



THE UNITED REPUBLIC OF TANZANIA
PRIME MINISTER'S OFFICE
TANZANIA INVESTMENT CENTRE

FILE NUMBER TICC	FILE BEGINS	ENDS	PART
	FILE TITLE		FILE NUMBER TICC
PART	CONFIDENTIAL		PP-10 042408
INDEX HEADINGS			

Officer or Section	For Action F/M	Initials	Date	Action taken vide F/M	Officer or Section	For Action F/M	Initials	Date	Action taken vide F/M	Officer or Section	For Action F/M	Initials	Date	Action taken vide F/M
DIF	f1	sm	12/3/13											
Director	f1	ca	13/3/13											
DAF	m	b	4/4/13											

PP-10 042408

SINO ENERGY CO LIA

MINUTE SHEET

Dokezo
No.

1.0

Ag: EXD

The approved project has fulfilled the investment requirements, which are: -

(a) Minimum finance investment threshold has been exceeded, the project expects to invest ... us\$ 3.8m

(b) Legal entity has been incorporated under certificate

No. 88077 of 13/12/2011

Based on the above, the letter of approval is hereby submitted for signature in order for the project to comply with the requirements of Section 17 of Tanzania Investment Act, 1997.

Submitted for signature.


N. Senzia

DIF

2nd April, 2013

Ag. EXD done by 14/4/13

In response to the TIC letter of registration dated 2nd April 2013

The project has submitted the required documents namely:-

(a) Company Board Resolution

(b) Reference letter/Financing from BANK ABC Limited

(c) Lease Agreement on water of land.

With the above submission EXD is requested to sign Certificate of Incentives No. 042408

16/04/2013


DIF

MINUTE SHEET

Dokezo
No.

THE COMPANIES ACT NO 12 OF 2002

COMPANY LIMITED BY SHARES

MEMORANDUM AND ARTICLES OF ASSOCIATION

OF

SINO ENERGY CO. LIMITED

1. The name of the Company is **SINO ENERGY CO. LIMITED**
2. The registered office of the company will be situated in the United Republic of Tanzania
3. The objects for which the company is established are:-
 - (a) To search for minerals, mine, process and market gold, gemstones, diamond industrial minerals copper and other minerals of any kind whatsoever obtained within the United Republic of Tanzania.
 - (b) To purchase, take on lease or in exchange, or acquire by mining set or licence, concession, grant or otherwise, any lands, mines, mineral rights and privileges, machinery, plant and other effects whatsoever which the company may from time to time think proper to be acquired for any of its purposes.
 - (c) To search for ores, and minerals to apply for licences and grant licenses for mining in or over any lands which may be acquired by the company and to lease any such lands for building or agriculture use and to sell or otherwise dispose of the lands, mines, or other property of the company.
 - (d) To purchase, or otherwise acquire, open and working mines, forests, quarries, factories and mills, and to carry on the trade or business of mines, millers, and contract branches of such business.
 - (e) To search for and extract, to submit to any refinement, process or manufacture, to prepare for market, deal in and turn to account any ores and minerals and generally to carry on the business of prospecting, mining, processing meeting and refining.
 - (f) To carry on in Tanzania or elsewhere the trade or business of precious and semi precious stones including but not limited to trade in gold, diamonds, tanzanite, and all other kinds of precious metals, brokers, licensees, or dealers including the purchase as well as gem cutting and a centre to train the local workforce.

Saraf
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- (g) To search for and extract, to submit to any refinement, process or manufacture, to prepare for market, deal in and turn to account any ores and minerals and generally to carry on the business of prospecting, mining, processing meeting and refining.
- (h) To purchase, take on lease, or by any other means acquire any movable property in Tanzania or elsewhere for any estate or interest whatsoever, and any rights, privileges or easements over or in respect of any property, and any buildings, factories, mills, machinery, engines, rolling stock, plant, live and dead stock or things whatsoever.
- (i) To enter into any arrangements with any governments or authorities, supreme, municipal, local or otherwise, that may seem conducive to the company's objects or any of them, and to obtain from any such government or authority and contracts, rights, privileges or concessions which the company may think it desirable to obtain, and to carry out, exercise and comply with any such concessions.
- (j) To adopt such means of making known the activities and products in the company as may seem expedient, and in particular by advertising in the press. On radio, cinema or television, by purchase and exhibition of works of art or interest, by publication of books and periodical and by granting prizes, rewards and donations.
- (k) To acquire, carry on and undertake all or any part of the business, property and liabilities of any person or company carrying on business similar to that which the company is authorized to carry on or possessed or rights or property and to purchases, acquire, sell and deal with the shares and securities of any such person or company.
- (l) To enter into partnership or into any arrangements for sharing profits, union of interest, co-operation, joint adventure, reciprocal concessions or otherwise, with any person or company carrying on or engaged in or about to carry on or engaged in any business or transaction capable of being conducted so as directly or indirectly, to benefit the Company: and to lend money to guarantee to contracts: of or otherwise assist any such person company and to take, purchases or otherwise acquire shares and securities of any such company and to sell, hold, re-issue with or without guarantee, or otherwise deal with the same.

- (m) To sell the property and undertaking of the company or any part thereof, for such consideration as the company may think fit, and in particular for shares, debentures or securities of any other company having objects altogether on in any part similar to the objects of the company.
- (n) To promote any other company for the purposes of acquiring all of any of the property and liabilities of the company, of for any other purposes which may seem directly or indirectly calculated to benefit the Company, and to subsidies or otherwise assist any such company.
- (o) To amalgamate with any other company having objects altogether or in part similar to those of the Company.
- (p) To distribute any of the property of the Company among the members or any proceeds of sale or disposal of any property of the Company.
- (q) To borrow and raise money and to secure or discharge any debt or obligation of or binding on the Company in such manner as may be thought fit and, in particulars, by legal and equitable mortgages and charges upon the undertaking and all or any of the property and assets (present and future) and the uncalled capital of the Company or by the creation and issue on such terms and conditions as may be thought expedient of any description.
- (r) To pay out of the funds of the Company all expenses of and incidental to its formation and registration, and to remunerate any person or company, either in cash or by the allotment of shares credited as fully or partly paid up, for service rendered in formation of the company or in placing or assisting to place any of the shares in the company's capital or in or about the promotion of the company or the conduct of its business.
- (s) To draw, make accept, endorse, discount, execute and issue promissory notes, bills of exchange, debenture and other negotiable or transferable instruments.
- (t) To sell, improve, develop, lease, mortgage or dispose of the whole or any portion of the property and rights of the company.
- (u) To invest the moneys of the company not immediately required, in such manner as may from time to time be determined.

- (v) To do all such other things as may be conducive or incidental to the attainment of the above objects.
- (w) To do all or any of the above things in any part of the world, and as principles, managing agents, agents contractors, trustees or otherwise and by or through trustees, agents, managing agents, or otherwise, and whether alone or in conjunction with others.

And it is hereby declared that:-

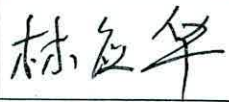
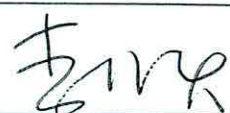

The word "company" shall be deemed to include any partnership or other body of persons, whether corporate or incorporate, and whether domiciled in the United Republic of Tanzania or elsewhere.

The objects specified in each of the paragraphs of this clause shall be regarded as independent objects, and accordingly shall in no way be limited or restricted (except where otherwise expressed in such paragraphs) by reference to inference from the terms of any other paragraph of the name of the company but may be carried out in as full and ample a manner and construed in as wide a sense as if each if each of the said paragraph define the objects of the separate and distinct compound.

That the meaning of any general word or words in any paragraph of this clause shall not be restricted by being construed ejusdem generic with any particular word or words in the same paragraph.

4. The liability of the members is limited.
5. The share capital of the company is Tanzania shillings 30,000,000 (thirty million shillings) divided into 3,000 (three thousand) shares of shillings 10,000 (ten thousand) each with power to increase or reduce the capital with or without priority or special privileges or subject to any postponement of right or restriction or condition of smaller amounts, commute, or abrogate or deal with any such rights, privileges, and conditions in accordance with the regulation for the time being in force in the Company

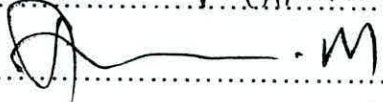
We, the several persons whose names, postal addresses and occupations hereto subscribed, are desirous of being formed into a company in pursuance of this Memorandum and Articles of Association and we respectively agree to take the number of shares in the capital of the company set opposite our respective names.

NAME: ADDRESS AND DESCRIPTIONS OF SUBSCRIBER		NUMBER OF SHARES TAKEN BY EACH SUBSCRIBER	SIGNATURE OF SUBSCRIBERS
1.	YING HUA LIN P.O. BOX 11461 DAR ES SALAAM	54	
2.	GUO MEI LI P.O. BOX 11461 DAR ES SALAAM.	36	
3.	EMMANUEL STEPHEN MILWANO P.O. BOX 11461 DAR ES SALAAM	10	

DATED at DAR ES SALAAM this ^{27th} Day of ^{Dec} 2011

WITNESS to the above Signatures:

NAME: Samuel MANGESHA

SIGNATURE: 

POSTAL ADDRESS:

QUALIFICATION:



THE COMPANIES ACT NO 12 OF 2002

COMPANY LIMITED BY SHARES

ARTICLES OF ASSOCIATION

OF

SINO ENERGY CO. LIMITED

PRELIMINARY

1. In these regulations:

Companies Act means the Companies Act No. 12 of 2002 of the Laws of the United Republic of Tanzania

When any provision of the Act is referred to, the reference is that provision as modified by any Law for the time being in force.

