



सत्यमेव जयते
Ministry of Rural Development
Government of India



ग्रामीण विकास मंत्रालय
भारत सरकार
MINISTRY OF RURAL
DEVELOPMENT
GOVERNMENT OF INDIA



National Workshop on Promoting Micromobility through Electric Bicycles

Date: 16 March 2026

Venue: Leader's Lounge, L2, Bharat Mandapam, New Delhi

Event Report

I charge under half a unit of electricity at home

Just plug into a standard 220V socket.

I run for just 7 p... se a kilometre.
Efficient electric mobility
for daily work.

I handle the load, you l...
Strong cargo platform
loads up to 130 kg.

I never leave you stranded
Pedal-assist or throttle

I support your livelihood.
... for delivery, service

I help y...
... sing



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Executive Summary

The **National Workshop on Promoting Micromobility through Electric Bicycles**, jointly organized by the **Ministry of Rural Development (MoRD)**, **Energy Efficiency Services Limited (EESL)** and its subsidiary **Convergence Energy Services Limited (CESL)**, convened a wide range of national stakeholders—including central ministries, state rural livelihood missions, leading e-bicycle manufacturers, academic institutions, development agencies, and sector partners. The workshop highlighted the **transformative potential of electric bicycles** in strengthening rural mobility, advancing women’s economic empowerment, and accelerating India’s transition toward **clean, low-carbon transport solutions**.

Purpose and Focus

The workshop centred on three strategic pillars:

- **Strengthening the domestic e-bicycle manufacturing ecosystem** by driving affordability, ensuring quality, and promoting models suited for rural livelihood needs.
- **Facilitating development of interministerial coordination for building a coherent national policy framework** through harmonized standards, aligned incentives, and strong inter-ministerial collaboration.
- **Integrating micromobility into livelihood programs** by embedding electric bicycles within SRLM operations to improve productivity and income for SHG women.

Key Proceedings

- **Inaugural remarks** by EESL leadership emphasized electric bicycles as low-emission, affordable mobility tools with significant livelihood and gender inclusion benefits.
- **Panel I (Industry & Academia)** highlighted the need to scale production, reduce costs, localize components, and strengthen rural servicing and repair networks
- **Panel II (Policy & Ministries)** stressed inter ministerial convergence, reducing import dependence, leveraging PLI and Start-Up India frameworks, and strengthening quality compliance.
- The **arrival of Hon’ble Minister Shri Kamlesh Paswan** added momentum to the deliberations and reinforced government commitment to women-led development and sustainable mobility.
- **Live demonstrations** showcased the practicality, load-carrying capacity, and terrain suitability of electric cargo bicycles, supported by **firsthand testimonials from SHG women** using these vehicles for livelihood activities.
- **Pilot findings** from four states (Bihar, Kerala, Andhra Pradesh, Madhya Pradesh) demonstrated clear improvements in mobility access, reduced travel costs, increased income opportunities, and enhanced confidence among women beneficiaries.
- The Minister launched the **STREE Impact Assessment Report** and the **STREE Mascot**, symbolizing the programme’s commitment to women’s empowerment and green mobility.

- **Panel III (State Implementations)** presented practical strategies for integrating e-bicycles into state livelihood missions—including shared procurement models, servicing networks, operational convergence, and climate co-benefits.

Key Outcomes

- **Consensus on the need for a unified national framework** to standardize, scale, and mainstream e-bicycles as livelihood and service-delivery assets.
- **Recognition of electric bicycles as powerful tools for women's empowerment**, reducing physical drudgery, improving mobility autonomy, enhancing market access, and enabling higher income-earning potential.
- **Agreement on strengthening state-level operational models**, including charging solutions, servicing ecosystems, tailored financing mechanisms, and integration with existing livelihood value chains.

Smt. **Smriti Sharan, Joint Secretary, MoRD**, acknowledged the significant contributions of knowledge partners—including **IIT Bombay, TERI, PCI, Shakti Sustainable Energy Foundation, the Bill & Melinda Gates Foundation, and Ernst & Young LLP**—whose research, analytical support, and field insights have shaped the programme's evidence base.

The **Asian Development Bank (ADB)** was also recognized for its pivotal role as funding partner for the STREE programme through **GEF-7**, which has been instrumental in enabling successful pilot implementation and laying the foundation for scale-up.

Overall Summary

The workshop succeeded in establishing a clear, shared vision for advancing electric micromobility across India's rural and peri-urban landscapes. Through deliberations, demonstrations, and stakeholder engagement, the event underscored that **electric bicycles are not only a clean mobility solution—but also a strategic enabler of women's empowerment, income enhancement, and climate-aligned development**. The commitments and insights emerging from the event provide a strong basis for coordinated national action to scale electric micromobility and integrate it into India's broader livelihood and mobility architecture.

Introduction

The National Workshop on Promoting Micromobility through Electric Bicycles, held on 16th March 2026, was convened as a high-level, multistakeholder platform jointly organized by the Ministry of Rural Development (MoRD), Energy Efficiency Services Limited (EESL), and its subsidiary Convergence Energy Services Limited (CESL). Designed as a strategic gathering of policymakers, industry leaders, technical experts, multilateral institutions, and State Rural Livelihood Mission (SRLM) representatives—including SHG women from multiple states—the workshop aimed to build a shared understanding of the transformative potential of electric bicycles (e-bicycles) in advancing India’s mobility, livelihood, and sustainability priorities.

The workshop brought together senior officials from key Government of India ministries, leading manufacturers and technology innovators from the e-bicycle ecosystem, academic and research institutions, development partners, and representatives from various states. By providing a common platform for evidence-based discussions, the event sought to move beyond pilot-level insights and explore scalable pathways for integrating electric micromobility into national and state-level programs.

