

MODERN ENERGY COOKING SERVICES (MECS)

Development of MEPS and Safety Standards for Selected eCooking Appliances in Tanzania



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Development of MEPS and Safety Standards for selected 4 eCooking Appliances

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Acronyms

AA	Action Agenda
EAC	East Africa Community
EE	Energy Efficiency
EU	European Union
GB	Guojia Biaozhun, (Chinese national standards)
GDP	Gross Domestic Product
GHG	Greenhouse Gas Emissions
GoT	Government of Tanzania
IEC	International ElectroTechnical Committee
IEEE	Institute of Electrical and Electronics Engineers
ISO	International Standards Organization
kWh	Kilo Watt Hours
MEPS	Minimum Energy Performance Standards
NDCs	National Determined Contributions
SADC	Southern Africa Development Community
S&L	Standards and Labelling
TBS	Tanzania Bureau of Standards
TC	Technical Committee
TWG	Technical Working Group
UNDP	United Nations Development Programme

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Executive Summary

The primary objective of the assignment was to develop Minimum Energy Performance Standards (MEPS) to ensure that selected eCooking appliances on sale in Tanzania meet defined energy performance criteria. This report outlines the process that has been followed in developing the MEPS and safety standards.

The development of MEPS is crucial as Tanzania transitions towards electric-based cooking solutions. By establishing clear energy performance thresholds, MEPS not only help reduce the electricity consumption associated with a transition to eCooking but also promote the adoption of energy-efficient appliances, which will bring both economic and environmental benefits. Furthermore, MEPS will contribute to lowering household cooking costs, improving energy access, and supporting Tanzania's national sustainability targets.

Significant progress has been made in the development of the related MEPS and safety standards. A Technical Working Group (TWG) consisting of experts from various organizations was constituted. Three meetings were organized after which relevant draft standards were developed. This collaborative approach has ensured that the standards are both relevant and feasible across Tanzania's diverse market, setting a solid foundation for future market changes.

However, several challenges emerged during the development process. The lack of reliable data on the energy consumption of eCooking appliances available locally made it difficult to establish accurate performance thresholds. Despite these challenges, the TWG was able to agree on performance thresholds that allow for gradual market transformation in Tanzania.

Several key lessons were learned through the process. First, the importance of robust, data-driven decision-making was emphasized, highlighting the need for accurate local data on appliance performance to develop practical standards. Continuous stakeholder engagement proved essential for building consensus and ensuring broad support for the MEPS. The process also revealed the need for flexibility in standards to accommodate future technological advancements and market dynamics. Lastly, raising consumer awareness about the benefits of energy-efficient electric cooking solutions will be crucial for successful implementation. Consumer sensitization will play a key role in achieving the desired outcomes in the expected market transformation.

The development of MEPS for eCooking appliances in Tanzania marks a significant step toward promoting energy efficiency, sustainability, and cost-effective cooking solutions.

Despite the challenges encountered, the progress made in setting these standards provides a solid foundation for future improvements and enforcement. The MEPS initiative has the potential to transform the national clean cooking sector, reduce energy costs, and entrench eCooking in the country.

1 Introduction

This report outlines the steps taken in developing the new MEPS for eCooking appliances in Tanzania. The establishment of these MEPS represents a crucial move toward promoting energy efficiency and supporting the country's broader sustainability goals. As Tanzania continues its transition from traditional cooking methods to more modern, electric-based solutions, the need for regulations that ensure energy-efficient appliances becomes increasingly important. MEPS serve as a vital tool for setting performance benchmarks and guiding manufacturers, consumers, and policymakers in the adoption and use of energy-efficient eCooking appliances.

The report details the process of developing MEPS for selected eCooking appliances, focusing on the justification for their development, the progress made, the challenges faced, and the key lessons learned throughout the development journey. By implementing these standards, Tanzania aims to foster sustainable cooking practices, improve household energy access, and ease the overall energy burden on the nation.

The report also emphasizes the importance of collaboration among key stakeholders, including government agencies, industry representatives, and consumers, in shaping the MEPS to ensure they are practical, achievable, and responsive to market needs. Through this initiative, Tanzania seeks to establish a more energy-efficient, environmentally responsible, and economically sustainable cooking sector.

1.1 Tanzania Energy Efficiency Action Plan

The Tanzania Energy Efficiency Action Plan (TEEAP) is a strategic initiative aimed at enhancing energy efficiency across various sectors within the country. Developed by the Government of Tanzania in collaboration with key stakeholders, the action plan outlines specific measures and actions needed to optimize energy use in residential, industrial, and commercial sectors.

The overall objective of the Action Plan is to ensure access to affordable, reliable, sustainable, and modern energy for all in Tanzania. The Project intends to support the implementation of the National Energy Policy 2015, and strategic goals and targets set by the Tanzania National Development Vision 2025 as well as the newly enacted National Energy Efficiency Strategy 2024 - 2034, focusing on ensuring that Energy Efficiency plays a crucial role in contributing to the economic and social development of the country.

The plan emphasizes the importance of reducing energy consumption, minimizing waste, and promoting the use of energy-efficient technologies to contribute to sustainable economic growth while addressing environmental concerns.

Implementing the Energy Efficiency Action Plan aims to achieve Energy Efficiency in households, industry and public utilities, and buildings by implementing the seven key energy efficiency actions. The Project seeks to help the country in strengthening its legal, regulatory, and institutional frameworks, as well as administrative measures, to facilitate the implementation and adoption of energy efficiency initiatives. It also seeks to assist large energy consumers and the general public in identifying and implementing measurable energy efficiency investments while increasing public awareness of the benefits and opportunities associated with energy efficiency.

The Action Plan identified the Development and Implementation of MEPS (Action 2) as a priority among other areas. MEPS are procedures defining the minimum energy performance of manufactured products (i.e., the maximum energy the product shall consume). Energy labels complement MEPS by providing information to consumers that enables the selection of more efficient models that consume less electricity. The MEPS and labelling schemes will be essential for the conformity assessment of products in checking compliance against established regulatory frameworks. According to Standards Act No. 2 of 2009, this will be implemented by the Tanzania Bureau of Standards (TBS).

The development of eCooking MEPS build upon the Action Plan by developing an additional three MEPS (for EPC, rice cooker, and induction hob) and investigating quality and safety for one additional eCooking appliance (the air fryer).

1.2 Standards and Labelling

Standards and labelling are essential tools in promoting energy efficiency and consumer protection. Standards refer to established criteria or technical specifications that a product, service, or system must meet. They are designed to ensure safety, performance, and quality. In the context of energy efficiency, MEPS are the key regulations that define the minimum energy efficiency requirements for appliances, equipment, or buildings. These standards help reduce energy consumption, lower greenhouse gas emissions, and support sustainability goals.

Labelling refers to the practice of displaying information on products that helps consumers make informed choices. Energy labels are a specific type of label that provides clear, easily understood information about the energy consumption or efficiency of a product. These labels

often include a rating scale, such as a letter or number grade, to indicate how energy-efficient a product is compared to others.

1.3 S&L in Tanzania

Standards and Labelling (S&L) programmes will be critical policy instruments for enhancing energy efficiency and protecting consumers. In Tanzania, the implementation of S&L initiatives is still in its early stages but is now receiving the much-needed policy support in response to the growing demand for energy, the need for climate resilience, and the promotion of clean technologies such as electric cooking appliances.

Tanzania has adopted MEPS and energy efficiency labels for selected electrical appliances to encourage the uptake of energy-efficient technologies. These include refrigerators, air conditioners, electric fans, electric motors, and televisions. The draft MEPS for these appliances have undergone public review and are currently awaiting final approval by the Tanzania Bureau of Standards (TBS).

