



IMPACT ASSESSMENT

CSR PROJECT- SOLAR STREET LIGHTS 190 NOS. TO
VILLAGE OF KARALPURA, CHANDAJI, MANTRIGAM
& CHACK AND ADDITIONAL 92 NOS. SOLAR STREET
LIGHTS REQUIRED FOR FY 2017-18



CSR Impact Assessment Report



Submitted to:

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CSR Project:

Solar Street lights 190 nos. to village of Karalpura, Chandaji, Mantrigam & Chack and additional 92 nos. Solar street lights required for FY 2017-18

Project Proponent

NHPC Limited

Project Executioner

Jammu & Kashmir Energy Development Agency (JAKEDA), Science and Technology Department, Govt of J&K

Year

2017-18

Start Date

27 Dec 2016

Completion Date

31st Aug 2019

State/U.T.

U.T. of Jammu and Kashmir

Activities

Installation of 282 solar street lights

Total Expenditure

Rs. 100.24 Lakh



Acknowledgment

This Impact Assessment Report is prepared with considerable consultation and engagement with Mr. U S Sahi (Executive Director), Mr. R. K Agrawal (Group GM, Civil, CSR and SD) and other officials of the CSR & SD division, NHPC. The impact assessment team had also interacted with implementing agencies and met beneficiaries in all the selected villages of U.T. of Jammu & Kashmir.

This impact assessment exercise would not be possible without the help of good souls who have readily offered their support for the successful completion of this project. We are very grateful to the entire team of NHPC Limited at various project sites for providing valuable insights and support throughout the evaluation and impact assessment process. We are also very much thankful to all the stakeholders for parting their valuable time, and sharing inputs and information for making this assessment very insightful.

Birendra Raturi
International Director, SR Asia.
June 2022

Preface

This is an Impact assessment report of a CSR project on 'Implementation of Solar Lights in adjoining villages of Kishanganga HE Project funded by NHPC Ltd.' in Bandipora district of U.T of Jammu and Kashmir during the year 2019-20. This project was implemented to improve the accessibility clean energy and promoting renewable energy.

This report briefly covers NHPC Ltd., its CSR policy, and its objectives. Further, the aims and objectives of this CSR project are detailed by giving information about project sites (adjoining villages of Kishanganga HE Project), project beneficiaries and its impact.

The impact assessment results are derived from quantitative and qualitative data collected and analyzed using ZOHO analytics along with success case studies and stories. Study found that his improved the ease of living in the area. This also improved the safety and security of the area and helped in reducing the wild animal attacks in night time.

The overall observation of the project in all the selected villages is satisfactory and had a good impact because lights increased visibility, promoted road safety for drivers and discouraged the incidences of theft and violence.



Impact Assessment Team

The assessment team comprised of subject experts, experienced CSR professionals from public sector enterprises, social scientists, environmentalists, health professionals, energy experts in renewal energy domain etc.

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List of Abbreviation

CSR	:	Corporate Social Responsibility
SDG	:	Sustainable Development Goals
IA	:	Impact Assessment
CD	:	Community Development
CSR & SD	:	Corporate Social Responsibility and Sustainable Development Division
OECD	:	Organization for Economic Cooperation and Development
ToR	:	Terms of Reference
MLA	:	Member of Legislative Assembly
RLG	:	Rural Local Governance
ULG	:	Urban Local Governance
PHC	:	Primary Healthcare Centre
NGO	:	Non Governmental Organization

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Executive Summary

NHPC Limited has supported the project 'Implementation of Solar Lights in adjoining villages of Kishanganga HE Project' for making the area safe and secure in night time and achieving the Target 7 of the Sustainable Development Goals. In this project around 282 street lights were installed and commissioned by NHPC limited.

This project impacted positively in the overall well being of the people living in the identified areas. This project found in aligned with NHPC's corporate social vision, and will also promote green and energy efficient technologies thus modernising societies in accordance with the DPE guidelines on CSR and sustainability. Local people have access to high quality, sustainable lighting solutions of renewable energy due this project.

Planning and training of Investigators were done by Impact Assessment experts of SR Asia. SR Asia has deployed teams in selected constituencies where the project was implemented. During the fieldwork, the team covered selected villages of Bandipora district and performed surveys using the random sampling method.

It was observed that at few places solar street light is not in operation because of poor maintenance. Project beneficiaries and local stakeholders are happy with the initiative of providing these infrastructure. But people are not satisfied with its maintenance. As per local community it has improved safety and security at night time. There has been increase in economic and other activities in night time. This initiative also enhanced beautification of roads in the project area. NHPC may take steps towards maintenance and management of solar infrastructure created in Kanpur District to make this project a success.

CHAPTER I

Impact Assessment

1.1 Introduction

Impact assessment (IA) is a structured process for considering the implications for people and their environment, of proposed actions while there is still an opportunity to modify (or even, if appropriate, abandon) the proposals. It is applied at all levels of decision-making, from policies to specific projects. The process involves the identification and characterization of the most likely impacts of proposed actions (impact prediction/forecasting), and an assessment of the social significance of those impacts (impact evaluation).

Overall, the CSR project implemented by NHPC is in line with Schedule VII of Companies Act 2013. The CSR policy of NHPC is also in line with the Companies Act 2013. This is well identified in view of the national policy, CSR policy and needs and aspirations of the people and project areas they operate. This project had positive impact in the respective areas implemented and may need some attention to plan some work towards sustainability aspects.

The impact is assessed and compared against the planned benchmarks fixed at the time of planning to gauge the degree of success or failure of the CSR initiatives. Team used ZOHO survey tool for conducting the survey and its real time monitoring. Video-graphic and Photographic records of the progress, achievements and impacts are systematically documented. Research team also noted the fieldwork observations and prepared case studies as per given instructions. The team conducted stakeholder consultation with implementing partners, local representatives and other line departments to understand more about the projects, its impact and sustainability strategy to ensure long term goals. SR Asia has used the OECD DAC framework for evaluating the impact created by the CSR projects of NHPC. It scores all the projects under study based on its relevance, effectiveness, efficiency, impact and sustainability parameters. The project efficiently utilized the inputs (funds, expertise etc.) to achieve the intervention outcomes and had a target achievement rate between 90-100%.

1.2 About Impact Assessment Agency

Social Responsibility Asia (SR Asia) is an ISO 9001: 2015 Certified international Non-Profit organization registered with Ministry of Corporate Affairs (MCA) New Delhi, India in the year 2012, and has legal entities in Bangladesh and Indonesia. SR Asia has country representative offices in Mongolia, Malaysia, Philippines and Vietnam. SR Asia is an affiliate to Asian Productivity Organization (APO) Japan and also works closely with APO member National Productivity Organization in complementing and promoting CSR, Sustainability and Sustainable Development.

SR Asia's mission is to conserve natural resources for the welfare of current and future generations by promoting change. SR Asia wants to work with all stakeholders to create awareness among consumers and manufacturers. We want to reach out to consumers through campaigns and work with companies in the design, development, and production of sustainable goods and services.

1.3 Scope of work as per ToR

As per the guidelines of NHPC and scope of the work, the Impact Assessment team framed impact assessment tools and carried out extensive fieldwork. The Scope of the Impact Assessment study is given below:

- To carry out Impact Assessment Study of CSR Programs/Projects/Activities as per given list.
- To determine the impact of CSR activity/ Projects in the applicable dimensions of social/cultural/economic/environmental/education/health conditions, etc. on the people in communities or on the environment and suggest steps for better implementation in future.
- To assess the changes in the quality of life and environment in the geography.
- To undertake an assessment of the project design in terms of its relevance and contribution to the development of the community.
- To assess the performance of the project in terms of effectiveness and efficiency and bottlenecks.
- To analyze and underlying factors beyond NHPC's control that affect the project achievement result.

- To ascertain the sustainability of the project after its completion.
- To evaluate the level of awareness of CSR projects/initiatives amongst the target beneficiaries/concerned stakeholders.
- To identify the consistency in the process of project implementation together with fulfilment of stated objectives.
- To identify the gaps in the project identification, beneficiary's involvement, implementation of projects and recommendations for improvements.
- To provide separate reports of each of the CSR activities/projects as per CSR activities listed at Annexure-1 in stipulated timelines.