A central theme emphasized during the workshop was the recognition that electric micromobility—especially electric cargo bicycles—offers a powerful, low-cost, and inclusive mobility solution capable of addressing last-mile connectivity gaps, improving rural service delivery, and strengthening local economies. E-bicycles are uniquely positioned to support livelihood diversification, enable women’s mobility, and expand access to essential services across rural, peri-urban, and tier-II/III geographies. Their affordability, ease of operation, and minimal infrastructure requirements make them particularly suitable for communities traditionally underserved by mainstream transport systems.

The deliberations underscored the role of e-bicycles not only as a green transport mode but also as an enabler of women’s empowerment, income enhancement, and community-level socio-economic development. The workshop highlighted how e-bicycles can reduce travel drudgery, open new livelihood avenues, and improve access to markets, health services, and public institutions—ultimately contributing to stronger and more resilient rural mobility ecosystems.

The event was structured around three core thematic pillars:

- **Strengthening the e-bicycle manufacturing ecosystem:** Discussions focused on cost reduction, localization, product standardization, and developing product variants tailored to rural and livelihood-oriented use cases.
- **Developing a coherent national policy framework:** The workshop explored ways to align incentives, regulatory clarity, and programmatic convergence across ministries to ensure affordability, standardization, and predictable demand for electric micromobility solutions.
- **Integrating micromobility into rural livelihood programs:** SRLMs and rural development institutions discussed the importance of embedding e-bicycles within enterprise promotion, value chain activities, and mobility-linked interventions targeted at Self-Help Group (SHG) women.

Alongside formal sessions, the workshop featured live demonstrations of electric cargo bicycles, showcasing product features, load-carrying capabilities, and suitability for various livelihood contexts. State teams from ongoing pilots presented operational learnings, adoption trends, and user experiences from the field. A particularly compelling highlight was the engagement with SHG women beneficiaries, who shared firsthand accounts of how e-bicycles have enhanced productivity, reduced physical effort, expanded income-generation opportunities, and improved access to essential services.

Through a combination of policy dialogue, technical insights, field evidence, and beneficiary testimony, the workshop reaffirmed the Government's commitment to expanding micromobility solutions as a key pillar of inclusive development. The discussions laid the foundation for a coordinated national approach to scaling electric micromobility—anchored in livelihoods, gender empowerment, and climate-resilient mobility transitions.

Event details

Opening Proceedings - Registration and Arrivals

The workshop opened with a structured registration and welcome process. Participants signed in, collected event materials, and engaged informally with colleagues, partner-institution representatives, and visiting delegates. This initial interaction period established a collaborative tone for the day by enabling key stakeholders to reconnect, share early observations, and build rapport before the formal sessions.

After registration, the arrival of speakers, invited guests, and dignitaries marked the official start of the workshop. Senior officials, technical experts, and sector leaders were received and guided to the venue, signalling the shift from informal networking to formal proceedings. The presence of these leaders emphasized the importance of the workshop and demonstrated a shared commitment to advancing electric micromobility solutions in India.

The arrival of dignitaries set the stage for the upcoming sessions, creating a focused and purposeful atmosphere. Participants prepared for a full day of discussions, demonstrations, and strategic dialogues on how electric bicycles can strengthen livelihoods, improve mobility, and support sustainable development across the country.

Figure 1: Registration desk



Welcome Address

The inaugural session began with a warm welcome by Shri Akhilesh Kumar Dixit, CEO, EESL, who formally opened the workshop and set the tone for the day's deliberations. In his remarks, he extended greetings to all dignitaries, partners, and participants, acknowledging the diverse group of stakeholders who had convened to deliberate on the future of electric micromobility in India.

Shri Dixit highlighted the growing relevance of micromobility solutions within India's broader sustainability and rural development agenda, noting that electric bicycles—owing to their low-emission profile, affordability, and operational simplicity—offer a transformative opportunity to reshape mobility systems, particularly in rural and underserved geographies. He emphasized that e-bicycles serve not only as an environmentally responsible mode of transport but also as an enabler of livelihoods, improving market access, productivity, and economic participation for community members.

He further underscored the inherently multi-stakeholder nature of this initiative, pointing out that progress in this space relies on the collective efforts of government ministries, industry players, technical and academic institutions, development partners, and grassroots organizations. Shri Dixit stressed that such collaboration is essential for unlocking the full potential of electric bicycles as tools for enhancing community connectivity, promoting women's empowerment, and driving inclusive socio-economic growth.

The welcome address laid a strong foundation for the sessions that followed, anchoring the day's discussions in a shared vision of sustainable, accessible, and livelihood-driven mobility.

Figure 2: Welcome address by Shri. Akhilesh Kumar Dixit, CEO of EESL



Context Setting

Following the welcome address, Shri Venkatesh Dwivedi, GED (Projects & Business Development), EESL, took the stage to set the overall context for the day's proceedings. In his remarks, he articulated the overarching objectives of the workshop and highlighted the need to strengthen the ecosystem required for large-scale adoption of electric bicycles in India.

Shri Dwivedi underscored the importance of addressing the operational, financial, and structural bottlenecks that currently limit widespread uptake—especially among rural communities, first-time users, and micro-entrepreneurs who stand to benefit the most from affordable and clean mobility solutions. He emphasized that reducing adoption barriers, improving access to finance, ensuring product reliability, and building user confidence are essential steps toward enabling electric micromobility to reach meaningful scale.

He further highlighted the necessity of coordinated institutional action, noting that the successful expansion of electric micromobility depends on alignment across multiple domains—mobility and transport, renewable energy, rural development, livelihoods, and local governance. Shri Dwivedi pointed out that e-bicycles should not be viewed merely as a transport innovation but as an enabler of broader socio-economic progress, with strong linkages to livelihoods, gender empowerment, climate goals, and last-mile service delivery.

By situating electric micromobility within the wider development ecosystem, he positioned the workshop as a critical platform for fostering convergence among ministries, state missions, technical institutions, manufacturers, financiers, and development partners. His remarks reinforced the importance of collaborative action to accelerate the integration of e-bicycles into India's rural and peri-urban mobility landscape and to ensure that the benefits of clean mobility reach the communities that need them most.

