

NEPAL: E-COOKING POLICY BRIEF

Key policy recommendations from 18 MECS projects informing electric cooking scale up in Nepal



This briefing paper informs policymakers and investors on the clear opportunities for scaling electric cooking in Nepal based on the findings from 18 MECS projects (8 completed/10 ongoing) in eight key areas targeting scale up. The projects were run through Modern Energy Cooking Services (MECS), a seven-year programme funded by UK Aid (FCDO) and have particular relevance to forthcoming initiatives from government and development agencies which aim to mobilise eCooking at scale. The findings from the eight completed projects are highly encouraging. In particular:

- Three Electric Cooking Outreach (ECO) Follow up studies covering data spanning a two-year period showed that people from various cultural and socio-economic groups in both urban and rural locations are willing to use and pay for electric cooking on a regular basis. The convenience and time and cost saving benefits of eCooking were especially praised by participating households, while eCooking led to significant shifts away from polluting firewood. The studies also demonstrated the effectiveness of community-to-community awareness raising in terms of increasing eCooking adoption and use.
- Five projects exploring the implications of households cooking entirely with electricity demonstrated that eCooking (using a range of efficient appliances) is already viable as a primary mode of cooking for households in urban centres.

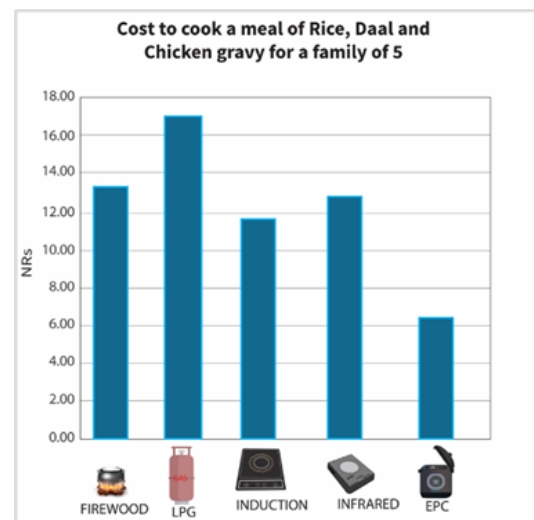
Presentations detailing findings from the research can be accessed on the MECS website via this [link](#).

CALL FOR ACTION

- The findings from the eight completed MECS projects highlight the opportunities for government and non-government institutions to be far more dynamic in promoting and scaling eCooking. Such action is critical if Nepal is to move from the current 0.5% of Nepali households

cooking primarily with electricity (Population Census, 2021) and achieve the Government's Nationally Determined Contribution (NDC) target of 25% of households (~1.7m households) using electricity as their primary cooking fuel by 2030.

- The sustained eCooking usage demonstrated by the research facilitates novel financing forms such as financing via cooperatives, results-based financing, or carbon financing, which could make eCooking an even more attractive proposition.
- For effective and fast-tracked scale up of eCooking, the recent [MECS Nepal 2023 workshop](#) highlighted stakeholder consensus on the need for regular (at least quarterly) meetings to improve information sharing, best practice, and coordination in the sector. [The National Electric Cooking Campaign \(NECC\)](#) provides a platform through which these meetings can be organised.



HIGHLY EFFICIENT ELECTRIC PRESSURE COOKERS (EPCS) OFFER HOUSEHOLDS 60% SAVINGS ON COOKING FUEL COSTS AND NEED TO BE FAR MORE ACTIVELY PROMOTED

Figure 1: Cost of cooking on different stoves in Nepali Rupees. Source: [PEEDA MECS Nepal eCookbook](#) (LPG data updated to reflect recent price hikes).



Image credit: IRADe, 2021

KEY POLICY RECOMMENDATIONS

The 18 projects were identified in 2022 through consultations with key stakeholders in Nepal as part of the MECS ‘[Jigsaw Research](#)’ – a process used to identify the missing pieces which need to be in place to enable scaled eCooking uptake in a particular country. eCooking can contribute significantly to Government of Nepal SDG and NDC targets, macroeconomic objectives of reducing LPG imports and the trade deficit, and the overarching development goal of “green, resilient and inclusive development”.

The projects highlighted clear opportunities for scaling eCooking in Nepal and also identified potential barriers. To unlock this potential, the following key recommendations have been made to address the main barriers identified and facilitate opportunities, taking into consideration the gap which often exists between national policy objectives/targets and practical implementation considerations. These recommendations were developed from the project findings and through consulting key stakeholders on their views of the MECS research and scaling eCooking in Nepal.

ELECTRICITY INFRASTRUCTURE AND INTEGRATED PLANNING

Electricity supply issues need to be addressed as MECS research has shown how frequent reliability issues undermine consumer confidence and mean households cannot use appliances as much as they want to, with some returning to their previous stoves and polluting fuels.