1.4 *Methodology Guidance for conducting Impact Assessment*

- To produce a high-quality impact assessment report for wider dissemination and future reference, the research methodology should involve both qualitative and quantitative techniques.
- Qualitative methods should include techniques like questionnaire survey, focused group discussion, in-depth interview with targeted beneficiaries/end user community representatives/ Panchayati Raj Institutions (PRIS) and govt. officials etc.
- Quantitative method will include collection of secondary data available with project implementing agencies, district administration, and NHPC.
- Other stakeholders may be involved for tertiary inputs.
- Survey/data findings should be interpreted and analyzed using statistical software such as SPSS (Statistical Package for the Social Sciences).
- The impact assessment study should be well supported with the relevant geo-tagged photographs.
- The NHPC location concerned will provide the details/documents of CSR Programs/Activities undertaken and completed for carrying out Impact Assessment studies.

1.5 *Assumptions and Limitations*

- It was expected that the NHPC, implementing agencies would facilitate the field work.
- The facility/infrastructure created will have proper addresses/geo-tagged to locate and carry out assessments.
- The data regarding CSR projects will be made readily available by the NHPC Limited and implementing agencies.

CHAPTER II

About NHPC Limited

2.1 Introduction

NHPC Limited is a Mini-Ratna Schedule-A Enterprise committed to plan, promote and organize an integrated and efficient development of power through conventional and non-conventional sources in India and abroad. As on date, NHPC Limited has become the largest organization for hydropower development in India, with capabilities to undertake all the activities from conceptualization to commissioning in relation to setting up of hydro projects. NHPC Limited has also diversified in the field of solar & wind power.

NHPC's commitment towards environment and people is affirmed through its Corporate Vision and Mission, policies and practices adopted by the organization. NHPC is also a member of the United Nations Global Compact (UNGC) and subscribes to the principles of human rights, labour standards, environmental consciousness and anti-corruption.

Vision

To be a global leading organization for sustainable development of clean power through competent, responsible and innovative values.

Mission

- To achieve excellence in development of clean power at international standards .
- To execute & operate projects through efficient and competent contract management and innovative R&D in an environment friendly and socio-economically responsive manner.
- To develop, nurture and empower the human capital to leverage its full potential.
- To practice the best corporate governance and competent value based management for a strong corporate identity and showing concern for employees, customer, environment and society.
- To adopt & innovate state-of-the-art technologies and optimize use of natural resources through effective management.

Scope

- Schemes/activity chosen under CSR/Sustainability should primarily benefit stakeholders other than the staff of NHPC Limited.
- In case the benefits of the initiative are extended to NHPC employees and their families also, the proportionate expenditure incurred on other than NHPC employees and their families shall be considered under CSR.
- NHPC will have an appropriate organization structure both at corporate level and NHPC's projects/field units for identification & selection of CSR & Sustainability schemes, guidance in implementation, monitoring and review of the schemes/activities.
- NHPC will take steps to sensitize and impart training to its employees regarding CSR & Sustainability policies of the Corporation and to bring about the desired attitudinal change towards environmental protection, social development & the need to adopt ethical business practices.
- NHPC will take up schemes/activities which would give visible social, economic or environmental benefits to the society.
- NHPC will also make efforts, to the extent possible, to involve the Suppliers and Contractors associated in the adoption of sustainable technologies as a part of its CSR/Sustainability endeavours.

2.2 CSR & Sustainability Policy

CSR has been an integral part of NHPC's business philosophy. NHPC is conducting the business in a socially responsible way by maintaining high level of organizational integrity and ethical behaviour, in conformity with expected standards of transparency in reporting and disclosing the performance in all spheres of its activities, demonstration of concern for social welfare, adoption of best management practices and effective operational methods to win the trust and confidence of all stakeholders.

2.3 CSR Vision and Mission

CSR Vision

- To contribute to sustainable development and inclusive growth while taking care of people , planet and organizational goals/ growth.

CSR Mission

- To become socially responsible corporate entity committed to improving the quality of life of the society at large.
- To create and develop facilities for the communities where NHPC has presence.
- To balance social, economic and environmental development objectives through collective and unified efforts of all stakeholders.

2.4 Objectives of NHPC's CSR Policy

Objectives

- To address the social, economic, environmental and welfare concerns of key stakeholders including those directly impacted by NHPC's operations & activities.
- Adopt green technologies, processes and standards that contribute to social and environmental sustainability.
- Contribute to inclusive growth and equitable development through capacity building measures, empowerment of marginalized and underprivileged sections/communities.

CHAPTER III

Research Methodology

3.1 Introduction

This chapter gives a brief introduction to the study, its rationale, its objective, survey questions, sampling, data collection and limitations. This becomes pertinent to have thorough understanding about the research process followed so as to give a rationale and background to the findings of the study.

3.2 Objectives of Impact Assessment

The objective of this study is to assess the impact and sustainability of the projects being implemented, find the strength, weakness and deficiencies in the project implementation, benefits received by the targeted groups so that its impact can be measured and learning can be used in further CSR project designs and implementation. Some of the key areas are

1. Assessment of NHPC CSR Policy, its alignment with outcomes at different project locations.
2. Process and approach followed by NHPC in CSR project identification, implementation, monitoring and impact assessment.
3. Stakeholder engagement, site visit and meeting direct and indirect beneficiaries.
4. Analyzing the successful implementation and degree of benefits received.

3.3 Methodology

An explorative research was conducted to understand the nature, design, and aspects of implemented projects for which impact assessment has to be done. This was completed primarily through desk study. Various literatures are referred to get a comprehensive knowledge about CSR project implemented areas and objectives, parameters, goals, structure, and sustainability criteria of the implemented project.

- The literature review of secondary data and literature available such as NHPC website, baseline reports, sample monitoring and evaluation report, implementation agencies, beneficiary data and CSR Annual Reports of NHPC, media reports etc.
- Preparation of data collection tools, preparation of survey questionnaires (computer and internet enabled), training of field investigators, pilot testing of tools, and data collection on site etc.
- The assessment process which involves segregation of data and data analysis, evaluation, or comparison with the planned guidelines and the standards available.

Fig 3.1 Methodology



3.3.1 OECD DAC Framework for measuring sustainability

The Organization for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) first laid out the evaluation criteria (relevance, coherence effectiveness, efficiency, impact, and sustainability) in 1991. These six criteria serve as the core reference for evaluating international development and humanitarian projects, programs, and policies. These evaluation criteria have been defined below:

Fig 3.2: Six criteria of OECD DAC Framework



Source: oecd.org

- **Relevance:** The extent to which the intervention objectives and design respond to beneficiaries' needs, policies, and priorities, and continue to do so if circumstances change.
- **Coherence:** the extent to which other interventions (particularly policies) support or undermine the intervention, and vice versa. Includes internal coherence and external coherence.
- **Effectiveness:** The extent to which the intervention achieved, or is expected to achieve, its objectives, and its results, including any differential results across groups.
- **Efficiency:** The extent to which the intervention delivers, or is likely to deliver, results in an economic and timely way.
- **Impact:** The extent to which the intervention has generated or is expected to generate significant positive or negative, intended, or unintended, higher-level effects.
- **Sustainability:** The extent to which the net benefits of the intervention continue or are likely to continue.

The IA team has identified some key parameters and components as necessary to apply this framework to this study, and they are indicated in table.

Table 3.1: Six criteria of OECD DAC Framework and its components

Parameters	Components
Relevance	<ul style="list-style-type: none"> • Need Assessment Report • Availability of Information on need assessment • Alignment to CSR Policy of NHPC Limited • Alignment to SDGs
Coherence	<ul style="list-style-type: none"> • Internal and External Coherence (CSR Policies and policies of Government of India)
Effectiveness	<ul style="list-style-type: none"> • Adherence to timeline • Adherence to Budget
Efficiency	<ul style="list-style-type: none"> • Target achievement (Planned vs. Actual)
Impact	<ul style="list-style-type: none"> • Baseline Assessment Report • Impact and Availability of impact indicators
Sustainability	<ul style="list-style-type: none"> • Sustainability mechanism, convergence

Weighted scores were used to develop a 6-point scale. Following criteria is applied while rating the sustainability score of CSR project impact assessment.

85-100 % -> Extremely satisfactory

70-84% -> Satisfactory

55-69 %-> Moderately satisfactory

40-54 %-> Marginally satisfactory

20-39 %-> Dissatisfactory

< 20 % -> Extremely dissatisfactory

3.4 Research Instruments

Mixed method research design was used in order to have a comprehensive approach in data collection and stakeholder consultation. Both the qualitative and quantitative research techniques were used. Quantitative techniques like survey questionnaire were extensive in nature and covered minimum no. of sample size as per the research standards. Qualitative research tools were used focusing on the public consultation and in-depth engagement with project beneficiaries. After data collection, it was processed for analysis using ZOHO survey analysis tool, MS Excel and SPSS.

3.5 Data Collection

The following approach was adopted for the collection of primary and secondary data.