Figure 3: Context setting by Shri. Venkatesh Dwivedi, GED (Projects & Business Development), EESL



Post the inaugural remarks, the panel discussions began.

Panel I: Unlocking India's e-Bicycle Market: Manufacturers' Insights on Scaling Production, Demand, and Sustainable Mobility Solutions

Panel I set the stage for an in-depth discussion on the evolving opportunities and persistent challenges shaping India's rapidly growing e-bicycle sector. Moderated by **Shri Rajneesh Rana, Head, CESL**, the session convened a diverse panel of industry leaders and academic experts:

- **Mr. Tushar Choudhary**, Founder & CEO, Motovolt Mobility
- **Mr. Ashwani Gautam**, CEO, Firefox & Hero Lectro; Member, AICMA
- **Mr. Kunal Gupta**, CEO & Founder, e-Motorad
- **Prof. Venkatasailanathan Ramadesigan**, Department of Energy Science and Engineering, IIT Bombay

Together, the panellists offered a holistic view of the current market landscape, emerging technological and business model transitions, and strategic pathways to accelerate e-bicycle adoption—especially for rural and livelihood-driven applications.

Key Points Discussed

Moderator - Head, CESL

Moderating the panel, Head CESL, emphasized that although India has a large traditional bicycle market, the adoption of e-cycles remains low and requires rapid scaling. He highlighted the need to focus on base-level users rather than concentrating primarily on two- and four-wheeler EV segments. Drawing from European experience, he underscored the significant untapped potential for cycling in India.

He further noted that the STREE initiative follows a service-led approach, built on more than a year of real-world learning from nearly 1,800 deployed cycles. The discussion centered on scaling pathways, user experience, and the overall livelihood impact of the initiative.

Founder & CEO, Motovolt Mobility

Representative from Motovolt Mobility shared insights derived from the deployment of 1,800 e-bicycles, which resulted in 800-900 service cases and provided valuable data on field performance. These insights highlighted the challenges associated with rural terrain, monsoon conditions, and multi-purpose usage of the cycles.

He emphasized the need for a rugged design, enhanced safety features, and higher reliability. He further noted that **durable products, structured user training, and continuous improvements in both quality and cost are essential for ensuring long-term impact**, particularly in supporting and strengthening women's livelihoods.

Member, AICMA

Representing AICMA, Mr. Gautam noted that India manufactures nearly **1.5-2 crore bicycles annually**, yet e-bicycles account for only **1-2% of total sales**, which is significantly lower compared to penetration levels in countries such as China and Germany. He highlighted that

increasing e-bicycle penetration to **10%** could potentially reduce prices by **40-50%**, driven by economies of scale.

He stressed that addressing key barriers—such as high upfront costs, limited charging and service infrastructure, and low consumer awareness—is critical for expanding adoption. He further emphasized the importance of **component localization** and ensuring **predictable market demand through stable policy support**, positioning e-bicycles as an essential solution for last-mile connectivity.

CEO & Founder, e-Motorad

Representative from e-Motorad presented key learnings through a case study on the deployment of **10,000 e-bikes in Kuppam, Andhra Pradesh**, which demonstrated significant livelihood benefits, including monthly user savings of **₹1,300-1,500**. He noted that rural users are willing to pay **₹20,000-30,000** for reliable products that provide **2-3 years of trouble-free performance**.

These insights indicate a shift in user preference from premium features to **rugged, durable designs**. He highlighted the critical importance of ensuring strong performance under **extreme temperatures** and **challenging rural road conditions**, which are key determinants of product acceptance and long-term adoption.

Prof. IIT Bombay

Prof. from IIT Bombay emphasized that reducing battery costs begins with selecting the appropriate chemistry, noting that **LFP batteries** offer higher safety and are better suited for rural operating conditions. He stressed the importance of **right-sizing batteries** based on actual mobility needs rather than relying on specifications designed for urban commuting.

He further highlighted that India's limited domestic lithium-ion cell manufacturing capacity continues to constrain cost competitiveness. He encouraged the exploration of **sodium-ion batteries**, leveraging indigenous R&D capabilities, and avoiding unnecessary over-engineering to effectively reduce overall system costs.

Figure 4: Panel 1 discussion



Actionable Recommendations/Outcome:

A strong consensus emerged among the panellists on the need for **coordinated, multi-stakeholder action**—particularly between industry and government to drive sustainable growth in India’s e-bicycle market. Building on the session’s focus, the discussion clarified key market challenges and underscored the importance of **supporting manufacturers in developing affordable, livelihood-focused e-bicycles** that meet the needs of rural users.

Participants agreed that **enhancing manufacturing efficiencies, reducing production costs, and generating stable, predictable demand** will be central to unlocking the full potential of electric bicycles as tools for sustainable mobility and livelihood advancement. The need for consistent policy signals, demand aggregation models, and supportive financing structures was repeatedly emphasized as essential for enabling scale.

Rural markets, in particular, were identified as **critical to long-term sectoral growth**. Ensuring **affordability, reliability, and accessible servicing networks** in these geographies will determine how effectively e-bicycles can support income generating activities, strengthen women’s mobility, and improve last mile connectivity. Strengthening **rural repair and maintenance ecosystems** was highlighted as a foundational requirement to ensure durable adoption and build user confidence.

Figure 5: Panel I group photo



Building on the momentum of the first session, Panel II shifted the focus toward the broader policy environment needed to advance electric bicycle adoption across the country.

