM OF LABOUR

LABOUR FORCE OF



510
MILLION

12-15
MILLION



ESTIMATED ANNUAL
DEMAND FOR EMPLOYMENT
IN INDIA

12.8
MILLION



ENTER THE JOB MARKET
EVERY YEAR



6.9%
TOTAL
UNEMPLOYMENT RATE

20.7%
OF EMPLOYED ADOLESCENTS
ARE ENGAGED IN WORK



24%
DECLINING FEMALE
LABOUR FORCE
PARTICIPATION RATE



Case Study #2 Dhaaga

(Women Garment Enterprise for Empowerment)

What did Tata Power do?

The need assessment undertaken by Tata Power highlighted that women are not able to access economic benefits in their daily lives even as they are engaged in various productive activities in farm land or domestic life. Hence, with an objective of socio-economic empowerment of women in rural India, Tata Power initiated a Women Garment Making Enterprise Dhaaga in Pune district of India. With 16 women initially, the state of art garment making unit was established in 2017. Gradually till date, the women members of this initiative has crossed 1,170 across 8 states in India. The products under Dhaaga include women garments like Kurti, Pallazo, Wrap around and diversified to include tiger grass handicrafts. Corporate gifting products and renowned tie & Dye, patch work of rabbari community of Gujarat.

Project Impact

The basic objective of the project was to create positive and transformation changes in the lives of women through long term sustainable business model which allows more women to become part of Dhaaga story and in fact, rewrite their own story which demonstrates their socio-economic empowerment.

- 1,170 self-empowered women part of the Dhaaga Initiative.
- Average monthly household income augments by ₹2,500-3,000.
- Cumulative order value crossed 60 Lakhs for the enterprise till date.
- 20+ Corporate linkages developed for reordering through exhibitions.
- 51 Exhibitions organized across the country which brought in sales worth 21 Lakhs.
- Amazon Saheli includes Dhaaga Products in its online retail platform. Strategic partner for marketing linkages.
- Dhaaga available in Instagram and weblink of its own.
- Strategic partnership with international Hotel Chains like IHCL, Okhai and Kalaraksha for market

Key Success Factors: What worked?

The key success factors which worked to the advantage of the initiative success are as follows:

- Developing demonstration and replication model across 8 states of the country helped expand to multiple geographies in quick time.
- Using the knowledge acquired at initial stage to improvise processes.
- Marketing strategy for tapping both online retail platforms as well as off-line platforms.
- Developing trainers and designer to have bandwidth within community allowing more women involvement and training.
- Strategic partnership for long terms orders and brand positioning with IHCL, Okhai. Amazon India and other organizations.
- Employee engagement in promoting Brand Dhaaga

Challenges

The major challenges encompassed was mobilizing women members and ensuring that they regularly participate in Dhaaga member meeting, inculcate the habit of saving through Self Help Group route and linkages development with local banks. Subsequently, the expansion of the initiative required investment in capacity building in multiple locations. These challenges were addressed through using the trainer women members and designers to reach out to other locations, build their capacities and adapt to meet the contemporary market and customer requirements. Subsequently marketing and linkages became a challenge which was addressed through strategic partnership and social media marketing channels along with employee volunteers acting as brand ambassadors.



Case Study #3 Tata Power Skill Development Institute

(Skilling India's Youth)



What did Tata Power do?

In order to take advantage of the rich social demographic dividend of the country, Tata Power established 6 state-of-art Tata Power Skill Development Institutes (TPSDI) across 4 states of the country to augment skilling of youth in power and allied sectors with an objective of nation building under National Skill Mission.

TPSDI is an endeavour from the Tata Power Company to empower youth and others with employable skills, especially in the Power and allied sectors, and to address the skill gap challenge faced by the Indian Power Sector. The Institute provides modular training and certification across a wide range of employable skills. TPSDI was launched on Feb 9, 2015 as part of Tata Power's Centenary Year celebrations by the Tata Group Chairman. The Institute has set up five training hubs in four locations in the country leveraging the facilities of Tata Power and its JV/Subsidiaries:

- Shahad and Trombay - Mumbai, Maharashtra
- Maithon - Dhanbad, Jharkhand
- Mundra - Kutch, Gujarat
- Jojobera - Jamshedpur, Jharkhand
- Delhi in collaboration with CENPEID, TPDDL, which is a leading Institute in the electricity distribution

The Institute's unique training approach is designed for delivering skills with speed, scale, and standards.

Training at TPSDI ensures holistic development of trainees. In addition to technical skills, training at TPSDI also focuses on other dimensions of skill building, such as - numerical ability, science, basic IT, industry orientation, communication, soft skills & personality development, and work ethics, and places special emphasis on Safety, Health & Environment (SHE) considering the sector's specific need. The training consists of both knowledge and hands-on skills. The Institute consciously works towards providing greater access to its courses to the members of disadvantaged sections of the society and those in the below-poverty-line (BPL) category.

Project Impact

- Since inception, TPSDI has trained more than 50,000 youth with 75% placement assistance

record.

- 50% induction of Fresher Youth Training batch from Scheduled Caste and Scheduled Tribe community- Committed to Affirmative Action
- Collaboration with National Skill Mission under Power Sector Skilling Certification affiliation
- Hub and Spoke Model encompassing 100+ technical and non-technical institutions onboarded for skilling youth.
- Women Centric Technical Courses introduced with 400+ women trained and placed under Abha (Women Empowerment Model) shifting the paradigm of power skilling for achieving gender equality as a paradigm shift.
- Skill On Wheels- Mobile Training Centre established for reaching out to remote locations for Training on Reinforcement of Prior Learning.

Challenges

- Identification of experienced and skilled trainers for the centres. This was resolved through innovative involvement of Tata Power ex-employees who came forward to drive the training initiatives and develop modules of training.
- Scaling to other locations other than TPSDI centres was a key challenge. Hence E-Modules were developed to enable scaling through Hub and Spoke Model and tie up with technical and non-technical institutions.
- Skill On Wheels- Mobile Training Centre established for reaching out to remote locations for Training on Reinforcement of Prior Learning. This helped to address the challenge of reaching out to remote locations
- Self Sustaining Model was the fundamental objective of TPSDI. This challenge was offset through collaboration and tie-up with Government and Private Corporations and International organizations which partnered with TPSDI as their Training and Capacity Building Agency which helped generate revenue.

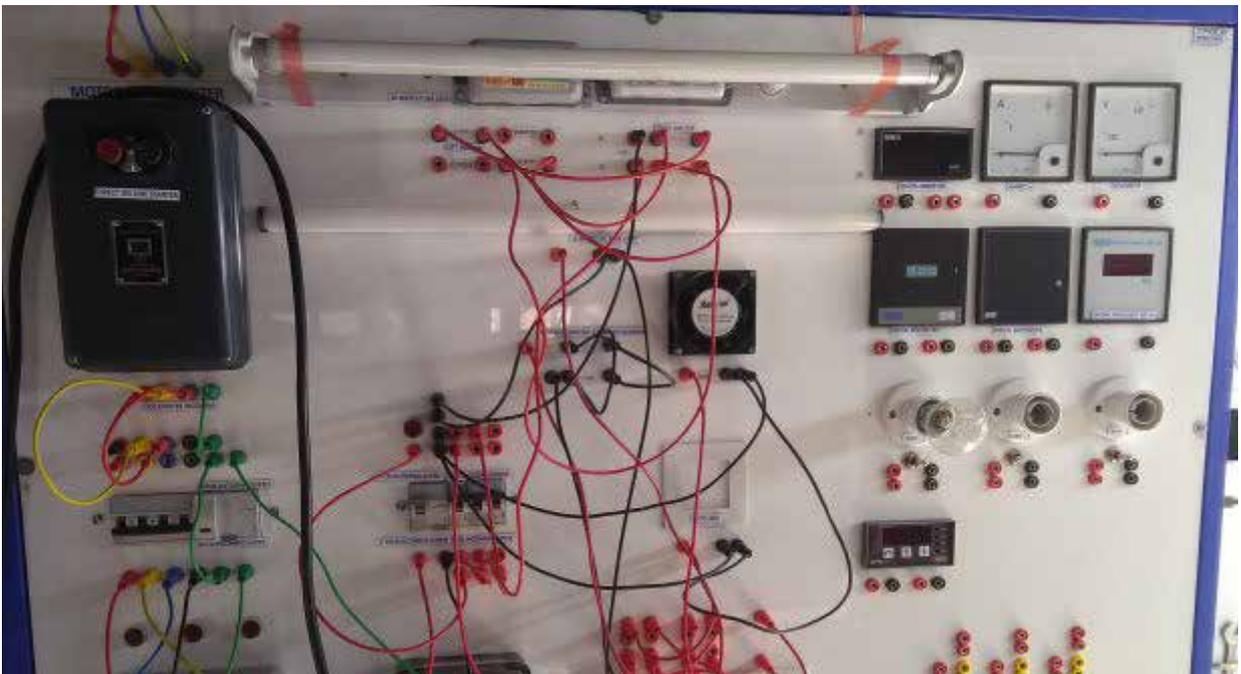
Key Success Factors: What worked?



Training Facilities



TPSDI - Skills on Wheels (SOW)



Case Study #4 Maval Dairy

(Women Dairy Enterprise for Self Reliance)



What did Tata Power do?

The community consultation provided gainful insights to Tata Power particularly in Maval taluka of Pune district, where the remoteness of the topography has resulted in challenges in augmenting socio-economic development of women in particular. This led to the concept of developing Maval Dairy- a micro enterprise which would augment household income based on self sustaining business model owned by the women of the community of Maval. Maval Dairy is the Women empowerment initiative comprising 1450 women of 26 villages of Maval Taluka in Pune district, Maharashtra supported by Tata Power. This is the Maharashtra's 1st and India's 2nd All Women Dairy Farmers Producer Company. The 10000 litres per Day Milk Processing plant was launched on 16th December 2019 and dedicated to the region by key stakeholders. These women were trained on dairy management, fodder, cattle and feed management and marketing skills. Adoption of technology was an integral part of the initiative. So an app was also created to reach the customers of Pune district with doorstep delivery ensured by these women themselves. The Initiative was institutionalized by Formation of Maval Dairy Farmer Producer Company which included the women members on the Board of the company.

The product portfolio includes milk, shrikhand, curd and ghee as well. The Company has an all Women Led Board of Directors with support from external Consultants to provide them all necessary support for seamless operations and marketing management of the products and mobilization of new women members for raising share capital. The project has developed 15 advanced well-equipped milk collection centers covering 26 villages. Currently, the plant procures around 6,000 litres/day of milk from the various villages associated with the project and on its way to achieve 100% capacity utilization with aspiration to cover 3000 members.

Project Impact

- 1,450 women members involved in the Dairy business.
- ₹ 1 crore earning of the members since project commissioning through milk sales.
- 1 lakh Litres of bulk supply in place.

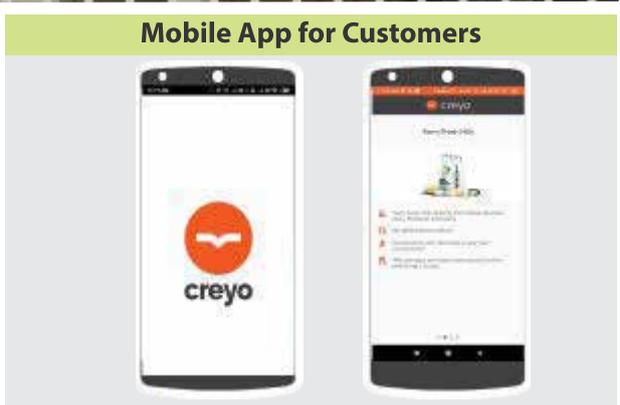
- 26 villages covered through 15 advanced milk collection centres
- 10,000 litres per day Milk Processing Plant commissioned for product management of milk and derivatives including Shrikhand, Curd and Ghee.

Key Success Factors: What worked?

- Marketing linkages established for both bulk and retail offering.
- Community Mobilization and Government Support for necessary permission and clearances.
- Capacity building of women members on dairy management
- Usage of technology through App based selling

Challenges

- Community Mobilization of women members for contributing share capital which was essential to ensure ownership.
- Continuous follow with Government departments for clearances which was achieved to ensure seamless operations.
- Bank linkages to ensure proper line of credit with repayment. This was ensured through proper financial discipline and transparency among members.





