

## TFCG Technical Paper 53

# Tanga Region charcoal value chain survey 2024

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## **About the IFBEST Project**

Integrated Forest and Biomass Energy Solutions for Tanzania (IFBEST) is a three-year project running from December 2023 to November 2026 with co-funding from the European Development Fund. The project is led by the Tanzania Forest Conservation Group in partnership with Mtandao wa Jamii wa Usimamizi wa Misititu Tanzania (MJUMITA).

The project's overall **objective** is: Environmental sustainability is enhanced through sustainable forest management and woodfuel production in Tanga Region.

Building on the successful piloting of sustainable charcoal production within community-based forest management (CBFM) systems in Morogoro and Lindi Regions, the IFBEST project aims to introduce similar approaches to Tanga.

The project's expected **outcome** is: Local communities, local government authorities and other stakeholders have increased capacity to engage in sustainable forest management and woodfuel value chains in four districts of Tanga Region (Handeni, Kilindi, Mkinga and Pangani).

The project is expected to achieve its objective through four outputs:

- **Output 1:** Increased local government and village capacity to support and implement CBFM, sustainable land management and sustainable woodfuel production.
- **Output 2:** Charcoal production and other nature-based enterprises contribute to well-governed and environmentally sustainable forest management
- **Output 3:** Increased capacity of civil society organizations in Tanga to promote and advocate for good forest governance and sustainable woodfuel production.
- **Output 4:** Increased learning, and capacity to provide monitoring data for Tanga Region on sustainable forest management and woodfuels, linked to national monitoring programs.

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**Tanzania Forest Conservation Group (TFCG)** [www.tfcg.org](http://www.tfcg.org)

The IFBEST project is led by TFCG, which is a national non-governmental organization whose mission is to reduce poverty in rural communities and to conserve the biodiversity of globally important forests in Tanzania for the benefit of present and future generations.

**Tanzania Community Forest Conservation Network (MJUMITA)** [www.mjumita.or.tz](http://www.mjumita.or.tz)

TFCG is working in partnership with MJUMITA, which is a national network of community-based organisations promoting good forest governance and participatory forest management. MJUMITA's members are present in 13 regions, 30 districts and 452 villages.



## 1. Survey background

With financial support from the European Union, the Tanzania Forest Conservation Group (TFCG) is leading the implementation of a 3-year project entitled ‘Integrated Forest Biomass Energy Solutions for Tanzania’ (IFBEST). IFBEST works in 13 villages in Kilindi, Handeni, Mkinga and Pangani Districts of Tanga Region to help local communities to set up systems for the sustainable production of charcoal and timber from forests on their land, under Tanzania’s supportive legal and regulatory framework for community-based forest management (CBFM).

In order to market sustainably produced charcoal through existing value chains, it is first important to fully understand the nature of these commercial channels. This includes the licensing and permitting requirements, practical and logistical considerations, and costs and prices at different points in the supply chain from producer to consumer.

To gather the necessary cost and pricing information, IFBEST project staff organised a charcoal value chain survey in selected villages of Tanga Region between May and June 2024. They interviewed a sample of 15 traders across the three IFBEST-supported districts selling charcoal to markets in Zanzibar, Dar es Salaam and Arusha - see Table 1.

Table 1. Sample of traders surveyed

District	Source village	Main market	No. of traders sampled
Pangani	Mseko	Zanzibar	5
	Mkalamo		1
	Mkalamo		1
Handeni	Gendagenda	Dar es Salaam	2
	Gendagenda		2
Kilindi	Mswaki	Dar es Salaam	1
	Mkonde		1
	Kwediswaki & Makelele	Arusha	2
<b>Total</b>			<b>15</b>

Most of the sampled traders were not resident in the villages where they reported sourcing their charcoal. Some reside within the respective districts while others are based outside the region. Discussions were also conducted with local government and TFS officers.



## 2. Survey findings

### 2.1 Trader costs and income

The costs of procuring and selling charcoal from Tanga Region to the markets in Zanzibar, Dar es Salaam and Arusha can be divided into fixed costs (Table 2) and variable costs (Table 3). The costs shown are based on the results of the trader interviews.