Unless the context otherwise requires, the expression defined in the act or any statutory modification therefore in force at the date which these Regulations become binding on the Company shall have meanings so defined.

Any words importing the singular include the plural and vice versa, and the words importing the masculine gender shall include females, and the words importing persons shall include bodies corporate, part partnership, firms, Co-operative societies etc.

The Regulations of Table 'A' in the first schedule of the Companies Act (hereinafter called Table 'A') shall apply to the Company save in so far as they are varied or excluded hereby, but in case of, any conflict between the provisions herein and the provisions under Table 'A' the former shall prevail and in addition to substitution former modification of the following shall be the regulations of the Company.

PRIVATE COMPANY:

2. The Company is a private company and accordingly:-
 - (a) The right to transfer shares is restricted in manner here-in-after prescribed.
 - (b) The number of members of the Company (exclusive of persons who are in the employment of the Company and of person who having been formerly in the employment of the Company were while in such employment and have continued after the determination of such employment to be members of the company) is limited to fifty; provided that where two or more persons hold one or more shares in the Company jointly they shall for the purpose of this regulation be treated as a single member.
 - (c) Any invitation to the public to subscribe for any shares or debenture of the company is prohibited.
 - (d) The Company shall not have power to issue warrants to bearer.

TRANSFER OF SHARES

3. The Directors may in their discretion and without assigning any reason thereof refuses to register the transfer of any shares to any person whom it shall in their opinion be undesirable for any reason whatsoever to admit to membership.
4. Subject to clause 2 and 3 thereof the right to member to transfer their shares shall be restricted as follows:-
 - (a) No share shall be transferred to a person who is not a member or any person selected by the Directors as one who it is desirable in the interest of the company to admit to membership.

- (b) Every shareholder or trustee in bankruptcy or any person who may desire to sell or transfer any such shares and every personal representative or a deceased shareholder shall give notice in writing to the Directors that he desires to make such sales or transfer. Such notice shall constitute the Board of Directors of the Company as his agent or for the sale of such share to any member or members of the Company at a price to be agreed upon between the party giving such notice and the Board, or in case of difference to be determined by the Auditor of the Company
- (c) Upon price of such shares being agreed on or determined as per clause above, the Board shall forth-with give notice to such of the shareholders other than the shareholders desiring to sell to transfer the said shares, stating the number and price of such shares, inviting the person to whom notice is set to state within 21 days from the date of such notice whether he is willing to purchase any. If so what maximum number of such shares. At the expiration of such 21 day's notice the Board shall apportion such amongst the shareholders (if more than one) who shall have expressed the desire to purchase the same and as far so may be pro-rata according to the number of shares already held by them respectively, or if there be only one such shareholder, the whole of such shares shall be sold to him, provided that no shareholder shall be obliged to take more than maximum number of such shares stated in his answer to the said notice. Upon such apportionment being made or such one shareholder notifying his intention to purchase, as the case may be the party desiring to sell or transfer such shares shall be bound upon payment of the said price to transfer the shares to the respective shareholders or to the single shareholders we shall have agreed to purchases the same.

7. The shareholding qualification for the Directors may be fixed by the company in general meeting and unless bad until so fixed no qualification shall be required.
8. The quorum of Directors for transacting business shall, unless otherwise fixed by the Directors be two.
9. A resolution in writing signed by all the Directors than in Tanzania shall be as a valid and effectual as if it had been passed at a meeting of Directors duly called and constituted.
10. The Directors may from time to time borrow or raise any moneys for the purpose of the Company which may exceed the issued share capital of the company.

BOROWING POWERS

11. The Directors may raise or borrow for purpose of the Company's business such sum or sums of money as they think fit and they may secure the repayment of or raise any such sum or sums as aforesaid by mortgage or charge upon the whole or any part of the property and assets of the company; present and future including its uncalled or unissued capital or by the issue, at such price as they may think fit or bonds or any part of the property and assets of the company, or not charged, or in such other way as the Directors may think expedient.

ALTERNATE DIRECTORS

12. Each Director may nominate a person, who shall be approved of in writing by the other Director, to act as Alternate in his place during his absence from Tanzania or inability to act as such Director.

GENERAL MEETING

NOTICE OF GENERAL MEETING AND PROCEEDING AT GENERAL MEETING

5. Articles 39 to 53 Tablen 'A' shall apply subject to the following variations:
- (a) A General Meeting, Ordinary or extra-ordinary may with the consent in writing of all members, be convened on a shorter notice than seven days or without notice
 - (b) Two members, present either personally or by proxy shall form a quorum.
 - (c) Any Ordinary resolution of the company determined without any General Meeting and evidenced by writing under the hands of the directors and of the member of the company holding therefore of the issued of the Company shall be valid and effectual as an Ordinary resolution duly passed at a General Meeting of the Company.

DIRECTORS:

6. (a) Until otherwise determined by the company in General Meeting the Directors shall not be less than two and not more than ten.
- (c) The following persons shall be the first Directors of the Company
- a. MR. YING HUA LIN
 - b. MR. GUO MEI LI
 - c. MR. EMMANUEL STEPHEN MILWANO

Such Alternate Director shall be subject in all other respects to the terms and conditions existing with reference to the Directors and Discharge all duties and functions of the Director being unable to act during the absence or inability to act as the Director whom he represents he may subject to the like approval of the other Directors appoint a duly qualified person to act in his place.

SECRETARY:

13. The Secretary shall be appointed by the Board for such terms at such conditions as it may think fit, and any secretary as appointed may be removed by the Board.

WINDING UP:

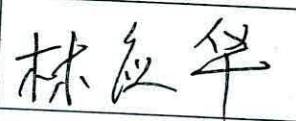
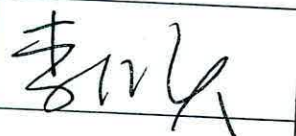

14. With the sanction of a special Resolution of the shareholders any of the assets of the Company including any shares in other companies may be divided between the member of company in specie or may be vested in trustees for the benefit or such members and the liquidation of the company may be closed and the Company may dissolved but that no member shall be compelled to accept any shares whereupon there is any liability.

INDEMNITY:

15. Every Director, Managing Director, Agent, Auditor, Secretary and other officer for the time being of the Company shall be indemnified out of the assets of the Company against any liability increased by him to defending any proceeding, whether civil or criminal, in which judgement is given his favour or in which he is acquitted of in connection with any application (under section 345 of the Companies Act No 12 of 2002) in which relief is granted to him by the court.

ALTERATION OR ADDITIONS:

16. Subject to the provision of the act and to those contained in the Memorandum of Association, the company may by special resolution make alterations, or additions to the Articles of Association and any such alterations or additions made shall be as valid and effectual as if originally contained in these Articles and be subject in like manner to alteration by special Resolution.

NAME: ADDRESS AND DESCRIPTIONS OF SUBSCRIBER	NUMBER OF SHARES TAKEN BY EACH SUBSCRIBER	SIGNATURE OF SUBSCRIBERS
1. YING HUA LIN P.O. BOX 11461 DAR ES SALAAM	54	
2. GUO MEI LI P.O. BOX 11461 DAR ES SALAAM.	36	
3. EMMANUEL STEPHEN MILWANO P.O. BOX 11461 DAR ES SALAAM	10	

Dated this 8th Day of December, 2011

Witness to the above Signatures

Name of Witness: Samuel MANGAZA

Signature: 

Occupation:



CONSENT TO TRANSFER MINING LICENCE No. 470/2012

I, Prof. Sospeter M. Muhongo (MP), the Minister for Energy and Minerals, pursuant to Section 9(2) of the Mining Act, No. 14 of 2010 hereby consent the transfer seventy five percent (75%) shares of the Mining Licence No. 470/2012 including its rights and obligations from M/S **EMMANUEL STEPHEN MILWANO** to M/S **SINO ENERGY CO. LIMITED**.

The foregoing transfer has been duly recorded on terms and conditions contained in the above Mining Licence.

IN WITNESS WHEREOF this consent to transfer Mining Licence has been duly issued and recorded

this.....^{11TH}.....day of...^{FEBRUARY}.....2013.

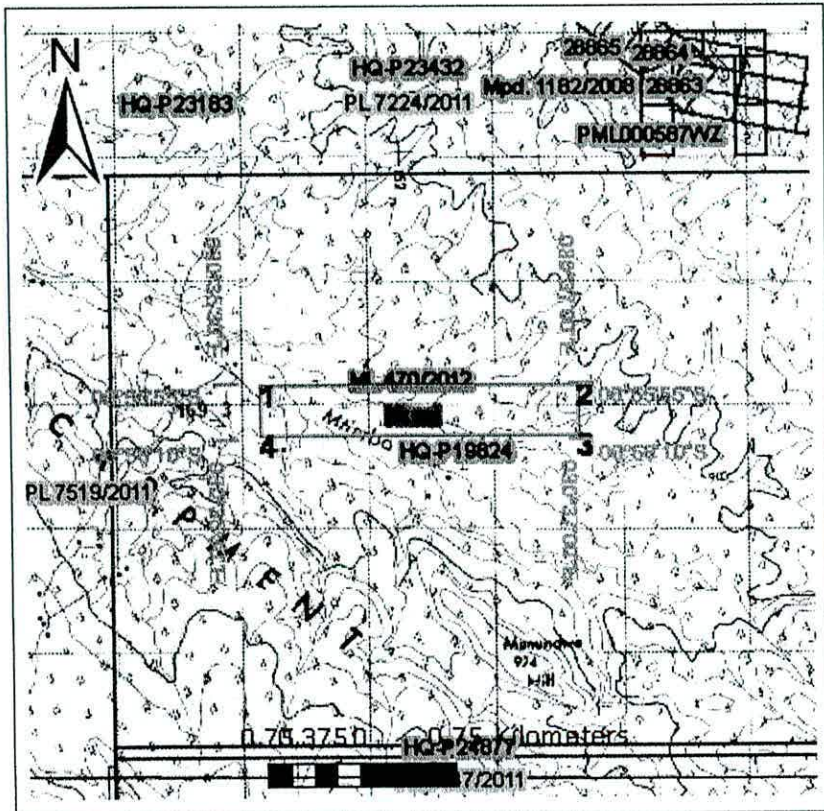

Prof. Sospeter M. Muhongo (MP)
MINISTER FOR ENERGY AND MINERALS

ANNEX A

DESCRIPTION OF THE LICENCE AREA

Subject to Section 95 of the Mining Act, 2010 the Licence is at **Itunya Village** area in **Nkasi District**, QDS 169/3 defined by lines of latitude and longitude having the following corner coordinates (Arc 1960):