SDG #3 Good Health and Well-being

Ensure healthy lives and promote well-being for all at all ages

Status in India


2006 - 2016
STUNTING RATES FOR
CHILDREN UNDER 5
DECLINED BY ALMOST

 **10%**

OVER
80%



DELIVERIES ARE DONE
BY SKILLED HEALTH
CARE PROVIDERS

MATERNAL
MORTALITY
RATIO
DECLINED 

212 Per 100,000 live
births (2007-09)

167 Per 100,000 live
births (2011-13)

IN 2015
2.1 MILLION
ADULTS ABOVE
15 LIVED WITH 
HIV

42%  ARE WOMEN

47 MILLION
CHILDREN UNDER
5 YEARS ARE STUNTED

AND
26 MILLION
CHILDREN UNDER
5 YEARS ARE WASTED

ONE-FOURTH OF
TUBERCULOUS
CASES OCCUR IN INDIA

423,000
DEATHS ANNUALLY

Case Study #5 Mamta

(Maternal and Child Care)



What did Tata Power do?

Tata Power identified that the women in both urban and rural areas were subjected to low access to information, knowledge and awareness on maternal and child health issues owing to traditional practices. Such ignorance were possible reasons for high health risks particularly emanating at adolescent age group right upto lactating mothers and subsequently impact children under 5 years age. Hence Tata Power undertook Mamta- an initiative with focus on maternal and child health. Through this initiative, Tata Power collaborated with local health agencies and organizations in creating awareness on the good health aspect by working with health and Integrated Child Development Services (ICDS) service providers with focus on anemia control of women and adolescent girls, focus on immunization of children and pregnant mothers and IFA supplementation to meet the basic haemoglobin levels required in the body.

Project Impact

- 15% reduction in anemia levels particularly among women and adolescent girls.
- Increased awareness resulting in mainstreaming institutional delivery across the villagers of operation.
- Focus on refresher training of health service providers and improved community engagement.

- Improved adoption and retention of maternal health practices and 100% immunization schedule adherence.

Key Success Factors: What worked?

- Alignment to World Alliance for Breastfeeding Action and Breastfeeding Promotion Network of India (BPNI) network helped to magnify the community messaging on the importance of Maternal and Child Health.
- Collaboration with Government Health and ICDS departments leading to convergence of efforts
- Engagement and Awareness through convergence with Schools for adolescent girls health care was well received.

Challenges

- Overcoming the age-old practices related to home-based delivery through counselling of family members was a challenge which was addressed.
- Spreading the message of immunization and institutional delivery and overcoming the myths related to immunization undertaken through Behavioural Change Communication (BCC).





SDG #4 Quality Education

Ensure inclusive and equitable quality education and promote lifelong learning opportunity for all

Status in India



74.04%

ADULTS ARE LITERATE



68.91%

IN RURAL AREAS



55%

OF PEOPLE WITH DISABILITIES ARE LITERATE



34%

CHILDREN WITH SPECIAL NEEDS ARE OUT OF SCHOOL

100%

ENROLMENT OF GIRLS IN PRIMARY EDUCATION BUT ONLY

25.4%

IN HIGHER EDUCATION

423 MILLION



LARGEST YOUTH POPULATION IN THE WORLD

25.8%

GROSS ENROLLMENT IN HIGHER EDUCATION



&



92%

FEMALE

94%

MALE

YOUTH ARE LITERATE

Case Study #6 Vidya

(Quality Education for Children)



What did Tata Power do?

Tata Power focused on the importance of education as a pillar for nation building. Keeping this aspect in mind, under Vidya initiative, Tata Power undertook remedial coaching and digital education initiatives across 300+ schools of India to promote improvement in academic performance through use of technology, tailored to meet local contextual requirements in alignment with curriculum to the academic boards and council. Partnership with organization enabled to leverage their knowledge and domain expertise to make learning more interactive and promote application based teaching techniques. School management committees involvement along with parents of the students helped to improve the monitoring of the initiative resulting in reduction drop out, improvement in attendance particularly girls and academic performance.

Project Impact

- 95% attendance retention achieved under the initiative.
- Academic performance based on pre-test and post test results showed improvement upto 75%.
- Zero dropout levels observed particularly among girls.
- Remote village based student linked to National Open School to ensure continuity of education.
- Teachers refresher training conducted periodically

to ensure improvement in teaching methodology.

- Students sensitized towards Environment conservation through formation of Eco-Clubs which is being self driven by the School Students themselves.

Key Success Factors: What worked?

- School Management Committee involvement and activation with parent engagement was critical to this initiative success.
- Both camp based learning and usage of application of teaching through models helped retain the academic performance levels.

Challenges

- The key challenge observed was to ensure that there is no dropout of girls and particularly attendance is retained throughout the year irrespective of community events/cultural events/social events. Hence community was sensitized that irrespective of such events, children may be encouraged to attend schooling.
- Motivation of teachers to conduct classes smoothly particularly in schools where teachers' shortfall was observed. This challenge was addressed through Shiksha Saarthi Initiative- Employee Volunteering Program in which employees undertook classes in schools for the students and also offered remedial coaching in evening time in villages. This offset the teachers' shortfall issue and was well received by the community.







SDG #6 Clean Water and Sanitation

Ensure availability and sustainable management of water and sanitation for all

Status in India

NEARLY
18%
OF WORLDS POPULATION
BUT ONLY

4%
OF AVERAGE GLOBAL
RUNOFF IN RIVERS



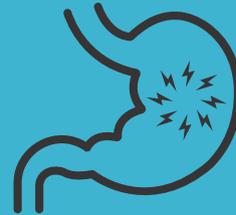
NEARLY
500 MILLION
PEOPLE ARE EFFECTED
BY DROUGHT IN INDIA



OVER **20%**
OF THE POPULATION LIVES
IN STATUS WHICH ARE NOT
YET DECLARED OPEN
DEFECATION FREE

1/5

CHILD
DEATHS



DUE TO SEVERE
DIARRHEA
ARE IN INDIA

EACH YEAR NEARLY
102,813
CHILDREN DIE

DUE TO SEVERE
DIARRHEA

Case Study #7 Sammaan

(Community Based Sanitation Campaign)

What did Tata Power do?

The community sanitation issues, particularly open defecation was a real challenge witnessed in the vicinity of Tata Power locations. These villages were identified and focus was undertaken to address the behavioural change aspects which was fundamental to bring out transformation. Tata Power worked with the communities directly to mobilize them and build their awareness using local dialect/language based IEC Communication Tools. Subsequently the youth were identified and trained as masons which led to community direct involved and ownership in the construction of toilets. Government and Tata Trusts was involved for resource mobilization. Innovation includes using fly ash bricks to address supply chain issues which led to Tata Power neighbourhood in Mundra, Gujarat and Jamshedpur, Jharkhand being declared Open Defecation Free which was well acknowledged by community and stakeholders. It is also being replicated in Kalinganagar, Odisha and Maithon, Jharkhand as well.

Project Impact

In this project more than 30,000 toilets have been constructed (to date) by community members. This way directly 1.8 lakhs have been the benefitted through access to toilets and have been outreached

through BCC campaigns in Mundra, Kalinganagar, Maithon and Jamshedpur.

There are some additional benefits which have been attained by the communities viz:

- **Employability and Income Enhancement:** Around 2,400 local youths, SHG members have been trained as Masons which has raised their income as they have become skilled and some of them has become entrepreneurs raising their income while some of them have become skilled entrepreneurs.
- **Creation of social capital:** Women Empowerment has been nurtured as this intervention is driven by women members who are members of the SHG federation. A Work order of 46 lakhs has been given to them recently which has benefitted the women considerably.
- **Promotion of eco-friendly Fly Ash bricks** by its wide scale use in toilet construction promoted by Tata Power (85 lakhs bricks used).
- **Success and initiatives of these women** have drawn the attention of the Government which has in turn helped women avail of several Government schemes.

Case Study Mundra (Gujarat)

The villagers of Tunda and Vandh proudly proclaim their village as Swachh Gram. This has been due to joint efforts of the CSR team of Tata Power, Mundra and Gram Panchayat which got together to make the village open defecation free. The design and low cost were the key challenges which were overcome to make it economically viable and long lasting. Also" making it usable for the purpose rather than a store house was the key behavioural change which was brought out. Today all households have their sanitation units and cleanliness & hygiene is a way of life.



Key Success Factors: What worked?



Chakmakati Gari Door Rahe Bimari	Message on local transport (Autorickshaw, Bus etc.)
Jamghat	Weekly Village Haat Meeting/Johar
Namaskar	Door to door visit (IPC-Inter Personal communication)
Ghoomti Pradarshini	Mobile van with wide display component
Street Theatre	Skits and drama in villages and other locations
Jyoti Juloos	Candle procession by children
Munaadi	Verbal announcement with drums
Jankari	A written quiz on FAQs about Sanitation & Hygiene issues
Wall Painting	Participatory wall-painting in villages- to create aesthetic effect with toilets and bring toilets to the form
Cultural/religious gathering	Campaign in big crowd
Folk dances	Traditional media intervention at construction sites

Challenges

- The element of low cost toilet designing was a key challenge. However through engagement with local institutions and international agencies enabled to offer low cost toilet models with proper pit system.
- The mobilization of community to contribute labour component was ensured post lot of consultation.
- Identification and training of mason to develop a self-sustaining model of capacity and knowledge retention was a challenge which was overcome to ensure that villagers are themselves involved in the process from the beginning.
- Breaking social stigma of having toilet within household premises was done through behavior change communication, IEC material distribution and involvement of local leaders.



Case Study #8 Amrutdhara

(Participatory Ground Water Management)



What did Tata Power do?

In the current era of water crisis, safe water availability was a key challenge for both drinking and ground water aspects. Both had links to drinking and livelihood aspects. Invariable rainfall and lack of water harvesting were key problems. The proportion of surface water source is very less to match the total water requirement. Being the base resource of any development, the resource has been over exploited worldwide with issues like water table depletion, quality deterioration and salinity intrusion. Water for all provided solution to address both drinking and ground management.

Under holistic approach to address water challenges, Tata Power undertook Drinking Water and Participatory Ground Water Management (PGWM) initiative at Pan India Level. Through Drinking Water, beneficiaries were covered using Water ATM across 7 states. PGWM was implemented in 3 states of India i.e. Gujarat, Maharashtra and Jharkhand impacting rural lives with community participation. Deployment of water security plan and Bhujal Jaankar Cadre and community ownership were the key innovations. Water borne infection was reduced and water conservation increased.

Project Impact

- 11.95 lakhs community was benefitted across 7 states through both drinking water and ground water management initiatives. There was notable improvement in addressing water borne illnesses by 15%.
- 5,000+ farmers were covered under the initiatives across 10,800 hectares of land.
- 58 water security plan is prepared and Community Bhujal Jankar identified and developed under the programme across 58 villagers.
- 5-20 metres rise in water level through ground water management along with 25.14 lakhs cubic metres of water conserved.

- 24.5 % reduction in water deficit.
- Policy advocacy on PGWM with Central Ground Water Board.

Key Success Factors: What worked?

- Participatory approach and strategic partnership with NABARD and IIT Gandhinagar.
- Technical collaboration with water experts and local organizations.
- Reviving old non-functioning well and recharging the same.
- Improvement in ground water table and reduction in TDS level through scientific approach.
- Improvement in access to safe drinking water at community level.

