



Exploring Local Pot Manufacturing in Tanzania

Final Report



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Executive summary

This study provides a rapid assessment of the local pot manufacturing sector in Tanzania to inform MECS future programming. The objective was to understand the capabilities, limitations, and market dynamics of local manufacturers in relation to producing pots that meets defined technical requirements, particularly for modern cooking solutions.

The study was conducted through interviews and on-site observations with selected manufacturers in Dar es Salaam and Arusha. The focus was on the production of medium-sized pots (10-11 litres), including requirements such as flat base geometry, material selection, manufacturing techniques, reproducibility, and production scale.

The findings show that the sector can be broadly divided into two categories: formal, registered manufacturers and informal, non-registered manufacturers. Formal manufacturers, particularly those supported by the [Small Industries Development Organization \(SIDO\)](#), operate within more structured environments and use semi-mechanised processes, enabling greater consistency, repeatability, and control over specifications. Informal manufacturers rely on manual fabrication techniques, but offering high flexibility and lower-cost production, but with greater variability in quality and limited standardisation.

Across both categories, manufacturers demonstrated the ability to produce pots within the required size range and to adapt to custom specifications, including base diameter and material choice. However, achieving consistent precision and uniformity across batches remains a challenge, particularly to informal manufacturers where production is highly dependent on individual skill.

The assessment identified several key constraints. Most notably, there is a lack of access to advanced manufacturing equipment, such as pressing or deep drawing machines, which limits the ability to produce highly standardised or specialised pots, including induction pots. In addition, the absence of formal quality assurance systems contributes to variability in product quality. The sector also faces challenges related to material availability and price volatility, which affect production planning and costs.

The market is highly demand-driven, with product specifications largely determined by customer affordability and preferences. Informal manufacturers are particularly responsive to this dynamic, offering both ready-made and customised products. However, competition from lower-cost imported cookware remains a significant factor.

Based on these findings, a complementary engagement approach is recommended. Formal manufacturers are best suited for specification-driven production, pilot testing, and standardisation, while informal manufacturers can support flexible production and wider market dissemination, particularly for lower-cost segments. Engagement through SIDO-supported manufacturers offers a strategic entry point for coordinated production and quality oversight.

Moreover, to strengthen local manufacturing capacity, targeted investments are required in appropriate machinery, quality assurance systems, and technical capacity building, particularly to support the transition towards standardised and modern pots production.



1 Introduction

1.1 Background and purpose

This study was conducted to provide an initial, rapid assessment of the local pot manufacturing sector in Tanzania, with a focus on the ability of manufacturers to produce pots that meet defined specifications, including precise dimensions, durability, and suitability for modern energy cooking technologies.

The scope of the study focused on selected manufacturers, categorised to both established/ formal businesses and informal manufacturers, with engagements conducted in Dar es Salaam and Arusha.

The study specifically examined the production of medium-sized pots (10-11 litres), with attention to requirements such as flat base geometry, material selection, manufacturing techniques, reproducibility, and production scale.

The findings of this study are intended to inform future MECS programming, including the development of targeted interventions.

1.2 Methodology

The study was conducted through interviews and direct observations with local pot manufacturers. A structured interview tool was used to guide discussions, covering key areas such as manufacturing processes, materials, capacity, quality control, and costs.

In addition to interviews, direct observation of production processes and equipment was undertaken to validate responses.



2 Overview of local manufacturing landscape

The study identified two broad categories of local pot manufacturers: formal, registered businesses and informal, non-registered operators. These categories differ in terms of business structure, access to support, equipment, production processes, and the level of standardisation in their operations.

2.1 Types of manufacturers

2.1.1 Formal and registered manufacturers

The first category consists of formal and registered manufacturers, represented in this study by TAMECCO Gas Metal Company. This type of business operates within a more structured environment and benefits from institutional support, particularly through the [Small Industries Development Organization \(SIDO\)](#).

SIDO is a government institution established to support the development of small and medium-sized industries, including by providing workspace, technical support, and an enabling environment for small manufacturers to operate and grow.

TAMECCO's main production site is hosted within SIDO premises in Dar es Salaam, which appears to provide a more organised manufacturing environment compared to informal workshops. This formal setup is reflected in the type of equipment available. Please see below:





TAMECCO uses relatively better and more specialised fabrication machinery, including rolling machines, bending machines, welding equipment, and other metalworking tools. While the equipment is not necessarily modern or highly automated, it provides a stronger foundation for producing more consistent and structurally reliable products.



Bending machine



Rolling machine



Edge grooving machine



Sheet metal cutting machine

This category of manufacturer is therefore better positioned to undertake semi-mechanised production. Their process involves measurement and layout, cutting, rolling, bending, edge forming, and welding. Because some of these stages are supported by machines, there is a greater possibility of achieving repeatability, especially where dimensions are clearly specified.

2.1.2 Informal or non-registered manufacturers

The second category consists of informal or non-registered manufacturers, represented by Mzee Mussa's workshop in Dar es Salaam and the Kilombero market manufacturers in Arusha. These operators are not formally registered as businesses, although some (like Mzee Mussa) are recognised



informally within local manufacturing networks or by institutions such as SIDO. Their operations are generally small-scale, workshop-based, and highly dependent on individual skill and experience.

Unlike the formal manufacturer, the informal operators do not have access to dedicated machinery such as bending or rolling machines. Their production relies heavily on locally available tools, improvised equipment, and tools fabricated by the operators themselves. A common feature across these workshops is the [use of rail bars](#) as forming supports ([see this video too](#)). These rail bars are used for bending, shaping, trimming, and finishing pot edges by hand, usually through hammering and manual force.



Improvised tool which can be used for bending/ rolling



Rail bars

This informal production model is highly flexible. Manufacturers can produce pots of different sizes and specifications depending on customer needs, and they can adapt quickly to custom orders. However, the same flexibility also comes with limitations. Since production is largely manual, consistency depends heavily on the skill of the technician, accuracy of measurements, and care taken during fabrication. This may affect reproducibility, particularly where tight tolerances are required.

2.2 Cross-cutting characteristics and key constraints

2.2.1 Materials and market behaviour

Both formal and informal manufacturers work mainly with locally purchased sheet metal, including aluminium, stainless steel, and galvanized steel. All manufacturers appear to be more market-driven in their material choices, responding directly to customer preferences and affordability. For example, some customers prefer lighter and cheaper pots, while others request heavier and more durable pots. This creates variation in product quality and thickness across orders they receive.

2.2.2 Equipment and standardisation

A key distinction between the two manufacturers' categories is the relationship between equipment and product standardisation. Formal manufacturers appear to have better access to machinery and a more structured production environment, which supports improved consistency. Informal



manufacturers, on the other hand, demonstrate strong practical skills, adaptability, and affordability, but operate with limited mechanisation and weaker quality control systems.

2.2.3 Access to advanced machinery

The study also found that none of the manufacturers visited had access to advanced industrial machinery such as deep drawing, pressing, or moulding equipment. As a result, local production is currently dominated by fabrication-based methods rather than industrial forming processes.



3 Manufacturer profiles

3.1 TAMECCO Gas Metal Company

3.1.1 Location and structure

TAMECCO Gas Metal Company is a formally registered manufacturer operating in Dar es Salaam. The business is owned by Masudi Kumbakumba and represents a long-standing, family-run business, having been established in 1989 and passed down from father to son.

The company operates from two production sites, with its main facility located within the premises of the SIDO Dar es Salaam in Vingunguti. SIDO provides an enabling environment for small and medium-sized manufacturers, including workspace and institutional support, contributing to a more structured and organised production setting. A secondary, smaller site is located in Tabata Segerea. Production activities are distributed between the two sites depending on scale, with larger and more complex fabrication tasks undertaken at the SIDO facility, where more equipment is available.

The company operates with a combination of permanent staff and temporary workers; the latter engaged during periods of high demand. Skills development is largely on-the-job, supported by prior technical familiarity among workers.

3.1.2 Materials and manufacturing techniques

TAMECCO primarily specialises in stainless steel fabrication (for LPG), although it is also capable of producing pots using aluminium where required. Typical specifications include approximately 1.5 mm thickness for pot walls and 2-3 mm thickness for the base, depending on pot size and intended use.

Production follows a semi-mechanised sheet metal fabrication process, consisting of:

- Measurement and layout (manual marking of dimensions)
- Sheet cutting using mechanical cutting equipment
- Forming through rolling and bending machines
- Edge forming and finishing
- Welding-based assembly of components

Unlike industrial pot manufacturing, the process does not involve deep drawing or pressing. Instead, pots are typically fabricated from separate components (base and wall) that are subsequently welded together, resulting in visible seams.

The company is also equipped to produce fitted lids, typically through similar fabrication processes.



