Submitted 29th April 2015

Young International Freight Forwarder of the Year Award 2015

'Zambia's Dependability – Imports and Exports'

TABLE OF CONTENTS

Page Number

Page Number

1. ACKNOWLEDGEMENTS

I would like to express my thanks to Mr. John Mumba, and Ms. Valerie Sesia who have continually and persuasively conveyed true enthusiasm in my participation towards this award, thank you both for believing in me and giving me the opportunity to represent Zambia through the Zambia Customs and Forwarding Agents Association.

In addition, a big Thank You to a close friend and ex-colleague Christine Fisher for her continuous support, supply of facts and information as well as her consistent belief in me.

To Mr. Humphrey Kabwe and Ms. Jenny Lowe, your kind advisement is different areas of this dissertation has been most helpful, and I thank you.

Lastly, to my loving husband – I would like to express my sincere thanks and appreciation for your encouragement in my research. Words cannot express how grateful I am to you for taking such good care of our one year old son and playing with him in the evenings affording me time to complete my dissertation, your support and patience have been amazing.

2. LIST OF ABBREVIATIONS

ABBREVIATION	MEANING
CIF	Cost Insurance and Freight
CIP	Carriage Paid To
EHT	Export Handling Terminal
ETA	Expected Time of Arrival
FOB	Free on Board
GIT	Goods in Transit
GP	General Purpose
H.S Code	Harmonized System Code
HG	Higher Grade
Incoterms 2010	International Commercial Terms 2010
JHB	Johannesburg
JJD C.S	JJD Copper Smelter
KM/km	Kilometers
LME	London Metals Exchange
MT/ mt	Metric Ton
OBL	Ocean Bill of Lading
TRF	Transnet Freight Rail
USD	United States Dollar
ZAR	South African Rand
ZMW	Zambian Kwacha

ZRA	**Zambia Revenue Authority**
ZRL	**Zambia Railways**

3. INTRODUCTION AND SUMMARY

Zambia's economy is reliant on trade, import and export.

For the purposes of this dissertation I have described the voyage of Zambia's main export commodity – one of the highest valued commodities moving through and out of Zambia and Southern Africa – Copper Cathode – to Rotterdam.

These exports are the backbone of Zambia's economic sustainability and the complexities of moving this cargo through the various multi-modal transport legs has been provided in detail.

For my import cargo I have chosen to assess the voyage/ considerations and complexities of moving abnormal freight (mainly a batching plant used for construction on project sites) into Zambia, as construction machinery and project cargos are amongst the top 5 imports for Zambia.

*For the purposes of this dissertation please note that all clients and service provider names have been changed.

4. Dissertation Part A

Zambia's Main Trade and Export: The Voyage of 150mt Copper Cathode from Zambia to Rotterdam

4.1 Identifying the Business Opportunity

I have received a request for quotation from one of our key clients **JJD Copper Smelter (JJD C.S)* in Kitwe, Zambia.

They are requesting for all-in rates for the movement of 150 metric tons (mt) Higher Grade (HG) Copper Cathode from their Kitwe site to Rotterdam Port, Netherlands.

They have requested that I consider the below points when compiling the offer:

I. JJD C.S have the facilities to load both – road trucks and rail wagons from their site and will take responsibility for the handling and loading of arranged transport.

II. Given the high valued nature of this cargo – JJD C.S preferred dispatch ocean sea port is the proven and trusted Durban Port, South Africa.

III. They do not want any of the associated risk/ responsibility or cost for the cargo from the time of vessel arrival at Rotterdam Port.

IV. Recognizing the financial benefits of becoming compliant with the rules and regulations set down by the London Metals Exchange (LME) for HG copper Cathode, they request that I transport the copper in a clean condition – that is – free to any organic residues/ dust and dirt/ or contaminants to Rotterdam port.

V. JJD C.S realizes their revenue 8 days prior to vessel arrival at Rotterdam Port on presentation of copy of the Ocean Bill of Lading (OBL) and transit times are therefore key.

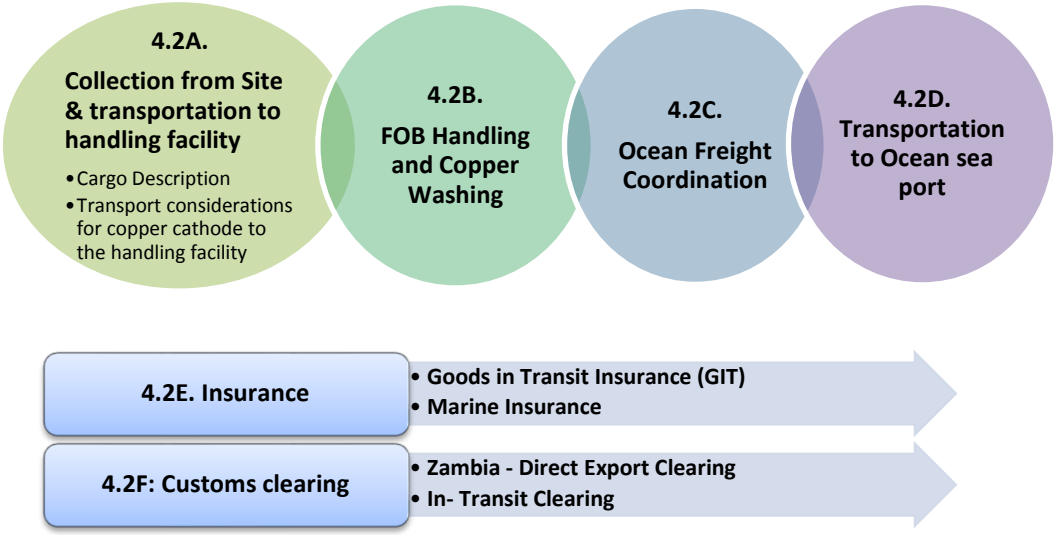
4.2 Gathering Information on the Situation and identifying processes beneficial to the client

Copper from Zambia accounts for 70% of African production and 60% of the country's total exports (Trading Economics, 2003-2015).

Trading at approx. USD5,939.67 per mt (LME, 31 March 2015) - copper cathode is the highest valued commodity moving through and out of Zambia.

Aspects to consider when I compile the quote are represented in the below Figure 1:

Figure 1: Voyage Considerations



4.2A) Collection from Site and Transportation to Handling Facility

Cargo Description

- Copper Cathode Bundles of between 50 to 70 individual copper sheets held together by steel strapping
- Individual bundle weight and dimensions are approximately:

- L100cm x W60cm x H30cm
- 2.7mt

- Non hazardous
- Extremely high valued commodity

Transport Considerations from Site to the Handling Facility

Given that Zambia is extremely limited with respect to the availability of container equipment from shipping lines driven by the lack of shipping line empty depot availability, as well as the requirements of JJD C.S with respect to the handling of their copper - I am making provision in the routing of this cargo for a well-established warehousing facility in Johannesburg, South Africa called **Export Handling Terminal Johannesburg (EHT JHB)* to receive/ clean and pack this cargo ready for ocean export.

EHT has a washing facility approved by the Environmental council guaranteeing proper filtration and disposal of washing residues.

The EHT facility has got their own rail siding and are an empty depot for most shipping lines.

Please refer Appendix A for routing Map

The transport of the cathode can either be serviced by road freight or rail transport and is governed by certain considerations as compared in Table 1 below:

Table 1: Mode of Transport Consideration Comparison - Kitwe to Johannesburg

Consideration	**Road Transport**	**Rail Transport**
Capacity	Maximum Load weight per flatbed truck 33mt 150/33 = 5 trucks required	Maximum Load weight per rail wagon 40mt 150/40 – 4 wagons required
Capacity Availability	Immediate	On turnaround from Sulphur offloading through co-ordination with Zambia Railways (ZRL)
Condition of trucks/ wagons	Roadworthy horse and trailers	Wagons supplied may be of unfit condition and will be rejected causing delays
Transit Time	7 to 10 days from loading with pre-clearance	30 to 40 days from loading with pre-clearance (Dictated by block train requirements to accommodate air brake wagon systems on the South African side).
Rate	USD120 per mt transport (inclusive of road bond) + USD15 per ton for security	USD125 per mt transport No additional security available
Security	As defined below	None available

The security of this high valued commodity is non-negotiable.

