



Cattle Shed Lighting

North Karnataka

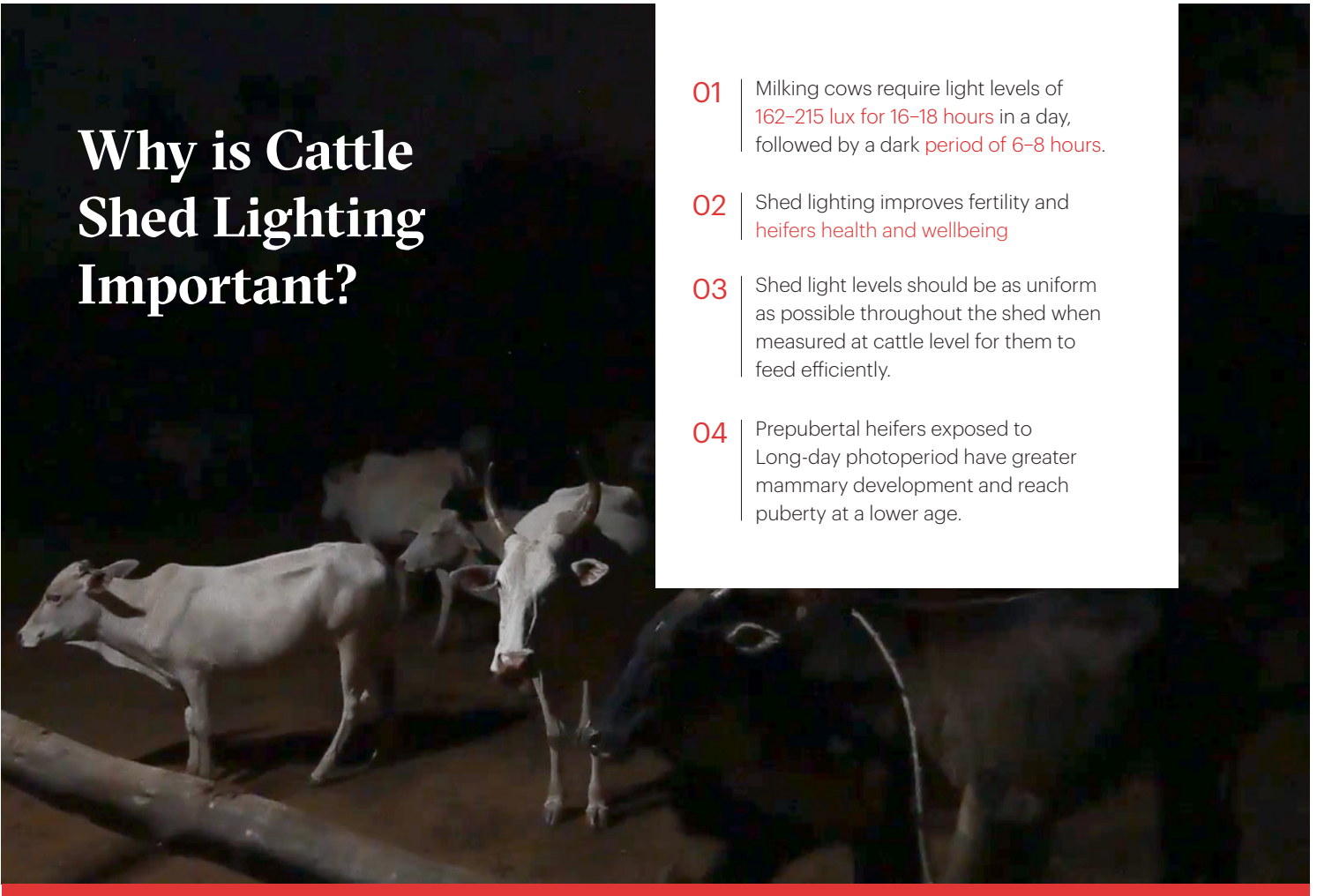
Pathway to Alleviate Energy Poverty

Strengthening the Ecosystem for enabling
Sustainable Dairy Entrepreneurship
through DRE driven solutions.



Why is Cattle Shed Lighting Important?

- 01 | Milking cows require light levels of 162-215 lux for 16-18 hours in a day, followed by a dark period of 6-8 hours.
- 02 | Shed lighting improves fertility and heifers health and wellbeing
- 03 | Shed light levels should be as uniform as possible throughout the shed when measured at cattle level for them to feed efficiently.
- 04 | Prepubertal heifers exposed to Long-day photoperiod have greater mammary development and reach puberty at a lower age.