3.1.3 Capability to meet technical requirements

TAMECCO confirmed the ability to manufacture pots within the specified 10-11 litre capacity, including achieving a flat base diameter of 260 mm.

The fabrication method – where the base plate is cut separately – allows for direct control over the base diameter, making it feasible to meet precise dimensional requirements. However, due to the welding and forming processes, achieving consistent flatness and tight tolerances may require additional quality control measures, especially during measurement and layout despite being confirmed that the company has an ability to produce repeatable outputs. It was noted that this will be achieved through consistent measurement and cutting processes that will enable multiple sheet units to be produced to similar specifications, so even when different workers are involved, they will be able to maintain repeatability.

3.1.4 Production capacity and lead times

TAMECCO demonstrates moderate production capacity relative to other local manufacturers. For smaller pots (10-11 litres), the company can produce approximately 30 units per day under standard operating conditions.

For larger orders, they indicated that a batch of 100 pots can typically be completed within 3 to 4 days, assuming material availability and uninterrupted workflow. Production output decreases for larger pot sizes due to increased material handling and fabrication complexity.

The production model allows for scaling through labour allocation, including the use of temporary workers when demand increases.

3.1.5 Cost structure

Indicative pricing for a 10-litre stainless steel pot with a fitted lid is as follows:

- Single unit: approximately TZS 300,000
- Batch of 10 units: approximately TZS 250,000 per unit
- Batch of 100 units: approximately TZS 200,000 per unit



This pricing reflects economies of scale, with unit costs decreasing at higher production volumes. Costs are influenced by material type, thickness, and fabrication complexity.

3.1.6 After-sales support

The company provides a one-year warranty on its products, covering defects under normal usage conditions. During this period, repairs or replacements are carried out at no cost to the customer.

Beyond the warranty period, repairs are managed on a cost-sharing basis, depending on the nature of the issue.

3.2 Mzee Mussa workshop

3.2.1 Location and structure

The workshop operates from Ilala Bungoni in Dar es Salaam and is an informal, non-registered micro-industry. It is also a family-run business, inherited from the previous generation, with the current owner having engaged in the trade since 1985. All activities are carried out at a single site, with work organised around a small group of workers and occasional assistants.

The business follows an informal apprenticeship model: new entrants learn through observation and gradual participation in production tasks, progressing to full technicians over time. There is no formal training or standardised operating procedure.

3.2.2 Materials and manufacturing techniques

The workshop primarily manufactures pots using aluminium as a main metal with galvanized steel commonly used for lids. Typical products are made using thicker aluminium (approximately 2.5-3 mm), which the business associates with improved durability.



A lid made from galvanized steel

Aluminium pots ready for sale

Production is fully manual and based on simple sheet metal fabrication:



- Measurement and layout (experience-based sizing)
- Sheet cutting
- Manual forming using rail bars and hammering



- Mechanical joining (non-welded)
- Manual edge finishing using rail bars

No dedicated forming, rolling, or welding machinery is used. Tools are locally sourced or fabricated in-house, and the process relies heavily on operator skill and technique.

3.2.3 Capability to meet technical requirements

The workshop confirmed it can produce pots within the 10-11 litre range, including achieving a 260 mm flat base when specified. Because the base is defined during cutting, this dimension can be controlled in principle.

However, given the manual fabrication process, achieving consistent flatness, tight tolerances, and repeatability depends on workmanship. The business stated that multiple units can be produced “identically,” but in practice, uniformity is influenced by measurement accuracy and individual execution.

3.2.4 Production capacity and lead times

Production is labour-intensive and individual-based. Under normal conditions (and with suitable material quality), a single worker can produce:

- Approximately one 10-litre pot per hour, or
- Around 8-10 pots per day

Output is affected by material condition with some aluminium sheets require pre-heating to improve workability, which can slow production. Scaling production requires more labour rather than increasing mechanization.



Aluminium undergoing pre-heating

3.2.5 Cost structure

Indicative pricing for a 10-litre aluminium pot (2.5-3 mm thickness) with lid is:

- TZS 40,000 per unit

This pricing is fixed per unit, with no bulk discounts.

3.2.6 After-sales support

There is no formal warranty. However, the workshop provides informal after-sales support, particularly for issues occurring shortly after purchase. Early failures may be repaired or replaced at no cost.

Most repairs involve replacing the base plate. The operator also noted that durability is strongly influenced by user practices, especially exposure to high heat for those cooking using LPG/ gas which accelerates degradation. For those cooking using firewood and charcoal, the business can provide them with a warranty to up to 10 years noting that those fuels don't degrade the pots.



These (imported) pots were brought in for base replacement, a service the business commonly provides. They noted that this is one of the reasons why they do not offer a warranty, as they cannot verify the type of fuel used during operation.

They explained that LPG (gas) use can degrade pots over time, particularly affecting the base, whereas cooking with charcoal or firewood is less likely to cause such damage. As a result, they are willing to provide a warranty only in cases where the customer confirms that the pot will be used with charcoal or firewood.

3.3 Kilombero market manufacturers

3.3.1 Location and structure

Production takes place within Kilombero market in Arusha within a site hosting multiple independent micro-industries. These manufacturers are informal and non-registered, working in small groups with their own assistants. While they share the same market space, there is no central ownership or coordinated management; each group functions as a separate business with its own workflow, pricing, and clientele.

The setup combines workshop and retail functions. The manufacturers typically maintain a small shop for ready-made items alongside a workspace for fabrication, enabling both over-the-counter sales and made-to-order production.



3.3.2 Materials and manufacturing techniques

Manufacturing is based on manual sheet metal fabrication, using locally sourced materials – primarily aluminium and stainless steel for pot bodies, with galvanized steel commonly used for lids and accessories (e.g. perforated ladles/ skimmers).

Material choice and thickness are customer-driven, with the business able to produce both lighter, lower-cost pots and heavier, more durable variants. They noted that galvanized steel is generally not used for pot bodies due to susceptibility to corrosion over time.

The production process typically includes:

- Measurement and manual layout (often based on experience or customer specifications)
- Sheet cutting
- Manual forming using rail bars and hammering
- Application of sealing compounds at joints to ensure watertightness
- Mechanical joining (non-welded) and manual edge finishing

The absence of mechanised equipment (e.g. rolling, bending, or welding machines) means that output quality is highly dependent on operator skill.

3.3.3 Capability to meet technical requirements

Operators confirmed the ability to produce pots within the 10-11 litre range, including achieving a 260 mm flat base diameter when specified. Because dimensions are set during the measurement and cutting stage, this requirement can be addressed in principle.

However, given the manual fabrication approach and variability across operators, achieving consistent flatness, tight tolerances, and repeatability may be challenging without additional controls. Products can be made to specification, but uniformity across batches while confirmed, it can't be guaranteed.

3.3.4 Production capacity and lead times

Production is flexible and labour-driven. Under typical conditions (with all materials available):

- A single worker can produce approximately 10 pots (10-litre capacity) per day
- A small order (e.g. 10 units) can also be completed within one day
- Larger orders are distributed across multiple workers, with timelines scaling linearly with labour input (e.g., approximately 10 days for 100 units, depending on workforce)

Planning is typically done after orders are received, with output targets agreed among the workers.

3.3.5 Cost structure

Pricing is material-dependent and customer-driven, with indicative figures:

- Stainless steel pot (10-11 litres) costs TZS 45,000 per unit



- Aluminium pot (of 2 mm thickness) costs TZS 90,000 per unit

Prices vary with material type, thickness, and design, and there are no discounts on bulk orders.

Kilombero market manufacturers mentioned specifically that a kg of aluminium currently costs TZS 8,000, while stainless steel costs TZS 6,000 though these prices fluctuate.

3.3.6 Quality assurance and after-sales support

There is no formal warranty system. However, the business provides informal after-sales support, particularly for issues occurring shortly after purchase i.e., up to a week. Early failures may be repaired or replaced, often involving base plate replacement.



4 Comparative analysis

This section compares the two categories of manufacturers identified – formal, registered manufacturers and informal, non-registered manufacturers – across relevant dimensions. The aim is to show how the differences play out in practice.

4.1 Precision and flexibility

At TAMECCO, the pot base is cut as a separate plate and then joined to the wall through welding. This allows the manufacturer to directly control the base diameter (e.g. 260 mm) during cutting. The use of rolling and bending machines further supports repeatable shaping of the pot body. As a result, if 10 units are produced, they are more likely to be uniform in geometry.

By contrast, at Mzee Mussa's workshop and Kilombero market producers, pots are formed manually using rail bars and hammering. While operators confirmed they can meet a 260 mm base requirement, this is achieved through manual measurement and shaping, meaning outcomes depend on individual workmanship. Two pots made by different workers may meet the general specification but differ slightly in flatness, symmetry, or finish.