Corner	Latitude	Longitude
1	- 06 deg. 55 min. 55.66 sec.	30 deg. 35 min. 38.40 sec.
2	- 06 deg. 55 min. 55.66 sec.	30 deg. 36 min. 59.72 sec.
3	- 06 deg. 56 min. 08.52 sec.	30 deg. 36 min. 59.72 sec.
4	- 06 deg. 56 min. 08.52 sec.	30 deg. 35 min. 38.40 sec.



Legend	
Licensed boundary	
Licence Code	ML 470/2012
District	Nkasi
Direction	

An area of approximately **0.99** Square Kilometres.

CLAUSE 1
CONDITION OF GRANT

- 1.1 This Mining Licence is granted subject to the provisions of the Mining Act, 2010 and the regulations thereunder and the conditions set out or referred to herein.

CLAUSE 2
TENURE

- 2.1 This Mining Licence, unless sooner terminated, cancelled or surrendered, shall remain in force for a period of ten years from the date of grant.

CLAUSE 3
METHOD OF OPERATIONS

- 3.1 During the term of this Mining Licence, the Licensee shall carry out the programme of mining operations in accordance with the approved Mining Plan and as may be amended from time to time and fulfil obligations hereunder and shall have full responsibility and assume the risks thereof.
- 3.2 The Licensee shall take all reasonable steps necessary to secure the safety, health and welfare of persons engaged in the operations in or about the Mining Licence Area, and ensure safety of properties in accordance with the governing laws of Tanzania.

CLAUSE 4
ENVIRONMENTAL MANAGEMENT

- 4.1 During the term of this Mining Licence, the Licensee shall be responsible for protection and management of the environment within the Mining Licence Area in accordance with the Environment Management Act and the approved Environmental Management Plan as may be amended from time to time.

CLAUSE 5
COMMENCEMENT OF MINE DEVELOPMENT AND PRODUCTION

- 5.1 Before commencement of the mining operations, the Licensee shall ensure the proposed plan for relocation, resettlement of, and payment of compensation to people within the mining areas is implemented in accordance with the Land Act.
- 5.2 The Licensee shall commence development work within three (3) months from the date of grant of the Mining Licence, or such further period as may be agreed by the Minister, on the basis of plans, general design for the mine and related facilities and ancillary operations consistent with the approved Mining Plan.
- 5.3 The Licensee shall commence regular production from the Mining Licence Area within a period of eighteen (18) months from the date of grant or within such further period as may be agreed by the Minister.

CLAUSE 6
PROCUREMENT OF GOODS AND SERVICES

- 6.1 The Licensee shall procure goods and services available in the United Republic of Tanzania in accordance with the approved procurement plan.

CLAUSE 7

**EMPLOYMENT, TRAINING AND IMPLEMENTATION OF
SUCCESSION PLAN**

- 7.1 The Licensee and their contractors shall employ and train Tanzania citizens with appropriate qualifications to the maximum extent practicable and consistent with efficient mining operations. In this connection, the Licensee shall carry out an effective scheme of employment and training for Tanzanian employees at all levels of operations and management in accordance with the approved Employment and Training Programme as may be amended from time to time and approved by the Minister.
- 7.2 The Licensee shall implement succession plan on expatriate employees in accordance with the Employment and Labour Relations Act as may be amended from time to time.
- 7.3 Subject to Clause 7.1 and to the requirements of any law relating to immigration, the Licensee and his contractor(s) may bring into Tanzania such expatriate employees whose expertise is not locally available at such material time and as in the Licensee's or its contractor's judgement are required to carry out mining operations efficiently and successfully.
- 7.3 Subject to Clause 7.2, the Licensee and his contractor(s) shall not be restricted in employment, selection, assignment or discharge of his employees provided that the employment and the terms and conditions of such employment are non - discriminatory.

6B, Blue Lagoon, Plot No. 1509, Msasani Peninsular,
P.O Box 11461, Dar es Salaam, Tanzania
Tel: +25 5769689999/+255 768876565
Email: sinoenergytan@126.com

FEASIBILITY STUDY FOR A COPPER ORE PROCESSING PROJECT

(AT MUNYUNDWE, ITUNYA VILLAGE, KAPALAMSENGA WARD,
MPANDA DISTRICT, KATAVI REGION, TANZANIA)

Prepared by:

TRES Consult (T) Limited,

Josam House, Plot No. 16 Mikocheni Industrial Area

P.O. Box 31155, Dar es Salaam, TANZANIA

Tel: +255 0713 425442 or +255 0782 425442

Fax: +255 22 2461054

E-mail: b Kashoba_74@yahoo.com or tresconsultants@gmail.com

Website: www.tresconsult-tz.com

MARCH, 2013

SUPPLIMENTARY INFORMATION TO THE FEASIBILITY STUDY

In order to make the information provided in the feasibility study clearer and more precise, and also for some small corrections, we provide the supplementary information as follows:

1. The objective of the project is to prospect, mine and process copper ore while paying due attention to environment protection and wild life preservation; the ore will be exported to other countries for foreign exchange generation.
2. The intended capital investment is estimated at 3,800,000 USD, and 1,000,000 USD will come directly from the directors and a loan from a Chinese bank will be secured to meet the deficit.
3. A total of 275 job opportunities will be generated by this project and most of them will be local people.
4. Brief profile of the directors:
 - 1) Lin Yinghua, Chinese, born in 1964, Businessman
 - 2) Li Guomei, Chinese, born in 1964, businessman
 - 3) Emmanuel Stephen Milwano, Tanzanian, born in 1960, public servant





THE UNITED REPUBLIC OF TANZANIA

ENVIRONMENTAL IMPACT ASSESSMENT

Certificate

[Section 92(1) of the Environmental Management Act No. 20 of 2004]

Application Reference No. 1780

Registration No. EC/EIS/612

This is to Certify that

M/S. SINO ENERGY CO. LTD.

of P. O. BOX 11461, DAR ES SALAAM

has this day been granted an Environmental Impact Assessment Certificate for the proposed project/Activity titled COPPER MINING PROJECT

to be implemented/carried out at MUYUNDWE, ITUNYA VILLAGE IN MPANDA DISTRICT, KATAVI REGION

This certificate shall remain in force during the whole lifecycle of this specific project unless henceforth revoked or suspended.

General conditions and terms attached to this certificate are set out herein behind and specific conditions are annexed.

Dated this 26TH day of JUNE 2012

Dr. Terezya Luoga Huvisa (MP)

Minister of State, Vice-President's Office - Environment

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CHAPTER 1

1 INTRODUCTION

1.1 Mine Location and accessibility

The copper deposit is found in Munyundwe sub-village, Itunya Village, Kapalamsenga ward, Mpanda District, Katavi region - in the South Western part of Tanzania. Munyundwe sub-village is approximately 132 km from Mpanda town via Kapalamsenga village.

1.2 Climate, Vegetation, Topography and Drainage Systems

Mpanda district has an altitude ranging from 1000 to 2500 meters above sea level, the average temperature ranges between 26 centigrade and 30 centigrade annually. Mean annual rainfall ranges from 920mm to 1,200mm. Highlands, small mountains peaks, Mwese ranges with moderately hills, gentle plain and plateaus, characterize the district. Lake Tanganyika shine with steep hills, gentle plateau and plains, Karema depression with very gentle plain and lastly Katumba plains with very gentle plain. The most predominant vegetation includes, tropical and savannah wooded grassland and thorny bushes.

1.3 Project Background and Rationale

SINO Energy Company Limited is planning to establish a Copper Ore Processing Plant at Munyundwe sub-village, Itunya Village, Kapalamsenga ward, Mpanda District, Katavi region. SINO Energy has obtained the Mining License for the area described above and the company is intending to process copper without using any chemicals; only physical means are anticipated to be utilised.