Primary Data:

- Collection of primary data was done in the field and data collection was done in both offline and online mode (ZOHO questionnaire), feedback and consultation, interviews of beneficiaries, focused group discussion and in-depth interviews. The geo-tagged photographs and short videos were also made.

Secondary Data:

- This involves literature review of NHPC website, baseline reports, sample monitoring and evaluation report, implementation agencies, beneficiary data and CSR Annual Reports of NHPC, media reports etc.

3.5.1 Sampling and sample size

The impact assessment team used mixed sampling method to conduct survey and interviews of people living in project affected area. Both direct and indirect beneficiaries of the project were covered under the covered sample size. A comprehensive approach was adopted for identifying stakeholders and project beneficiaries. Wherever Street lights were installed investigators identified beneficiaries in the nearby areas and conducted research activities. Respondent sample include men, women, children, and old age people etc.

Table 3.2: Sampling plan

Sr No	District	Villages	Total Number of Street light	Sample Size of Street Light (%)	Total Number of Survey
1	Bandipora	Chhandaji	44	30	15
2	Bandipora	Pethkot	11	30	11
3	Bandipora	Chak	40	30	13
4	Bandipora	Chak-Kralpora	43	30	15
5	Bandipora	Malik Mohalla-Kralpora	43	30	15
6	Bandipora	Mantrigam - Kralpora	6	30	6
7	Bandipora	Yeli-Pethkot	10	30	10
8	Bandipora	Badibeth	20	30	10
9	Bandipora	Kralpora	30	30	10
Total			247		105

3.5.2 Data Collection tools

- Survey Questionnaire :

An intensive questionnaire (as per the requirement of project) to assess the impact of projects upon villagers lives was developed. A significant number of responses were recorded to collect quality data for each project. ZOHO survey tool was used to facilitate online and offline data collection depending on internet connectivity in the areas.

Procedure for conducting survey is as follows

- 1.Participants were identified by the method of random sampling as per the inclusion criteria.
- 2.The participants were made comfortable and briefed about the purpose of the survey and in the process their consent was obtained.
- 3.The responses were recorded by the investigator manually.
- 4.Debriefing was done after the completion of the questionnaire.

- Stakeholder's consultation:

Stakeholder consultations were also conducted for assessment of all the projects. Participants in this activity were very specific and included local people, public representatives, implementing agency representatives and local administration. During stakeholder consultation, the impact assessment team has also ensured equal proportion of engagement of women and men.

- Semi structured Interviews:

Semi structured interviews were conducted to gain information about benefits of the implemented projects.

- Observations during fieldwork:

A walk through to the project areas/village/ streets were made by the surveyors for the physical verification, functionality of the project.

3.5.3 Data analysis tool

Automated ZOHO analytics and MS- Excel were used as a data analysis tool to analyze the primary data collected during the survey. All the objective inputs are analyzed using this tool while subjective responses are analyzed using semantic analysis methods.

3.6 Project Management - Planning and Execution of Impact Assessment (PEIA)

This involves consultation with NHPC project site officials, implementing agencies and impact assessment team to plan the field work within stipulated time. The Impact Assessment team has developed a standard operating procedure along with checklists and forms & formats. The brief details of the PEIA SoP's is as follows:

3.6.1 Checklist for Impact Assessment study

Stage 1: Schedule, Survey preparation, and training

1. Field visit schedule.
2. Preparation of survey questionnaire and preparation of ZOHO link.
3. Training and briefing of investigators.
4. Defining role and responsibilities.
5. Preparation of format for daily report.

Stage 2: Collection of Documents and Material Needed before going to field

1. Representation letter from SR Asia.
2. ToR for investigators.
3. ID for all investigators.
4. Project details.
5. Survey Questionnaire link.
6. Feedback Form.
7. Other data collection formats.
8. Smartphone.
9. Dairy and pen.

Stage 3- During Field visit

1. Meeting with Nodal officer of implementing agencies.
2. Meeting with stakeholders.
3. Verification of activities.
4. Conducting survey of beneficiaries.
5. Case Studies and success stories.
6. Geo-tagged photographs.
7. Short videos of beneficiaries.
8. Photographs and video evidences of field visits (Meetings, Streetlights, Survey participants, interviews)
9. Preparation and submission of daily progress report.

Stage 4: Data Analysis and Report Writing

1. Preparation of graphs and pie charts.
2. Preparation of success stories and case studies.
3. Drafting and proofreading of the report.
4. Review from impact assessment experts.

3.7 Ethical Considerations

Informed consent is an important principle for all research endeavours and the same was maintained during the study. The respondents and key stakeholders of the study were informed about the purpose of the study . Further an assurance about confidentiality of the interview was given to all the respondents. They were free to choose not to answer any question while conducting survey or interview.

3.8 Fieldwork Schedule

Table 3.3:Fieldwork Schedule

Project Name	Planned Schedule of fieldwork		Actual Schedule of Fieldwork	
	Start Date	End Date	Start Date	End Date
Implementation of Solar Lights in adjoining villages of Kishanganga HE Project	23 May 2022	30th May 2022	30 May 2022	30 May 2022

CHAPTER IV

Implementation of Solar Lights in adjoining villages of Kishanganga HE Project

4.1 *About the Project*

The villages adjoining the Kishanganga Project were devoid of street lights. Residents of adjoining areas of Kishanganga Project time and again approached Project Authorities to facilitate them by procuring and installing Solar Street Lights for their area. Accordingly, it was felt by the management of Kishanganga Project that under CSR-SD initiative, a gainful intervention may be made by way of installing solar street lights for the local people residing in the villages adjoining Kishanganga Project with a view to improve the quality of their life.

The Project is a CSR initiative of NHPC in the adjoining areas of Kishanganga project, wherein solar street lights were installed at different locations of the village streets. Around 282 Solar Street Lights in villages adjoining Kishanganga Project in Bandipora district, (kralpora, Mantrigam, chack and chandaji). The community itself takes care of maintenance of the solar street lights. The stakeholders include the local population and NHPC.

Provision of street lights based on conventional electricity in all these villages enhanced the electricity demand by manifolds. Solar Energy is one of the best alternative of illuminating village streets and reducing the carbon emission.

These villages had narrow lanes and by-lanes. During snowy and winter days, these lanes and bylanes got water logged rendering the mobility of the population extremely restricted. It was understood that by installing the solar street lights in nearby villages adjoining the Kishanganga Project, the quality of life shall be enhanced.

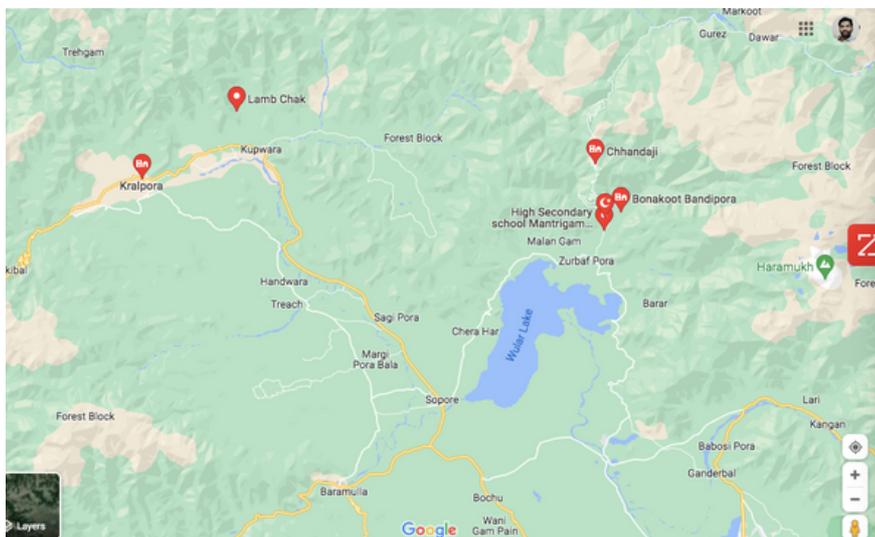
4.2 Objectives of the Project

- Solar street lights were installed in eminent public venues with the objective to support outdoor community activities, increase commerce, improve safety conditions especially for women and increase regional aesthetics.

4.3 Project sites

This project is implemented in adjoining villages of Kishanganga HE Project which includes Chak, Chandaji, Mantrigam, Kralpora . Street lights were installed along the narrow lanes and by-lanes in these villages and nearby hamlets.

Table 4.1: Project sites



4.4 Implementing Agency

Project was implemented departmentally by NHPC through Jammu & Kashmir Energy Development Agency (JAKEDA), Science and Technology Department, Govt. of J&K. in Bandipora District.