TBS is the national standards body responsible for the formulation, adoption, and implementation of standards in the country. Operating under the Ministry of Industry and Trade, TBS collaborates with key stakeholders such as the Ministry of Energy, the Energy and Water Utilities Regulatory Authority (EWURA) to ensure coordinated and effective enforcement of standards across different sectors.

Energy labels in Tanzania are designed to provide consumers with clear and accessible information about the energy efficiency of appliances at the point of purchase. These labels typically include an energy efficiency rating (e.g., star rating or grade), estimated energy consumption, and product details such as brand and model. The primary objective is to empower consumers to make informed purchasing decisions while creating market incentives for manufacturers and distributors to supply high-efficiency products.

Despite the promising benefits, Tanzania's S&L programme faces several challenges, including:

- Low awareness among consumers and retailers regarding energy labels
- An influx of low-quality and non-compliant appliances in the market
- Limited national capacity for testing and verifying appliance performance

However, the government has expressed strong commitment to strengthening the S&L regime through the following strategies:

- Enhancing public awareness and education campaigns
- Building institutional capacity for market surveillance and product testing

- Collaborating with regional and international bodies to harmonize standards
- Establishing a robust Monitoring, Verification, and Enforcement (MVE) framework

Ongoing support from government agencies, the private sector, and development partners will be vital to the success of these programmes. As Tanzania continues to advance its energy transition and clean energy goals, S&L initiatives will play an increasingly important role in ensuring efficiency, quality, and consumer protection in the appliance market.

2 Overview of eCooking in Tanzania:

eCooking is gaining momentum in Tanzania as a modern, clean, and sustainable alternative to traditional cooking fuels such as charcoal, firewood, and kerosene. With increased access to electricity through grid expansion and decentralized renewable energy solutions, eCooking with modern, energy efficient cooking appliances presents a viable pathway to enhancing energy access, reducing deforestation, improving public health, and mitigating climate change.

2.1 Key drivers of eCooking

The key drivers of eCooking adoption in Tanzania stem from a combination of economic, environmental, social, and technological factors that make the transition from traditional cooking methods to eCooking increasingly viable and attractive. These factors include the following:

2.1.1 Access to Affordable Electricity

In recent years, Tanzania has made substantial progress in expanding its national electrification efforts, with the government prioritizing access to electricity in both urban and rural areas. According to the World Bank, over 82% of the urban population now has access to electricity. The Rural Energy Agency (REA) aims to electrify all villages across the country by 2025, creating a strong foundation for the adoption of eCooking solutions.

Tanzania is also well-endowed with renewable energy resources such as hydropower, solar, and natural gas, which are playing a key role in boosting electricity generation. The government's commitment to integrating more renewable energy into the national grid supports the transition to clean energy technologies like eCooking. A major milestone in this effort is the full commissioning of the Julius Nyerere Hydropower Plant, which has added 2,115 MW to the national grid—raising Tanzania's total installed generation capacity to 4,031.71 MW. This increased capacity, coupled with a cleaner energy mix, makes eCooking a more sustainable and viable option for households across the country.

2.1.2 Government Policies and Support

The Tanzanian government has been supportive of clean cooking initiatives, including eCooking, through favorable policies, incentives, and subsidies aimed at reducing the initial cost of eCooking appliances. The government has developed the National Clean Cooking Strategy 2024 – 2034 which is a policy framework aimed at addressing the health, environmental, and economic challenges caused by traditional cooking methods, such as the use of firewood and charcoal. These methods contribute to indoor air pollution, deforestation, and financial strain on households. The strategy promotes the adoption of cleaner, more

sustainable cooking technologies, including improved biomass cookstoves, liquefied petroleum gas (LPG), and electric cooking (eCooking), aligning with Tanzania's broader goals of enhancing energy access, improving public health, fostering environmental sustainability, and mitigating climate change.

2.1.3 Health and Environmental Benefits

Indoor Air Pollution Reduction - Traditional cooking methods using biomass (such as firewood, charcoal, and crop residues) result in high levels of indoor air pollution, which can cause respiratory diseases, especially among women and children. eCooking offers a cleaner alternative with little to no indoor air pollution, improving health outcomes.

Climate Change Mitigation: eCooking is seen as a key strategy to reduce deforestation and the environmental degradation associated with the collection of firewood and charcoal. By transitioning to eCooking, the pressure on local ecosystems from the demand for fuelwood is reduced, contributing to environmental conservation and climate change mitigation.

2.1.4 Rising Costs of Traditional Fuels

The cost of traditional cooking fuels like charcoal and firewood in Tanzania has been rising due to supply chain issues, deforestation, and increasing demand. In urban areas where charcoal is the primary cooking fuel, the cost can be burdensome for households. eCooking provides an alternative that can reduce reliance on these costly and increasingly scarce fuels.

As Tanzania experiences rapid urbanization, traditional biomass cooking is becoming less feasible in towns where fuelwood is less available and expensive. Electricity for cooking is seen as a more sustainable and efficient option for urban dwellers.

2.1.5 Technological Advancements and Affordability of eCooking Appliances

The development and availability of affordable eCooking appliances (e.g., electric pressure cookers, induction stoves, electric kettles) make eCooking more practical for Tanzanian households. The efficiency of these appliances and their affordability have improved over the years, making them a more accessible option for households.

Innovations in payment systems, especially Pay-as-You-Go (PAYG) models, have made eCooking appliances more affordable for low-income households. These models allow consumers to pay in instalments for the appliances, making them accessible even to those who cannot afford the upfront cost as a one-off payment.

2.1.6 Increasing Awareness and Consumer Preferences

As the population becomes more urbanized and exposed to modern cooking methods, there is a growing preference for clean, efficient, and time-saving cooking technologies. Many

Tanzanians are gradually adopting eCooking due to its convenience, safety, and reliability compared to traditional biomass stoves.

Public and private sector campaigns aimed at raising awareness about the health and environmental benefits of clean cooking technologies have played a significant role in shifting consumer attitudes toward eCooking.

2.1.7 International Support and Funding

In response to the government efforts to develop a national strategy on clean cooking, international partners such as the World Bank, AfDB, UKAid, EU, GCF, MECS, and CCA, are supporting eCooking initiatives in Tanzania. The support includes financial backing, technical expertise, awareness campaigns and capacity-building programs that support the scaling of eCooking solutions.

2.2 Challenges to eCooking Adoption in Tanzania

Despite the many benefits of eCooking, there are several challenges that hinder its widespread adoption in Tanzania. These include:

2.2.1 Lack of Performance Standards on eCooking appliances

The lack of performance standards for eCooking appliances in Tanzania serves as a significant barrier to their widespread adoption. Without clear, established standards for energy efficiency, safety, and quality, consumers may be hesitant to invest in eCooking solutions due to concerns about the reliability and longevity of the appliances. This uncertainty can also deter manufacturers from entering the market or producing high-quality, durable products, limiting the availability of trustworthy and efficient options. Additionally, the absence of standardized testing and certification processes can lead to a market flooded with subpar or inefficient products, undermining consumer confidence and slowing the transition to cleaner cooking technologies. Establishing performance standards would not only assure consumers of the quality and benefits of eCooking appliances but also stimulate innovation and competition in the market, ultimately contributing to the growth of the sector.

2.2.2 Reliability of the Electricity Grid

One of the key challenges to eCooking adoption in Tanzania is the unreliable electricity grid, especially in rural areas where power outages and voltage fluctuations are common. These disruptions create uncertainty about the effectiveness of eCooking appliances, making households hesitant to switch from traditional cooking methods due to concerns over consistent electricity supply.