Panel II: Uniting ministries to create a coherent national framework for electric bicycle policies and schemes that enhance rural mobility and livelihoods

Moderated by **Smt. S. M. Rajeshwari, Director, MoRD**, Panel II convened a multi-agency group of senior representatives from key government ministries and development institutions, including **DPIIT, MoRTH, the Office of the Principal Scientific Adviser (PSA), MNRE, and the Asian Development Bank (ADB)**. The panellists included:

- **Dr. Preeti Banzal**, Advisor, RuTAG, Office of the PSA, GOI
- **Mr. K C Sharma**, Advisor (MVL), MoRTH
- **Mr. Ashish Kumar**, Senior Consultant, DPIIT
- **Mr. Jeevan Kumar Jethani**, Scientist F, MNRE
- **Mr. Samrat Ray**, Project Officer, ADB

This diverse panel underscored the importance of inter-ministerial collaboration in shaping a unified, forward-looking national framework for micromobility solutions. With electric bicycles emerging as a practical, low-carbon mobility option for both urban and rural India, the discussion highlighted the need for strategic alignment across regulatory, financial, and technological spheres to ensure broad-based, equitable adoption.

Key Points Discussed:

Moderator - Director, MoRD

Moderating the panel, Smt. Rajeshwari stated that the session aimed to guide policy direction, enhance inter-ministerial coordination, and foster innovation to advance sustainable mobility and livelihood opportunities in rural areas. She emphasized the need to make electric bicycles **affordable for end-users** while encouraging manufacturers to deliver **durable, high-quality, and cost-effective products** tailored to rural mobility requirements.

Advisor, RuTAG, Office of the PSA, GOI

The Advisor from RuTAG emphasized the need to **stimulate demand for e-bicycles** while enabling OEMs to offer products at **affordable price points**, with a strong focus on reducing the overall **total cost of ownership**. She suggested introducing targeted interventions such as low-cost EMIs, concessional interest rates, subsidies, and improved access to microfinance.

She further highlighted the importance of **demand aggregation** through coordinated efforts between central and state governments. She recommended integrating e-bicycles into existing livelihood, women-centric, and MSME schemes to ensure effective last-mile outreach and maximize the socio-economic impact of e-mobility in rural areas.

Advisor (MVL), MoRTH

The Advisor from MoRTH explained that under **CMVR Rule 2(u)**, e-bicycles with a maximum speed of **up to 25 km/h** and a motor power not exceeding **250W** are **not classified as motor vehicles** and therefore do **not** require registration, insurance, or a driving licence.

He highlighted emerging **safety risks arising from misuse** and informed the group that **revised guidelines** are currently being developed. These will include provisions such as **higher permissible motor power with strict speed control, gradeability testing, and a limited**

type-approval framework, while still keeping e-bicycles outside the purview of the Motor Vehicles Act.

Senior Consultant, DPIIT

The representative from DPIIT highlighted that India produces **15-20 million bicycles annually**, making it the **second-largest bicycle producer globally**, after China which manufactures **around 180-200 million bicycles annually, nearly ten times India's output**. He stressed the need to **localize manufacturing of key e-bicycle components** to reduce import dependence and strengthen the domestic value chain. He noted that this can be supported through existing frameworks such as the **Production-Linked Incentive (PLI) scheme** and the **Start-Up India** initiative.

He further stated that **BIS standards** for e-bicycles are already in place and that **Quality Control Orders (QCOs)**, along with upgraded testing facilities in **Ludhiana**, will play a critical role in ensuring stronger quality compliance and enhancing industry readiness.

Scientist F, MNRE

Mr. Jethani emphasized that **reliable electricity access is fundamental** to accelerating e-bicycle adoption and supporting rural livelihoods, making **renewable energy solutions** increasingly important. He highlighted convergence opportunities with government schemes such as **PM SuryaGhar** and **PM KUSUM**, which can enable affordable solar power, sustainable e-bicycle charging ecosystems, and income-generating activities for rural communities.

He concluded by underscoring the critical role of **decentralized renewable energy systems** in ensuring uninterrupted power supply in rural and remote areas, thereby strengthening the foundation for widespread e-bicycle usage and enhanced livelihood outcomes.

Project Officer, ADB

Mr. Ray emphasized that clean energy and sustainable mobility are core focus areas for ADB in India. He highlighted that ADB can support such initiatives through **technical assistance, innovative financing solutions, and capacity-building support**. He noted that **aggregating demand** from state governments and user groups can help reduce costs **and enable OEMs and startups to scale**. He also pointed out that integrating e-bicycles into existing schemes **offers a practical and near-term pathway for implementation**, even without launching a new scheme.

Figure 6: Panel II discussion



Actionable Recommendations/Outcome:

The panel strongly agreed that close coordination among different ministries is needed to create a clear and unified national policy for the growth of India's electric bicycle ecosystem. Panellists noted that such coordination should focus on making e-bicycles affordable, safe, and reliable so they can be widely used across different regions and by different groups of people. Working together across institutions was seen as essential to support India's move toward clean, inclusive, and low-carbon mobility.

The discussion emphasized on:

- Call for **cost-reducing policy measures** for consumers while incentivizing manufacturers to deliver high-quality, affordable e-bicycles.
- Importance of **dedicated incentives such as PLI for e-bicycles and key components** to strengthen domestic manufacturing, support MSMEs, and build resilient local supply chains.
- Need for **rapid implementation of safety and quality standards**, backed by robust testing and R&D infrastructure, to build consumer trust.
- Identification of **high upfront costs and weak rural servicing networks** as key barriers to adoption.
- Stress on **strengthening local repair and maintenance ecosystems**, particularly in rural areas, to ensure long-term usability and income generation.
- Highlighting policies to **stimulate demand**, especially for rural and livelihood-based use cases.

- Opportunity to integrate e-bicycles with decentralized renewable energy solutions, such as solar charging, to lower operating costs and improve energy access.
- Focus on women-led training, servicing, and entrepreneurship models to build inclusive and sustainable local service ecosystems.

