



**CSR SUPPORT FOR 2 OXYGEN PLANTS
EACH OF 500 LPM CAPACITY:
ONE FOR COVID DEDICATED HOSPITAL
KARGIL & ANOTHER FOR CHC SANKOO**

Location: Kargil and Sankoo, Ladakh

IMPACT ASSESSMENT REPORT

2024

PROJECT SUMMARY

CSR PROJECT NAME	CSR SUPPORT FOR 02 NOS. OF OXYGEN PLANTS EACH OF AT LEAST 500 LPM CAPACITY: ONE FOR COVID DEDICATED HOSPITAL KARGIL & ANOTHER FOR CHC SANKOO
EXECUTED BY	District Administration, Kargil
SUPPORTED BY	NHPC Limited.
TOTAL EXPENDITURE	₹ 1.60 crores
DURATION	AUG 2021- MAY '22
LOCATION	Kargil and Sankoo, UT of Ladakh
NO. OF BENEFICIARIES	1,80,000



ACKNOWLEDGMENTS

IIT Jammu expresses profound gratitude to NHPC Limited for entrusting it with the task of Impact assessment of NHPC's CSR support for Oxygen Plants in Ladakh. We are also deeply thankful to all the individuals and organizations, whose involvement and support have been vital to the successful completion of the Impact Assessment Report of this CSR Activity at Kargil and Sankoo, generously supported by NHPC.

Our deepest appreciation goes to the Chief Executive Councillor Ladakh Autonomous Hill Development Council Kargil, District Administration Kargil and Project Staff of NHPC Power station at Chutak for their support. Their leadership and coordination were crucial in facilitating smooth execution of the assessment activities.

We are immensely grateful to the health authorities of Kargil, whose expertise and cooperation were instrumental in gathering essential data and insights into the project's impact. Their commitment to enhancing healthcare services in Kargil and Sankoo has been a cornerstone of this project's success.

A special note of thanks is due to NHPC for their Support and commitment to corporate social responsibility. Their financial backing and technical support have been fundamental in establishing the oxygen plants, which are critical in augmenting the healthcare infrastructure in this development deficit geography.

We also extend our gratitude to the medical staff and healthcare workers at the facilities at District Hospital Kargil and Community Health Centre Sankoo. Their participation and feedback have provided valuable perspectives on the operational effectiveness and community impact of the oxygen plants.

Lastly, our acknowledgment would be incomplete without mentioning the tireless efforts of the assessment team members. Their dedication and professionalism in conducting thorough research and analysis in sub zero temperatures have culminated in a comprehensive report that highlights the vital role of such a critical CSR initiatives in community health and development.



PREFACE

This is an Impact Assessment Report of Corporate Social Responsibility Activity related to “CSR support for 02 nos. of Oxygen plants each of at least 500 LPM Capacity: one for COVID dedicated Hospital Kargil & another for CHC Sankoo” supported by NHPC Limited and implemented through District Authority Kargil. The project aims to provide quality healthcare services to the residents of Kargil and Sankoo.

This report briefly covers NHPC, its CSR policy, and its objectives. Further, the extent to which the aims and objectives of this CSR project have been met, is detailed by giving information about the beneficiaries impacted.

The assessment is carried out at District Hospital Kargil and CHC Sankoo. The impact assessment results are derived from the quantitative and the qualitative data collected and analyzed by experts along with case studies of the beneficiaries.

The conclusions are specific to this intervention and encompass learning, that may be value accretive in the future endeavors.

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Table of Contents

LIST OF FIGURES	i
LIST OF TABLES	ii
LIST OF ABBREVIATIONS	iii
EXECUTIVE SUMMARY	iv
1. INTRODUCTION	1
1.1 ABOUT IIT JAMMU	1
1.2 ABOUT NHPC LIMITED	2
1.3 ABOUT CORPORATE SOCIAL RESPONSIBILITY	4
1.4 ABOUT NHPC CSR POLICY	5
1.5 ABOUT IMPACT ASSESSMENT	7
1.6 PROJECT BACKGROUND	8
2. APPROACH & METHODOLOGY	9
2.1 MEASURE OF SUSTAINABILITY	11
3. CSR ACTIVITY DETAILS	12
4. IMPACT ASSESSMENT (SROI)	13
5. TESTIMONIALS	16
6. OECD DAC FRAMEWORK MEASURE	19
7. ALIGNMENT WITH SDGs	20
8. RECOMMENDATIONS	21

List of Figures

Fig. 1	OECD DAC Framework	11
Fig. 2	Oxygen Generation Capacity	13
Fig. 3	Patients Benefitted	13
Fig. 4	Aggregate Community Satisfaction Metric	14
Fig. 5	OECD DAC Measure	19

List of Tables

Table 1 Impact Metrics

15

List of Abbreviations

CEC	Chief Executive Councillor
CHC	Community Health Centre
COPD	Chronic Obstructive Pulmonary Disease
CSR	Corporate Social Responsibility
CSR & SD	Corporate Social Responsibility & Sustainable Development
DBT	Department of Bio Technology
DSIR	Department of Scientific & Industrial Research
DST	Department of Science & Technology
IIT	Indian Institute of Technology
LAHDC	Ladakh Autonomous Hill Development Council
LPM	Litre Per Minute
MGNF	Mahatama Gandhi National Fellowship
NGO	Non-Governmental Organisation
NIRF	National Institutional Ranking Framework
OECD DAC	The Organisation for Economic Co-operation and Development's Development Assistance Committee
SDG	Sustainable Development Goals
UT	Union Territory

EXECUTIVE SUMMARY

A significant CSR initiative of NHPC Limited in Kargil, Ladakh provided CSR Support for 02 oxygen plants each of at least 500 LPM capacity, one for COVID dedicated Hospital Kargil & another for CHC Sankoo. This initiative addressed major healthcare needs at a critical time in the high-altitude areas of Kargil and Sankoo during the outbreak of COVID-19 pandemic. The initiative was implemented during August 2021 to May 2022 at a cost of INR 160.00 Lakh and was implemented through District Administration Kargil, UT of Ladakh. The initiative is expected to benefit a population of about 1,80,000 people in the area and continues to provide critical healthcare infrastructure for a large number of transit population of tourists in the area besides serving as a buffer resource for defense installations in this difficult geography.