However, there are ongoing efforts by the Government of Tanzania to expand and improve the electricity infrastructure. As stated, over 82% of the urban population now has access to electricity. The Rural Energy Agency (REA) aims to electrify all villages across the country by 2025, creating a strong foundation for the adoption of eCooking solutions, and in the longer term with the new and increased generation, reliability will be strong on the agenda of planning.

2.2.3 High Upfront Cost

The high initial cost of eCooking appliances is another significant barrier. Although eCooking appliances are more energy-efficient, their purchase price can be prohibitive for many low-income households. Without affordable financing options or subsidies, many families find it difficult to invest in appliances like induction cookers or electric pressure cookers, limiting the widespread adoption of eCooking.

As stated, innovations in payment systems, especially Pay-as-You-Go (PAYG) models, have made eCooking appliances more affordable for low-income households. These models allow consumers to pay in instalments for the appliances, making them accessible even to those who cannot afford the upfront cost as a one-off payment.

2.2.4 Limited Consumer Awareness

Limited awareness about the benefits of eCooking remains a major challenge. Many households are unaware that switching to eCooking from other paid-for fuels can significantly reduce cooking fuel costs. Additionally, the health, environmental, and time-saving benefits of eCooking are not widely understood. This lack of awareness contributes to consumer reluctance to move away from traditional cooking methods such as firewood or charcoal, which are more familiar and culturally ingrained.

To address this gap, the MECS programme in collaboration with the Ministry of Energy will implement a targeted consumer education and awareness campaign at both community and national levels. This will emphasize the economic, health, and environmental advantages of eCooking, as well as its convenience. Collaborations with trusted local influencers, community leaders, and extension agents will help build credibility and effectively communicate these benefits. Outreach strategies such as live demonstrations, radio programs, and customized messaging in local languages will be used to deepen engagement and promote widespread adoption.

2.2.5 Cultural Barriers

Cultural factors also play a significant role in hindering the adoption of eCooking. Traditional cooking methods that rely on firewood and charcoal are deeply ingrained in Tanzanian society. Changing long-standing habits and practices requires extensive education and outreach to

demonstrate the practical advantages of eCooking, and overcoming these cultural barriers will take time and trust-building efforts.

To address cultural resistance to eCooking, sustained community engagement and culturally sensitive education campaigns are essential. Programmes that collaborate with local champions such as respected elders, women's groups, and community leaders can help promote the benefits of eCooking in a relatable and trusted manner. Cooking demonstrations featuring familiar dishes prepared with electric appliances will be key in proving that traditional meals can still be made effectively using modern methods. Over time, these locally grounded approaches will help shift perceptions, build trust, and gradually integrate eCooking into daily routines without compromising cultural identity.

3 Minimum Energy Performance Standards (MEPS)

MEPS are regulatory standards designed to ensure that appliances and equipment meet a specified minimum energy efficiency threshold. These standards set the lowest acceptable levels of energy efficiency or the maximum energy consumption that appliances or equipment must comply with before they are allowed to be sold on the market. MEPS play a crucial role in promoting energy efficiency, reducing energy consumption, cutting carbon emissions, and helping consumers save on energy costs.

By setting baseline energy performance levels, MEPS drive the market towards adopting more energy-efficient technologies, which in turn lowers energy costs, reduces greenhouse gas emissions, and supports sustainable development goals. In Tanzania, the development and implementation of MEPS will be vital to reducing overall energy consumption, improving sustainability, and achieving climate goals. The introduction of MEPS can act as a catalyst for market transformation, lowering energy costs for consumers while helping the country meet its energy efficiency targets and advancing its environmental commitments.

3.1 Objectives of MEPS

The primary objectives of MEPS are:

- i. Enhancing energy efficiency – Ensuring that appliances and equipment consume less energy while maintaining performance.
- ii. Reducing electricity consumption – Helping to lower energy consumption at the national level compared to that used by less efficient appliances, reducing the strain on power generation and distribution systems.
- iii. Cutting costs for consumers – Encouraging the use of efficient appliances that lower electricity bills.
- iv. Mitigating climate change – Reducing greenhouse gas emissions.
- v. Encouraging technological innovation – Driving manufacturers to develop more efficient and sustainable products.

3.2 Scope of MEPS

MEPS apply to a wide range of energy-consuming products, including:

- Household appliances (refrigerators, air conditioners, washing machines, lighting).
- eCooking appliances – Electric Pressure Cookers (EPCs), Rice cookers, Induction hobs, etc.
- Industrial equipment (electric motors, compressors, transformers).
- Commercial products (HVAC systems, water heaters, vending machines).

MEPS do not dictate product design but set performance benchmarks, allowing manufacturers flexibility in achieving compliance through technological advancements.

3.3 Development and Implementation of MEPS

3.3.1 Setting MEPS Levels

MEPS levels are determined based on:

- i. Market analysis and product testing to assess the efficiency of available appliances.
- ii. International best practices and benchmarking with global efficiency standards.
- iii. Cost-benefit analysis to ensure that compliance is economically viable for consumers and manufacturers.

3.3.2 Enforcement Mechanisms

To ensure compliance, MEPS enforcement involves:

- i. Product testing and certification before products enter the market.
- ii. Market surveillance and inspections to verify adherence to standards.
- iii. Penalties and sanctions for non-compliant manufacturers and retailers.

3.3.3 MEPS Complementary Policies

MEPS are often integrated with energy labeling programs, which play a critical role in informing consumers about the energy efficiency of the appliances they purchase. Energy labels provide a visible and easy-to-understand rating system that communicates the energy consumption and efficiency of appliances. This empowers consumers to make informed choices that align with their energy-saving goals and budget, encouraging the adoption of more efficient appliances. By complementing MEPS with energy labeling, the government and policymakers can promote transparency in the market and help consumers better understand the long-term benefits of investing in energy-efficient appliances. This project included the development of energy labels for the focus eCooking appliances.

Complementary policies can also include financial incentives such as subsidies or rebates to encourage the purchase of energy-efficient appliances. These incentives help offset the initial cost of energy-efficient appliances, making them more accessible to a wider range of consumers, particularly in developing markets where upfront costs can be a significant barrier to adoption. Additionally, these incentives can stimulate market demand for energy-efficient appliances, which in turn encourages manufacturers to invest in innovation and the production of higher-performing appliances.

Beyond labeling and financial incentives, additional complementary policies can also include public awareness campaigns aimed at educating consumers about the importance of energy

efficiency. These campaigns can target specific demographics, such as peri-urban households or rural communities, to ensure broad participation in energy-saving initiatives. By raising awareness, policymakers can foster a culture of energy conservation and sustainability that complements the technical objectives of MEPS.

The increased adoption of eCooking appliances will likely lead to increased e-waste in the country. Therefore, regulatory frameworks for waste management, product disposal, and recycling will be key to the effective implementation of MEPS. For instance, regulations can be put in place to ensure that products are disposed of responsibly at the end of their life cycle, preventing energy-inefficient appliances from being discarded improperly. This ensures that energy efficiency does not just apply to the appliance's use phase but is extended throughout its lifecycle, from manufacturing to disposal.

3.4 Benefits of MEPS in eCooking

3.4.1 For Consumers

MEPS ensure that only energy-efficient appliances are available in the market, delivering multiple benefits to consumers. Firstly, energy-efficient appliances help reduce electricity bills by using less power to perform the same tasks as conventional models, resulting in significant energy savings. This is especially important in regions where electricity costs are high, as lower energy consumption translates to more manageable utility expenses.