4.4.1 Project Beneficiary

As a part of CSR Initiative, a total number of 282 Solar Street Lights were procured and installed through Jammu & Kashmir Energy Development Agency (JAKEDA), Science and Technology Department, Govt of J&K. People living in selected villages are the project beneficiaries.

4.5 Findings and Analysis

All the observations, feedback received from the individual beneficiaries, information gathering through stakeholders consultation are recorded in true form as follows.

4.5.1 Key Observations made by Field Investigators

A team of trained and qualified local field investigators has visited to all the districts and constituencies to assess the impact that the installation of lights has created, the observations are noted in detail

- Mostly the streetlights are installed along the roadside for the purpose of night lighting and that has resulted in the safety, security and beautification of the village. Most of the respondents appreciated the initiative of NHPC, however due to no maintenance the functioning of street lights has declined with the passage of time and some street lights have become dysfunctional.
- Due to the large number of households the coverage is less, but the main streets of the village have been covered. All the street lights were present in the village, but a few had become dysfunctional due to non maintenance which should have been done by the community itself. Overall the impact of the project is quite visible and has benefitted the village. The prime concerns of the villagers were lack of proper streets as the terrain makes it difficult for the villagers to walk on these streets. This problem gets exacerbated especially in the rainy seasons and winters. There is also a lack of basic health facilities within the said village which can be taken for the intervention.
- Badibeth is a community comprising of almost 70 households and NHPC has installed 20 solar street lights in this village. Most of the lights were present there and a few of these are not functioning properly due to non maintenance. The project has a good impact on the lighting system of the village which has enhanced the accessibility within the streets of the village especially at nights and the project has also added to the beautification of the village.
- The lights are functioning properly except a few; there is a good impact of this project on the Chandaji village by promoting safety on the streets of the village.

- The major concerns that were observed during the field visits include lack of adequate drinking water supply, electricity issues, health and hygiene, development of local streets.
- Malik Mohalla Kralpora is a village near to NHPC Head Office and is a hamlet of Kralpora village. The total households of the village are 50 and NHPC has installed 43 solar street lights there. Some of them have been stolen and some are not working properly due to maintenance issues.
- According to the locals living near Bandipora- Gurez Road the impact of the project is very good, all the lights are functioning properly and they are thankful to NHPC.
- There is a dire need of more lights as a number of solar lights have been installed in this village which we also observed during the visit.
- Besides solar lights NHPC had also taken other initiatives like distribution of poly green houses, construction of footpaths, distribution of bee-keeping units and distribution of many fruit plants. The solar street light project has a very positive impact on the village development in the areas of safety, security and beautification of the village. However, during a focused group discussion, several needs came to the forefront that included construction of streets, bunds and culverts, support in educational services, development of a local canal and proper and adequate health facilities through a long-term intervention on a sustainable basis.
- The solar light initiative has increased the safety, security and beautification of the village, besides women felt safe while stepping out of their houses especially during night hours.
- NHPC initiatives have benefited a lot in this village. However, some type of long-term initiative is needed for the sustainable development of the village especially in the areas of education, livelihood generation and skill development especially for local women.
- Chandaji village is located on a hill slope which is approximately 8 kms from the main town of Bandipora. The total households of this village are 130 comprising about 800 inhabitants. NHPC has installed 44 solar street lights in this village. Most of the lights are functioning properly but due to lack of maintenance few are dysfunctional. The project has a good impact in the society because of this lighting system the community feels safe; women and children can walk safely in night hours. Community was able to do their farming at late night hours in the harvesting season and it has also added to the beautification of their village.
- This project improved the beauty of the village and more specifically protection of villagers from dangerous wild animals as the village is surrounded by forests from all the sides and has also helped in protection of their maize cultivation and honey-bee keeping from the forest bears.

4.5.2 Survey results

The survey was conducted using ZOHO survey online and offline survey tools to capture data on real time basis. The technologies used is embedded with AI technologies to carryout analytics and accordingly the studies are represented as follows. All the critical parameters analysed are explained through graphics.

