

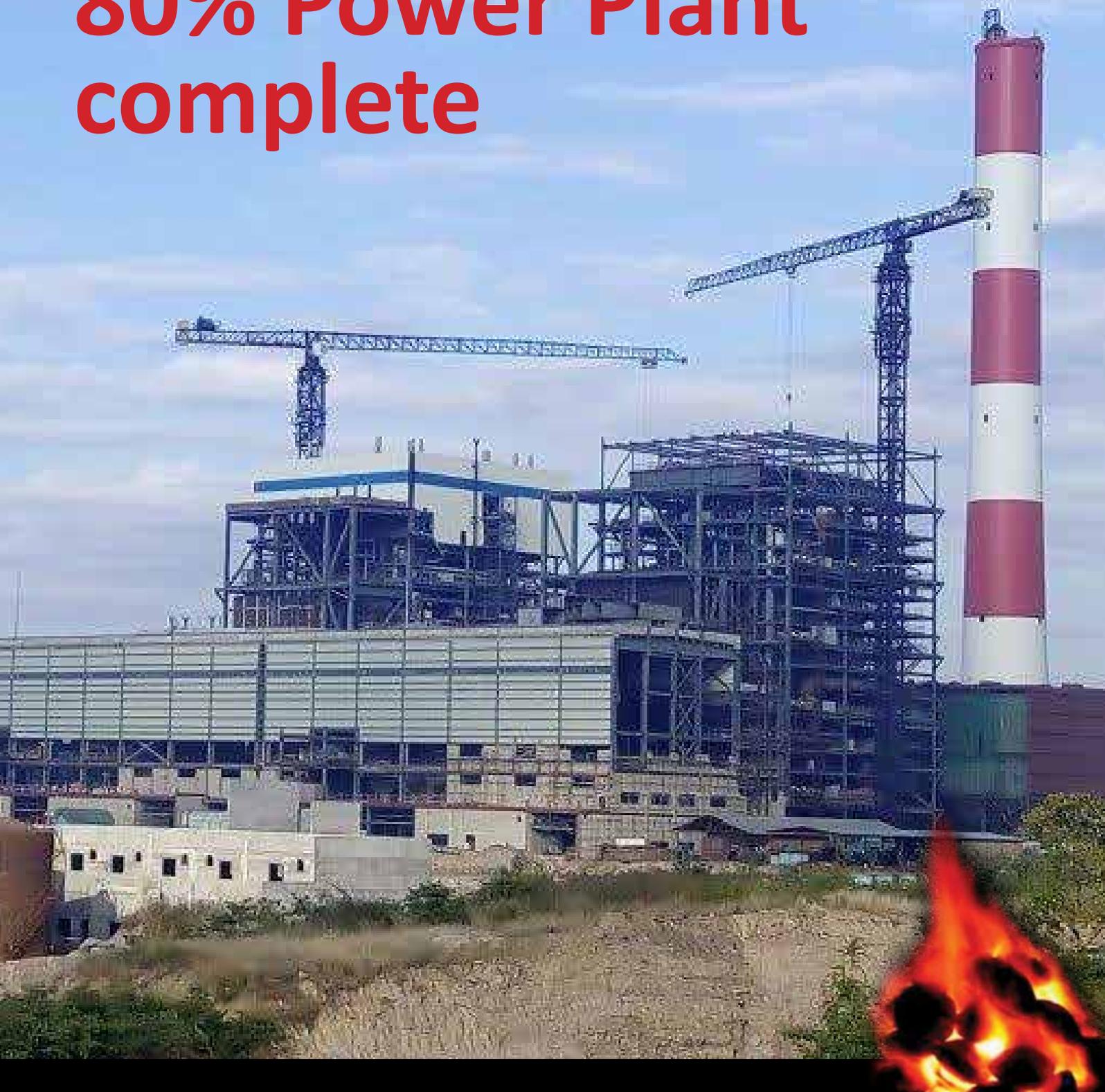


# MCL News

April - June 2015

Issue No. 011 | A Publication of Maamba Collieries Limited (Corporate Affairs Department)

## 80% Power Plant complete



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**Editorial Team**

Gurram Venkata Narayana (Patron)  
Korra Satyanarayana  
Jethro Sikalunda

Patrick Nalumino  
Gadde Ramesh  
Patson Phiri

## Foreword by the Resident Director

I welcome you to the mid-year newsletter for the year 2015. We have reached an interesting period in our power plant construction.