- Integrate eCooking and electricity supply strengthening initiatives. eCooking rollouts are likely to be more cost-effective and make greatest gains if they target areas where grid and off-grid infrastructure planning and strengthening has already taken or is taking place as per NEA’s distribution master plan. Through this process, explore opportunities for Ministry, NEA and AEPC leadership to coordinate on upgrading transmission and distribution infrastructure (e.g., transformer replacements) and household infrastructure (e.g. wiring standards) which will support and be mutually beneficial to both eCooking and electricity supply strengthening initiatives.
- Strengthen local government capacity to incorporate eCooking into local government plans and budgets in order to develop local/rural eCooking markets. To implement this measure effectively, state and local institutions need to collaborate to establish a standardised local government energy planning framework that integrates electricity and clean cooking planning. A standardised framework will facilitate local government to develop eCooking plans, provide opportunities for best practice sharing, and enable local and federal level planning to be more easily integrated.

INTEGRATED CLEAN COOKING AND ELECTRIFICATION PLANNING WILL BE MORE COST EFFECTIVE AND MAKE THE GREATEST GAINS IN TACKLING ACCESS TO CLEAN COOKING

OFF-GRID INTEGRATED PLANNING

- There is significant surplus capacity on many micro-hydro power (MHP) sites. Using geo-spatial tools such as that used with the [AEPC led ICIMOD Productive Energy Use \(PEU\) framework](#) can assist the identification of such MHP sites where eCooking could be promoted as part of load management or as an anchor load to support the viability of mini-grids. Data from [MECS ECO pilots](#) show particular opportunities to use highly efficient EPCs on off-grid systems.

FINANCING

Along with the funding required for implementing an integrated electrification and clean cooking strategy, there is a need to improve access to financing to help convert increasing awareness and interest in eCooking into sales of eCooking appliances. Identifying which financing entities work best at which scales and where across the supply chain is key.

- **National scale.** Alongside a developing equity market, improved outreach of debt financing through commercial banks has contributed to emerging eCooking initiatives by national level financing institutions (e.g. NMB's fintech based 'Bidhyut Upakaran Karja Karyakaram' – Electricity Appliances Credit Program). The scope for institutional support from utilities and insurance companies to further such initiatives should be explored.
- **Local scale.** MFIs can be effective at providing financing at the local level where larger scale institutions are often reluctant to operate in. To develop this potential, the possibilities of further leveraging partnerships between commercial banks and MFIs (especially those MFIs which are Central Bank accredited) should be explored.
- **Last mile/local scale.** Increase support for cooperatives and Savings and Credit Cooperative Societies (SACCOS) to bring eCooking to communities and the last mile. MECS research has demonstrated how the more localised operations of cooperatives and SACCOS have clear potential to provide

sustainable community scale eCooking supply chains. Improved understanding of willingness to pay for different appliances as well as ensuring clear costings and amortisation schedules can aid eCooking financing initiatives from cooperatives and SACCOS.

CARBON FINANCE

eCooking could be made an even more attractive proposition through carbon financing (and outcome financing). To facilitate these opportunities, the benefits of the new MECS supported Gold Standard (GS) [methodology for metered & measured energy cooking devices](#) can be promoted by:

- Understanding and updating the country level non-renewable biomass fraction (fNRB), including the other default values such as the leakage proportion required for proper implementation of the methodology at sub-national levels.
- Advocating for appliances to have built-in meters and/or developing understanding of how metering and data logging of electricity use can be integrated into the provision of eCooking services (as demonstrated by innovative companies such as [ATEC](#)).
- Enhancing the integrity of survey-based approaches (e.g., field-based Kitchen Performance Tests for baseline emission factors) through better sampling and measurement methods that could address biases such as those attributed to the Hawthorne effect. Such improvements would enhance the robustness of both the emerging metered and previous methodologies.

E-COOKING AWARENESS RAISING AND PROMOTION

- Integrate cost comparisons for different cooking fuels into promotional materials. MECS data shows eCooking offers significant cost savings, with fuel costs for highly efficient EPCs over half those of LPG and purchased firewood (Figure 1). The messages are likely to have greater outreach and effectiveness if promoted and institutionally supported by

TRANSITIONING TO ELECTRIC COOKING DOES NOT MEAN A 100% SHIFT AND MAJOR BENEFITS ARE CURRENTLY VERY MUCH VIABLE FROM A PART-TRANSITION THAT NEEDS TO BE FAR MORE DYNAMICALLY PROMOTED AND ENCOURAGED.

NEA, AEPC, and other key national agencies, including those from the health sector.

- Raise consumer and sector awareness of the range of eCooking appliances on the Nepali market and their benefits such as EPCs (highly efficient, cost saving, convenience) and infrared stoves (no need to purchase compatible cookware and only marginally less efficient than induction stoves). MECS research shows people want simultaneous cooking, meaning two appliances are likely needed to support smooth transitions to using electricity as a primary cooking fuel.
- Promote part transitions not 100% transitions to eCooking. Common media narratives that shifting to eCooking means a 100% shift understandably discourage people who worry about outages, but [major benefits are currently very much viable from a part-transition](#) which needs to be far more actively promoted and encouraged.
- Mobilise cooperatives, [CREEs](#) and other local level groups to reach last mile customers. MECS research has demonstrated these organisations are well placed to fulfil this role and facilitate highly effective community member-to-member awareness raising.