However, these same informal producers demonstrate much greater flexibility. For example, at Kilombero market, a customer can request a pot with specific height, thickness, or material (e.g. aluminium vs stainless steel), and the operator will adjust immediately. TAMECCO can also customise, but changes are typically more structured and less instantaneous.

4.2 Production process

TAMECCO operates a semi-mechanised workflow, where key stages – rolling the pot wall and bending edges – are supported by machines. Welding is used for joining, resulting in strong structural connections and visible seams. This creates a more controlled production process, even though equipment is not fully modern.

In contrast, both Mzee Mussa and Kilombero manufacturers rely on fully manual fabrication. For example:

- Bending is done by hammering sheet metal over rail bars
- Joining is done using mechanical seams and sealing compounds, even for stainless steel where welding could be possible
- This means the process is slower and more skill-dependent, but also adaptable to different designs without needing new equipment.

4.3 Cost and quality

A first point of distinction is the fabrication method; particularly how different components of the pot are formed and joined. Formal manufacturers use welding to assemble stainless steel pots, which creates strong, permanent joints and contributes to overall structural integrity. In contrast, informal manufacturers rely on mechanical joining combined with sealing compounds to prevent leakage – for



both stainless steel and aluminium pots. While this is functional, it is more dependent on workmanship and may be less durable over time, especially under intensive use.

A second important aspect is dimensional control and consistency, especially for features like the flat base. Formal manufacturers typically cut the base as a separate, defined component, allowing them to control dimensions such as the 260 mm flat contact area with greater accuracy. Informal manufacturers also measure and cut based on required dimensions, but since shaping is done manually, outcomes depend on individual skill, which can lead to variations in flatness, symmetry, and finish across units. As a result, while both can meet specifications in principle, the consistency of achieving them differs.

Material selection also plays a role, but in a more nuanced way. Informal manufacturers often demonstrate flexibility in using thicker aluminium sheets (e.g. 2.5-3 mm), which can improve durability and resistance to deformation. This is particularly evident in low-cost products, such as pots priced around TZS 40,000, which may still perform well under certain conditions. Formal manufacturers, on the other hand, often use stainless steel or controlled material specifications, which provide uniform quality and performance, particularly in applications requiring consistent heat distribution or resistance to wear. However, this comes at a significantly higher cost, with comparable pots priced between TZS 200,000 and 300,000.

Another key difference lies in process control and standardisation. Formal manufacturers operate within a more structured production environment, supported by machinery and defined workflows, which enables repeatability across batches. Informal manufacturers rely on manual techniques, meaning that even when the same specifications are followed, the final output may vary depending on the technician. This affects not only the physical characteristics of the pot but also the predictability of quality at scale.

After-sales support also distinguishes the two categories. Formal manufacturers may offer warranties (e.g. one year) and structured repair mechanisms, which provide assurance to the buyer and are reflected in the higher price. Informal manufacturers typically provide informal, case-by-case support, such as repairing or replacing a product shortly after purchase, but this is not standardised and does not extend into a formal guarantee.

4.4 Scalability

A key point of difference is the basis of production capacity. Formal manufacturers operate with a more structured workflow, supported by semi-mechanised processes such as rolling, bending, and welding. This allows them to plan production in terms of batches and timelines. For example, a formal manufacturer can produce dozens of small pots per day and complete larger orders (e.g. 100 units) within a defined number of days. This reflects a system where production is organised and predictable, making it easier to align with project timelines or procurement requirements.

In contrast, informal manufacturers rely on a labour-based production model, where output is directly linked to the capacity of individual workers. A single technician may produce around 8-10 pots per day, depending on the complexity of the product and availability of materials. As a result, scaling production is not achieved through efficiency gains, but rather by adding more labour, which can be limited by the availability of skilled workers.

Another important distinction lies in the mechanism for increasing output. Formal manufacturers can expand production by mobilising additional workers within an organised system, often supported by



existing infrastructure and workflow coordination. This allows for some degree of efficiency at higher volumes, including reduced production time per unit and, in some cases, lower unit costs.

Informal manufacturers, particularly those operating in clustered environments such as at Kilombero market, achieve higher output through aggregation across multiple independent operators. For example, a large order can be distributed among several manufacturers working in parallel. While this enables an increase in total output, it introduces challenges related to coordination and uniformity, as each manufacturer works independently and may produce slightly different results.

A further consideration is consistency at scale. Formal manufacturers are better positioned to maintain uniformity across large batches, due to more controlled processes and shared production standards. In contrast, when production is distributed across multiple informal operators, variations can emerge in dimensions, finishing, and overall quality, even when the same specifications are provided.



5 Key findings/ insights

The study shows that local manufacturers in Tanzania are capable of producing functional and durable pots using existing fabrication methods. Both formal and informal manufacturers can produce medium-sized pots (10-11 litres) and are able to respond to custom specifications, including dimensions such as base diameter, material type, and thickness.

In particular, the requirement for a flat base (e.g. 260 mm diameter) can be achieved locally, as manufacturers typically define the base through cutting and forming processes. Informal manufacturers can replicate such specifications through manual methods, while formal manufacturers are better positioned to achieve greater consistency across multiple units.

Local manufacturers (all) also demonstrate strong capability in adapting to customer needs, including producing pots in different sizes, materials, and thicknesses.

In terms of materials, commonly used options such as aluminium, stainless steel, and galvanized steel are readily available through local supply chains. Manufacturers are familiar with working across these materials, although their use is often determined by customer affordability and preferences.

Despite these capabilities, several important gaps limit the ability of local manufacturers to produce highly standardised or specialised pots.

A major constraint is the lack of advanced manufacturing equipment, particularly machines for deep drawing, pressing, or moulding. These processes are commonly used in industrial pot production to achieve uniform shapes, smooth internal curves, and integrated base structures. Their absence means that local production relies on fabrication from separate components, which can affect both precision and efficiency.

This limitation is particularly relevant for the production of induction pots, which typically requires specific base construction and material properties. While some manufacturers expressed willingness to produce such products, they indicated that this would require new machinery and technical capacity, including equipment for forming and material processing.

Another key gap relates to standardisation and quality control. Production processes, particularly in informal settings, are largely experience-based, with limited use of standard operating procedures or measurement tools to ensure uniformity. As a result, there is variability in dimensions, finishing, and overall product quality, especially when producing in larger quantities or across multiple operators.

In addition, the sector faces constraints related to material availability and price volatility. Manufacturers rely on locally sourced materials, which are often imported through intermediaries. Fluctuations in supply can lead to increased costs or delays in production.

Moreover, the sector is highly market-driven, with production closely aligned to customer demand and purchasing power. A key feature of the market is the strong influence of affordability on product specifications. Customers often determine the material, thickness, and design of the pot based on what they can afford. For example, lower-income customers may prefer lighter and cheaper pots, while institutions or higher-end users may request heavier and more durable products.

Manufacturers, particularly in informal settings, respond directly to this demand by offering highly flexible production, including both ready-made items for immediate sale and customised products made to order.



KEY FINDINGS/ INSIGHTS



Another important aspect is the competition from imported products, particularly mass-produced pots that are often cheaper due to industrial-scale manufacturing. Local manufacturers are aware of these products and, in some cases, position their offerings based on durability or customisation, rather than price competitiveness alone.



6 Conclusion and implications

Formal, registered manufacturers are best suited for specification-driven production, where requirements such as precise dimensions, flat base geometry, and consistency across batches are critical. Their semi-mechanised processes and structured workflows make them more appropriate for coordinated orders, pilot production, and potential scaling, particularly where reliability and repeatability are important.

In this context, engaging manufacturers operating within or supported by SIDO presents a strategic advantage. SIDO provides a more structured and supervised environment, access to workspace and basic infrastructure, and a platform for coordinated engagement with multiple small manufacturers. This makes SIDO-supported manufacturers particularly suitable for initial product development, testing, and standardised production, where oversight and consistency are required.

Informal manufacturers, on the other hand, are better suited for flexible, demand-driven production. Their ability to adapt quickly to custom specifications, respond to customer preferences, and produce at lower cost makes them well positioned for local market supply and rapid prototyping. In clustered environments, they can also contribute to aggregate production, although with limitations in consistency and coordination.

This suggests that the two categories are not mutually exclusive, but rather complementary, and can be engaged strategically depending on the objective. For example, formal manufacturers can be prioritised for developing and standardising product designs, while informal manufacturers can support wider dissemination and market penetration, particularly where affordability is critical.

To strengthen the sector's ability to support modern cooking transitions, several areas of investment are required.

