CUTS Project Brief

CUTS International

Promoting e-Tractor for Developing Sustainable Agricultural Ecosystem in Rajasthan

Background

The e-tractor manufacturing in India has seen a commendable growth in recent years. However, the market is primarily limited to exports. The tractor industry in India is strong and one of the largest manufacturers of tractors in the world. In 2022, more than a million tractors were manufactured and a tenth of these were exported. Given the robust market structure, the industry can effectively absorb a mass transition towards e-tractors. The adoption at the domestic level is limited due to various factors such as high upfront costs, lack of awareness, inadequate policy-level support, and poor EV-supporting infrastructure.

The non-inclusion of tractors in the subsidy/incentive-driven schemes for promoting electric vehicles like FAME I and FAME II at the Central level or in EV policies at the state level may also be attributed as a primary reason why the e-tractor market in India has not picked up. The taxes and insurance costs on e-tractors are also at par with conventional diesel tractors. This aided with upfront costs is also a deterrent for an uptick in the sales of e-tractors. Thus, it is essential to formulate target-driven policies to develop a market for e-tractors in India to reduce carbon emissions from the agriculture sector and promote sustainable agriculture.

The state of Rajasthan possesses several features which present an ideal opportunity to take this idea forward and pioneer the adoption of e-tractors in India. Some of these include – the above national average population engaged in agriculture (66 percent); the state with the highest cultivable area, one of the leading buyers of tractors; substantial agricultural activities, diverse agro-climatic conditions, and keen focus on renewable energy.

A regional approach can be adopted to gather sufficient evidence on the socio-economic and environmental benefits of introducing e-tractors in the agriculture sector. This can be used to nudge policymakers towards the formulation of policies that drive the development of an e-tractor market that is supported by industry and farmer associations. The learnings from on-ground experience then can be used to refine the processes and similar policies can be implemented in other states.

CUTS has played a crucial role in operationalising and managing 34 Farmer Producer Organisations (FPOs) with more than 7,000 farmers as members, in different districts of Rajasthan. This network can effectively be leveraged in bringing communities together for capacity building/ awareness programmes, building an understanding of economies involved with agriculture practices and scope for e-tractors as a cost-benefit alternative, making a case for policy reforms through the collective voice of FPO members, developing community-based business models for absorbing the additional financial thrust involved with e-tractors, etc.

Objectives

The objective of the initiative would be to clearly define the interventions required from the concerned state agencies to develop a market for e-tractors by introducing policy and regulatory reforms in the agriculture sector. The initiative would also seek to create an enabling environment for the adoption of e-tractors by addressing barriers and promoting the benefits of this technology among farmers in Rajasthan. The specific goals would be:

- Promote the adoption of e-tractors as a sustainable alternative to diesel-powered tractors;
- Reduce carbon emissions in the agriculture sector and mitigate the environmental impact of traditional farming practices;
- Increase the energy efficiency of agricultural operations and decrease reliance on fossil fuels;
- Enhance agricultural productivity and income of farmers through technological advancements; and
- Foster innovation, research, and development in the field of e-tractors and related technologies.

Activities

1. **Cost-benefit Analysis of e-Tractors over Diesel Tractors**
   Engagement with agriculture communities and allied industries where tractors are deployed to generate baseline data on operational and maintenance costs over a lifecycle, utilisation patterns across cropping and off-peak seasons, communal use of tractors, etc. This dataset will be crucial for establishing a benchmark for overall usage and costs involved with tractors that can be analysed against costs involved with e-tractors to make a strong case for the economic advantage of e-tractors.

2. **Tractor Usage Pattern across the Value Chain**
   Assessment of the usage pattern of tractors in sectors other than agriculture, for example, construction, during the off-season to derive a utilisation factor that can enable identifying the multiple areas where e-tractors can find usage.

3. **Policy Briefs for Stakeholders at the Central and State Levels**
   Preparing policy briefs for the adoption of e-tractors at the Central and state levels. These briefs will draw on research involving existing agricultural policies and schemes at both levels, supplemented by international case studies. The goal is to inform stakeholders about the economic and environmental advantages of e-tractors and gain their endorsement for proposed policy briefs.

4. **E-tractor Exhibition**
   Exhibitions of e-tractors at agriculture community events/trade and agriculture science fairs will help develop awareness about e-tractors, generate interest among farmers, and alleviate misconceptions about performance, durability, etc.

Expected Outcomes

- Inclusion of e-tractors in different state policies related to agriculture machinery
- Deployment of e-tractors in agriculture custom hiring centres in Rajasthan
- Increased awareness and understanding of e-tractors among farmers and policymakers of Rajasthan
- Renewed interest from e-tractor manufacturers towards the domestic market
- Improved affordability of e-tractors through financial incentives and subsidies
- Development of a robust charging infrastructure network dedicated to e-tractors
- Enhanced R&D efforts leading to technological advancements and cost reductions in e-tractor technology
- Establishment of a favourable policy and regulatory framework, ensuring the long-term sustainability and growth of the e-tractor market

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