In addition to reduced operating costs, MEPS encourage the availability of higher-quality appliances that are often built using advanced materials and modern technologies. This typically results in longer lifespans and less frequent need for repairs or replacements—delivering better value for money in the long term. Moreover, these efficient appliances tend to offer enhanced performance, including faster operation, more accurate controls, and improved functionality, which collectively enhance the overall user experience.

For consumers adopting eCooking, using efficient appliances such as Electric Pressure Cookers (EPCs), rice cookers, induction hobs, and air fryers brings direct financial savings compared to other fuels like LPG and charcoal. The more efficient the appliance, the greater the savings. Durable appliances further ensure that consumers benefit from long-lasting products, reducing the frequency and cost of replacements.

Importantly, MEPS also play a role in building consumer confidence. When consumers are assured that appliances meet minimum efficiency and quality standards, they are more likely

to adopt eCooking technologies. Increased adoption contributes to reduced indoor air pollution—a major health hazard particularly affecting women and children in households that rely on biomass for cooking. Therefore, MEPS not only support economic benefits at the household level—such as saving money and time—but also improve health and well-being, driving long-term social and environmental gains.

3.4.2 For the Country

As more consumers adopt eCooking solutions, ensuring that they transition to efficient appliances has significant national benefits. By promoting the use of energy-efficient eCooking appliances, the overall electricity demand is considerably lower than it would be if less efficient models were used. This reduced demand eases pressure on the national electricity infrastructure, making the eCooking transition more manageable and cost-effective for the country.

In the context of Tanzania’s ongoing expansion of electricity infrastructure, the widespread adoption of efficient eCooking appliances minimizes strain on the national grid. This can help stabilize electricity prices and defer the need for costly upgrades or expansions to power generation and distribution facilities. The result is a more resilient and financially sustainable energy system.

Moreover, MEPS foster a growing market for energy-efficient technologies, which encourages innovation and attracts both local and foreign investment. This stimulates the development and adoption of advanced, cost-effective appliances. The expanding eCooking sector also supports job creation in various segments of the economy—including research and development, manufacturing, sales, installation, maintenance, and after-sales services.

As demand for high-efficiency appliances grows, manufacturers and startups have more opportunities to scale up operations, increasing competitiveness and fostering industrial growth. This, in turn, contributes to local economic development, reduces unemployment, and supports Tanzania’s broader goals of industrialization and sustainable development.

3.4.3 For the Environment

The adoption of MEPS for eCooking appliances contributes significantly to environmental sustainability. In Tanzania, as the country transitions to cleaner electricity sources such as hydropower and solar, coupling this shift with the widespread use of efficient eCooking appliances ensures that the environmental benefits of renewable energy are maximized. Efficient appliances require less energy to operate, which means that a greater portion of the

available clean energy can serve more households and productive uses without necessitating additional power generation capacity.

Furthermore, as more households move away from traditional biomass fuels such as firewood and charcoal, MEPS-supported eCooking adoption directly reduces deforestation and forest degradation. This is particularly important in rural and peri-urban areas where wood fuel remains a dominant source of energy. Reduced biomass use also means lower indoor air pollution, which has environmental as well as health benefits.

Therefore, from an environmental perspective, MEPS support a cleaner energy future by minimizing energy waste, reducing harmful emissions, and preserving natural ecosystems—aligning well with Tanzania’s climate action goals and international commitments under the Sustainable Development Goals (SDGs) and the Paris Agreement.

3.5 Challenges in MEPS Implementation

The implementation of MEPS faces several challenges that can impede their effectiveness and broader adoption. These challenges can arise from both institutional and market factors, requiring solutions to ensure that MEPS are successfully enforced and achieve the intended energy efficiency improvements.

3.5.1 Compliance and enforcement difficulties

A major challenge in implementing MEPS is the limited institutional capacity for effective compliance and enforcement. Regulatory bodies often lack sufficient resources, technical expertise, and infrastructure to properly monitor and enforce standards. This can lead to weak monitoring systems, inconsistent inspections, and inadequate penalties, allowing inefficient products to remain in the market. Strengthening institutional capacity through enhanced training for inspectors, testing capacity, increased funding for regulatory agencies and the use of technology for monitoring is crucial to ensure effective enforcement and the success of MEPS. In Tanzania, MECS is supporting TBS to build testing capacity for testing MEPS which will partly assist in overcoming this barrier.

3.5.2 High upfront costs for manufacturers

For manufacturers, transitioning to energy-efficient technologies that meet MEPS standards could be a significant financial burden, especially in developing markets where purchasing power is limited. The costs involved in research and development, redesigning products,

conducting testing, and retooling production facilities can be costly. While local manufacture of eCooking appliances is at the very early stages in Tanzania, local manufacturers may lack the financial resources to make the necessary investments in energy-efficient technologies, making compliance with MEPS more difficult. To support this transition, offering financial incentives such as subsidies, tax credits, and low-interest loans could encourage innovation, ease the financial strain on manufacturers, and facilitate their move toward greener, more energy-efficient production methods. Many of the international manufacturers that serve the EAC regional market are well prepared to make the demand shift since they are already producing appliances for markets that require MEPS like Europe, Australia and Asia.

3.5.3 Lack of Consumer Awareness

A major challenge in implementing MEPS is the lack of consumer awareness about the advantages of energy-efficient appliances. Many consumers are unaware of how energy efficient eCooking appliances can reduce electricity bills (compared to inefficient eCooking appliances), or their expenditure on cooking fuels in general. They may also be unaware that adopting energy efficient appliances minimizes environmental impact and leads to long-term savings. As a result, they may prioritize lower-cost, less efficient products, which undermines the effectiveness of MEPS standards in driving energy efficiency. To address this, public education campaigns are essential to raise awareness about the benefits of energy-efficient appliances, offering clear information such as energy efficiency labels and consumer guides to help consumers make more informed purchasing decisions. These initiatives will not only empower consumers but also foster a market demand for energy-efficient products, contributing to a more sustainable and energy-conscious society. By ensuring consumers understand the value of energy-efficient choices, we can strengthen the impact of MEPS and encourage a transition to greener technologies. One of the key components of the MECS programme is a nationwide awareness campaign for adoption of eCooking. MEPS could be incorporated as one of the awareness pillar.

3.5.4 Need for Harmonization of Standards

The lack of harmonized MEPS standards across regions presents significant challenges, especially for countries where appliances are traded across borders. Varying standards create hurdles for manufacturers who must meet multiple regulatory requirements, driving up production costs and leading to inefficiencies in the manufacturing process. Additionally, inconsistent standards can cause market fragmentation, where some regions adopt higher standards while others remain behind, slowing down global progress toward improved energy

efficiency. By harmonizing MEPS standards at regional or international levels, manufacturers would benefit from a unified set of regulations, reducing production costs, facilitating trade, and ensuring that global efficiency gains are leveraged, ultimately advancing sustainability efforts on a global scale. Currently, there is an ongoing push for harmonization.

3.6 Justification for MEPS for eCooking Appliances in Tanzania

The adoption of MEPS for eCooking appliances in Tanzania is crucial for ensuring energy efficiency, consumer protection, and sustainability. As Tanzania transitions towards cleaner cooking solutions, establishing MEPS will help regulate the market, improve appliance performance, and reduce energy consumption while supporting the country's energy and climate goals. The following are the key reasons for adoption of MEPS:

3.6.1 Enhancing Energy Efficiency and Reducing Electricity Demand

MEPS ensure that only efficient versions of the modern eCooking appliances are allowed to enter the market, ensuring that as a household adopts modern eCooking appliances, their incremental increase in electricity use is kept as small as dictated by the MEPS. Keeping the additional electricity use for eCooking small is particularly important as the adoption of eCooking appliances increases, which can help manage the growing national electricity demand, especially with the expansion of the electricity grid and mini-grid developments.