Challenges

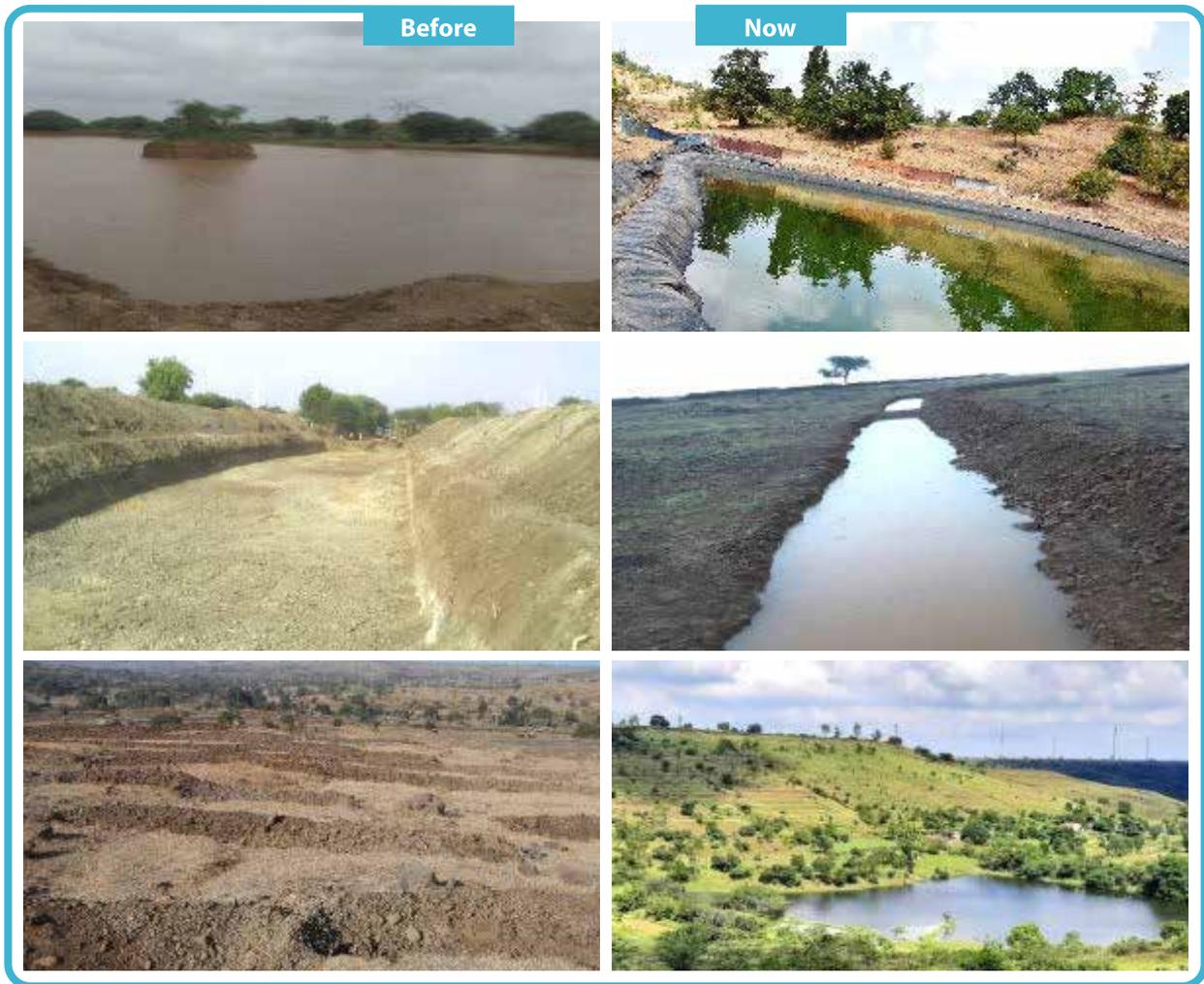
Water harvesting interventions are always perceived infrastructure support and hence it was difficult for the team to establish the concept of Demand Side and Supply Side Management. The soft intervention in the programme was not given much importance and always there was demand for more and more infrastructure. Also, the earlier intervention executed in the villages was done without any scientific/hydrogeological background because of which there was issue with the surface water leading to low ground water recharge. Change in cropping pattern was another area of concern with the farmers. Similarly, safe drinking water practices at household level and high TDS levels were key challenges. All the same were addressed through a combination of community mobilization and participation, involvement of water experts which led to creation of Bhujal Jankaar cadre and water conservation practices adoption by community with water being considered as a common resource pool of community.



IIT Gandhinagar
Indian Institute of
Technology Gandhinagar



Case Study of Transformation - Ahmednagar (Khandke, Supa, Agaswadi)





SDG #7 Affordable and Clean Energy

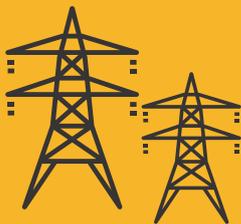
Ensure access to affordable, reliable, sustainable and modern energy for all

Status in India

NEARLY
84.5%
PEOPLE HAVE ACCESS
TO ELECTRICITY



100%
VILLAGES
ELECTRIFIED



POWER CABLES FROM THE GRID
HAVE REACHED A TRANSFORMER
IN EACH VILLAGE

**BUT 31 MILLION HOUSES STILL
LACK ACCESS TO ELECTRICITY**

AMBITIOUS RENEWABLE TARGETS BY 2022

175 RENEWABLE
ENERGY
CAPACITY
GW COMPRISING



100
GW



60
GW



10
GW



5
GW

Case Study #9 Solar powered solutions for customers

Low Carbon energy solutions

What did Tata Power do?

Tata Power Solar is one of the largest solar manufacturers in India with a production capacity of 400 MW of modules and 300 MW of cells. It has completed more than 2.6 GW of ground-mount utility scale, over 15,000 solar water pumps and over 270 MW of rooftop and distributed generation projects across the country.

Commissioned/Installed

- 100 MW solar project for NTPC, Anantapur
- India's largest vertical solar farm for Dell, Bengaluru
- 12MW installation for R.S.S.B. Educational & Environmental Society
- 1.8 MW solar project for IIT Roorkee
- 2.67 MW largest carport at Cochin International Airport
- 820.8 kWp solar rooftop installation on cricket stadium at Cricket Club of India (CCI), Mumbai

Project Impact

Solar energy provides a good return on investment through the use of unutilized rooftop space and requires minimal maintenance. All of this has a positive impact on the savings and even greater impact on the environment. When it comes to industrial solar rooftops, Tata Power Solar takes the lead with its state-of-the-art solutions. Investment in Tata Power Solar industrial rooftop solutions ensures return on investment by reducing your electricity bills. Tata Power Solar's customised rooftop solutions have helped multiple industrial, commercial and institutional customers implement sustainable solar power solutions, thereby reducing their carbon footprint, while making sound fiscal sense for them.

Tata Power Solar's collaboration with Cricket Club of India helped to generate over 1.12 million electricity units per year, which led to a 25% in savings in power consumption cost. At present the Stadium consumes 4 lakhs kWh/month. However, with the new solar installation, on an average basis, the consumption from the grid would fall to approximately 3 lakhs kWh/month.

Key Success Factors: What worked?

The company's competence in the manufacture of solar modules served it a huge advantage given that it was no longer affected by the vagaries of commodity prices or the fluctuations in the rate of foreign exchange. These changes gave the company a greater sense of assurance in the quality and predictability of cost. Also, Solar tariffs have become quite attractive in the bid regime, which has also enabled addition of majority of the capacity. Embedding safety in the core product design to safe work practices in the installation of industrial solar rooftop, is also one of the key differentiators for the company.

Challenges

- Renewable Energy integration and grid stability
- Low Voltage Ride Through (LVRT) and High Voltage Ride Through (HVRT). Implemented through regulation for Solar sites to enhance their capability to stay connected in short periods of lower/higher electric network voltage.
- Mandate for Scheduling and forecasting to RE generators
- Storage devices as reserve
- Robust transmission services to ensure that RE generation backing down in minimal
- Creating Ancillary Services framework at inter-state and intra-state level to operationalize the reserves
- Primary, secondary and tertiary generation reserves
- More flexible resources like pumped storage hydro resources in the country



Case Study #10 Managing Energy Demand

Demand Side Management

What did Tata Power do?

Tata Power launched Demand Side Management (DSM) programs for its customers in Mumbai way back in 2012. The programs were initiated to encourage energy efficiency. These included - ceiling fan exchange for residential customers, energy audits, thermal storage technology for air conditioners and demand response for industrial and commercial customers. DSM programs have been launched under the BE GREEN Initiative to offer new energy efficient appliances with 40-50% rebate. DSM programs help consumers manage their demand effectively. Under all these programs, Tata Power has provided incentives to consumers for embracing energy efficiency. Carried out over the last decade, Tata Power team has launched "Exchange Program" for Consumers to exchange their inefficient electrical appliances with the efficient appliance (3 Star / 5 Star rated ACs, Refrigerators, Fans, LED lamps/lights). These appliances are provided at exclusive heavy discounts (~ 30 to 40%). Tata Power DSM Program has bagged National Award for 'Innovative Energy Service Award' at the CII national Award for Energy Management. DSM schemes have

been active for Mumbai customers and were approved by MERC.

Project Impact

- Consumption of 30% less energy by use of 5 star rated ceiling fan
- Consumers were asked to voluntarily reduce their load at a pre-determined time as required by the utility.
- Incentivized customers under Demand Response Initiative
- Incentivized customers who shift their peak loads using thermal storage technology.
- Customer's premise was audited by a certified energy audit agency and recommendations were provided for achieving further reduction in energy consumption by paying minimal service fees
- Thermal storage technology was introduced for industrial / commercial customers who have large,

The advertisement features a green background with a central circular logo that says "Be Green!" with "A Tata Power Green Solution" below it. The Tata Power logo is in the top left and right corners. The main text reads: "brings to you an opportunity to exchange your inefficient electrical appliances for energy efficient appliances" followed by "Programmes for Residential Consumers". Below this, three product cards are shown: 1. "Super - Efficient Ceiling Fan" with "New Purchase Program" and an image of a blue ceiling fan. 2. "Energy Efficient Refrigerator" with "New Purchase & Exchange Program" and an image of a white refrigerator. 3. "5 - Star Split AC" with "New Purchase & Exchange Program" and an image of a white split AC unit.

central air-conditioning systems where chillers are run during the night to convert water to ice to cool the premises

- Design of specific DSM programs across consumer segments.

Key Success Factors: What worked?

- Tata Power launched several attractive DSM schemes for its customers in Mumbai under its special initiative 'My Mumbai Green Mumbai' to propagate energy conservation and efficiency in the country

Challenges

Data collection and extensive research involving study of the consumer behavior, load variation patterns and determining peak load contributors was challenging to collate on various high energy consuming equipment used by consumers.

Residential Consumers

Super Efficient Ceiling Fan Program (BLDC technology)
5 Star Refrigerator Programme
5 Star Split AC Program (Inverter technology)
Heat Pump Water Heating System



Industrial / Commercial Consumers

Know your Electricity Consumption program
Demand Response
Thermal Storage/ Energy Efficient Split Air-Conditioner Program
Standard offer incentive programme



Energy Audit Program for C&I Customers

Detailed Energy Audit
Focused Energy Audit - HVAC/Power Quality / Pump audit
Walk Through Energy Audit

Case Study #11 Micro-Grid Solar Solutions

(Modelling Villages with Renewable Power Access)

In 2015, Tata Power launched the Micro-Grid Solar Solutions in remote villages for ensuring sustainable access to green power. This initiative was a win-win situation to share core competencies and also build village institutions that were engaged in ensuring the sustainability of the project and complete ownership. The mission was to reach out to 50 villages across Tata Power neighbourhood in phases by 2020. Microgrid pilot projects have been undertaken in Bihar, Maharashtra, Odisha & UP.

Some facts;

- Small fraction of rural households (10%) electrified
- Over 3.5 crore households in India are yet to be electrified
- ~80% of rural households in the electrified villages in some states receive power supply <2 hrs.
- A localized cost effective microgrid will be able to ensure universal access to electricity
- For a village of 100 homes, a 4 kW microgrid is sufficient and helps generate electricity worth Rs. 33,000 per year.

What did Tata Power do?

Tata Power facilitated access to decentralised distribution to remote villages in Maval and Mulshi Talukas of Pune district. The micro-grid solar solutions offered power access to rural communities at affordable costs. The Company shared its core competency to augment the lack of energy access in remote locations. This was done based on feasibility studies and involvement of Local Panchayats. The technical feasibility and people participation was the key. People took ownership of the project and formed Power User Group to manage the project. The project was also replicated in other locations of Tata Power. This is a low cost model and can be deployed across all topography. This has proven to be a sustainable model to address energy access challenges. Tata Power Solar has taken up Unique programmes in collaboration with the Government like;

- 1 MW Solar Microgrids - Ladakh, India
- 100+ Solar Microgrids - CREDA, Chhattisgarh, India
- 110 kW Solar Microgrid - Sundarbans, West Bengal, India.