We have made substantial progress in ensuring that ZESCO would put in place certain important facilities to ensure that the power we will produce will be transported on the national grid.

For the Power Plant project, this step puts us at a good position to put all systems in place for the synchronization process. This means that we can now look forward to

a time when the people of Zambia will benefit from improved electricity supply.

We believe and understand that the programme to supply improved electricity falls within the government programme for reliable electricity to meet the increase in demand for power. We at MCL will do our utmost to ensure that we complete the project speedily, safely and with full regard to the preservation of the environment.

Yours sincerely,  
Mr Ashwin Devineni  
Resident Director



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## Message by the Chief Executive Officer (CEO)



Dear readers and my fellow team members at MCL. This time I would like to recognize and honour you all for your efforts in adhering to strict safety procedures at your work places. I applaud efforts by other senior management officials to insist on safety because that is what makes MCL unique.

The Company's ZERO HARM policy has been sustained by team work from all the employees. It is the responsibility of every employee to remain vigilant when it comes to safety measures so that we maintain a clean record of safety.

We have now reached over 80 per cent in the construction progress and our team, formed in 2010, remains intact and focused in its project work. I salute their application, resourcefulness and their tremendous enthusiasm. As we enter a phase when the project work

will become more skilled and intensive, we need to ensure that we insist on "safety first" at work place.

Our intention is to maintain the record of ZERO fatality. It is not easy we know, but with the help of highly qualified safety personnel and the good understanding we have received from our contractors, we remain confident that our aim of Zero fatality will be maintained.

So in this edition of the MCL Newsletter, I want to pay tribute to all employee for maintaining our set standards so that our lives are protected against preventable accidents. For that achievement, I want to thank you all. Keep up the good work and remain safe.

Rear Admiral Venkat Shankar (Retd.)  
Chief Executive Officer

# President's Special Assistant, Mr. Lucky Mulusa praises MCL over power plant

Special Assistant to the President in Charge of Project Implementation Mr Lucky Mulusa, visited Maamba Mine on Friday, 29th May, 2015, to acquaint himself with the progress with regard to the Thermal Power Plant project and other mine related activities.

The Special Assistant to the President was given a boardroom presentation before he was taken on a conducted tour of the

Power Plant construction site, the pit and resettlement site.

Mr Mulusa expressed satisfaction with the progress achieved so far.

He was particularly impressed with skill transfer by expatriate engineers to local engineers and the Safety and Environment Management Plan that has been put in place.

Mr Mulusa also visited the Company's Resettlement Housing Project and was impressed with the quality of houses being built by MCL for the Project Affected People. Commenting on the Company's CSR initiatives, he said he was impressed and gratified with the company's Corporate Social Responsibility (CSR) Policy as well.

He said the Project was viable in that it had created

a lot of employment to Zambians and its final implementation would help in reducing the power deficit that is currently being experienced in Zambia.

In conclusion, Mr Mulusa said the project needed to be supported by all stakeholders to ensure that it was completed as soon as possible.

## Leading Commercial Banks explore Maamba potential



**Officials from Barclays Bank PLC and MCL management officials tour the Power Plant construction site**

Leading commercial Banks in Zambia have started gathering information about the potential of Maamba as they plan to open branches in the area.

This is because of the growth potential the town offers having expanded commercially due to the

viability and progress of Maamba Collieries Limited power plant and the highly modernised Maamba mine.

The combined number of employees for contractors and MCL currently stands at over 1500.

This is besides the other off-

shoot businesses that have opened up after the mine was privatised in 2010.

Barclays Bank senior officials visited Maamba mine to get themselves acquainted with the activities of Maamba Collieries which would assist them in their investment plans. In their discussions

with senior management they have given indications of opening a branch in the mining town. Other banks have also shown their interest in investing in Maamba.

Only the Zambia National Commercial Bank (ZANACO) has a branch in Maamba.