Table 2. Fixed costs

Cost item	Details
TFS <sup>1</sup> application for forest produce dealer / trader	TZS 270,000 or TZS 300,000 p.a., depending on district
District trading licence	Usually TZS 100,000 p.a., but not all dealers pay
District Harvesting Committee application form	TZS 100,000 p.a. (no charge in Kilindi)
District Harvesting Committee sitting allowances	TZS 15,000-20,000 per dealer p.a. for village government officers to attend DHC
District chainsaw registration fee	TZS 100,000 p.a. but some producers absorb this cost; others do not use chainsaws
Village Council sitting allowances (for trader approval)	TZS 100,000-400,000 p.a. depending on the village (villages selling more charcoal usually charge more)
Contribution to village	Typically TZS 300,000 p.a., but not paid in some villages

Table 3. Variable costs

Cost item	Details
Empty bag	TZS 500 for small Zanzibar bag; 1.5 or 2 bags stitched together @ TZS 500-900 each for Dar/ Arusha
Charcoal at kiln	TZS 8,000-17,500 per bag-full, depending on size
String for stitching bags together and closing top	TZS 50-60 for closing small bags to Zanzibar; TZS 250-350 for largest double bags for Dar/Arusha as bags have to be stitched together first
Filling & stitching bag	TZS 1,000-2,000 per bag, usually includes loading onto lorry
Haulage to road	Zero to TZS 2,000 per bag, depending on distance and season; usually by motorbike
Loading	Zero to TZS 1,000 per bag, but may be included in filling charge or in transport charge
TFS royalty	TZS 12,500, 17,500 or 25,000 per bag depending on size/weight (verification for compliance of official rate of TZS 250 per kg sometimes takes place at checkpoints along major roads; not common at minor checkpoints due to lack of scales)
TFS tree planting fee (5%)	TZS 625-1,250, depending on bag size
TFS Transit Pass (TP)	TZS 15,000 or 20,000 per load (100-260 bags)
Village cess	TZS 500 or 1,000 per bag, depending on village; sometimes charged per load rather than per bag

<sup>1</sup> TFS – Tanzania Forest Services Agency.

Cost item		Details
District cess		TZS 1,000 or 2,000, depending on district
Transport		TZS 4,000-6,500 per bag to Kipumbwi or Mkwaja (main Zanzibar export ports); TZS 10,000-13,000 per bag for road transport to Dar or Arusha
Zanzibar route only	Port fees	Typically TZS 750 per bag on mainland plus TZS 600 on Unguja, but often negotiable
	Loading onto jahazi	TZS 1,000 per bag. High tide loading at Kipumbwi due to mud; low tide loading at Mkwaja using hand carts
	Crossing to Zanzibar	TZS 2,500-4,000 per bag, depending on destination port on Unguja (Mkokotoni, Ngalawa or Malindi)
Unloading		TZS 1,000 per bag, whether unloading lorry or boat
Miscellaneous costs		Up to TZS 1,000 per bag for checking on producers, local transport with Zanzibar, chasing debts, etc.

The averaged pricing data for each of the three routes to market is summarised in Table 4. Full details are provided in Annex 1.

Table 4. Charcoal survey price summary

Market	Ave. total cost (TZS/bag)	Ave. wholesale price (TZS/bag)	Ave. profit margin (TZS/bag)
Zanzibar	40,140	40,444	304
Dar	56,948	66,250	9,302
Arusha	51,522	58,250	6,728

## 2.2 Zanzibar market

Traders serving the Zanzibar market source their charcoal in the villages of Pangani District and eastern Handeni (e.g. Gendagenda village).

It is evident from the average profit of just over TZS 300 per bag for the traders selling to Zanzibar that this does not add up to a viable enterprise, if the reported sale prices and costs are taken at face value. Of the nine traders sampled, seven appear to making a loss (and of the two showing a profit, one claims a sale price in Zanzibar of TZS 47,500 per bag, which is 17% higher than the average of the others and probably unreliable).

To support this conclusion, several of the traders confirmed that the business is not profitable if they pay all the fees that are legally required. The main area of evasion is the royalty payment due to TFS, which is the largest cost item in the value chain. The fee is meant to be TZS 250 per kg (thus TZS 12,500 per typical 50 kg 'pollo' bag preferred for the Zanzibar trade, as it is easily loaded and stacked in a jahazi). Plus 5% of the royalty charge as a tree planting levy. The two common methods for reducing the royalty payment are reportedly:

- (a) to carry more bags per consignment from the village to the port than recorded and paid for in the royalty receipt; or
- (b) to use a single royalty receipt to carry more than one load to the port.

In both instances, the TFS checkpoint staff reportedly under-record the consignments.

Calculations reveal that if the royalty payment was halved by these practices, then the average profit per bag would rise from TZS 304 to TZS 6,589, which is around 16% of the average wholesale price in Zanzibar. This is a plausible margin and backs up the theory of royalty evasion.

### **2.3 Dar and Arusha markets**

Moving inland to the villages of Kilindi District, traders interviewed are serving the large urban markets in Dar es Salaam and Arusha.

According to these traders, there is a preference for larger bags in the Dar market, which are then broken down for retails into smaller bags, buckets and tins.