A key priority is access to appropriate manufacturing equipment, particularly for processes such as pressing, deep drawing, and advanced forming. These would enable more standardised production, improved geometry (e.g. smoother curves and consistent bases), and the potential to manufacture specialised cookware, including induction-compatible pots.

Investment is also needed in quality assurance systems. This includes the development of standard operating procedures, measurement practices, and simple quality control checks to improve consistency, especially for critical parameters such as base flatness and dimensions.

Capacity building is another important area, particularly for informal manufacturers. While practical skills are strong, there is a need to strengthen technical understanding of specifications, material performance, and process control, especially where products are intended for specific technologies.



7 Appendices

Appendix 1: Interview transcript for TAMECCO GAS METAL COMPANY

QUICK NOTE ON DIMENSIONS/ REQUIREMENTS

Our pot must have a content volume of between 10-11 Litres. The hotplate-contact area would ideally have a diameter of 260 mm (26 cm) and must be **flat, but the main point is they must be able to make a pot to precise measurements and must be repeatable – able to make many to that exact dimension** Products must be consistent and last for years – we do require a quality product. Any material is fine – so far we prefer 2mm thickness aluminium, however we are open to discussion on stainless steel. The pot must come with a fitted lid (preferably a flat lid). The pot must have a lip at the top [include a photo of indicative pot]

They have the technical capacity to manufacture pots within the specified requirements i.e., with the volume of 10–11 litres and a flat hotplate-contact base diameter of 260 mm (26 cm). They further noted that their manufacturing processes allow for precision and repeatability, enabling them to consistently produce pots to exact specifications. In terms of durability, they expressed confidence that their products are of high quality and can last for several years under normal usage conditions.

Regarding materials, the company confirmed that they can work with 2 mm thickness aluminium as preferred, and are also able to supply pots with a fitted flat lid. Their current manufacturing experience aligns well with these specifications.

However, the company sought further clarification on the intended application of the pots. Specifically, they inquired whether the pots are intended for household use, commercial purposes (such as restaurants), or institutional settings such as schools or prisons. They also raised the importance of understanding the intended cooking fuel. They emphasised that their current specialisation is in manufacturing pots designed for LPG/ gas-based cooking systems, and their production processes and designs are optimized accordingly.

While they expressed openness to producing pots that meet the stated specifications, they noted that further discussion would be required to assess full compatibility with the intended use case – particularly if the pots are to be used with alternative cooking technologies. Nonetheless, they indicated that adapting their existing designs to meet the 10–11 litre requirement is possible, provided the application remains aligned with gas-based cooking or can be suitably adjusted.

1. QUESTIONS ON LOCAL MANUFACTURE

- Where are the products manufactured (city)?

They operate two manufacturing sites, both located in Dar es Salaam. The primary production facility is situated in the Vingunguti area within premises managed by Small Industries Development Organization (SIDO). SIDO is a government institution mandated to promote and support the development of small and medium-sized enterprises (SMEs), particularly micro and



small industries, and provides an enabling environment for businesses such as TAMECCO to operate and grow.

In addition to the main site, the company maintains a smaller production facility located in the Tabata Segerea area.

- Who owns the business?
 - Do they work at the business?

TAMECCO Gas Metal Company is owned by Masudi Kumbakumba, who inherited the business from his father.

The owner is actively involved in the day-to-day operations of the business. Manufacturing activities are distributed across the company's two sites depending on the nature and scale of the work. Larger and more complex production tasks are primarily undertaken at the SIDO facility in Vingunguti, where the company has access to a wider range of machinery and tools. Smaller-scale activities are carried out at the Tabata Segerea site.

- Are any components imported from abroad?
 - If so, where are they imported from, and which components?

All materials and components used in their manufacturing processes are procured locally within Dar es Salaam. However, they noted that many of these inputs – particularly metal sheets – are originally imported into the country by local suppliers.

The company does not directly engage in international sourcing; instead, they rely on domestic distributors and traders who import materials from abroad. The primary countries of origin for these imported inputs were identified as India and China.

- Are any tools imported from abroad?

The tools and equipment in use were not imported. Instead, they are the long-standing machinery that has been in operation for several decades, with some equipment dating back to the colonial era. These tools were originally manufactured locally during that period and have been maintained and continuously used over time.

- How many manufacturing sites are there within the business?

The business operates two manufacturing sites within Dar es Salaam. The main production facility is located within SIDO premises in Vingunguti, while the second, smaller site is located in Tabata Segerea.

- How do you find new staff, and do you train them yourselves?

The business primarily operates with a core team of permanent, full-time staff across its manufacturing sites. These employees form the backbone of the company's day-to-day production activities.



In addition, the company occasionally engages temporary workers when there are large orders or increased production demands. These workers are typically recruited on a project basis and are retained only for the duration of the specific assignment.

When bringing in new or temporary staff, the company provides on-the-job, gradual training to ensure they can effectively contribute to production processes. However, the business places importance on prior basic technical understanding; preference is given to individuals who already possess foundational technical knowledge or experience relevant to metal fabrication and manufacturing, even if they are not fully skilled at the outset.

2. QUESTIONS ON QUALITY

- Do you have a guarantee for any number of years on the products?
 - i.e., if it breaks, do you replace or fix it for the customer? How much would that cost the customer?

The business provides a one-year warranty on its products, covering any defects or issues arising during normal use within this period. During the warranty period, the company fully bears the cost of repair or replacement of any faulty products.

After the one-year warranty period, any repairs or maintenance required are handled on a cost-sharing basis between the company and the client. The specific cost-sharing arrangement is agreed upon depending on the nature of the issue and the circumstances involved.

- What materials do you use to manufacture the pots?
 - Expecting sheet metal, so specifically...
 - What thickness?
 - What type of metal(s) are options?

It was indicated that the business production is currently specialised in stainless steel cookware. This is the primary material they work with due to the nature of their available equipment and fabrication processes.

In terms of specifications, the business typically uses sheet metal of approximately 1.5 mm thickness for the side walls of the pots. For the base, thickness varies depending on the size of the pot; for smaller pots such as the 10-11 litre capacity range, the bottom thickness is typically between 2 mm and 3 mm to ensure durability and heat resistance.

It was explained that their manufacturing approach is based on welding techniques, which are suitable for stainless steel fabrication. However, they do not manufacture aluminium pots, as aluminium production generally requires deep-drawing or pressing machinery, which they do not currently possess.

It was further noted that such pressing machines for aluminium or other deep-drawn cookware are not available within their facility or more broadly within the local manufacturing ecosystem in Dar es Salaam, with the exception of a few industrial operators of Indian origin who use



pressing equipment mainly for plastic products such as basins. As a result, most pressed aluminium cookware available in the local market is imported rather than locally manufactured.

3. QUESTIONS ON MANUFACTURING APPROACH

- What key manufacturing technique is used for the pots?
 - E.g.
 - Welding & bending
 - Deep drawing
 - Spinning
 - Please take a photo of the apparatus used to manufacture the pots and include a photo of the specification plate (e.g. for a welder).

A multi-step fabrication process is used in the production of their pots, which is primarily based on sheet metal fabrication techniques.

The process begins with design and marking (drawing/ layout), where precise measurements of the required pot dimensions are first defined and transferred onto the sheet metal. This stage ensures that all subsequent fabrication steps align with the required specifications, including diameter, height, and overall form of the pot.

The second stage involves forming processes such as bending and rolling, depending on the specific part of the pot being manufactured. The business uses bending machines and rolling equipment to shape the sheet metal into the required cylindrical or curved forms.

The final stage of production is joining, where the shaped components are assembled together. This is primarily done through welding, which is the core technique used to permanently join the metal parts and complete the pot structure.

- How do they trim the top edge of the pot?

There is a specific machine for trimming the top edge of the pot with which they don't have it. So, currently, they use the bending and the rolling machine.

They do not currently possess a dedicated machine specifically designed for trimming or finishing the top edge of pots. The finishing is instead achieved indirectly through the use of bending and rolling machines, which help to shape and fold the upper rim of the pot during the forming process.

- How do they manufacture the lid for the pot?

The lid is manufactured using the same general fabrication process as the pot body. This includes the same sequence of measurement and marking (drawing), forming through bending or rolling, and final joining through welding where applicable.



4. QUESTIONS ON SUITABILITY FOR OUR PROJECT

- What size diameter pots do they make?

The current production range includes pots with capacities of up to approximately 600 litres, which they noted can accommodate cooking applications of up to around 150 kg of food.

Within this range, the company is able to fabricate pots of varying diameters depending on client specifications. They confirmed that they do not operate with a single fixed diameter constraint and can adjust dimensions according to required use cases.

In addition, the company emphasized that they are able to manufacture pots based on custom client preferences, including variations in diameter, provided that the required specifications are clearly defined in advance.