Figure 7: Panel II group photo



Demonstrations and Key Presentations

Arrival of VIPs

The arrival of VIPs, including the **Hon'ble Minister, Shri Kamlesh Paswan**, took place mid-way through the workshop, following the conclusion of **Panel II**. His presence added momentum to the ongoing discussions and brought renewed attention to the themes of rural mobility and sustainable livelihood solutions. The Minister's participation underscored the government's growing interest in promoting electric mobility—particularly **electric bicycles**—as a means to strengthen rural livelihoods and support inclusive development.

Figure 8: Arrival of VIPs



“Know Your Electric Bicycle” Demonstration

A key highlight of the workshop was the **live demonstration of electric cargo bicycles**, designed to familiarize participants with their features, functionality, and relevance to diverse rural and livelihood-oriented use cases. Technical teams provided an in-depth walkthrough of the bicycles' capabilities—including **load-carrying strength, battery range, ease of handling, and performance on uneven or semi-urban terrain**—allowing attendees to observe their practical utility first-hand.

During the demonstration, the **Hon'ble Minister, Shri Kamlesh Paswan**, interacted directly with **Self-Help Group (SHG) women** who are currently using e-bicycles through ongoing livelihood pilots. Through these conversations, the Minister gained valuable insights into:

- **Daily usage patterns** such as transporting goods, accessing markets, and undertaking income-generating activities.
- **Adaptability to varied rural terrains**, as described through real-world user experiences.
- **Ease of operation**, including user-friendly riding, convenient charging requirements, and manageable maintenance needs.
- **Livelihood impact**, with SHG women reporting reduced physical effort, enhanced mobility, and improved economic opportunities.

This demonstration effectively showcased the practical relevance and transformative potential of electric bicycles, particularly for women-led enterprises and rural service providers. It reinforced how purpose-built e-bicycles can significantly improve access, productivity, and income generation when integrated into broader livelihood and mobility initiatives.

Figure 9: Live demonstration of electric cargo bicycles



Welcoming the delegates and symbolically nurturing growth through the watering of plants.

Figure 10: Welcoming the Delegates & Watering the plants



Presentation on Pilot Findings

Smt. Ritu Singh, Head Gender Equality and Social Inclusion, EESL, delivered a comprehensive presentation on the ongoing electric bicycle pilot initiatives being implemented across Bihar, Kerala, Andhra Pradesh, and Madhya Pradesh. Her presentation provided detailed insights into the performance of the pilots and the experiences of users participating in the program.

She highlighted that these pilots have generated **valuable evidence on user behaviour, operational feasibility, and livelihood outcomes**, offering a strong foundation for scaling electric bicycle-based livelihood models. The findings revealed that the introduction of e-bicycles has significantly enhanced mobility for **Self-Help Group (SHG) women**, enabling them to carry out their daily economic activities with greater ease, speed, and efficiency.

Smt. Singh emphasized that e-bicycles are proving to be a **reliable, cost-effective, and empowering mobility solution** for rural communities. Early results show improvements in productivity, reduced physical effort, expanded market access, and greater confidence among women using the vehicles. Collectively, these insights underscore the transformative potential of electric bicycles in advancing rural livelihoods and strengthening community-level mobility systems.

Figure 11: Presentation of Pilot Findings by Smt. Ritu Singh, Project Head, EESL/CESL



Key highlights from the pilot findings

The presentation showcased several notable outcomes from the pilot initiatives, reinforcing the transformative role that electric bicycles can play in strengthening rural livelihoods. Key insights included:

- **Improved Mobility Access:** SHG women reported being able to travel longer distances with significantly reduced physical effort. This enhanced mobility enabled them to reach markets, customers, and service points more frequently and with greater ease, directly improving the efficiency of their daily economic activities.
- **Reduced Operational Costs:** Participants experienced substantial savings on transportation expenses when compared to fuel-based vehicles or hired transport services and saved ~₹1,350 per month on travel costs. The lower cost of ownership and operation positions electric bicycles as a financially sustainable long-term mobility solution for rural users.
- **Enhanced Livelihood Opportunities:** Many SHG women reported **higher productivity, increased sales, and improved customer outreach**. With faster and more reliable mobility, they were able to expand their service areas, take on additional assignments, and diversify their income-generating activities.
- **Greater Autonomy and Confidence:** The pilot revealed a meaningful behavioural shift. Women expressed feeling more independent, gaining greater control over their mobility, and navigating their work environments with increased confidence. This empowerment extended beyond economic benefits to broader social and personal development.

Over a six-month period, beneficiaries collectively travelled approximately **13 lakh Km using e-bicycles**. This shift resulted in **78% lower CO₂ emissions** compared to petrol two-wheelers, translating to an estimated avoidance of approximately 68 tonnes of CO₂ emissions.

Through these findings, Smt. Ritu Singh emphasized the strong potential of electric bicycles as scalable, livelihood-enhancing mobility tools. The pilots demonstrate how e-bicycles can support women-led enterprises and deliver measurable socio-economic impact across diverse contexts.

Figure 12: Presentation of Pilot Findings cover page



Panel Outcomes Summary

Following the mid-day sessions, **Smt. Smriti Sharan, Joint Secretary, Ministry of Rural Development**, delivered a comprehensive consolidation of the key deliberations from the morning panels. Her summary offered a clear and structured synthesis of insights shared by industry leaders, policymakers, and academic experts, effectively drawing connections across the diverse perspectives presented.

Smt. Sharan emphasized that the themes emerging from the panels collectively outlined **actionable pathways** spanning policy refinement, improvements in domestic manufacturing, and deeper integration of electric bicycles into rural livelihood programs. She highlighted how the discussions reinforced the need for coordinated efforts across government and industry to enhance affordability, strengthen supply chains, and expand access to sustainable mobility solutions for rural communities.

The summary served as a critical bridge between the morning's discussions and the forthcoming sessions, enabling participants especially senior dignitaries to grasp the workshop's strategic direction and emerging priorities.