Project Impact

The project resulted in the following community impacts:

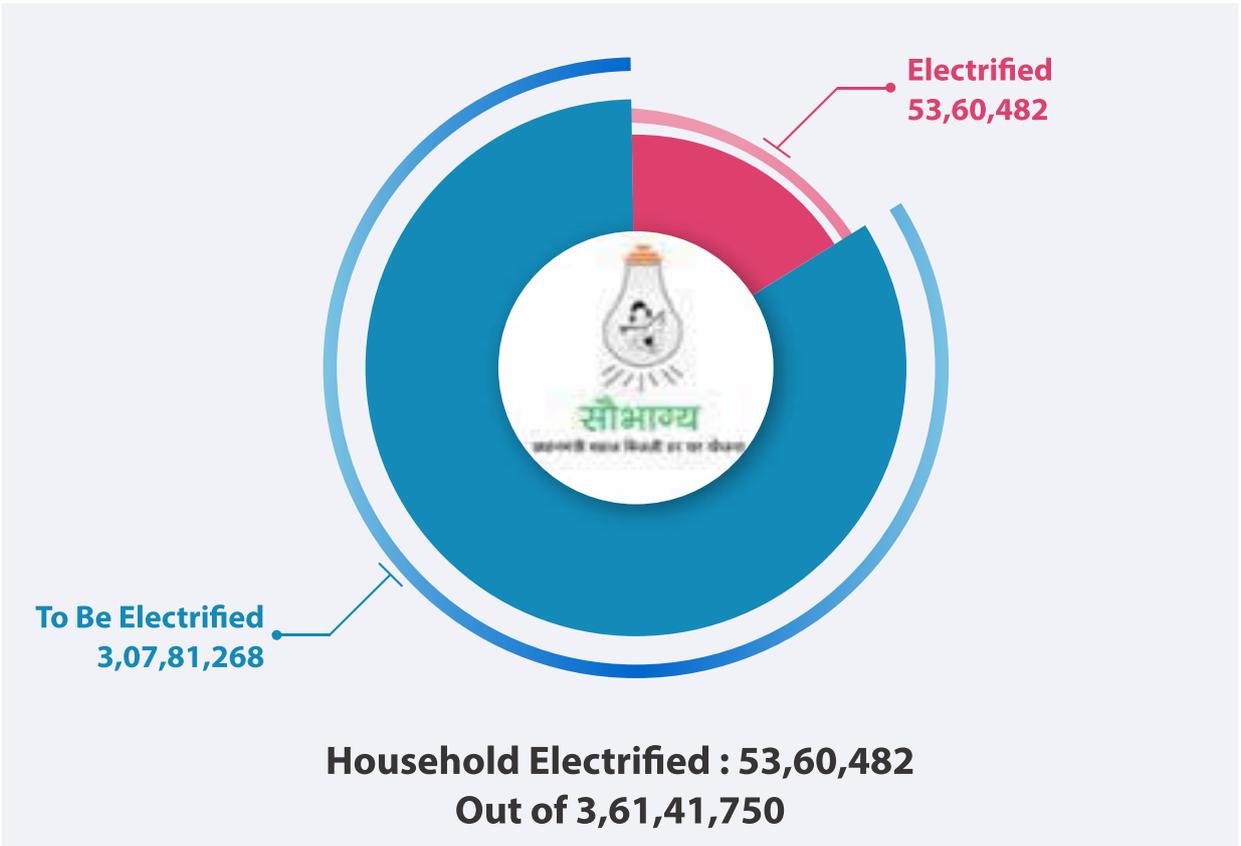
- Reduction in unnecessary consumption of kerosene value
- Reduction in women spending a significant portion of time collecting firewood
- Improved access to study time for children during evening
- Improved social interaction among community in the evening
- Low cost model for community affordability
- Smart Card method with mobile based power recharging system as per consumption
- Community contribution was ₹ 1.5 lakh for the project besides the labour component.

Key Success Factors: What worked?

Formation of Village Committee - Power Users Group and active communication with each household to engage in the project and value the socio-economic benefits in the long run. Overall impact on health and education helped people accept the project and light up lives sustainably.

Challenges

The major challenge was to involve community to participate, pay and agree to manage the project. Ensuring regular payments was a critical aspect for sustainability. Mobilization of solar panels and equipment to the remote locations was also a logistical challenge.





SDG # 9- Industry, Innovation and Infrastructure

Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation

Status in India

111
MILLION

PEOPLE EMPLOYED
IN MICRO, SMALL
AND MEDIUM
ENTERPRISES
PRODUCE

33%
OF THE
MANUFACTURING
OUTPUT



566

MILLION INTERNET
SUBSCRIBERS
(MOBILE AND LANDLINE)

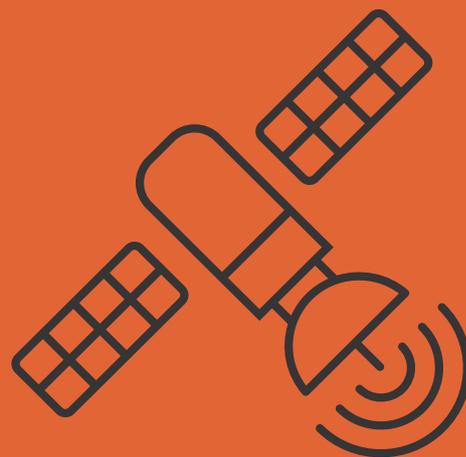


1.80 MT ONE OF THE
LOWEST PER CAPITAL
CO₂ EMISSIONS
IN THE WORLD



GDP GROWTH
AVERAGED

7.2%
BETWEEN
2018-2019



MANGALYAAN IS THE
WORLD'S LEAST EXPENSIVE
INTERPLANETARY MISSION
TO MARS

Case Study #12 Solar Powered Digital Literacy Intervention Project

(e-Vidya, Digital learning system- 100 Smart Classroom Systems in the schools of Chickaballapur District, Karnataka)

100 Smart Classroom Systems to Schools in Chickaballapur District under Tata Power Solar

What did Tata Power do?

In today's world there are many digital classrooms and e-learning solutions available to choose from the market depending on one's affordability from a basic computer/laptop enabled projector system to a premium smart and interactive board and projector system working with server-based cloud operated systems, but all these systems are proven redundant in the current rural geography which are starved with electricity during the day and even if electricity is available it is not uninterrupted and with the desired quality power. Hence, Tata Power's innovative digital portable solar powered classroom comes very handy and unique as it is self-sufficient and also does not depend on external power utility or server, or cloud-based platforms.

Project Impact

Since it is solar powered it is a green product which does not depend on conventional energy and contributes to reduction in carbon footprint and hence it is an environmentally friendly and sustainable solution. This unique feature is also taught and demonstrated to the students to conserve energy and to use renewable energy-based products from the energy and environment conservation. The Digital classroom solution was an innovation based on the actual need of the rural classrooms.

Key Success Factors: What worked?

The complete digital learning system is supported with an uninterrupted power solution comprising of

- 100wp solar photovoltaic module
- DC power generated by the solar panel is converted to AC power by the Hybrid inverter for quality power supply to the equipment
- High power storage battery for uninterrupted power supply
- insulated enclosure for housing the battery and to mount the inverter safely
- Outdoor Solar panel mounting structure and accessories.

Challenges

- Implementing Technology based digital learning solutions which shall facilitate the students from rural set up.
- Content Mapper to School textbooks of 8th to 10th grade students.
- Animations, multimedia and lesson plans and activities
- Assessments to enhance the digital learning effectiveness leading to higher result turnout



Case Study #13 Solar Integrated Rain-water Harvesting

What did Tata Power do?

Tata Power has developed a Solar integrated rain-water harvester, which is a complete package giving 100% clean energy with an added advantage of water saving to the customer. All rooftop areas where Solar energy solutions are being installed will have an additional add on package to make a difference to society by collecting and preserving water. This dual combination will yield an additional precious resource which is becoming scarce by a high alarming rate. The solution provides an entirely new market segment as many of the states including Uttar Pradesh, Karnataka, Maharashtra have mandated of rain-water harvesting solutions due to depreciating ground water level and Solar systems to promote clean energy.

Project Impact

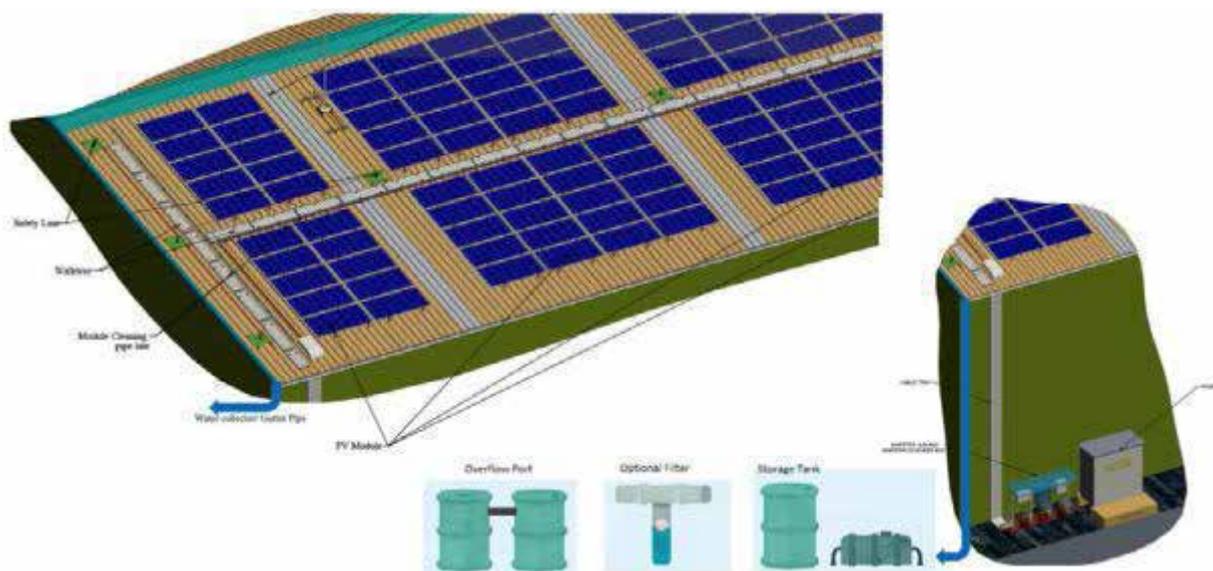
Water scarcity is a major challenge being faced in current times. Providing society with a solution which combines Solar along with rain-water Harvesting not only promotes sustainable and pollution free energy generation but also help in saving the most precious commodity for human sustenance.

Key Success Factors: What worked?

Other Solar companies have tried for certain specific customer for implementing a rain-water harvesting solution but a standard pocket friendly solution is missing which is being addressed by this dual package.

Challenges

- New market development for adopting the dual package
- Customer sensitization on the benefits
- Acceptability by customers for a breakeven product





SDG # 12 Responsible Consumption and Production

(Ensure sustainable consumption and production patterns)

Status in India

3RD LARGEST
GREENHOUSE GAS
EMITTER,
RESPONSIBLE FOR

6.9%

OF GLOBAL EMISSIONS



**500
BILLION**

UNITS OF ENERGY
COULD BE SAVED BY
ENERGY EFFICIENCY

ONLY
19.9%
OF URBAN INDIA'S
WASTE IS PROCESSED



**841
MILLION**



IS THE PROJECTED URBAN
POPULATION OF INDIA FOR 2050



ENERGY USE
DOUBLED SINCE 2000,
BUT ENERGY
CONSUMPTION PER
CAPITA IS STILL ONLY
1/3RD OF THE
GLOBAL AVERAGE



OF THE TOTAL INSTALLED
POWER GENERATION CAPACITY
54.6% IS FUELLED BY COAL

Case Study #14 Club Enerji

Promoting Sustainable Consumption through Societal Awareness



Tata Power Club Enerji (TPCE) is a sustainability driven campaign aimed at creating awareness among school students, who in turn, sensitize their families and neighborhood towards energy and resource conservation and imbibe moral & civic values through various dynamic and innovative practices. It focuses on bringing about a first-hand realization of the energy crisis and scarcity of natural resources in the country. With the increasing demand for energy, effective management and conservation of the same has become the need of the hour.

What did Tata Power do?

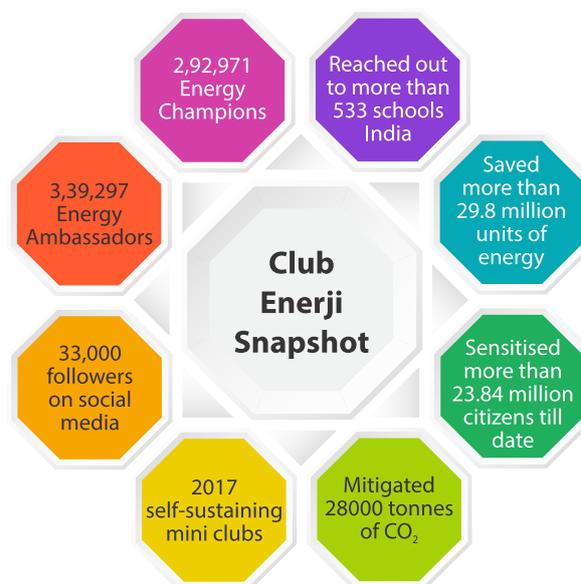
Club Enerji propagates efficient usage of energy and educate the society on climate change issues. It is looking to contribute towards nation building by creating responsible citizens who will focus on Energy & Resource Conservation, Fuel Conservation, Water Management, Waste Management, Afforestation, Moral & Civic Values Conservation. Tata Power Club Enerji conducts various events to engage school children and spread the message of energy & resource conservation through several outreach & engagement initiatives.