With an apparent perceived low risk for high reward, copper metal thefts are central to African crime statistics.

Given the severe limitations of this corridors rail network that is poorly developed and unguarded –

The security offered by road transport from Kitwe to Johannesburg can minimize risk and can control the safety of the cargo to the maximum extent through the following-

Road Transport Security and Risk Management Necessities

Road Haulier Security Measures

- All road hauliers will be vetted
- Every truck will be equipped with:
    - A good service record
    - Sufficient spare tyres
    - Sufficient fuel and a refuel plan
    - Toll gate money
    - Valid permits / licenses and insurance documents
    - Repair recovery plans
    - A working mobile phone loaded with talk time and a mobile phone charger
    - A working satellite system that is monitored by a 24 hour control room and operators.
    - 1 Driver and 1 security escort person

Drivers and Escort Security

Only well trained drivers and security staff, which have been vetted and have minimum 3 years' experience in this field will be placed on these trucks.

The security guards will be in uniform throughout the journey, and in possession of their security company identity cards.

The drivers and guards are expected to:

- Be on high alert at all times
- Be free of all drugs/ alcohol at all times
- Be attentive to the truck and load at all times
- Ensure the rules of forbidden passengers is adhered to

The security escorts guards are further required to:

- Report all incidents to the control room
- Send hourly tracking updates
- Send immediate breakdown reports
- Contact the response vehicle on standby in case of emergency

Convoy Procedure

Trucks loaded with JJD C.S Cargo must travel in accordance with the below convoy specifics to ensure maximum security:

- Minimum 2 and maximum 6 trucks in a convoy
- Keep in order of dispatch
- No overtaking of other convoy trucks
- The slowest truck will be put in the front of the convoy

- Maintain a safe following distance
- No unauthorized stops allowed
- Adhere to all traffic rules
- If 1 truck stops – all trucks should stop until further instructions are received from the control rooms and alternative arrangements have been made to secure the issue truck

Designated Routes

Road hauliers must declare in advance which one of the below approved routes they will be taking:

1. **Zambia:** Kitwe – Chirundu – **Zimbabwe:** Harare – Beitbridge – **South Africa:** Musina – Johannesburg
2. **Zambia:** Kitwe – Kazungula – **Botswana:** Martins Drift – **South Africa:** Mokopane – Johannesburg

*While armed escorts are forbidden through Zambia/ Zimbabwe and Botswana – it is necessary to ensure that there is an additional guard placed on each truck once over the border into South Africa that is armed for the remainder of the journey to Johannesburg.

Driving Times

- Trucks will be restricted to a NO night driving policy.
- Only pre-authorized truck stops may be used for sleepovers.

- Driving times are strictly between dusk and daybreak through these African countries to minimize the risk of accidents/ highjacks and ‘handovers’ as well as incidents resulting from the magnificent wildlife (Elephants/ Wild Dog/ Giraffes) that are found on the roads especially through northern Botswana.

The Cargo

The cargo will be secured onto the flatbed trailer with metals chains and covered with tarpaulins.

The tarpaulins will be secured to the trailer with plastic seals that should remain intact from the entire journey.

Any breaking in seals or removal of tarpaulins will result in the truck being received into Johannesburg under a strict offloading insurance claim procedure that will assume that cargo has been tampered with and/ or theft has occurred.

JJD C.S should ensure that the trucks placed for loading are loaded correctly – not exceeding the restrictions on weight per axle as to avoid any need to adjust the load at weighbridges along the route.

4.2B) FOB Handling and Copper Washing

FOB Handling

FOB (Free on Board) in line with International Commercial Terms (Incoterms) 2010 (please refer to Appendix B for detailed table of responsibility allocated under the

different Incoterms 2010) refers this term to include all responsibilities from cargo collection to loading on board the vessel at port of origin, excluding main ocean freight.

The main handling of this cathode in preparation for ocean export fall under FOB terms.

Zambia Withholding Tax Laws of 1971 that explains this means of collecting tax is in form of a deductible from a payment, by the person who is liable to make payment (the payer) at the point in time the person to whom it is due to be made (the payee) becomes legally entitled to it (date of accrual).
The deductible needs to be paid to the Zambia Revenue Authority (ZRA) no matter how, when or where payment is made (Zambia Revenue Authority, 2015).

This means that on any invoice charged to the Zambian company – 20% of the invoice total will be withheld from payment as tax due to the Zambian government – unless exemption is applied for.
The exemption is specific to the company performing the international service.

For this reason – I have managed to negotiate a full contract with EHT JHB that will have them co-ordinate the FOB and Ocean Freight services on my behalf and settle the charges due to the respective South African service providers.
I will in turn have withholding tax exception approved for EHT and settle all the charges with them directly:

The FOB services offered by EHT and their respective charges for Copper Cathode include:

ZAR 220 per MT for -

- Loaded trucks receiving from Zambia into Johannesburg
- In bond clearance
- Cargo inspection/ offloading and weighing in
- Placement of empty containers for packing
- Export container stuffing and sealing
- Ex-bond and ocean export clearing
- Cargo Dues
- Shipping line landside and port charges

Other Services and Charges:

- Copper Washing and re-strapping	USD 25 per bundle
- Electronic tracking services **see section 2D*	ZAR 1,265 per container
- Independent surveyor supervision	ZAR 210 per container
- Transport to Durban port by road	ZAR 8,600 per container
- Transport to Durban port by rail	ZAR 4,200 per container
- Ocean Freight Co-ordination **See section 2C*	USD 50 per container

Copper Washing

EHT will In line with my clients request - have the Copper cathode washed free of contaminants and dirt per my clients request.

Please refer to Appendix C for visual aids of cathodes requiring washing as well as Appendix D - a narrated process flow of the washing service offered by EHT Johannesburg.

4.2C) Ocean Freight Co-ordination

EHT will arrange for the Ocean freight booking and export packing of the cathodes in line with my instructions.

Given the weights per cathode bundle – packing for ocean export will be maximizing on the weight of the container as opposed to the space and therefore packing in 20’ (Foot) General Purpose (GP) containers.

In order to maintain a safe loading weight for handling at all – origin port/ destination port and consignee premises I have considered loading to a 21.7mt gross cargo weight capacity per 20’ GP.

This is between 7 and 8 bundles of copper per container as shown in Appendix E packing configuration.

I will need a total of 7x20’ GP containers for this shipment.

Considering that JJD C.S are looking for the best possible ocean transit time, I have sourced rates from a few shipping lines as shown in table 2 below.

Table 2: Ocean Freight Rates Durban to Rotterdam 2015

Shipping Line	Route	Transit Time		Sailing Frequency	Ocean Freight per ctn	Bunker Adjustment Factor per ctn	International Security Port Surcharge per ctn
1	Direct	23	20' GP	Weekly	USD 900.00	USD 310	USD 13.00
2	Direct	24	20' GP	Weekly	USD 800	USD 310	USD 13.00
3	Direct	24	20' GP	Weekly	USD 950.00	USD 0	USD 15.00

The ocean freight rates are applied on top of the USD50 that EHT will charge for ocean freight coordination.

The process of arranging ocean freight by EHT is demonstrated in the below Figure 2.

Figure 2: Ocean Freight Co-ordination Process for EHT Johannesburg

4.2D) Transportation from handling unit (EHT Johannesburg) to Durban Port

The South African infrastructure offers us good reasons for the use of rail for the movement of this copper from Johannesburg to Durban.

I must however assess the different aspects as done for the transport from Kitwe to Johannesburg to ensure that the right decision is made.

Table 3: Mode of Transport Considerations Comparison Johannesburg to Durban

Consideration	**Road Transport**	**Rail Transport**
Capacity	150mt packing for ocean export at safe load weight of 21.7mt gross cargo weight per container = 7 containers. 1 container per truck for security reasons = 7 trucks	Dependent on type of wagon supplied by South Africa local rail services – Transnet Freight Rail (TFR). Generally cater for 1 heavy container per wagon = 7 wagons
Capacity Availability	Immediate	Immediate
Condition of trucks/ wagons	Roadworthy horse and trailers	Wagons supplied by TFR for local South African business are of good and trusted quality

Continued..