Fig 4.3 Current status of upkeep and maintenance of Solar street light

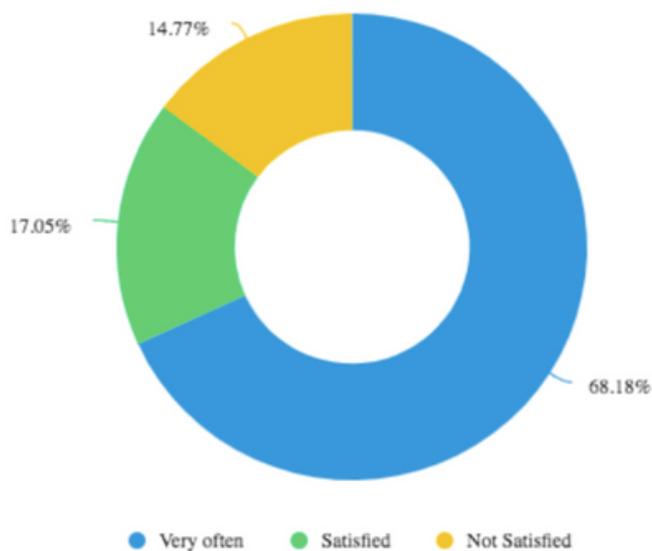


Fig 4.3 Current status of upkeep and maintenance of Solar street light

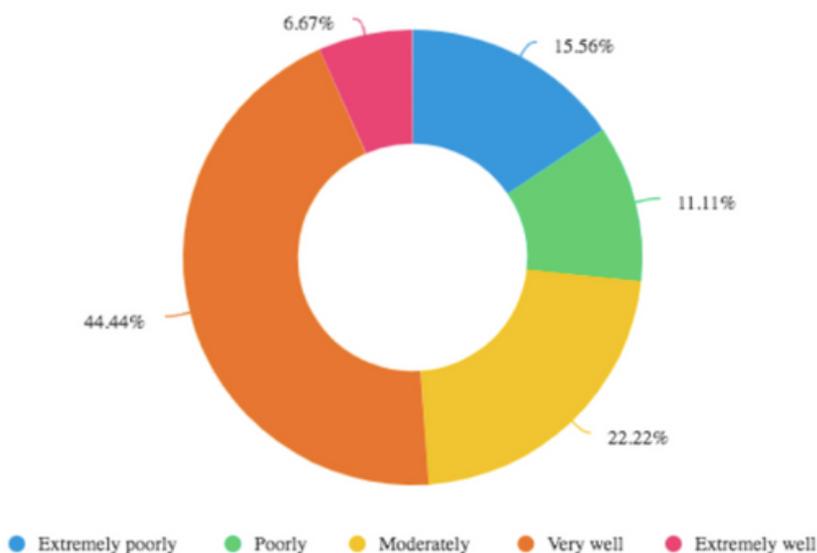


Fig 4.4 Rating of the project by beneficiaries

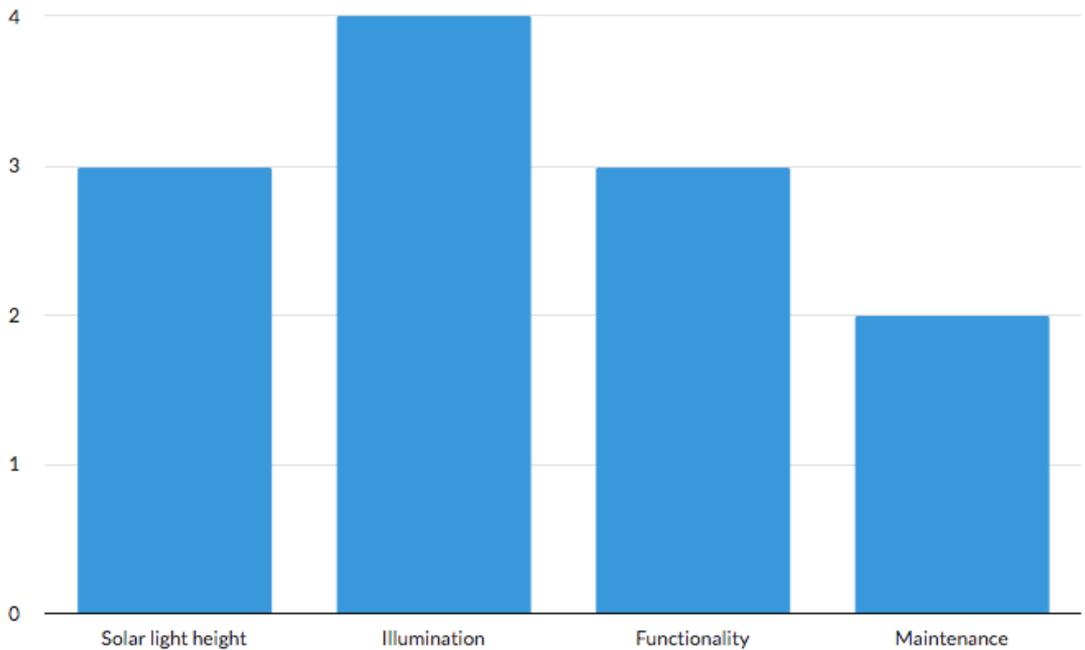
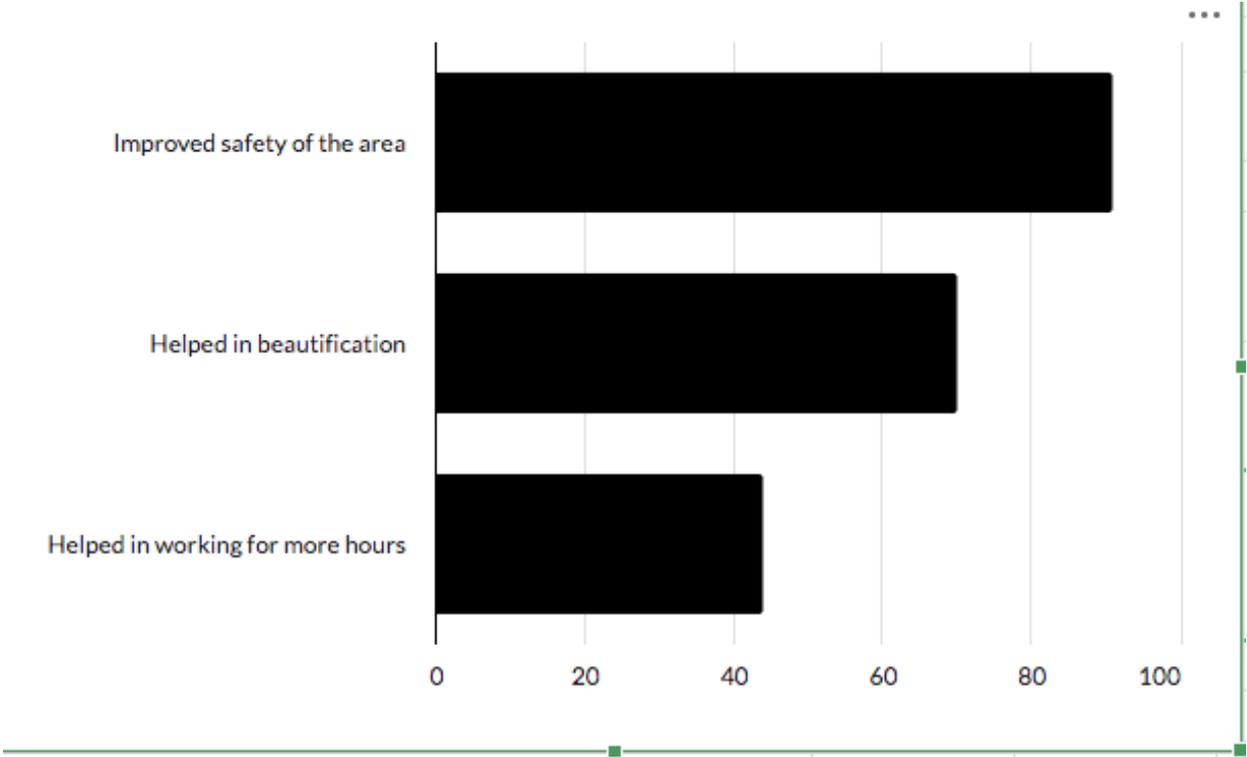


Fig 4.5. Biggest impact of the project as per beneficiaries



4.5.3 Stakeholder's Feedback

These street lights are in good condition but there is one problem, which is maintenance, if NHPC maintains these lights once in a month, then there is a chance of people's satisfaction. Overall everything is good. **Farooq Ahmad (Mantrigam)**

The project was quite good and helped in the safety and beautification of the village especially at night, however if the lights were maintained it could have a greater impact. **Mohd Ashraf (Badipeth)**

The impact of street lights is satisfactory and we are thankful to NHPC who provided these lights. These lights are helping us in safety of village and beautification. Apart from that they are facing some issues and had a good faith to be resolved by NHPC, like road connectivity issues, school maintenance issues, health issues, water issues. **Ab Aziz (Chandaji)**

We received these lights in 2018, and they were running smoothly for a year after that there were some technical issues and no maintenance help came from NHPC. He added we were expecting more support from the project but they didn't, we have had different issues to be resolved but nobody help us. **Hilal Ahmed (Mantrigam)**

The impact of the project is fruitful, it ensures the safety of the village and also helps in beautification. The project helped us to work in late hours during night. Women can walk freely during night and threat of theft is minimized. **GH Mohi Uddin (Kralpora)**

The overall impact of street lights was satisfactory, we are thankful to NHPC who provided these lights in 2018 and we are hopeful that they will surely support our village by other ways like water supply, regular electricity, school maintenance, health centre, livelihood opportunities, and footpaths. **Mohammad Shafi (Kralpora)**

Lights have improved the area and increased the quality of life by artificially extending the hours in which light is available so that activity can take place. Street lighting also improves safety for drivers, riders. **Abdul Gani (Bandipora)**

Street light is of good quality. NHPC installed it at my gate and it is very clear and bright light. It has improved the visibility around the area. **Javid Ahmad (Chak)**

4.5.4 Verification of installation and functioning of solar street light

The impact assessment team has approached to all the following beneficiaries (Direct and Indirect) to collect their response on various quality aspects (Qualitative and quantitative) and the responses are recorded as follows.

First Name of the respondent	Last Name of the respondent	Location	Please Take Geo Tagged Photo of solar light along with respondent	Whether Solar street or High Mast light	Performance Level
Gh Ahmad	Malik	Bandipora, U.T of J&K	TimePhoto_20220524_115630.jpg	Solar Street Light	Moderately
GH Mohammad	Malik	Bandipora, U.T of J&K	IMG_20220524_121707.jpg	Solar Street Light	Moderately
Irshad Ahmad	Malik	Bandipora, U.T of J&K	TimePhoto_20220524_131137.jpg	Solar Street Light	Poorly
Khurshid Ahmad	Malik	Bandipora, U.T of J&K		Solar Street Light	Extremely poorly
Ajaz ahmad	Malik	Bandipora, U.T of J&K	20220524_125432P MByGPSMapCamera.jpg	Solar Street Light	Moderately
Farooq Ahmed	Pintoo	Bandipora, U.T of J&K	20220524_12556PM_Tuesday_4_ByGPSMapCamera.jpg	Solar Street Light	Moderately
Farooq Ahmad	Kaloo	Bandipora, U.T of J&K	TimePhoto_20220524_134841.jpg	Solar Street Light	Very well
Mohammad Sulaman	Gojar	Bandipora, U.T of J&K	20220524_15107PM ByGPSMapCamera.jpg	Solar Street Light	Moderately
Ab Qadeer	Khan	Bandipora, U.T of J&K	20220524_14941PM ByGPSMapCamera.jpg	Solar Street Light	Moderately
Mohammad Ashraf	Khan	Bandipora, U.T of J&K	IMG_20220525_134451.jpg	Solar Street Light	Moderately
Musharaf Ahmad	Khan	Bandipora, U.T of J&K	TimePhoto_20220525_130302.jpg	Solar Street Light	Very well
Showkat Ahmad	Khan	Bandipora, U.T of J&K	IMG-20220527-WA0004.jpg	Solar Street Light	Very well