3.6.2 Supporting Clean Cooking Transition and Reducing Biomass Dependency

A significant portion of Tanzanian households depend on biomass fuels like firewood and charcoal for cooking, which leads to deforestation, as trees are cut down at unsustainable rates. Additionally, these traditional fuels contribute to indoor air pollution, which has detrimental health effects, particularly for women and children who are most exposed to cooking smoke. By introducing MEPS, the adoption of efficient eCooking appliances is incentivized, encouraging households to transition from these harmful fuels to cleaner energy alternatives such as grid electricity and solar-powered cooking systems. This shift not only helps reduce the environmental impact of deforestation but also improves air quality, contributing to better health outcomes for families and advancing Tanzania's commitment to sustainability.

3.6.3 Ensuring Consumer Protection and Appliance Quality

MEPS establish clear and enforceable energy performance standards, ensuring that only eCooking appliances that meet these criteria are allowed into the market, thereby protecting consumers from substandard or unsafe products.

Safety and quality standards will prevent the entry of low-quality appliances that could pose safety risks, such as electrical hazards, fires, or health risks associated with poor performance.

These substandard products, often imported at lower costs, tend to degrade quickly and underperform, leading to consumer dissatisfaction and potentially hazardous situations. In contrast, regulated markets that adhere to MEPS and related quality standards ensure that only appliances with verified durability, safety, and efficiency are available to consumers, fostering consumer confidence and market stability. As a result, consumers benefit from products that not only last longer but also function efficiently, reducing the likelihood of repairs or replacements. Overall, MEPS and safety standards create a more reliable and sustainable market environment, where consumers can make informed choices, ultimately enhancing their satisfaction and safety.

3.6.4 Reducing Greenhouse Gas (GHG) Emissions

Inefficient appliances consume more electricity, leading to higher carbon emissions as power plants generate additional electricity to meet the increased demand. By setting and enforcing MEPS, Tanzania can promote the use of energy-efficient appliances that help reduce overall electricity consumption, thus minimizing the demand for carbon-intensive power generation. These standards support the country's climate change commitments by curbing greenhouse gas (GHG) emissions, contributing to national and global efforts to reduce the impacts of climate change. As more consumers adopt energy-efficient appliances, the reduction in electricity wastage and subsequent decrease in carbon emissions will play a critical role in achieving Tanzania's sustainability and climate goals.

3.6.5 Aligning with Regional and International Standards

Establishing MEPS for eCooking appliances allows Tanzania to align its energy efficiency standards with regional and global regulations, ensuring that its market remains competitive and compliant with international best practices. This alignment not only facilitates trade by ensuring that Tanzanian appliances meet the required standards for export but also encourages the import of high-quality, energy-efficient appliances into the country. Harmonizing standards with the East African Community (EAC) and the Southern African Development Community (SADC) energy policies further promotes regional market integration, creating a unified approach to energy efficiency. Cross-border appliance standardization helps streamline production and reduces barriers to trade, benefiting both consumers and manufacturers by ensuring access to reliable, energy-efficient appliances across the region..

3.6.6 Strengthening Market Monitoring, Verification, and Enforcement (MVE)

MEPS establish a clear framework for Monitoring, Verification, and Enforcement (MVE) mechanisms, which are critical in ensuring that products on the market adhere to the set performance standards. By creating robust MVE systems, regulatory bodies can track and

assess the compliance of manufacturers and importers with the required standards. This reduces the presence of non-compliant and counterfeit eCooking appliances in the market, protecting consumers from unsafe, inefficient, and potentially harmful products. With verified and certified products, consumers can have confidence in the quality and safety of the appliances they purchase, leading to improved consumer trust and market reliability.

3.6.7 Supporting Industrial Growth and Innovation

MEPS encourage both local and international manufacturers to invest in innovation and improve the energy efficiency of eCooking appliances, driving technological advancements in the sector. By setting clear performance standards, these regulations create a competitive market where manufacturers are motivated to develop more efficient and cost-effective products. Additionally, the policy fosters an enabling environment for investment in sustainable energy technologies, attracting both local and foreign investors interested in contributing to Tanzania's clean energy transition. This not only supports the growth of the eCooking industry but also aligns with Tanzania's broader goals of industrialization and economic development, creating new business opportunities and jobs in the energy sector.

4 Development of MEPS in Tanzania

The development of MEPS in Tanzania involved a structured, multi-stakeholder approach to ensure effectiveness, feasibility, and alignment with national energy goals. A crucial step in this process was the formation of Technical Working Groups (TWGs), which brought together experts from various sectors to guide the development of draft MEPS and applicable safety and quality standards, under the direction of the MEPS Consultant.

4.1 Objectives of the Technical Working Groups (TWGs)

The following were the objectives for the formation of TWGs:

- i. To provide technical expertise in drafting, reviewing, and finalizing draft MEPS for the selected eCooking appliances.
- ii. To align the targeted MEPS with regional and international standards, ensuring compatibility with trade policies and cross-border regulations.
- iii. To ensure active participation of relevant stakeholders, including government agencies, regulatory bodies, private sector players, consumer groups, and development partners.
- iv. To enhance knowledge and skills among policymakers, industry players, and enforcement agencies on MEPS development and implementation.

4.2 Benefits of Technical Working Groups in MEPS Development

The establishment of TWGs brings several benefits to the MEPS development process, including:

1. Enhanced Technical Expertise – By involving subject matter experts from different fields, TWGs ensure that MEPS are scientifically sound, technically feasible, and industry-relevant.
2. Stakeholder Inclusivity – A participatory approach fosters ownership and acceptance of MEPS by all key stakeholders, reducing resistance during implementation.
3. Informed Decision-Making – TWGs facilitate data-driven policymaking, ensuring that standards are set based on market realities, energy savings potential, and environmental impact assessments.
4. Regulatory Alignment – The groups help in harmonizing national MEPS with international best practices, facilitating trade and market access for energy-efficient products.

4.3 TWG Process

The development of the MEPS for eCooking appliances in Tanzania involved a rigorous process that emphasized the adoption of international standards while ensuring local relevance. Initially, the TWG focused on reviewing existing global standards for eCooking appliances, particularly those set by international organizations such as the International Electrotechnical Commission (IEC) and the International Energy Agency (IEA). These international benchmarks provided a foundation for setting Tanzania's MEPS, ensuring that the country's standards align with global best practices while maintaining feasibility for local conditions.

The TWG engaged in comprehensive discussions to tailor the international standards to the specific needs of the Tanzanian market. This process included reviewing the energy consumption patterns of various eCooking appliances, evaluating local consumer behavior, and considering the electricity infrastructure in different regions of Tanzania. By combining global insights with local expertise, the TWG worked to develop standards that would not only meet international expectations for energy efficiency but also be practical and achievable within the local context. The TWG also assessed factors such as appliance durability, safety, and affordability, ensuring that the MEPS would promote both high performance and consumer satisfaction.

After drafting the proposed MEPS, the TWG held a series of review sessions to ensure that all technical aspects were covered and that the standards were applicable to a wide range of eCooking appliances. The discussions involved thorough evaluations of appliance types, including electric pressure cookers, induction hobs, and rice cookers, with input from manufacturers, energy experts, and government representatives. The review process facilitated a consensus among stakeholders, helping to address any concerns about feasibility and adaptability. The TWG's collaborative efforts ensured that the MEPS were not only in line with international standards but also appropriately tailored to meet the needs of the Tanzanian market.