The initiative continues to be vital and significant in this high altitude and extremely cold region due to high prevalence of pulmonary diseases. The initiative is a proof of NHPC's commitment to undertake effective and impactful corporate social responsibility initiatives aligning well with the needs of the local communities as well as aligning well with sustainable development goals.

The impact assessment for this initiative was carried out in OECD DAC framework using a mixed methods approach utilizing both quantitative metrics as well as qualitative insights gained through secondary data analysis and stakeholder feedback. Instruments such as Survey, in depth interviews, and focus group discussions were used. Direct interactions with healthcare professionals and community members offered valuable insights into the improvements in healthcare provisioning as well as community satisfaction.

Social return on investment indicators demonstrated that this critical infrastructure was especially vital during the COVID '19 pandemic. The initiative significantly enhanced healthcare service delivery and patient outcomes in the region. For instance, the Oxygen Generation Plant at CHC Sankoo reduced treatment times by 4-5 hours, leading to 90% increase in patient recovery rates as well as reducing the need for inter hospital transfer of patients to near zero. Furthermore, the project led to a 62% increase in hospital admissions for respiratory treatments. The aggregate community satisfaction indicators point to an increased awareness of trust in enhanced capacity and accessibility of healthcare services in the area. NHPC's efforts align with its goals of inclusive growth and sustainable development, aiming to improve social development and well-being in these geographically challenged areas.

This CSR initiative of NHPC Limited in these high-altitude areas aligns well with several United Nations Sustainable Development Goals (SDGs). The initiative contributes primarily to SDG 3 (Good Health and Well-being) by enhancing health infrastructure and improving public health outcomes. The project also supports SDG 9 (Industry, Innovation, and Infrastructure) through the development of this critical healthcare infrastructure. Furthermore, the collaboration with local stakeholders and authorities contributes to SDG 17 (Partnerships for the Goals), emphasizing the importance of partnerships in achieving sustainable solutions.

1. INTRODUCTION

1.1 ABOUT IIT JAMMU



IIT Jammu, was established in 2016 and is located in Jammu and Kashmir, India. It is recognized as an Institute of National Importance and offers a variety of programmes at the undergraduate, postgraduate, and doctoral levels. IIT Jammu provides Bachelor of Technology (B.Tech) degrees in several engineering disciplines such as Chemical Engineering, Civil Engineering, Computer Science and Engineering, Electrical Engineering, and Mechanical Engineering. It also offers Master of Technology (M.Tech) and Doctor of Philosophy (Ph.D) programmes across various specializations.

IIT Jammu was ranked 67th in the engineering category by the NIRF in 2023. This places it among the top performers of the third generation IITs. IIT Jammu has undertaken various collaborative projects with other agencies to enhance research and development in key technological areas. IIT Jammu is actively involved in collaborations with national agencies like the DST, the DBT, and the DSIR, and with the Government of the UT of Jammu and Kashmir. These partnerships focus on advancing research and development across multiple disciplines and leveraging opportunities for funding and expertise from different sectors.

IIT Jammu is engaged in significant collaborative efforts with industrial partners. These collaborations aim to align academic research with industry needs, facilitating practical applications and innovations that can be commercialized for greater good. Through these partnerships, IIT Jammu aims to enhance its research capabilities and provide its students and faculty with direct exposure to industry-specific challenges and solutions.

1.2 ABOUT NHPC LIMITED



NHPC Limited is the largest hydropower development organization in India, with capabilities to undertake all the activities from conceptualization to commissioning of hydro projects. NHPC has also diversified in the field of Solar & Wind energy development etc.

NHPC Ltd. (Formerly known as National Hydroelectric Power Corporation Ltd.) was incorporated in 1975 under the Companies Act, 1956. The company is mandated to plan, promote and organize an integrated and efficient development of power in all its aspects through Conventional and Non-Conventional Sources in India and abroad. NHPC is a listed company on NSE and BSE after successfully concluding its IPO in 2009.

NHPC's total installed capacity as on 31 March, 2024 is 7144.20 MW including 1593 MW in Joint Venture, comprising 6971.20 MW from 22 Hydro Power Stations, 123 MW from three Solar Power Project and 50 MW from a Wind Power Project. NHPC's hydro power share of 6971.20 MW comes to about 14.85% of the country's total installed Hydro Power capacity of 46928.17 MW.

NHPC including its JVs/ Subsidiaries is presently engaged in the construction of 15 projects aggregating to a total installed capacity of 10442.70 MW.

In addition, twelve projects aggregating to a total installed capacity of 4707 MW are Under Clearance Stage.

Other initiative by NHPC in Renewable Energy :-

> Under MNRE scheme, NHPC has been nominated as Renewable Energy Implementing Agency (REIA)/Intermediary Procurer. Under this 700 MW Solar Project (320MW in Bikaner and 380 MW in Jaisalmer) has been developed and 5360 MW are under development by different agencies.

>NHPC has installed 4.08 MW Roof top Solar (RTS) capacity across 25 locations. Further, addition on Roof top capacity at NHPC locations as available and identified from time to time is also being carried out through respective Projects/Units.

>NHPC has also taken initiatives for development of Green Hydrogen Technology, wherein one 25 KW capacity Pilot Green Hydrogen Project at Leh and 2 Pilot green hydrogen-based e-mobility projects (one at Kargil) and one at Chamba, Himachal Pradesh) are under implementation. These projects are anticipated to be commissioned by F.Y 2024-25.

NHPC's Vision

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

NHPC's 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 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.

1.3 ABOUT CORPORATE SOCIAL RESPONSIBILITY



As per the Companies (CSR Policy) Rules, CSR means the activities undertaken by a Company in pursuance of its statutory obligations laid down in Section 135 of the Companies Act, 2013 in accordance with the provisions contained in these rules. As per sub-section (1) of Section 135 of the Companies Act, 2013, every company having net worth of rupees five hundred crore or more, or turnover of rupees one thousand Crore or more or a net profit of rupees five crore or more during the immediately preceding financial year shall constitute a CSR Committee of the Board consisting of three or more Directors, out of which at least one Director shall be an Independent Director, provided that where a company is not required to appoint an independent director under sub-section (4) of section 149, it shall have in its CSR Committee two or more directors.