Trucks bound for Dar are reported to carry an average of 100 bags while those going to Arusha carry 230-260 bags. The explanation given is that the bad condition of the Kilindi-Arusha road discourages small truck owners while the Kilindi-Dar road is in better condition and suitable for smaller vehicles.

What the data appear to show is that the Dar and Arusha markets offer profits of 14% and 12%, respectively, of the landed wholesale price. Some of the traders interviewed accepted that they might add 10-15 bags per load above the quantities declared for payment of transit passes and TFS royalty, but evasion does not seem to be taking place at the same scale as in the trade to Zanzibar. The TFS Officer in Kilindi reported that at their checkpoint they randomly select around three charcoal bags and weigh them, and add an extra charge if the royalty paid has fallen short. It was not possible to visit a checkpoint to confirm this.

The traders reported that the market in Arusha is quite volatile as large quantities of charcoal come in on motorbikes, donkeys, pick-ups and backhaul lorries from all directions, including from the direction of the Kenyan border post at Namanga. From August to November (and sometimes through to February) the price of charcoal in Arusha apparently falls sharply.

### **2.4 Kilindi notes**

Some additional notes on Kilindi District are informative. The TFS Officer says there is an annual registration fee for charcoal production of TZS 300,000, but it is unclear why the same permit costs only TZS 270,000 in Pangani District.

It was found that, in Mswaki village, there are no registered charcoal traders but a more informal arrangement where various traders come in and buy charcoal from people clearing land for farming, and pay a village cess of TZS 500 per bag (rather than an annual flat rate as in other villages). These include traders registered in the nearby village of Kwediswaki.

Similarly, there are no registered traders in Mapanga village, but large charcoal kilns were observed in the village forest so traders who are un-registered (or possibly registered in other villages) must be coming there to buy charcoal. Likewise, according to the VEO, there are no registered charcoal producers in Mmbogo and Mswaki, yet charcoal is certainly made in both villages.

It seems that the charcoal trade in parts of Kilindi is not yet as formalised and structured as it is in Handeni and Pangani, with more *ad hoc* arrangements and traders often not appropriately registered. Charcoal from these villages often comes into the market via arrangements of dubious legality, with traders blending charcoal from villages where they may or may not be registered to trade. It seems this district is more at the 'charcoal frontier' and only now coming into large and well-organised value chains, which could present an opportunity to set up a more sustainable CBFM-based production systems.

### 3. Conclusions

For external facilitators such as TFCG who are seeking to make charcoal production in Tanga Region more sustainable and to enhance benefits to forest-owning communities, the ubiquitous under-pricing of charcoal in the market and the widespread evasion or under-payment of fees presents a clear challenge. This is especially so for the villages in Pangani District and eastern Handeni that serve the Zanzibar market, because the analysis indicates that if royalty is paid at the prescribed rate of TZS 12,500 per 50 kg bag, there is no profit to be made and thus the CBFM model will not be viable. The solution may be to move to timber harvesting instead of charcoal, though this presents its own challenges as the coastal forests in question have already been depleted of their most valuable timber trees.

Speculating on the reasons for the higher level of fee avoidance in the Zanzibar trade, one might imagine that the key personnel in the value chain are few in number, located at a small number of locations at or near the coast and can become personally acquainted with the traders for purposes of negotiating any special arrangements, whereas the journey to Dar and Arusha is much longer and there are numerous checkpoints along the way in multiple districts, making it harder for a trader to grossly under-state the number of bags per lorry or to recycle royalty receipts. So, the value of avoided payments may be less significant as a proportion of the landed product price.

If this interpretation is correct, then the implication for the sustainable charcoal interventions under the IFBEST Project or other projects is that there may be profits in charcoal traded from Handeni and Kilindi villages to Dar and Arusha, even if royalty is paid at something close to the official rates. The margins are nevertheless very fine and there is clearly a corrupt element in all the trade, whatever the final market. If villages in these districts are to remain market-competitive under a new CBFM model, then solutions are needed to make profit in a business in which corruption appears endemic.

The research focussed on traders who are involved in the purchase, transport and on-selling of charcoal from the sampled districts up to urban wholesaling sites. Further research into traders who own charcoal yards in Dar or Arusha could provide additional insights into value chain dynamics and pricing, as such individuals will also be involved in retail sales of smaller bags, tins or buckets for urban consumers. Similarly, it would be beneficial to understand the Zanzibar charcoal trade in more detail, including export dynamics.

