Diagnostic Trade Integrated Study (DTIS)

SURVEY OF AGRICULTURAL MARKETING LOGISTICS COSTS IN RURAL TANZANIA

Inception Report
December 2004

Submitted to:

The World Bank
Tanzania Country Office
50 Mirambo Street
P.O. Box 2054
DAR ES SALAAM

Prepared by:

David Nyange
Consultant
P.O. BOX 3007
Morogoro

Summary

This analysis documents and relates how rural logistics costs emanating from infrastructure particularly road quality impacts agricultural production and marketing in export crops producing rural areas. The study objectives are two folds: First to provide an accurate understanding of the organization of logistics from the farmer to the main assembly centres (usually in urban areas) before processing or export and the sequence of the supply chain and participants. Second, to estimate costs along the supply (and value) chain among various market participants in the logistical sequence. This inception report presents preliminary findings from a rural logistics cost survey of farmers, traders (agents), transporters and district officials in cashew growing villages of Mkuranga district in Coast region. The methodology adopted in the study is to compare two villages with different road accessibility in terms of price levels, spatial price variability, traffic intensity (number and frequency of vehicles serving the village), number of crop buying agents, length of supply chain and the degree of competition Moreover, input usage by farmers, input price and cashew production are compared. Ultimately farm budgets and transport logistics costs are estimated.

Kitomondo village is 20 km from district headquarters of which 18km are gravel road and the last stretch of 2 km is earth road. The village is accessible throughout the year. Kizapala district is 50km from the district headquarters of which 36 are tarmac and the last 14 km are of poor earth road. Although during cashew marketing season both villages are accessible, much difference is observed during rain season where Kizapala village is not accessible by vehicle. Kipalaza village is also less served by transport operators.

Results show differences in cashew production where the less accessible village of Kizapala recorded lower production which could be attributed partly to observed less farm sizes, less use of sulphur and consequently low cashew yields. In cashew marketing, Kizapala has more market intermediaries where the supply chain consists of farmers-stockist (shop owner)-buying agent-cashew processing and export companies. In Kitomondo district the supply chain is much shorter where farmers sell directly to cashew buying agents. Kizapala village also exhibit more spatial price variability than Kitomondo. In terms of transportation logistics, farmers in both villages receive 63 percent fob prices.

1. Introduction

1.1 Background

A Diagnostic Trade Integrated Study is being carried out in Tanzania under the Integrated Framework for Trade-Related Technical Assistance to Least Developed Countries (IF). This Tanzania Survey of Rural Logistics Costs will be an input to the IF Diagnostic of Trade Integrated Study (DTIS). This inception report presents summary of the preliminary analysis of rural logistics and transportation cost survey in Cost region.

Logistics is an important part of rural life, and is important issue facing farmers who need access to markets. Indeed, an estimated 30% of the rural population in Tanzania is living away from year-round passable roads and therefore has to rely on intermediate means of transportation to bring inputs for their activities to the village or the field, and transport their crops to markets. Access depends on infrastructure which is poor and limited, unreliable in the rainy season, and often monopolized by transport service provides, resulting in high costs. Typically, the logistics from local markets to larger centers is provided by intermediate traders who own or can charter vehicles (normally 3-10 ton trucks) while the farm-to-market transport is done by porterage, with owned or rented Intermediary Means of Transport (IMTs) or mixed –transport light vehicles. Logistics have direct impact on poverty: it can account for significant differences in price between the field and main collection centers from which the product is shipped to international markets. The costs is often so high that it prevents agricultural trade thus leading to entrapment in subsistence farming.

The first objective of this is to provide an accurate understanding of the organization of logistics from the farmer to the main centers in the country sequence of the supply chain and participants.

The second objective is to reconstitute a value chain that allocates costs to the various steps in the logistical sequence. The difficulty of this exercise is that most participants have no formal accounting with a detailed breakdown of operating costs. Therefore, costs have to be estimated indirectly, based on figures that participants can provide on their earnings and payments.

1.2 Methodology

The methodology behind the rural logistics costs analysis relies on a series of interviews of participants to the rural supply chain. Interviews conducted include the following categories of market participants:

- Farmers
- Local providers of transport services (including IMT renting or chartering)
- Local intermediaries / merchants.
- Religion-level transporters
- Farmers associations or cooperative organizations.

The fieldwork is being carried out in various regions of the country reflecting major crop production areas and/or different organizations. The regions identified by the Bank are: Coast (cashews), Shinyanga (cotton), Kilimanjaro/Arusha (coffee), Tabora (tobacco), and

Morogoro (fruit and vegetables). Within these religions, a typical district is selected and within this district two villages with different road accessibility are chosen for comparison.