Stages of Cattle Shed Lighting Implementation in North Karnataka



2021

19 Varavanagalavi
Village Gowli
Community



2022

255 Koppal Marginalised
& Gowli Community



2024

300 Koppal Marginalised
Community



Varavanagalavi Village Gowli Community



Community Details:

- Reside in **Karnataka, Goa, and Maharashtra**
- **Gowlis of Varavagalavi in Dharwad** district live in Western Ghat foothill (population: 200)
- **Descendants of Yadavas**
- **Migrated 40 years ago** from Hunasikumari village, Dharwad.
- Lives in **forest dwelling**



Cultural Insights:

- Worship cows as "Amma".
- Strong religious ties to Lord Krishna.
- Prioritize nourishing livestock; calves fed first.



Occupation:

- Animal herding and dairy
- Major buyer: Big Mishra & Local Market (Producers of Dharwad pedha).
- 21 households rear 2,400 cattle, goats, and hens



Challenges to the community:

- Despite livestock richness, remains financially constrained.
- Remains distant from mainstream society.
- Lacks Basic Amenities: No roads, electricity, sanitation, education, or healthcare
- Housing: Resides in non-durable haystack houses.
- Charging Woes: 3 km daily treks to charge phones at INR 10/hr
- Nighttime: Relies on phone flashlights or kerosene lamps



Challenges to community children

- Education Access: None.
- Nutritional Challenges: Prevalent malnourishment.

Varavanagalavi Village Gowli Community





Problem Statement

Marginalised tribal community are remotely located and face challenges of poor access to basic facilities, electricity, health & education.

Excluded from existing govt. welfare schemes

Traditional occupation of cattle rearing & dairy

Poor condition of cattle sheds with no lighting affecting the cattle health, safety & productivity directly impacting their livelihoods

Timeline of Implementation of Cowshed lighting in Varavanagalavi Village



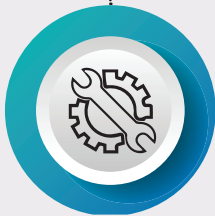
Need Assessment

Milkman from Mugad village Dharwad District helped SF team locate the community



Capacity Building

Community interaction and problem identification and introduction to DRE solution.



Baseline Assessment

Identified need of basic amenities such as electricity, sanitation and education in the community.



Financial Institute

Only 4 family in the community had bank accounts. The SF team had a meeting with KVGB Mugad Branch. The Manager visited the vulnerable community and decided to sanction loan. SF team further organized a community meeting with Bank Manager. The Manger conducted a due diligence.



Loan Sanction

After eligibility check loans were sanctioned.

Loan Details: Loan amount - 6500/- Loan Sanctioned - 19 families.

ROI - 12%. Scheme - Sourava Kirana Scheme. Term - 1 year



Installation

Installations were completed after a week of loan sanction.





Solution Provided in Varavanagalavi Village

Initial Lead:

- North Karnataka's Animal Husbandry team learned about the community through a local milkman.
- Team did their research & decided to visit community, which helped them to come to the decision to intervene and help the community access energy.

Banking Challenges:

- Only 4-5 community members had a bank account.
- Loan approval was tough due to lack of CIBIL scores and identification documents.

Intervention Costing:

Total project cost: INR 9,500

KVGB loan: **INR 68.42%**

SELCO Foundation: INR 31.58%

Energy Solutions:

Installed: 5W bulb outside & **10W bulb** inside community huts.

Added a solar mobile charging point.

Overall Impact in Varavanagalavi Village



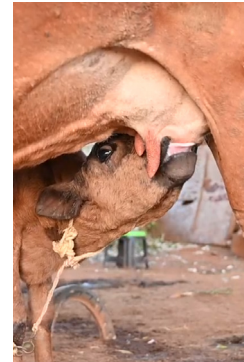
Livestock/cattles are now safe from wild animal attacks and harmful insect bites.



The nighttime activities related to cattle, like milking and calving, have become easier and less stressful.



Children and Women well being improved



Mortality rate and sickness of cows reduced.



Hamlet can be easily spotted by the villagers due to lighting at night time.

Koppal Gowli Community

Communities & Livelihood in Koppal



Cattle Rearing: Marginalized communities & Gowlis historically depended on cattle for livelihood.

- **Shift in Livelihood:** Now, fewer Gowlis rear cattle, previously selling products like yoghurt, paneer, clarified butter. The youth interest is shifting towards government jobs, business, construction.
- **Ancestral Traditions:** Communities uphold customs & work to maintain gene pool purity.