- How much control do they have over the size – e.g. can they make a custom size, or are we limited to their standard sizes?
 - If we are limited, what sizes are available?

They have a high degree of flexibility in manufacturing pot sizes and are not strictly limited to fixed standard dimensions. They indicated that they are able to produce custom-sized pots based on client specifications, provided the required measurements (such as diameter, height, and capacity) are clearly defined in advance. This includes adjusting dimensions within their overall production capability range, which extends up to large industrial pots of approximately 600 litres capacity.

- *Not a question but...*

*We need to confirm that they understand our key sizing requirement is on the flat section on the bottom of the pot – i.e. the section which is **fully** in contact with the hotplate. This diameter must be 260 mm. Given that diameter, what diameter are the walls of the pot? Is there a curve between wall and bottom that means the walls are **WIDER** than the bottom of the pot?*

They understood the requirement. Based on both discussion and visual inspection of sample products, their pots are typically manufactured using a multi-part fabrication approach, where the base and the cylindrical wall are formed separately and then joined through welding. Evidence of this is seen in the visible vertical weld seam on the wall and the circumferential joint between the base and the wall. Through this method:

- The base plate can be cut and controlled independently, allowing for accurate specification of the flat contact diameter (e.g. 260 mm).
- The side walls are formed by rolling sheet metal, resulting in a cylindrical or slightly flared shape.
- A transition (slight curvature or weld junction) exists between the base and the wall, but this occurs *outside* the flat base area.



As a result, while the overall pot diameter (at the walls or rim) is typically larger than the base, this is a function of the fabrication method and does not affect the flatness or size of the base itself.

They confirmed that they are able to control and reproduce the base diameter precisely, provided that this requirement is clearly specified. However, achieving a consistently flat base surface (with minimal warping after welding) may require additional attention to fabrication quality and finishing processes.

- How reproducible is the product? i.e. if they make 10 pots, will they be identical as a result of the consistent manufacturing process, or will it depend on which employee made them, etc.

They are able to produce pots with a high level of consistency. They indicated that if multiple units (e.g. 10 pots) are manufactured to the same specifications, the outputs will be substantially identical.

They mentioned that this consistency is primarily attributed to the initial measurement and layout stage, where dimensions are defined and transferred onto the sheet metal. Once this step is standardised, subsequent processes – cutting, forming, and assembly – follow the same specifications, resulting in similar outputs even when different workers are involved.

- What scale can they manufacture at?
 - i.e., how many pots can they produce per day?

Their production capacity varies depending on the size of the pots being manufactured.

For smaller pots in the 10-11 litre range, they are able to produce a minimum of approximately 30 units per day, noting that these are relatively simple and quicker to fabricate. For larger pots, such as those with capacities around 100 litres, production output is lower due to increased material handling, forming, and assembly requirements.

In terms of batch production, they estimated that an order of 100 small pots (10-11 litres) can typically be completed within 3 to 4 days, assuming normal operating conditions.

- How much will it cost to buy...
 - A single pot
 - A batch of 10 pots
 - A batch of 100 pots
 - *Please also estimate the lead time – how long to manufacture each batch.*

For a 10-litre stainless steel pot with a fitted lid, manufactured using approximately 1.5 mm thickness for the walls and 2 mm for the base, a single unit can be sold at TZS 300,000 per pot, for a batch of 10 units, a single unit can be sold at TZS 250,000 per pot, and for a batch of 100 units, a single unit can be sold at TZS 200,000 per pot.



In terms of lead time, based on their earlier production estimates:

- A batch of 10 pots can typically be completed within approximately 1 day
- A batch of 100 pots can be completed within 3 to 4 days, under normal operating conditions

These timelines assume availability of materials and standard production workflow without significant interruptions.

5. ADDITIONAL QUESTIONS OF INTEREST

- Can they make induction pots?

It was indicated that they do not have prior experience or established production lines specifically for induction pots. However, they expressed openness to developing such products based on client specifications.

They noted that, if required, they would first undertake basic analysis and product understanding before commencing production. This would likely involve assessing material requirements and design adaptations needed for induction compatibility.

So, while they did not confirm existing capability, they are willing to explore and adapt, subject to further technical guidance and specification from the client.

- What else do they manufacture?

The business undertakes a range of additional fabrication and installation works beyond cookware manufacturing. Their activities are primarily centred on stainless steel fabrication and general metalworks.

These include the production of items such as metal tables and related structures, as well as gas system installations. They are also involved in design and fabrication for school laboratories, including installation works. In addition, the company undertakes water piping installations, fabrication of structural platforms (e.g. stages and roofing structures), and installation of tents and related support structures.

- How long has the business been running?

The business has been in operation for over 35 years, having been established in 1989. The business has maintained its primary operations at the SIDO premises in Dar es Salaam throughout this period.

- Are they a registered business?



Yes, it is a formally registered business, operating under the name TAMECCO Gas Metal Company.

- Can they explain why their product is good? Why should we purchase theirs rather than work with another business?

The business attributed the quality of its products primarily to the technical expertise of its workforce. It was emphasized that skilled technicians are able to deliver accurate and reliable outputs due to their understanding of fabrication processes, whereas less experienced workers may rely on approximation, leading to inconsistencies. As such, the company maintains that its use of competent and experienced personnel results in consistently high-quality products.

In addition, the company highlighted its customer-friendly pricing, positioning its products as accessible while maintaining quality standards. They also noted their commitment to after-sales support, indicating that they continue to engage with clients beyond the point of sale to address any issues or provide assistance where needed.

The business also underscored the importance of material quality in their production process. They prioritise the use of durable and reliable materials to ensure that their products have a long service life, reinforcing overall product value.

- Are there particular failure modes they see often – e.g. do pots often break along a weld line, or something similar.

It was indicated that most issues affecting pot performance are not primarily due to manufacturing defects but rather linked to user practices and limited awareness of proper cooking methods, particularly when transitioning between different energy sources.

It was explained that users often shift from one cooking system to another (e.g. from firewood to gas or other modern stoves) without adequate guidance. In such cases, unfamiliarity with the new cooking method can lead to improper use of cookware.

A common issue highlighted is the practice of placing an empty pot directly on a heat source, especially in gas cooking. This exposes the pot to intense direct heat without any contents, which can lead to overheating of the material. When ingredients are then added abruptly, the rapid temperature change can cause thermal stress, potentially resulting in warping, weakening of joints, or reduced lifespan of the pot.

Please also take the name and contact details for the person in charge, as well as a video of the workspace.

Masudi Kumbakumba, TAMECCO Gas Metal Company

Notes from call:

- Would it be good to visit the Dar place with the big press? Yes. Find out about him, but could also work with someone who works with him.
 - Pots in China – all use a big press.



- Any specific questions for **big press guy**?
 - ☐ What can he do – what are capabilities – materials (Alu or steel, thicknesses of the sheets), custom mould? Cost of mould? How much space in his queue – is he busy until 2029 or its very fast and there is space? Size – what is the size limit? Limit on depth?
 - ☐ What are all the steps of making the pot? Step 1: Deep drawing (using the big press). Are there additional steps?
 - ☐ How many big press guys are there?
- Industrialised pot maker in Dar – do they use big press or do they make it in parts?
- Deep drawing
 - Get a CURVE on the edge. Alu has a bigger curve. Steel has a smaller curve. Implications – size of base vs diameter of pot walls.
- Making it in 2 parts
 - You don't get a curve but maybe you do get a corner – maybe people don't like this.
 - ☐ DO PEOPLE LIKE POTS WITH SHARP INTERNAL CORNERS? OR DISLIKE THEM?
 - ☐ It was advised that internal corners should not be excessively sharp, recommending a minimum radius of approximately 3 mm. While some customers may prefer sharper internal corners for aesthetic reasons, the business emphasized that this is not optimal from a technical or functional perspective.
 - ☐ They explained that slightly rounded or bent internal corners are preferable as they enhance the structural strength and durability of the pot. In addition, rounded corners improve cleanability, as they prevent food from accumulating in tight angles, making the pot easier to maintain.
 - ☐ Ask manufacturers – which ones they sell, if both – which kind of customers.
- For observations
 - Someone forward thinking, curious to grow
 - Not doing huge manufacture yet but could take this idea and grow with it.

Appendix 2: Interview transcript for MZEE MUSSA

QUICK NOTE ON DIMENSIONS/ REQUIREMENTS

Our pot must have a content volume of between 10-11 Litres. The hotplate-contact area would ideally have a diameter of 260 mm (26 cm) and must be **flat, but the main point is they must be able to make a pot to precise measurements and must be repeatable – able to make many to that exact dimension** Products must be consistent and last for years – we do require a quality product. Any material is fine – so far we prefer 2mm thickness aluminium, however we are open to discussion on stainless steel. The pot must come with a fitted lid (preferably a flat lid). The pot must have a lip at the top [include a photo of indicative pot]



The business confirmed that they are able to produce pots within the specified 10–11 litre capacity and can achieve a flat hotplate-contact base diameter of 260 mm (26 cm). They indicated that their production processes allow for precision and repeatability, enabling consistent manufacturing of multiple units to the same specifications. They also expressed confidence in the durability and longevity of their products under normal use conditions.

