

# SAUBHAGYA YOJANA: From darkness to light

## Impact Assessment of Madhya Pradesh



# SYNOPSIS

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## SAUBHAGYA AND THE STUDY

Saubhagya Yojana is a scintillating example of Sabka Saath Sabka Vikas. When the present government took charge in 2014, there were 18,000 unelectrified villages in the country, which were successfully electrified well ahead of the deadline. While we were well on course, the prime minister decided to dream bigger and took on the mission of ensuring that power reaches every single household for greater impact on society.

Whereas previous initiatives had defined electrification in limited terms – like electrifying key institutions like schools and hospitals or a certain percentage of households – Saubhagya Yojana boldly defines electrification in its original tenor for the first time: providing electricity to every single household in India regardless of its geographical location or accessibility. Since 11<sup>th</sup> October 2017 to 16<sup>th</sup> November 2018 i.e. just 401 days, the current government electrified 1,98,93,727 households.

The focus of Saubhagya Yojana is far-reaching and is designed to impact every person equally in this country. This impact of Saubhagya Yojana is, unlike any other scheme before, incomparable in magnitude, profound in reach and capable of propelling the society into a higher order of development leaving none behind.

Electrification impacts many social parameters like education, health, security while also empowering the community. Through this research we have attempted to document this very impact on the lives of beneficiaries through exploring various socio-economic facets or 360°.

The focus of this study is:

1. To map social impact value chain of Saubhagya Scheme
2. To qualitatively document the nature of benefits arising out of electrification
3. To study specific sample households on case-study basis to establish benchmark trends on the course of impact.

A total of seven districts were chosen in Madhya Pradesh each from the Western, Central and Eastern regions on the basis of improvement in electrification percentage, before and after Saubhagya Yojana. From the Western flank of the State bordering Gujrat and Maharashtra, the team travelled over 3400 kilometres across the State till the Easternmost flank touching Chhattisgarh. A total of 36 revenue villages and many more habitations were covered during the course of our study.



## 1. EASE OF LIVING

Ease of living is the ease with which one leads life, and the control that one exerts on one's activities. Saubhagya beneficiaries experienced ease of living in the following ways:

**1. Reduced Unproductive Efforts:** Excessive efforts for minimal tasks is a reality for many poor unelectrified households. Previously, people had to perform a series of tedious tasks even for basic needs such as lighting, thereby, draining their time and energies on these mundane tasks. With Saubhagya Yojana, these and many other necessities demand exponentially lesser efforts now, saving precious time and energy that could potentially alter destinies.

**a. Lighting:** Saubhagya beneficiaries just flip a switch today to light an LED bulb that illuminates the whole room. However, not very long ago, they relied on either kerosene or firewood for their lighting needs which emitted inefficient and poor-quality light and required elaborate series of tedious tasks to procure and utilize.

Whereas most of the firewood-dependent households are in mountainous and forested areas, it is illegal to axe trees there. There is an already massive burden of logging, cutting, bundling and transporting wood home. This repeats once in a few weeks.

Kerosene is sourced from a PDS control outlet, which may require a detour, costing half a productive day. To maintain a kerosene lamp, or doing chores in its dim and flickering light is a struggle.

**b. Mobile:** Whereas people went to unimaginable lengths to recharge their mobile phone batteries, they do it at the comfort of their homes today. While mobile phones were an emergency or a luxury product hitherto, Saubhagya beneficiary households started unlocking its potential, boosting the prospects of their lives.

**2. Reordering Daily Household Activities/Increased Flexibility:** Saubhagya beneficiaries experience a definite addition to their productive time with 3-4 illuminated hours in the evening through high-quality and intense lighting. This results in rescheduling of their daily routine, as daylight does not dictate their activities anymore.

### CASE STUDY:

A habitation called Kakadsela lies on the slopes of the Vindhyas, facing the Narmada river. On the other bank are the Satpuras in Maharashtra. This hamlet of 9 households is mainly dependent on fishing, and rainfed cultivation of maize and vegetables, and is 90-minute boat ride away from the nearest village. Since electric lines on poles is impossible to reach, they received solar sets.