The deployment strategy focuses on:

- Combating Climate Change: By Reducing CO₂ footprint, saving resources and making a difference
- Self-sustaining movement: Sensitize students, who in turn sensitize their families and neighborhood
- Creating Responsible Citizens: Who conserve energy and natural resources, as well as imbibe and promote civic & moral values.
- Scalable: The model is scalable to all schools as content is in sync with school curriculum. The 4E approach (Educate, Engage, Empower, Enhance) is used to sensitize children
- Multiple touch points: Numerous interactions through the year
- Latest technology: Use communications platforms like online module, social media, interactive website.

Project Impact

In alignment to UNSDG #13 Climate Action, last year Club Enerji launched #SwitchOff2SwitchOn a digitally driven Call to Action campaign, to drive climate education, awareness & adaptation to help reduce carbon footprint & stimulate widespread, informed conversation & behavior change in citizens globally. Consolidated efforts on all aspects of climate action – #ICAN for awareness building on Climate Change, #BatiyaBujao for energy conservation, #SwitchOffPlastic for reduction of single use plastic, e-waste Collection Drive & #BucketBharoChallenge for water conservation.



Key Success Factors: What worked?

- The support from schools, college students, teachers, parents and other partners who share the same concerns on energy conservation
- TPCE provided the ground for youth to share and expand their understanding which brought about a chain reaction that significantly helped in conserving natural resources.
- Club Enerji has reached out to more than 500 schools since inception across cities like Mumbai, Delhi, Pune, Bengaluru, Kolkata, Ahmedabad, Jamshedpur & Lonavala.
- More than 600 Interactive sessions through In-class Educational Films, presentations and competitions are undertaken to reinforce the content

- Principal & Mentors Meet
- Online Module
- Energy Quiz-Energy Q & Carnival

Challenges

- Enthusing youth and children to participate
- Educating people that energy, climate change and global warming and their activities are linked.



Case Study #15 Micro Hydro Turbine

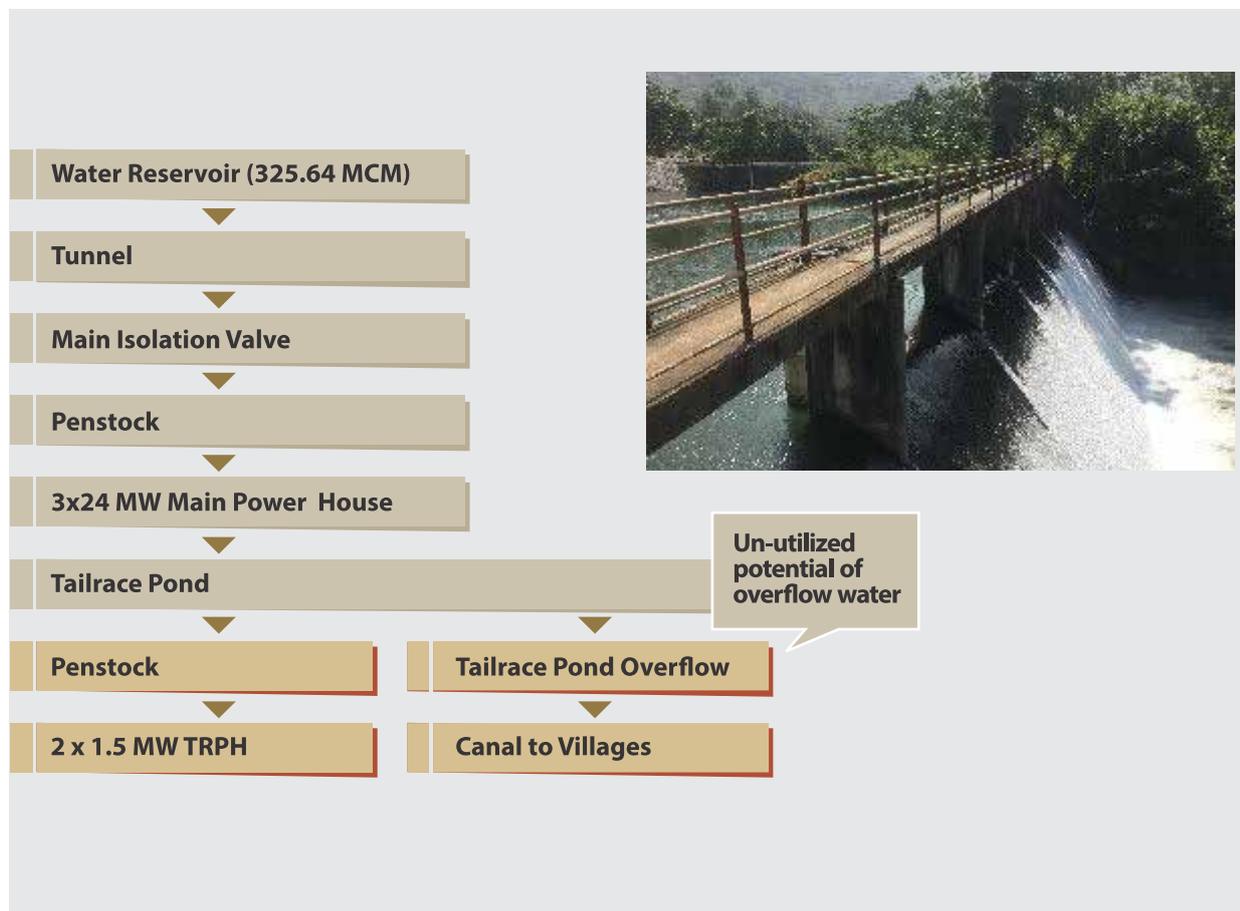
(Harnessing the Potential from Tailrace Power House overflow water)

Small Hydro Power (SHP) Program is one of the thrust areas of power generation from renewable in the Ministry of New and Renewable Energy (MNRE). To study that & motivate Hydro Power Plants, Government have launched some schemes and MNRE is responsible for development of SHP and channelize the programs.

What did Tata Power do?

In line with the directive, Tata Power Hydros team at Bhivpuri took up the challenge to utilize the potential of tailrace pond overflow water for power generation. Bhivpuri Generating Station comprises of 3 x 24 MW vertical Pelton turbines and 2 x 1.5 MW tailrace Units. The water after generation from main powerhouse (72MW) is stored in tailrace pond and further used for generating 3 MW from the TRPH Units. The water in the tailrace is used for irrigation and drinking purpose by downstream users. The tailrace users receive water from two canals which are constructed by the

Irrigation Department and called as Left Bank and Right Bank Canal respectively. The water after generation in the TRPH flows directly into the Right Bank whereas the Left Bank is before the TRPH Units hence water needs to be overflowed above the TRPH dam. To make water available to the intake of the canal the TRPH dam is made to overflow by reducing the load on the TRPH Units and hence water is let out without extracting the available potential. The TRPH pond has a drain of 1m x 1m opening which further lead to an 1800 mm MS pipe which can be used for tapping the potential. The idea of using this drain for fixing the turbine on the downstream side of the dam was finalized. Accordingly, scheme was designed & finalized for the utilization of waste-water from tailrace pond using M/s KPIT supplied in pipe propeller type 50 KW micro hydro turbine. Mobile SMS system was developed for operating and monitoring all the critical parameters of micro hydro turbine -generator from remotely through mobile phones.



Project Impact

Water being natural resource and cost-effective form of energy, in tailrace pond overflow section it is being let out without extracting the available potential leading to wastage of energy. Around 2.7 Cr. Liters of water per day is untapped without utilizing its power generation potential which is 300 units/day. To utilize tailrace pond overflow water potential, it was decided to fit propeller type turbines on the scoring valve of the dam with a capacity of 50 KW.

- The scheme is qualified under micro hydro and would attract a tariff of around 5.86 ₹/Kwh.
- Daily Revenue from Generation ₹ 2051
- Yearly Revenue from Generation ₹ 7.49 L
- With this projects capacity power can be distributed to more than 54 homes
- The project can qualify for a PPA with distribution company as it will be compliance to RPO
- The project also provides an opportunity to generate and trade energy certificates on the exchanges. The scheme can yield an IRR of 18% at a PLF of 45%

Key Success Factors: What worked?

Collaboration within the Hydros team and support from M/S KITL has been the critical success factor for the project success.

Challenges

- The water after main powerhouse generation used to overflow and get wasted over the TRPH dam. To channelize this overflow water through the scoring valve of the TRPH dam on which 50KW micro hydro turbine is fitted was the challenge of this project. The Project has been developed on the

downstream side of the TRPH Dam in the spillway section. The development involved carrying out site survey and plotting of all the levels on the various trees and stones on the site. The area was having dense vegetation and required a lot of preparation for approach and shifting of material.

- M/s KPIT developed an in-pipe propeller turbine and designed an inverter which was tailormade and used for the first time for meeting the site requirement.
- Difficulty in construction of powerhouse and laying penstock due to continuous overflow of water through overflow section. The pipes which were crossing the overflow section were washed off due to high flow of water in case of TRPH non availability.



Micro Turbine



SDG # 13 Climate Action

Take urgent action to combat climate change and its impact

Status in India

NEARLY
300
MILLION

RURAL PEOPLE DEPEND ON
FORESTS FOR A PART OF THEIR
SUBSISTENCE AND LIVELIHOOD



60%
LAND IS USED FOR
AGRICULTURE AND

24.1%
IS UNDER
FOREST COVER



3RD LARGEST
GREENHOUSE GAS EMITTER,
RESPONSIBLE FOR

6.9%
OF GLOBAL EMISSIONS

HIGHEST EVER ALTERNATE ENERGY
CAPACITY INSTALLATION
IN INDIA

SOLAR ENERGY
CAPACITY
INSTALLATION
IN 2013



6550
MW

WIND ENERGY
CAPACITY
INSTALLATION
IN 2014



1572
MW

COMMITTED TO REDUCE
EMISSIONS INTENSITY
OF ITS GDP BY

33-35%

BY 2030

COMMITTED TO REDUCE EMISSIONS
INTENSITY OF ITS GDP BY

20-25%

BY 2020

Case Study #16 Tree Mittra

(Mega Afforestation drive with active employee participation)

Over the past 40 years, Tata Power has planted saplings of fast growing and indigenous tree species, native to the Western Ghats on hill slopes of the lake catchments near Hydro operations. The afforestation programme was intensified in 1991 and continues till date as part of the Maharashtra Government's Van Mahotsav. The saplings are nurtured at Tata Power nursery in Lonavala with indigenous and endemic forest species, medicinal plants and giant creepers etc. This process is necessary to support the biological diversity in the eco-forest system and in turn restore the habitat for selected fauna. Tata Power plants 1 million saplings annually at all its hydro catchment areas. Through this effort Tata Power is ensuring that the Western Ghats continue to be known as a biodiversity hotspot across the globe.

ADOPT A TREE.....



What did Tata Power do?

Tree Mittraa Flagship Volunteering initiative of Tata Power under the Green theme aims at encouraging employees and their families to adopt a tree, plant and nurture its survival. The initiative was launched at Hydros and rolled out across locations in Tata Power.

Under the aegis of Tree Mittra initiative, Tata Power hosted a series of afforestation volunteering programs in and around their operations across India. The approach is to engage with key stakeholders on volunteering with a strong purpose led, collaborative effort and create a multiplier effect for our community initiatives. Employees get an opportunity to offer their skills, time and passion to contribute for social and environmental causes.

Project Impact

Tree Mittra drive conducted at various locations with Senior leadership and Customers. More than 1 million plantation done across locations in FY 20. The afforestation drive has helped offset some carbon emissions arising from the operations.

Key Success Factors: What worked?

- Plantation drives were conducted across Tata Power locations with a target of planting 1 million saplings in FY 20, which was achieved.
- Identification of Local Species suitable for Plantation
- Plantation drive launch at Hydros (biodiversity hotspot in Western ghats)
- Monthwise Plan for Plantation Drive for Volunteers.
- Engagement with Local School Eco-Clubs for spreading awareness about local flora and fauna.
- Follow-up Visit by Volunteers to Plantation Sites for Tracking Survival
- Photo and Story Sharing by Volunteer with the Tree (Describe the Human Tree Bonding Story) in Arpan Portal
- Each Volunteer to target plantation of 50 plants/saplings across the year
- 1.7 lakhs hours of volunteering was achieved. Average per employee volunteering hours contributed was 17 in FY 20.