Locations:

- Hirebidnal village, Yelburga block
- Katagihalli village
- Koppal Bandi
- Kuknoor block

Hindu Seva Pratishthana (HSP) & SELCO Foundation Partnership



HSP Mission & Vision:

- “Service to society is obligatory”
- “Service brings life contentment.”
- A self-reliant society addressing local social issues.



HSP in Koppal:

Adopted 30 villages; run programs like mathru mandali, palakara sabhe, grama vikas training, and seva kirana.



HSP's Programs:

- **Education:** Provides culture-based education.
- **Skill Training:** Offers tailoring, IT, saloon, and kasuti training for unemployed youth.



Cow Shed Lighting Program:

HSP & Selco Foundation identified 255 financially vulnerable dairy farmers (parents of seva kirana pupils) & assisted in lead generation and margin money.



Problem Statement

Marginalised tribal community, remotely located and poor access to basic facilities, health & education.

Excluded from existing govt. welfare schemes.

Traditional occupation of cattle rearing & dairy.

Poor condition of cattle sheds with no lighting affecting the cattle health, safety & productivity directly impacting their livelihoods



Solution Provided in Koppal

Hindu Seva Pratishthana selected 255 marginal dairy farmers from their seva kirana program. These farmers lived in vulnerable conditions with no access to basic amenities like as electricity, water and sanitation.

Intervention Costing:

Total Cost: **INR 12,100**

End User : **29.34%**

SELCO Foundation: **41.32%**

Hindu Seva Pratishthana: **29.34%**

Energy Solutions:

Solar Setup: **40 Wp solar panels**

20 Ah battery capacity

Lighting:

2 LED lights: **5W and 10W**

Overall Impact in Koppal

Livestock/
cattles are now
safe from wild
animal attacks
and harmful
insect bites.



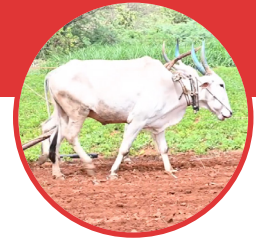
The nighttime
activities related
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There's an
increase in the
productivity or
milk production
from cattles
(upto 5-10%).



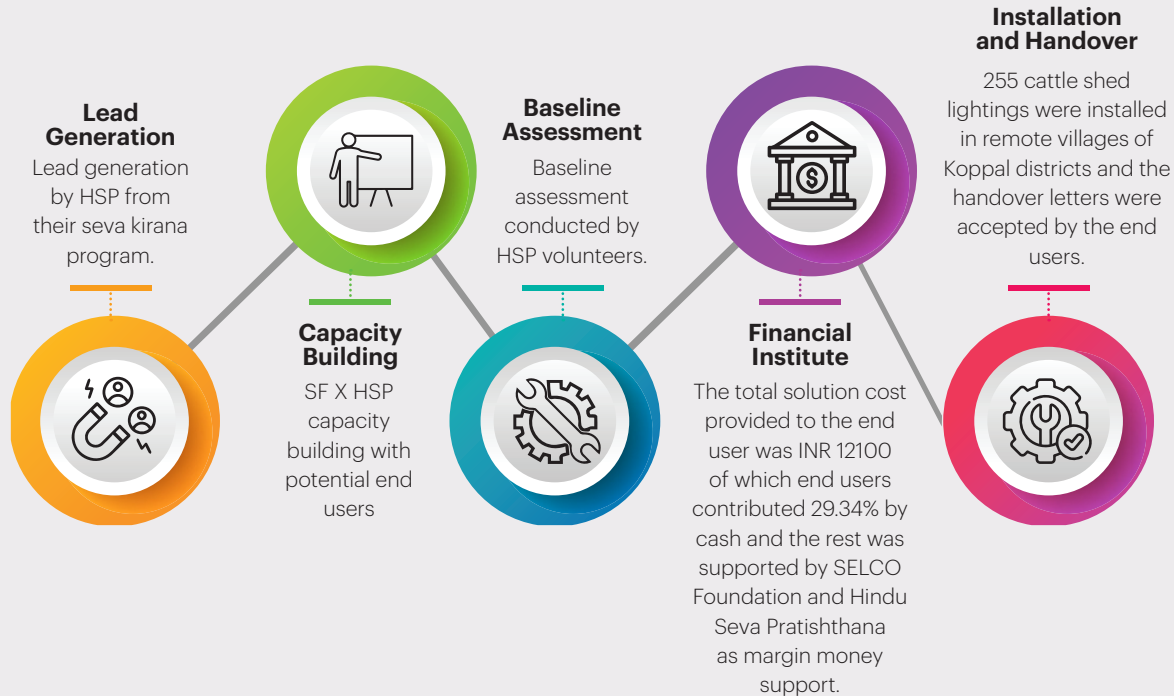
Mortality
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Impact in Varavanagalavi Village & Koppal