During selection of survey villages, whenever possible, villages under the National Master Sample (NMS) are given a priority. These are villages that are regularly covered by national agricultural and household surveys. Objective is make use of secondary data with much larger sample size for verifying some of the information observed during this rapid survey. Moreover, road inventory from the highway act (1997) is used in preliminary identification of villages along rural roads of various qualities. This road inventory classify roads into 5 main groups, namely;

i) Trunk roads: These are national and international routes linking various regions in the country and with neighbouring countries. A significant length of trunk roads are paved or gravelled but regularly maintained
ii) Regional roads: are routes connecting a section of trunk road to another section and regional centres to district centres in the region. They also connect important centres to a trunk road. These roads are regularly maintained and allocated funds in the regional budgets.
iii) District roads: are routes linking either district headquarters with ward centres or important centres within the district. These roads are usually maintained by district councils (local governments) and their maintenance may not be regular.
iv) Feeder road, are the village access roads linking important centres within wards to the rest of the networks
v) Unclassified roads, provide the rest of the village access within wards.

Because of continuing road improvement in some parts of the country, prior identified villages are confirmed after discussion with district authorities. Practically, roads connecting villages with district headquarters may involve travelling through all 5 types of roads.

Open-ended interviews are conducted using designed survey instruments shown in Annexes 2-3 in order to collect both qualitative and quantitative information. From the interview production and marketing cost are estimated for various market participants.
Discussions during interview revolve in the following issues;

- Business strategies (when to buy, when to sell, taking into account the seasonality of agricultural and transport activities) with a clear comprehension of each stakeholder objectives (profit maximization, risks mitigation, social relations etc.)
- Business practices, type of contracts for transportation cost
- Revenues
- Costs
- Transport equipment and rough operating costs;

1.3 Expected Output

This report is intended to provide the following information;

a) A description of the districts investigated: socio-economic conditions, main productions, known access problem.

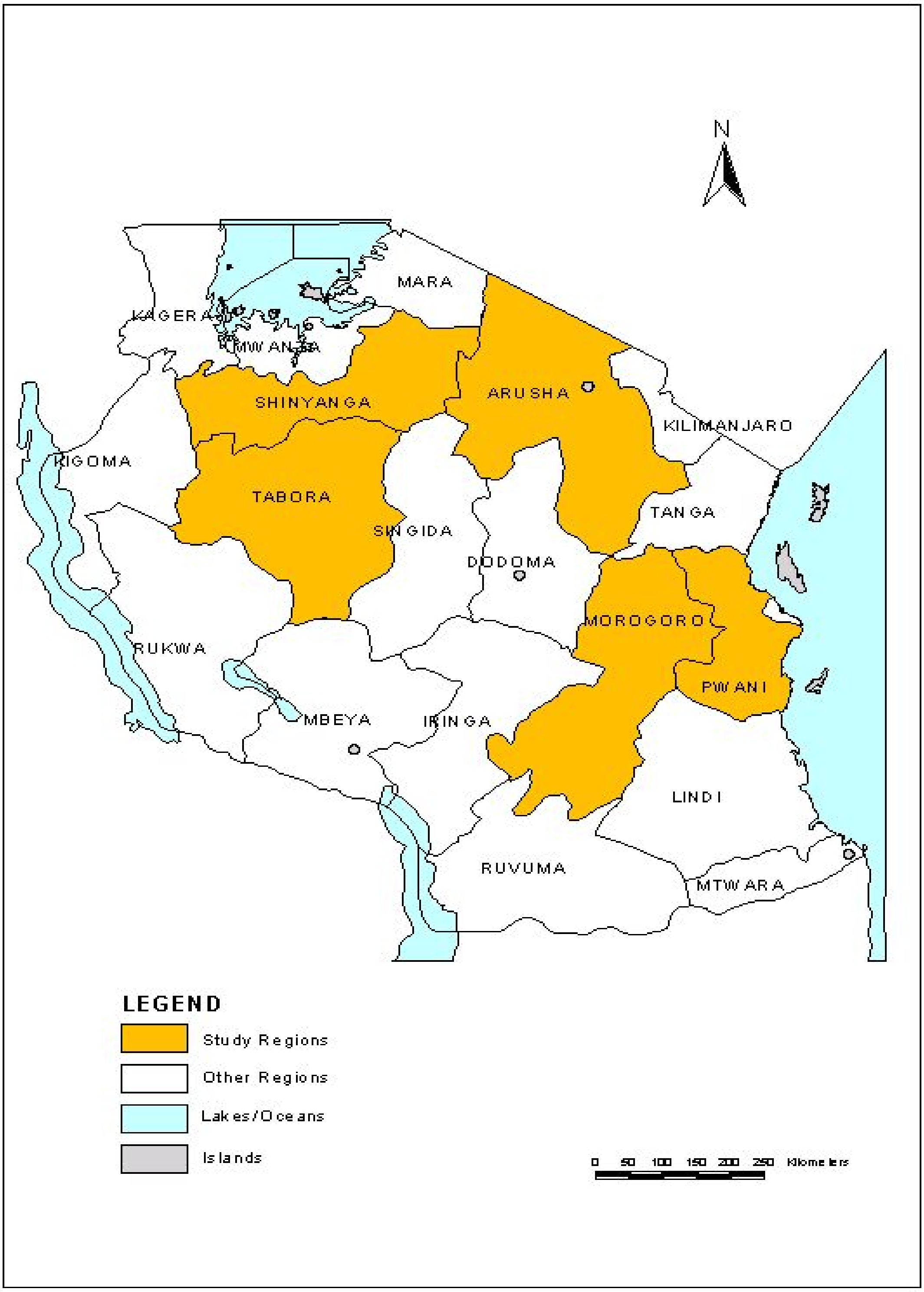
b) A description of the supply chain: identification of participants, services or product sold or bought for each category, description of physical and institutional bottlenecks.