Consideration	Road Transport	Rail Transport
Transit Time	8 to 10 Hours from loading • Containers can only move into port once the stacks for the vessel open	24 to 72 hours from loading • TFR will only move containers to Durban port once the vessel stacks open and co-ordinate the rail transport within time frames that will ensure early arrival and port storage are eliminated.
Rate	ZAR 8,600 per container road haulage from EHT Johannesburg to Durban port	ZAR 4,200 per container rail freight from EHT Johannesburg to Durban port
Security	Electronic clamping device at ZAR 1,265 per container as defined below	Electronic clamping device at ZAR 1,265 per container as defined below

Security and Risk Management plan for either road or rail transport from Johannesburg to Durban Port

Container Packing in Johannesburg

Each container packed for ocean export will be done under strict supervision of EHT staff as well as an independent surveyor company such as SGS or Alfred H. Knight.

Each party will produce a full tally of bundles packed per container with their respective weights on export container stuffing.

The container will be sealed by bolt seal.

Johannesburg to Durban

Security from Johannesburg to Durban has proven to be most secure by use of electronic risk management solution as shown in Appendix F.

This high-tech, water tight security clamp contains a GPS Tracking unit that is programmed to send continuous updates (every minute) to a control room operator that will monitor the movements and stops of container from Johannesburg to port.

The clamp is activated as soon as it is placed on the container door (over the bolt seal) and is tamper proof.

The built in sensor will alarm the control room is the container doors are off hooked and or there is tampering with the clamp.

The clamp will monitor:

- Route diversion
- Un-scheduled stops

- Stopover and sleepover depots
- Standing time and location
- Standing times exceeding 15 minutes

The battery life of each clamp GPS system can exceed 15 days if fully charged and is more than enough time for this Johannesburg to Durban trip.

The operating company for this risk management solution is connected to the South African Police Service and other recovery agents; they have their own recovery unit including helicopter assistance, a full proof and proven recovery plan and guarantee a 1 million South African Rand per container.

The removal of the clamp will take place at Durban ports ‘A’ Check in which the containers thereafter go into port vessel stack.

4.2E) Insurance

I have sourced and secured estimates of premium costs that are subject confirmation once the transporters names/ experience/ past losses and history of copper cathode transportation has been confirmed.

The Goods in Transit covers the loss or damage to the property insured including ropes/ tarpaulins and packing materials by an accident or misfortune whist such property is being loaded upon, carried or unloaded from any conveyance specified during transit including whilst temporarily housed in course of transit provided that such temporary housing does not exceed 14 days.

Goods in transit insurance calculated as:

- From Kitwe to Durban:

Premium Rate 1% of total consignment value (subject to Zambian Value Added Tax - VAT at 16%)

- Marine Insurance form Durban to Rotterdam:

Premium Rate 0.65% of the total consignment value (subject to Zambian Value Added Tax - VAT at 16%).

- General policy exclusions include:

1. Damage caused by explosives or goods of a dangerous nature if carried on the vehicle
2. Consequential loss, theft or pilferage of employees of the insured
3. Discoloration
4. Radio-active contamination
5. Unexplainable losses

- Warranties of the insurance policy include:

1. Conveyance vessels (trucks/ wagons) must be fitted with tracking system
2. Conveyance vessels must not be left unattended to
3. Conveyance vessels must only stop at designated stop overs for the trips
4. Drivers must have more than 2 years driving experience on International Routes

- Excess on this insurance policy:

In the event of a claim – the insured will bear the first 10% of loss subject to a minimum of ZMW 2,500.

4.2F) Zambia Export Clearing and Goods In-transit Clearing

In line with Statutory Instrument Number 6 of 2012, and Excise (General Amendment) Regulations 2012 amending the principal Regulations S.I 54 of 2000 – the customs entry for direct export for minerals from Zambia shall be made upon verification of the weight and the mineral content.

Documents to be submitted to customs in conjunction with the CE20 (Customs administration documents) completed in order to obtain clearance out of Zambia:

1. Mineral Analysis Certificate
2. Export Permit issued by the Ministry of Mines
3. Mineral Valuation Certificate issued by the Director of Geological Survey
4. Mineral Royalty Clearance Certificate issued by the Zambia Revenue Authority (ZRA).

In addition to the:

1. The Commercial Invoice
2. A copy of the Dispatch note
3. At least 2 independent weigh bridge reports (one from the port of exit from Zambia)
4. Packing/ loading list

This shipment will be cleared for export out of Zambia under Harmonized System (HS) Tariff Code: 74.03.11.00 000 *Cathodes and Sections of Cathode of refined Copper.*

Zambia Export Duties and Taxes applicable under this tariff are calculated based on the FOB Zambian Border, value (excluding inland freight) as follows per entry:

Duty: 0% VAT: 0%

Customs and Excise Document Fee (CED): ZMW 83 (not subject to VAT)

The In Transit Clearing and all road bonds for the transit through Zimbabwe/Botswana and South Africa will be arranged by my contracted transporter in line with respective regulations and customs laws.

4.3 Evaluating the information and drawing conclusions

The main aspects to be considered for this job are:

- Security required for high valued commodities out of Zambia and through Southern Africa
- Transit times are to be kept to a minimum
- Cargo cleaning in line with the clients requirements
- Costs are to be kept to a minimum

After comparing options available I would suggest the below:

- Transport from Kitwe to Johannesburg by secure road freight in line with insurance policy obligations – this will significantly reduce overall transit times of this cargo to final destination as well as offer the highest possible security for this cargo while in transit to South Africa.

- Washing and FOB handling at EHT Johannesburg
- Transport to Durban port by rail facilitated by EHT
- Use of Electronic clamping services for Johannesburg – Durban route in line with insurance policy obligations
- Ocean freight to Rotterdam with line number 3 coordinated through EHT in accordance with my directions – even though this transit time is 1 day more than other options, the freight rate offered is significantly lower than other shipping lines.
- Insurance coverage to be taken

4.4 Action to be taken

The quotation will be issued to JJD C.S offering services as follows:

International transportation from FOT (Free on truck) JJD C.S Kitwe, Zambia to CIF Rotterdam Port, Netherlands, **Incoterms® 2010.**

CIF Rotterdam Port (Incoterms 2010) will ensure elimination of all the risk and cost for JJD C.S from arrival at Rotterdam port in line with client request.

The sales rate will be determined through an evaluation of the costs in section 4. 5 and thereafter, the application of a mark-up of approx. USD10 per mt.

4.5 Costing

Please refer to Table in Appendix G for full calculation of costs associated with this job.

In line with the costs and applicable mark-up - rates to the client will be advised as:

International transportation from FOT JJD C.S Kitwe, Zambia to CIF Rotterdam Port, Netherlands, Incoterms® 2010 = USD 361 per mt.

5. Dissertation Part B:

Zambia's Top 5 Import: The Voyage of a Batching Plant used in Construction from Shanghai, China – through Durban, South Africa to Lusaka, Zambia.

5.1 Identifying the Business Opportunity

My client * *Constra-Zam* in Lusaka, Zambia has contacted me to advise of a shipment coming in for their Lusaka Site from Shanghai China.

Their buying agreement with their Chinese supplier is CIF Durban Port, South Africa ,Incoterms 2010.

(Refer Appendix B for full details on International Commercial Terms (Incoterms 2010)).

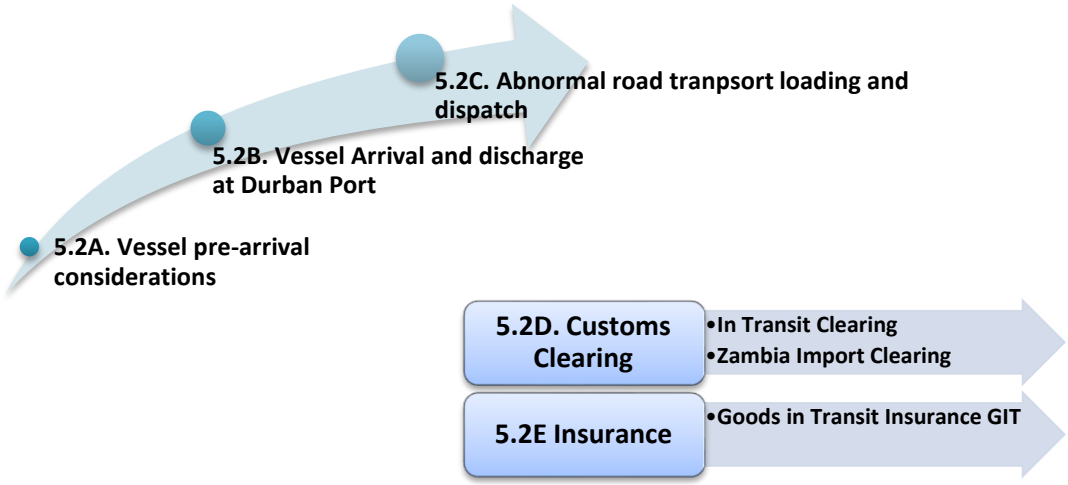
In line with these terms of sale – the supplier has already taken care of all the handling/ transport and freight arrangements from origin – Shanghai – through to the nominated ocean port of destination – Durban - inclusive of insurance.