Challenges

The major challenge for the Tree Mittra initiative was to ensure survival of the planted saplings. This was ensured by training of Volunteers on the Local Species and importance by Bio-diversity team and encouraging them to adopt the plant for protecting it and ensuring its survival.



Case Study #17 Greenolution



What did Tata Power do?

Greenolution, the term, is a fusion of two concepts - Green and Evolution. The movement was flagged off in 2012 with Tata Power employees as its flag bearers and taking up Company's sustainability initiatives at individual level. It signifies the process and initiatives that the Company would undertake towards achieving its goal of ensuring a greener and sustainable planet. Through Greenolution, Tata power includes the efforts/ practices/programs that infuse the belief of sustainability as a 'movement' by making everybody a part of it. Following the need to have a single umbrella term for all the green activities undertaken by the employees from time-to-time Greenolution was conceptualized. It signifies the processes and initiatives that the Company would undertake towards achieving its goal of ensuring a greener and sustainable planet. Green Hero' campaign recognizes the green efforts undertaken by employees that have made a positive difference in the society. They act as a catalyst who lead by example and get rewarded and recognized for their endeavors.

Project Impact

Since the inception of Greenolution, 2,000 green heroes have been identified with 646 green initiatives and 150 green innovations. Greenolution helps to traverse the sustainability journey of the organization by 'making green living, the way of life' through active participation and awareness among the employees. So far more than 1,700 employees enrolled as Green Heroes with 450 green innovations identified and 150 green innovations. Green Innovations turned out to be positive unexpected outcome of Greenolution that was not anticipated by the team as the outcome of Greenolution. It also helps to establish Brand differentiator and create awareness on environment & sustainability among employees, customers and other stake holders.

Key Success Factors: What worked?

Dedicated training sessions are conducted periodically by Tata Power to groom more and more employees, especially youngsters as Green Heroes. A robust reward and recognition mechanism has been framed to recognize Green Heroes. Whenever a green hero shares some good green practice, it is shared with the entire organization through company-wide emails and

the website.

Under Greenolution, nine key areas of implementation activities which touch every employee life and where they can make a difference. The programs under these nine areas are;

- Carbon Footprint Mapping and Monitoring
- Implementation of 100% recycled paper usage
- Tree plantation at all our plants and site locations
- Saving water at all our locations
- Saving fuel through carpooling and other initiatives
- Waste Management at our offices
- Energy conservation & efficiency initiatives at our locations and outside
- Reducing air travel and using webcast/ video conferencing facilities
- Participation in 'Clean your city' drives and campaigns

Challenges

Bringing the complete employee base to be on the same page with respect to sustainable lifestyle and making sustainability a way of life. Encouraging employees to lower their footprint and make a difference. Since its inception there were a few challenges like active participation of employees, support from local teams, adaptability & sustenance of initiatives and deployment of Instant Rating Mechanism (IRM); various mitigation steps like employee motivation, Periodic R&R schemes and campaigns, Garnering support from leadership were adopted to overcome these challenges.



Tree Plantation



Hare rescue at WREL site



Safety signboard made with scrap at Neemuch



Garden made at CGPL using scrap material

Case Study #18 Switch Off to Switch On



What did Tata Power do?

To commemorate World Environment Day and foster sustainable consumption, Tata Power Club Enerji launched "Switch off to Switch on" - a three month long national energy conservation pledge campaign. Children are the 'Reflex Generation' of tomorrow, who take instinctive measures to create an eco-friendly community for the future. With them at the helm of the campaign, the objective remains to encourage small behavioral changes and inspire the society to contribute towards building a sustainable community. The crux of the campaign is 'Reverse Parenting' where the children will spread awareness and engage their families and society at large to save energy. The rationale is to inculcate intelligent & thoughtful use of electrical equipment, thus 'switching on' the savings account for environment and energy. Many interest groups are becoming concerned about the sustainability of electricity, people are wasting a lot of electricity each day without paying much attention to the long-term effects of such actions. According to technical experts, we can save 5% - 10% of electricity every month with the help of small behavioral changes. Small changes like removing phone charger from the plug once we are done charging our phone, turning laptop off instead of standby, using sunlight during day-time makes all the difference.

Project Impact

Switch off to switch on is a cause related campaign meant to inculcate small behavioral changes in people to let them know that 'Switching Off' of few things can 'Switch On' savings. We extended the thought with "I CAN FIGHT CLIMATE CHANGE." Encouraging people to take up the challenge with small behavioral changes which will make the most impact along with cost savings. Through social media, campaign so far has created 1 million+ impressions across Facebook, Twitter, LinkedIn and Instagram. The campaign gained 9,200+ people pledged that they won't waste electricity & take steps to conserve the environment.

Key Success Factors: What worked?

Public awareness through change agents like school children. Maximum outreach with platforms like Tata Power Green Community, Social media handles of Tata Power, Social media handles of Club Enerji and Internal & Tata group companies branding.

Under Greenolution, nine key areas of implementation activities which touch every employee life and where they can make a difference. The programs under these nine areas are;

Challenges

- Behavioral changes in people takes time to imbibe. People tend to take efforts on saving energy and environment if they know there is an incentive involved.
- Reverse parenting effectiveness. Kids are ambassadors for better future & they are capable to motivate family & friends to take actions against climate change, wastage of electricity, etc.



Case Study #19 Be Green



What did Tata Power do?

Tata Power is committed to sustainability and makes consistent efforts in extending this commitment to all our consumers. Be Green is a unified customer program to promote responsible green living. The program aims to drive home the message of 'savings' and 'going green' through various initiatives amongst customers.

'Know Your Electricity Consumption' daily energy management tool - In a unique move to help our Consumers take better control of their energy usage, Tata Power has launched 'Know Your Electricity Consumption' tool that allows its customers to view their power consumption trend through an online dashboard. Consumers of Tata Power can view power consumption for any given month, day and hour at the click of a button, thus helping them have a better understanding of their electricity usage patterns and take corrective measures to reduce their power bill. An additional benefit ensures that consumers can better manage their Demand and reschedule their activities to avail Time of Day (ToD) tariff incentives including controlling power factor & thus incentives themselves.

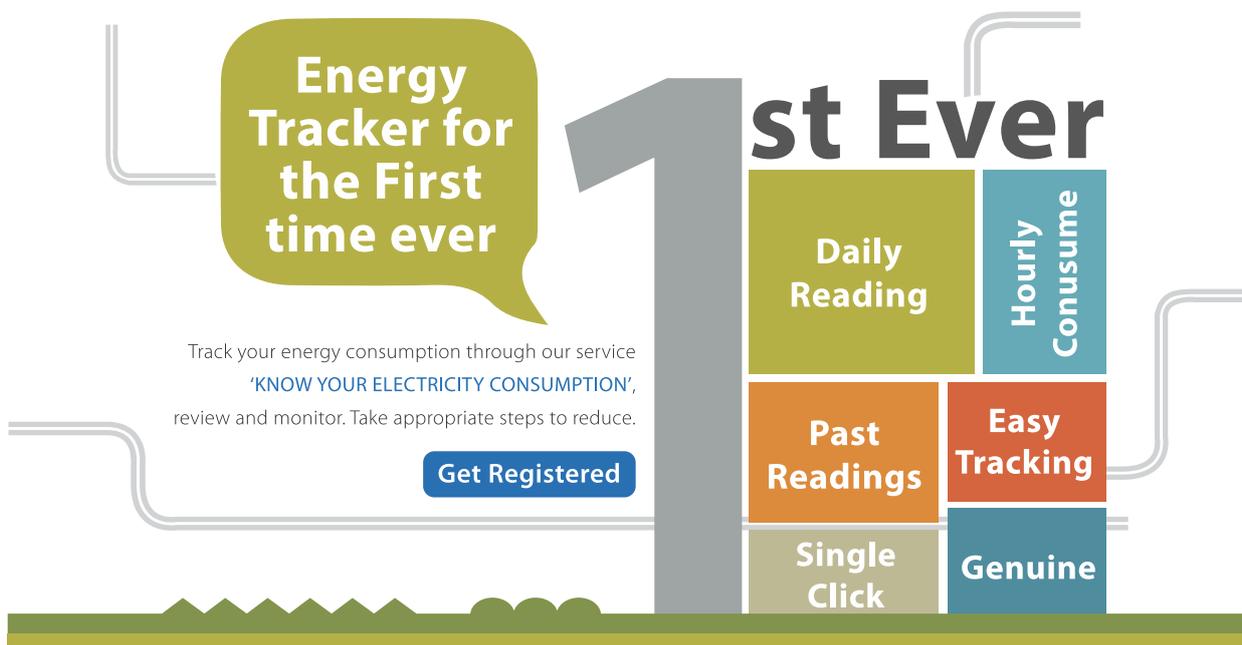
Other key programs under Be Green for all customers are:

- DSM Programs (Exclusive exchange program for

- energy-efficient consumer appliances)
- Carbon Footprint Mapping
- Go Digital
 - E-billing
 - Digital touch points - Customer Portal, Mobile App, Voice Bot, Chat Bot, WhatsApp, Social media (Twitter, Facebook, LinkedIn, Instagram).
 - Digital methods of payment - NACH, BPPS, UPI, ECS etc.
- Sapling Distribution to consumers as incentive for going 'paperless'.
- Energy conservation and efficiency contests
- Energy Conservation Awards for consumers

Project Impact

- Customers go Digital
 - Digital payment mode is used by 70% of total consumer base
 - 93% of total revenue is collected digitally.
- Paryavaran Mitra - One-week Campaign
 - Nearly 1000 Consumers Pledge to protect the environment.



- Registered more than 350 Consumers to go for e-NACH/NACH.
- Social Media
 - Impressions 3,80,916
 - Engagement 8,265
 - Reach 2,48,032

Key Success Factors: What worked?

Customer communication is done through multiple touchpoints, digital and physical, to reach out to the wide diverse customer base.

- Digital Literacy through social media, website and customer portal, Customer relations centers, Leaflets and sms/whatsapp.
- Contests on Social Media like “Unscramble Quiz”, “Crossword” pamphlets for Walk-in Consumers, “GoDigi GetLucky” Lucky draw contest for consumers transacting (payment and access) through digital touch points.
- Go-Cashless drive was initiated to promote digital payment

- Paryavaran Mitrapledge undertaken by Consumers to conserve natural resources and opt for e-bills and e-Payment methods. In return, Tata Power has decided to plant saplings in the name of Consumers and nurture them.
- 90 days Watt Loss Challenge, National program targeting consumers to conserve their electricity consumption, over a 3-month period. Not only restricted to Tata Power customers, this program has received 900 registrations in a 3-week period.

Challenges

Customer communication is done through multiple touchpoints, digital and physical, to reach out to the wide diverse customer base. Customer friendly Enhance digital Digital Literacy through social media, website and customer portal, Customer relations centers, Leaflets and sms/whatsapp.

90 DAYS WATTLoss CHALLENGE!

Participate & Win exciting prizes!
Share your customer Number or Bill on wattlosschallenge@tatapower.com

About the Contest

- The wattloss challenge is a 3 month contest where people will be rewarded for bill most energy saved for a period of 3 months.
- The energy saved will be monitored through electricity bill generated at the end of each month .
- For Tata Power consumers will be required to share their consumer number while non Tata Power consumers will have to share soft copy of the bill.
- Participants who are non-Tata Power Consumers can share soft copies of 3 months of electricity bill on wattlosschallenge@tatapower.com

www.clubenergyl.com | facebook.com/ClubEneq
@ClubEneq | Watch Club Eneq@TEDx

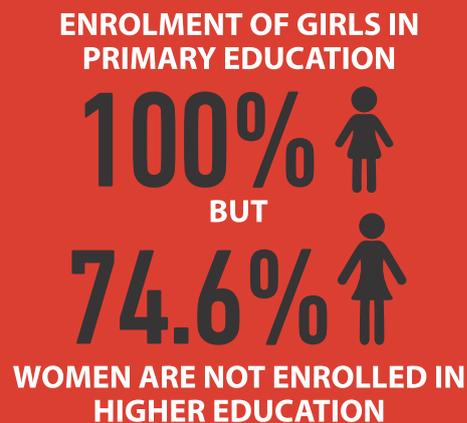
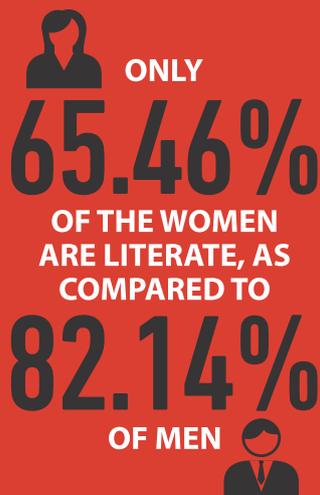
Lighting up Lives!