c) Market structure:
   - Participants should be classified in a crude typology based on size, business goals and strategies, and for each a clear identification of the structure of incentives including any monopolistic or cartel behavior.
   - Describe the contractual practices for the logistical services.

d) Estimate the operating cost for the main participants (and if applicable, by means of transport):
   - Respective importance of fixed and variable costs and impact on market behavior.
   - Source of margin.

e) Whenever feasible creation of a value chain cost description from farmer to the main center for the main commodity.

Figure 1: Map of Tanzania Showing Study Regions for Rural Logistics Survey



2. A Case of Cashew in Coast Region

2.1 An Overview of Cashew Industry in Tanzania

Cashew is the fourth among the 6 leading export crops of Tanzania earning the country about US $ 63.7 million annually from 65,000 tons of produce (with a range of 93,200 to 63,400 tons). Between 1960 and 1970s Tanzania was the second biggest producer of cashew in the world behind Mozambique but lost its position (now it is fourth) due to decrease in domestic production and increased production among its competitors namely India, Brazil and Mozambique. Currently, Tanzania contributes about 12.5 percent of raw cashew trade on the world market. From a low point of 17,000 tons per year in 1987/88, cashew production rose steadily throughout the 1990s, reaching over 130,000 tons in 2000/01 (Table 1). Concurrently, export earnings rose from US $ 4 million in 1996/97 to over US $ 100 million in 1998. Such a recovery in cashew production has been partly attributed to liberalization of the industry.

Cashew in Tanzania is produced in 6 out of 21 administrative regions, namely Mtwara, Lindi, Coast, Tanga, Ruvuma and Dar es Salaam. There are about 280,000 households involved in cashew production in the country with a combined 400,000 hectares usually intercropped with cassava, coconut, maize and beans. With an annual output between 12,200 and 5,000, Coast region ranks 3 among cashew producing regions, though its position has been varying depending on weather conditions. About 90 percent of cashew in Tanzania is produced by small scale farmers but there has been an increase in large scale farming.

There are 12 large cashew nut processing factories with a combined capacity of 100,000 tons per year. Most of the factories were state owned and have been privatised or leased to private operators. Some factories are not operational while others operate below their capacity.

India has been the main destination market for Tanzania raw cashew accounting for about 95 percent of country’s export. In recent years there have been some initiatives to add value to cashew nut through domestic processing, grading and packaging as well as diversification of export markets.

Tanzania Cashew Board with headquarters in Mtwara regulates the cashew industry in the country.

Table 1: Production, export and price of cashew-nut

Year	Production	Yields	Producer price	Exports	Value of Exports	Export price
1992	41.2	7,509	137	29,300	23,500	802
1993	39.3	7,691	140	32,200	23,300	724
1994	46.6	84,455	177	65,000	51,160	787
1995	63.4	10,567	300	75,560	64,000	847
1996	81.7	12,615	325	118,360	97,770	850
1997	63.0	10,500	315	121,920	91,080	750
1998	99.9	11,650	300	164,680	107,320	850
1999	106.4	12,466	440	99,990	98,940	900
2000	121.1	13,467	600	94,482	92,600	1,055
2001	122.3	13,544	250	98,796	59,278	600

Source: PASS (2003)

2.2 Socio-economic Background of Mkuranga District

Mkuranga district is one of the 6 districts in coast region and is a new administrative area formed in 1995 after division of Kisarawe district into 2 districts. The district headquarters at Mkuranga are about 50 km south of Dar es Salaam along Dar es Salaam-Kibiti road. The district was selected because of its importance in cashew production relative to other districts in the region.

Mkuranga district is further subdivided into 4 Divisions, 15 wards and 101 villages. The districts has an area of 2,432 km2 of which 447 sq km is in the Indian Ocean and 51 sq km in the forest reserve. According to the 2002 Census the district has a population of 187,428 people. The district has a favourable climate for agriculture and has two periods of rain seasons in November-December and March-June. On average annual rainfall is between 800-1000 mm per year and temperature is 28 C.