The consensus reached by the TWG on the final draft of the MEPS was the result of careful consideration of both technical and practical factors. By incorporating international standards and aligning them with local realities, the TWG developed a set of MEPS that balances global energy efficiency goals with Tanzania's unique energy landscape. The adoption of these standards marks a significant milestone in improving energy efficiency in the country, promoting sustainable cooking technologies, and contributing to broader national goals of energy conservation and climate change mitigation.

These efforts by the TWG represent a critical step in standardizing eCooking appliances in Tanzania, promoting both energy efficiency and consumer safety, while ensuring that the market continues to evolve in line with national energy objectives.

4.4 Proposed Label

Once the MEPS levels were set, the next step was to adopt energy labels that would help consumers make informed decisions about the energy efficiency of the products they purchase. These labels were developed through a consultative process to ensure they would resonate with the Tanzanian public and effectively drive behaviour change. The labels play a crucial role in promoting energy-efficient appliances by providing clear, easily understood information about a product's energy consumption.

The energy labels based on the MEPS label developed in 2023 were customized to reflect local conditions and consumer needs. This customization included the following elements:

- Energy consumption indicators - the labels clearly show the amount of energy a product consumes during typical use, helping consumers compare the energy efficiency of different appliances.
- Efficiency ratings - Tanzanian labels included a star rating system (e.g., from 1 to 5) that indicates the level of energy efficiency, with higher ratings corresponding to more energy-efficient products.
- Local language and graphics - to ensure accessibility, the labels were designed using clear language and graphics that are easily understood by Tanzanian consumers, including those who may not be familiar with technical energy terms.

The agreed labels are as attached in the Annex.

4.5 TWG Meetings

The TWG meetings held in Morogoro provided a crucial platform for experts to discuss, review, and refine the development of the MEPS for eCooking appliances in Tanzania. These meetings brought together a diverse group of stakeholders, including industry experts, technical specialists, and government representatives, to collaborate and ensure that the proposed standards were aligned with both local market conditions and international best practices.

During the meetings, experts engaged in in-depth discussions about the various technical aspects of eCooking appliances, including energy consumption, safety features, and environmental impact. These discussions were vital in identifying the key performance indicators that would shape the MEPS. The group thoroughly reviewed available data on the

energy use of eCooking devices and compared it against international benchmarks, ensuring that the proposed standards were both ambitious and achievable. In this process, the TWG experts worked together to harmonize national goals with global energy efficiency trends, promoting the adoption of efficient appliances across the country.

The review process was essential in identifying potential gaps and addressing concerns raised by different stakeholders. Experts reviewed draft documents, providing feedback on the feasibility and effectiveness of the standards. They also assessed potential challenges related to the enforcement of MEPS, such as the capacity of local manufacturers to meet these standards and the availability of energy-efficient technologies. The meetings allowed for the identification of areas where additional research, data collection, or policy support might be needed to ensure that the MEPS could be effectively implemented and sustained.

Ultimately, the TWG meetings provided a collaborative environment where experts could align their knowledge and expertise to develop robust, practical MEPS for eCooking appliances. The discussions and reviews were essential steps toward crafting standards that would not only improve energy efficiency but also support Tanzania’s broader sustainability and climate goals. Through these deliberations, the group ensured that the standards would be both technically sound and market-relevant, paving the way for more sustainable cooking practices in Tanzania. The following table indicates the meetings held.

	Dates	Venue
1.	6 th – 8 th October, 2024	Morogoro
2.	11 th – 13 th December, 2024	Morogoro
3.	12 th -14 th March, 2025	Morogoro

4.6 Challenges

4.6.1 Lack of Reliable Data

One of the primary challenges in developing MEPS for eCooking appliances in Tanzania was the lack of reliable and comprehensive data on the energy consumption of these appliances in the local market. Many of the appliances used in Tanzania are imported, making it difficult to gather accurate data on their performance, energy efficiency, and durability. Without local data, the TWGs struggled to set realistic and applicable performance thresholds, which could impact the relevance and effectiveness of the MEPS. However, the members set the targets similar to other developing countries.

4.6.2 Diversity and Rapid Evolution of eCooking Technologies:

The rapidly evolving market for eCooking appliances presented another challenge. New technologies and appliances emerge regularly, making it difficult to ensure that the MEPS would remain flexible enough to adapt to these innovations without frequent revisions. The diversity of appliances, from induction cookers to electric pressure cookers, further complicated the development of a one-size-fits-all set of standards, as each type has unique performance characteristics that needed to be considered.

The TWG successfully developed MEPS for three key types of eCooking appliances: electric pressure cooker, rice cooker, and induction cooker. These appliances were selected based on their widespread use in Tanzania and their potential to significantly impact energy consumption in the domestic cooking sector.

Additionally, the TWG developed a safety and quality standard for air fryers, an upcoming cooking appliance that currently lacked any formal MEPS on an international level. While air fryers are increasingly used in Tanzanian households, they were not initially subject to any national energy performance standards. The development of safety and quality standards for air fryers ensures that these appliances meet minimum performance and safety criteria, offering consumers reliable and safe products while also promoting energy efficiency. This step was particularly important as air fryers continue to gain popularity, and the absence of any prior MEPS meant that the appliances could vary significantly in terms of their energy use, safety features, and overall quality.

4.6.3 Stakeholder Engagement

The TWG experts were drawn from a diverse range of stakeholders, including industry experts, government agencies, and manufacturers. As a result, differing opinions emerged regarding feasible energy performance targets for eCooking appliances. Industry representatives raised concerns about the potential cost implications of meeting stringent standards, fearing that the financial burden of compliance would be passed on to consumers. On the other hand, public sector emphasized the need to ensure that energy-efficient products remain affordable and widely available. Balancing these competing interests—securing both cost-effective solutions for consumers and fostering energy-efficient innovation—posed a significant challenge for the Technical Working Groups (TWGs) as they worked to set realistic and sustainable performance standards. However, the experts were ultimately able to prioritize national interests over individual concerns, ensuring that the final standards aligned with broader energy and sustainability goals.



Figure 1: Members of the TWG during the MEPS development meeting

4.6.4 Enforcement and Monitoring Capacity

The limited capacity for enforcement and monitoring of the MEPS was another challenge. With energy efficiency regulations being relatively new in Tanzania, there were concerns about the ability of government agencies, such as the Tanzania Bureau of Standards (TBS), to effectively monitor compliance. Ensuring that non-compliant products are removed from the market and educating consumers on energy-efficient choices requires strong institutional capacity, which is still developing in Tanzania. These enforcement challenges highlight the need for continued investment in capacity-building and awareness-raising to ensure the long-term success of the MEPS.

4.7 Lessons

The development MEPS for eCooking appliances in Tanzania has been an insightful process, offering valuable lessons that can shape future efforts in establishing energy efficiency standards. As Tanzania continues to work towards a more sustainable energy future, the experiences gained from this initiative provide important takeaways for overcoming challenges and improving the standards-setting process. These lessons span across several key areas as highlighted below.

4.7.1 Data-Driven Decision-Making

One key lesson learned is the importance of relying on reliable data for decision-making. Accurate data on the energy consumption, performance, and market presence of eCooking appliances is crucial for setting realistic and effective performance thresholds. In Tanzania, the absence of detailed data on local appliance usage made it difficult to define accurate MEPS. Moving forward, investing in data collection and market research will be essential to ensure future standards are based on solid evidence and reflect local conditions.

