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Hindalco Industries Limited
One International Center, Tower 4, 21st Floor, Senapati Bapat Marg
Prabhadevi, Mumbai-400013

Date: 6th July 2026

Subject: Final Impact Assessment report of Livelihood Infrastructure CSR Programme for Hindalco Industries Limited (HIL) in units: Renukoot, Renusagar, Lohardaga, Samri and Belagavi

Dear Mr Avijit,

This refers to our [engagement letter/engagement contract] dated 2nd December, 2025 with Hindalco Industries Limited("you") ('the Contract').

We appreciate the opportunity to assist Hindalco Industries Limited in providing Impact assessment services to Hindalco Industries Limited for their CSR programmes in units: Renukoot, Renusagar, Lohardaga, Samri and Belagavi

This is our final impact assessment report of the project Livelihood Infrastructure CSR Programme supported by HIL. The performance of our Services and the report issued to you pursuant to the Services are based on and subject to the terms of the Contract.

This report is solely for your benefit and information and is not to be referred to in communications with or distributed or disclosed for any purpose to any third party without our prior written consent. We have been engaged by you for the Services and to the fullest extent permitted by law, we will not accept responsibility or liability to any other party in respect of our Services or the report.

It has been our privilege to work with you, and we look forward to continuing our relationship with you.

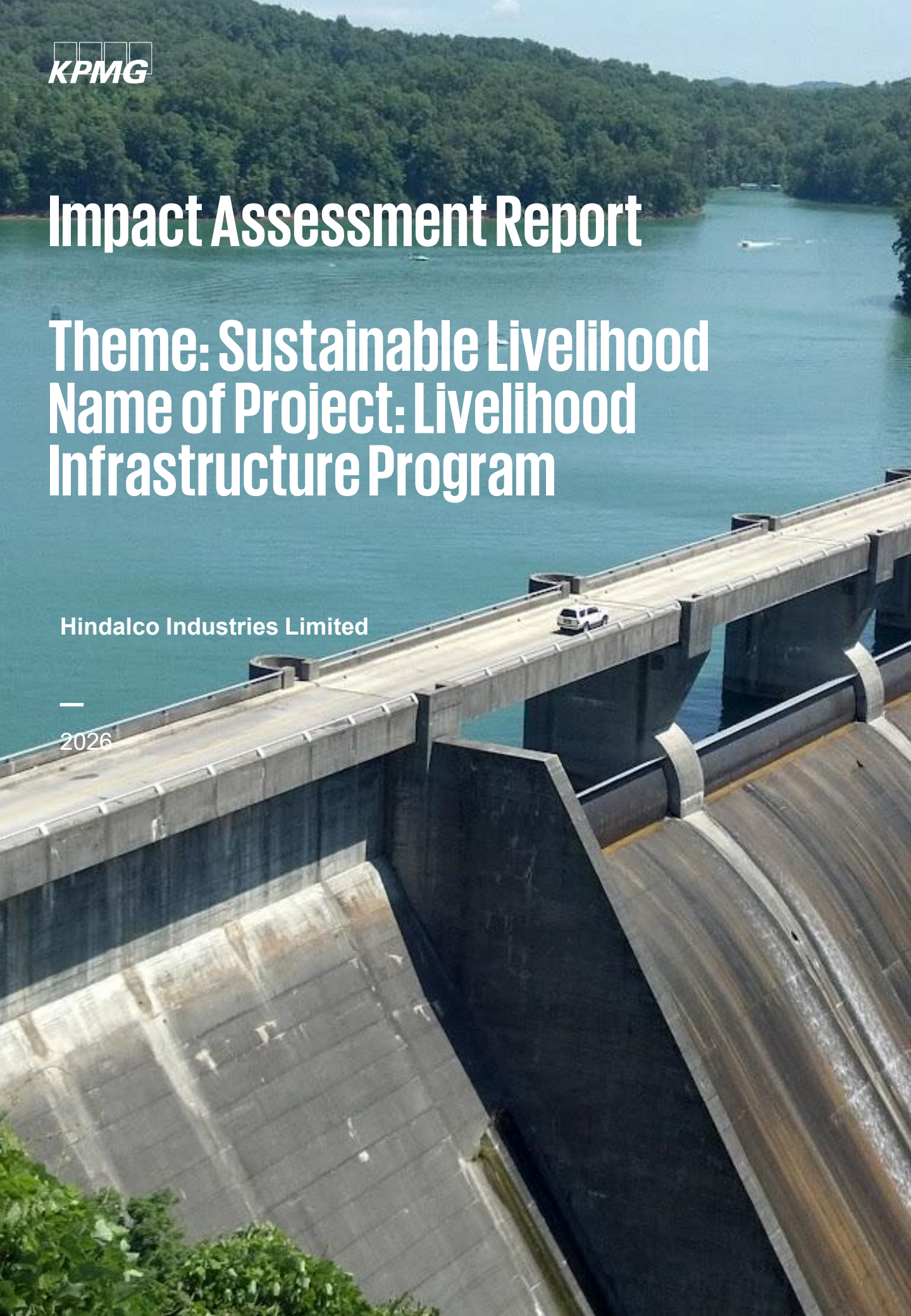
Yours sincerely

Full Signature
Jignesh Thakkar
Partner – ESG, KPMG India
KPMG Assurance and Consulting Services LLP