The CSR Committee shall:

1. formulate and recommend to the Board, a CSR Policy which shall indicate the activities to be undertaken by the company in areas or subject, specified in Schedule VII;
2. recommend the amount of expenditure to be incurred on the activities referred to in clause (a); and
3. monitor the CSR Policy of the company from time to time.

The Board of every company referred to in sub-section (1) of Section 135 of the Companies Act, 2013 shall:

- after taking into account the recommendations made by the CSR Committee, approve the Corporate Social Responsibility Policy for the company and disclose contents of such Policy in its report and also place it on the company's website, if any, in such manner as may be prescribed; and
- ensure that the activities as are included in CSR Policy of the company are undertaken by the company.

The Board of every company referred to in sub-section (1), shall ensure that the company spends, in every financial year, at least two percent of the average net profits of the company made during the three immediately preceding financial years or where the company has not completed the period of three financial years since its incorporation, during such immediately preceding financial years in pursuance of its CSR Policy:

Provided that the company shall give preference to the local area and areas around it where it operates, for spending the amount earmarked for Corporate Social Responsibility activities;

Provided further that if the company fails to spend such amount, the Board shall, in its report made under clause (o) of sub-section (3) of section 134, specify the reasons for not spending the amount and, unless the unspent amount relates to any ongoing project referred to in sub-section (6), transfer such unspent amount to a Fund specified in Schedule VII, within a period of six months of the expiry of the financial year.

Provided also that if the company spends an amount in excess of the requirements provided under this sub-section, such company may set off such excess amount against the requirement to spend under this sub-section for such number of succeeding financial years and in such manner, as may be prescribed.

Thus, CSR provisions outlined in Section 135 of the Companies Act, 2013 and the Companies (CSR Policy) Rules emphasize the significance of not just adhering to regulations, but also promoting transparency and accountability in the ways that the companies contribute to the improvement of society and the environment.

1.4 ABOUT NHPC CSR POLICY



CSR has been an integral part of NHPC's business philosophy. NHPC Limited is conducting its 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. NHPC is committed to making significant contributions to the community, environment, and society through well-planned CSR interventions.

NHPC has strengthened its commitment to CSR in line with Statutory Provisions. The CSR Policy of NHPC has been revised in accordance with Section 135 of the Companies Act, 2013 and the Companies (CSR Policy) Rules. NHPC also adheres to the Department of Public Enterprises (DPE) guidelines on CSR. The CSR activities undertaken by NHPC Limited align with the areas or subjects specified in Schedule VII of the Companies Act, 2013.

NHPC Limited has undertaken a number of CSR initiatives for the communities living in and around its Projects/ Power Stations / Units in the areas of Education, Health, Sanitation, Rural Development, Skill Development, Environment, Women Empowerment, Promotion of sports, etc.

NHPC has been assigned three Aspirational Districts, namely Baramulla in the UT of J&K, Chamba in Himachal Pradesh, and West Sikkim (now renamed as Gyalshing) in Sikkim, for focused development through CSR.

NHPC's CSR VISION

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

NHPC's 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 it engages with.
- To balance social, economic and environmental development objectives through collective and unified efforts of all stakeholders.

The CSR Policy of NHPC is committed to the guideline of localizing its efforts, with the concentration being given to the communities located in and around its power stations and projects. It is this close proximity that enables the company to respond directly to the specific needs of those communities by intervening in ways that are relevant, timely, and directly beneficial to the residents. Accordingly, this approach of holistic community involvement gives priority to education, health care, environmental conservation, and rural development-related projects. NHPC collaborates with the government, local administrations, and NGOs, including community leaders, in such a way that their proposed projects be in line with national priorities and recommendations of the local populations.

The company has strong monitoring and reporting mechanisms of each CSR initiative built into place that would enable checking on the progress of these at regular intervals. These include the preparation of comprehensive reports outlining what is spent, achieved, and the efficiency of initiatives undertaken, put in the public domain. This not only enhances transparency of the exercise but also makes room for adjustments and improvements in strategy based on empirical evidence and stakeholder feedback.

CSR Policy of NHPC Limited exemplifies the company's commitment to being a responsible corporate citizen by its strategic and localized community engagements, it is completing all statutory requirements, where the perceptible result is being seen by its contribution to the welfare of the people at large. The policy exemplifies the commitment of NHPC Limited towards sustainable development and a realization at the company's end that it's one amongst the leaders in corporate social responsibility among energy companies in India.

1.5 ABOUT IMPACT ASSESSMENT



The Ministry of Corporate Affairs in India mandates impact assessments for CSR activities through amended rules. Every company having average CSR obligation of ₹10 crores or more in pursuance of sub-section (5) of Section 135 of the Companies Act, 2013, in the three immediately preceding financial years, shall undertake impact assessment, through an independent agency, of their CSR projects having outlays of Rs. One Crore or more, and which have been completed not less than one year before undertaking the impact study. A company undertaking impact assessment may book the expenditure towards CSR for that financial year, which shall not exceed two percent of the total CSR expenditure for that financial year or fifty lakh rupees, whichever is higher.

An Impact Assessment in CSR is the critical evaluation tool that seeks to measure effectiveness and sustainability of initiatives taken by companies under their CSR obligations. This benchmark reflects not only the work being done but also the strategic alignment as to which CSR projects are aligned along with the long-term vision of the company and, more importantly, the genuine community needs. Therefore, the crux of the impact assessment of the CSR projects lies in its ability to give clear and measurable understanding of how the CSR projects are, in fact, creating value for society and the implementing organization.

Impact assessment is the method applied in systematic evaluation towards finding outcomes and benefits of social responsibility initiatives of a firm in relation to the invested resources. Data collection on the key indicators is done before and after the implementation of a project to capture the direct and indirect effects that the project has on the target community and other stakeholders.