# MCL management meets newly appointed Sinazongwe DC

The newly appointed District Commissioner for Sinazongwe District, Mr. Protasio Mulenga, visited MCL on Wednesday, 10<sup>th</sup> June, 2015 to acquaint himself with activities at MCL. The DC and his entourage, which included Government HODs in the District were given a boardroom presentation before the team was taken on a conducted tour of the CHPP, TPP Construction Site and the Pit. The DC was impressed with the way MCL was conducting its business.

## ZCCM – IH Board Chairperson visits MCL Vocational Training Centre



***MCL Management Team and ZCCM - IH Directors pose for a photo with the trainees of the Vocational Training Centre Welding Workshop on 16th April, 2014***

The MCL Vocational Training Centre was, on 16th April, 2015, visited by ZCCM – IH Board Acting Chairperson Mr Cosmas Mwananshiku and Chairman, Board of Directors of Ndola Lime, Mr Mwita Lumbwe, who wanted to acquaint themselves with various operations at the training centre. The senior officers were taken on a tour of the MCL Training Institute and were impressed with the training programmes being provided.

## MCL CEO addresses Engineers Without Borders (EWB) Conference



During the occasion of the 5th Engineers Without Borders Conference, organised by the Engineering Institution of Zambia and Southern African Federation of Engineering Organisations held at the Zambezi Sun Hotel in Livingstone from 30th Apr to 1st May 2015, MCL Chief Executive Officer (CEO) Rear Admiral Venkat Shankar (Retd) urged

the attending engineers to visit the MCL's power plant under construction in Maamba.

Over 300 engineers drawn from the whole of Southern African region gathered in Livingstone for this important annual event.

Mr Shankar updated the engineers and other delegates drawn from all the leading government and technical institutions in Zambia and from the neighbouring countries on the progress in the construction of the 2 x 150 megawatts coal fired thermal power plant.

Mr Shankar said it would be good for the engineers to visit the power plant and understand the level of investment that the sponsors have made in the Southern Province and what it stands for in shaping the future of Zambia's economy.

He concluded his address by pledging the commitment of MCL to "energise" Zambia by producing the much-needed electricity for the country.

## South African-Based Golder Associates boosts MCL Social Management Plan (SMP)

Another team of South African-based Golder Associates visited MCL from 22nd June to 27th June, 2015 to conduct Health Impact Assessment (HIA) of the Mine operations / activities, construction of the Thermal Power Plant (TPP), and other infrastructure.

The Health Impact Assessment will help MCL to put in place a Social Management Plan (SMP) which will help mitigate health related impacts the community might be facing with regard to MCL

operations and activities. The Information was obtained from community members through questionnaires. MCL Management is grateful to the community members that turned up in numbers for the said meetings and it is committed to mitigating some of the concerns raised by community members, for example, dust along Maamba Hospital – Siansima Bridge, ZAMBEEF – ZANACO Bank Roads.

Communities visited included Maamba,



**Community members listening to deliberations during one of the meetings conducted by Golder Associates Consultants of South Africa.**

Mweela, Siankodobbo, District Medical Office Sipuumina, Sikalonzo (Sinazongwe) and Villages and the Township. Siatwiinda Clinic to collect data required for doing Health Impact Assessment. The Consultants also visited Maamba Hospital,

# ZESCO starts power line upgrades to prepare for MCL power

The recently signed memorandum of understanding by ZESCO Limited with Alstom Grid of France for the upgrading of Kafue and Muzuma substations and the transmission lines from 220KV to 330KV is a big step towards the preparation works for Maamba Collieries Power Plant under construction.

This development prepares way for the synchronization of MCL Power Plant with

the ZESCO national grid to enable the transmission of power from Maamba into Muzuma and then onto the national grid.

The power generated from the MCL power plant will be transmitted on 330KV lines from its plant in Maamba and ZESCO can only transfer this power using transmission lines of similar capacity. Currently, Muzuma substation has 220KV but the upgrade will make it easier for the transportation

of power.

ZESCO acting Managing Director Victor Mundende signed the agreement on behalf of the power utility company. Alstom Grid Vice-President Oliviera Ghuchard, who signed on behalf of his firm, said the project will contribute to reliability of the Zesco network and facilitation of power transmission.