KPMG

Impact Assessment Report

Theme: Sustainable Livelihood
Name of Project: Livelihood Infrastructure Program



Hindalco Industries Limited

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2026

Notice to readers

- *Our report shall be prepared solely for Hindalco Industries Limited. KPMG does not accept or assume any liability, responsibility, or duty of care for any use of or reliance on this report by anyone, other than our Client, to the extent agreed in the Agreement.*
- *Impact assessment is limited to the projects allocated by Hindalco Industries Limited.*
- *OECD DAC framework has been used in preparing the report as detailed herein. No professional assurance standards ex. ISAE, SSAE etc. have been applied while preparing this report and accordingly the rigors applicable under such standards are not applicable for the scope covered by our report.*
- *Procedures, analysis and recommendations, if any, are advisory in nature basis the information collected from various sources both publicly and those provided by the client.*
- *Our observations represent our understanding and interpretation of the facts based on reporting of beneficiaries and stakeholders.*
- *Our report, by its very nature, may involve numerous assumptions, inherent risks, and uncertainties, both general and specific. The conclusions drawn shall be based on the information available with us at the time of preparing the report.*
- *We shall not perform an audit and shall not express an opinion or any other form of assurance. Further, comments in our report are not and shall not be intended, nor should they be interpreted to be legal advice or opinion. Client shall be fully and solely responsible for applying independent judgment, with respect to the findings included in the report, to make appropriate decisions in relation to future course of action, if any. We shall not take responsibility for the consequences resulting from decisions based on information included in the report.*
- *While information obtained from the public domain or external sources has not been verified for authenticity, accuracy, or completeness, we have obtained information, as far as possible, from sources generally considered to be reliable. However, it must be noted that some of these websites/third party sources may not be updated regularly. We assume no responsibility for the reliability and credibility of such information.*
- *Our work shall be limited to the specific procedures described in this Engagement Letter and shall be based only on the information and analysis of the data obtained through interviews of beneficiaries supported under the programme, selected as sample respondents and discussions with Hindalco Industries Limited team and stakeholders of the programme. Accordingly, changes in circumstances or information available after the review could affect the findings outlined in our report.*
- *In no circumstances shall we be liable, for any loss or damage, of whatsoever nature, arising from information material to our work being withheld or concealed from us or misrepresented to us by any person to whom we make information requests.*
- *In accordance with its policy, KPMG advises that neither it nor any of its partner, director or employee undertakes any responsibility arising in any way whatsoever, to any person other than Client in respect of the matters dealt with in this report, including any errors or omissions therein, arising through negligence or otherwise, howsoever caused.*
- *In connection with our report or any part thereof, KPMG does not owe duty of care (whether in contract or in tort or under statute or otherwise) to any person or party to whom the report is circulated to and KPMG shall not be liable to any party who uses or relies on this report. KPMG thus disclaims all responsibility or liability for any costs, damages, losses, liabilities, expenses incurred by such third party arising out of or in connection with the report or any part thereof.*
- *By reading our report, the reader of the report shall be deemed to have accepted the terms mentioned hereinabove.*

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Abbreviations

AAY	Antyodaya Anna Yojana
BPL	Below Poverty Line
CSR	Corporate Social Responsibility
DPDP	Digital Personal Data Protection Act
FGD	Focus Group Discussion
FPO	Farmer Produce Organisations
GP	Gram Panchayat
IDI	In-Depth Interview
HIL	Hindalco Industries Limited
KII	Key Informant Interview
O&M	Operation & Maintenance
OECD DAC	Organisation for Economic Cooperation and Development - Development Assistance Committee
SHG	Self Help Group
ToC	Theory of Change
UN-SDG	United Nations- Sustainable Development Goals

About Hindalco Industries Limited

About Hindalco Industries Limited

Hindalco, part of the Aditya Birla Group, ranks among the world's largest aluminium rolling and recycling companies. It is a global leader in copper and a key player in specialty alumina and hydrates. With a presence in 10 countries and 48 manufacturing facilities, Hindalco is India's leading copper producer.

Corporate Social Responsibility (CSR) at Hindalco

HIL's top priority is to empower individuals within our communities and deliver meaningful value to them. Through their CSR programs, they have positively impacted over 2.5 million lives across India, implementing projects in five key areas: Education, Healthcare, Sustainable Livelihood, Infrastructure Development, and Social Change.