Earlier, they used to go to neighbouring State to recharge their mobile phones, and carry straw torches in hand to venture out at night. All their activities come to end by dark. Saubhagya transformed this society.

They watch movies in their mobile phones, use their torch light at night. They peel corn cobs and ready their fishing nets at night now, something that was impossible a few months ago. A detailed account of their story is dealt in the report.



## 2. EDUCATION

The Study finds that electrifying households results in significant positive impact on education. Following are key findings and insights derived from our research:

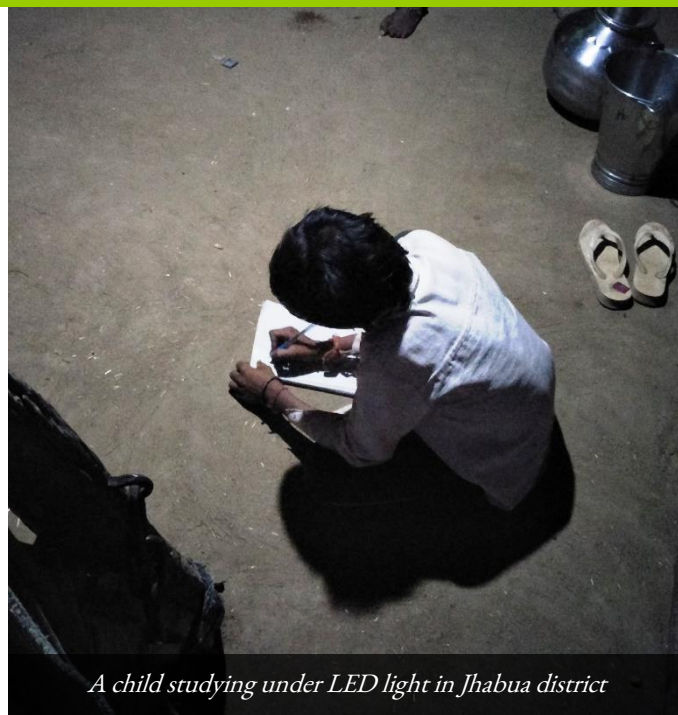
**More number of children study in the evenings:** With better night time illumination, 75% of the children are now studying in the evenings. Further, it was also revealed that 52% of the children were not studying in the evening before electrification and started doing so with availability of lighting. Studying under a poorly lit kerosene lamp involved a lot of physical strain which inevitably only the most committed undertook.

**Children study an average 90 minutes extra post Saubhagya:** Post Saubhagya, children spend minimum of 90 minutes extra for studying in the evening. This finding has been corroborated by school teachers, who further revealed that there has been an improvement in school performance as well.

**Positive impact on girls' education:** Children pace out time and automate daily tasks for more productive use of day. With electrification, they are able to accommodate chores and studying in a single day. This factor was especially found to be of significance in case of girl children and female headed households. On the whole, a majority of households started accepting studies as a part of their children's daily schedule triggering a larger culture conducive to studies.

**Electrification of Village schools:** Saubhagya, due to its reach in the remotest corners of India has created potential for electrification of schools in such areas. A couple of villages, who received electricity connection just over 3 months back have already applied for a connection in the village school.

**Use of technology for education:** Triggered usage of mobile phones for education among children has been observed. Now with power connection at



*A child studying under LED light in Jhabua district*

home, children are using mobiles for accessing internet and supplement their school education.

### CASE STUDY:

Simar Singha, a bright girl in a Jhabua village, the only college-educated woman of her village, is pursuing BA sociology. Saubhagya dramatically improved her academic competence. After Saubhagya, Simar became an ambassador of education as she finds time to teach the children of her village. She is bringing about a profound change in perception towards education among families.

### CASE STUDY:

Story of a widowed mother and six daughters brings forth importance of electricity in girl education and personal development. Shannu, a 9<sup>th</sup> standard student, now finds adequate time to juggle between her household responsibilities such as cooking and taking care of domestic animals and her studies. She feels she can study in a much-relaxed environment as she now plans her studies regardless of daylight. The report details her daily challenges and how electrification is helping her cope with it.