Among the added values that come with a full impact assessment made by an independent third-party agency, there is also that of ensuring objectivity to the evaluation and bringing credibility to the findings. This is something that may be crucial for better corporate transparency and trust among the stakeholders. Furthermore, these recommendations for improvement in future always help companies refine their strategies and practices of CSR for increased impacts on the society.

From an operational point of view, impact assessment includes a number of steps viz. the definition of aims and scope of the assessment, methods to be chosen, data collection, and analysis etc. Further, an effective impact assessment should include, in the context of each CSR project, the level of intervention, geographical, and cultural setting of beneficiaries and community needs.

1.6 PROJECT BACKGROUND

In its comprehensive Corporate Social Responsibility (CSR) project, NHPC Limited selected regions (of urgent needs), most notably Kargil and Sankoo sub-division of district Kargil, UT of Ladakh. These localities, known for their high altitude and infrastructure deficit, had more difficulties during the COVID-19 pandemic. The installation of oxygen generation plants in Kargil and Sankoo was critical for various reasons. First, these communities already had insufficient access to healthcare facilities and were especially vulnerable to the pandemic's impact. Second, the rough terrain, extreme weather conditions, and logistical challenges worsened by the pandemic highlighted the importance of ensuring consistent availability of life-saving medicinal oxygen. In this context, NHPC's quick action in establishing Oxygen Generation Plants in Kargil and Sankoo demonstrated its commitment to meeting the urgent healthcare requirements of these areas.

In the face of the global health crisis, the NHPC quickly recognized the importance of providing access to life saving medical oxygen, particularly in distant and underprivileged regions such as Kargil, Ladakh. This quick mobilization of resources to address the urgent healthcare needs of communities in development deficit regions with the help of its expertise in infrastructure development and strategic partnerships has been a laudable feature of this and such other CSR activities of NHPC.

As part of its CSR mandate, the NHPC identified target regions with restricted access to medical facilities, such as Kargil and Sankoo. These locations in Ladakh had difficult terrain, harsh climate conditions, and logistical challenges exacerbated by the pandemic.

NHPC conducted comprehensive need assessments in close collaboration with local authorities, district administrations, and healthcare professionals to assess medical oxygen demand and identify suitable locations for installing Oxygen Generation Plants. The provided data, which includes metrics such as daily oxygen production volume, the number of beneficiaries among patients, and the reduction in treatment delays, demonstrates the apparent impact of NHPC's intervention on healthcare outcomes and service delivery.

Through a comprehensive analysis, this report provides insights into the effectiveness and broader implications of NHPC's CSR efforts in minimizing the healthcare challenges posed by the COVID-19 pandemic while contributing to the sustainable development goals.



2. APPROACH AND METHODOLOGY

The impact of the CSR project related to installation of Oxygen plants in Kargil and Sankoo, initiated by NHPC, was assessed through a systematic and inclusive data collection and analysis approach. IIT Jammu employed a multifaceted methodology, incorporating both quantitative metrics and qualitative insights to evaluate the effectiveness and implications of the project comprehensively.

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A pivotal aspect of the evaluation process involved direct engagement with stakeholders, including representatives from the local administration, healthcare professionals, and community members. Face-to-face discussions were organized with officials from the Health Department of Kargil and other relevant authorities. These interactions provided an opportunity to elucidate the evaluation methodology, address any concerns or queries, and gather feedback to ensure the assessment aligned with the requirements of the local context.
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Quantitative data collection encompassed various parameters, including the volume of oxygen produced daily, the number of patients benefiting from the oxygen supply, reduction in inter hospital transfers for oxygen, improvement in treatment outcomes, reduction in treatment delays, and cost savings on oxygen procurement. These data on these metrics was obtained by monitoring the oxygen plants' operations. Additionally, data regarding the increase in hospital admissions for respiratory treatments and job creation in plant operation and maintenance were also quantified to gauge the broader impacts of the projects.
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Qualitative assessments were conducted through interviews, surveys, and direct observations to capture the perspectives and experiences of healthcare professionals, patients, and community members. Insights regarding the local healthcare service enhancement, confidence levels in healthcare services, and community perceptions of the project were gathered through structured interviews and focus group discussions. These qualitative data provided valuable context and a nuanced understanding of the project's impact on healthcare delivery, community engagement, and overall well-being.



Integrating quantitative metrics and qualitative insights facilitated a comprehensive analysis of the projects' outcomes and implications in Kargil and Sankoo. By triangulating the data from diverse sources and perspectives, the evaluation aimed to uncover trends, identify success areas, and pinpoint improvement areas. The findings from this assessment are intended to inform future CSR strategies, guide decision-making processes, and contribute to the ongoing dialogue on sustainable development and corporate social responsibility in healthcare.

2.1 MEASURE OF SUSTAINABILITY

To measure the sustainability of the CSR Activity, IIT Jammu has used the OECD DAC framework. Each criteria used in the Impact Assessment Project acts as a lens giving a different perspectives on the intervention - both implementation and the results. The union of all these criteria provides a complete picture of the intervention. All criteria carries equal weightage with grading A (90-100), B (75-90), C (50-74), D (40-50) and F (<40). All Score are on a scale of 100.



Fig. 1: OECD DAC Framework

3. CSR ACTIVITY DETAILS

NHPC expanded its CSR endeavours to cater to vital healthcare requirements in under served regions. The primary objective of NHPC during COVID '19 was to support healthcare infrastructure and services through its CSR endeavors, primarily by installing oxygen generation plants. These plants turned out to be crucial in addressing the urgent demand for medical oxygen, enhancing treatment outcomes, and diminishing healthcare inequalities in remote areas.

NHPC's CSR endeavour in the healthcare domain related to establishment of Oxygen Generation Plants at strategic healthcare facilities, including the Community Health Center (CHC) in Sankoo and District Hospital, Kargil has been part of this strategy.

The Chief Executive Councilor Kargil inaugurated the oxygen plant in presence of Executive Councilor Horticulture Aga Syed Mehdi Fazili, Bikram Singh, Group General Manager of NHPC, CMO Kargil Dr Munnawar Hussain Wazir, Medical Superintendent DH Kargil, Dr Kacho Liyaqat Ali Khan besides other concerned officials on July 26, 2022.