HIL's CSR Areas

Education

Initiatives work to empower children from economically weaker backgrounds and focus on:

- Pre-school education
- Educational support programme
- Vocational and technical education training
- Adult literacy programme
- School infrastructure development

Healthcare

Improving access to healthcare and building a strong healthcare infrastructure in and around local communities with a focus on:

- Preventive healthcare
- Curative healthcare
- Mother and child-care
- Quality/support programmes
- Healthcare infrastructure

Sustainable Livelihood

Developing interventions that help create sustainable and long-lasting livelihood for the communities with a focus on:

- Vocational trainings
- Trainings on technical skills with a special focus on women and farmers.
- Watershed development & irrigation projects

Infrastructure Development

Facilitating all-round development of communities with a focus on:

- Roads
- Community halls/kitchens
- Sports and recreation centres

Social Change

Countering social evils such as exploitation, inequality and trafficking in remote corners with a focus on:

- Social Welfare, Inclusion & Community Development
- Culture, Heritage & Nation-Building
- Health, Sports, Fitness & Safety

Executive Summary

KPMG has been appointed as an impact evaluation agency by Hindalco Industries Limited to assess the impact of their Livelihood Infrastructure Program. In this report, KPMG India is evaluating the progress of the program across CSR units over the year 2022-23 and understanding its relevance, coherence, effectiveness, efficiency, impact, and sustainability.

The study employed a cross-sectional research design utilizing a mixed-method framework for data collection. Quantitative and qualitative data was gathered through surveys and focus group discussions (FGD) during discussions with participants.

Respondents from 10 villages across 3 CSR units were covered under this study

A total of 124 respondents along with few institutional stakeholders were reached through in-person interactions

2 IDI were conducted with village sarpanches

Below are the key insights from the impact assessment

93% Reported increase in water level after construction of check dams

88% Shared episodes of water shortage have reduced

74% Reported agricultural land can now be cultivated comfortably

86% reported water in well/borewell is now available for additional months as compared to before

89% Shared that instances of the nearby well/borewell drying up have reduced

90% mentioned reliability of the household on water has improved

Executive Summary

OECD DAC Evaluation

The various components/outcomes of the program were evaluated using the OECD DAC criteria, which include relevance, effectiveness, efficiency, impact, coherence and sustainability. The findings of the study are categorized as follows:

Highly relevant to the needs of water-stressed rural communities where agriculture remains the primary livelihood source. The intervention directly addresses declining groundwater levels, irrigation constraints, and seasonal water shortages, which are critical barriers to agricultural productivity and income generation. The programme is closely aligned with local livelihood priorities and climate-resilience needs.

The programme demonstrates strong effectiveness, with 93% reporting increased water levels, 89% reporting fewer well and borewell failures, and 74% indicating improved cultivable land availability. Improved groundwater recharge and water retention have translated into better irrigation access, extended cultivation periods, and greater agricultural productivity.

Check dams represent durable community assets with long-term benefits for groundwater recharge and water conservation. Sustainability is strengthened where local communities participate in maintenance and water governance. Continued functionality will depend upon periodic desilting, catchment protection, and convergence with government watershed programmes.

The intervention has generated meaningful livelihood impacts through improved water security, higher agricultural productivity, enhanced crop diversification, and increased resilience to drought conditions. Communities report reductions in water shortages, greater reliability of water sources, and improved ability to cultivate land during rabi and summer seasons.

The programme leverages a relatively low-maintenance infrastructure solution that benefits multiple users simultaneously. Check dams support irrigation, livestock, and household water needs through a single asset, generating broad community benefits. Further efficiency gains may be achieved through periodic desilting, watershed treatment, and community-led maintenance mechanisms.

The programme complements government priorities related to watershed development, climate adaptation, and sustainable agriculture. It aligns with broader rural development initiatives focused on groundwater conservation and livelihood enhancement, ensuring that project investments reinforce existing development efforts rather than duplicating them.

Does not meet expectation | Partially meets expectations | Meets expectations

The program evaluation above on OECD-DAC parameters effectively communicate the program's strengths and areas for improvement, providing a comprehensive overview for stakeholders and decision-makers.

UN-SDG Alignment

The Livelihood Infrastructure Program contributes directly to improving water security, groundwater recharge, agricultural productivity, and climate resilience through the construction of check dams and water-harvesting infrastructure. By enhancing irrigation access, supporting livestock water needs, reducing seasonal water scarcity, and strengthening rural livelihoods, the programme promotes sustainable agricultural development and community resilience. The intervention aligns with national priorities related to watershed management, groundwater conservation, climate adaptation, and sustainable rural development.

SDG	Alignment with Programme
SDG 1 – No Poverty	Improved water availability enhances agricultural productivity, income stability, and livelihood security for rural farming households.
SDG 2 – Zero Hunger	Increased irrigation access, improved crop yields, expansion of cultivable land, and multiple cropping cycles strengthen food security and sustainable agriculture.
SDG 6 – Clean Water and Sanitation	Check dams and water-harvesting structures improve groundwater recharge, water availability, and long-term water security.
SDG 8 – Decent Work and Economic Growth	Enhanced agricultural productivity, crop diversification, and improved livelihood opportunities support local economic growth.
SDG 13 – Climate Action	Water conservation infrastructure strengthens resilience to drought, climate variability, and water stress in rural communities.
SDG 15 – Life on Land	Sustainable watershed management, groundwater recharge, and improved management of natural resources contribute to ecosystem restoration and land productivity.
SDG 17 – Partnerships for the Goals	Collaboration with Panchayats, farmers, community institutions, water user groups, and government programmes strengthens sustainability and impact.