CHAPTER 2

2. Quantity estimation of copper ore for processing

2.1 Basis of Resource Estimation

Total area to be mined (10% of the total licensed area = $0.1 \times 982400 \text{sqm}$) = 98,240sqm

Total area for other facilities layout = 33,240sqm

Total area for pits = 65,000sqm

Average thickness of the mineral rock (m) = 5

Average grade of the quartz vein (%) = 20

Specific gravity of the copper deposit (t/m^3) = 8.92

Total estimated ore reserves: = $8.92 \text{ t/m}^3 \times 65,000 \text{sqm} \times 5 \text{m} = 2,899,000 \text{tons}$

CHAPTER 3

Work planning

3.1 Schedule of mine processing plant operations

Scheduling of the mining operation at site has taken into account the following main factors:

- i. The climatic conditions of Mpanda area, in which three months of January, February, and March, are wet months. During this time, minimal open pit mine activities will be taking place.
- ii. Out of 360 days of the year, sixty (60) days has been scheduled for major and minor maintenance of the processing plant machinery. The remaining 300 days has been scheduled to run the wet section of the processing plant for 24-hours continuous operation based on three (3) shifts of 8 hours each day for 25 days of the month or 300 days per year.
- iii. The open pit mine and the crushing section of the processing plant will be operated for one shift of 8 hours from Monday to Saturday with Sundays being days off. The 12 days of public holidays per year will be compensated during the three months of closure of the mine due to wet weather condition. The three months of heavy downpour have been taken out of schedules for mine production. The total number of working days for the mine is therefore limited to 214 days. Capacity of the mining equipment therefore will be sized to ensure enough stockpile is available to enable the production of 1,500 tons/day.
- iv. The total annual ore production shall be 289,900 tons of which 20% (57,980 tons) is copper. Based on the inferred resource of 2,899,000 tons, the expected mine life will be 10 years.

3.2 Equipment selection

The open pit mining will utilize heavy-duty earth moving equipment such as bulldozers, loading shovels, rear dump trucks, drilling rigs, etc., to strip waste and to mine the ore before sending it to the processing plant for beneficiation.

3.3 Equipment capacity determination

Mine equipment sizing is necessary to ensure the quantities of ore planned for the project are delivered to the processing plant in time taking into account schedules of maintenance and compatibility between equipment and machinery. Similarly, support equipment have to be identified and sized to ensure they maintain good conditions of the roads, the pit and that of other operating environment so they do not hinder the haulage equipment from performing to their expected efficiency.

3.4 Stripping equipment capacity

Stripping of topsoil and overburden is normally undertaken by the bulldozers. This equipment can easily negotiate steep slopes and are quite robust and strong enough to strip out waste material without requiring drilling and blasting of the waste cover. For the resource, minimal vegetation and top soil stripping is required. It is however assumed that a 0.5m of top soil material may require stripping before the drilling and blasting operations commence on the copper-bearing veins and on the wall rock.

A bulldozer of similar size and capacity to the CATD 8N with single shank rippers and rakes blade type for uprooting trees and vegetation is chosen.

Initially, this bulldozer will work on clearing vegetation for road construction, plant site preparation, stockpiles area preparation, etc.

The dozer will also work at the mine for raising embankments of a tailings dam, waste dump construction and waste dump slope leveling, etc.

3.5 Drilling equipment for open pit

Drilling for Open Pit will be undertaken using a drill rig similar in size to that of Atlas Copco Rockdrill ROC 742 HC01, with dust collector, 170Hp, 2150 rpm and feed force of 20KN. Figure 3.3 shows an example of a mobile rock drill for a mining project. Diameter of holes to be drilled is taken as 48 mm.

There will be approximately 4 hand held jackhammers, type BBC16 for use in secondary drilling and blasting of oversize boulders. These will be supported with a portable compressor, type Atlass Copco XA175.

3.6 Estimate of number of loading and haulage equipment

Bench heights of 3m are quite high and in order to allow a backhoe or a shovel to operate efficiently, lifts of 1.5m will be operated twice to finish working a 3m bench.

A backhoe excavator is therefore, selected in this case to allow a robust and efficient loading of the trucks from the blasted bench to allow the excavator operator have a better view of the material being loaded.

□ If Komatsu PC1100 SP Excavator (2 m³ bucket) is selected.

- Production per truck 2m³/bct x 2cycles/truck x 8.9t/m³ = 35.6 tons (approx. 35

t)

- Daily required tonnage to be loaded and hauled = 1,500t/d ore + (1,500t/d x 2strip ratio) =

4,500t/d of material

- Average loading cycle time/truck = 3 minutes/truck

- Capacity of shovel per 8-hour shift = (60min x 8hrs)/3min. = 160 truck-trips = 35 t x 160 trips =

5,600 t/shift (which is more than 4,500t/d)

□ If 35-tonne capacity Komatsu Trucks are selected (See Figure 3.5):

-Average haulage cycle time of a truck (to stockpiles & waste dumps) = 10 min.

-Number of trips to achieve 4,500t/shift = $4,500/35 = 129$ trips

-Maximum trips per 8-hr shift = $(8\text{hrs} \times 60\text{min.})/10\text{min} = 48$ trips.

-Number of trucks require to meet daily production considering a daily availability of 70% = 129 trips/ $[48 \text{ trips} \times 70\%] = 3.84$ or 4 trucks.

□ Two Wheel loader CAT966F are Selected:

These are for stockpile management to manage the “fingers”, for feeding the jaw crusher, for tailings management, for other auxiliary works at the mine and the processing plant. Size and types similar to CAT 966F, with 220Hp will be suitable

3.7 Selection of mine service equipment

Important mine service equipment to be purchased by the company to support the production operations will include the following:

□ One motor grader, similar to CAT140G, 150Hp for mine road maintenance works. Maintenance of the roads reduces costs of truck tires and improves haulage efficiency.

□ One vibratory roller, similar to CAT CS-533, 145Hp, for compaction of the mine roads to reduce the presence of sharp protruding rocks which punctures tires

□ One water truck, with a capacity of 35 tons for dust suppression in mine haulage roads.

3.8 Ore beneficiation method and equipment selection

3.8.1 Description of the processing technology

- Primary crushing

The mine haulage trucks carrying ROM ore, will unload directly into the feed bin or, alternatively, onto either of the nearby ROM ore stockpiles. A front-end loader will be available to transfer material from the ROM stockpile to the crusher feed bin where required. An apron feeder will feed ROM ore from the bin single toggle primary jaw crusher. A belt conveyor will transfer the primary crusher product to the SAG mill feed storage hopper. A facility will be installed to enable the diversion of primary crushed ore to an emergency stockpile. Dust control systems, consisting of water sprays and bag filter collectors will be installed at the crusher circuit to minimize the release of dust into the

atmosphere.

- SAG Mill circuit

Ore from the SAG mill feeder hopper will be fed to the grinding mill, at a controlled rate, by a belt feeder. The SAG mill is designed to operate with a ball loading of 25% by volume, however, the anticipated normal operating requirement is 12%. The SAG mill has been conservatively sized to provide flexibility to handle the range of fee types anticipated at the plant.

The product from the SAG mill will discharge via a trammel screen. The coarse fraction from the screen will be conveyed to the pebble cone crusher and the fine fraction will be discharged as slurry to the separator where a more concentrated copper precipitate will be collected.

- Copper ore concentration

Ore Concentration by Froth Flotation

The copper minerals and waste rock are separated at the mill using froth flotation. The copper ore slurry from the grinding mills is mixed with milk of lime (simply water and ground-up limestone) to give a basic pH, pine oil (it comes from trees -- a by-product of paper mills) to make bubbles, an alcohol to strengthen the bubbles, and a collector chemical called potassium amyl xanthate (or the potassium salt of an alkyl dithiocarbonate).

The xanthates are added to the slurry in relatively small quantities. Xanthate is a long hydrocarbon (5 carbons) chain molecule. One end of the chain (the ionic dithiocarbonate) is polar and sticks to sulfide minerals while the other end is non polar, containing the hydrocarbon chain is hydrophobic -- it hates being in the water and is attracted to the non polar hydrocarbon pine oil molecules.

Raising the pH causes the polar end to ionize more and to preferentially stick to chalcopyrite (CuFeS_2) and leave the pyrite (FeS_2) alone. Air is blown into the tanks and agitated like a giant blender, producing a foamy froth. The chalcopyrite grains become coated with xanthate molecules with their hydrophobic ends waving around trying desperately to get out of the water.

They attach themselves to the oily air bubbles which become coated with chalcopyrite grains as they rise to the surface and flow over the edge of the tank. In this manner through a series of steps the copper ore is concentrated to an eventual value of over 28% copper. Waste rock particles do not adhere to the bubbles and drop to the bottom of the tank. The waste material that comes out of the bottom of the tanks at the tail end of this process is called "tailings." It is nothing more than ground-up rock with the copper minerals removed.

3.8.2 Proposed processing plant equipment and machinery

Based on the production schedule of 321,000t/yr and 1,070tpd, the following is a proposed list of some of the major equipment and machinery of the copper recovery plant:

Processing Plant Machinery List

No. Machinery/Equipment Type No. of Units

1. Primary Jaw Crusher, 30 tons/hr 1 set
2. Secondary Jaw crusher, 25 tons/hr 1 set
3. Conveyor belt (Primary crusher – Vibrating screen) 1 set
4. Conveyor belt (Vibrating screen – Secondary crusher) 1 set
5. Conveyor belt (Vibrating screen – crushed ore stockpile/orebin) 1 set
6. Secondary crusher feeder 1 set
7. Conveyor belt (Secondary crusher – crushed ore stockpile/fine ore bin) 1 set
8. 3' x 9' vibrating screen with vibrators 1 set
9. Crushed ore stockpile/fine ore bin (200 tons) 1 set
10. Crushed ore stockpile reclaim system/fine ore bin feeder 1 set
11. Conveyor belt (crushed ore bin/stockpile – Ball mill) 1 set
12. 9' x 6' Ball Mill, (Cradle & Type Drive), 12-15 tonnes/hr 1 set
13. 2' x 4' Vibrating Screen with vibrators 1 set
14. 0.6' x 2' Rotary Kiln (Diesel fired) 1 set
15. 8" x 6", "B" Frame Envirotec Slurry pumps 2 sets
16. 6" x 4", "C" Frame Envirotec Slurry pumps 10 sets
17. Water supply pump "C" Frame HP 2 sets
18. Physical separator 1 set
19. Magnet 1 set
41. Air Compressor (16 bar) – Electrically powered 1 set
43. Fresh water concrete tank, 350 m³ 1 set

CHAPTER 4

4 OPERATING COST ESTIMATES

4.1 Drilling cost per year

The purchase price of a new drill rig is approximately US\$ 45,000. (Like the Atlas Copco type, with 48 mm diameter holes, type ROC 742 HC01).