SDG # 5 Gender Equality

Achieve gender equality and empower all women and girls

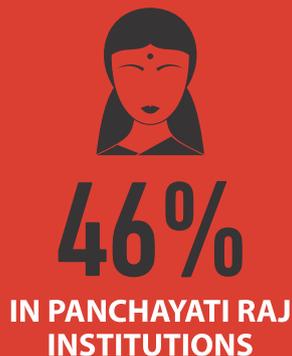
Status in India



WOMEN HOLD ONLY



OF SEATS IN
THE LOK SABHA
BUT



CHILD SEX RATIO IS
919 FOR
1,000 BOYS



48.5%
POPULATION
OF WOMEN BUT ONLY
27.4%
WOMEN ARE IN
WORKFORCE

Case Study #20 Actively promoting Gender equality

What did Tata Power do?

Tata Power adheres to the Diversity and Inclusion initiative of the Tata Group. Tata Power is an equal opportunity employer where everyone is respected and every voice is heard. It is a constant endeavour of the company to create an enabling workplace for all diverse groups, respecting and embracing the differences in individuals. We believe that the diverse teams outperform those with homogenous team composition.

Project Impact

- Policy framework addresses gender and provides protection from discrimination: Human Rights Policy, Maternity Leave Policy & POSH
- Female employees are paid the same as male employees across various employee categories
- Community programs supporting economic empowerment of women through PowerHerUp initiatives: Dhaaga, Abha, Maval Dairy etc.
- 2 independent women Board Members (20%)

Key Success Factors: What worked?

Initiatives for Gender equality

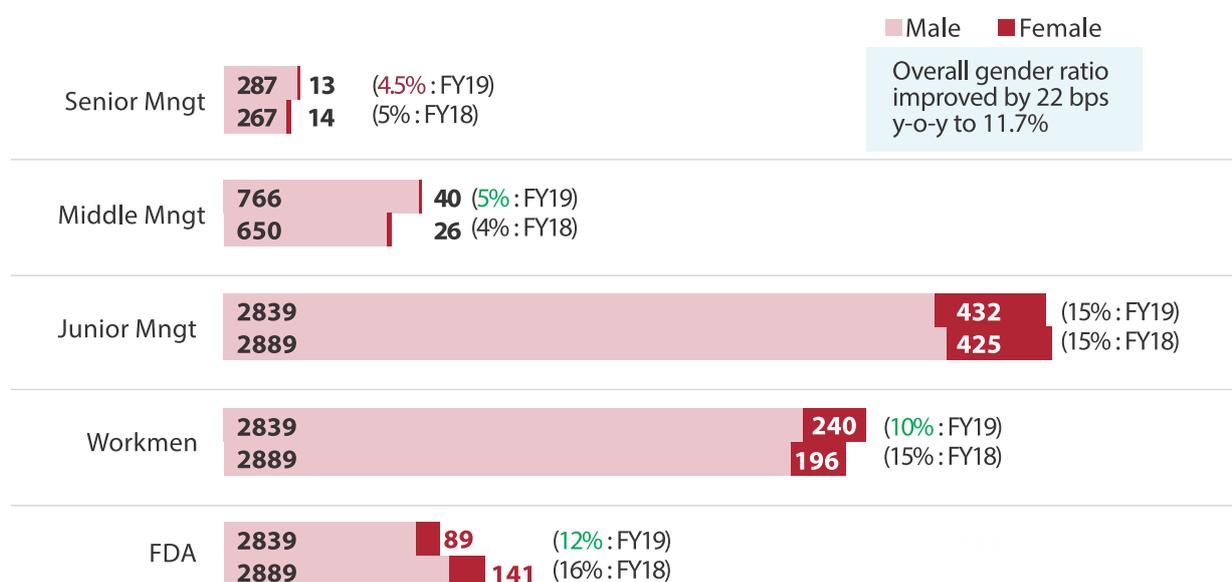


Challenges

Tata Power FY25 outlook:

- Improve overall gender ratio to 20%
- Increase women leaders to 30% in Tata Power
- Improve women Board Member ratio to 30%
- Reach 5X women beneficiaries through Community outreach (overall 5.33 million)

Diversity Statistics



Employee data of Tata Power, TPSSL, TPREL, TPDDL, & TPADL considered



SDG # 10 Reducing Inequality

Reduce inequality within and among countries

Status in India

27.5%

MULTI DIMENSIONALLY POOR



ONE IN EVERY FOUR PEOPLE IS POOR



OVERALL LITERACY



9.2%

IN THE LAST DECADE



283 MILLION PEOPLE ARE ILLITERATE



84%

SCHEDULED CASTE HOUSEHOLDS IN RURAL INDIA HAS THEIR HIGHEST EARNING MEMBER EARNING LESS THEN

₹5000

EVERY MONTH

87%

SCHEDULED TRIBE HOUSEHOLDS IN RURAL INDIA HAS THEIR HIGHEST EARNING MEMBER EARNING LESS THEN

₹5000

EVERY MONTH



86%

OF RURAL POPULATION



82%

OF URBAN POPULATION

DO NOT RECEIVE ANY HEALTH EXPENDITURE SUPPORT

Case Study #21 ROSHNI

(Women Skilling for Sustainable Livelihood)



What did Tata Power do?

The fundamental aspect of community development rests on the integrated approach in its initiatives with cross linkages within the sub-interventions to drive the agenda of transforming lives with positive impact. With this rationale, Tata Power undertook community consultation and evolved the concept of ROSHNI-Vocational Training Centre Model. This Centre was developed to act as a hub for initiatives ranging from women empowerment based skilling, literacy, maternal and child health, education and Government Schemes awareness and linkages platform for the community members under one umbrella.

Project Impact

- Vocational Centres scaled to 7 Locations in 4 locations of the country.
- 1239 SHGs comprising 14,325 members involved in micro-enterprise development including garment making, animal husbandry, agriculture, vermicompost, mushroom farming, Paper bag making and other products.
- Order value generated is ₹ 2.23 Crs. with turnover of ₹ 3.65 Crs.
- Skilling courses with linkages to financial institutions for enterprise development for beautician, garment making outlets/Centre, computer Literacy training, paper bag making.

- Maternal Child Health sessions and Remedial Coaching for children.

Key Success Factors: What worked?

- Partnership with community opinion makers for supporting the initiative and mobilizing resources including identification of beneficiaries and space for training centre development.
- Collaboration with Government departments leading to ROSHNI centre being made the E-Seva Kendra – single window forum for access and awareness about Government Schemes.
- Integrated approach under one Centre- ROSHNI helped synergize collective efforts.
- Focus on women, youth and children led to ownership of the centre by the community.

Challenges

- Enabling environment particularly in urban slums was a key challenge as mobilizing women from their daily chores was an uphill task.
- Motivating community to provide space for setting up Roshni Centre was a challenge. However this was fundamental to ensuring community ownership in the long run and hence this worked to its advantage once the community was onboarded for this support from their end.





SDG # 11 Sustainable cities and communities

Make cities and human settlement including, safe, resilient and sustainable

Status in India

BY
2030

INDIA WILL HAVE 7
MEGACITIES WITH
POPULATION

OVER
10

MILLION



13%

OF URBAN
HOUSEHOLDS
DON'T HAVE SANITARY
TOILETS



31%

LIVE IN URBAN
AREA



62

MILLION

TONNES PER ANNUAL
WASTE GENERATED
IN CITIES

17%

OF URBAN
POPULATION LIVES
IN SLUMS

OVER
1.2 MILLION
POLLUTION RELATED DEATHS
IN 2017

Case Study #22 Making Indian cities EV ready

What did Tata Power do?

EV charging infrastructure, supports the Indian Government's 'National electric mobility mission'. Tata Power established the first set of Electric Vehicle charging stations in Mumbai - India's financial capital. Now present in Mumbai, Delhi and Hyderabad, our customized EV charging solutions form the infrastructure backbone for a growing EV ecosystem and provide customers access to energy-efficient options with ease. Our solution covers power supply, back-end power supply infrastructure and customized EV charging solutions.

Project Impact

Delivering the latest Technology. Tata Power EV Charging mobile app provides EV owner the convenience of locating charging stations on aerial map, reserving charging slots, getting updates on charging, recommendations on time-of-day use and paying charges online.

Key Success Factors: What worked?

- Smart charging with Tata Power Mobile
- Last-mile charging and battery swapping for two and three wheelers.
- Diverse charging standards and specifications
- Different electric vehicles categories and manufacturers
- Variety of use case scenarios - EV Fleet charging solutions, Commercial Spaces & office charging, Public charging etc.

Challenges

- EV infrastructure market development and acceptability and use by customers
- Help increase the life of batteries and ensure smooth journeys long distance
- Charging and battery swapping for vehicle segments like two & three-wheeler

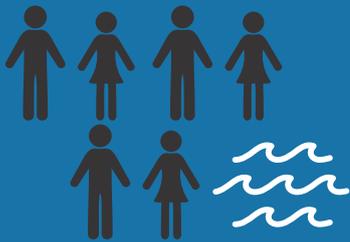




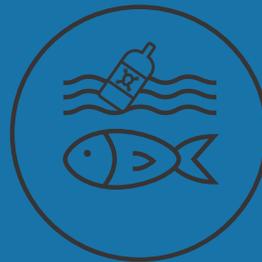
SDG # 14 Life below Water

Conserve and sustainable use the oceans, seas and marine resources for sustainable development

Status in India



BY
13.36%
POPULATION
LIVE IN
COASTAL
DISTRICT



RANKED 12TH AMONG TOP 20
COUNTRIES RESPONSIBLE FOR
MARINE POLLUTION

GENERATES
OF PLASTICS
EVERY DAY

25,000

40% REMAINS UNCOLLECTED



SECOND
LARGEST
PRODUCER
OF FISH



SEA LEVEL RISES BY
1.33 MM/YEAR ON COSTS

Case Study #23 Saving the Mighty Mahseer

Tata Power was approached by the state fisheries department in the late 1960s to help save the endangered Mahseer fish. As a part of Tata Power's eco-restoration and eco-development program, conservation of this species was undertaken in 1975. The conservation was facilitated through ecological improvement of the lakes, for food and sport, for breeding, conservation and rehabilitation of the endangered fish. The success with the Deccan and the Golden Mahseer initiative, over the past 40 years, has given a fresh boost of life to the fish, while also promoting biodiversity conservation and eco-tourism. Sustained for past 40 years, this is the biggest conservation project carried out by a corporate company. It is a conservation program that goes beyond business.

What did Tata Power do?

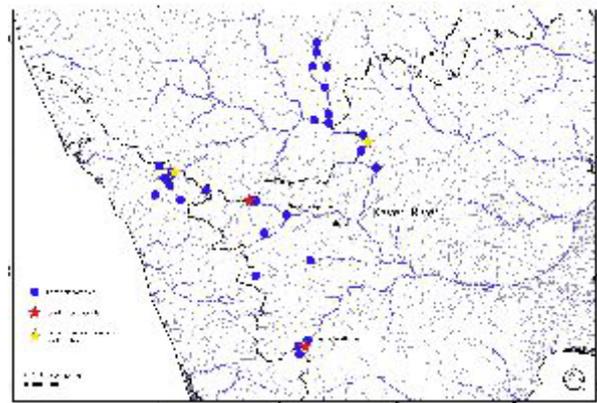
A state-of-the-art hatchery for Mahseer has been developed at Walwhan, Lonavla which has the capacity to hatch over five lakh eggs at a time. The Company has also carried out cage culture and ranching programs successfully and demonstrated the use of such research programs, for replication, all over the country. In FY16, the Company launched the 'Act for Mahseer' campaign, a sustainable program focused at conservation of the Mahseer fish. The campaign was a call-to-action public campaign aimed at spreading awareness about the mighty Mahseer and aimed to help preserve this valuable fish species in a big way at a national level. The program has been launched with a three-pronged approach to educate, engage and empower Mahseer lovers. Under each approach, various activities are undertaken.