In terms of materials, the business stated that they can work with aluminium, including the specified 2 mm thickness. However, they recommended considering a thicker material (approximately 3 mm), noting that this would improve strength and durability, particularly in demanding cooking conditions.

Regarding the lid, they confirmed the ability to produce a flat, fitted lid, but suggested the use of galvanized steel instead of aluminium. Their reasoning was that aluminium is relatively soft and may be more prone to deformation over time, whereas galvanized steel would provide improved rigidity and durability.

1. QUESTIONS ON LOCAL MANUFACTURE

- Where are the products manufactured (city)?

The business indicated that all products are manufactured at their local production site located in the Ilala Bungoni area, Dar es Salaam.

- Who owns the business?
 - Do they work at the business?

The business is owned by Mzee Mussa, who inherited it from his father. Mzee Mussa is involved in the operations, with all manufacturing activities carried out directly at the production site in Ilala Bungoni area, Dar es Salaam.

- Are any components imported from abroad?
 - If so, where are they imported from, and which components?

It was indicated that all materials and components used in production are procured locally within Dar es Salaam. They do not directly import any components from abroad.

- Are any tools imported from abroad?

They do not rely on imported machinery. Instead, their production is based on locally available tools and equipment, a significant portion of which has been fabricated or adapted in-house to meet their specific operational needs.

Observations from the site shows the use of basic but functional metalworking setups, including rail bars and improvised forming rigs used for shaping and bending sheet metal. These rail bars, visible in the images below, are repurposed structural steel elements that serve as manual forming supports, enabling them to bend and shape metal through applied force and technique rather than mechanised processes.



- How many manufacturing sites are there within the business?

The business operates a single production site, located in Ilala Bungoni area, Dar es Salaam. All manufacturing activities are carried out at this location.

- How do you find new staff, and do you train them yourselves?

They do not operate a formal recruitment or training system. Instead, new workers typically enter the business by assisting with basic tasks, gradually learning through observation and hands-on practice.

2. QUESTIONS ON QUALITY

- Do you have a guarantee for any number of years on the products?
 - i.e., if it breaks, do you replace or fix it for the customer? How much would that cost the customer?

The provision of a warranty is conditional and highly dependent on the type of fuel used during operation.

It was explained that cooking fuel has a significant impact on pot durability, particularly for aluminium cookware. From business's experience, aluminium pots used with LPG/ gas-based cooking systems are more prone to accelerated degradation over time, due to the intensity and concentration of heat. As a result, they expressed reluctance to provide a warranty for pots intended for gas use.

In contrast, for pots used with traditional fuels such as firewood or charcoal, they indicated greater confidence in durability and suggested that a long-term warranty (potentially up to 10 years) could be considered under such conditions.

To illustrate this point, they referenced a case involving a 6 mm thick aluminium pot (imported from India) that required replacement of its base after being used in high-intensity industrial cooking (e.g. tomato sauce preparation) on gas systems.

- What materials do you use to manufacture the pots?
 - Expecting sheet metal, so specifically...
 - What thickness?
 - What type of metal(s) are options?

Their primary material is aluminium, which is also the most commonly requested by customers. They also work with galvanized steel (for the lids only), and noted that stainless steel pots can be produced if required, without significant technical constraints. They also expressed a concern that galvanized steel lids tend to lose their surface finish (dark/ black appearance) over time, which may affect customer preference.



In terms of thickness, the business does not operate with fixed standard specifications. Instead, pots are typically produced based on customer requirements, with thickness varying depending on the intended use. For example, pots used in institutional settings such as schools (e.g. for porridge preparation) are often made to order and may require more robust specifications.

Production is largely order-driven, meaning that pots are generally not manufactured in advance but only after receiving confirmed customer requests. They emphasised that they use high-quality materials, which contributes to relatively higher pricing compared to mass-produced alternatives.

They also noted a clear market distinction:

- Customers such as institutions are willing to invest in higher-quality, custom-made pots
- Smaller-scale users (e.g. food vendors) often prefer lower-cost, imported pressed pots, which are more affordable but typically of lower durability.

3. QUESTIONS ON MANUFACTURING APPROACH

- What key manufacturing technique is used for the pots?
 - E.g.
 - Welding & bending
 - Deep drawing
 - Spinning
 - Please take a photo of the apparatus used to manufacture the pots and include a photo of the specification plate (e.g. for a welder).

The business employs a manual, fabrication-based production process, relying on basic tools and operator skill rather than mechanised or industrial forming techniques such as deep drawing or spinning.

The process begins with measurement and cutting of sheet metal, where dimensions are either:

- derived from experience-based standards (e.g. relating pot size in litres or kilograms to sheet dimensions), or
- provided directly by customers with specific requirements.

The business demonstrated strong familiarity with common sizing, enabling them to translate customer needs into appropriate sheet dimensions without formal design tools.

Following cutting, the next stage is forming, which is carried out manually. Instead of using dedicated bending machines, the manufacturer utilises rail bars and improvised forming tools, where the sheet metal is shaped through manual hammering and force application.

The final stage is joining, where the shaped components are assembled using a manual jointing machine operated by hand and also through hammering. Notably, they do not use welding; instead, mechanical joining techniques are applied to connect the formed sections.



- How do they trim the top edge of the pot?

They do not use a dedicated trimming or finishing machine for the top edge of the pot. Instead, edge finishing is carried out through a manual process, where the sheet is hammered against a rail bar, which acts as a forming base.

This allows the operator to shape, fold, and smooth the rim of the pot by applying controlled force. The same rail bars and improvised forming setups used in the general forming stage are also applied here for edge finishing.

In addition, the manual jointing/ forming machine is also used to assist in refining edges and ensuring the structural integrity of the rim where necessary.

- How do they manufacture the lid for the pot?

The lid is produced using the same manual fabrication process as the pot body. This includes measurement and cutting of sheet metal based on required dimensions; manual forming using rail bars and hammering to achieve the desired shape; and mechanical joining, where required, using the hand-operated jointing machine.

No specialised or separate process is used for lid production. As with the pot, the process is highly manual and skill-dependent.

4. QUESTIONS ON SUITABILITY FOR OUR PROJECT

- What size diameter pots do they make?

Their production is fully flexible and order-driven, meaning that dimensions such as diameter, height, and capacity are determined based on the specifications provided by the client. So, they are able to produce pots of any diameter, depending on customer requirements.

- How much control do they have over the size – e.g. can they make a custom size, or are we limited to their standard sizes?
 - If we are limited, what sizes are available?

They are not limited by fixed or standardised sizes. Instead, production is entirely custom-driven, allowing them to fabricate pots to any dimensions specified by the client, including diameter, height, and capacity.

They also do not maintain a catalogue of standard sizes, and therefore there are no predefined size limitations within their operations.

- *Not a question but...*



*We need to confirm that they understand our key sizing requirement is on the flat section on the bottom of the pot – i.e. the section which is **fully** in contact with the hotplate. This diameter must be 260 mm. Given that diameter, what diameter are the walls of the pot? Is there a curve between wall and bottom that means the walls are **WIDER** than the bottom of the pot?*

They confirmed a clear understanding mentioning that the dimension can be achieved and controlled during the cutting stage, as the base is defined directly from the sheet before forming and assembly.

- How reproducible is the product? i.e. if they make 10 pots, will they be identical as a result of the consistent manufacturing process, or will it depend on which employee made them, etc.

They are able to produce multiple units to the same specifications, and stated that if a batch of pots (e.g. 10 units) is produced, they would be identical in form and dimensions. However, given that the production process is fully manual and reliant on individual operator skill, the consistency of outputs is influenced by measurement accuracy and workmanship.

- What scale can they manufacture at?
 - i.e., how many pots can they produce per day?

The production speed is influenced by the quality and condition of the aluminium sheets used. In some cases, sheets are ready for immediate fabrication, while in others they may require pre-heating to improve flexibility before forming, which can affect overall productivity.

Under normal conditions, they estimated that a 10-litre aluminium pot (2.5-3 mm thickness) can be produced in approximately one hour, assuming the material is in good condition and does not require additional preparation.

This suggests a potential output of around 8-10 pots per day per worker, depending on workflow efficiency and material readiness. However, actual production rates may vary based on factors such as material variability, labour availability, and order complexity.