Impact Assessment: Approach & Methodology

Study Objectives:

The purpose of this study is to assess the impact of Hindalco's CSR project, **Livelihood Infrastructure Programme,** across their 3 units: Renusagar, Renukoot & Belagavi implemented during FY 2022-23.
The primary objectives are:

i. To assess the effectiveness of check dam infrastructure in improving groundwater recharge, water availability, and irrigation access for beneficiary communities.
ii. To evaluate changes in agricultural productivity, cropping intensity, and land utilisation resulting from improved water availability.
iii. To assess the programme's contribution towards strengthening livestock water access and reducing household water insecurity.
iv. To evaluate livelihood outcomes including farm income stability, climate resilience, and reduction in water-related vulnerabilities.
v. To assess programme performance across OECD-DAC parameters and identify factors influencing effectiveness, sustainability, and long-term impact.
vi. To generate insights that guide programme refinement, long-term sustainability, and potential scale-up or replication.
vii. Evaluate programme across OECD-DAC parameters: To assess relevance, effectiveness, efficiency, impact, coherence, and sustainability of the interventions.

Study Approach:
The key steps in the approach are as below:

Consultation and Scoping

- An initial scoping and inception meeting was held with Hindalco team to establish the parameters and objectives of the engagement.
- A comprehensive project plan was subsequently formulated to guide the overall programme of work.
- Mapping of internal and external stakeholders, was undertaken to identify an appropriate sample for consultation.

A review of secondary data was conducted to contextualise Hindalco's strategic contributions within its wider CSR framework.

Study design:

- A mixed approach, consisting of both quantitative and qualitative methods, was adopted for the assessment to provide a more comprehensive understanding of the project impact across multiple time points.
- A theory of change-based impact framework was developed to articulate the intended outcomes and impact parameters.

Study tools:

Semi-structured survey tools were developed, grounded in the research questions and objectives of the assessment, designed to capture both quantitative and qualitative data were developed. All tools were finalised after consultation with Hindalco team. Tools for the study included:

- One-to-one surveys
- Focus Group Discussion
- Key Informant Interviews

Stakeholder Consultation:
Data was collected during field visits to 3 study locations.

Sampling:
A mix of stratified random and purposive sampling method was employed to ensure a structured, representative sample reflective of the target geography.

Impact Assessment: Approach & Methodology

Data Analysis:
The data collected through stakeholder consultations was subjected to both qualitative and quantitative analyses. Triangulation of data was done through:

- Comparing quantitative findings with other data sources such as qualitative interviews or focus group discussions.
- The OECD-DAC evaluation framework has been applied to assess the programme's impact, encompassing dimensions such as design, planning, implementation, monitoring, and evaluation.

Report Preparation

- The results of the study are compiled in a detailed final report, encompassing key findings and actionable recommendations for improving future research and practices.
- The report has been structured in accordance with the OECD-DAC framework to ensure consistency and rigour in evaluation.

Ethical Considerations for Data Privacy

KPMG has followed the guidelines outlined as per the latest Digital Personal Data Protection (DPDP) Act guidelines by implementing robust data governance frameworks, conducting internal compliance reviews and ensuring protection of data.

For the data collection process, KPMG has adhered to ethical considerations for data privacy:

a. Informed Consent: All participants were briefed about the purpose of data collection and asked for consent before participating.
b. Confidentiality: Personal identifiers were removed or anonymised to protect participants' identity.
c. Secure Data Storage: All collected data has been stored in secure, access-controlled environments to prevent unauthorised access.
d. Limited Access: Only authorised personnel involved in the project have access to the project data.
e. Use of Data: Data is used solely for research and program evaluation purposes, in line with the consent provided by participants.

Key Assumptions & Limitations of the Study

Assumptions:

1. The analysis is based on the assumption that responses provided by beneficiaries and stakeholders reflect their actual experiences and outcomes.
2. Data collected through surveys and interviews is assumed to be accurate, consistent, and representative of broader programme impact.
3. Findings rely on the premise that programme design and implementation were carried out as intended and that observed changes can be reasonably linked to interventions.
4. External data and secondary sources used in the study are considered reliable, though not independently verified.
5. The theory of change framework assumes a logical linkage between inputs, outputs, outcomes, and long-term impact.

Limitations:

1. The assessment is restricted to selected programmes and sample respondents, and may not fully capture the impact across all beneficiaries or locations.
2. Findings are based on self-reported data, which may be subject to recall bias or respondent perception.
3. The study does not constitute an audit or formal assurance exercise, and conclusions are indicative rather than definitive.
4. Outcomes are assessed based on information available at the time of the study, and may change with evolving programme implementation.
5. External sources and publicly available data were not independently validated, which may affect reliability in certain cases.
6. The study involves assumptions and inherent uncertainties, and results should be interpreted within these constraints.

These considerations should be taken into account when interpreting the findings and applying them for decision-making or future programme design.