AFTER SALES SERVICES

Local, hassle free, repair and maintenance solutions are urgently needed across the country. [MECS Research](#) shows if appliances experience technical issues, they usually need to be returned to Kathmandu for repairs, creating lengthy and costly turnarounds for locations outside the capital which undermine consumer confidence. There is

also a lack of formal eWaste collection and recycling infrastructure in Nepal. Given the many large eCooking distribution initiatives planned and NDC targets specifying 25% of households using electricity as a primary fuel by 2030, the need for local after sales service centres is urgent to ensure such rollouts are successful.

- Leverage and train existing local networks to provide eCooking repair and maintenance, in turn creating local economic opportunities. [MECS research](#) notes particular opportunities for women's cooperatives to fulfil this role.
- The capacity of local repair shops and local eCooking suppliers (where they exist) could be built to provide after sales services. Local suppliers are currently not widespread and federal, provincial, and local level policy needs to promote the development of rural and last mile eCooking supply chains.

STANDARDS

Measures need to be taken to ensure quality, durable, and repairable eCooking appliances are readily available in the Nepali market. MECS research shows imports of lower quality appliances and the lack of product standards and information to guide informed purchases risk undermining consumer confidence in eCooking – critical in the early stages of developing an eCooking market in Nepal.

- Establish a regulatory structure for enforcing quality standards. NBSM quality standards for eCooking appliances exist for induction stoves and hot plates and are being developed for EPCs and infrared stoves. Yet, standards are voluntary, and government (federal, provincial, & local) needs to develop directives to regulate and enforce standards.
- [MECS research](#) shows people value quality appliances and are willing to pay more once aware of the benefits of such appliances.
- Advocate for eCooking appliances to have warranties of at least two years to encourage quality products into the Nepali market and increase consumer confidence.



Image credit: PEEDA, 2021

REACHING THE LAST MILE

- Explore scope to adjust the tariff structure for lower bands to encourage further eCooking. Initial findings from MECS data indicates expanding bands 1 and 2 and easing the 'jump' between band 1 and 2 could facilitate increased adoption of eCooking.
- Explore potential for eCooking tariff restructuring to be cross subsidised by gradually reducing current LPG subsidies.

ENTERPRISE AND INSTITUTIONAL ECOOKING

MECS findings highlight interest in eCooking from enterprises and institutions and that commercial scale eCooking devices (mostly requiring three phase connections) are available in the Nepali market.

- Increase awareness of the availability of commercial scale eCooking appliances. Enterprises are largely unaware of the availability of these appliances at present and there is currently a limited supply due to selective demand (dealers supply to order).

EMERGING AREAS

Hydrogen has become increasingly prominent as a solution to reducing fossil fuel dependence, leading to greater global engagement on the fuel's technical and financial viability and its applications, including [MECS research on cooking](#).

- Explore potential for strengthening existing activities assessing the viability of using hydrogen for cooking purposes in Nepal.

COORDINATION

Many agencies are working in the Nepal eCooking sector alongside government. To enable a more effective and rapid scale up of eCooking, there is consensus on the need to improve information sharing, best practice, and stakeholder coordination. This will help identify areas of collaboration, avoid duplication, and improve outreach to all parts of Nepal.

- Operationalise suggestions provided by stakeholders at the [MECS Nepal 2023 Dissemination Workshop](#) on how to improve coordination, including the need for regular (at least quarterly) information sharing meetings in the sector.

STAKEHOLDER ENGAGEMENT

In developing this brief, the following organisations were visited and consulted on their views of the MECS research and scaling eCooking in Nepal. Feedback was also received from among the 52 registered attendees at the MECS Nepal 2023 Dissemination workshop.



Ministry of Energy Water Resources & Irrigation



Alternative Energy Promotion Centre



Nepal Electricity Authority



Foreign, Commonwealth
& Development Office

Foreign, Commonwealth & Development Office



Ajummary Bikas Foundation



Asian Development Bank



International Centre for Integrated Mountain
Development



Kathmandu University



National Mini/Micro Hydro Power Users Society
Nepal



Nepal Energy Foundation



Nepal Renewable Energy Program



NMB Bank



People, Energy & Environment Development
Association



Practical Action Consulting



Practical Action Nepal



Women Awareness Centre Nepal



Women Network for Energy and Environment

PROJECT AWARDEES AND LOCATIONS

Eight key research areas targeting eCooking scale up in Nepal

1. Assessing the long-term impact of the Electric Cooking Outreach (ECO) pilot studies.
2. In-depth exploration of the implications of households cooking entirely with electricity.
3. Cooking Support on Mini-Grids (COSMO) challenge fund.
4. Sparking the Cooking Supply Chain challenge fund.
5. Unlocking the potential for enterprise level electric cooking in Nepal.
6. A study on repair and end of life – electric cooking and domestic appliances.
7. Developing non-technical policy guidance on standards for electrical cooking appliances.
8. The impact of appliance subsidies and local repair services on a sustainable eCooking ecosystem

Arrow colour signifies project type on maps