□ Drill cost in \$/ft is estimated as follows:

$$= [(C_{own} + C_{op}) \times BL \text{ (hr)} + BC] / BL \text{ (ft)} \text{ (SME Mining Eng. Handbook, pg 742)}$$

Where:

C_{own} = Cost/hr to own the rig (taxes, insurance, amortization, deprec.)

C_{op} = Cost/hr to Operate the rig (labor, fuel, parts, drill steels, tires, etc.)

BL = Bit life in hrs or in ft

BC = Bit cost

◇ Cost of Owning a Rig (C_{own})

Depreciation = US\$ 45,000 / 10years = US\$4,500.00

Interest = 10% x 4,500 = US\$ 450.00

Insurance = 10% x 4,500 = US\$ 450.00

Taxes = 10% x 4,500 = US\$ 450.00

Total Ownership Costs = US\$5,850/yr

Ownership cost/day = US\$ 5,850/ 365 days = US\$ 16.03/day

Ownership cost/hour for one rig = US\$ 16.03/8hrs = \$2.00/hr

◇ Cost of owning an Air compressor (Atlas Copco XA 175) & two

Jackhammers

Price estimates for the set = \$35,000.00

Depreciation = US\$ 35,000 / 10years = \$ 3,500.00

Interest = 10% x 3500 = \$ 350.00

Insurance = 10% x 3500 = \$ 350.00

Taxes = 10% x 3500 = \$ 350.00

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Total Ownership Costs = \$ 4,550/yr

Ownership cost/day = \$ 4,550/ 365 days = \$ 12.446/day

Ownership cost/hour = \$12.446/8hrs = US\$ 1.6/hr

For two sets of Air Compressor & two Jackhammers = US\$ 1.6/hr *2 =

US\$3.2/hr

Total Cost of Ownership of drill rig & Other drilling Equipment = \$5.2/hr

◇ Cost to Operate One Rig (C_{op})

◆ Labour cost/hr: Tsh. 450,000/month / 25 days / 10 hrs = Tsh 1,800/hr

◆ Compressor fuel: 60 litre/day x (Tsh.1200/ltr) / (10 hrs/day) = Tsh7,200/hr

◆ Compr. Oils & lubr. Oil no. 68, 2 l/d x Tsh,6000 / 10 hrs = Tsh. 1,200/hr

◆ Drill steels: (Tsh. 80,000/pc x 4 pcs) / 365 days life /10 hrs= Tsh. 87.67/hr

◆ Compr. maint. Cost: (Tsh. 35 mil./ 10-yr deprec./365 d/yr./ 10hrs) x 85% avail =

Tsh.815/hr

◆ Rig maint. cost: (45 mil./ 10-yr. deprec./ 365d/yr / 10hrs) x 85% = Tsh.1,047

/hr

Total cost to operate a rig/hr = Tsh. 12,150 or US\$ 8.1/hr

(1USD = Tsh 1,500.00)

◇ Bit Life in Feet (m), BL (ft)

Bit life in metres is so much dependent on the type of bit (cross bit, button bit, etc.), hardness of the rock, rotational speed of the drill, flushing and cooling media, etc. On the average, in relatively rocks

of hardness such as quartz veins with button bits of 48mm, bit life is estimated to be

approximately 2,000m or 6,096 ft.

◆ For 176,676 holes of 1.5m in depth, approximately 265,131m will be drilled and

bits

m per bit

m 133

2,000

265,131 = will be consumed.

◆ Price per bit = \$100.00 per unit

◆ Cost/m = \$100/2000 = \$0.05

◆ Cost/foot = \$0.05/3.048 = \$0.0164

Bit life in hrs BL (hrs) = (2000 m/20.45m/hr = 98 hrs.

Or

Drilling Cost = [(C_{own} + C_{op}) x BL (hr) + BC] / BL (ft)

= {[5.2 + 8.1] x (98) + (100)} / {6096}

= \$ 0.7017/m

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Total Drill Costs = [US\$ 0.7017 per m x 265,131m] =US\$ 186,042.4

4.2 Explosive and Blasting cost per year

Quantity of Explosives

Based on similar blasting operations with rock characteristics similar to mining area, estimates of explosive quantities are calculated as follows:

- Specific charge : $q = 0.34 \text{ kg/cum}$
- Amount of explosives = Specific charge x volumes for open pit
=

year

kg

years

m

m t

kg 33,224

10

1

8.9

8,697,000t

3

0.34

³

x x =

= 33,224kg/year

Explosive Charging Pattern

- Electric firing method will be used in this case.
- Charging pattern will be in such a way that Ammonium Fuel Oil (ANFO), will

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be the column

charge owing to its being the cheapest explosive. Emulite or any high explosive will become the

bottom charge, and millisecond delay electric detonators will be used for initiation. (or nonel can

be used in place of electric detonators as they are cheaper).

- Provision for cordtex (detonating cord) will be made to cases where electric initiation with a large

number of detonators causes some problems and also for secondary blasting of oversize boulders. At least 10% of the holes will be charged with cordtex in

combination with few electric

delay detonators;

- The ratios of bottom charge and column charge to the total charge are as follows:

- Total charge/hole = 9.11 kg

- Bottom charge/hole = 6.58 kg

- Column charge/hole = 2.53 kg

- Taking these ratios to determine the quantity of explosives required for each type we obtain the following:

- Emulite 150, = $6.58 / 9.11 \times 33,224 \text{ kg} = 25,042 \text{ kg}$

- ANFO = $2.53 / 9.11 \times 33,224 \text{ kg} = 9,629 \text{ kg}$

- Provision for Cordtex = 10,000m for secondary blasting

- Delay Electric detonators = $(16,938 \text{ holes} + 5\% \text{ defective}) = 27,839 \text{ pcs}$

□ Explosives Cost

- Current prices of explosives is as follows:

- Emulite/gelignite/superdyne = Tsh. 3,000/kg

- ANFO = Tsh. 500/kg

- Cordtex = Tsh. 480/m

- Millisecond detonators = Tsh.3,000/pc

- Cost of explosives:

- Emulite/gelignite/superdyne = $25,042 \times 3,000 = 75,126,000/=$

- ANFO = $9,629 \times 500 = 4,814,500/=$

- Cordtex = $10,000 \times 480 = 4,800,000/=$

- Millisecond detonators = $27,839 \times 3,000 = 83,517,000/=$

Total Cost of Explosives = Tsh. 168,257,500/= US \$ 112,172

4.3 Loading and Haulage Cost

□ Komatsu PC1100 PS Excavator (1 Unit):

- Fuel Estimates (price/litre = 2,000/=)

Consumption = 400 litres/day x 2,000/= x 214 d/yr = Tsh. 171,200,000

- Engine oil no. 40, consumption = [[20 litres/service x 4 services/year] + [3litres/day x 214 d/yr]] x

Tsh.3, 000/ltr, = Tsh. 2,166,000

- Hydraulic oil no. 32w (or 10W), consumption = [[200 litres/service x 1 service/3 years] + [3

litres/day x 214d/yr]] x Tsh.3,000/ltr = Tsh. 2,526,000.

- Transmission oil no. 68 (or 10W), consumption = [[30 litres/service x 1 service/3 years] + [1

litres/day x 214d/yr]] x Tsh.3,000/ltr = Tsh. 732,000.

- Grease, consumption = 10 kg/week x 31 weeks x Tsh.6,000/kg = Tsh.

1,860,000.

Fuel, oils & lubricants for one Excavator = Tsh. 178,484,000 (US\$118,989)

Hence Total Oils & Lubricants for the Excavator = US\$ 118,989

□ CAT966F Wheel Loaders (2 Units):

- Fuel Estimates (price/litre = 2,000/=)

Consumption = 200 litres/day x 2,000/= x 214 d/yr = Tsh. 85,600,000

- Engine oil no. 40, consumption = [[15 litres/service x 4 services/year] + [3litres/day x 214 d/yr]] x

Tsh.3, 000/ltr, = Tsh. 2,106,000.

- Hydraulic oil no. 32w (or 10W), consumption = [[100 litres/service x 1 service/3 years] + [3

litres/day x 214d/yr]] x Tsh.3,000/ltr = Tsh. 2,226,000.

- Transmission oil no. 68 (or 10W), consumption = [[30 litres/service x 1 service/3 years] + [1

litres/day x 214d/yr]] x Tsh.3,000/ltr = Tsh. 732,000.

- Grease, consumption = 5 kg/week x 31 weeks x Tsh.6,000/kg = Tsh.

930,000.