First Name of the respondent	Last Name of the respondent	Location	Please Take Geo Tagged Photo of solar light along with respondent	Whether Solar street or High Mast light	Performance Level
Jaffer Ahmad	Pentoo	Bandipora, U.T of J&K	TimePhoto_20220524_141142.jpg	Solar Street Light	Moderately
Faizan Khursheed	Ahanger	Bandipora, U.T of J&K	20220524_20908pmByG PSMaPCamera.jpg	Solar Street Light	Moderately
Bashir Ahmed	Gojar	Bandipora, U.T of J&K	20220524_21917PM_Tuesday_5_ByGPSMapCamera.jpg	Solar Street Light	Moderately
Mohd Ashraf	Khan	Bandipora, U.T of J&K	20220524_23026PMBByG PSMaPCamera.jpg	Solar Street Light	Very well
Noor Hassan	Gojar	Bandipora, U.T of J&K	IMG_20220525_121949.jpg	Solar Street Light	Moderately
Ghulam mohammad	Malik	Bandipora, U.T of J&K	20220525_34253PMBByG PSMaPCamera.jpg	Solar Street Light	Moderately
Gh Ahmad	Mir	Bandipora, U.T of J&K	TimePhoto_20220525_154217.jpg	Solar Street Light	Moderately
Farooq Ahmad	Malik	Bandipora, U.T of J&K	20220525_33420PMBByG PSMaPCamera.jpg	Solar Street Light	Very well
Haneefa Begum	Malla	Bandipora, U.T of J&K	20220525_34441pmByG PSMaPCamera.jpg	Solar Street Light	Moderately
Gh Hassan	Mallah	Bandipora, U.T of J&K	TimePhoto_20220525_155300.jpg	Solar Street Light	Poorly
Ghulam mohideen	Malik	Bandipora, U.T of J&K	20220525_41406PMBByG PSMaPCamera.jpg	Solar Street Light	Poorly
Marifa Bashir	Malla	Bandipora, U.T of J&K	20220525_35557pmByG PSMaPCamera.jpg	Solar Street Light	Moderately
Gh Qadir	Malik	Bandipora, U.T of J&K	GMC25052022_160000.jpg	Solar Street Light	Moderately
Gh Mohiuddin	Bhat	Bandipora, U.T of J&K	TimePhoto_20220525_162200.jpg	Solar Street Light	Extremely well
Shafia	khan	Bandipora, U.T of J&K	20220525_41249pmByG PSMaPCamera.jpg	Solar Street Light	Poorly
Bashir Ahmed	Malik	Bandipora, U.T of J&K	IMG_20220525_161452.jpg	Solar Street Light	Moderately
GH Mohammad	Malik	Bandipora, U.T of J&K	GMC25052022_162019.jpg	Solar Street Light	Moderately
Mohd Shaban	Malik	Bandipora, U.T of J&K	20220525_42517pmByGPSMaPCamera.jpg	Solar Street Light	Moderately
Mohammad Sultan	Malik	Bandipora, U.T of J&K	GMC25052022_162754.jpg	Solar Street Light	Moderately
Gh Rasool	Khan	Bandipora, U.T of J&K	TimePhoto_20220525_164135.jpg	Solar Street Light	Very well
Abdul Rahman	Malik	Bandipora, U.T of J&K	20220525_44102PMBByG PSMaPCamera.jpg	Solar Street Light	Poorly

First Name of the respondent	Last Name of the respondent	Location	Please Take Geo Tagged Photo of solar light along with respondent	Whether Solar street or High Mast light	Performance Level
GH Mohammad	Malik	Bandipora, U.T of J&K	GMC25052022_163606.jpg	Solar Street Light	Moderately
Aashiq Hussain	Malik	Bandipora, U.T of J&K	20220525_43839pmByGPSMapCamera.jpg	Solar Street Light	Moderately
Aijaz Ahmed	Malik	Bandipora, U.T of J&K	GMC25052022_164208.jpg	Solar Street Light	Moderately
Hilal Ahmad	Shah	Bandipora, U.T of J&K	20220525_50721PMBByGPSMapCamera.jpg	Solar Street Light	Moderately
GH Qadir	Bhat	Bandipora, U.T of J&K	20220525_50016PM_Wednesday_22_ByGPSMapCamera.jpg	Solar Street Light	Moderately
Qamar din	Khan	Bandipora, U.T of J&K	20220526_120324pm_Thursday_38_ByGPSMapCamera.jpg	Solar Street Light	Moderately
Mohammad Iqbal	Khan	Bandipora, U.T of J&K	GMC26052022_115747.jpg	Solar Street Light	Moderately
Mohd Ismail	Khan	Bandipora, U.T of J&K	TimePhoto_20220526_114204.jpg	Solar Street Light	Very well
Mohd Anwar	Khan	Bandipora, U.T of J&K	20220526_113354AMByGPSMapCamera.jpg	Solar Street Light	Moderately
Nazir Ahmad	Khan	Bandipora, U.T of J&K	IMG-20220526-WA0089.jpg	Solar Street Light	Moderately
Fayaz Ahmad	Gojar	Bandipora, U.T of J&K	TimePhoto_20220526_114502.jpg	Solar Street Light	Extremely well
Khursheed Ahmad	Khan	Bandipora, U.T of J&K	TimePhoto_20220526_115848.jpg	Solar Street Light	Moderately
Mohammad Salim	Khan	Bandipora, U.T of J&K	GMC26052022_115406.jpg	Solar Street Light	Moderately
Abdul Majeed	Khan	Bandipora, U.T of J&K	20220526_13228pmByGPSMapCamera.jpg	Solar Street Light	Very well
Mohammad Syed	Shah	Bandipora, U.T of J&K	GMC26052022_114750.jpg	Solar Street Light	Moderately
Nasir Ahmed	Khan	Bandipora, U.T of J&K	20220526_114449am_Thursday_28_ByGPSMapCamera.jpg	Solar Street Light	Moderately

First Name of the respondent	Last Name of the respondent	Location	Please Take Geo Tagged Photo of solar light along with respondent	Whether Solar street or High Mast light	Performance Level
Aamir Mohiuddin	Tantray	Bandipora, U.T of J&K	20220526_3464 0PMBByGPSMap Camera.jpg	Solar Street Light	Moderately
Aijaz Ahmad	Gojar	Bandipora, U.T of J&K	TimePhoto_2022 0526_135129.jpg	Solar Street Light	Very well
Tariq Hussain	Khan	Bandipora, U.T of J&K	TimePhoto_2022 0526_135440.jpg	Solar Street Light	Very well
Abdul Rashid	Gojar	Bandipora, U.T of J&K	20220526_1433 2pmByGPSMapC amera.jpg	Solar Street Light	Moderately
Mohammad Sarwar	Tantary	Bandipora, U.T of J&K	GMC26052022_ 154621.jpg	Solar Street Light	Moderately
Reyaz Ahmad	Tantary	Bandipora, U.T of J&K	20220526_3503 6pm_Thursday_ 45_ByGPSMapC amera.jpg	Solar Street Light	Moderately
Shabir Hussain	Khan	Bandipora, U.T of J&K	20220526_11573 9AMByGPSMap Camera.jpg	Solar Street Light	Very well
Ghulam Geelani	Khan	Bandipora, U.T of J&K	20220526_1462 2pmByGPSMapC amera.jpg	Solar Street Light	Very well
Ab Khaliq	Tantary	Bandipora, U.T of J&K	GMC26052022_ 155454.jpg	Solar Street Light	Poorly
Bashir Ahmed	Tantary	Bandipora, U.T of J&K	GMC26052022_ 155915.jpg	Solar Street Light	Moderately
Shawkat Ahmad	Khan	Bandipora, U.T of J&K	20220526_11372 7AMByGPSMap Camera.jpg	Solar Street Light	Moderately
Irshad Ahmad	Khan	Bandipora, U.T of J&K	20220526_11403 5am_Thursday_ 24_ByGPSMapC amera.jpg	Solar Street Light	Poorly
Mohammad Yaseen	Khan	Bandipora, U.T of J&K	20220526_14106 pmByGPSMapCa mera.jpg	Solar Street Light	Moderately
Mushtaq Ahmad	Khan	Bandipora, U.T of J&K	TimePhoto_2022 0526_120459.jpg	Solar Street Light	Very well
Ishtiyaaq Ahmad	Khan	Bandipora, U.T of J&K	TimePhoto_2022 0526_120652.jpg	Solar Street Light	Very well