Constra-Zam have requested that I arrange all the handling, transport, clearing and insurance from the time of vessel arrival at Durban Port to delivery to Lusaka, Zambia.

Please see Appendix H for routing map From China to Durban and on-carriage to Lusaka for this voyage.

5.2 Gathering and evaluating relevant information on the situation:

Figure 3: Voyage process flow in Durban



5.2A. Vessel Pre-arrival Considerations

Cargo Description:

Batching plant dis-assembled into 8 separate pieces –

Pieces	Dimensions cm	Weight mt
PIECE 1:	L1785XW320XH345	12.8
PIECE 2:	L1865XW340XH327	36.5
PIECE 3:	L1665XW320XH310	29.6
PIECE 4:	L1470XW310XH310	19.8
PIECE 5:	L600XW260XH45	7.020
PIECE 6:	L600XW260XH45	7.020
PIECE 7:	L600XW260XH45	7.020
PIECE 8:	L600XW260XH45	7.020

The situation on this North-South Corridor shows constraints with regard to the movement of abnormal cargos that may not exist in many other continents.

The use of waterborne transportation is non-existent, specifically into Zambia that is a land locked country bordered by 8 different countries.

The main modes of transportation available are road and rail of which – the infrastructure for rail is poorly developed, impractical and not at the stage it should be to handle this kind of cargo.

For this reason I have no other options to consider except for road transport for the transportation from Durban port to Lusaka.

Documents

I will require a copy of the below paperwork from Constra-Zam in order to receive/ handle/ clear and transport this shipment from Durban port to Lusaka, Zambia:

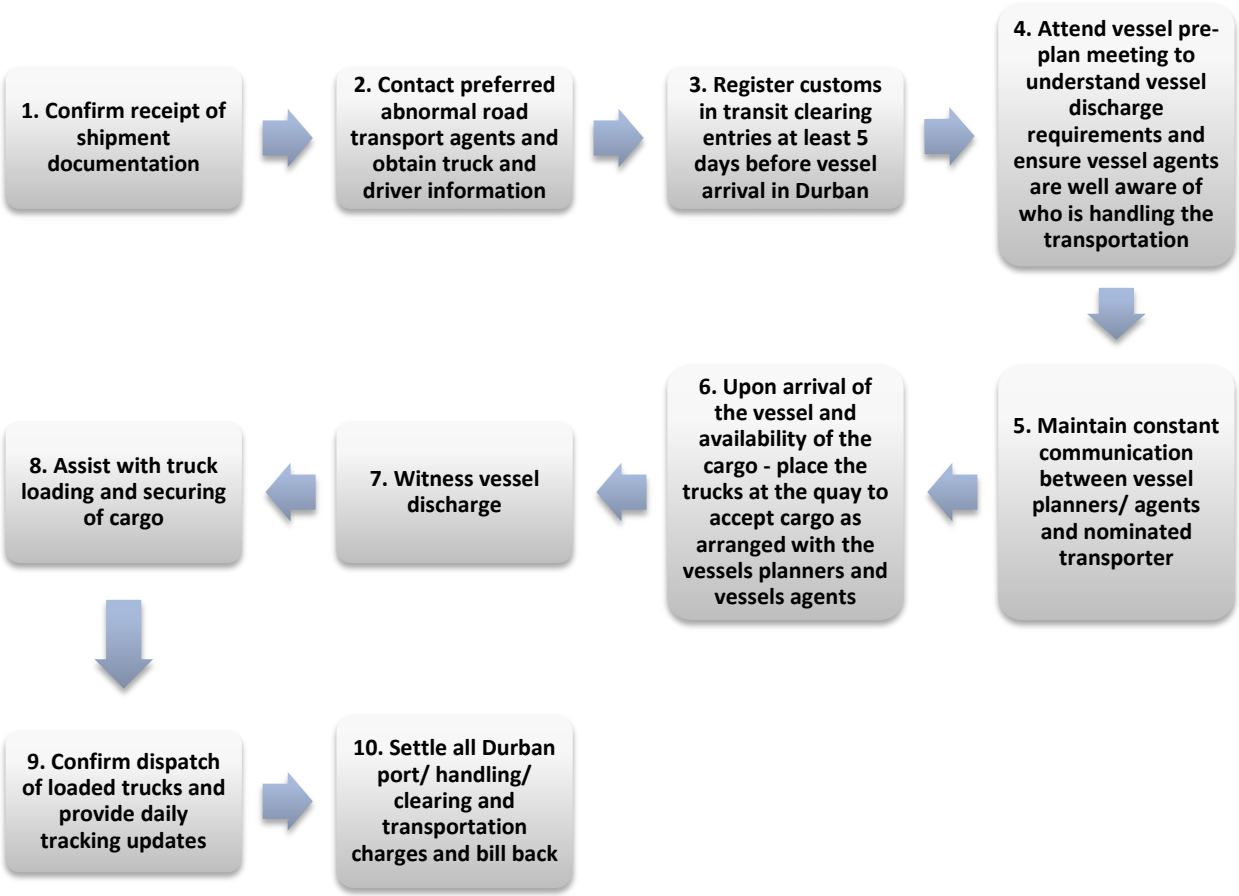
- ✓ Commercial Invoice
- ✓ Original OBL or Telex Release in Durban port
- ✓ Detailed pack list

Durban Port Handling and Truck Loading Process

As our company does not have a strong presence in South Africa, I have had to outsource the main activities of receiving this shipment/ transit clearing and loading on road transport to a local South African company based in the Durban area that is experienced with the handling of these kinds of cargos, namely **Transcar Limited*.

I have clearly identified my expectations with respect to their responsibilities as summarized in Figure 3 below.

Figure 4: Process for shipment handling for Transcar South Africa



Transcar have given me their rates as follows:

- Durban Port Landing costs — ZAR 380 per ton
- National Ports Authority Cargo Dues — ZAR 130 per ton
- Tally Cost — ZAR 6 per ton
- Survey Cost — ZAR 5,700 per day
- Stevedoring Cost — ZAR 3000 per day
- Transit Customs Documentation — ZAR 1,600 per entry
- Communication Fee — ZAR 160
- Disbursement Fee — 1% of total funds outlaid

The Vessel agents have advised me that the vessels gear will be able to handle the vessel discharge but they also have a 100mt crane on standby for the heavier pieces. They have also confirmed that my cargo is situated in Hatch 2 of the vessel which is expected to take 1 day to offload (Durban weather permitting).

For reasons explained in the previous section of this dissertation – I will have to obtain accreditation for Transcar Limited as well as the nominated transporter with the ZRA to avoid having to consider payment of Withholding Tax.

Transport Services

To protect the investment in roads as well as for reasons of road safety and traffic management, the permissible dimensions and masses of vehicles operating on public

roads are limited by the Road traffic Act and Regulations as set down for that country (TRH 11, March 2000).

I have considered the abnormal road transport required for this job and have obtained quotations for the movement inclusive of the below from the transporter:

- International Road transport for full shipment: ZAR 600,000
- In-transit permits Incl. above
- In-transit clearing Incl. above
- Escort fees Incl. above
- Lashing and Strapping Incl. above
- Demurrage of ZAR 10,000 per day applicable after the first day

The route for this cargo from Durban to Zambia will be through transit country Zimbabwe.