Within Mkuranga district 2 villages were selected, namely Kitomondo and Kizapala. The road between Dar es Salaam and Mkuranga is tarmac but feeder roads from the district headquarters to the villages is gravel. Kizapala village is more remote than Kitomondo and the latter village has a better road. According to road classification both roads connecting the villages are maintained by district council, however, the last segment of 14 km along Mkuranga-Kizapala is not under district but maintained by the village. According to the District Council annual agricultural report cashew is the major crop in the district. Unlike Kitomondo, Kizapala village has an irregular public transport and the road is impassable during rain season.

2.3 Cashew Production Logistics

Cashew production in Mkuranga district has been increasing steadily in recent years (Table 2). it is estimated that 80 percent of residents income is derived from the crop. The district has about 3 million cashew trees but two-thirds of are unattended and hence encroached by bushes. Among 1 million attended trees only 32 percent (or 320,000 trees) are well maintained through frequent weeding and sulphur spraying against fungal diseases. The well maintained trees (320,000) have an average yields of 10 kg per tree which is twice the remaining 680,000 poorly maintained trees (i.e. 5kg per tree). From these statistics is estimated that Mkuranga district produces about 6,600 tons of raw cashew nut annually. Proper maintenance of cashew trees would require application of 1.25kg of sulphur per tree or 1,250 tons for 1 million trees, but amount of sulphur purchased by farmers averages 400 tons which is far below the recommended level. Optimally one motorised sulphur blower is required for every 1,000 cashew trees but the district has only 255 operating sprayer which is only a quarter of the demand. Other problems affecting cashew production includes bush fire, and low price emanating from low price in international markets, taxes and high transportation cost particularly in remote villages where roads and poorly maintained. Low price sometimes is due to poor grade cashew nut arising from lack of strict grading and limited value addition to cashew nut where most of the crops is exported in raw form.

Table 2: Cashew production and input usage in Mkuranga District

Year/Season	Sulphur demand-sold (tons)	Production	Remarks
1996/1997	42	1,500	
1997/1998	75	1,000	El nino rains disrupted both production and roads for market access
1998/1999	120	2,500	
1999/2000	200	2,500	
2000/2001	250	4,500	
20001/2002	300	8,500	Farmers had difficulty selling their produce as few buyers showed up
2002/2003	420	5,400	
2003/2004	380	8,100	
2004/2005	429*	-	Season in progress

*Estimate as the season is not over
Source: Mkuranga District Council, 2004

Farmers in Kitomondo village have larger maintained cashew farms, higher yields and reported more revenue from cashew nut sale than their counterpart in Kizapala village(Table 3). Village statistics (Shown later in Table 6) indicates more cashew production in Kitomondo than Kizapala despite much similarities in agro-ecological characteristics. Access to cashew buyer could partly explain such a difference in maintained cashew farm areas.

Table 3: Comparison of cashew production, producer price, revenue and input usage among farmers in Kitomondo and Kizapala Village

village		farm size	production in bags*	yield in bag	producer price**	Price range	total revenue in Tsh	Value of sulfur purchased
Kitomondo	Mean	3.21	5.92	3.03 (303 kg)	600.00	500-700	359,333.33	10,025.00
	N (interviewed farmers)	6.00	6.00	6.00	6.00	6.00	6.00	4.00
	Std. Deviation	2.44	3.77	3.58	63.25		292,642.22	50.00
Kizapala	Mean	2.42	6.17	2.13 (213/g)	600.00	500-700	164,833.33	9,966.67
	N (interviewed farmers)	6.00	6.00	6.00	6.00	6.00	6.00	6.00
	Std. Deviation	1.83	7.83	1.00	89.44		170,552.53	1,011.27

*When one large farmer in Kizapala village is excluded, average production per farmer is higher in Kitomondo village.
**Price is negotiable, if large quantity of cashew nut is assembled, price may increase
Source: Rural Logistics Costs Survey, 2004

Production cost, revenue and margin per acre are estimated in Table 4. Farmer often do not price their labour and labour estimates are based on market value of what it costs to employ one person per day in the farm. Production costs in the 2 villages of Kitomondo and Kizapala villages are very similar except for a small variation in revenue arising from differences in cashew yields. Sulphur spray against powdery milder is the most costly component in production of cashew.

Table 4: Production costs of cashew in Kitomondo and Kizapala villages

Activity	Unit	Rate/acre	Price/unit	Sh./acre
Labor				
Weeding	mandays	4	2,500	10,000
Harvesting	mandays	16	2,500	40,000
Sorting and packing	mandays	1	2,500	2,500
Spraying	mandays	3	5,000	15,000
Materials				
Sulphur (1.25kg/treex3applications)	kgs/ha	25	750	18,750
Packages	gunny bags	6	1,000	6,000
Other costs				
Sprayer rental				1,350
Inputs transport	sh./ton/km	0	0	0
Cashew transport to processing plant	sh.	0	0	0
Total Variable Cost	sh.			93,600
Yield (average)	kgs/acre			300
Price	sh./kg			600
Revenue	sh./acre			180,000
Gross margin/ha	sh./acre			86,400
Gross margin/ton				288,000