In the presence of the **Hon'ble Minister**, Smt. Sharan also provided a brief preview of the objectives and planned discussions for the **third panel** scheduled for the afternoon. This advance briefing ensured that the Minister had full context on how the upcoming conversations would build on earlier insights, with a particular focus on **state-level implementation** and opportunities for integrating e-bicycles into rural mobility and livelihood initiatives.

Figure 13: Panel Outcomes Summary by Smt. Smriti Sharan, JS, MoRD



Key points from the summary included:

- **Policy Pathways:** Emphasis on the need for **inter-ministerial convergence**, harmonized standards, and a unified national policy framework to support the affordable and scalable adoption of electric bicycles. Aligning regulatory and incentive structures, she noted, is essential for building a coherent ecosystem.
- **Manufacturing Priorities:** Insights on improving production efficiency, enabling cost reductions, and strengthening supply chains to ensure wider availability of livelihood-appropriate e-bicycle models. These improvements are key to ensuring the widespread availability of e-bicycle models that are suitable for livelihood applications in rural regions.
- **Livelihood Integration:** Recognition of the strong potential for e-bicycles to enhance rural mobility, reduce drudgery, and expand income-generation opportunities for SHG women and community enterprises. She noted that the pilots and panel insights collectively reinforced the role of e-bicycles as practical, empowering mobility tools.
- **Upcoming Panel (Preview):** A brief overview of how the third panel would focus on state experiences, climate co-benefits, and practical strategies for embedding electric micromobility within SRLM operations. This contextual framing helped prepare participants for the next set of discussions.

Through this summary, she effectively synthesized the day's key learnings while ensuring continuity, coherence, and a shared strategic understanding across sessions, setting the stage for focused and informed dialogue in the subsequent panel.

Documentary Video

The workshop then featured the screening of a short documentary showcasing **powerful field testimonials** from SHG women and community members across the pilot states. Through real-life stories and compelling visual footage, the film illustrated how electric bicycles are beginning to **transform daily mobility**, reduce physical strain, and open up new livelihood opportunities for rural households. The documentary highlighted practical, lived experiences—capturing how enhanced mobility is enabling women to access markets more easily, diversify income activities, and carry out their work with greater independence and confidence.

Figure 14: A Glimpse of Documentary Video



Keynote Address by Secretary MoRD

The **Secretary, Ministry of Rural Development**, delivered a keynote address that set a strong forward-looking vision for the role of electric micromobility in rural development. He commended **EESL and CESL** for organizing the National Workshop on “*Promoting Micromobility through Electric Bicycles*”, noting that the initiative reflects a timely and strategic push toward livelihood-oriented mobility solutions.

In his remarks, the Secretary highlighted the **transformative potential of electric micromobility** in enhancing rural entrepreneurship and improving access to economic opportunities. He emphasized that electric bicycles can significantly reduce physical drudgery, increase productivity, and strengthen last-mile connectivity—especially for **Self-Help Groups (SHGs)** and rural enterprises.

Underscoring the need for **convergence and scalable implementation models**, the Secretary noted that the programme’s demonstrated benefits for SHG women provide clear direction for policymakers and implementing agencies. He encouraged stakeholders to develop **innovative, outcome-driven proposals** aligned with national development priorities, emphasizing that collaborative action will be key to accelerating adoption.

Additionally, the secretary also emphasized that **developing community-level infrastructure** is essential to advance this initiative, including **charging stations at public locations** and **designated hubs for safe riding, battery maintenance, and repairs**.

Reaffirming the Ministry’s commitment to **inclusive, sustainable, and people-centric development**, the Secretary expressed appreciation for the ongoing efforts of **EESL and CESL** in advancing electric bicycle-based mobility solutions. He urged continued focus on expanding these initiatives to ensure broader socio-economic impact across rural India.

Figure 14: Keynote address by Shri Shailesh Kumar Singh, Secretary, MoRD



Address by Hon'ble Minister of State, Rural Development

The Hon'ble Minister of State, Rural Development, Shri Kamlesh Paswan, addressed the gathering with a strong emphasis on the central role of **women's empowerment** in the government's flagship development initiatives. Citing transformative programmes such as **Ujjwala, Jan Dhan, and various rural housing schemes**, he noted that empowering women leads to stronger families and more resilient rural communities.

The Minister highlighted that the workshop's purpose extends beyond discussions, it aims to ensure **effective on-ground implementation** of rural development schemes, with a particular focus on supporting **women's collectives, Self-Help Groups (SHGs), and Lakhpati Didis**. He emphasized that the electric bicycle initiative should not be viewed merely as a distribution exercise, but as a **strategic intervention to expand livelihood opportunities, enhance mobility, and improve economic productivity** for rural women.

Shri Paswan also stressed the importance of **cost-efficient solutions, environmental sustainability, and robust inter-ministerial collaboration**, noting that such alignment is crucial to scale micromobility solutions effectively. He reiterated the government's ambitious goal of creating **six crore (60 million) Lakhpati Didis**, underscoring that this vision aims not only to uplift individual women but to **transform millions of rural families**.

He concluded by emphasizing the need for **greater awareness, transparency, and honest implementation** of government schemes, reinforcing the commitment to ensuring that benefits reach women at the last mile and contribute meaningfully to rural prosperity.

Figure 156: Address by Hon'ble Minister of State, Rural Development Shri. Kamlesh Paswan



Interaction with Energy Champions

During the interactive segment with the Hon'ble Minister, **SHG women—referred to as Energy Champions**—shared firsthand accounts of how electric bicycles have become integral to their daily livelihood activities. Their experiences offered powerful, real-world evidence of the transformative impact of micromobility solutions in rural contexts.

The women described how the e-bicycles have **significantly improved their productivity**, enabling them to travel longer distances in shorter time frames and complete more tasks within a single day. Many reported a **notable increase in income**, as enhanced mobility allowed them to visit markets more frequently, expand their customer base, and take up additional work opportunities that were previously out of reach due to limited transportation options.