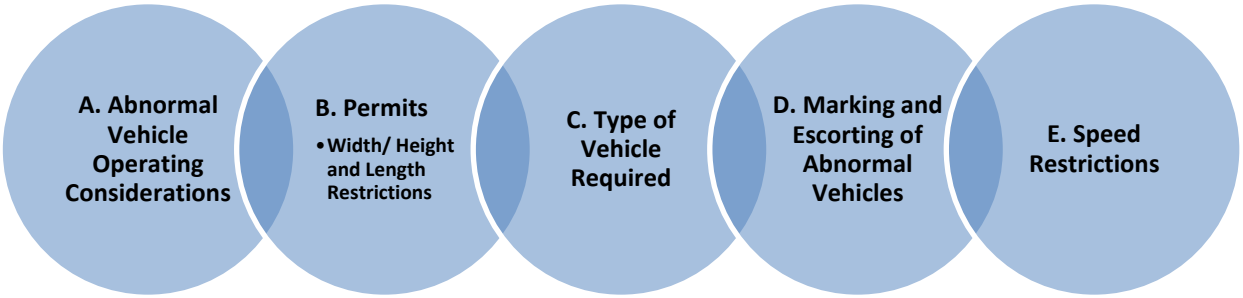
The reasons for choosing to transit through Zimbabwe instead of Botswana is due to the Botswana/ Zambia border (namely, Kazungula) being serviced by pontoon over the great Zambezi river, which will not be able to handle these loads.

Route Plan:

South Africa: Durban **–** Pongola - Johannesburg – Musina – Beitbridge - **Zimbabwe:** Harare – **Zambia:** Chirundu - Lusaka

I need to consider the following dimensions transport planning in order for the cargo to be delivered safely.

Figure 5: Transport Planning Dimensions



Abnormal Vehicle Operating Considerations

- Personnel

- All personnel employed for this operation must be fully conversant with their responsibilities and duties, that is, the owner of the vehicle/ the driver and the escort personnel.
- Each of the respective personnel should be in possession of their valid permits and licenses.

- Insurance

- South African regulations stipulate that before any permits can be issued – the transporter must be able to produce evidence that adequate insurance cover has been provided against accidental or willful damage which may be caused to public services or structures or to private property (TRH 11, March 2000).

- Road Worthiness and Registration of Vehicles

- All vehicles are required to be registered in the origin county as well as have certificates of roadworthiness to be able to transit countries South Africa through to Zambia.

Abnormal Vehicle Permits

Loads that cannot, without disproportionate effort, expense or risk of damage, be divided into two or more loads for the purpose of transport on public roads are considered indivisible loads and permits will be applicable in South Africa, neighboring countries and Zambia under the road traffic regulations if:

- The overall width exceeds 2.6m but is under 3.5m AND/OR
- The overall height from ground level exceeds 4.3m AND/OR

(Height of a conventional trailer is 1.60m from ground to trailer deck, therefore permissible height of load is 2.70m)

- The overall length of the vehicle exceeds :
    - 12.5m for a single vehicle (excluding semi-trailer)
    - 18.5m for an articulated vehicle (Truck & semi-trailer/ tri-axle)
    - 22m for any other combination vehicle (i.e. Superlink 6m +12m trailers)

(Source: TRH 11, March 2000)

- Permits will be required in the legal mass limits below are exceeded:
    - 13.50m Tri-axle 28mt
    - 15m Tri-axle 30mt
    - Superlink 34mt gross

Subject to the dimensions and/or the mass of the load, special trailer equipment may also be required i.e.: Stepdeck, Lowbed, Multi-axle trailer or Extendable trailer.

The standard permit conditions dictate:

1. The official stamped permit and the application form which forms part of the permit are carried in the abnormal vehicle at all times.
2. The vehicle registration certificate be carried in the abnormal vehicle at all times
3. The abnormal vehicle is fitted with a device capable of giving a visual record pf the road speed and distance travelled in relation to time.
4. The abnormal vehicle will not use public roads on Saturdays, Sundays and other days as specified on the permit.
5. Abnormal vehicles will not be used on public roads during times when lights are required unless otherwise specified on the permit.

Type of Vehicle Required

The vehicle requirements for this job will be assessed by the nominated transporter, but I have made a suggestion to them based on the specifications of the cargo as follows: Extendable trailer with double horse for the longest and heaviest of the items below and then a 9 metre step deck or extendable gooseneck for the shorter ones.

- Dimensions in **bold** below indicate abnormalities – requiring permits.

PIECE 1:	L1785X**W320XH345**	12.8mt	1 truck required
PIECE 2:	**L1865**X**W340**X**H327**	**36.5mt**	1 truck required
PIECE 3:	L1665**XW320XH310**	**29.6mt**	1 truck required

PIECE 4: L1470X**W310XH310** 19.8mt 1 truck required

1 tri-axle truck/ trailer up to 18.50m will be suitable for items 5,6,7 & 8.

We have received confirmation from the shipper that these items can be loaded on top of each other:

Total number of trucks required = 5.

Each truck horse and trailer needs to be checked to ensure that the basic requirements are in good order as represented in Appendix I.

Abnormal Vehicle Marking and Escorting of Abnormal Vehicles

In line with the regulations set down by South Africa transport board as well as in-transit country– Zimbabwe and final destination – Zambia, the abnormal vehicles should be clearly marked with flags placed at the extreme corners of the vehicle or load. They must measure at least 600 mm x 600 mm, must be clean and free to flutter.

An abnormal vehicle warning board must be displayed at the front and the rear ends of the abnormal vehicle,

The escort vehicle must display a warning board with two warning faces fitted to the roof of the escort vehicle. The warning board must be at least 1 200 mm long by 400 mm high. The warning faces must bear the words “ABNORMAL LOAD AHEAD”.

(TRH 11, March 2000)

Speed Restrictions

Road Transport regulations in South Africa through to Zambia restrict the movement of these abnormal vehicle to a maximum of 60km per hour.

5.2B: Vessel Arrival and Discharge at Durban Port

The vessel Expected Time of Arrival or/ (ETA) will be monitored by Transcar and arrangements for transport to be placed at Durban port for loading coordinated accordingly.

The vessel agents have advised me as follows:

- The booked vessel will be coming into terminal Pier 1 at Durban port
- The vessel is draft restricted at 12.87m maximum (when fully laden)
- There is no reason for concern that the deepest draft at Pier 1 Durban is only 12.2 meters (refer Appendix J) as the vessel will be stopping at trans-shipment port to discharge cargos from Hatch 1 and will not be re-loading.
- The draft on arrival into Durban Port will be 11 meters.
- The vessel length/ and width (refer Appendix K) are no problem for acceptance into Pier 1.

5.2C: Abnormal Road Transport Loading and Dispatch

Please refer Appendix L for an illustrated outline of pieces being discharged from vessel hatch 2 and loaded onto road transport trucks at Durban Port.

5.2D: Zambia Import Clearing and goods in-transit clearing

The goods in transit clearing will be managed directly by the transporter as part of their services.

Clearing of the cargo into Zambia will be based on the CIF Zambian border, Incoterms 2010 value, even though in the true sense of Incoterms, this should ideally be CIP as Zambia is landlocked and CIF is strictly a sea and waterway incoterm – Zambia have 'Nationalized' this term for the purposes of calculating what we refer to as the 'Value for Duty Purposes' or customs valuation.

This cargo will be imported under Harmonized System (H.S) code 8474.39.00 under 'Mixing or kneading machines for earth, stone, ores etc.' for which duties are 0% in Zambia but 16% VAT do apply.

Please see appendix M for tax calculations part of the costing.

5.2E: Goods in Transit Insurance

I have managed to secure a contract with our preferred insurance service provider for this shipment as follows:

Durban to Lusaka by road

Rate 0.75% of total value of the consignment – subject to 16% Local Zambian VAT

Excess of 10% subject to a minimum of ZMW 1,000

Exclusions:

- Theft by employees
- Radio-active contamination

- Unexplainable losses
- Discoloration

Warranties:

- Vehicles are not to be left unattended to
- Stops may only be at designated stopping areas

5.3 Actions to be taken

I will advise the client that all the plans are in place for the co-ordination of this shipment and issue the invoice for the job in line with the costs evaluation and sales price determination in section 5.4 below for payment to be arranged.