The project is expected to

be completed in 15 months. Maamba Collieries believes this initiative will address transmission delays after the completion of the construction of the power plant.

In turn, it is hoped that the Zambian industry and other electricity users will enjoy increased amounts of power and reduced rates of load-shedding soon after the works at the power plant have been completed.

## Maamba Mine: From past to present



Coal mining operations in Zambia initially started way back in 1966 at Nkandabwe area approximately 34 km North – East of the present Maamba Collieries Limited Mine Site. Nkandabwe Mine was operating in the name of National Coal Board of Zambia (NCBZ).

In the year 1967 operations at Nkandabwe Mine were abandoned due to complex geological faulting, steep inclination of coal seams

and inundation of the mine pit by underground water. Thereafter, the initial works on development of the new coal mine at Maamba began.

Maamba Mine is named after Maamba Village, whose headman lived (at the time of opening the Mine) at the current Maamba Main Bus Stop.

In 1969, the German company called SOFRE-

MINES planned and developed the Maamba Coal Mine under the supervision of National Coal Board of Zambia.

The French company called Venot Pit designed and erected the Coal Preparation Plant (CPP) which was commissioned in 1970.

The Ropeway was designed and erected by the West German Company called PHB. The Aerial Ropeway was commissioned in 1971.

In 1971, the National Coal Board of Zambia which coordinated the development of coal mining in Zambia since 1966 was dissolved and Maamba Collieries Limited was established and incorporated as a limited company in Zambia, wholly owned by the Government

of the Republic of Zambia (GRZ).

Maamba Collieries Limited is situated in the mid-Zambezi valley at 17° 0' 21' South and 27° 11' East with an altitude of approximately 700 metres above sea level.

In 2008, Zambia Consolidated Copper Mines Investment Holding (ZCCM – IH) bought 100 % share holding of Maamba Mine from the Government.

In 2010 Maamba Collieries Limited was privatized through Joint Venture Partnership between ZCCM-IH and Nava Bharat Singapore Pte Limited, an overseas investment wing of Nava Bharat Ventures Limited of India. ZCCM-IH holds 35% shares whilst NBS holds 65% ownership and controlling stake in MCL.

# MUZ- Maamba branch executive officials visit construction works along the 330KV DCTL

In their effort to fully understand the massiveness and progress of various TPP related infrastructure, two MUZ - Maamba Branch

Executive Officials visited construction works along the 330KV DCTL on 4th May, 2015.

The Officials were accompanied by two management officials, who normally visit the line to attend to community grievances. Apart from the insight they had during the visit, the trip also accorded them an opportunity to understand how MCL engages various stakeholders through its Stakeholder Engagement Policy.

Policy which ensures that all grievances received from various stakeholders are well documented, attended to and amicably resolved within a given timeframe. Project Affected Persons (PAPs), Community members and Staff are free to visit the office of the MDT Manager to register their grievances. We wish to advise that all stakeholders are free to register their grievances and are assured that they will be attended to accordingly.



*Resolving a community grievance along the 330KV DCTL on 4th May, 2015.*

## SECTION D – POWER PLANT PROGRESS

# Progress on the 330 kV double circuit transmission line (DCTL)

Maamba Collieries Limited is constructing a 46km transmission line from Maamba to Muzuma Substation in Chief Singani in Choma District.

from the Mine in Maamba.

The project has shown steady progress and by Mid-June, out of a total number of 109 towers required for the transmission line, 95 had been completed. Additionally, 202.1Km out of 642.9 Km conductor length has been pulled.

The line shall be used to transmit power from the switch yard at the Power Plant, to the National Grid at ZESCO Muzuma Substation situated 46Km



*Conductor Pulling Work In Progress line (transmission ceremony)*

# MCL contractors on site



**Mr. Bala Ankaiah, Project Manager of GKC-SRR(JV), MCL contractor for "Kariba lake water pumping system)**



**Mr. Tao Ran Project Manager of SEPCO**



**Mr. Wang Jie is Dy Project Manager of SEPCO**

# MCL and ZESCO commission Start- up transformer



*MCL Engineering team and ZESCO officials during the commissioning of 88/33/11KV, 20MVA Transformer on 15th April, 2015.*

As a way of providing start-up power supply for the upcoming Power Plant commissioning works, MCL extended the bay in the ZESCO Substation at the Mine by constructing one 88/33/11KV,20MVA transformer rating.