Beyond economic gains, several participants emphasized the **greater sense of safety, comfort, and confidence** they experienced while travelling—particularly during early morning or late evening hours. The reduced physical strain, smoother rides, and ease of operation contributed to a heightened feeling of independence, allowing them to manage their time and work responsibilities more efficiently.

Collectively, these testimonies highlighted the **far-reaching social and economic benefits** of electric bicycles. The enhanced mobility not only supports more secure and diverse livelihood pathways but also empowers SHG women with improved autonomy, dignity, and aspirations for upward mobility.

Figure 167: Hon' State Minister Shri. Kamlesh Paswan's interaction with energy champions



Launches by the Hon'ble Minister

As part of the ceremonial segment of the workshop, the **Hon'ble Minister** unveiled a series of significant releases that highlighted the programme's progress and reaffirmed its commitment to women's empowerment and sustainable mobility. These launches marked an important milestone in advancing the vision of enabling rural women through electric micromobility.

The following were formally released:

- **STREE Impact Assessment Report:** A comprehensive document capturing on-ground outcomes, user experiences, and the wider socio-economic impact of the initiative on SHG women and their communities. The report reflects evidence-based insights drawn from pilot states, demonstrating how electric bicycles are contributing to improved mobility, productivity, and economic resilience among rural women.

Figure 17: STREE Impact Assessment Report and STREE mascot launch



- **STREE Mascot:** Introduced as a symbolic and visual representation of the STREE initiative, the mascot embodies the values of **women's empowerment, resilience, and sustainable mobility**. It serves as an aspirational emblem that reinforces the identity and mission of the programme across stakeholder groups.

Figure 18: STREE Mascot



Figure 19: STREE Impact Assessment Report cover page



Felicitation of SHG Women

As the interaction segment concluded, the workshop dedicated a special moment to recognize the exemplary efforts of **SHG women who have emerged as role models** in effectively adopting electric bicycles for their livelihood activities. Their stories of determination, innovation, and adaptability were acknowledged in a formal felicitation ceremony.

This recognition not only celebrated individual achievements but also underscored the **broader transformative potential of micromobility** in empowering women at the grassroots level. It served as a meaningful culmination to the session—symbolizing collective appreciation, encouragement, and the promise of expanded opportunities for rural women across the country.

Figure 20: Felicitation of the beneficiaries from the pilot states



Panel III: Electric Micromobility as an Enabler of Livelihoods, Climate Action and Sustainable Rural Transitions

The afternoon session commenced with **Panel III**, which shifted the spotlight from national-level frameworks to the **on-ground implementation** of electric micromobility solutions across states. Moderated by **Ms. Trupti Deshpande** from the **Senior Programme Manager, Shakti Sustainable Energy Foundation**, the panel brought together senior representatives from diverse state institutions—including **CZA, the Bihar Rural Development Department, EMC Kerala, and SERP Telangana**—each contributing insights shaped by their operational experiences and programmatic priorities.

Panellists

- **Mr. Pankaj Kumar**, Principal Secretary, Rural Development, Bihar
- **Mr. Hari Kumar**, Director, Energy Management Centre (EMC) Kerala
- **Mr. P W Johnson**, Director Non-Farm, Society for Elimination of Rural Poverty (SERP), Telangana
- **Dr. V. Clement Ben**, Member Secretary, Central Zoo Authority (CZA)

Building on earlier conversations around policy alignment and manufacturing readiness, Panel III focused on how states can translate national frameworks into practical, community-centric interventions. The discussion emphasized the potential of electric micromobility—particularly e-bicycles—to drive livelihood enhancement, climate resilience, and sustainable rural transitions when integrated effectively into state-level programmes and SRLM operations.

Key Points Discussed:

Moderator - Senior Programme Manager, Shakti Sustainable Energy Foundation

Moderating the panel, representative from the Shakti foundation highlighted the **transformative impact of e-bicycles on rural livelihoods**, emphasizing how improved mobility has translated into greater independence and confidence among women beneficiaries. She underscored that access to **reliable and affordable transport** has enabled women to expand their economic participation and social engagement.

Principal Secretary, Rural Development, Bihar

Mr. Kumar highlighted the strong impact recorded in Bihar, where approximately **400 e-bicycles** were distributed through **SHG women**, ensuring last-mile delivery to the intended beneficiaries. He noted that women's mobility increased significantly, with average travel distances rising from **1-2 km to 8-15 km**, thereby strengthening their independence and improving access to economic and social opportunities.

He emphasized that e-bicycles have enabled timely **doorstep delivery of goods and services**, generating greater social and economic impact compared to conventional bicycles used in the past. He further noted that within the **₹2.10 lakh Jeevika livelihood and entrepreneurship support framework**, e-bicycles can emerge as a key enabler of **women-led economic activity** in the state.

Director, Energy Management Centre (EMC) Kerala

Mr. Kumar noted that in Kerala, e-bicycles are primarily being used for short-distance travel, and interest in the initiative is exceptionally high. Nearly **12 districts** are awaiting additional distribution, indicating strong and growing demand across the state.

He highlighted that the Government of Kerala has expressed willingness to allocate **state funds** to reduce upfront purchase costs, while **State Women Development loans** at **6-8% interest** are enabling women to utilize e-bicycles for multiple livelihood activities. He emphasized that with coordinated participation from **NBFCs**, women's departments, and other key stakeholders, a **large-scale awareness campaign** could significantly accelerate e-bicycle adoption throughout Kerala.

Director Non-Farm, Society for Elimination of Rural Poverty (SERP), Telangana

Mr. Johnson noted that the initiative is relatively new in Telangana, but early indications show that it significantly reduces travel time and can generate **10-15 livelihood opportunities** for end-users. He observed that, if scaled further, the program can be integrated within existing administrative systems **without requiring any new institutional structures**.

He highlighted that the state's **Aajeevika Grameen Express Yojana (AGEY) scheme**, which provides **95% financing through CLFs at 0% interest** for vehicle purchases, can be extended to include e-bicycles. Leveraging this scheme would support smooth, low-cost adoption and ensure that beneficiaries can access e-bicycles without financial burden.