As this job required a rather large outlay of cash to the service providers, I will be requesting for 50% of the invoice to be settled on confirmation of trucks loaded in Durban and the other 50% on delivery to their Lusaka site.

5.4 Costs and Sales

Please refer Appendix M for detailed costing and Sales breakdown.

6. Conclusion

The movement of goods through Africa means that freight forwarders need to carefully consider and plan every aspect of cargo movement – nothing should be taken for granted -.

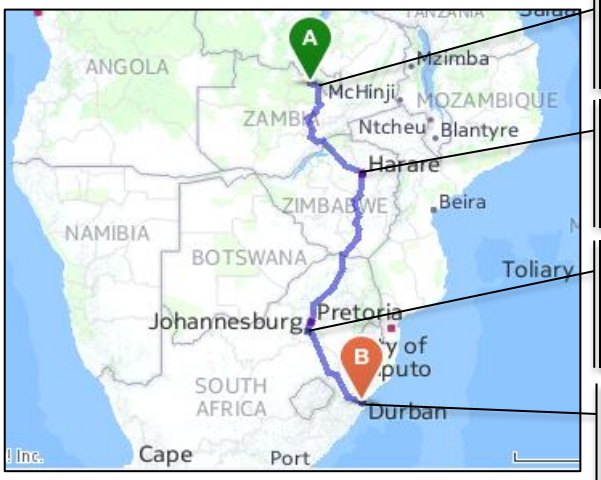
The impact and costs of unplanned events during the voyage of cargos can be minimized through effective planning.

7. APPENDIX A: ROUTE PLAN MAP

150MT OF COPPER CATHODE FROM KITWE, ZAMBIA TO DURBAN, THROUGH JOHANNESBURG, SOUTH AFRICA:

Distance 1,974.6kms

Distance 589.3kms



JJD Copper Smelter Site
Kitwe, Zambia

Road Hauliers may either route through Zimbabwe or neighboring county Botswana in line with the approved designated routes

EHT Warehousing and Washing Facility
Johannesburg, South Africa

Ocean Port of Durban
South Africa

Picture Source: (Yahoo Maps, 2015)

OCEAN FREIGHT VOAYGE FROM DURBAN PORT, SOUTH AFRICA TO ROTTERDAM PORT, NETHERLANDS

Distance 8,156nm

B: Rotterdam Sea Port, Netherlands

Red Lines denotes vessel ocean voyage routing

A: Durban Sea Port, South Africa

Picture Source: (Ports.com, 2015)

APPENDIX B: INTERNATIONAL COMMERCIAL TERMS (INCOTERMS) 2010

"E" DEPARTURE		"F" MAIN CARRIAGE UNPAID			"C" MAIN CARRIAGE PAID				"D" ARRIVAL		
Any Mode Of Transport			Sea/Inland Waterway Transport				Any Mode Of Transport				
	EXW	FCA	FAS	FOB	CFR	CIF	CPT	CIP	DAT	DAP	DDP
Services	Ex-Works	Free Carrier	Free Alongside Ship	Free Onboard	Cost & Freight	Cost Insurance & Freight	Carriage Paid To	Carriage & Insurance Paid to	Delivered At Terminal	Delivered At Place	Delivered Duty Paid
Warehouse Storage	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Warehouse Labor	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Export Packing	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Loading Charges	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Inland Freight	Buyer	Seller* / Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Terminal Charges	Buyer	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Forwarder's Fees	Buyer	Buyer	Buyer	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Loading On Carriage	Buyer	Buyer	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Ocean/Air Freight	Buyer	Buyer	Buyer	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Insurance Coverage**						Seller		Seller			
Charges On Arrival At Destination	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Seller	Seller	Seller	Seller	Seller
Duty, Taxes & Customs Clearance	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Seller
Delivery To Destination	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Seller	Seller

Source: Trans-Border Global Freight Systems

APPENDIX C: CATHODE QUALITY ISSUES IN JOHANNEBSURG

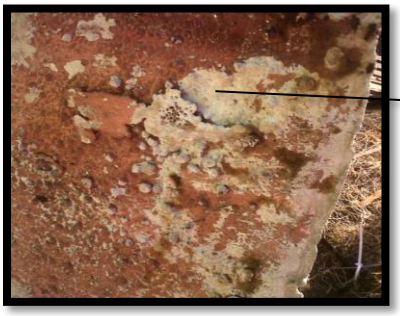
A. ORGANIC RESIDUE SEEPAGE AS A RESULT OF TANK HOUSE PRODUCTION ISSUES AT JJD C.S

All bundles are visually inspected on arrival into EHT JHB to determine whether the organic residue is only present on the edges of the bundle sheets or deeper towards the center of the sheets within in the bundle as well.

B. SULPHATE CRYSTALS

The formation of small blue crystals tend to appear on some but not all bundles and is generally always on the edges of the bundle sheets.

C. MUD AND DIRT



All bundles are checked on arrival into Johannesburg to assess dirt contaminants.

All bundles received with quality issues as indicated are seperated from the consignement and washed in preperation for export packing.

APPENDIX D: COPPER CATHODE WASHING PROCESS NARRATIVE

Each one of the bundles presenting with quality issues will be washed in Johannesburg in line with client requirements:

Copper Cleaning solution formulated and tested by EHT will be applied to the bundle.

Each bundle is washed top and sides.

Bundles presenting with residues deeper within the bundle, are taken apart and individual sheets washed separately before re-bundling.

Each bundle is rinsed effectively to remove all cleaning and contaminant residue

The washed bundle is tilted by wooden blocks placed under one side to allow for drainage and drying

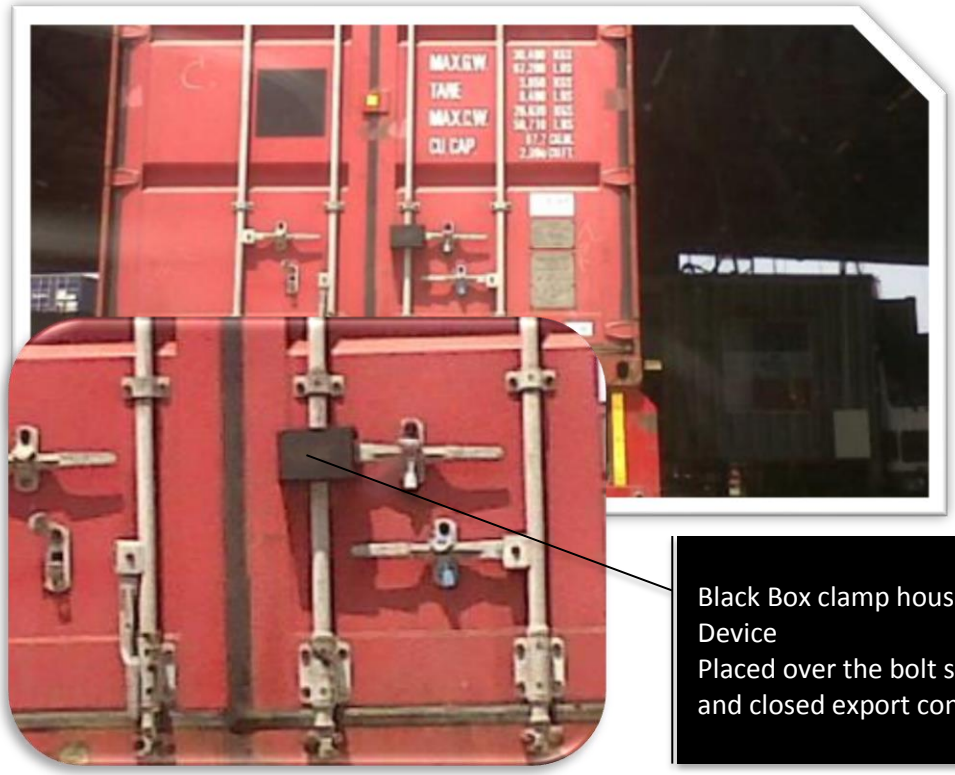
Copper ready for export packing

APPENDIX E: 20’ EXPORT CONTAINER STUFFING CONFIGURATION

8 Bundle packing configuration
- 2 Bundles side by side
- 4 Rows

7 Bundle packing configuration
- 2 Bundles side by side on 4 Rows
- & 1 Rows of 1 centered bundle

APPENDIX F: ELECTRONIC CLAMPING DEVICE



Black Box clamp housing GPS Tracking Device
Placed over the bolt seal of the packed and closed export container