### 3. INCOME GENERATION

Electrification under Saubhagya has contributed towards financial security of the people in multiple ways. From creating newer avenues for employment and skill development to promotion of existing businesses, Saubhagya has opened many new doors for the people in previously dark villages. Following are the key observations-

*A woman in Guna district with her sewing machine. With more free time, she contributes to family income.*



**Increasing visibility & customer footfall for home-run businesses:** Owners had to wind up their businesses after sun down or had to switch to kerosene lamps. In the latter case, poor illumination hampered both customer footfall and security of goods.

#### CASE STUDY:

Ramlal runs a vehicle repair workshop along a local highway in Dindori district from his front yard. With electrification under Saubhagya, his earnings have increased at least by ₹1500/month due to extra customers in the evenings. Also, he claims that he can keep his tools and equipment safe now.

**Money saved is money earned:** Electricity has given people cheaper alternatives. In context of farming, irrigation was expensive with diesel engines and

now the situation has begun to change. In one village, productivity had even almost doubled post Saubhagya connection.

#### CASE STUDY:

Madanlal, a farmer from Umaria, was initially dependent on rainfall for watering his crops in the undulated terrain of the Bandhavgarh area. A few well to do families relied on pump sets run on diesel to lift water from the nearby water pond which ate away a sizable portion of their profits. Madanlal, has purchased an electric pump set for free and the electricity consumption of such motor is exempted from billing due to his being from a tribal community. In essence, where he needed to spend ₹5000-6000 per month previously, in addition to the one-time investment of around ₹60,000/- for the equipment, he is provided with a pump set and now can even use it for free.

#### Generating employment through skill development:

With infrastructure in the village, it has created opportunity for employment as well. Electrification is followed by numerous customizations and improvements at the household level which only a certified electrician can perform. This opens up a vast and sustaining employment ecosystem. This large-scale skilling and employment is a direct result of Saubhagya Yojana.

**Opening newer avenues:** With infrastructure availability in the village, people are exploring possibilities of increasing their sources of earning. Many have bought a flour grinder after electrification of the homes.

**Unearthing income potentials:** With electrification, women can pace out their chores and utilize their mornings for work. Along with that, they also get ample time to rest. A group of women shared their plan of buying a sewing machine for supplementing monthly income.

## 4. HEALTH

Saubhagya ensures better health outcomes through immediate means such as averted air pollution, and through larger agents such as greater awareness on hygiene and health related aspects.

In case of pregnant women, comfort and higher happiness are major parameters.

### Incomplete combustion & Black Carbon: Rising Indoor Air Pollution

Kerosene combustion in lamps is incomplete and with efficiency of just 0.1 kilolumens per kwh, converting the rest to heat and harmful gases. These gases are composed of not just carbon dioxide, but also Sulphur Dioxide, Carbon Monoxide, and other fatal oxides of heavy metals.

7-9% of kerosene lamp emissions are black carbon compared to around 0.001% in a diesel engine. 1 liter mass equivalent of kerosene i.e. 800gms burnt in lamp emits 64 grams of black carbon indoors. Black carbon particles are so tiny that they can pierce through all the way to the placenta of a pregnant woman, affecting the embryo directly.

### CASE STUDY:

**Pre-natal Care:** Saubhagya inculcates a positive mindset through comfortable and peaceful pregnancy that results in a healthier experience.

A pregnant woman in Ashoknagar district had this to say: “When I had negative thoughts, with no entertainment or distraction, they would consume me for days before the checkup. This led to increased pressure from family ultimately resulting in a miscarriage.”

Lata (name changed) is a mother of a 3-year-old and is in her 8<sup>th</sup> month carrying her second child. She got Saubhagya connection 6 months ago and TV set, 2 months back. Being in the critical stage of her pregnancy, she spends most of her time watching mythological programs for the unborn.

Her previous pregnancy in her own words, “पहले बहुत घबराहट होती थी गर्मी में, रात भर बाहर घूमना पड़ता था ठंडी हवा के लिए, पति को भी पूरी रात जागना पड़ता था, अब पंखे में काफी चैन की नींद आती है।”

**Post-natal Care:** Saubhagya connection also plays a vital role in the health of a new mother and her baby. Shanti is a grandmother for the second time in two years. She says that the babies provided with fan and other entertainment are less irritable, and the mother can recoup much quickly.