Fuel, oils & lubricants for one loader = Tsh. 91,594,000 (US\$61,063)

Hence Total fuel, oils & Lubricants for two wheel loaders = US\$122,126

□ Haulage Trucks Model CAT773B (4 Units):

- Fuel estimates, 150 litres/day x 4 units x 2,000/= x 214 d/yr = Tsh. 256,800,000
- Engine oil no. 40, consumption = [[15 litres/service x 4 services/year] + [2litres/day x 214 d/yr]] x Tsh.3,000/ltr x 4 trucks = Tsh. 5,856,000
- Hydraulic oil no. 32w (or 10W), consumption = [[200 litres/service x 1 service/3 years] + [1 litres/day x 214d/yr]] x Tsh.3,000/ltr x 4 trucks = Tsh. 4,968,000
- Transmission oil no. 68 (or 10W), consumption = [[30 litres/service x 1 service/3 years] + [1 litres/day x 216d/yr]] x Tsh.3,000/ltr x 4 trucks = Tsh. 2,952,000
- Grease, consumption = 2 kg/week x 31 weeks x Tsh.6,000/Kg x 4 trucks = Tsh.1,488,000

Total fuel, oils and lubr. for 8 dump trucks = Tsh. 272,064,000 (US\$ 181,376)

□ Mine Service Equipment:

- Motor grader, 140litres x 3days/week x 31wks x Tsh.2,000/litre = Tsh. 26,040,000
- Vibratory roller, 100litres x 3days/week x 31wks x Tsh.2,000/litre = Tsh. 18,600,000
- Water truck, 50litres x 5 days x 31wks x Tsh.2,000/litre = Tsh. 15,500,000
- Bulldozer, CATD8N, 300ltrs x 5d/w x 31 wks x Tsh.2,000/lt =Tsh. 93,000,000

Total Fuel for mine service equipment = Tsh. 153,140,000

Add: 5% for oils & lubricants = Tsh. 7,657,000 /=

Total fuel, oils & lubr. for mine service equipment =Tsh. 160,797,000/=

(US\$ 107,198)

Grand Total Loading and Haulage Cost will be: \$ 288,574

4.4 Repair and maintenance cost of mining equipment

Repair and maintenance costs will be estimated based on general applicable formulas since breakdowns of equipment is a random phenomenon. With reference to an "SME Mining Engineering Handbook, 2nd edition, 1992" by Howard H., maintenance & repair costs are estimated based on established standard empirical formulas.

□ Total Mining equipment cost = Ownership Cost + Maintenance Cost +

Tire Costs.

▪ Ownership Costs:

Ownership cost = Depreciation + Interest + Insurance + Taxes

Depreciation = Purchase Price/life of the equipment

Interest = 10% of the Depreciation per year

Insurance = 10% of the Depreciation per year

Taxes = 10% of the depreciation per year

▪ Maintenance Costs:

This is 75% of the Capital Cost over the life of the equipment (or 75% of the depreciation) x

Availability of the equipment

▪ Tire Costs:

Tire replacement = Price of a tire/Tire life (2,000 hours)

Tire repairs = 20% of the hourly tire cost.

Komatsu PC1100 PS Excavator (1 Unit):

▪ Ownership Cost:

Depreciation = \$500,000/10 yrs = \$50,000

Interest = 10% x \$50,000 = \$ 5,000

Insurance = 10% x \$50,000 = \$ 5,000

Taxes = 10% x \$ 50,000 = \$ 5,000

Total Ownership Costs = \$ 65,000

▪ Maintenance Cost:

75% x \$50,000/10 yrs = \$3,750

Total Komatsu PC1100 total maintenance cost = \$ 68,750

CAT966F Wheel Loaders (2 Units):

▪ Ownership Cost:

Depreciation = \$250,000/10 yrs = \$25,000

Interest = 10% x \$25,000 = \$ 2,500

Insurance = 10% x \$25,000 = \$ 2,500

Taxes = 10% x \$25,000 = \$ 2,500

Total Ownership Costs = \$ 32,500

▪ Maintenance Cost:

$75\% \times \$250,000/10 \text{ yrs} = \$18,750$

▪ Tire Cost:

Tire price/2,000 hours of working = $\$3,000 \times 4 \text{ tires}/2,000 \text{ hours} = \6 per hour

= If the loaders works 8 hours per day = $\$48 \times 214 \text{ days/year} = \$10,272$

Total wheel loader maintenance cost = $\$44,647 \times 2 \text{ loaders} = \$89,294$

□ Haulage Trucks Model CAT773B (4 Units):

▪ Ownership Cost:

Depreciation = $\$150,000/8 \text{ yrs} = \$18,750$

Interest = $10\% \times \$18,750 = \$1,875$

Insurance = $10\% \times \$18,750 = \$1,875$

Taxes = $10\% \times \$18,750 = \$1,875$

Total Ownership Costs = $\$24,375 \times 4 \text{ trucks} = \$97,500$

▪ Maintenance Cost:

$75\% \times \$150,000/8 \text{ yrs} = \$14,100 \times 4 \text{ trucks} = \$56,400$

▪ Tire Cost:

Tire price/2,000 hours of working = $\$2,500 \times 24 \text{ tires}/2,000 \text{ hours} = \30 per hour
= If the trucks

works 8 hours per day = $\$30 \times 8 \times 214 \text{ days/year} = \$51,360$

Total haulage trucks maintenance cost = $\$202,260$

□ Mine Service Equipment:

▪ Ownership Cost:

Depreciation = $\$550,000/10 \text{ yrs (Bulldozer)} + \$430,000/10 \text{ yrs (Grader)} +$
 $(130,000/7 \text{ yrs})$

$(\text{Bowser}) + (23,000/10\text{yrs}) \text{ (roller)} = \$113,300$

Interest = $10\% \times \$113,300 = \$11,330$

Insurance = $10\% \times \$113,300 = \$11,330$

Taxes = $10\% \times \$113,300 = \$11,330$

Total Ownership Costs = $\$147,290$

▪ Maintenance Cost:

$$75\% \times (\$147,290/10 \text{ yrs}) = \$ 11,100$$

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▪ Tire Cost:

Tire price/2,000 hours of working = \$3,000 x 4 tires/2,000 hours = \$6 per hour
= If the trucks works 8

hours per day = \$48 x 93days/year = \$ 4,464

Total mine service equipment maintenance cost = \$ 162,854

Total Repair and Maintenance of Mining Equipment = US\$ 692,898

Table 4.1; Summary of Yearly Mine Operating Costs

SN Description of the Cost Centre Amount (US \$)

1. Drilling costs 186,042.40
2. Explosives and blasting costs 112,172.00
3. Loading & haulage cost 288,574.00
4. Repair & maintenance cost of mine equipment 523,158.00

Total Open Pit Mine Operating Cost 1,109,946,4

4.5 Power generation costs

Power for running the mine is assumed to be generated in-house through the 1500 kW Power Generator.

Any future extension of the power from TANESCO (The National Power Grid Managing Company) into the project site will lower the yearly operating costs of power. If costs from TANESCO will be higher, then generation costs will continue to be valid for the entire mine life.

- Fuel cost, 1000ltrs/day x 360d/yr x S1.2/ltr = \$432,000
- Parts & maintenance, [\$200,000 x 75%]/10yrs = \$15,000
- Fuel & Oils, 5% of Fuel costs = \$ 21,600

Total Power Generation Costs = \$468,600

4.6 Other support services

Other support services costs are those to deal with the geology, survey works, environmental, etc. These have been estimated as shown in Table 4.2

Table 4.2; Support Services Costs

SN Description Amount

(US\$)

Surveying Cost:

Plotter material costs (ink cartridge) & total station service costs
Field costs
20,000

Geological Costs:

Geological material costs

Rock sampling costs 24,000

Mine Rehabilitation works:

Water/soil/air sampling costs

Field costs, including tree seedling gardening

Other environmental rehabilitation costs

Consultancy costs

Community support costs

100,000

Total 144,000

4.7 Processing plant maintenance and repair costs

◇ The overall capital cost of the processing plant is estimated to be US\$ 600,000.

◇ Maintenance and repair costs of the plant per year are estimated to be 75% of the yearly

Depreciation of the whole processing plant.

◇ Life of the processing plant is estimated to be 20 years.

◇ Based on the above figures, the yearly maintenance and repair costs of the processing plant

machinery is:

▪ $[\text{US\$ } 600,000 / 20 \text{ years}] \times 75\% = \text{US\$ } 22,500$

Total Maintenance & Repair Cost of the Processing Plant = US\$ 22,500

4.8 Other costs for the processing plant

◇ *Ball Mill charges per year:*

It is estimated that approximately 1 kg of ball mill charge is consumed per 10 tons of ore

crushed (quartz ore).

▪ For 3,000t/yr, approx. 300 kg of ball mill charges will be consumed.

▪ Price of one ton of the ball mill charges is estimated to be US\$ 2000.00

including

shipping & handling.

- Consumption per year = 300 kg or 0.3 tons of ball mill charge
- Total cost of mill charge per year = $0.3 \times \$2000 = \text{US\$ } 600$

Total cost = \$ 600

4.9 Cost of electrical systems repair for the processing plant

Among the major cost component of the electrical system repairs are motor repairs. It is estimated that at least 50% of the motors will require repair during each calendar year. Cost of motor rewinding is variable depending on the size of the motor. An average cost of \$300.00 per motor is considered to be enough for repairing one motor.

The plant has a minimum number of motors of 15. Therefore $50\% \times \$300 \times 15$ motors = US\$2250 /yr

Other electrical repairs will include lighting, switches, fuses, relays, cut-outs, circuit breakers, etc.

Approximately, \$500 per month is allocated for these repairs. For 12 months = \$6,000

Total Cost of Electrical System Repairs = \$ 8,250

4.10 Fresh water pumping costs

Water is necessary to run the processing plant and for other mine activities. Water at the license will be sourced from the onsite borehole to be drilled. The total cost allocated by SINO Energy for drilling of the borehole, pumping and maintenance is USD 20,000

Total water costs per year = \$20,000

Table 4.3; Summary of processing plant operating costs per year

S/N	DESCRIPTION	AMOUNT (US\$)
1.	Processing Plant Maintenance and repair cost	22,500
2.	Other costs for the plant	600
3.	Electrical System Repairs	8,250
4.	Water Pumping Costs	20,000
TOTAL PROCESSING COSTS		150,505\$

4.11 Financial and administrative cost estimates

- Organizational Structure

The structure of the SINO Energy will be composed of a Board of Directors, that will employ the General Manager of the operations. The general manager will be assisted by the respective heads of departments for the Open Pit Mine, the Processing Plant, The Finance and Administration Manager, Head of Security, Workshop and Power Generation Manager, etc. Figure 4.1 shows the upper structure of the organizational chart for the Project.