APPENDIX G – VOYAGE OF 150MT COPPER CATHODES: APPLICABLE COSTS SUMMARY

	COSTS							SALES
Service	Rate	by:		Exchange Rate	USD Rate	Charge Total USD	Charge per mt	Charge per mt
Transport/ FOB Handling & GIT Insurance								
Zambia Export Clearing charges	ZMW 600.00	per truck	5	6.2	$ 96.77	$ 483.87	$ 3.23	
Road Transport Kitwe to Johannesburg including in transit clearing and road bond	$ 120.00	per mt	150	1	$ 120.00	$ 18,000.00	$ 120.00	
Security Escorts Kitwe to Johannesburg	$ 15.00	per mt	150	1	$ 15.00	$ 2,250.00	$ 15.00	
FOB Handling	ZAR 220.00	per mt	150	11.5	$ 19.13	$ 2,869.57	$ 19.13	
Copper Washing *150mt/2.7mt = Approx 55 to 56 Bundles	$ 25.00	per bundle	56	1	$ 25.00	$ 1,400.00	$ 9.33	
Independent Surveyor Supervision	ZAR 210.00	per container	7	11.5	$ 18.26	$ 127.83	$ 0.85	
Rail Transport Johannesburg to Durban	ZAR 4,200.00	per container	7	11.5	$ 365.22	$ 2,556.52	$ 17.04	
Security Clamp Johannesburg to Durban	ZAR 1,265.00	per contianer	7	11.5	$ 110.00	$ 770.00	$ 5.13	
Insurance 1% + 16% VAT	$ 10,335.03	per shipment	1	1	$ 10,335.03	$ 10,335.03	$ 68.90	
							$ -	
Ocean Freight and Marine Insurance							$ -	
EHT Ocean Freight Coordination Fee	$ 50.00	per contianer	7	1	$ 50.00	$ 350.00	$ 2.33	
Ocean Freight from Durban to Rotterdam	$ 965.00	per contianer	7	1	$ 965.00	$ 6,755.00	$ 45.03	
Insurance 0.65% +16% VAT	$ 6,717.77	per shipment	1	1	$ 6,717.77	$ 6,717.77	$ 44.79	
Zambian Export Taxes								
Duty on goods - N/A	$ -			1				
VAT 16% on goods - N/A	$ -							
CED Fee	ZMW 83.00	per truck	5	6.2	$ 13.39	$ 66.94	$ 0.45	
TOTAL COSTS						$ 52,682.52	$ 351.22	$ 361.00
	* Exchange Rate USD1/ ZAR 11.5							
	* Exchange Rate USD1/ ZMW 6.2							

APPENDIX H – ROUTE PLAN MAP: PROJECT CARGO FROM SHANGHAI, CHINA TO LUSAKA, ZAMBIA THROUGH DURBAN PORT, SOUTH AFRICA:

Source: Searates.com, 2015

Nautical Miles from Port of Loading Shanghai to Port of Discharge Durban = 8,418nm

Kilometers distance from Port of Discharge Durban to Final Destination, Lusaka Zambia = 2,161km

APPENDIX I: VEHICLE HORSE AND TRAILER BASIC REQUIREMENT CHECKLIST

Vehicle Check List	Check (√)	If Defective, Mark X			
Items to Check	**Status**	**Comment**	**Items to Check**	**Status**	**Comment)**
Seatbelts: (3 pointer contact)	✓	Mandatory	Spare wheel		
Fire Extinguisher	✓	Mandatory	Tires/ Air pressure	✓	
Reflectors/ Chevron	✓	Mandatory	Tire Lung nuts	✓	
Triangles(metal)	✓	Plastic	Driver's Seat	✓	
First Aid/Accident Kit	✓		Wipers/Washers	✓	
Head Lamps	✓		Body condition	✓	
Warning Signals/Indicators	✓		Registration, Road Tax, Insurance	✓	
Brake Lights	✓		Vehicle interior	✓	
Horn	✓		Gauges: Volt, Fuel, Temp	✓	
Mirrors	✓		Battery compartment/cover	✓	
Brake/Air pipes	✓				
Windscreen	✓		Gps tracking system	✓	

Trailer: ITEMS	OK	COMMENTS
Pin securing ball mount to receiver is intact	☑	
Hitch coupler is secured	☑	
Electrical wiring and plugs in good condition	☑	
Reflectors and required signs in good condition	☑	
Brake, signal and plate lights work	☑	
Tires, including wear, air pressure and lug nuts	☑	
Trailer in overall good condition	☑	
Check visibility in tow vehicle mirrors	☑	
Under run covers/restrain(extra feature)	☐	

APPENDIX J: PORT OF DURBAN DRAFT RESTRICTIONS

BERTH	MAX.PERM DRAFT		BERTH		MAX.PERM DRAFT
A	2.5		Pier 1 100		8.5
B	9.9		Pier 1 101		12.2
C	12.6		Pier 1 102		11.9
D	12.6		Pier 1 103		12.2
E	12.6		Pier 1 104		12.2
F	12.6		Pier 1 105/106		12.2
G	12.6		~~Pier 1 106~~		
M	11.6		Pier 1 106/107		11.2
N	10.7	X	Crossberth 108/109		12.2
O	11.0	X	~~Crossberth 109~~		
P	10.3		Container term 200		12.2
Q	10.3		Container term 201		12.2
R	10.3		Container term 202		12.2
Maydon Wharf 1			Container term 203		12.2
Maydon Wharf 2	9.3		Container term 204		12.2
Maydon Wharf 3	9.3		Container term 205		12.2
Maydon Wharf 4	9.3		Island View 1		12.2
Maydon Wharf 5	9.3		Island View 2		12.2
Maydon Wharf 6	9.3		Island View 3		12.2
Maydon Wharf 7	9.3		Island View 4		10.0
Maydon Wharf 8	10.0		Island View 5		
Maydon Wharf 9	9.3		Island View 6		11.7
Maydon Wharf 10	9.3		~~Island View 6 ext~~		
Maydon Wharf 11	10.0		Island View 7		12.2
Maydon Wharf 12	10.0		Island View 8		12.2
Maydon Wharf 13			Island View 9		12.2
Maydon Wharf 14	9.3		BCA 1		8.5
Maydon Wharf 15	9.3		BCA 2		9.7
Ship repair jetty west	7.8		BCA 3		8.5
Ship repair jetty east	7.0		BCA 4		10.0

(Source: Transnet Port Terminals, November 2014)

APPENDIX K: HANJIN ROSTOCK VESSEL SPECIFICATIONS

Vessel information: Hanjin Rostock

Name	Hanjin Rostock
Owner	Blue Tide Shipping NO.1S.A.
Type	Bulk carrier
Flag	Panama
Native port	Panama
Call sign	3FYP7
IMO	9613678
MMSI	372756000
Reg. number	43341-12
Bild date	17.12.1999
Dimensions (L x W x H)	187,88 x 32,26 x 18,3
DW	55585
Max draft	12,868
BRT/NRT	32537/18519
Engine power	0

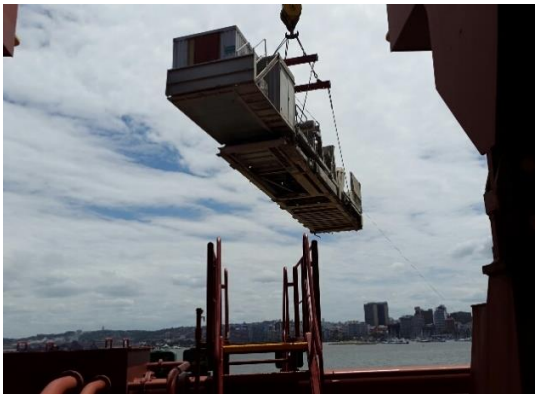
(Source: www.tuapseport.ru)

(Source: MarineTraffic.com)

APPENDIX L: ILLUSTRATED NARRATIVE OF VESSEL DISCHARGE & ROAD TRANSPORT LOADING IN DURBAN PORT

PIECE 1: L1785XW320XH345CM & 12.8MT is discharged from Hatch 2 using the vessel gear and placed onto the truck alongside the vessel

PIECE 2: L1865XW340XH327CM & 36.5MT is discharged from hatch 2 using a 100mt crane that is sourced by the vessel agents as part of their responsibility in ensuring that the vessel is discharged according to time and plan



Piece 2 is then lowered onto the truck that is placed alongside the vessel -

PIECE 3: L1665XW320XH310CM & 29.6MT is discharged from hatch 2 of the vessel with the 100mt crane and placed onto the truck alongside the vessel

PIECE 4: L1470XW310XH310CM & 19.8MT is discharged from hatch 2 of the vessel using the vessel gear and placed onto the truck alongside the vessel

PIECE 5/6/7 AND 8 Each: L600XW260XH45 & 7.020MT each of the remaining 4 pieces all the same dimensions are offloaded onto the same truck from hatch 2 using the vessel gear.