Source: Rural Logistics Costs Survey, 2004

2.4 Cashew Market Structure and Supply Chain

Farmers' cooperatives in Mkuranga district are dysfunctional and cashew buyers are mainly private companies licensed by TCB. Six companies (Annex 6) have been licensed to buy cashew nut in the district this year. After receiving TCB license, the companies apply for cashew purchasing permit from the District Council. Companies buying cashew nut in Mkuranga district have their head offices in Dar es Salaam and Tanga . (Still have to find out if Tanga based companies export all their cashew nut through DSM port. An interview with TCB official revealed that some companies buying cashew nut in Mtwara export their produce through DSM). Some of the companies export cashew nut in raw form while Fida Hussein and Mohamed Enterprises process some of their cashew nut. However, disagreement with the government regarding relative export taxes on raw versus processed cashew has been constraining increase in domestic processing of cashew nut.

Licensed cashew nut processors and exporters use agents to buy cashew nut in Mkuranga district. Buying agents usually operate several buying centres where they employ buying agents. Buying centres in Mkuranga district are located along Dar es Salaam Kibiti tarmac road. Farmers deliver their produce to buying centres on foot or by using bicycles. Besides the roadside centres, there are buying centres in remote areas. Kizapala village has a much longer supply chain where farmers sell cashew nut to local stockist who are often shop owners, who in turn sell their produce to buying agents. This explained by the fact that trucks for procuring cashew nut are not regular. Characteristics of cashew marketing and supply chain intermediaries (participants) are summarized in Table 5.

Table 5: Profiles of Market Intermediary in Cashew Supply Chain

	Buying agent	Stockist (shop owner)	Cashew Agent	Processor/Exporter
Main activity	Buying cashew	Retail of consumer goods	Buying cashew nut and sometimes other crops during off-season	Cashew processing and export (engage in other activities and commodities)
Source of finances for purchases	Entrusted cash by cashew agent	Own saving from shop business	Credit (soft loan) from exporter/processor	Financial institutions
Quantities handled	200 kg/day	50-100 kg/day	2-6 tons/day (one agent 5-15 tons/day)	Hundreds of tons
Ownership of commodity	Do not take ownership	Take ownership	Do not take ownership	Own the commodity
Mode of commodity transport	Agent arrange for transport, farmers deliver on food or by using bicycle	Agent arrange for transport’ farmers deliver on food or by using bicycle	Buyer provide transport but sometimes may rent or use own light truck in feeder roads	Provide transport-usually a fleet of light trucks for easy access to rural roads
Source of cashew nut	Farmers	Farmers	Buying agent	Agent
Market outlet	Agent	Agent	Processor/exporter	International markets (small amounts marketed locally)
Place of business operation and geographical coverage	Rural areas and along main road commodity assembly centres)	Shop in a rural area	District and small urban areas	Regional/port
Form of remuneration	Commission from agent	Margin on selling to agent	Commission	Margin on export price after deducting processing, transport and other costs

Source: Rural Logistics Costs Survey, 2004

2.5 Cashew Marketing and Transport Logistics

Just before harvest season, Tanzania Cashew Board organizes cashew stakeholders meeting which deliberate and agree on indicative producer price basing on past season's price, expected demand in international markets, transportation cost and other relevant criteria. For instance in the 2004/05 season, an indicative producer price of Sh. 750/kg for grade one (UG) was set. This year's export price (fob) is estimated to be US $ 950 per ton. The general consensus among stakeholders is for farmers to receive between 60-65 percent of the fob price. During survey it was observed that producer price ranged between Tsh 500-700/kg in both Kitomondo and Kizapala villages (Table 6-9). According to one TCB official since Lindi and Mtwara have the largest market share, buyers in regions with small market shares such as Coast have been using an excuse of low quality (grade) cashew-nut to depress producer prices.

Table 6: Cashew marketing logistics of Kitomondo and Kizapala Village

Variable	Kitomondo	Kizapala
Population (number of persons)	1,400	3,889
Annual cashew nut production (tons)	150-200	42.5
Road use by vehicles	Throughout the year but traffic is highest during cashew nut and oranges seasons	Not passable in rain season, the 14 last km stretch is very bad
Number of vehicles operating regularly in the village	6 per day but up to 10 during orange season	5 vehicles per day
Number of vehicles arrived/departed yesterday	6	3
Time to reach the village from district headquarters	45 minutes	40 minutes in dry season (not a problem to cashew nut since marketing is off-season)
Distance from district headquarters	20 km of gravel road	50 (Tarmac 36km+14 earth road)
Cashew nut price average price	300-600	
Cashew nut survey day's price	500	
Supply chain and number of cashew buying agents	There are 4 agents buying from farmers Shorter supply chain Farmer-Agent-Processor/exporter	Shop (grocery) owners buy cashew nut and sell to agents when they arrive in the village Longer supply chain Farmer-Shop-Agent-Processor/exporter
Other commodities	Oranges, and cassava	Charcoal and pineapple
Level of economic activities	More activities	Less activities, near Kimanschana town