In fact, Shanti’s younger daughter, who delivered just a month ago, says that she could now take her baby to the hospital whenever need arises, as she could do her chores even after dark.



*Mother and the new-born standing in the comfort of an electrified home in Anuppur district*



*Children in Ashoknagar District explaining their new-found interest in the internet and social media*

## 5. SOCIAL CHANGE

Electrification has triggered a social change through enhanced usage of television, mobile phones and social media making inroads to the remotest corners of India through Saubhagya. Mass media and communication technology is paving way for practical, social and economic change by bringing people on a common social and cultural platform. Following were the key research findings:

**A compelling desire for TV and entertainment:** 35% of the people purchased TV sets within three months of electrification under Saubhagya displaying a compelling desire for it.

**Building faith and reliance in government:** Many people had bought a TV set just a few years prior to electrification, as they expressed faith in the assurance given by the Prime Minister that their villages would be electrified soon. There was a

strengthening hope and confidence in the government among the people.

**Audio-video sources of information and entertainment:** With charging facility at home, people have increased their mobile phone usage and have started using them for entertainment purposes as well. Interviewed respondents said that they feel much more confident watching movies without fear of losing charge and not have a phone in case of emergency. As the population surveyed was mainly illiterate, audio/video sources of information and entertainment proved to be an important source of awareness.

**Empowerment of women:** Household electrification has an important role to play in information & awareness of women. When interviewed, a majority of them started watching daily soaps post electrification. Time slot between 8 to 11 pm is largely spent on watching TV by women. This time slot, before electrification, was used in sleeping. With television at home, women

responded that one important change they observed was exert choice in watching programs.

**Improved exposure of children:** With electrification, there was a drastic increase in mobile usage, especially internet. While they are using internet for education, children have started using social media as well.

#### **CASE STUDY:**

Prior to electrification, people of a village in Ashoknagar district had a peculiar daily routine. Almost every day, at around 11 pm, they carried their TV set to a power source in a nearby farm. They generally sat and watched movies until 4 in the morning, putting themselves and their homes at risk. Today with electrification, people now watch TV at home along with neighbors, increasing social bonding. With families along, choice of programming has also improved, as informed by men.

#### **CASE STUDY:**

Laung Singh of Jhabua district, was gifted a TV set a few years back. It's only now after Saubhagya connection he is able to utilize it. He said he feels

much more informed now and discussed on issues of national importance and current affairs. His wife and sister watch daily soaps now in the time earlier spent on drudgery, children of the village also now watch animated cartoons and educational series. They have a completely new dimension added to their lives.

#### **CASE STUDY:**

Kamla's (name changed) story is about electricity strengthening relations. She contributed towards family earnings by stitching clothes for a living. She was tied down with her professional and household commitments and found little time for her husband.

After Saubhagya, her day can be paced out and she gets to accompany her husband to the fields. She gets more time for emotional bonding and discuss household matters now. She feels that now, besides being a bread winner, she is an effective stakeholder as she and her husband find time to communicate and take decisions collectively. Extra time after electrification has empowered her and placed her at an equal pedestal with her husband.

*Laung Singh from Juanpada village in Jhabua District, with the TV set he received 3 years back during his son's wedding.*





## 6. SECURITY

Our research found that night time illumination directly resulted in both real and perceived physical security of people. It also had an impact on their financial security through better safety for their cattle.

Lighting is an inherent part of the built environment in crime science. It has a strong influence on both crime and the fear of crime. The responses however varied as per the village's topographical features and distance from the city, and culture.

Whereas people in villages surrounding the conurbations expressed more vulnerability from crime, people in far-flung and remote, and areas nearby forests expressed fear from wild animals and other natural causes. The nature of predatory influence was different in both contexts but night-time lighting was observed to be equally beneficial. Following were the key observations in this context-

**Marked reduction in unfortunate incidents:** Reduced vulnerabilities with illuminated perimeters at night through better safety against wild animals and reptiles entering homes. However, a consistent observation among beneficiaries is the reduction in instances of theft and accidental injuries at night.