The oxygen generation plant at a hospital is an immensely critical and crucial infrastructural component. It ensures continuous flow of medical-grade oxygen besides having a provision of filling cylinders for remote deployment/ homecare. This system is indispensable for the treatment of a large number of respiratory diseases, from chronic diseases like COPD, ILD, Pulmonary Odema and such others, to acute infections such as pneumonia and COVID-19, where oxygen therapy may be life-saving. This extends well beyond the critical medical applications—an on-site plant will reduce costs associated with procurement as also transportation costs. Furthermore, it also allows the hospital to be more self-reliant and develop even higher standards of operational efficiency and emergency preparedness. For example, in a pandemic or grave accident/ natural disaster situations in-house generation of oxygen ensures that the hospital is in a position to meet sudden surges of demand without reliance on suppliers who may well be experiencing crisis of their own at that time. Besides, it supports the administration of anesthesia for surgical interventions often necessary during deliveries, neonatal care, trauma situations and such others. Further, the setup adds to environmental sustainability through the reduction of carbon footprints associated with the conveyance of oxygen cylinders across long distances.

4. IMPACT ASSESSMENT

While a complete Social Return on Investment Assessment is beyond the scope of this assessment as it will require baseline data and a longitudinal study, Nevertheless some significant metrics contributing to SROI have been noted. The initiative has brought significant positive changes to healthcare services in district Kargil. This report explores the advantages patients have experienced, the hurdles faced during the project's operation, and how sustainable the project is.

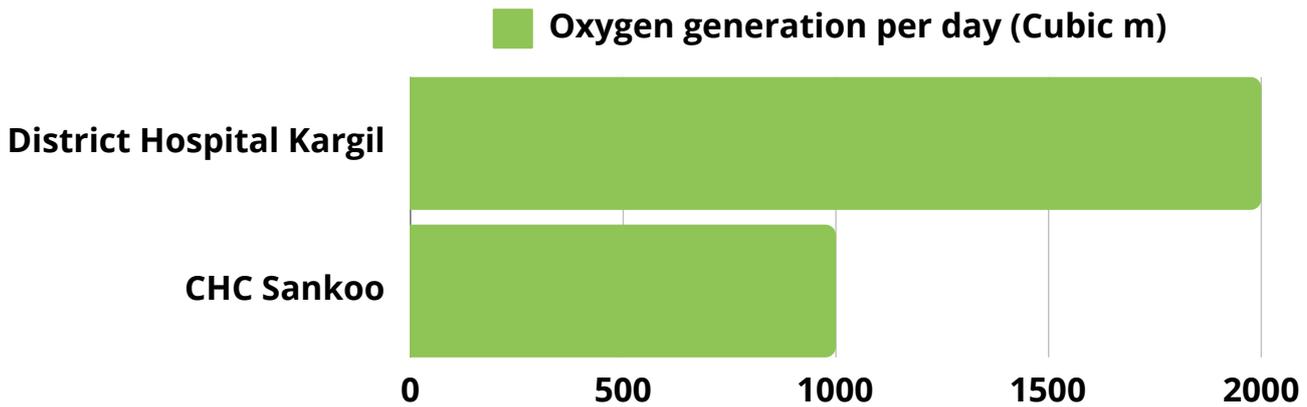


Fig. 2 : Oxygen Generation Capacity

In CHC Sankoo, local oxygen production facility has led to significant improvements across various healthcare metrics. This initiative is particularly notable for servicing a target population of 33,078 individuals, with the facility producing 1000 cubic meters of oxygen per day.

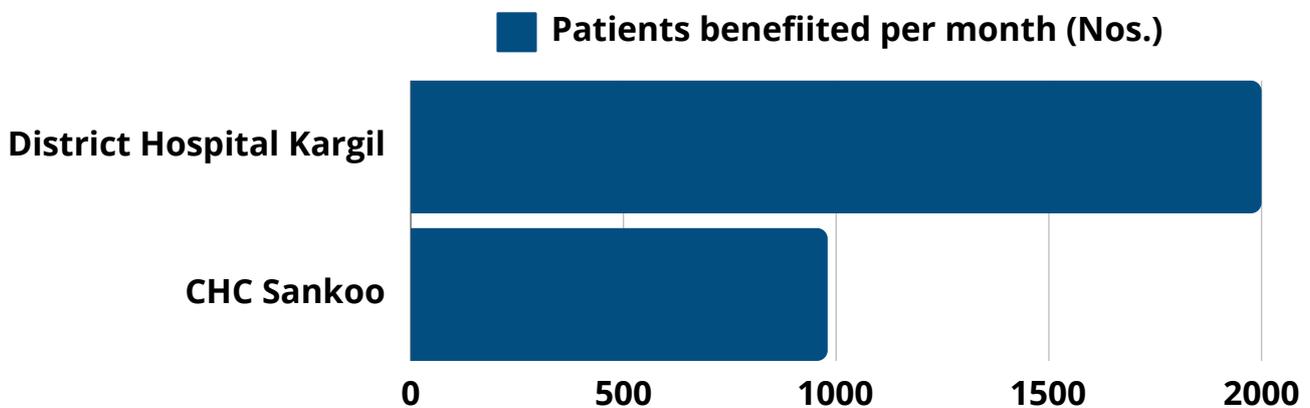
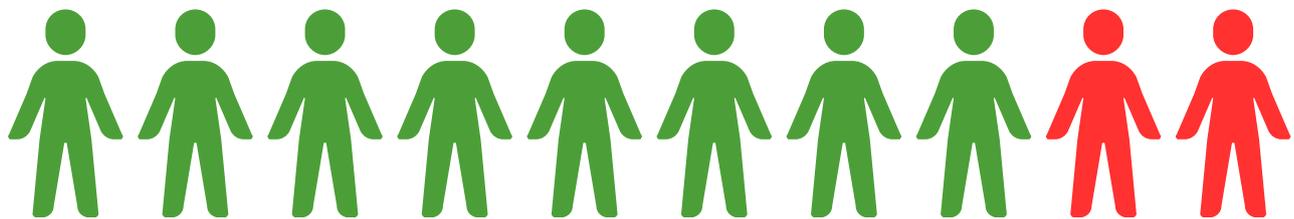