Impacts/Districts	Varavanagalavi	Koppal
<p><u>Livestock & Farming:</u></p> <p><u>Economic & Productivity Impact:</u></p> <p><u>Community & Lifestyle:</u></p>	<p>Before the intervention, the community faced the loss of 4-5 cattle due to insect and snake bites; now, these cattle are protected and saved.</p> <p>Community's net profit surged due to increased milk production.</p> <p>Children attend a local government school and can do their evening assignments because of electricity.</p> <p>Improved daily routines for women; they return home alongside their husbands post-cow care.</p> <p>Enhanced community hygiene.</p>	<p>Cattle milking become simpler due to cow shed lighting. Cattles are now more relaxed feeding at night.</p> <p>Enhanced cow activity, fertility, and growth have been observed, potentially leading to increased productivity.</p> <p>Night-time calving, previously a major stress source for farmers, especially during complications, has now been eased.</p>

Timeline of Koppal Programme



Way Forward – Koppal

- Based on the impact evaluation, NGO Partner decided to adopt the solution in several other villages of Koppal district by March 2024.
- Future scaling will be determined on need assessment and impact analysis.
- Marginal and smallholder dairy farmers will be screened via partner NGOs.



Ecosystem in Koppal

Way Forward

Developing models for Sustainable and Green Cattle Sheds in North Karnataka

Templates and guidelines for thermally comfortable and energy efficient cattle sheds for improved quantity and quality of milk, cattle health and value addition of services

Access to Financing and Unlocking government schemes

Alignment with policies, schemes and financial institutions to disseminate with entrepreneurs and farmers.

Developing efficient dairy technologies for marginalised communities

Research and development in technologies for cooling, yield increase, farmer drudgery reduction as well as cattle wellbeing.

Field Stories





Basappa Policepatil, Chikkoppa

Mr. Policepatil owns a small scale dairy farm with 5 cattles in his farmland which has no access to grid electricity. His 23 year old son died of a snake attack while he was providing feed to the cattle post sunset, he could not spot the snake in pitch dark cattle shed. Mr. Policepatil stated that his son would have been alive if the Solar powered cow shed lighting was provided to them two years before the allocation.”

Impact:

- Insect and snake attack is reduced.
- Milk production has increased by 10%
- Hygiene in the shed has increased

Yellavva, Belotgi Thanda

Yallavva from Belotgi Thanda is a dairy farmer and the sole breadwinner of the family. She rears three cattles in her remote farmer land which has no access to electricity and basic amenities. Night-time calving caused a significant source of stress to the farmer as the cow encountered difficulties and eventually lead to perinatal mortality.

Impact:

- Livestock is safe from insect attack and snake bites
- Night feeding and calving is easy.
- Milk production has increased by 5-10%.





Venkatesh, Belotgi Thanda

Venkatesh is a dairy farmer from Belotgi Thanda, Koppal had a thatched roof cow shed where he reared 4 cattles, the shed had no access to electricity and basic amenities. Ticks attacked the cattles in dark after dusk. As cattles fell ill due to ticks attack, the farmer sold 3 cattles which caused loss of income.

Impact:

- The farmer bought 4 new cattle and built a new shed after adopting DRE solution.
- Milk production has increased by 5%
- Maintaining shed hygiene is simple
- Insect and snake protection.



Basappa Manaji, Chikbidnal

Basappa Manaji is a livestock farmer from Chikbidnal, Koppal. He rears goats, hens and cattles. Due to remoteness of his farm, the farmland has no access to electricity and basic amenities. As his farm is closer to forest, the livestock frequently encountered animal attack and the labours were often afraid to watch over the herd at night alone. Due to which the farmer had to hire two labours instead of one.

The cattles suffered insect attack after dusk leading to frequent illness, decreased productivity and mortality.

Impact:

- Post implementation, the farmer is confident in expanding his business.
- Milk production has increased by 10%
- Maintaining shed hygiene is simple
- Insect and snake protection.
- Labour has decreased.

Venkatesh, Belotgi Thanda

Girish Desai is a dairy farmer from Hirevankalakunta, Koppal. He owns 4 cattles in his farmland. Due to land ownership issue the farmer is unable to gain permit for land electrification. The cattles suffered insect attack at night, night feeding was difficult, the productivity of cattle had decreased which has a negative impact on farmer' income.



Impact:

- The farmer expanded his cattle shed and bought 2 new cattles after DRE implementation.
- Milk production has increased by 8%
- Night feeding and calving is hassle free.
- Cattles are safe from insect bite and snake attack.



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