The Start-up Power transformer is a requirement for trial run of individual equipment in the Thermal Power Plant before commissioning the entire plant.

The transformer was successfully charged on 8th April 2015 at 18.45hrs. The event was witnessed by MCL Engineering team and ZESCO officials.

This is another major milestone in the construction of the Thermal Power Plant (TPP) and its related infrastructure.

### **Startor Fitment**

MCL has fitted the biggest single and heaviest equipment for the power

plant. The Generator Stator which weighs about 169 metric tonnes was mounted on it's base at the power plant in the month of June.

The equipment weight and size required the company to create a by-pass on Batoka- Maamba road to avoid breaking the weak bridges on the stretch. The 'Abnormal Load' took over three weeks to arrive from Durban.

Power Plant Project

Manager Mr Gadde Ramesh said the mounting of the equipment is one of the biggest milestones to have been achieved in the recent months. The installation of the Stator was supervised by the contractors and the team of Engineers from MCL and Tata Consulting Engineers.

In the picture, the Generator Stator is being prepared before it was mounted.



*Generator Stator of Unit One on its Way to Installation*

# New Pontoon launched at Kariba to aid water pumping



Maamba Collieries Limited achieved another milestone in April 2015 when it completed constructing a pontoon at Kariba Pump Station. The new pontoon

weighs 140 tons with the size of 18.9m x 10.6m. The pontoon was launched into Lake Kariba on 16th April, 2015 and is adjacent to the old one.

The pontoon is for floating the water pump on Lake Kariba. When the water pump floats on the lake with the help of the pontoon, the pipes will

be sucking water for onward transportation to the power plant in Maamba, a distance of approximately 30 kilometers

## Some safety tips of electrical installation in residential houses.

Among many electrical installation safety tips in residential areas, here are a few:-

- Replace or repair damaged or loose electrical cords.
- Avoid running extension cords across doorways or under carpets.
- In homes with small children, make sure your home has tamper-resistant (TR) receptacles.
- Consider having additional circuits or outlets added by a qualified electrician so that you do not have to use extension cords.
- Follow the manufacturer's instructions for plugging an appliance into a receptacle outlet.
- Avoid overloading outlets. Plug only one high-wattage appliance into each receptacle outlet at a time.
- If outlets or switches feel warm, frequent problems with blowing fuses or tripping circuits, or flickering or dimming lights, call a qualified electrician.
- Place lamps on level surfaces, away from things that can burn and use bulbs that match the lamp's recommended wattage.

### Mine Safety Tips

In order to ensure personal safety when you are in the mine area, here are some Safety Tips you need to adhere to:-

- Never stand near a high wall.
- Do not go near a big machine without communicating to the operator.
- Never reverse without giving a warning.
- Do not drink, wash or swim in the water found in the pit (it is acidic).
- Never use your phone during charging and blasting exercises.
- Do not drive through drilled up holes.
- Do not drink & drive or Do not drive & drink (alcohol).
- Do not drive under the influence of alcohol.
- Do not drive beyond the speed limit.
- Do not drive or operate a machine without authority.
- Do not drink water from suspicious containers.

## Maamba Collieries Limited Vocational Training Centre

Maamba Collieries Limited has, under Maamba Development Trust (MDT), commenced a youth training programme in Metal Fabrication and Welding at its Vocational Training Centre. The Centre is affiliated to TEVETA. After massive upgrade of building infrastructure and equipment, the centre has since been upgraded by TEVETA from a Class 2 Training Institution to Class 1. Apart from providing Welding and Metal Fabrication training courses, the centre is also authorized (by TEVETA) to offer Automotive Mechanics, Automotive Electrical and Power Electrical training courses. The first class of 13 students commenced their training in January

2015 and will undergo a six (6) month training programme. The students are scheduled to take their TEVETA Examinations in July 2015 after which successful students will graduate with a Trade Test Level 2 Certificate. It is anticipated that, after training, the youths will be equipped with skills that will help them improve their livelihoods. The programme is being

run as a Corporate Social Responsibility (CSR) activity.