APPENDIX M: COSTING AND SALES SCHEDULE FOR PROJECT CARGO HANDLING AND TRANSPORT DURBAN TO LUSAKA

	Service Rendered	Provider Rate		Charged on:	Measure	Total Fee		Exchange Rate	USD Rate	
	Transcar	COSTS								
A	Durban Port Landing	ZAR	380.00	mt	126.78	ZAR	48,176.40	11.5	USD	4,189.25
B	Port Cargo Dues	ZAR	130.00	mt	126.78	ZAR	16,481.40	11.5	USD	1,433.17
C	Tally Cost	ZAR	6.00	mt	126.78	ZAR	760.68	11.5	USD	66.15
D	Survey Charges	ZAR	5,700.00	per day	1	ZAR	5,700.00	11.5	USD	495.65
E	Stevedoring	ZAR	3,000.00	per day	1	ZAR	3,000.00	11.5	USD	260.87
F	Transit Documents * Trucks to travel together and clear together on 1 invoice	ZAR	1,600.00	per truck	1	ZAR	1,600.00	11.5	USD	139.13
G	Communication fee	ZAR	160.00	once off	1	ZAR	160.00	11.5	USD	13.91
	Disbursements Fee		1%	total outlay *(a-g)*	82278.48	ZAR	822.78	11.5	USD	71.55
	TOTAL DURBAN HANDLING					ZAR	76,701.26		USD	6,669.68
	Transporter									
	International Transport from Durban to Chirundu border/ Zambia	ZAR	450,000.00	per shipment	1	ZAR	450,000.00	11.5	USD	39,130.43
	Inland transport Chirundu Zambia to Lusaka Zambia	ZAR	150,000.00	per shipment	1	ZAR	150,000.00	11.5	USD	13,043.48
	TOTAL ROAD FREIGHT					ZAR	600,000.00		USD	52,173.91
	Insurance									
	0.75% of total consignement value +16% VAT	USD	4,412.62	per shipment	1	USD	4,412.62	1	USD	4,412.62
	TOTAL GIT INSURANCE					USD	4,412.62		USD	4,412.62
	Zambia import Clearing									
	Duties N/A		0		0		0			0
	VAT 16%	ZMW	552,951.45	per shipment	1	ZMW	552,951.45	6.2	USD	89,185.72
	CED Fee * Trucks to travel together on 1 invoice	ZMW	83.00	per entry	1	ZMW	83.00	6.2	USD	13.39
	TOTAL ZAMBIA IMPORT CHARGES					ZMW	552,951.45		USD	89,199.10
	Customs Value for Duty and VAT purposes									
	Cost of Goods	USD	507,198.00	Plus	FREIGHT	USD	39,130.43	EQUALS	*CIF Value*	
	Durban Handling	USD	6,669.68	Plus	INSURANCE	USD	4,412.62		USD	557,410.73
	CIF value Converted to ZMW = VDP/ Customs valuation value	ZMW	3,455,946.54							
	Duty not applicable		0							
	VAT = (VDP + Duty)*16%	ZMW	552,951.45							
	**Cost of batching plant USD 507,198*									
	**ZAR11.5/ USD1*	**ZMW6.2/USD1*								
	**Total Tonnage: 126.78mt*									

Continued on next page..

Project Cost

- Durban Port Handling USD 6,669.68
- Road Freight USD 52,173.91
- GIT Insurance USD 4,412.62

Total Service Costs: USD 63,256.21

- Add: Customs Duties USD 89,199.10

Total Customs Costs: USD 89,199.10

Project Sales

The sales of this service will be charged at Cost (excluding customs duties) + 10%

- Port Handling/ International Road Transport and GIT insurance USD 69,581.83
- Customs Duties/ Taxes USD 89,199.10

Total Sales Invoice: USD 158,780.93

8. REFERENCES

. 2015. . [ONLINE] Available at: http://www.abnormalloads.co.za/information/TRH11-March2000-7thEd.pdf. [Accessed 02 March 2015].

. 2015. . [ONLINE] Available at: http://www.mainportafrica.co.za/files/4714/1519/1953/november_-_berth_Depths__Drafts.pdf. [Accessed 15 April 2015].

Allegro Freight Incoterms 2010 chart. 2015. *Allegro Freight Incoterms 2010 chart*. [ONLINE] Available at: http://allegrofreight.com/ocean-freight-shipping/incoterms-2010-terms/. [Accessed 25 April 2015].

Copper LME Settlement Price (Monthly, USD per Metric Ton). 2015. *Copper LME Settlement Price (Monthly, USD per Metric Ton)*. [ONLINE] Available at: http://ycharts.com/indicators/copper_lme_settlement_price. [Accessed 31 March 2015].

Port of Durban, South Africa to Port of Rotterdam, Netherlands - Sea route & distance - ports.com. 2015. *Port of Durban, South Africa to Port of Rotterdam, Netherlands - Sea route & distance - ports.com*. [ONLINE] Available at: http://ports.com/sea-route/port-of-durban,south-africa/port-of-rotterdam,netherlands/. [Accessed 02 April 2015].

Transit Time, Distance calculator & Port to port distances. 2015. *Transit Time, Distance calculator & Port to port distances*. [ONLINE] Available at: http://www.searates.com/reference/portdistance/. [Accessed 05 April 2015].

Transit Transport Consultants - abnormal road permits, abnormal permits, road permits, cross border permits, cross border road permits, cross border, abnormal permits countrywide, legal dimension limits in namibia, av registrations, registration av, registering av, road transport permits, abnormal load exemption permits, transport, road clearance, transport load, transport load consultants, load transport consultants, transport logistics, pretoria, johannesburg, gauteng, cape town, botswana, zimbabwe, south africa, tanzania, zambia, malawi, lesotho, swaziland, mozambique. 2015. *Transit Transport Consultants - abnormal road permits, abnormal permits, road permits, cross border permits, cross border road permits, cross border, abnormal permits countrywide, legal dimension limits in namibia, av registrations, registration av, registering av, road transport permits, abnormal load exemption permits, transport, road clearance, transport load, transport load consultants, load transport consultants, transport logistics, pretoria, johannesburg, gauteng, cape town, botswana, zimbabwe, south africa, tanzania, zambia, malawi, lesotho, swaziland, mozambique*. [ONLINE] Available at: http://www.transittransport.co.za/services_abnormal_transport_permits_cross_border_permits_av_registrations.htm. [Accessed 01 April 2015].

Vessel Hanjin Rostock detail information. 2015. *Vessel Hanjin Rostock detail information*. [ONLINE] Available at: http://www.tuapseport.ru/Eng/traffic/ShipDetail.asp?shipId=7701&ShipName=Hanjin%20Rostock. [Accessed 07 April 2015].

Yahoo Maps, Driving Directions and Traffic. 2015. *Yahoo Maps, Driving Directions and Traffic*. [ONLINE] Available at: https://maps.yahoo.com/. [Accessed 02 April 2015].

ZRA - Zambia Revenue Authority. 2015. *ZRA - Zambia Revenue Authority*. [ONLINE] Available at: https://www.zra.org.zm/commonHomePage.htm?viewName=WithholdingTax. [Accessed 12 April 2015].

Zambia Revenue Authority, 2012. Statutory Instrument Number 6 OF 2012, and Excise (General Amendment) Regulations 2012 amending the principal Regulations S.I 54 of 2000. *Zambia Revenue Authority*, 2012.