About the project: Livelihood Infrastructure Program

Project Rationale:
Communities across Renusagar, Renukoot, and Belagavi depend heavily on agriculture and livestock for their livelihoods, yet recurring water scarcity, declining groundwater levels, and erratic rainfall constrain agricultural productivity and income generation. Limited water availability often restricts cultivation during rabi and summer seasons, reduces crop yields, affects livestock management, and increases vulnerability to climate variability. To address these challenges, Hindalco implemented the Livelihood Infrastructure Programme through the construction of check dams and water-harvesting structures aimed at enhancing groundwater recharge, improving year-round water availability, and strengthening irrigation access. By improving water security, the programme seeks to support agricultural productivity, enable multiple cropping cycles, enhance livelihood resilience, and strengthen long-term income security for rural households.

Introduction to Hindalco's program:
Against this backdrop, the Livelihood Infrastructure Program focuses on constructing check dams to improve local water availability and strengthen livelihood resilience. These structures help conserve rainwater, enhance groundwater recharge, and ensure a more reliable water supply for irrigation, livestock, and domestic needs. By stabilizing water resources, the program enables farmers to cultivate more sustainably, adopt multiple cropping cycles, and reduce climate-related risks, ultimately contributing to improved agricultural productivity, higher incomes, and more secure rural livelihoods.

FY 2022-23
Implementation year under Impact Assessment study

FY 2025-26
Assessment year

3 CSR units
Study locations: Renusagar, Renukoot, & Belagavi

761
Project beneficiaries across study locations

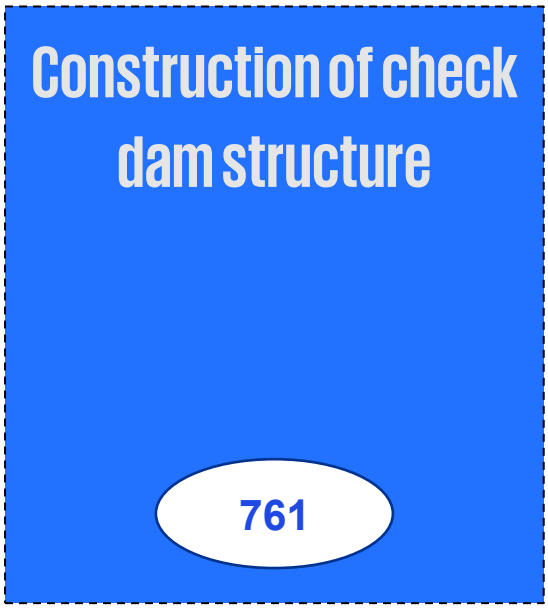
Stakeholders

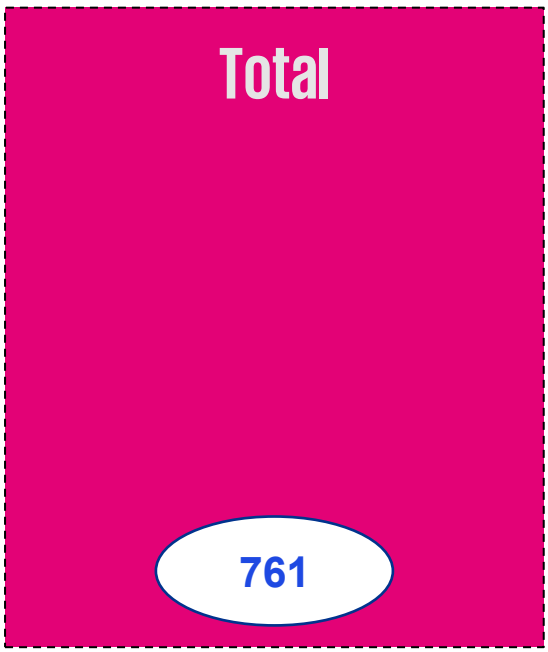
Farmers

Farmer Producer Organisations

Village Panchayat/Local Governance Bodies

Program Activities and Outreach (FY 2022-23)





Project's Theory of Change

Project name: Livelihood Infrastructure					
	Strategic planning		The effects		
Stakeholders	Intervention	Activities	Output	Outcomes	Impact
Community Members	Check Dams	Construction of check dam structure	Number of check dams constructed 761 beneficiaries directly covered through water-harvesting interventions	Increased groundwater levels in wells and borewells More water availability for irrigation and drinking Higher crop yields and cropping intensity Improved livestock water availability	Enhanced water security for the village Climate-resilient agriculture and stable farmer incomes Sustainable groundwater recharge and reduced dependency on tankers

Study Outreach

The table below presents the number of beneficiaries engaged under each intervention and project activity. Since several respondents participated in multiple interventions, there is an overlap in beneficiary counts across activities. To ensure accurate representation and avoid duplication, a unique beneficiary count has also been provided.

Intervention	Renusagar	Renukoot	Belagavi	Total
Construction of check dam structure	83	15	26	124
Total	83	15	26	124
Unique Respondents	83	15	26	124
Grand Total	***124 Surveys (124 respondents) + 2 IDI (126 respondents)***			

Note: Study outreach has been mentioned for those CSR units where the intervention has been performed.

IDIs were conducted with 2 village sarpanches.

Respondent Profile

This profile summarises 124 community members surveyed under the Livelihood Infrastructure (check dam) program across 10 villages in three Hindalco CSR units, Renusagar (n=83), Belagavi (n=26) and Renukoot (n=15). All respondents had availed services under the project; the cohort is predominantly smallholder farming households from economically weaker sections.