- Financial & Administrative Costs

Financial and administrative costs will be expenses incurred in making it possible to run the mining & processing operations. These include managing the people and assets, procurement of parts and other consumables, security, safety, health and environment of the people and assets, financial transactions, legal and statutory obligations, etc Table 4.6 provides a summary of the Financial and Administrative costs.

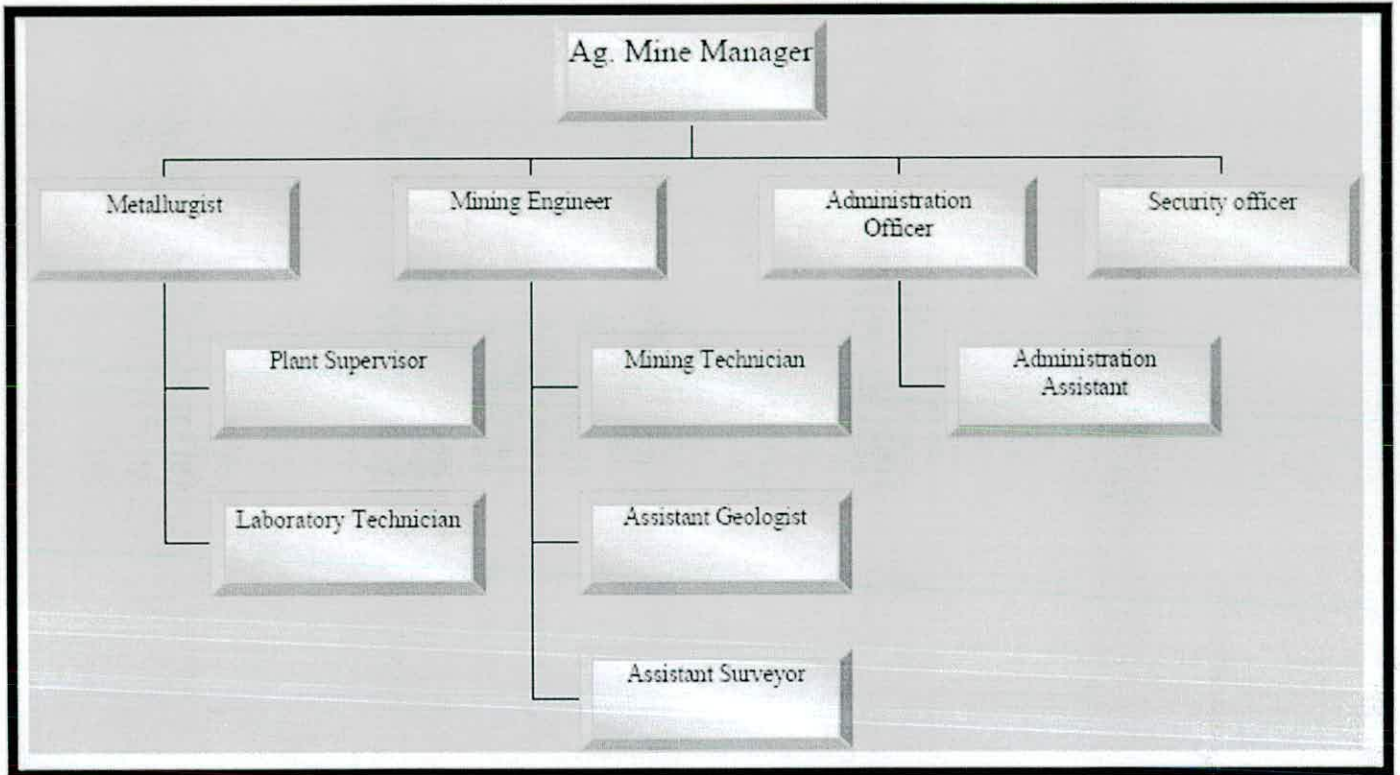
- Manpower Level and Payroll

The manpower level for the project and salaries of its employees are shown in Table 4.4

- Other Overhead Expenses

These costs are considered to be costs associated with the corporate management of the project, including costs related to the Board of Directors meeting and fees, Shareholders meetings, not related with the direct day to day running of the project. An approximate figure of US\$ 20,000 will be assumed to cover for travel of directors, fees, accommodation and preparation of the board meetings.

Organizational Chart for the Copper Project



Manpower Level & Salaries

Table 4.4. Manpower Levels & Salaries

No.	Title	No. Required	Rates Per Month (US\$)	Total Cost per Year
OPEN PIT MINE				
1	Mining Engineer	1	1,200.00	14,400.00
2	Mine technician	1	500.00	6,000.00
3	Mine Foreman	1	400.00	4,800.00
4	Drillers	4	300.00	14,400.00
5	Blasters	1	350.00	4,200.00
6	Bulldozer Operator	1	350.00	4,200.00
7	Wheelloader Operators	2	350.00	8,400.00
8	Grader/water bowser operator/Compactor	1	350.00	4,200.00
9	Truck Drivers	4	150.00	14,400.00
10	Water attendants	1	100.00	1,200.00
PROCESSING PLANT				
1	Metallurgist	1	1,200.00	14,400.00
2	Plant Foreman	4	400.00	19,200.00
3	Crusher Attendants	3	100.00	3,600.00
4	Ball Mill Attendants	3	100.00	3,600.00
5	Wheel Loader operators	3	150.00	5,400.00
6	Laboratory Technician	1	400.00	4,800.00
7	Laboratory Assistants/samplers	3	100.00	3,600.00
ENGINEERING WORKSHOP				
1	Civil/Water Technician	1	500.00	6,000.00
2	Plant Maintenance Technician	1	500.00	6,000.00
3	Electrical Technician	1	500.00	6,000.00
4	Heavy Duty Equipment Mechanic (Foreman)	1	400.00	4,800.00
5	Mechanics	2	300.00	7,200.00
6	Electricians	2	300.00	7,200.00
7	Water System Mechanics	2	300.00	7,200.00

SAFETY HEALTH AND ENVIRONMENT				
1	Environment, Health & Safety Officer	1	600.00	7,200.00
2	Environment Attendant	1	100.00	1,200.00
3	Safety attendants	1	100.00	1,200.00
4	Health attendants	1	100.00	1,200.00
ENGINEERING SERVICES				
1	Mine Surveyor	1	600.00	7,200.00
2	Mine Geologist	1	800.00	7,200.00
3	Survey attendants	2	100.00	2,400.00
4	Geological attendants	1	100.00	1,200.00
ADMINISTRATION				
1	General Manager	1	2,000.00	24,000.00
2	Finance & Administration Manager	1	1,500.00	18,000.00
3	Power Plant & Workshop Manager	1	1,500.00	18,000.00
4	Processing Plant Manager	1	1,800.00	19,200.00
5	Mine Manager	1	1,600.00	19,200.00
6	Accountants	1	900.00	10,800.00
7	Supplies Officer	1	600.00	7,200.00
8	Stores Clerk	1	300.00	3,600.00
9	Public Relations Officer	1	400.00	4,800.00
10	Security Officer	1	700.00	8,400.00
11	Security Guards	28	150.00	50,400.00
12	Personal Secretaries	3	100.00	3,600.00
Total per Month				391,200.00
Add: 10% NSSF				39,120.00
Add: 6% Payrol Levy & Veta				23,472.00

	Grand Total			453,792.00
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Other Administrative Costs

No.	DESCRIPTION OF THE COST ITEM	AMOUNT (US\$)
1.	Financial costs: US\$ 2,000 per month x 12 months (bank costs, inventory procurement costs, office stationery, etc.)	24,000
2.	Motor Vehicle Costs : US\$ 1,000 per vehicle per month x 3 Light vehicles (Fuel & oils + maintenance)	36,000
3.	Building & Fence maintenance: (Repairs will be needed during the one year period for company structures & fences)	4,000
4.	Security costs: ▪ Security equipment servicing, supplies & Patrolling, bullets, etc.	10,000
5.	Licensing costs, legal costs, and other consultancy costs	10,000
6.	Hospitality costs	3,000
7.	Safety, medical & health care costs	5,000
	TOTAL	92,000

Summary of labor and other administrative costs per year

S/N	DESCRIPTION	AMOUNT (US\$)
1.	Overhead Expenses	20,000
2.	Payroll and Other Statutory Contributions	553,792
3.	Other Administrative Costs	92,000
	TOTAL ADMINISTRATIVE COSTS	629,456

CHAPTER 5

5 CAPITAL AND DEVELOPMENT COST ESTIMATES

5.1 Capital cost estimates

The capital cost is required to purchase mining equipment, the processing plant equipment, construction of power generation system, administration structures, etc. A list of the mining equipment, processing plant machinery, buildings and other assets to support the project is summarized in Table 5.1. As seen in Table 5.1, the total capital required for purchase of the above mentioned assets is US\$3,800,000. The initial estimated mine life is 10 years and after tenth year these equipment will still carry a salvage value equal to their book values of US\$381,000. In this study, the salvage value of the equipment will be assumed to be equal to their end book values. These fixed assets, which included also the processing plant machinery, are

assumed to be depreciated using a “Straight Line Depreciation Method”. The amount to be depreciated annually will be US\$ 350,000 which will also be tax deductible.