Source: Rural Logistics Costs Survey, 2004

Table 7: Producer price of cashew-nut in Kitomondo and Kizapala villages

Village		Producer Price	% fob	fob price (2004)
Kitomondo	Mean	600	63	960
	Maximum	500	52	960
	Minimum	700	73	960
Kizapala	Mean	600	63	960
	Maximum	500	52	960
	Minimum	700	73	960

Source: Rural Logistics Costs Survey, 2004

Table 8: Cashew marketing logistics from Mkuranga district urban/road side buying centres to Dar es Salaam

Cashew-nut from Mkuranga district (along Kilwa road)			
	Sh./ton	% share TVC	% share FOB price
Buying price	600,000		62.50
Agent's commission (10%)	60,000	45.45	6.25
Package (gunny bag)	10,000	7.58	1.04
Village cess	4,000	3.03	0.42
District levy	45,000	34.09	4.69
Loading/unloading	3,000	2.27	0.31
Transport cost	10,000	7.58	1.04
Export levy (3% fob)	28,800		
Total variable cost-TVC	132,000	100.00	
FOB price	960,000		100.00
Gross margin	360,000		
Profit margin	228,000		23.75

Estimates do not include overhead and other fixed costs
Transport cost based on hiring charges
FOB based on 2004 indicative price of US $ 950/kg from Tanzania Cashew Board
Storage cost, sorting and grading or other value addition cost not included
Estimates are for raw cashew (90% of cashew is exported raw)
Interest rate on bank over-draft or credit not included
District levy includes district input fund
Port handling charges not included
When cashew is procured directly from remote villages, transport cost doubles

Source: Rural Logistics Costs Survey, 2004

Major components of cashew marketing costs include, transport cost and taxes. The taxes includes;

- Village cess which is Tsh 10/kg
- District council levy which is Tsh. 45/kg (including contribution to input fund). The government has set a ceiling for local government taxes, that should not exceed 5% of producer price.
- Export tax which is 3% of FOB price. The distribution of this tax is 1 % (each) for TCB, research and development (Naliendele Agricultural Research Centre) and Cashew Development Fund (CDF), respectively.

During the 2003/04 cashew season the district council received about Tsh. 364.5 million as revenue from 8,100 tons of cashew sold. In addition to the above taxes, cashew buying companies have to pay Tsh 60,000 to TCB for each district they operate as cashew purchasing licence, and they have also to pay for purchasing permit from the district council.

Another important component of marketing cost is transport costs. Transporters charge Tsh 10/kg from Mkuranga to Dar es Salaam, a distance of 50 km. This is about Tsh. 200 ton/km. A USAID study had estimated transportation cost in 1999 to be Tsh. 95.7 (or Tsh 130/ton/km after adjusting to 2004 prices) for a typical rural-port route. The high cost for Mkuranga-Dar es Salaam route could be partly attributed to the short distance where average transport cost is expected to decline with distance. Increase in oil price and decline in the value of Tanzania’s currency might have exacerbated transport cost. For cashew procured in off-main road of Mkuranga, (about 20km) transportation cost is charged. This increases transport charges to Tsh. 286/ton/km. Although, Kitomondo and Kizapala village have different accessibility, transport charges are similar. However, the difference in road quality is reflected in frequency of traffic reaching the village and marketing channel. Farmers in Kizapala village complained of receiving lower cashew price than their counterpart in Kitomondo. However, this low price was not observed in the survey, possibly due to smallness of the sample.

Table 9: Cashew marketing logistics from Kizapala and Kitomondo rural buying centres to Dar es Salaam

	Sh./ton	% share TVC	% share FOB price
Buying price	600,000		62.50
Agent's commission (10%)	60,000	45.45	6.25
Package (gunny bag)	10,000	7.58	1.04
Village cess	4,000	3.03	0.42
District levy	45,000	34.09	4.69
Loading/unloading	3,000	2.27	0.31
Transport cost	20,000	15.15	2.08
Export levy (3% fob)	28,800		
Total variable cost-TVC	142,000	107.58	
FOB price	960,000		100.00
Gross margin	360,000		
Profit margin	218,000		22.71

Source: Rural Logistics Costs Survey, 2004

Case Box 1: Purchasing Agent for Cashew nut in Mkuranga District

Mhidini, popularly known as Simba, is a young entrepreneur and a purchasing agent of cashew nut for Fida Hussein Company in Mkuranga district. Simba's business is based in a small town of Mkuranga and has a network of purchasing centres along the 40 km stretch of a tarmac Kibiti-Dar es Salaam road within the district. Besides centres along the tarmac road, Simba also procure cashew nut from farmers off the main road in remote villages. Farmers deliver their cashew nut on foot or by using bicycles and push carts (known as mkokoteni) to buying centres along the road. Simba himself has agents in rural areas who survey farmers to estimate amount of produce available for selling and sometimes mobilize the produce in assembly centres and contact Simba to provide transport. Fida Hussein Company truck daily procure cashew nut from Simba's buying centres and deliver the produce to his processing plant in Dar es Salaam. Simba has a cellular phone to communicate with the company office on quantities available for procurement. Companies and agents prefer to locate their buying centre along main roads where farmers deliver their produce on foot or by using bicycles in order to avoid transport cost of procuring produce from remote areas with poor roads.