4.7.2 Flexibility and Adaptability

Another important lesson is the need for flexibility in the standards-setting process. The rapid pace of technological innovation in the eCooking appliance market means that standards need to be regularly reviewed and updated to remain relevant. While setting rigid standards might seem efficient, it's critical to ensure that they can evolve alongside new product developments. A flexible framework that allows periodic revisions and consultations with stakeholders will help accommodate emerging technologies without compromising the overall goal of energy efficiency.

4.7.3 Stakeholder Engagement

Engaging a broad range of stakeholders is essential for successful standards development. Key stakeholders, such as government agencies, industry representatives, and consumers, often have differing opinions and interests. Therefore, maintaining an inclusive, collaborative approach is vital. Achieving consensus between industry needs, consumer affordability concerns, and environmental goals is challenging but necessary to promote the adoption of energy-efficient eCooking appliances. Involving manufacturers early in the process and providing them with incentives to innovate and meet energy efficiency standards can also help overcome resistance.

4.7.4 Enforcement Mechanisms and Capacity-Building

The process highlighted the importance of strong enforcement mechanisms and capacity-building. Developing MEPS alone is not enough; the ability to monitor compliance and enforce the standards is crucial for success. Ensuring that regulatory bodies, like the Tanzania Bureau of Standards (TBS), have the necessary resources, expertise, and tools for effective market monitoring is essential. Additionally, consumer education and awareness campaigns are vital to help households understand the long-term benefits of adopting energy-efficient appliances, fostering consumer demand and supporting the broader goal of energy efficiency.

4.7.5 International Collaboration and Knowledge Sharing

Finally, the development of MEPS for eCooking appliances in Tanzania underscored the importance of international collaboration and knowledge sharing. While adopting international best practices provided a strong foundation for the standards, local adaptation was necessary to align with Tanzanian market realities.

5 Conclusion

The achievements of the TWG in Tanzania have been instrumental in advancing the development of MEPS for eCooking appliances. One of the key accomplishments of the TWGs was the successful development of the draft MEPS for three eCooking appliances, including EPCs, rice cookers, and induction hobs. The TWGs, composed of experts from government agencies, industry stakeholders, and technical specialists, worked collaboratively to define energy performance benchmarks that align with national goals for energy efficiency and sustainability. Their efforts ensured that the MEPS reflect local market conditions, consumer needs, and technological capabilities, ensuring both practicality and relevance in the Tanzanian context.

In addition to drafting the MEPS, the TWGs also made significant progress in the development of energy labels for eCooking appliances. The draft labels were designed to provide consumers with clear, easy-to-understand information about the energy efficiency of different products. These labels serve as an essential tool to guide consumer decision-making, enabling households to select appliances that offer the best value in terms of energy savings and performance. By implementing energy labels, the TWGs have helped to promote transparency in the market and raise consumer awareness about the importance of energy efficiency, thereby encouraging the adoption of more sustainable cooking technologies.

The adoption of the MEPS and the development of draft labels represent critical steps toward improving energy efficiency in Tanzania's cooking sector. The work of the TWGs has laid the foundation for regulatory measures that will drive the widespread adoption of energy efficient eCooking appliances across the country. With these achievements, Tanzania is on track to reduce its overall energy consumption, lower household energy costs, and support the national goal of transitioning to cleaner, more sustainable energy sources. The continued collaboration and input from the TWGs will be crucial in finalizing the MEPS and labels, ensuring that they remain relevant and effective in the face of evolving technologies and market dynamics.

6 Way forward

The adoption and implementation of MEPS for eCooking appliances in Tanzania will follow a structured and consultative process to ensure inclusivity, thorough review, and effective enforcement. The first step in this process is the formal submission of the draft MEPS and energy labels to the Ministry of Energy. This submission will initiate the official approval process, during which the Ministry will endorse the drafts before forwarding them to the Ministry of Industry and Trade. This step is essential to ensure that the proposed standards align with national trade, industrial, and economic development policies.

The Ministry of Industry and Trade will submit the draft MEPS and energy labels to the Tanzania Bureau of Standards (TBS) for formal review and approval. This phase will include consultations with industry experts, local manufacturers, and key stakeholders to ensure that the proposed standards are practical, enforceable, and aligned with national energy efficiency goals. To support this process, TBS will establish a Technical Committee responsible for conducting a thorough technical review. This committee will play a critical role in refining the MEPS and labels by incorporating expert input and stakeholder feedback, ensuring the standards are both technically sound and broadly supported.

Once the technical review is finalized, a public consultation process will be initiated to solicit feedback from consumers, manufacturers, and other stakeholders on the proposed MEPS and energy labels. This inclusive approach ensures transparency and helps align the standards with the needs and concerns of all relevant parties, thereby fostering broader acceptance and support. Following the public consultation, the TBS Supervisory Committee convenes to review and endorse the proposed standards. The committee plays a critical oversight role in the national standards development process, ensuring that the formulation, review, and adoption of standards adhere to established procedures and align with national development goals, regional commitments, and international best practices. Additionally, the committee ensures that standards support key policy areas such as industrialization, energy efficiency, consumer safety, and environmental protection. Through this supervisory role, the committee helps maintain the integrity, credibility, and effectiveness of Tanzania's standardization framework.

After endorsement, the finalized MEPS and energy labeling requirements will be officially gazetted, thereby establishing them as legally binding national standards. This gazettment will be accompanied by the rollout of enforcement mechanisms to ensure industry compliance and support successful implementation.

7 Annexes

7.1 Benchmark and Referencing Standards

The following are the references standards use during the TWGs

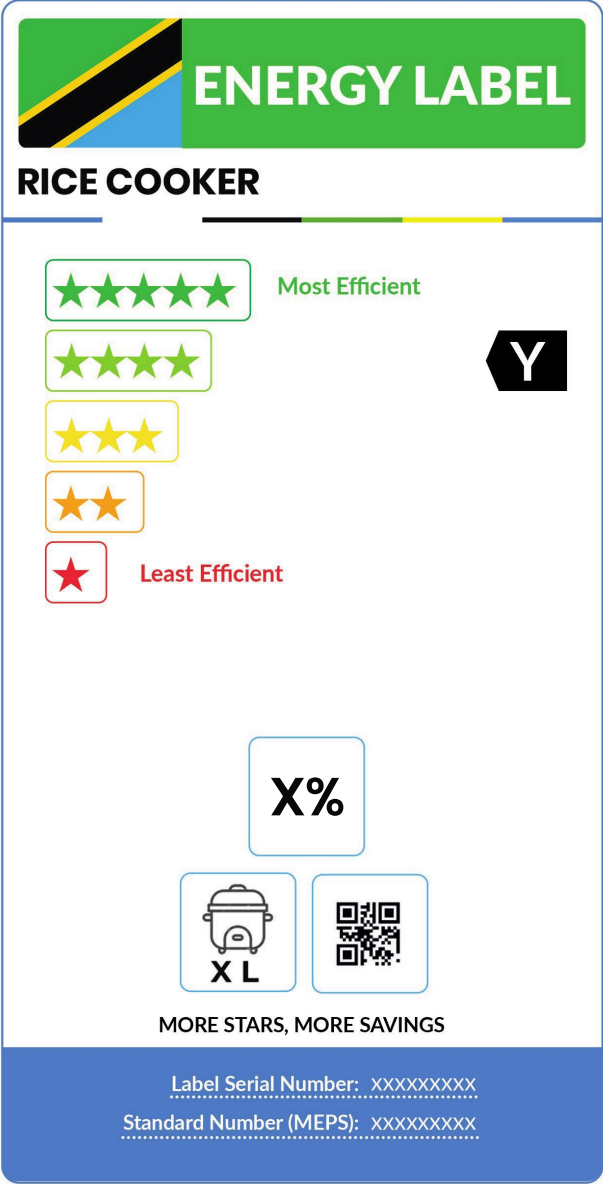
	Appliance	Type of Standard	Reference Standards
1.	Air Fryer	Safety and Quality	IEC 60335-1: <i>Safety of household appliances - Part 1: General requirements</i> IEC 60335-2-6: <i>Household and similar electrical appliances - Safety - Part 2-6: Particular requirements for stationary cooking ranges, hobs, ovens</i> IEC 62301:2011: <i>Household electrical appliances – Measurement of standby power.</i> IEC 60350-1:2023: <i>Household electric cooking appliances - Part 1: Ranges, ovens, steam ovens and grills - Methods for measuring performance</i>
2.	Electric Pressure Cooker	MEPS	GB 21456-2024 <i>Minimum allowable values of the energy efficiency and energy efficiency grades for household and similar kitchen.</i> IEC 60350-2:2017 <i>methods for measuring the performance of electric hobs for household use.</i> GB 39177-2020 . <i>Minimum allowable values of energy efficiency and energy efficiency grades for electric pressure cookers</i> IEC 62301:2011 <i>Household electrical appliances – Measurement of standby power.</i> GB 4706.19-2024 <i>Safety of household and similar electrical appliances - Part 19: Particular requirements for appliances for heating liquids</i> GB/T 4706.1-2024 <i>Safety of Household and Similar Electrical Appliances - Part 1: General Requirements</i> BS EN 12778:2002 <i>Cookware. Pressure cookers for domestic use</i> IEC 60335-2-15: 2012 <i>Household and similar electrical appliances - Safety - Part 2-15: Particular requirements for appliances for heating liquids</i> IEC 60335-1:2020: <i>The Safety of Household and Similar Electrical</i>
3.	Induction Cooker	MEPS	GB 21456-2024: <i>Minimum allowable values of the energy efficiency and energy efficiency grades for household induction cookers</i>