Beneficiaries also expressed satisfaction with the safety that light provides for their animals. Most households with cattle have placed their LED bulb closer to their cattle for common lighting. Many households who could afford have arranged for separate lighting for their animals.

**Active participation of women:** With illuminated surroundings, many women expressed their readiness to spend more time outside of their homes. Even in general, activity appears to have improved through socializing with neighbours.

**Emotional Security:** 75% of the households expressed higher feeling of safety after Saubhagya

connection by not only securing them and their animals, but leaving time for social activities too.

### CASE STUDY:

A village in Guna district gave a unique perspective of how electricity impacts security.

#### Averting accidents

There had been numerous instances of theft and accidental injuries in dark before electrification. An unfortunate incident that villagers reminisced was death of a young child who was bitten by a snake recently. The villagers said that the incident could have been averted if there was adequate lighting.

#### More socialization

Being candid about their common experiences, women said that prior to electrification, they had forcibly put their children to sleep for fear of them wandering into the dark. Now, they said, the children play around the house, until late evening, neighbors also get more time to sit and chat or watch TV together.



*Women of a village in Guna district explaining their experiences after Saubhagya Yojana*

## 7. SELF ESTEEM

Saubhagya Yojana ensures universal coverage and considers each and every household irrespective of its location and project costs. The scheme has common man's welfare at its core. The maximum benefit of Saubhagya Yojana can be noticed in case of habitations situated miles away from revenue villages. Some of the habitations surveyed were in the most inhospitable terrains for electricity infrastructure to reach out. They were socially and geographically disconnected from the rest and were realizing the drastic impact in their lives.

An important dimension of their enhanced esteem was having a rightful ownership over a legally owned property. Prior to electrification, they were forced to rely on less viable and illegal sources of electricity due to unavailability of power connection.

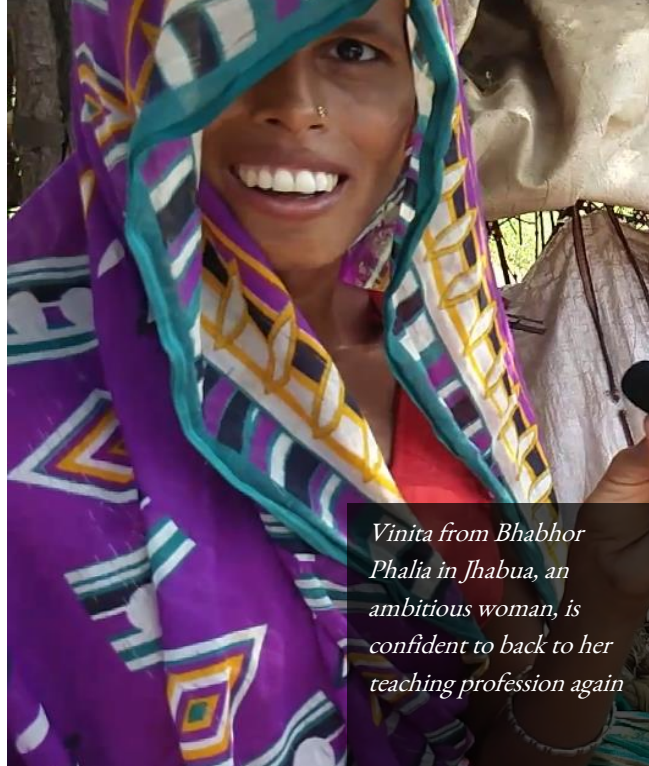
### CASE STUDY:

In case of villages in the core zone of Bandhavgarh National Park, people used wood as the only option of lighting until now. However, cutting trees in a protected zone often landed them in trouble and caused legal hassles. Despite this, people continued to cut trees for especially for lighting while trying not to get caught. People interviewed said that electrification enhanced their self-esteem, as they no longer are forced into illegal methods.

Electrification is also changing the social landscape of previously unelectrified villages. We witnessed a festive fervour in the villages and people are beginning to become more expressive about their festivities and lighting is now playing an important role in it. In certain villages we witnessed a Pandal for Navratri, decorated with lights for the first time ever.