Simba employs about 50 young men in his 30 buying centres (in 3 villages) during cashew nut season and their payment is a commission based on quantity purchased. Simba do not take the ownership of cashew nut but he receives an advance payment from Fida Hussein Company of Tsh. 8-10 million. Although Simba has a contract with Fida Hussein in which he uses his and his uncles' houses as collateral, their business relationship is more based on trusteeship developed over time than the collateral.

Simba has a motorcycle in which he uses to monitor his buying centres. In addition he has a light 1 ton pick truck for procuring cashew nut from remote areas. The truck was given to Simba by Fida Hussein on credit.

Simba receives a commission of 30 percent and he is not charged any interest rate from the credit (advance payment) he receives from Fida Hussein Company.

Simba takes risks as some of agents in his buying centres disappear with money. He usually do not have any formal contract with his agents in buying centres. Sometimes his agents buy cashew nut and sell to his competitors.

This season Simba buys about 6-15 tons per day. During off-season for cashew Simba buy sunflower from Mbeya or cow peas from Babati Arusha or simsim from Rufiji. Mr Simba has been in the business of buying crops for 7 years.

Source: Rural Logistics Costs Survey, 2004

3. Conclusions and Lesson Learned

Survey results have indicated how differences in infrastructure particularly road quality affects cashew-nut production and marketing logistics costs in Mkuranga district. Further analysis of secondary data will verify some of the observations made during this rapid survey.

The following lessons have been learned from coast region survey and its implication in the refinement of the methodology for other districts is as follows;

1) There is need to shorten the survey instrument and increase sample size
2) Interview of trading company officials could add value to information gathered
3) Road inventory could only be used as a guidance for sampling villages, but in practice to reach a village may require passing through tarmac, gravel and earth road
4) For the effect of infrastructure to be exhibited in transport logistics selection of highly diverse villages for comparison is necessary. Probably target a village along regional road versus one along village or unclassified roads.
5) Export crops are marketed during dry season when roads are passable while inputs are supplied and delivered in villages during rain season. Open discussion with input suppliers could also add value to information gathered from crop traders.

Reference:

BOT (2003). Economic Bulletin for

PASS (2003).Investment Potential in the Cashew Industry in Tanzania. Private Agricultural Sector Support (PASS).

TASA 2001. Open Forum on the Future of the Tanzanian Cashew-nut Industry. Tanzania Agriculture Situation Analysis (TASA). Proceedings of a workshop held in Dar es Salaam July 14, 2001

URT (2004). Basic Data: Agriculture Sector 1995/96 – 2002/03. Ministry of Agriculture and Food Security. The United Republic of Tanzania (URT).

ANNEX 1: VILLAGE CHECK LIST

1.Village population
2. Number of vehicles serving regularly the village
3. Number of vehicles arrived/departed yesterday
4. Vehicles transporting cashew nut
5. Quantity of cashew nut produced last year
6. Storage capacity for commodities existing
7. Road conditions and alternative means of transport
8. Adaptation to infrastructure used by transporters
9. Seasonality of traffic
10. Time spent to reach the village from the district in dry and rain season
11. Distance from the district

ANNEX 2: SURVEY INSTRUMENT FOR TRANSPORTERS AND TRADERS

General instructions: Circle the relevant code(s)/Fill the blank spaces appropriately.

DATE OF INTERVIEW	
REGIONS	
DISTRICT	
DIVISION/WARD	
VILLAGE	
QUESTIONNAIRE NO.	

Transporter Characteristics

1. Age in years

2. Sex:
   i) Male
   ii) Female

3. Literacy: (years in school………..)

   i) None
   ii) Adult education
   iii) Primary
   iv) Secondary
   v) College and above

4. Mode of transport (tonnage-----). Describe vehicle type-------
   i) Truck
   ii) Pick up (1 ton)
   iii) Bus
   iv) Bicycle
   v) Boat
   vi) Other mode (specify)

5. Relationship to the owner of transport
   i) Owner
   ii) Driver
   iii) Operator (entrusted)
   iv) Hired
   v) Partnership
   vi) Cooperative
   vii) Other (specify)

6. Main activity/business for the transport
   i) Public transport
   ii) Haulage of commodities (specify)
   iii) Government/private/company/NGO (describe)
   iv) Other (specify)

7. Number of years in the business?---------
8. Number of years in transporting cashew nut---
9. Which commodity is most profitable to transport and why?….

