Request for Proposals: Controlled Cooking Tests in Indonesia

Project Background

MECS is actively researching and promoting the use of electric cooking appliances to give people an affordable clean cooking experience. It has identified a number of energy efficient appliances that may give households and small food businesses, particularly within urban settings, an opportunity to leverage their connection to the grid supply to save money when compared to using polluting fuels for the same foods, and give an experience that enhances wellbeing, eliminates health damaging kitchen emissions while at the same time mitigating contribution to global climate change emissions. This approach also has merit for government policy aspirations again to mitigate contribution to climate change, but also to reduce dependence on fossil fuel imports generally, reduce deforestation and improve the environment, while leveraging existing investment in the electrical grid.

However, **taste is everything**, and many people will say, 'don't mess with peoples food!' Across the globe cultures cook very differently and the acceptable range of tastes for any given culture is central to a peoples identity. Therefore, when households switch from charcoal to LPG, or from wood to electricity, the question of taste is a central evaluative criteria for them. Can my favourite food be cooked to the same taste (acceptable to friends, family), with electricity as when I cooked it with charcoal or gas?

It is certainly the case that one of the most energy efficient devices, the microwave, is predominantly used for reheating food (in developed economies), and while it can be used to cook from scratch, indeed it can even surface char a steak like a charcoal barbeque, it requires significant behaviour change and is sometimes a challenge to get acceptable 'tasty meals'. There are also task specific devices such as rice cookers and kettles, that while useful in the kitchen are relatively limited in what they can cook. It should be noted that rice cookers can actually cook a much wider range of foods than rice and from a training in Tanzania one participant said 'the main thing I learnt from this training is that rice cookers are badly named!'

The three leading contenders for energy efficient electrical cooking appliances[1] that can cook a majority of food on the average household menu with minimal behavioural change are induction stoves, electric pressure cookers, and airfryers.

Scope of Work

MECS is seeking a consultant/s to complete controlled cooking tests (CCT) to establish the energy consumed to prepare popular, culturally relevant dishes (that are acceptable in taste) in a replicable test.

The consultant/s should identify five to ten dishes that are in common production in an ordinary household in their country. Each dish will need to be cooked three times on each appliance. Ideas and guidance can be taken from the India ecookbook which attempted to map the most common meals, including the main dishes for different parts of India (page 8).

Each dish will then be cooked using the energy efficient devices, with close documentation of the quantities of ingredients used, the processes and their sequence for preparing the meal, time taken and number of people cooked for, with some documentation of qualitative feedback on the taste of the meal by relevant tasters.

[1] Other appliances can be suggested but if so a general commentary on why they should be considered energy efficient should be included in the application.

We note that most main dishes (e.g. page 30 of the India cookbook) may then be served with a staple such as rice to make them a 'meal'. For this exercise the staple can be measured separately (e.g page 36), with the report for this study focusing on the main part of the dish.

Although this is a CCT, the kitchen used does not have to be associated with a research institution (such as a University Lab), and the meal should be prepared by someone familiar with cooking the dishes chosen.

The key criteria for this process is that the meal should be replicable if similar food stuffs, quantities, and processes are used by another person.

The application should state which appliances will be used, the intended Brand, typical price point in retail outlets and availability.

Points to note

Typing 'Controlled Cooking Test' into a search engine will deliver this reference, which was designed for improved cookstoves and has the complication of managing the fuel source as part of the controlled test. It also suggests avoiding 'complicated foods'. Electric cooking procedures tend to be simplified, and consequently we would encourage the testing of at least one 'complicated' dish (e.g. a celebration dish).

Cooks should be allowed to practice with the new appliance before completing the CCT to make sure they are familiar with how they operate (for example, electric pressure cooking often takes a lot less water than regular simmering because the water doesn't evaporate away). Time should be allowed for this.

Deliverables, budget, and duration

The research is expected to commence no later than **1st September 2022.** All deliverables must be completed and delivered no later than **30th September 2022**. The consultant should demonstrate in their response to these ToRs how the work can be completed within the time available, particularly in relation to the availability of each appliance.

The total budget is a maximum of £8,000 (ex VAT where applicable).

Payment is contingent on successful completion of all deliverables.

Deliverable	Payment value
Contract signing	50%
Final report – documenting for each dish; - Overview of appliance used - Quantities of ingredients used, - Processes and their sequence for preparing the meal, - Time taken and number of people cooked for, - Energy used - Qualitative feedback on taste from a panel of tasters - Photographs of the dishes being prepared	50%

Communication and Reporting

The contractual requirements will be managed by the MECS Programme Manager of Loughborough University. All meetings and appointments to discuss the overall progress of the project against the contract will be agreed and arranged in advance and at mutually convenient times. Any significant changes to the approved research plan and timelines have to be discussed and approved in advance.

Loughborough University reserves the right to request the consultant/organisation to make revisions to the deliverables if they do not meet the required quality. The consultant/organisation will be required to make these revisions at no additional costs to Loughborough University.

Responding to these ToRs

Responses should be a maximum of 6 pages.

Please provide the following when responding to these ToRs

- State which dishes have been selected with a short justification why they were chosen (e.g. focus group discussion, office poll, existing research etc).
- A description of how the activities will be designed and implemented to complete the CCT.
- Which appliances and energy meters will be used.
- A description of how cooks will be recruited.
- A detailed breakdown of the budget in terms of personnel, materials, travel etc. Where costs have been estimated please highlight these and provide a brief explanation of the assumptions used to generate the cost.
- Details of all personnel who will be involved in the study, along with their responsibilities.
- A proposed Gantt chart of activities.
- As assessment of how COVID-19 might impact on the proposed activities and whether any mitigation measures can be put in place.

Proposals should be sent to MECS (mecs@lboro.ac.uk) with the subject **'Controlled cooking test'**. All proposals must be received by 23:59 GMT on **15 August 2022.**

Assessing proposals

Shortlisted consultants may be invited to an interview to finalise selection. The assessment process will take into consideration the criteria below in order to ensure **value for money**.

- Quality of proposal and methodology.
- Appreciation and understanding of the task.
- Skills, expertise and experience of consultant/organisation team members.
- Proposed management of the activities.
- Price.

Ethical considerations

All research must be in line with the Code of Practice for research, Promoting good practice and preventing misconduct (UK Research Integrity Office, 2009).

The UK Research Integrity Office (UKRIO) is an independent charity, offering support to the public, researchers and organisations to further good practice in academic, scientific and medical research. Its confidential advice service is available to free of charge to individuals (members of the public, research participants, patients, researchers and students) and subscribing organisations. Their advice service can be accessed here.

At a minimum, participants must not be subjected to physical, social, legal or psychological harm. Due consideration and ethical steps must be taken into safeguarding all participants, especially the vulnerable. A detailed Participation Information Sheet explaining the full scope of the study, what confidentiality entails, and that no participants will be forced into participating, must be provided at recruitment. Participants are to be made aware that participation is fully voluntary and there are no repercussions if they choose to no longer participate in the study at any point in time. Participants should, ideally, sign a consent form which includes consent for the use of photographs and videos.

Confidentiality must be maintained at all times. With regards to confidentiality and privacy of participation, participants must be informed that their anonymity will be maintained in any outputs and that all identifiable markers will be removed from any data sets that are published. Additionally, due consideration must be made to ensure that participants are safeguarded during the research process in line with the local government issued guidelines around COVID-19.

The consultant will be responsible for securing any research or ethical permissions needed from local authorities in each of the field work locations. There may be additional ethical, or research clearance needed for this kind of user centric design research in the chosen country.