Total Respondents
124
Community members surveyed across 3 CSR units

Villages Covered
10
Villages reached under the check dam program

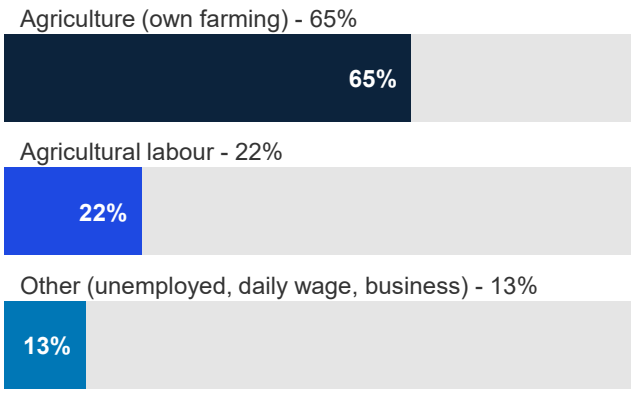
Average Age
44 yrs
Respondents aged 18–77 (median 42)

Gender Split
63 : 36
Men to women (%); 1 identified as other

BPL Households
81%
Hold Pink/Red BPL ration cards (n=100)

No Formal Schooling
33%
Have no formal education (n=41)

Primary Occupation of Respondents (n=124)



Pre-intervention status

1. Low Soil Moisture and Poor Water Retention
2. High Dependence on Rainfall
3. Reduced Crop Productivity
4. Travel Longer Distances for Livestock Water

Key Insight:
The respondent base is overwhelmingly agrarian and economically vulnerable - 87% depend on agriculture or farm labour, 81% hold BPL ration cards, and roughly 91% earn under ₹75,000 a year. One in three has no formal schooling and women make up 36% of those interviewed. This confirms the program reaches its intended beneficiaries: smallholder farming families whose livelihoods are directly tied to water availability. Renusagar dominates the sample (78%) and Belagavi adds 21%, while Renukoot's (n=15) contribution is low at 12%.

Key Outcome Indicators

Across 124 households the check dams have produced broad, measurable gains in water security and agriculture. The indicators below summarise self-reported outcomes mapped to the program's Theory of Change - groundwater recharge, water for irrigation and drinking, crop productivity, and livestock water.

Higher Water Levels
81%
Report well/borewell water levels rose (n=101)

Reliable Drinking Water
90%
Say drinking-water reliability improved (n=111)

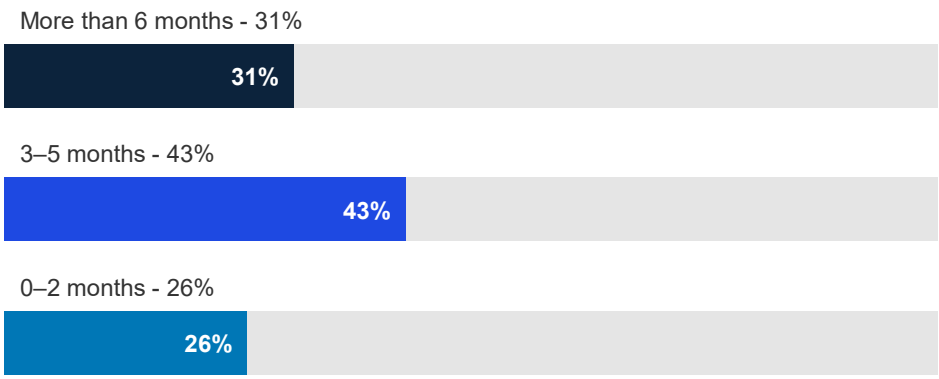
Wells Dry Less Often
88%
Wells run dry less often in summer (n=109)

Higher Crop Yields
100%
Report higher yields - 47% significantly

Expanded Irrigation
34%
Can irrigate >50% of land in rabi/summer

Livestock Water
100%
Have year-round / most-year livestock water

Additional Months of Usable Water from Wells/Borewells (n=124)

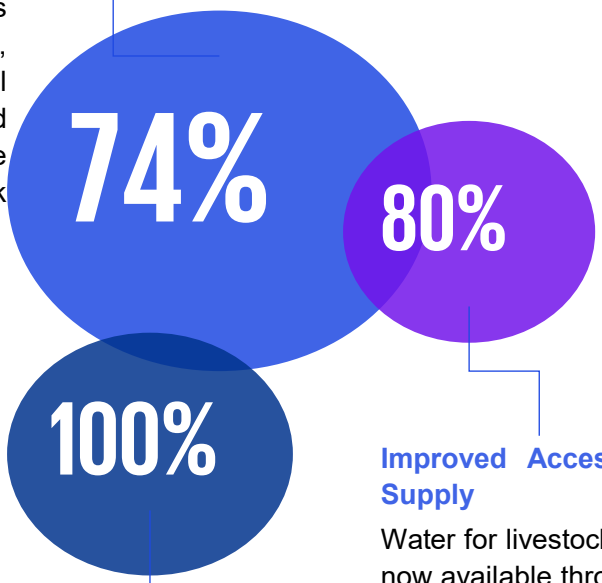


Key Insight:
The program's strongest, near-universal gains are in water reliability and crop productivity: 90% report more reliable drinking water, 88% say wells run dry less often, and every respondent reports higher crop yields. The clearest gap is irrigation reach - only 34% can yet irrigate more than half their land in rabi/summer, suggesting improved groundwater is not always translating into expanded productive use. The following slides show this gap is concentrated in Renusagar.