- How much will it cost to buy...
 - A single pot
 - A batch of 10 pots
 - A batch of 100 pots
 - Please also estimate the lead time – how long to manufacture each batch.

They provided pricing for a 10-litre aluminium pot (2.5-3 mm thickness) with a galvanized lid at approximately TZS 40,000 per unit.

They further indicated that pricing is fixed per unit and does not vary with order volume. As such a single unit, TZS 40,000 per pot; a batch of 10 units, TZS 40,000 per pot; and a batch of 100 units, TZS 40,000 per pot.



In terms of lead time, based on earlier production estimates:

- A single pot can be produced in approximately one hour (under normal material conditions)
- A batch of 10 pots may therefore be completed within 1-2 days
- And a batch of 100 pots would likely require 10-12 days, depending on workflow efficiency, labour availability, and material preparation needs.

5. ADDITIONAL QUESTIONS OF INTEREST

- Can they make induction pots?

They do not have prior experience or specific knowledge related to induction pots. However, they expressed strong confidence in their ability to replicate products based on physical samples or detailed specifications.

They emphasized that, although they may not have produced a particular product before, they are able to adapt their fabrication process if provided with a clear reference – either in the form of an existing product or precise design requirements.

- What else do they manufacture?

Their operations are highly specialised, focusing exclusively on the production of pots and lids. In addition to manufacturing, they also provide repair services for damaged pots. They thus, do not engage in the fabrication of other metal products beyond this scope.

- How long has the business been running?

The business is a family-run, passed down from father to son. The current owner began working in the business after completing his primary education in 1985, i.e., over three decades.

- Are they a registered business?

The business is not formally registered as a business entity. However, they hold a form of informal recognition through SIDO, which identifies them as a micro-scale industry.

They explained that they are not currently based within SIDO premises due to space constraints, but remain known and recognised within the local fabrication network. As a result, they are occasionally engaged by other businesses to provide skilled technicians on a temporary basis, particularly when demand exceeds in-house capacity.

- Can they explain why their product is good? Why should we purchase theirs rather than work with another business?



The strength of their product lies in the use of high-quality, thick aluminium sheets, typically in the range of approximately 3 mm. This results in heavier and more robust pots, which they associate with improved durability and longer service life.

They highlighted that this focus on material quality distinguishes their products from lower-cost alternatives, particularly thinner, mass-produced pots available in the market. As such, their value proposition is centred on durability and material strength, rather than low-cost production.

- Are there particular failure modes they see often – e.g. do pots often break along a weld line, or something similar.

The failures are infrequent and are generally not systemic. When issues do occur, they are typically linked to workmanship during fabrication, particularly in the joining stage.

Specifically, inadequate care during joining can result in improperly secured seams or edges, which may compromise the structural integrity of the pot. However, such issues are usually identified during or shortly after production and can be corrected through reworking or rejoining.

Please also take the name and contact details for the person in charge, as well as a video of the workspace.

Mzee Mussa, Local Pot Manufacturer, Ilala Bungoni, Dar es Salaam

Notes from call:

- Would it be good to visit the Dar place with the big press? Yes. Find out about him, but could also work with someone who works with him.
 - Pots in China – all use a big press.
 - Any specific questions for **big press guy**?
 - ☐ What is it he can do – what are capabilities – materials (Alu or steel, thicknesses of the sheets), custom mould? Cost of mould? How much space in his queue – is he busy until 2029 or its very fast and there is space? Size – what is the size limit? Limit on depth?
 - ☐ What are all the steps of making the pot? Step 1: Deep drawing (using the big press). Are there additional steps?
 - ☐ How many big press guys are there?
- Industrialised pot maker in Dar – do they use big press or do they make it in parts?
- Deep drawing
 - Get a CURVE on the edge. Alu has a bigger curve. Steel has a smaller curve. Implications – size of base vs diameter of pot walls.
- Making it in 2 parts



- You don't get a curve but maybe you do get a corner – maybe people don't like this.
 - ☐ DO PEOPLE LIKE POTS WITH SHARP INTERNAL CORNERS? OR DISLIKE THEM?
 - ☐ Ask manufacturers – which ones they sell, if both – which kind of customers.
- For observations
 - Someone forward thinking, curious to grow
 - Not doing huge manufacture yet but could take this idea and grow with it.

Appendix 3: Interview transcript for KILOMBERO MARKET MANUFACTURERS

QUICK NOTE ON DIMENSIONS/ REQUIREMENTS

Our pot must have a content volume of between 10-11 Litres. The hotplate-contact area would ideally have a diameter of 260 mm (26 cm) and must be **flat, but the main point is they must be able to make a pot to precise measurements and must be repeatable – able to make many to that exact dimension** Products must be consistent and last for years – we do require a quality product. Any material is fine – so far we prefer 2mm thickness aluminium, however we are open to discussion on stainless steel. The pot must come with a fitted lid (preferably a flat lid). The pot must have a lip at the top [include a photo of indicative pot]

They are able to produce pots within the specified 10-11 litre capacity, including a flat hotplate-contact base diameter of 260 mm (26 cm). They also indicated that their production process allows for precision and repeatability, enabling consistent manufacturing of multiple units to the same specifications.

They also expressed confidence in the durability and longevity of their products, noting that the pots can withstand long-term use under normal operating conditions.

In terms of materials, they confirmed their ability to work with 2 mm thickness aluminium, in line with the preferred specification. They are also able to produce pots with a fitted flat lid, meeting the design requirements.

1. QUESTIONS ON LOCAL MANUFACTURE

- Where are the products manufactured (city)?

The production takes place at Kilombero market, a larger market in Arusha. All manufacturing activities are conducted at this location.

- Who owns the business?
 - Do they work at the business?

The operations at the market do not constitute a single, unified business. Instead, the site hosts multiple independent operators, each working in small groups and managing their own production activities.



These groups function as separate micro-enterprises, often supported by their own assistants or workers. While they share the same physical location at Kilombero market, there is no central ownership or coordinated management structure overseeing all activities at the site.

- Are any components imported from abroad?
 - If so, where are they imported from, and which components?

All materials and components are sourced locally, primarily from hardware shops. The choice of materials – such as aluminium or stainless steel, as well as thickness and size – is largely determined by customer preferences and specifications.

For certain inputs, particularly aluminium sheets, materials may be procured from larger supply hubs such as Dar es Salaam, depending on availability and requirements.

Production follows a mixed model:

- Some pots – mainly small household sizes – are produced in advance based on common demand and kept ready for sale
- Other products are made-to-order, where customers specify detailed requirements (e.g. material, size, thickness)

The business thus, maintain both a workshop for fabrication and a retail shop for customers to either purchase ready-made products or place custom orders.

- Are any tools imported from abroad?

They do not use imported machinery, instead, production relies on locally available tools, many of which are fabricated or adapted to suit their needs. A key tool is the rail bar which serve as supports for manual shaping and bending of sheet metal.

- How many manufacturing sites are there within the business?

Manufacturing activities are carried out at a single location i.e., at Kilombero market in Arusha. Within this site, multiple independent operators work from their respective workspaces.

- How do you find new staff, and do you train them yourselves?

There is no formal recruitment or training system in place. Instead, skills are developed through an informal, experience-based approach.

New entrants typically begin by assisting with basic tasks, learning through observation and gradual hands-on practice. Over time, they are assigned progressively more complex work until they develop into fully competent technicians.

In some cases, individuals join the workshops with prior experience or existing skills, allowing them to integrate more quickly into production activities.

2. QUESTIONS ON QUALITY

- Do you have a guarantee for any number of years on the products?
 - i.e., if it breaks, do you replace or fix it for the customer? How much would that cost the customer?

They do not offer a formal warranty on their pots. However, they provide informal after-sales support, particularly for issues that arise shortly after purchase.

It was explained that if a pot fails within a short period (e.g. within the first week of use), they are willing to repair or replace the product at no cost to the customer. Beyond this initial period, support may still be provided, but is handled on a case-by-case basis, depending on the nature of the issue and the duration of use.

They mentioned that most repairs typically involve replacing the base (plate) of the pot, which is identified as the component most likely to experience wear or damage.

- What materials do you use to manufacture the pots?
 - Expecting sheet metal, so specifically...
 - What thickness?
 - What type of metal(s) are options?

They work with a range of materials, primarily aluminium and stainless steel for the pots, while galvanized steel is typically used for lids and the perforated cooking ladles (see picture below).

They however noted that galvanized steel is not preferred for pot bodies, as it is prone to corrosion (rusting) over time, particularly under cooking conditions. As such, its use is generally limited to non-contact or less critical components such as lids.