First Name of the respondent	Last Name of the respondent	Location	Please Take Geo Tagged Photo of solar light along with respondent	Whether Solar street or High Mast light	Performance Level
Shameema Begum	Gojar	Bandipora, U.T of J&K	TimePhoto_20220526_134946.jpg	Solar Street Light	Very well
Parveena Bano	Tantray	Bandipora, U.T of J&K	20220526_34640PMByGPSMapCamera.jpg	Solar Street Light	Moderately
Aamir Mohiuddin	Tantray	Bandipora, U.T of J&K	20220526_34640PMByGPSMapCamera.jpg	Solar Street Light	Moderately
Aijaz Ahmad	Gojar	Bandipora, U.T of J&K	TimePhoto_20220526_135129.jpg	Solar Street Light	Very well
Tariq Hussain	Khan	Bandipora, U.T of J&K	TimePhoto_20220526_135440.jpg	Solar Street Light	Very well
Abdul Rashid	Gojar	Bandipora, U.T of J&K	20220526_14332pmByGPSMapCamera.jpg	Solar Street Light	Moderately
Mohammad Sarwar	Tantary	Bandipora, U.T of J&K	GMC26052022_154621.jpg	Solar Street Light	Moderately
Reyaz Ahmad	Tantary	Bandipora, U.T of J&K	20220526_35036pm_Thursday_45_ByGPSMapCamera.jpg	Solar Street Light	Moderately
Shabir Hussain	Khan	Bandipora, U.T of J&K	20220526_115739AMByGPSMapCamera.jpg	Solar Street Light	Very well
Ghulam geelani	Khan	Bandipora, U.T of J&K	20220526_14622pmByGPSMapCamera.jpg	Solar Street Light	Very well
Ab Khaliq	Tantary	Bandipora, U.T of J&K	GMC26052022_155454.jpg	Solar Street Light	Poorly
Bashir Ahmed	Tantary	Bandipora, U.T of J&K	GMC26052022_155915.jpg	Solar Street Light	Moderately
Shawkat Ahmad	Khan	Bandipora, U.T of J&K	20220526_113727AMByGPSMapCamera.jpg	Solar Street Light	Moderately
Ghulam Hassan	Gojar	Bandipora, U.T of J&K	20220526_14929pmByGPSMapCamera.jpg	Solar Street Light	Moderately
GH Mohammad	Tantary	Bandipora, U.T of J&K	20220526_40256pm_Thursday_51_ByGPSMapCamera.jpg	Solar Street Light	Poorly
Ab Rashid	Tantary	Bandipora, U.T of J&K	GMC26052022_160255.jpg	Solar Street Light	Moderately
GH Mohi Uddin	Tantary	Bandipora, U.T of J&K	20220526_41439pm_Thursday_55_ByGPSMapCamera.jpg	Solar Street Light	Moderately
Shaheena Bano	Khan	Bandipora, U.T of J&K	20220526_12854pmByGPSMapCamera.jpg	Solar Street Light	Moderately
Ghulam Hassan	Khan	Bandipora, U.T of J&K	20220526_15244pmByGPSMapCamera.jpg	Solar Street Light	Very well
Arsha Begum	Gojar	Bandipora, U.T of J&K	20220526_13237pmByGPSMapCamera.jpg	Solar Street Light	Moderately
Abdul Gani	Gojar	Bandipora, U.T of J&K	20220526_15741pmByGPSMapCamera.jpg	Solar Street Light	Very well

First Name of the respondent	Last Name of the respondent	Location	Please Take Geo Tagged Photo of solar light along with respondent	Whether Solar street or High Mast light	Performance Level
Javid Ahmad	Khan	Bandipora, U.T of J&K	IMG-20220526-WA0009.jpg	Solar Street Light	Very well
Habib Ullah	Lone	Bandipora, U.T of J&K	IMG-20220526-WA0020.jpg	Solar Street Light	Moderately
Gh Mohammad	Bhat	Bandipora, U.T of J&K	20220526_41251pmByG PSMaPCamera.jpg	Solar Street Light	Very well
Mohammad Ashraf	Jinjoo	Bandipora, U.T of J&K	IMG_20220525_122619.jpg	Solar Street Light	Very well
Noor Hassan	Gojar	Bandipora, U.T of J&K	IMG_20220525_133819.jpg	Solar Street Light	Moderately
Gulzar Ahmad	Khan	Bandipora, U.T of J&K	IMG-20220527-WA0002.jpg	Solar Street Light	Very well
Irshad Ahmad	Khan	Bandipora, U.T of J&K	IMG_20220525_125110.jpg	Solar Street Light	Moderately
Gulzar Ahmad	Khan	Bandipora, U.T of J&K	IMG-20220527-WA0086.jpg	Solar Street Light	Very well
Mohd. Anwar	Khan	Bandipora, U.T of J&K	TimePhoto_20220525_123536.jpg	Solar Street Light	Extremely well
Nisar Ahmad	Khan	Bandipora, U.T of J&K	IMG-20220527-WA0003.jpg	Solar Street Light	Very well
Ab Aziz	Khan	Bandipora, U.T of J&K	IMG_20220525_131702.jpg	Solar Street Light	Moderately
Abdul aziz	Kala khan	Bandipora, U.T of J&K	IMG-20220527-WA0087.jpg	Solar Street Light	Very well
Jameela	Bagum	Bandipora, U.T of J&K	IMG-20220527-WA0088.jpg	Solar Street Light	Moderately
Ab Rashid	Khan	Bandipora, U.T of J&K	IMG_20220525_135945.jpg	Solar Street Light	Moderately
Mohd. Rouf	Khan	Bandipora, U.T of J&K	TimePhoto_20220525_133228.jpg	Solar Street Light	Extremely well
Mohd. Amin	Khan	Bandipora, U.T of J&K	TimePhoto_20220525_134435.jpg	Solar Street Light	Extremely well
Mohd Yousuf	Gojar	Bandipora, U.T of J&K	20220526_14025pmByG PSMaPCamera.jpg	Solar Street Light	Very well
Dishada Begum	Gojar	Bandipora, U.T of J&K	IMG-20220526-WA0110.jpg	Solar Street Light	Moderately

4.5.4 Case Studies

Case study 01

The villages adjoining Kishanganga project are almost homogenous in nature with respect to various social indicators like, topography, demography, education, health, road connectivity etc. The impact assessment team observed similarity in these social aspects and then decided to present the whole impact assessment as a case study.

The area adjoining Kishanganga project can become the first halting point to the tourists who like to visit the famous Gurez valley. However, the villages surrounding Kishanganga project are under-developed even without the basic facilities like roads, electricity, health, education, and water supply. Almost all the villages including those that were in impact assessment face similar problems and issues. All the villages are almost tribal in nature and the surrounding villages have provided their lands for the Kishanganga project. Initially they were promised certain things besides compensation to their landholdings like free of cost electricity within 5 sq. kilometer area of Kishanganga project, development of roads and streets and employment to locals. The common masses have high expectations from NHPC as their promises have not been fully fulfilled yet and they are demanding certain basic facilities.

Case study 02

The CSR initiative of providing solar street lights to the various villages is very much impactful that has provided beneficial to those villages by means of beautifying the areas, providing safe passage for villagers especially women and children during night hours, safe guard against thefts and also from wild animal attacks on human beings and crops destruction. Almost 75% of the solar street lights are still working properly and almost all the villagers admitted this initiative of NHPC has been helpful. The common masses applauded several initiatives of NHPC besides providing solar street lights like providing bee keeping units, poly green houses, distribution of plants, and construction of bunds & culverts at several places. However, the impact assessment team observed lack of management & maintenance of these initiatives. Almost all the things done by NHPC are one time activities thus not getting the right impact of their CSR initiatives.

Case study 03

The whole area requires a long term intervention in order to reach to the goal of developing it into a tourism hub. But before that work has to be done on developing basic facilities like education, health, awareness building and employability of youth.

The impact assessment team after deliberating with different stakeholders including NHPC concludes that long term intervention through an NGO with support from different donor agencies including NHPC is required. It is highly recommended that the NOC from district administration of the concerned district for working in these villages must be obtained by the NHPC itself. It has also been observed that the district administration has taken hold of CSR fund that has resulted in its under utilization.

In conclusion, the impact assessment team suggests a detailed base line survey of almost 20-25 adjoining villages of Kishanganga project in this year, which will result in the identification of specific crucial issues that need to be taken on priority basis. The funds for this base line study can be channelized through NHPC head office.

Case study 04

Chandaji village is located on a hill slope which is approximately 8-9 kms from the main town of Bandipora. The total households of this village are 130 comprising about 800 inhabitants. NHPC has installed 44 solar street lights in this village. Most of the lights are functioning properly but due to lack of maintenance few are dysfunctional. The project has a good impact in the society because of this lighting system community feels safe, women and children walk safely in night hours. Community was able to do their farming at late night hours in the harvesting season.

After observing the situation we saw different issues and problems like lack of road connectivity, lack of hospital, School infrastructure, livelihood opportunities, and water supply issues and so on.

Future Prospects: In future there is a need for more development to be done as a social responsibility through CSR initiative in the adjoining areas of Kishanganga Project. There is need of long intervention in the adjoining areas/villages of Kishanganga Project to resolve the long pending issues of project affected areas for the betterment and for the welfare of these villages.

Case study 05

There were no street lights in the community surrounding the Kishanganga Project, Bandipora. Residents of adjoining areas of Kishanganga project have often asked local authorities to help them for installation of solar street lights in the area. As a result, the management of the Kishanganga project intervened and supported this project under its CSR and SD. It was developed to improve the quality of life and living standards of community.