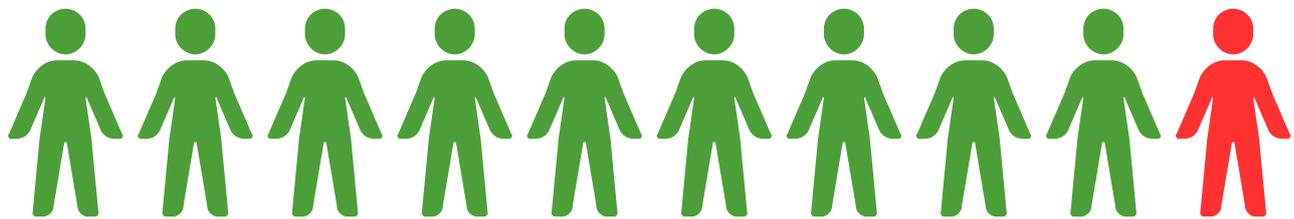
Fig. 3 : Patients benefitted

The oxygen production has directly benefited approximately 980 patients per month, which has had a deep impact on treatment outcomes. The recovery rates have improved by 90%, largely due to the availability of adequate oxygen supplies. The establishment of this facility has also led to complete elimination of inter hospital transfers for oxygen, which was previously a major challenge. Additionally, there has been a 100% reduction in treatment delays, facilitating faster and more effective care for patients.

District Hospital Kargil is catering to a population of approximately 1.80,000. The Oxygen production is 2000 cubic meters per day. About 2000 patients/month are getting direct benefits with 100% reduction in inter hospital transfers due to assured and sustainable Oxygen Supplies. Significant reduction in treatment delays was also noticed due to assured oxygen supply.



Aggregate Community Satisfaction Metric (District Hospital Kargil): 8/10



Aggregate Community Satisfaction Metric (CHC Sankoo): 9/10

Fig. 4: Aggregate Community Satisfaction Metric

The local production of oxygen in CHC Sankoo has facilitated an expansion of services to all healthcare institutions within the Sankoo and Taisuru blocks with oxygen provisioning. Further local provisioning of service has led to almost 62% increase in hospital admissions for respiratory diseases at CHC Sankoo and almost 40% increase in hospital admissions for respiratory diseases at District Hospital Kargil. This indicates a higher demand for specialized healthcare services in the area and increased confidence of the people in service provisioning. The increase not only reflects more cases being treated locally due to improved facilities but also the fact that a larger number of people with respiratory issues (fairly normal in this high altitude area) are seeking indoor treatment who may previously not have done so. The initiative has also resulted in significant cost savings of ₹4-5 lacs/month for District Hospital Kargil and ₹50,000-₹1 lac/month for CHC Sankoo on oxygen procurement. These savings can now be redirected towards other critical healthcare needs, further enhancing the quality of care provided by these health care centers.

Table 1: Impact Metrics

Project Name	District Hospital Kargil	CHC Sankoo Kargil
Target Population	180000	33078
Volume of Oxygen Produced Daily	2000 m ³ /day	1000 m ³ /day
Number of Patients Benefited (per day)	2000 month	980/month
Reduction in Inter Hospital Transfer for Oxygen	100% reduction	100% reduction
Improvement in Treatment Outcomes	95% improvement in recovery rates	90% improvement in recovery rates
Increase in Local Healthcare Services:	Whole District Population	All Healthcare institutions of Sankoo & Taisuru Block
Aggregate Community Satisfaction Metric	8 out of 10	9 out of 10
Cost Savings on Oxygen Procurement/month	₹ 4 to 5 lacs	₹50 thousand to 1 Lac
Increase in Hospital Admissions for Respiratory Treatments	40% increase	62% Increase

Introduction of local oxygen production plants at District Hospital Kargil and CHC Sankoo has had a transformative impact on the healthcare landscape of the region. It has not only improved patient outcomes and has expanded healthcare services but has also increased financial efficiencies and received strong endorsement from the local community and healthcare professionals. The initiative serves as a model of how local healthcare infrastructure strengthening can be leveraged to significantly enhance healthcare delivery in rural settings. Continued monitoring and adaptive management will be crucial to sustain these benefits and address any emerging challenges effectively.

5. TESTIMONIALS

Regarding installing oxygen plants in Kargil and Sankoo, stakeholders, including medical professionals, hospital administrators, and members of the local community, have shared valuable insights into the potential impact of these installations.

Feedback from the local community in Kargil and Sankoo has been very positive and heartening. There is a general consensus that these plants have been very helpful in improving the healthcare capabilities in the region. This is particularly so in the emergencies where access to oxygen becomes critical for patient care. Medical specialists and hospital executives in Kargil and Sankoo are optimistic about further strengthening of such infrastructure. They see these facilities playing a debottlenecking role for the local healthcare infrastructure by allowing on-site oxygen production and reducing dependency on external supplies. This is expected to increase the availability and quality of healthcare services, especially in emergencies, increasing summer traffic of tourists and possible trauma situations.

Some concerns were however raised about the financial and operational aspects of maintaining and operating the oxygen plants. To address these issues, a dialogue with stakeholders to ensure long term sustainability of the equipment may be salutary. This proactive strategy is critical for ensuring the plants' long-term viability and maintaining their benefits for the community.



Dr. Zahida Khatoon
Block Medical Officer,
Sankoo, Kargil

I would like to extend my sincere gratitude to NHPC Ltd. for their CSR contribution of a 500LPM capacity oxygen plant to CHC Sankoo. This efficient plant, which became operational during the second wave of the COVID-19 pandemic, has been a significant asset in addressing the extensive needs of the Kargil area. It continues to be crucial in treating patients with conditions such as asthma and COPD. Prior to this installation, we required 100-150 cylinders from the District Hospital in Kargil, but now we are self-sufficient in our oxygen supply and are also able to support other healthcare facilities in the Taisuru block.

“I am from the Mechanical Department and have been operating this plant since 2022. The plant is currently operational, but it requires maintenance, particularly for compression oil and booster oil. Whenever we encounter issues related to the plant's panels, we seek assistance from technical engineers. Regular maintenance is essential to ensure the purity of the oxygen produced. This winter, the plant was utilized continuously for 24 hours daily, greatly benefiting home care patients who received their oxygen cylinders filled directly from this facility.”