In terms of thickness, there are no fixed standard specifications. Material thickness is determined based on customer preferences and intended use, with some clients opting for lighter pots and others preferring heavier, more durable options. The operators confirmed that they are able to fabricate pots across a range of thicknesses, depending on the requirements provided.

3. QUESTIONS ON MANUFACTURING APPROACH

- What key manufacturing technique is used for the pots?
 - E.g.
 - Welding & bending
 - Deep drawing
 - Spinning
 - Please take a photo of the apparatus used to manufacture the pots and include a photo of the specification plate (e.g. for a welder).

The manufacturing process is manual and based on basic sheet metal fabrication techniques, with no use of advanced machinery such as deep drawing or spinning.



The process begins with measurement and layout, where the required pot dimensions are defined based on customer specifications. These measurements are transferred onto the sheet metal through marking and simple drawings, which guide the cutting process.

This is followed by cutting the sheet into required components, after which the pieces are shaped through manual bending and forming. Although bending machines exist, the operators do not have access to them; instead, they rely on hand tools and improvised supports such as rail bars to achieve the desired shape.

Before joining, a sealing material (typically a form of flux or adhesive compound) is applied along the joints to help ensure that the pot is watertight and does not leak. The final stage is joining, where the formed pieces are assembled – primarily through manual joining techniques rather than welding.

- How do they trim the top edge of the pot?

The top edge is trimmed and finished using a manual forming process with a rail bar. The rail bar serves as a rigid support over which the sheet edge is hammered and folded to achieve a smooth and reinforced rim.

- How do they manufacture the lid for the pot?

The lid is produced using a similar manual fabrication process as the pot. This involves measuring, marking, cutting, and manually shaping the sheet metal to the required dimensions.

However, the operators noted that there are specialised machines (e.g. circular cutting/forming machines) that can simplify lid production by cutting and shaping lids directly to precise dimensions in fewer steps. They do not currently have access to such equipment, and therefore rely on manual methods, which are more time-consuming and dependent on operator skill.

4. QUESTIONS ON SUITABILITY FOR OUR PROJECT

- What size diameter pots do they make?

They are able to manufacture pots of any diameter, depending on customer requirements.

- How much control do they have over the size – e.g. can they make a custom size, or are we limited to their standard sizes?
 - If we are limited, what sizes are available?

They are not constrained by fixed or standardised sizes. Instead, production is entirely custom-driven, allowing them to fabricate pots to any dimensions specified by the client, including diameter, height, and capacity.



They also do not maintain a catalogue of standard sizes, meaning there are no predefined size options.

- *Not a question but...*

*We need to confirm that they understand our key sizing requirement is on the flat section on the bottom of the pot – i.e. the section which is **fully** in contact with the hotplate. This diameter must be 260 mm. Given that diameter, what diameter are the walls of the pot? Is there a curve between wall and bottom that means the walls are **WIDER** than the bottom of the pot?*

They confirmed a clear understanding with further explanation that pots are typically formed through manual shaping and joining, which may result in a slight transition (curve or bend) between the base and the side walls rather than a sharp internal corner. As a result, the overall wall diameter may be larger than the base diameter, depending on how the pot is shaped. However, it was confirmed that despite this, they are able to maintain the required flat base diameter of 260 mm.

- How reproducible is the product? i.e. if they make 10 pots, will they be identical as a result of the consistent manufacturing process, or will it depend on which employee made them, etc.

They are able to produce multiple pots to the same specifications and stated that if a batch of pots (e.g. 10 units) is manufactured, they would be identical in size and form. However, as the production process is highly manual and dependent on individual operator skill, consistency is influenced by the accuracy of measurements and the quality of workmanship.

- What scale can they manufacture at?
 - i.e., how many pots can they produce per day?

The production capacity is determined after receiving an order, with output levels planned based on available labour and materials. Under typical conditions, where materials are readily available on-site:

- A single worker can produce approximately 10 pots (of 10-litre capacity) per day
- The same worker may also produce a combination such as 10 pots (10-litre) and 10 pots (20-litre) within a day, depending on workflow and task allocation

For smaller orders (e.g. 10 pots), production can be completed within one day by a single worker, provided materials are available.

For larger orders (e.g. 200 pots), production planning is done collectively, with staff coordinating output targets based on capacity and workload.

- How much will it cost to buy...
 - A single pot
 - A batch of 10 pots



- A batch of 100 pots
- *Please also estimate the lead time – how long to manufacture each batch.*

It was indicated that pricing is material-dependent and varies according to customer specifications. Indicative pricing provided were:

- A pot of the specified size made from stainless steel, from the picture, is sold at approximately TZS 45,000 per unit
- A comparable pot made from 2 mm aluminium can be sold at approximately TZS 90,000 per unit

It was emphasized that final pricing depends on factors such as material type, thickness, and specific design requirements, and therefore may vary between orders. No price reductions for bulk orders.

In terms of lead time, based on their production capacity:

- A batch of 10 pots can typically be completed within one day (with sufficient materials and labour)
- A batch of 100 pots would require approximately 10 days, depending on workforce allocation and material availability

5. ADDITIONAL QUESTIONS OF INTEREST

- Can they make induction pots?

They demonstrated an understanding of an induction pot, but indicated that they do not currently have the necessary equipment to manufacture such pots.

They explained that producing an induction pot – particularly aluminum-based designs – would require more advanced processes, including: melting (casting) of aluminum; moulding/ forming using dedicated moulds; and use of a pressing or forming machine to achieve the required base structure.

These processes differ significantly from their current manual fabrication process, which relies on cutting, bending, and joining sheet metal.

They noted that while some stages such as moulding are manageable, the key limitation is the lack of appropriate machinery for melting and pressing. As a result, they cannot currently produce induction pots using their existing setup.

However, they expressed that, with access to the required machinery, they would be able to manufacture such pots.

- What else do they manufacture?



In addition to pots and lids, they manufacture a range of other metal products. These include improved cookstoves for household use, frying pans and perforated cooking ladles, BBQ grills, poultry feeders and bird cages, among others.

- How long has the business been running?

They have been engaged in this work for more than seven years. They began by learning from the existing practitioners (i.e., their predecessors), after which they gradually developed their own capabilities and continued the business from where their predecessors ended at.

- Are they a registered business?

They are not formally registered as a business entity. They operate as informal micro-enterprises within Kilombero market in Arusha, alongside other small, independent groups working at the same site.

- Can they explain why their product is good? Why should we purchase theirs rather than work with another business?

They are the largest local pot manufacturers in Arusha, outside of those supported by SIDO.

They attributed the quality of their products to two main factors. First, they use higher-quality materials compared to smaller operators, which contributes to improved durability. Second, they emphasised their skill level, noting that key fabrication processes – particularly bending and forming – are executed to a high standard.

- Are there particular failure modes they see often – e.g. do pots often break along a weld line, or something similar.

They do not commonly experience systematic product failures (e.g. breakage along joints or seams). Instead, the primary challenge affecting their operations relates to material availability and cost.

It was highlighted that scarcity of raw materials, particularly metal sheets, is a significant constraint. Fluctuations in supply often lead to sharp increases in prices, which directly affect production planning and product affordability. For example, they noted that aluminium which cost TZS 8,000 per kg and a stainless steel at TZS 6,000 per kg, can rise these figures when the supply is limited.

They typically purchase materials by weight (kg) or by sheet dimensions (length/ height), depending on supplier terms.

Please also take the name and contact details for the person in charge, as well as a video of the workspace.



Meshaki Materu, Local Pot Manufacturer, Kilombero Market, Arusha

Notes from call:

- Would it be good to visit the Dar place with the big press? Yes. Find out about him, but could also work with someone who works with him.
 - Pots in China – all use a big press.
 - Any specific questions for **big press guy**?
 - ☐ What is it he can do – what are capabilities – materials (Alu or steel, thicknesses of the sheets), custom mould? Cost of mould? How much space in his queue – is he busy until 2029 or its very fast and there is space? Size – what is the size limit? Limit on depth?
 - ☐ What are all the steps of making the pot? Step 1: Deep drawing (using the big press). Are there additional steps?
 - ☐ How many big press guys are there?
- Industrialised pot maker in Dar – do they use big press or do they make it in parts?
- Deep drawing
 - Get a CURVE on the edge. Alu has a bigger curve. Steel has a smaller curve. Implications – size of base vs diameter of pot walls.
- Making it in 2 parts
 - You don't get a curve but maybe you do get a corner – maybe people don't like this.
 - ☐ DO PEOPLE LIKE POTS WITH SHARP INTERNAL CORNERS? OR DISLIKE THEM?
 - ☐ Ask manufacturers – which ones they sell, if both – which kind of customers.
- For observations
 - Someone forward thinking, curious to grow
 - Not doing huge manufacture yet but could take this idea and grow with it.