Hump-backed Mahseer Conservation Study under the Kaveri Mission

Humpback Mahseer conservation study was conducted by Tata Power, Mahseer Trust, Bournemouth University Global Environmental Solutions (UK) and Kerala University of Fisheries and Ocean Studies (KUFOS). To date, there had been no comprehensive assessment of the distribution, threats or conservation-needs of this iconic fish species. The study was divided into the Ecology component of the inform future conservation and policy actions and Outreach Component to generate interest among both students and young adults, in schools and tribal villages throughout the river basin.

The objective of the study, the first of its kind on the

hump-backed mahseer, was to understand the current status, threats and future conservation potential of this imperilled species, and also the current distribution and status of the invasive Mahseer species within the habitat. The study was based on extensive field work in the River Kaveri, its main tributaries and associated reservoirs. The survey design was based on a combination of biological sampling as well as local-knowledge based interview/questionnaire surveys. In addition to activities directly funded by Tata Power, during the course of the initial phase of Kaveri Mission, previous research conducted by the project team has culminated in a high profile publication which has fixed the taxonomy of the hump-backed mahseer as *Tor remadevii* (see Pinder et al. 2018).



Project Impact

- Tata Power's flagship biodiversity conservation program began in 1970s and is perhaps the oldest conservation program spearheaded by a business in India. More than 10 lakh Mahseer fingerlings were produced in the last 3 years of which 5 lakh were dispatched to various states in India, where they ensure 60% survival rate.
- The release of fishes in various water bodies has always been carried out in association with the state fisheries departments in India, with their knowledge, guidance and involvement.
- Tata Power efforts in the Kaveri mission facilitated the first IUCN Red List assessment of *Tor remadevii*, making this the first mahseer to be listed as Critically Endangered and, in doing so, placed this species on the global species conservation agenda.
- Tata Power hosted the International Conference on Conservation of the Humpback Mahseer that

brought together experts from all over the world to chart out a roadmap for conservation of the Humpback. The roadmap was subsequently brought to fruition in 2018 by launching the Kaveri Mission.

Key Success Factors: What worked?

- Commitment and keen interest from Tata Power's top management towards conservation of the endangered species
- Provision of financial assistance for sustainable development
- Proper infrastructure, trained and skilled ground level workers, qualified, dedicated and passionate officers and company volunteers helped in project execution
- Correct knowledge on Mahseer breeding processes, willingness to learn, improve and share knowledge, media publicity from corporate communication for creating awareness, and reaching beyond boundaries, among others contribute towards key success factors.

Challenges

Getting authentic information on various Mahseer species in India, proper morphological and taxonomical studies for identification of the correct species, information on original habitats, population density status in the wild, protecting breeding habitats from getting polluted, and awareness among fishermen and the public, at large, were the major challenges.

Compared to other species of mahseer fish, the Humpback is the least conserved and is on the brink of extinction. It has a restricted range, it is found in very few places in India and is facing many challenges for its survival. It is the largest known species of mahseer and

is found only in the Kaveri basin. Very little is known about this elusive fish and Tata Power's project will help better understand the natural history of the fish and help conserve it. Due to its role as a bio-indicator, Hump-back mahseer was pitched as a flagship species for river habitat conservation as an intrinsic part of the Kaveri Mission (holistic program of consultation, research, education and outreach).

The project involved two components - ecology-based conservation actions and community involvement through sensitization. Extensive field work in forested areas, gathering information on the distribution of the fish and sensitization of local communities was the most challenging part of the project. Additionally, school students were sensitized on how rivers work, the ecosystem services they provide and the effect man's activities have on them using a unique, state of the art stream model. They learnt the effect of construction of dams, regulated flows, deforestation, drought, pollution and sediment transport.



School sessions explaining river process



Adult Hump-backed Mahseer



SDG # 15 Life on Land

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainable managed forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Status in India



21%

AREA IS UNDER
FOREST COVER

4 GLOBALLY IDENTIFIED
BIODIVERSITY HOTSPOTS

1,401

FLORA AND FAUNA SPECIES
THREATENED

5%

PROTECTED
AREAS

INDIA'S SHARE
OF CROPS IS
AS COMPARED
TO GLOBAL
AVERAGE OF

60%
11%

ONLY
2.4%
GLOBAL
LAND AREA, BUT
INDIA IS HOME TO

8%
WORLD'S
RECORDED SPECIES



44% OF THE TOTAL
WORKFORCES IN INDIA IN
EMPLOYED IN AGRICULTURE



52% OF INDIA'S
TOTAL LAND UNDER
AGRICULTURE
IS UNIRRIGATED AND RAIN FED

Case Study #24 Use of Napier Bajra (NB 21) species

What did Tata Power do?

Tata Power under Kanthi Area Livelihood Project (KALP) project has initiated Demonstration and Distribution of Napier Bajra (NB 21) green grass in the Project Area. NB 21 cultivation was carried out in Mundra by using untreated sewerage water through Micro Irrigation system. Farmers capacity building was carried through exposure visits at project area to showcase the success of NB21 cultivation. Subsequently through various such advocacy the farmers were convinced to use the Napier Bajra for their animals and distribution of NB21 cuttings to the farmers along with providing necessary knowledge about the agricultural practices and care for better production & yield. During the demonstration and implementation of the project activities it was established that the cost of cultivation, cost of inputs is very less in NB21.

While looking at the causes of low availability of green fodder in the region, it has been realized that there are two reasons for the same. One, limited irrigation facility due to depleting ground water table & increasing salinity & second, limited green fodder varieties that farmers at present growing in the region which cannot provide production round the year. In order to promote green fodder cultivation, a hybrid variety of NB21 was introduced. Multiple strategies by the team was adopted viz demonstrations of different varieties, organizing farmers for green and dry fodder cultivation, support to farmers in terms of seeds and plant materials to promote green and dry fodder.

Project Impact

Fodder availability in the region and the continuous pressure on the company to provide fodder during the drought season to the nearby villages has triggered to think deeply on the subject. With an aim to establish a permanent sustainable solution NB21 and CO3 crop variety was studied with the help of experts to make each village self-independent. The scale and the nature of program is aligned with the SDG.

Key benefits;

- Protein and digestive nutrition % higher than the other fodder crops which resulted in to increase in fat % in milk and also increase in milk production
- Overall 3.93 lakhs NB21 cuttings distributed

- This is a perennial crop having harvesting days of 50-60 days which is lesser than other crop variety
- The production MT/Acre/Year is 120-150 MT much higher than other crops
- The success of the same has attracted other industries to adopt the same technology
- Adaptation of NB21, CO3 & green fodder by 1840 farmers in the region
- Replication of demo plot practices in the region by 10 farmers
- Cultivation through plot preparation for fodder cultivation by 78 farmers
- 16% net income increase of individual farmers which includes 10% increase in the fodder production and 6% reduction in the input cost.
- Change in the perception of the farmers
- Appreciation by District Authority and replication by fellow industries
- Enhanced advocacy for adoption and cultivation of NB21 and CO3 through multi-pronged approach. The overall goal of the project is to maximize local fodder, decrease in dependency syndrome, self-sustenance, enhancement in concept of natural resource management and increase in income through sustainable livelihood measures.

Key Success Factors: What worked?

Ideation of a hybrid crop variety and its applicability in the region due to scanty rainfall, thereby promoting green fodder cultivation. Pilot production trials in 2Ha plot were conducted to demonstrate its production potential, along with construction of Pump room and practicing Micro Irrigation system. The success of adoption of NB-21 through mass scale distribution of slips of NB 21 was done and it is being observed that the farmers who have sown NB21 are multiplying the production.

Challenges

Due to recurring drought condition in the region no

fodder was available for open grazing fields, hence the cattle owner was dependent on farm level fodder production. The Livelihood of the farmers is largely dependent on livestock keeping & selling of milk. The quality of water was not suitable for green fodder production as the ground water used for irrigation/green fodder production has high salinity & TDS. The maintenance cost was also very high as in this variety of fodder there is a severe problem of pest during summer. Hence this innovative idea of NB 21 was implemented in the area with available resources

in terms of MIS technology & STP water.

Other Key Challenges were;

- Required regular watering with or without micro irrigation
- Soil born termite damaging the plant growth during the summer season
- NB 21 can sustain in high TDS water (3000 – 4000 ppm) but CO3 can't sustain in high TDS Water.



SDG # 17 Partnerships for the goals

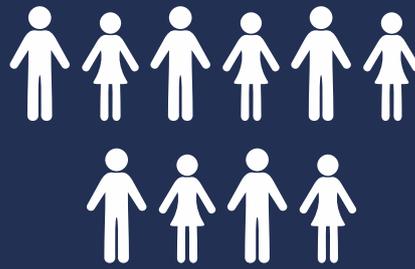
Strengthen the means of implementation and revitalize the global partnership for sustainable development

Status in India



US\$ 521.2

INDIA'S EXTERNAL DEBT IN
DECEMBER 2018



FOR EVERY

100

PEOPLE IN INDIA
APPROX.



42%

HAVE ACCESS TO
INTERNET

BRICS

COUNTRIES FORM

42%

OF THE WORLD'S
POPULATION
CONTRIBUTING

22%

TO GLOBAL GDP



76.76%

OF THE URBAN POPULATION ARE
INTERNET SUBSCRIBERS AS
COMPARED TO 14.89% IN RURAL
AREAS

Case Study #25 Sustainable Partnerships

What did Tata Power do?

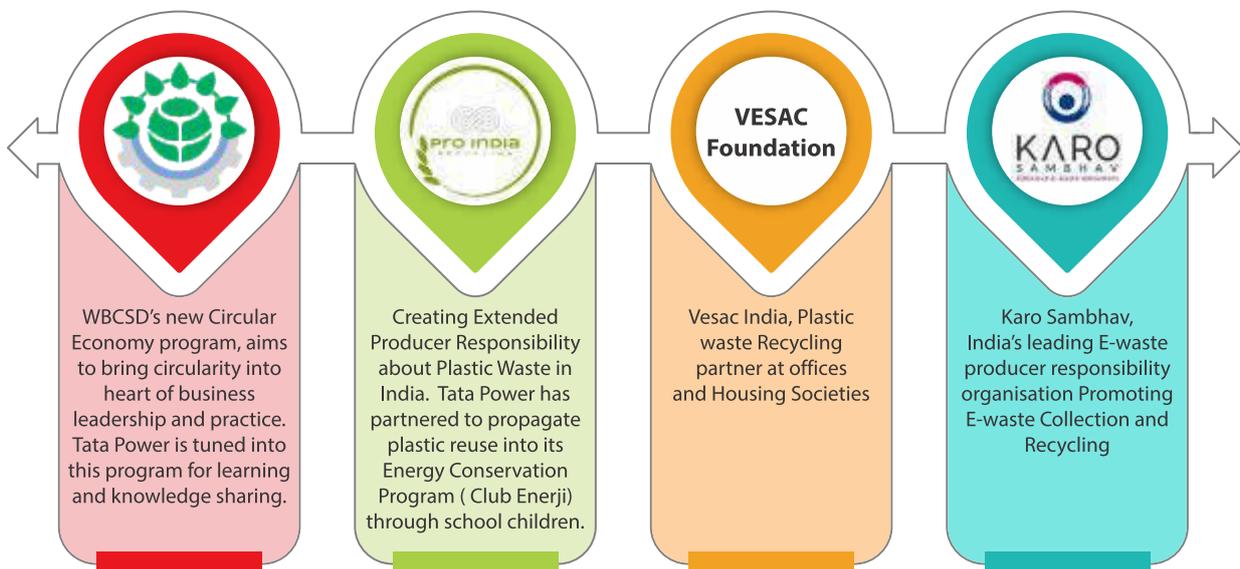
Tata Power has forged a partnership with Pro India Recycling for reaching out to stakeholders – particularly schools, for building awareness on responsible use of plastics. Tata Power’s circular economy initiatives have positively impacted important stakeholders and has helped achieve

winning partnerships with leading players in the field. Through the Tata Group, Tata Power has secured a partnership with World Business Council for Sustainable Development (WBCSD) for working collectively on important sustainability issues. Tata Power has collaborated with Microsoft and Voltas to launch new customer offerings in Mumbai.

Strategic Partnerships for Low Carbon Economy



Strategic Partnerships for Low Carbon Economy





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www.tatapower.com



RAL UZ 14 : Blue Angel
DK/11/1 : Flower

NAPM : National Association of Paper Merchants

EMAS, ISO 14001 : EU environmental management / certification scheme

DIN 6738 : Archive properties, LDK class 24-85 (>200 years)



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