The Centre will soon be advertising for its second intake in the next few weeks. Look out for the advertisement and inform your friends and relatives far and wide of the WONDERFUL OPPORTUNITY being offered by MCL.

# Maamba celebrates Labour Day



Employees and spouses of members of staff of Maamba Collieries Limited took time to celebrate Labour Day on May 1, 2015. Labour Day is a special day on the calendar of MCL when they reflect on the achievements of the workers. The members of staff, spouses and members of the community were addressed by former District Commissioner, Dodo Sindaza, and MCL Chief Operating Officer Gurram Venkata Narayana.

## Keep Maamba plastic free and clean!



*In the picture plastic waste collected by Children of Maamba Private School being loaded for final dumping*

to emulate the example shown by Maamba Private School Pupils and the surrounding community in order to make Maamba Plastic Free. Together we can keep Maamba plastic free and clean!

Finally, we wish to appeal to all of you to be mindful of how you dispose plastic waste at all times, bearing in mind that, plastic waste takes many years to decompose.

When disposing waste, ensure that you:

- Separate plastic waste from the other waste
- Keep plastic waste in a clean plastic bag. Communicate quantities (in KGS) to MCL Environment Section. MCL will endeavour to communicate quantities available to recycling companies. Plastic waste can help you generate income.

“Cleanliness is next to Godliness”, so goes the saying. The old saying reminds us that it is always very important for all of us to keep our surroundings clean, be it at home or work place.

Maamba Township is facing serious challenges in solid waste management, especially

plastic waste. It is a common phenomenon to see plastics lying around along roads and market places. Plastic waste takes many years to decompose and, therefore, ends up polluting our environment, if disposal is not properly managed.

On Tuesday, 12th May, 2015, Maamba Private

School pupils rose to the challenge when they cleaned the surrounding environment by mainly picking plastic waste around the school and along the main road. The school pupils were later joined by community members who live around Maamba Private School. We urge all our readers and the general populace

# Mine gate traders sheltered

As part of MCL's Corporate Social Responsibility (CSR), activities, MCL on Tuesday, 30th June, 2015, commissioned a shelter for traders at MCL Mine Gate 2.

The shelter was commissioned by Maamba Ward Councillor, Cliff Siachibweka and MCL CEO Rear Admiral Venkat Shankar.

The shelter will provide the much needed shade for traders when selling their merchandise. The

company started working on constructing the shelter after observing that the traders were providing a vital service to the people around the gate and the community especially truck drivers.

The traders were pleasantly surprised - when they learnt that MCL had constructed the shelter for them without being prompting. Mr Siachibweka was happy to commission the shelter on behalf of the venders.



*Traders after Handing Over of Shelter. In the picture from right to left, MCL Chief Operating Officer Gurrām Venkata Naraya, MCL CEO Rear Admiral Venkat Shankar (Retd), Councillor Siachibweka and MCL Human Resources Manager Patrick Nalumino*

## SECTION G - SPORTS AND MISCELLANEOUS

# Muchindu's thriving bicycle business takes Maamba by storm

Desmond Muchindu, 33 of Siamaluba Village in Chief Singani, started his business in 2008 when he procured a bicycle and approached customers offering his services.

He went door-to-door to ask people to start booking for transport for K5 within and K40 to Sinazeze from Maamba, a distance of about 30 kilometers.

His peers call him "Marcopolo" but his trade name is "City to City Transport". He employs two married men and one of

them is Royd Munkombwe who joined the company in December 2014. Muchindu has not formerly registered his company with the Patents and Companies Registration Agency (PACRA) but he believes the future will determine the course of his business.

Muchindu makes between K80 to K150 per day to service the needs of his family. His workers have not raised any issue with the Labour Commissioner against Muchindu. Their unwritten contract allows them to pay themselves



*Desmond Muchindu on duty. On this bicycle, he is carrying 8 crates of bottled drinks headed towards Mayakayaka near Maamba Secondary School.*

from Muchindu's business. The agreement is that out of their daily earning, they pay Muchindu K15 only and the excess amount is theirs.