~**Mr Khadim Hussain, Oxygen Plant Operator, Sankoo**



Dr Mohd Jaffer Akhoon, Chief Executive Councillor, LAHDC Kargil

“Before the establishment of these oxygen plants, we had to procure oxygen from Srinagar. During the months of November and December, we stored oxygen in cylinders to last 5-6 months as the region becomes inaccessible by road. Previously, the lack of local oxygen supply led to the postponement of medical procedures in local hospitals. However, the introduction of an oxygen plant, supported by NHPC Ltd. under their CSR initiative, has brought significant relief to the people of Kargil, especially during the COVID-19 pandemic and subsequently for those suffering from COPD, ILD and other such ailments. This plant ensured that oxygen needs were met even when residents were confined to their homes during the pandemic. Remarkably, this facility also supplied oxygen to Jammu during COVID-19. We will however like to have provisioning of long-term operation and maintenance, at least for five years, in the Memorandum of Understanding (MoU) for projects of this nature. This ensures sustainability and optimal functionality over time. The community is well-aware and deeply appreciative of the oxygen plant’s contribution by NHPC Ltd. Moving forward, it will be nice to further strengthen such infrastructure.

“The oxygen plant is operating effectively, meeting the oxygen needs of remote areas such as Drass and Zanskar. In case of issues, we promptly reach out to the vendor and the mechanical department. This facility has proven to be immensely beneficial for the people of Kargil and remains fully functional.”

~**Mohd Ali, Oxygen Plant Operator, Kargil**

“My name is Mukhtar Hussain, and I am currently with a patient at CHC, Sankoo. The oxygen plant here is an excellent facility that proves incredibly useful in emergency situations. Previously, we had to travel to Kargil for refills, but now we can conveniently avail the facility right here.”

~**Patient Attendant, Sankoo**



Dr. Munnawar Hussain
Chief Medical Officer, Kargil

"This oxygen plant was provided by NHPC Ltd. during the peak of the COVID-19 pandemic, a time when Kargil faced a critical shortage of oxygen due to inadequate infrastructure. Currently, the plant supports approximately 2,000 patients per month, significantly enhancing our healthcare services. We no longer need to refer patients to other hospitals for issues related to oxygen scarcity. Equipped with this facility, we are well-prepared for any future pandemics and are operating at the level of a tertiary care hospital. Our only remaining requirement is an additional MRI to complete our range of facilities. We are fully prepared for any emergency situations that may arise in the future. To ensure smooth operations, we have entrusted the operational and maintenance tasks to the Mechanical Engineering Department."



Dr Tenzin Namgyal
Medical Superintendent,
District Hospital Kargil , Ladakh

"During the COVID-19 pandemic, there was nationwide shortage of oxygen, but this oxygen plant greatly alleviated our difficulties and continues to benefit us since then. Patient care has significantly improved due to the availability of this plant. We are now completely self-sufficient in meeting our oxygen needs. We entrust the maintenance and operation of our mechanical equipment to the Mechanical Engineering Department. NHPC has consistently provided invaluable support to our district, particularly to the Health Department."

6. FIELD OBSERVATIONS

Setting up of Oxygen Plants at District Hospital Kargil and CHC Sankoo is another step from NHPC under its CSR initiatives in making a transformational change in the healthcare capabilities of this region. These have significantly bolstered the availability of medicinal oxygen during COVID-19 pandemic and other medical emergencies. This directly contributed to the improvement of the district's health infrastructure and making it strong enough to serve future requirements besides reducing reliance on outside medical facilities.

The centers have since witnessed a very significant increase in the production, distribution, and consequently, accessibility to medical oxygen in the area. Improved availability of oxygen has allowed healthcare providers to provide enhanced care of critical patients leading to decrease in delays in treatment and substantially improved treatment outcomes. A very significant observation is that subsequent to equipment provisioning admission rates for the patients with respiratory ailments have surged while referral for oxygen to other hospitals outside the district has almost been eliminated.

The successful installation and operation of these oxygen plants has resulted in reduction in outside dependency for an oxygen source and thus has contributed toward self-sufficiency as regards healthcare resources. This has also resulted in considerable savings in the cost of oxygen procurement, which is a direct contribution to the local healthcare budget. This is a benefit to local communities for the most part, bringing lifesaving medical treatments close to them, especially during emergencies. This has worked towards the making better community health outcomes possible and also creating a firm foundation of trust in the local health facilities.

The oxygen plant installations have gone a long way toward improving the preparedness of public health infrastructure in the region to provide the members with a lifeline they need so much during health emergencies. The resilience of the healthcare system has been bolstered, preparing it to face future challenges more effectively.

This has also led to the perception that NHPC is indeed playing a great role in improving healthcare services within the region, with a positive contribution from the NHPC-supported oxygen plants.

One of the concerns mentioned was the operation and maintenance of the plants being looked after by the Mechanical Department, whereas the preference of hospital staff was that it should be with the user department i.e. (CHC Sankoo and District Hospital Kargil) as the division of responsibility in operation and maintenance causes delay in addressing technical issues, as problems must pass through two departments for resolution.

The other key challenge is that of a human resource constraint: there is a lack of technicians to operate and maintain the plants effectively. It calls for effective and sustained interaction with the stakeholders to meet training and recruitment requirements associated with operation of the plants.

Further, with regard to the availability of facilities, in terms of oxygen usage and benefits, there is a low level of awareness among the local population. Possibly some awareness building effort in association with stakeholder can mitigate this situation. The physical security and environmental safety of the oxygen plants also poses a challenge. For instance, the District Hospital at Kargil requires better housing to mitigate issues such as dust accumulation, bird intrusions and other potential contaminants that might jeopardize plant operation and oxygen purity.

In conclusion, while the oxygen plants installed by NHPC have greatly helped to boost the level and quality of healthcare services and infrastructure in the district, their sustenance in the long run would necessitate focused efforts on improvement of operational protocols, enhancement of human resource capabilities, raising community awareness, and securing the facilities.