Member Secretary, Central Zoo Authority (CZA)

Dr. Ben highlighted that e-bicycles can play a valuable role within zoo ecosystems by complementing existing electric mobility options such as e-buggies and other EVs currently in use. With approximately **2,000 e-micromobility vehicles** already in the pipeline, there is clear potential to integrate e-bicycles as a sustainable solution for internal transport.

He noted that **ministerial convergence** can further strengthen adoption, including measures such as establishing **dedicated e-bicycle riding lanes** alongside internal and approach roads. He also emphasized that **community-based livelihood programmes** can be leveraged to integrate e-bicycles into local employment and service-delivery activities supporting zoo operations, thereby enhancing both sustainability and socio-economic outcomes.

Figure 21: Panel III discussion



Actionable Recommendations/Outcome:

The panel agreed on clear, practical actions that States and SRLMs can use to integrate e-bicycles into livelihood and mobility programmes. Key priorities included adopting **shared procurement models**, building **local training and servicing networks**, and enabling **scalable financing options** to improve access for SHG members.

Participants also emphasized the need for **ministerial convergence** to develop policies that keep e-bicycles affordable while encouraging manufacturers to supply high-quality, livelihood-focused models. Together, these insights provide SRLMs with a **concise set of strategies** to embed e-bicycles within existing livelihood, enterprise, and rural mobility initiatives.

Figure 22: Panel III group photo



Felicitation of Knowledge Partners

The workshop also featured a dedicated segment to acknowledge the invaluable contributions of the initiative's **knowledge partners**. Institutions including IIT Bombay, TERI, PCI, Shakti Sustainable Energy Foundation, the Bill & Melinda Gates Foundation, and Ernst & Young LLP were formally appreciated for their technical expertise, analytical support, and evidence-based insights that have significantly shaped the programme's strategic direction.

Their contributions ranging from research, training and field assessments strengthened the pilot initiative's foundation. In recognition of their support, the **Joint Secretary, Ministry of Rural Development**, presented each institution with a memento of appreciation. This gesture underscored the importance of continued collaboration between government, research institutions, and development partners in advancing electric micromobility solutions for rural livelihoods.

Figure 23: Felicitation of Knowledge Partners



Closing remarks

The workshop concluded with a formal **Vote of Thanks** delivered by **Smt. Rajeshwari S. M., Director, DAY-NRLM**, who extended heartfelt appreciation to all dignitaries, panelists, development partners, industry representatives, SHG women, and participants for their valuable engagement throughout the day. She acknowledged the **collective effort** that made the workshop meaningful recognizing the rich insights shared across panels, the collaborative spirit demonstrated by ministries and partner institutions, and the strong commitment shown by state representatives toward advancing electric micromobility solutions.

Smt. Rajeshwari expressed gratitude to the organizing teams from **MoRD, CESL, and EESL** for their meticulous coordination, which ensured the smooth execution of the event. She also thanked the technical partners for facilitating the live demonstrations that brought practical depth to the discussions and enabled participants to witness first-hand the functionality and potential of electric bicycles in rural contexts.

Following her address, the workshop formally came to a close. In parallel, **product demonstrations of electric bicycles continued**, offering attendees an opportunity to engage directly with the models on display, interact with technical experts, and deepen their understanding of how e-bicycles can enhance rural mobility and support diverse livelihood activities. This interactive segment provided a fitting and engaging conclusion to the day's proceedings, reinforcing the workshop's focus on practical, scalable, and impactful solutions.

Figure 24: Vote of thanks from Smt. Rajeshwari S.M., Director, DAY-NRLM



Way Forward

Building on the demonstrated success of the pilot programme in **improving livelihoods and empowering women**, the event outlined a clear and coordinated pathway for scaling up the pilot outcomes into a sustainable national initiative. **The proposed scale-up approach is anchored around three complementary pillars: Product Standardization, Incentivization, and Financial Structuring.** Deliberations emphasized the need for **uniform technical specifications and a robust quality certification framework** to ensure the safety, reliability, and interoperability of electric bicycles at scale. To enhance end-user affordability and stimulate demand, participants highlighted the **importance of targeted purchase incentives**, alongside strategically linking key e-bicycle components—such as batteries, motors, and controllers—to domestic manufacturing initiatives. In parallel, innovative financial structuring was identified as a critical enabler, with a focus on partnerships with financial institutions to provide **low-interest EMI options and simplified access to credit through institutional tie-ups.** Collectively, this coordinated approach was recognized as essential for **unlocking latent demand, accelerating widespread adoption, and enabling the transition** from pilot implementation to large-scale deployment of electric bicycles across the country.

Conclusion

The National Workshop successfully convened a wide cross-section of stakeholders spanning central ministries, state governments, industry leaders, technical institutions, development partners, and community representatives to chart a **cohesive and forward-looking roadmap** for advancing electric micromobility in India. Across the day's deliberations, participants reaffirmed the pivotal role of **electric bicycles not only as a green mobility solution but also as a powerful catalyst for women's empowerment, rural income enhancement, and climate resilience.**

The insights generated through the panels, demonstrations, field testimonies, and leadership addresses collectively underscored that e-bicycles hold significant potential to address mobility gaps, reduce physical drudgery, and unlock new economic opportunities for SHG women and rural entrepreneurs. At the same time, discussions highlighted the need for **convergent policies, robust manufacturing ecosystems, localized servicing networks, and scalable state-level implementation models** to ensure meaningful and sustained adoption.

The outcomes and commitments emerging from the workshop lay a **strong foundation for collaborative action**, bringing together the strengths of central ministries, state rural livelihood missions, manufacturers, and knowledge partners. With continued coordination and evidence-based implementation, electric micromobility can become a transformative driver of **inclusive development, sustainable mobility, and resilient rural economies** across India.