He boasts of three long

- term contracts with parents of school-going children. His strength is hard work and humility and time-keeping to maintain trust. He also enjoys being kind and considerate to his customers.

For a daily return trip to Maamba High School, he makes K10 and to the 'Council Area', he raises the bill to K15.

This is different for pre-school children. He asks

for a flat figure of K200 per month. Muchindu argues that poverty is mainly a product of lack of innovation and kindness to customers and careless use of resources.

## Jokes

# Swallow the watermelon to stay alive

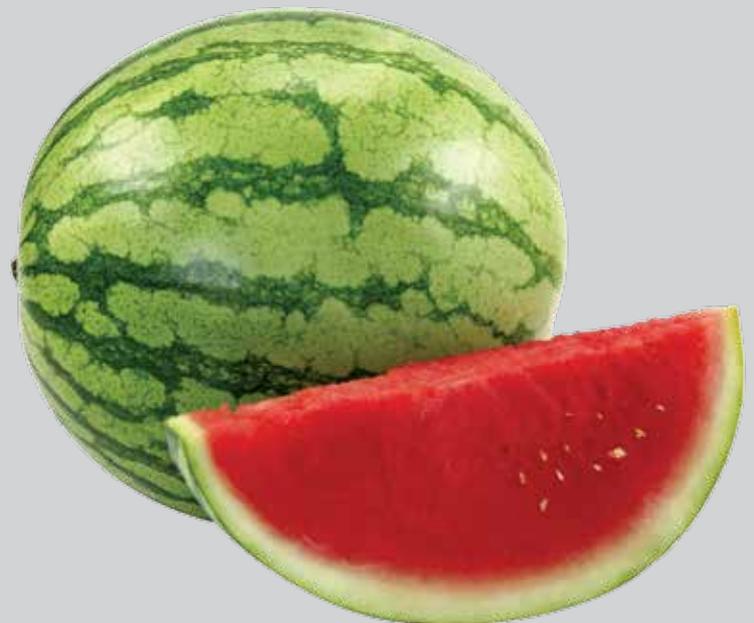
A Tonga man, a Lozi man and a Bemba man went into the forest. They strayed to a forbidden area where they were captured by Cannibals.

The King of the Cannibals told the three prisoners they could live if they passed his trial. The first step was to go deep into the forbidden forest and gather at least ten pieces of the same kind of fruits and bring them. They went separate ways to gather fruits. The Tonga man brought 10 apples. Then the king said to him: "You must swallow the fruits without any form of

expression on your face. The first apple went in very well. On the second one, he winced out in pain, so he was killed.

The Lozi man delivered 10 berries to the king. The King told him to swallow all the 10 berries without any expression. He thought to himself that this should be easy. 1,2,3,4,5,6,7,8,9. When he was just about to swallow the 10th and last berry, he burst into laughter and was also killed. The Tonga man and the Lozi man met in Heaven and the Tonga man asked, 'why did you

laugh? You almost got away with the trial. The Lozi man replied: "I could not help it when I saw the Bemba man coming with Watermelons!"



# Zamcoal Diggers Football Club- 2015 Mission

Zamcoal Diggers Coach Chris Chibuye has a vision of seeing the team compete with the best in Zambian Football by gaining promotion to the Zambian Super League.

Therefore the mission of the team this 2015 season is to win the FAZ Division 2 South Championship league and gain promotion to Division 1, then strategize for the promotion to the Super League.

After being demoted from the FAZ Division 1 League in 2014, Zamcoal Diggers kicked off the 2015 FAZ Division 2

South League Season on 19th April, 2015 with a scheduled week 5 game at home against Kasco Rangers F.C of Mazabuka, who are one of the most experienced sides in the 16 team Division 2 South League.

The MCL sponsored side, whose mission this season is to win the league and get back to the higher division 1 league, started the game with intent as they scored the first goal within 4 minutes of play through Mukabanga Siambombe via a free kick taken from 30 meters. In the 19th minute Zamcoal who dominated

the entire first half of the game scored a second goal from the penalty spot through Kalumba Kaputo after Sydney Kanjengo was brought down in the penalty box.