The situation in the Chack village was worse before the installation of solar street lights because of theft incidents in the Chack village, making residents, especially women, feel frightened at night. Shameema Begum (Chack Village) said that this project has been a great help since the lights were installed, as it has increased the area's safety during the night. They now feel safe in the evenings. This project gave them relief when the lights were installed in their community, she said that was grateful to NHPC for installing solar street lights in her community.

Case study 06

Before the installation of solar street lights, the situation in the Chandaji village was dire. Because Chandaji village is in hilly terrain, there have been many wild animal attacks on the residents of Chandaji and wild animals harmed their maize cultivation also. Many people were injured in these incidents. People of Chandaji village, particularly the elderly, women, and children, are terrified and feel afraid.

According to Mohd. Ibrahim Khan (VC Chandaji) and Khushi Mohd. Gojar Turk (Nambardar Chandaji), approx. 40 poly green houses were given by NHPC apart from 43 solar street lights to village Chandaji.

According to Mohd Rouf Khan (a local),

- It has been a great help since the lights were installed, as it has increased the area's safety during the night.
- In the evenings, the people of Chandaji feel safe.
- Since the installation of these lights wild animal attacks on people have decreased.
- Maize cultivation is also protected from wild animals throughout the night because wild animals are afraid of these lights.
- Beekeeping/apiculture has become common after the installation of street lights.
- It also beautifies the village.

4.5.5 Success Stories

Story 01

I am Khurshid Ahmad. I think this initiative of NHPC is very successful in our village. Provision of solar lights is very impactful. We are thankful to NHPC and are hopeful for more support in the field of village beautification, roads, schools, health infrastructure employment because our youth is unemployed and it is a big hindrance in our development.

Story 02

I am GH Qadir. I work as a shopkeeper. This project of street light is good but now some lights are not working properly. Overall impact of street lights was satisfactory but there was the maintenance issues before us that is why some of the lights in our village were dysfunctional. We need more support from the project like livelihood opportunities, health centre, play ground, and school infrastructure etc.

Story 03

My name is Ajaz Ahmad. By profession I am pharmacist. Here in night time we were facing lot of issues due to incidences of power cut, but after 2018 the situation has improved a lot. We feel safe in night hours and doing work in late night hours as well. Women and children can walk freely and safely at night hours.

Story 04

My name is Mohammad Salim. I feel that this initiative is good provided somebody looks after its maintenance for longer period. Solar lighting itself is a new thing for us. First time solar street lights were installed here. It looks beautiful but sometime its durability is very less. Hence, they need regular servicing. But overall I feel it is great start for us. NHPC should plan these kind of activities every year. Development will happen and it will impact positively in the life of the people of this community.

4.5.6 OECD-DAC Framework Scoring

Overall performance and rating by the beneficiary are satisfactory. The project was successfully implemented in selected nearby villages of Kishanganga Project in Jammu and Kashmir. Scoring of the project is given in the below table based on the OECD framework.

Table 4.2: OECD-DAC framework Scoring of the project

OECD Parameters	Score
Relevance	Satisfactory
Coherence	Satisfactory
Effectiveness	Extremely Satisfactory
Efficiency	Extremely Satisfactory
Impact	Marginally satisfactory
Sustainability	Marginally satisfactory

4.6 Impact of the project

- Overall performance and rating by the beneficiary is more than 80%.
- Project successfully installed 282 LED Street Lighting systems in four areas/ villages in Bandipora District in U.T of Jammu and Kashmir.
- The study calculated the annual reduction in CO2 emissions due to project intervention
- Impact assessment report also indicated positive change on social, safety, education, health, and environmental aspects for the community.

4.7 SDG and Sustainability of the project

In 2015 the world saw great momentum for climate action, culminating in a historic agreement in December to cut carbon emissions and contain global warming. It was also a year of continued transformation for the energy sector. For the first time in history, a global sustainable development goal was adopted solely for energy, aiming at access to affordable, reliable, sustainable and modern energy for all. To turn this objective into reality while mitigating climate change impacts, more countries are upping their game and going further with solar, wind, geothermal and other sources of renewable energy. These stories from around the world present a flavour of how they are leading the charge toward a climate-friendly future.

This project is contributing to achieve Sustainable Development Goal 7 (SDG 7) for ensuring access to affordable, reliable, sustainable and modern energy for all – with its targets on energy efficiency and renewable energy. The project lacks in sustainability mechanism. It is highly suggested that NHPC should make provision for solar street light maintenance.

NHPC and implementing agencies should engage with local government and non government agencies (NGO's) and other institutions for greater co-ordination and sustainability of the project. Participation of local people and organizations is essential for making this project a success.

4.8 Conclusion and Way forward

The CSR interventions have contributed significantly to the people in the area and enable their movements during nights, safety from wild animals and general security to the women and children. It has allowed general safety of locals or passerby's despite the lateness of the hour and has enabled the farmers to harvest their crops in relative safety due to the lights. Some of the key benefits based on the feedback and interactions with the beneficiaries noted are as follows:

Fearless walking and ease during the night and dark

The beneficiaries have reported that they find it easy to walk during the evening and night hours in the street. The ease and preference of walking during evening and night hours is the right choice due to better illumination.

Females have reported a sense of security and empowerment

A gender strengthening dimension is observed as an impact of the Solar Street Lights. 85% of the respondents said that women feel safe walking in the evening and night. Prior to the installation of Solar Street Lights, women were hesitant to walk alone in the streets. Now, the women are able to go by themselves to the nearby grocery shops alone after dusk. 86% of the respondents mention that women now walk in the streets without being accompanied by any male member during the evening hours. Solar street lights have helped the young girl students as they now go for their tuition classes in the evening without any fear, alone.

Reducing incident of theft and robbery

The installation of Solar Street Lights has directly resulted in the reducing the incidence of theft and robbery at least from the very reason as there is illuminations around.

Going forward it is advisable that:

- The proper institutionalisation and networking with the local self-government and line departments are required for the effective implementation and sustainability of the project.
- A sustainability plan by implementing agency should be a major area of focus since it can act as a reflection of the plan for creating continued impact through the intervention.

Photo Gallery





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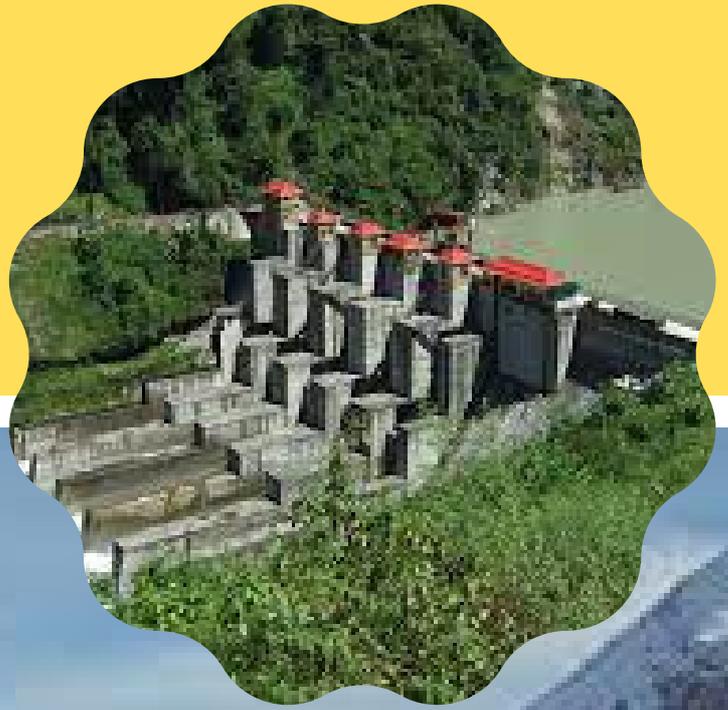
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- Annual Report on Corporate Social Responsibility and Sustainability of NHPC Limited for the year 2016-17
- Annual Report on Corporate Social Responsibility and Sustainability of NHPC Limited for the year 2017-18
- Annual Report on Corporate Social Responsibility and Sustainability of NHPC Limited for the year 2018-19
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- Annual Report on Corporate Social Responsibility and Sustainability of NHPC Limited for the year 2019-20
- Completion report of the project 'Implementation of Solar Lights in adjoining villages of Kishanganga HE Project.

Annexures

Annexure 1	:	Survey Questionnaire
Annexure 2	:	Format for Case study
Annexure 3	:	Format for Field Observations
Annexure 4	:	Format for daily fieldwork scheduling
Annexure 5	:	Format for collecting feedback about the project

Note: Please find all the Annexure, Geotagged Photographs and Videos through following link

<https://drive.google.com/drive/folders/1LWQ28FXihwTZoUUeu9iV5fnhLBJQoUgN?usp=sharing>



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