**Annex 1: Charcoal price build-up in the sample value chains (survey findings from 15 traders)**

Main market	Zanzibar									Dar			Arusha		
District	Pangani				Handeni					Handeni	Kilindi		Kilindi		
Trader source village	Mseko				Gendagenda	Mkalamo				Gendagenda	Mswaki	Mkonde	Kwediswaki & Makelele	Kwediswaki & Mswaki	
<b>Variable costs per bag</b>															
Typical bag weight (kg)	50									80-100		70		70	
Empty bag	1,200	1,200	1,200	1,200	1,200	1,125	1,200	1,200	1,200	1,200	1,800	1,200	1,200	1,200	1,125
Charcoal at kiln	9,000	10,000	10,000	10,500	10,000	11,000	9,000	9,000	7,000	18,500	17,500	15,000	13,500	10,000	10,000
Filling & stitching bag	1,000	1,200	1,200	1,000	1,000	1,000	1,000	1,000	1,100	2,000	1,500	1,500	1,750	2,000	2,000
Rope		50	50		70	55	60	160		55		540	320	200	225
Stitching											159				
Haulage to road		2,000	1,500	1,000	1,500		500	2,500	3,000		1,500	1,000	2,000	4,000	4,500
Loading				1,000		850	500		1,000	1,500	1,000	1,000	1,100	800	1,000
TFS royalty	12,500	12,500	12,500	12,500	12,500	12,500	12,500	12,500	12,500	25,000	20,000	17,500	17,500	17,500	17,500
TFS tree planting fee (5%)	625	625	625	625	625	625	625	625	625	1,250	1,000	875	875	875	875
TFS Transit Pass (TP)	77	200	150	150	150	150	150	150	150	150	200	150	200	82	77
Village cess						1,000	1,000	500	500	1,000	1,000	500	1,000	500	500
District cess	2,000	2,000	2,000	2,000	2,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Transport	6,000	6,500	5,500	4,000	6,000	6,000	5,000	4,000	3,000	7,500	11,000	13,000	12,500	10,612	10,000
Port fee	750	1,350	1,475	1,350	1,300	1,300	700	750	700						
Loading onto jahazi	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000						
Crossing to Zanzibar	2,500	3,250	3,250	2,500	3,000	2,500	2,500	3,000	2,500						
Unloading	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Further road transport	300														
Other final market costs	1,000													500	
Other variable costs				450										1,423	1,346
<b>Sub-total variable costs</b>	<b>38,952</b>	<b>42,875</b>	<b>41,450</b>	<b>40,275</b>	<b>41,345</b>	<b>41,105</b>	<b>37,735</b>	<b>38,385</b>	<b>36,275</b>	<b>60,155</b>	<b>58,659</b>	<b>54,265</b>	<b>53,945</b>	<b>51,692</b>	<b>51,148</b>
<b>Annual fixed costs</b>															
TFS application for forest produce dealer/trader	270,000	270,000	300,000	300,000	270,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000
Trading licence (district)	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000			100,000
DHC application form	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000				
DHC sitting allowances	15,625														20,000
Chainsaw licence (district)	100,000	100,000		100,000					100,000						
Village council sitting allowances		300,000	400,000	300,000	350,000	400,000	200,000	300,000	250,000		200,000	350,000	280,000	200,000	200,000
Village contribution	1,000,000	300,000	300,000	300,000	300,000										
<b>Sub-total fixed costs</b>	<b>1,585,625</b>	<b>1,170,000</b>	<b>1,200,000</b>	<b>1,200,000</b>	<b>1,120,000</b>	<b>900,000</b>	<b>700,000</b>	<b>800,000</b>	<b>750,000</b>	<b>500,000</b>	<b>700,000</b>	<b>750,000</b>	<b>580,000</b>	<b>500,000</b>	<b>620,000</b>



Main market	Zanzibar										Dar				Arusha	
District	Pangani					Handeni					Handeni		Kilindi		Kilindi	
Trader source village	Mseko					Gendagenda		Mkalamo			Gendagenda		Mswaki	Mkonde	Kwedisiwaki & Makelele	Kwedisiwaki & Mswaki
No. of bags/licence/yr	3,636	3,000	2,000	1,480	2,000	5,000	6,000	1,500	5,000	3,586	3,586	1,000	5,000	8,000	3,000	
Average variable costs/bag	39,822										56,756				51,420	
Average fixed costs/bag	318										192				102	
<b>Average total cost/bag</b>	<b>40,140</b>										<b>56,948</b>				<b>51,522</b>	
Wholesale price at destination	35,000	42,000	42,000	40,000	41,000	40,000	47,500	37,500	39,000	67,500	72,500	65,000	60,000	59,000	57,500	
<b>Average wholesale price at destination</b>	<b>40,444</b>										<b>66,250</b>				<b>58,250</b>	
<b>Average profit margin</b>	<b>304</b>										<b>9,302</b>				<b>6,728</b>	