The second half was a different affair in that the opponents dominated the game especially in the midfield and out played our boys thus scoring twice to equalise resulting in the game ending in a 2 all draw.

On Sunday, 26th April, 2015, ZAMCOAL travelled to Sinazongwe for its scheduled week 6 game



and played against Sinazongwe United. The game was a classic local derby which saw ZAMCOAL beat Sinazongwe United by 2 – 0.

The team looks set to compete favourably and achieve its mission.

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## MCL Golf team wins provincial trophy

The Maamba Golf Club team won the Southern Province Close Champion Team Trophy title in Choma. The Team matched their best day of the 18-holes event on Sunday 14<sup>th</sup> June 2015, shooting past the defending team of 217 score, ahead of second-place Choma Golf Club which went home with 228 points.

Golf expert Bill Hamalala,

a Zambian native, brilliantly closed with a 68 score to finish the event better than the rest of the players from all teams. In participation for Maamba Golf Club were B. Shakantu, D. Shakantu, and P. Sakuwaha, B. Kapamba, H. Siagumpa, B. Hamalala, N. Siloongo, S. Muzumi, K. Munthali, V. Nchimba, T. Nalubotu and the veteran golfer Mr. A. Hamayuwa.



*The Golf team sponsored By Maamba Collieries Limited won the Southern province Golf tournament. In the picture, some of the MCL players pose for a photo with the trophy.*

# Coal Product Specifications

MCL established a modern, Coal Handling and Processing Plant (CHPP) which has facilitated production of washed coal of different specifications with consistent quality and eliminated pollution of nearby streams.

## Product Specifications

Washed Coal Nuts	Parameter	Min & max
	Size	+20 - 50 mm
	Inherent moisture %	1.5 - 1.9
	Total moisture %	3.0 - 9.0
	Ash %	18 - 20
	Volatile Matter %	18 - 21
	Fixed Carbon %	59.1 - 60.5
	Phosphorous % (Average)	0.0025
	Total Sulphur %	0.7 - 1.5
Gross Calorific Value (kcal/kg)	6294 - 6482	

Washed Coal Peas	Parameter	Min & max
	Size	+10 - 20 mm
	Inherent moisture %	1.5 - 1.9
	Total moisture %	3.0 - 9.0
	Ash %	18 - 20
	Volatile Matter %	18 - 20
	Fixed Carbon %	60.1 - 60.5
	Phosphorous % (Average)	0.0025
	Total Sulphur %	0.7 - 1.5
Gross Calorific Value (kcal/kg)	6294 - 6482	

Washed Coal Fines	Parameter	Min & max
	Size	+0.5 - 10 mm
	Inherent moisture %	1.5 - 1.9
	Total moisture %	5.0 - 12
	Ash %	18 - 20
	Volatile Matter %	18 - 20
	Fixed Carbon %	60.1 - 60.5
	Phosphorous % (Average)	0.0025
	Total Sulphur %	0.7 - 1.5
Gross Calorific Value (kcal/kg)	6294 - 6482	

Unwashed Coal Fines	Parameter	Min & max
	Size	+0.5 - 10 mm
	Inherent moisture %	1.0 - 1.4
	Total moisture %	5.0 - 12
	Ash %	21 - 25
	Volatile Matter %	17 - 19
	Fixed Carbon %	55 - 59.6
	Phosphorous % (Average)	0.0025
	Total Sulphur %	1.6 - 2.5
Gross Calorific Value (kcal/kg)	5824 - 6200	

### Maamba Collieries Limited Head Office

P.O Box No.99, Maamba, Zambia  
For product inquiries please  
contact: roopesh@maambacoal.com  
Business Development Manager

Lusaka Office  
Corporate Park  
Plot No. 20849, Alick Nkata Road  
Mass Media Area  
P.O Box 31197, Lusaka, Zambia  
Tel/Fax: +260 211 256010  
Tel: +260 211 258381  
Mobile: +260 961 219 461  
Email: sales@maambacoal.com  
Website: www.maambacoal.com