Study Findings

Impact on crop yield

Crop yield has improved as compared to before, supported by increased soil moisture retention and reliable irrigation made possible through the check dam structures.



Improved Access to Livestock Water Supply

Water for livestock drinking and cleaning is now available throughout the year near the village, improving animal well-being, reducing stress during dry months, and saving farmers considerable time previously spent fetching water.

Addition of new crops

Sampled farmers reported adding new of high-end crops because of improved water. The addition of high-value crops has enabled farmers to shift from low-return staples to more profitable varieties, increasing income stability and market opportunities.

The livelihood infrastructure project has contributed significantly to improving household incomes across the region. Farmers who previously practiced agriculture mainly for self-consumption have now begun cultivating crops such as mustard and *tuar* dal for both household use and market sale, leading to a substantial rise in earnings. With project support, agricultural production has nearly doubled, enabling families to participate more actively in local markets.

Earlier, communities were largely dependent on rainfed agriculture; however, the introduction of a lift irrigation pipeline in Renukoot- where Hindalco has provided the infrastructure and users only need to arrange for operation and maintenance costs, has greatly improved water availability. This intervention has ensured reliable access to irrigation even for farmers with far-flung farmlands, strengthening resilience and expanding opportunities for year-round cultivation.

Comparative Analysis by CSR Unit

Table 3: Comparative Analysis by Hindalco CSR Unit

Outcome Indicator	Renusagar (n = 83)	Belagavi (n = 26)	Renukoot (n = 15)	Overall (n = 124)
Water level rose (mod./sig.)	77%	100%	0%	81%
Wells run dry less often	85%	100%	100%	88%
Fewer summer shortage days	85%	100%	0%	87%
Drinking water more reliable	87%	100%	100%	90%
6+ extra months of water	27%	46%	100%	31%
Irrigate >50% of land (rabi)	15%	100%	100%	34%
Crop yield up (mod./sig.)	67%	100%	100%	74%
Added higher-value crops	0%	100%	100%	22%

**NA: These units did not have applicable responses for enrolment awareness campaigns. Green = Strong (80%+), Yellow = Moderate (13%-80%), Red = Weak (<13%). Gray = Not Applicable.*

Key Takeaways

- Belagavi shows uniformly strong outcomes - 100% of respondents report gains on every indicator, including irrigation reach and adoption of higher-value crops.
- Renusagar shows broad but shallower gains: strong on water reliability (85–87%) yet weak on irrigation reach (15%) and higher-value cropping (0% beyond small trial plots).
- The widest unit gap is irrigation - Belagavi 100% vs Renusagar 15% can irrigate more than half their land in the rabi/summer season.
- Renukoot (n=15) reports mostly strong outcomes.

Narrative Interpretation: Unit-Level Divergence

Renusagar (n=83)

Renusagar accounts for 78% of the sample and shows broad but shallow gains. Water reliability improved strongly - 85% report wells running dry less often and 87% confirm better drinking water. Productive use, however, lags badly: only 15% can irrigate more than half their land in rabi/summer, and every respondent who adopted new crops did so only on small trial plots (0% on moderate or large areas). Yields rose for two-thirds of households (67% moderately or significantly), but limited command area and storage appear to cap the conversion of recharge into income.

Belagavi (n=26)

Belagavi is the benchmark unit - 100% of respondents report gains on every single indicator. All can irrigate more than half their land, all added higher-value crops on moderate or large areas, and all report higher yields and reliable water. Open feedback points to mature, well-sited check dams reinforced by complementary assets - borewells and a village lake in Kakati and Kanbargi. Belagavi demonstrates the complete pathway: recharge translating into irrigation, crop diversification, and more stable farm incomes.

Renukoot (n=15)

Renukoot is represented by few respondents and is included only for completeness. That respondent reports strong outcomes - more than six additional months of usable water, irrigation of over half the land, higher-value crops, and improved yields. With n=1 these results carry no statistical weight and must not be generalised. A substantially larger sample would be needed before any reliable unit-level conclusion could be drawn for Renukoot.

Cross-Unit Synthesis

The divergence is not about whether check dams work - water reliability improved across all units - but about converting that water into productive use. Belagavi closes the loop from recharge to irrigation to higher-value cropping; Renusagar stops at reliability, with crop adoption stuck on small trial plots. The differentiator is complementary infrastructure and command-area development. This signals clearly where the next phase of investment should focus: helping Renusagar move water from the well to the field.