Assessment Team with CHC Sankoo Staff

7. OECD DAC FRAMEWORK MEASURE

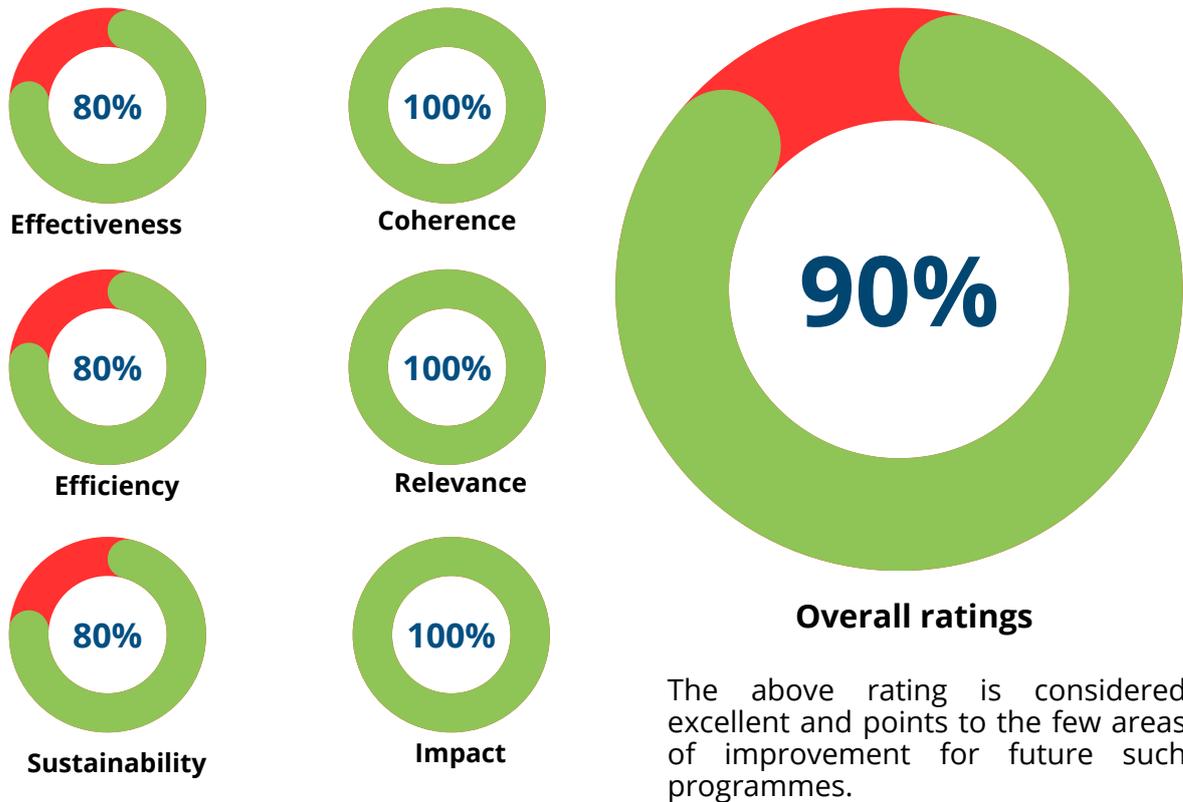


Fig. 14: OECD DAC Measure

1. Relevance:

- The project is highly aligned with NHPC’s CSR Policy and the essential needs of the community, as identified through stakeholder consultations and assessment carried out as per the guidelines.

2. Coherence:

- Strong coherence is observed, with the project adhering to NHPC’s CSR policy and integrating effectively with other community development initiatives.

3. Effectiveness:

- It has been effective during COVID-19 and continues to be effective after it, but skilled workforce has to be developed for maximum effectiveness.

4. Efficiency:

- The project had some lack of skilled workforce, nonetheless, available workforce is fairly efficient.

5. Sustainability:

- The Project is sustainable as it is sufficiently taken care of in convergence with the Mechanical Engineering Department of Kargil but some coordination issues persist.

6. Impact:

- The project gets full marks as it has made Kargil self sufficient in medicinal Oxygen.

8. ALIGNMENT WITH SDGs



This initiative directly contributes to several United Nations Sustainable Development Goals (SDGs):

SDG 3 (Good Health and Well-Being): By improving the health and reducing treatment delays.

SDG 9 (Industry Innovation and Infrastructure): By investing in health infrastructure of District Kargil.

SDG 17 (Partnerships for the Goals): Demonstrating effective collaboration between NHPC Limited, Mechanical Department Kargil and District Administration, Kargil.

7. RECOMMENDATIONS

The recommendations for the future CSR Projects like these are as follows:

1. Stakeholder Consultation

It is crucial to involve all relevant stakeholders—including local healthcare officials, community leaders, district administration and beneficiaries to enhance awareness about better oxygen availability, and ensure better inter department coordination focusing on operational aspects such as maintenance, security, upkeep and better utilization of the equipment.

2. Monitoring and Evaluation Framework

Developing a robust framework for monitoring and evaluating the performance of the oxygen plants is essential. A focus on key performance indicators such as oxygen production, distribution, and utilization rates will facilitate timely interventions and continuous improvements in the plants' operations.

3. Community Outreach Initiatives

To maximize the utilization of the oxygen plants, strong community outreach initiatives are necessary. Awareness programs can be conducted through local media, community meetings, and through collaboration with local health workers.

4. Operation and Maintenance Policy

A proactive stakeholder dialogue is essential to establish a regular maintenance schedule, budget provisioning for maintenance and technological upgrades etc. . This will reduce downtime and ensure that the plants operate efficiently.

5. Capacity Building and Skill Development

A Training programs for some local youth in the skills required to operate and maintain the oxygen plants will empower local teams, reduce dependency on external contractors, and ensure the sustainability of the plants. This will not only build local expertise but will also promote job creation within the community.

CSR SUPPORT FOR 02 NOS. OF OXYGEN PLANTS OF AT LEAST 500 LPM CAPACITY EACH FOR COVID DEDICATED HOSPITAL KARGIL & CHC SANKOO

Location: Kargil and Sankoo, Ladakh



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