### CASE STUDY:

Another aspect of cultural change and enhanced self-esteem that was recurring throughout but best expressed in a village near Guna district was where young men were unable to find suitable marriage



*Vinita from Bhabhor Phalia in Jhabua, an ambitious woman, is confident to back to her teaching profession again*

prospects due to lack of electricity in their villages. The men either had to move out to another place, or wait until a willing family settles for the proposal. Worse yet, there have been instances where wives left the matrimonial home due to repercussions. With Saubhagya connections, the villagers expressed a sense of pride that their young men would now find good matches and a necessity as basic as electricity would not hinder their lives.

### CASE STUDY:

Vinita (name changed) lives in a far-flung habitation in Jhabua district. She is the only educated person in her 12-household habitation. She worked as a teacher nearby until pregnancy while helping her husband irrigating the farm, juggling profession with household duties. With an added responsibility of a newborn now, her career should've been ended here.

After Saubhagya, however, she's ready to go back to work again. She convinced her husband to buy an irrigation pump-set at farm. With power supply at home, she paces out her chores now leaving enough time for her newborn, and her career. She declares that power supply freed her to look beyond the drudgery and is inspiringly hopeful about the future.

## 8. ENERGY CONSERVATION

A great consequence of electrification is conservation of energy and environment through substituting inefficient energy sources with efficient alternatives.

### **Efficient Energy:**

Every hour, a kerosene lamp consumes 0.5 kwh equivalent of energy, meaning half a unit. Whereas an LED bulb consumes 0.00848 units per hour. In terms of emissions, a kerosene lamp emits 125gms of carbon dioxide per hour. Compare that with that of an LED bulb: 6.7 gms.

The luminous efficacy of a typical kerosene lamp is around 0.1 to 0.2 lumen/watt. To put it in a perspective, a typical LED bulb gives out 15 lumen/watt luminous efficacy. Most of the energy generated in burning kerosene is wasted in the form of heat, but not in the LED bulbs. In essence, an LED bulb is at least 150 times efficient in lighting for same amount of energy consumption. Modern grid-based lighting alternatives like LED, photovoltaic systems are brighter light, longer product lives and lower lifecycle costs.

### **Affordable Energy:**

Poor households, due to unavailability of electricity, end up spending the highest for one unit of energy or lighting. This is extremely disturbing as they are the ones that are financially most vulnerable. Electrification helps in providing power and lighting from sophisticated sources of energy that have been ensured to operate at their maximum thermal and other efficiencies.

Hence, electrification is not only helpful from the environment perspective, but much more importantly, electrification prevents from poor households spending the highest amount of money per unit of energy or lighting compared with that of the higher strata of the society.

When this is the situation with kerosene, it is hardly difficult to fathom the problems with using biomass and firewood for lighting and other purposes.

## WAY FORWARD

As clearly stated Saubhagya is that means through which all social awareness messaging can percolate into the segment, thus there is a need to strategically tap this productive window.

- The research reveals that post electrification; women have the choice of watching programs of their choice. This activity predominantly happens between 8 to 11 pm. This window should be strategically utilized for targeted communication around women empowerment, health, sanitation and hygiene programs.
- Technology penetration and increased usage with charging at home, should be leveraged by social awareness campaigns e.g. automated calls for awareness and information dissemination etc.
- With electrification the home run businesses have seen growth. At this juncture, it would be highly beneficial to leverage the change and encourage people to come forward and exploit the potential of income generation within their surroundings.
- Saubhagya has the capacity to sit in the middle of all the social awareness campaigns because of continuous interactions and fertile dependency of the villagers on department executives.
- Going forward, launch of Saubhagya in a specific village needs to strategically tap the social/skill set framework so that necessary inroads can be made and income generation possibilities can be furthered.

Post Saubhagya, men of Juanpada village have relaxed evening free from guarding their homes in darkness like before, they sleep when they like.



Lata, a housewife, started watching daily soaps with her mother-in-law and says they bond well over sharing common experiences



Children performing Garba dance in an illuminated pandal for the first time in Jhabua district



Keshu, the school teacher, says that regular students have shown improvement in performance after electrification of their homes.

*For the full report, log on to: <http://www.pprc.in/study-report>*

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