10. Which Commodity do you transport most?

11.How did you decide which products to transport i.e. what influenced your decision?

____
____
____

12. Besides cashew nut and maize, what other commodities do you transport?

COMMODITY HANDLING

13. During transportation of grains how are the commodities handled?
    i) Packet in containers
    ii) Not packed

14. If packed the packages/packing material for each commodity.

Commodity	Package/packing material	Weight
Cashew nut		

15. For each commodity indicate average distance and number of days between source and destination market.

Commodity	Source	Destination	Road situation (code)	Road classification	Number of Days (or hours)	Frequency (per day/week/month)
Cashew nut						

Codes for road situation
1 = Paved (tarmac)
2= Not paved but well maintained and passable throughout the year
3=Not paved, not maintained and seasonal
4= No road (foot paths and bicycles)

Codes for road classification
1) National (TANROADS)
2) Regional
3) District (local government)
4) Village

SEASONALITY OF DEMAND AND SUPPLY IN TRANSPORT OF GRAINS

16. Indicate quantities transported during high and low seasons with their respective prices charges per km per ton/kg

Commodity	Source	Destination	Quantity/month		Price/ton or kg/km	
			Low supply	High supply	Low season	High season
Cashew nut						

17. The commodities you transport belong to which market participants?
   i) Farmer
   ii) Local trader
   iii) Wholesaler
   iv) Exporter
   v) Processor
   vi) Cooperative/farmer group
   vii) Myself (owner of transport)
   viii) Others (specify)

18. How do you decide on transport fee? Indicate 3 most import factors from most to least important (give some explanation)
   1) Distance
   2) Quantity

3) Consignment size
4) Road condition
5) Type of client
6) Type of commodity
7) Season
8) Other factors (specify)

19. Indicate various costs incurred during transportation of commodities (in Sh. per kg/ton per km). (Cashew nut, maize, farm inputs e.g. sulphur)

Item	Cashew nut		
	Whole trip	Sh./kg	Sh./ton/ km
Fixed cost			
Insurance			
Depreciation			
Capital cost (interest on loans)			
Levy			
Driver			
Other overheads			
Other costs			
Sub-total			
Variable			
Fuel			
Lubricant			
Service			
Loading			
Unloading			
Repair cost			
Tax			
Other costs			
Sub-total			
Grand-total			
If owner of commodity			
Buying price			
Processing cost			
Selling price			

20. What is the most costly item in your business?
- i) Fuel
- ii) Maintenance
- iii) Tax
- iv) Labour
- v) Others (specify)

21. In case of bad road, how do you adapt to increased transport cost/
- i) Charge customers more
- ii) Reduce bulkness (e.g. processing)
- iii) Operate in some seasons

iv) Store commodities until conditions are better
v) Combine with non-motorized transport
vi) Combine passengers with commodities
vii) Travel at night
viii) Stop over often
ix) Truckload below capacity
x) Other strategies (specify)

22. Do you have any kind of contract with your client? E.g. time and mode of payment

23. If road improvements have occurred recently, has it affected your business

24. Estimate days of operation of your vehicle per month (   ) and per year (   )

25. How many other transporters are you competing with in your village?-----

26. How many villages are you serving?----

27. How many stop overs do you make before your destination?-----

ANNEX 3: FARMERS' QUESTIONNAIRE: FARM BUDGET AND MARKET ACCESS

1.Farm budget

Farm size (acres)	
Production (bags)	
Yields (bag/acre)	
Producer price	
Revenue	
INPUT	
Fertilizer	
Sulphur	
Other chemicals	
Renting sulphur blower	
Gunny bags	
Total Inputs	
LABOR	
Weeding	
Spraying	
Harvesting	
Transporting	
Storage	
Marketing	
Other costs	
TOTAL VARIABLE COST	

2. Distance to the nearest market/cashew nut agent
3. Type of buyer a) Agent b) cooperative c) processor/exporter
4. Do you have an alternative buyer of your produce?
4. Do you have any problem selling your produce?

ANNEX 4: LIST OF COMPANIES LICENCED TO BUY CASHEWNUT IN MKURANGA DISTRICT

No.	COMPANY NAME	ADDRESS/CONTACT
1	Fida Hussein	
2	Barahiyan Enterprises	P.O. Box 6150 TANGA TEL: 2644276/2644276/2644750
3	Mohamed Enterprises	P.O. Box 20660 DAR ES SALAAM
4	Shell Crafts Ltd	P.O. Box 210 TANGA TEL: 264999
5	Kilulu (2000) Ltd	P.O. Box 1272 TANGA TEL: 074-416412
6	Fatuma Salim	P.O. Box 2350 TANGA TEL: 2643273/0744-861366