	Appliance	Type of Standard	Reference Standards
			IEC 62301:2011 <i>Household electrical appliances – Measurement of standby power</i> IS 19014:2022 <i>Household Electric Cooking Appliances- Performance Requirements of Electric Hobs</i> IEC 60350-2:2017 <i>Household electric cooking appliances - Part 2: Hobs - Methods for measuring performance</i> IEC 60335-2-9 <i>Household and similar electrical appliances - Safety - Part 2-9: Particular requirements for grills, toasters and similar portable cooking appliances</i> GB 4706.29-2008 <i>Household and similar electrical appliances-safety - Particular requirements for portable induction cooker</i> GB 4706.22 <i>Household and similar electrical appliances--Safety--Particular requirements for stationary cooking ranges,hobs,ovens and similar appliances</i> GB 4706.14-2008 <i>Household and similar electrical appliances--Safety--Particular requirements for grills,toasters and similar portable cooking appliances</i> IS 302-2-6: 2009: <i>Safety of household and similar electrical appliances, Part 2: Particular requirements, Section 6: Cooking Ranges, Hobs, Ovens and Similar Appliances</i>
4.	Rice Cooker	MEPS	TCVN 8252:2015 <i>MEPS and Labelling for Electric rice cookers</i> TIS 2545-2567 (2024): <i>Electric Rice-Cookers : Particular Requirements For Energy Performance</i> TCVN 8252:2015: <i>MEPS and Labelling for Electric rice cookers</i> MS 2024:2020 <i>Electric Rice Cooker For Household Use - Method Of Measuring The Performance</i> GB 12021.6-2008 <i>Minimum allowable values of energy efficiency and energy efficiency grades for automatic electric rice cookers</i> IEC 63399:2024: <i>Household and similar electrical rice cookers - Methods for measuring the performance.</i> IEC 62301:2011: <i>Household electrical appliances – Measurement of standby power.</i>

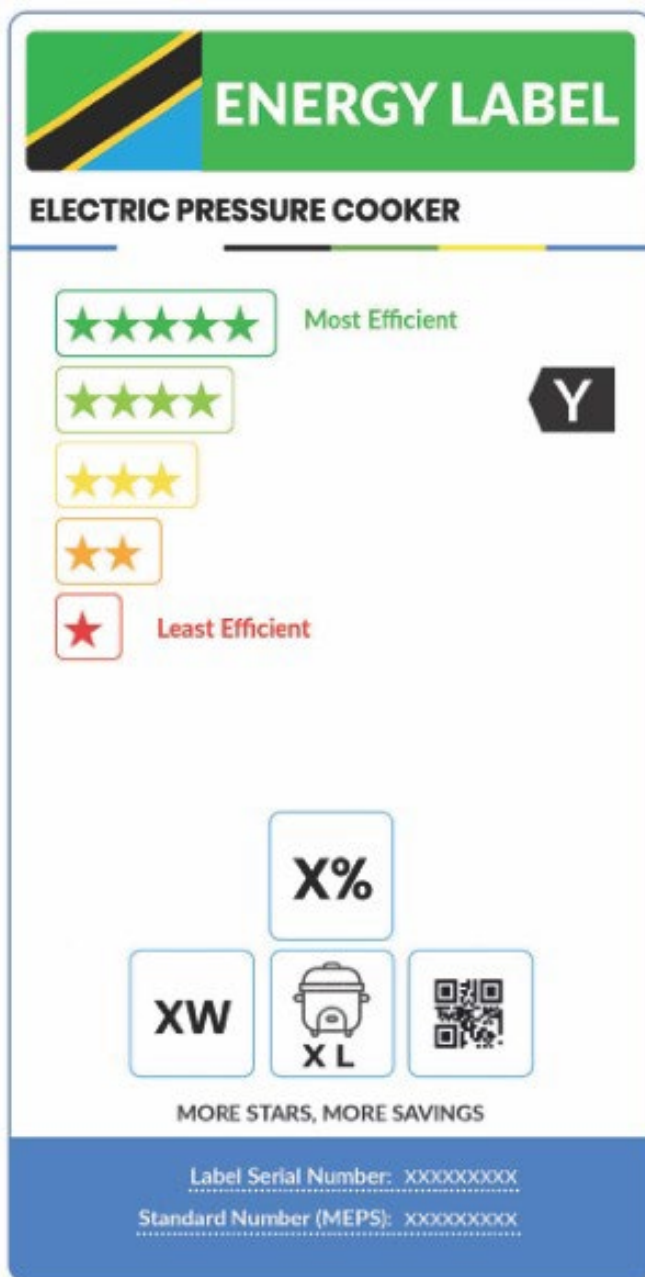
	Appliance	Type of Standard	Reference Standards
			IEC 63399:2024 <i>Energy performance requirements for electric cooking appliances</i> IEC 62301:2011 <i>Measurement methods for standby power in household appliances.</i> GB 12021.6-2017 <i>Energy efficiency grades and performance limits for household electric rice cookers</i> MS 2024:2020 <i>minimum energy performance standards and labeling for household electric appliances, including cooking devices</i> TIS 2545-2567(2024) <i>Performance and energy efficiency testing for eCooking appliances.</i> TCVN 8252:2015 <i>performance and efficiency requirements for household rice cookers, including testing methods</i> IEC 60335-1: 2015 <i>General safety standard for all household and similar electrical appliances.</i> IEC 60335-2- 15:2017 <i>Specific safety requirements and tests</i> TCVN 5699-2-15 <i>Electrical safety requirements for household appliances</i> GB 4706.1 <i>General safety standard for electrical appliances</i> GB 4706.19 <i>Safety of household electric liquid heating appliances</i>

7.2 Proposed Energy Labels

7.2.1 Rice cooker



7.2.2 Electric Pressure Cooker



7.2.3 Induction cooker



XW