Mapping to Theory of Change

Table 4: Comparative Analysis by Hindalco CSR Unit

ToC Pathway	Outcome (Theory of Change)	Finding from Study	Assessment
Outcome: Groundwater	Increased groundwater levels in wells & borewells	81% report higher water levels; 88% say wells run dry less often; 31% gained 6+ extra months of usable water.	**Meets Expectations**
Outcome: Drinking water	More reliable water for drinking & household use	90% report more reliable drinking water, with consistent gains across all units.	**Meets Expectations**
Outcome: Irrigation	More water available for irrigation	Only 34% can irrigate >50% of land in rabi/summer - Renusagar 15% vs Belagavi 100%. Reach is uneven.	**Partially Meets**
Outcome: Crop yield	Higher crop yields & cropping intensity	100% report higher yields (47% significantly), but higher-value crops remain mostly small trial plots (22% on moderate/large area).	**Partially Meets**
Outcome: Livestock water	Improved livestock water availability	All respondents have livestock water near the village - 79% most of the year, 21% year-round.	**Meets Expectations**
Impact: Water security	Enhanced village water security; reduced tanker dependence	87% face fewer summer water-shortage days; sustained recharge is easing seasonal scarcity.	**Meets Expectations**
Impact: Livelihoods	Climate-resilient agriculture & stable farmer incomes	Yield and water gains are real, but income uplift is capped where irrigation reach is low (Renusagar); strong in Belagavi.	**Partially Meets**

Recommendations

01 Build irrigation command-area infrastructure

Unit: Renusagar (n=83)

Only 15% of Renusagar farmers can irrigate over half their land. Invest in field channels, lift irrigation and drip systems so the improved groundwater actually reaches fields - the single largest opportunity to raise outcomes.

02 Move crops beyond trial plots

Unit: Renusagar (n=83)

Every new-crop adopter in Renusagar stayed on small trial plots. Add agronomy support, quality inputs and market linkages so households can scale higher-value crops to commercial areas and convert water into income.

03 Extend water with storage & recharge

Unit: Renusagar (n=83)

Just 27% of Renusagar wells yield water for 6+ extra months. Augment check dams with added recharge and storage structures to stretch usable water through the dry season toward Belagavi's levels.

04 Document & replicate the model

Unit: Belagavi (n=26)

Belagavi achieves 100% on every indicator. Codify its Kakati/Kanbargi package - well-sited check dams plus borewells and a village lake - as a replicable blueprint to transfer to Renusagar and new sites.

05 Sustain gains through O&M

Unit: Belagavi (n=26)

Protect Belagavi's results over time. Set up Water User Associations and a maintenance fund to guard against siltation and structural decline, ensuring the gains endure beyond the project period.

06 Strengthen inclusion & year-round water

Unit: All units

Women are only 36% of respondents. Expand their role in planning and Water User Associations, and push livestock and drinking water from 'most of the year' (79%) to fully year-round across all units.

Cross-Cutting Recommendations

- **Measure productive use, not just water:** Track irrigated area and cropping intensity alongside recharge, so success reflects income impact rather than water availability alone.
- **Institute annual outcome monitoring:** A simple yearly system tracking water-months, irrigated share, crop value and gender split would surface unit-level divergence - like the Renusagar–Belagavi gap - early enough to act.
- **Sequence investment for conversion:** Prioritise turning Renusagar's strong recharge into irrigation and income by replicating Belagavi's end-to-end pathway; expand the Renukoot sample before scaling there.

Glimpses from the ground

Figure 1: Check dam visit in Ashnar village, Babni block, Renukoot

Figure 2: Check dam visit in Supachua village, Renukoot

Case Study

Background (2022–2023)

During 2022–2023, the villages of Kakati and Kanbargi were facing serious water-related challenges. Summers were extremely difficult: wells and borewells dried early, crops failed due to lack of irrigation, and households struggled to get enough drinking water. Farmers could irrigate only a small part of their land, and many avoided rabi and summer crops because the risk of losing their harvest was high. Livestock also faced shortages, creating additional stress for families whose livelihoods depended on agriculture and dairy.

Hindalco's Support:

Hindalco's contribution during this period played a major role in improving the village water situation and strengthening agricultural livelihoods. The construction of check dams in Kakati and Kanbargi helped store rainwater and increased groundwater levels. As a result, wells and borewells now give water for more months of the year, and households experience far fewer water shortage days in peak summer. The rejuvenation of the village lake and the addition of new borewells improved drinking water access and reduced the daily burden on families.

A major transformation happened with the revival of the Rani Channamma Kalve, which now carries water directly to farmers' fields. Many farmers started using drip irrigation, allowing them to save water and grow crops even in dry months. This reliable water supply helped them expand irrigation to a larger share of their land and confidently cultivate rabi and summer crops. Several farmers were also able to shift to higher-value crops, improving their income.

Livestock water availability improved throughout the year, reducing stress on cattle and helping families maintain dairy activities. The overall increase in water availability also boosted crop yields and strengthened household food security.

Outcome

Over time, these improvements have made farming more stable and profitable in Kakati and Kanbargi. Families now feel more secure, knowing they have better access to water for drinking, irrigation, and livestock. The community has developed renewed confidence in their ability to farm year-round, and Hindalco's interventions have created long-term resilience in the livelihoods of the villages.

Figure 3: Check dam visit in Belagavi

Thank you

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