5.2 Development cost estimates

Development cost involves costs that are spent on the infrastructure to allow the project to operate smoothly throughout the 10-year period. These costs include the following:

- Borehole drilling for water.
- Construction of the access roads through the Mining License Area.
- Construction of Processing Plant Foundations & Piping systems
- Office, Rest house, Change house, Warehouse, workshop facilities
- Fuel storage tanks, etc.

Table 5.1; Capital cost and fixed assets depreciation schedules

EQUIPMENT TYPE	NO. OF UNITS	PURCH. PRICE	TOTAL VAL.(\$)	DEPRE. C. PERIOD	DEPRE. C. PER YR	BOOK VALUE YEAR 10
2012 MINE LIFE						
10						
SURFACE BASED OPERATIONS						
Drill Rig	1	250,000	250,000	10	25,000	0
Wheel loader CAT966F	2	250,000	500,000	10	50,000	0
Komatsu PC1100 Excavator	1	500,000	500,000	10	50,000	0
Dump Truck, 35-tonnes	4	150,000	600,000	10	60,000	0
Bulldozer, CATD8N	1	550,000	550,000	10	55,000	0
Motor Grader	1	430,000	430,000	10	43,000	0
Water Bowser, 35- tonne	1	130,000	130,000	10	13,000	0
Vibratory roller	1	23,000	23,000	10	2,300	0
Airleg Drills, B9C16	4	4,000	16,000	10	1,600	0
Portable Air Compressors, XA175	2	12,000	24,000	10	2,400	0
1500-kW power generator & Accessories	1	200,000	200,000	10	20,000	0
SUB-TOTAL			3,223,000		322,300	0
SAFETY EQUIPMENT						
Safety Equipment and accessories for mine workers	100	300	30,000	10	3,000	0
Mine Rescue equipment and accessories for 1 teams	7	1,200	8,400	10	840	0
Charging and blasting equipment	1	1,200	1,200	10	120	0
SUB-TOTAL			39,600		3,960	0
ENGINEERING & TECHNICAL SERVICES						
Survey equipment & Accessories (Total stat. & plotters, etc)	1	1,200	1,200	10	120	0
Geological Equipment (sampling tools, GPS, etc.)	1	1,000	1,000	10	100	0
Laboratory Equipment (Prep. & assay equip.)	1	8,200	8,200	10	820	0
SUB-TOTAL			10,400		1,040	0
PROCESSING PLANT						
Processing plant (crushers, ball mill, etc., etc.)	1	600,000	600,000	20	30,000	300,000
Plant foundations (crusher, ball mill, tanks, structures,	1	100,000	100,000	20	5,000	50,000

etc.)			0			
SUB-TOTAL			700.000		35.000	350.000
ADMINISTRATIVE EQUIPMENT						
4-WD light vehicles for overall company use	3	35.000	105.000	10	10.500	0
Security equipment costs	1	8.000	8.000	10	800	0
Office Equipment (computers, furniture, telephones, etc.)	1	15.000	15.000	10	1.500	0
Buildings and Fences	1	120.000	120.000	20	6.000	60.000
SUB-TOTAL			248.000		18.800	60.000
GRAND TOTAL			3.800.000		350.000	381.000

5.3 Civil Construction & Processing Plant Foundations

This is the total cost of putting up all the civil works related to putting up the processing plant in place according to the designed flow sheet. Construction will include putting up crusher foundations, ball mill foundations, workshop foundations and other necessary facilities to support smooth running of the project as sighted in Figure 3.3. Approximately a total of US\$ 100,000 is estimated for this task.

5.4 Office, Mine Township, Laboratory, & Change House Construction

Several housing units for office space, laboratory, and change house will be constructed at plant site to support the project. It is estimated that approximately US\$ 60,000 will be spent on housing construction.

5.5 Access Road Construction

Access roads to various points within the mine will need to be established. It is also planned to re-surface about 4km of road from Kapalamsenga village to the project site to permit smooth mobilization of equipment and machinery into the project area, approximately US\$ 10,000 will be spent to resurface the road length.

5.6 Fuel Storage Tank

A 200,000 litre fuel tank and a fueling station will be constructed and

commissioned at the project site with all the necessary fire fighting equipment in place. The fuel station will be for the sole use of the project operations and will not be used by any other outside user. Total cost of this facility is estimated to be US\$20,000. Summary of the total development cost is shown in Table 5.2

S/N	DESCRIPTION	AMOUNT (US\$)
3.	Civil Construction of Water System and Plant Foundations	150,000
4.	Office, rest House, laboratory & Change	60,000
5.	Access Road Construction	10,000
6.	Fuel Storage Tank (200,000 ltrs)	20,000
	TOTAL	240,000

5.7 Working capital

This refers to the amount of cash that should be able to sustain operations for 3 - 4 months before payments from sales start flowing into the company's bank account. Expenses on fuel and oils, purchase of chemicals and other consumables, spare parts for equipment and machinery, salaries, stationeries, etc., will be covered by this amount during the initial three months. A total of USD462,338 will be required during this period.

CHAPTER 6

6 REVENUE GENERATION

6.1 Project Revenue Generation

The following main technical parameters are considered in the estimation of the Mpanda Copper project revenues:

- ◇ Amount of ore to be fed to the processing plant per year is 289,900 tons averaging 20%, based on a 1,000t/d feed rate.
- ◇ Processing plant recovery is assumed to remain at 90% over the entire life of the processing plant.
- ◇ Based on the inferred ore resource of 2,899,000 tons estimated to a depth of 5m, initial life span of the mining project is 10 years.
- ◇ Based on a stripping ratio of 1:2 amount of waste to be mined by open pit will

be 579,800t/yr.

◇ The copper price is expected to remain at US \$8,000 per ton during the 10-year period.

Based on the price of US \$8,000/ton the project has shown potential to generate yearly revenues of US\$13,915,200 for the 9 consecutive years, with the last year (year 10) having revenue of US\$14,925,200.

6.2 Economic analysis

6.2.1 Cash Flow Analysis

Evaluation of the project's costs and revenues has been undertaken. A discounted cash flow analysis that has generated a positive Net Present Value (NPV) and an Internal Rate of Return (IRR) of the project has been presented in Table 6.1.

□ The following important economic parameters have been used in generating a discounted cash flow analysis:

- A discounted Rate of Return on the Project of 12%
- Mine life of 10 years
- Income Tax rate of 30% applicable for Tanzania
- Interest on a Long-Term Bank loan of 30% (on the high side)
- A five-year investment tax credit has been considered under existing Tanzanian tax rules.

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□ Tax exemption on fuel, oils, and other imported supplies have not been considered and when incorporated will also greatly boost the cash flow of the project. Based on the above parameters the project has shown to have good potential to generate cash as summarized in some of the important economic indicators shown in Table 6.2.

Table 6.1: Economic analysis of Mpanda Copper Project

Table 6.1: Economic analysis of Mpanda Copper Project

ECONOMIC PARAMETERS												
Price of Copper per Ton	\$8,000.00											
Tax rate	30%											
Discount Rate (12%)	12%											
Interest on Long-term Loan	30%											
Average Grade of Ore (%)	0.20											
Processing Plant Recovery (%)	90.0%											
Royalty to the Government (%)	3.0%											
YEAR	1	2	3	4	5	6	7	8	9	10		
Ore feed to the Processing Plant	0	289,200	289,200	289,200	289,200	289,200	289,200	289,200	289,200	289,200		
Total Copper Production (Tons)		62,182	62,182	62,182	62,182	62,182	62,182	62,182	62,182	62,182		
Revenue from Sales (\$)	0	13,916,200	13,916,200	13,916,200	13,916,200	13,916,200	13,916,200	13,916,200	13,916,200	13,916,200		
Revenue from Service (\$)	0	0	0	0	0	0	0	0	0	0		
Salvage Value	0	0	0	0	0	0	0	0	0	381,000		
Total Revenue	0	13,916,200	13,916,200	13,916,200	13,916,200	13,916,200	13,916,200	13,916,200	13,916,200	14,296,200		
Less:												
Royalty (3%)	0	417,486	417,486	417,486	417,486	417,486	417,486	417,486	417,486	428,886		
Open Pit Contracting Costs	400,000	118,000	0	0	0	0	0	0	0	0		
Underground Mine Operating Costs												
Power Generating Costs (1,500KW)		468,600	468,600	468,600	468,600	468,600	468,600	468,600	468,600	468,600		
Support Services Costs		144,000	144,000	144,000	144,000	144,000	144,000	144,000	144,000	144,000		
Processing Plant (Parts, etc)		150,505	150,505	150,505	150,505	150,505	150,505	150,505	150,505	150,505		
Payroll & Statutory Contributions		453,792	453,792	453,792	453,792	453,792	453,792	453,792	453,792	453,792		
Administrative Costs (inc. Board Exp)		100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000		
Total Direct Operating Costs (\$)	400,000	1,849,368	1,734,368	1,734,368	1,734,368	1,734,368	1,734,368	1,734,368	1,734,368	1,746,788		
Interest Expenses (US\$)	0	0	1,013,333	885,567	760,200	633,333	506,667	380,000	253,333	126,667	0	
Principal payment (US\$)	0	0	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000		
Financial Book Depreciation (US\$)	0	380,200	380,200	380,200	380,200	380,200	380,200	380,200	380,200	380,200		
Total Projects Operating Cost	400,000	2,199,368	3,519,929	3,369,242	3,266,678	3,198,809	3,013,242	2,848,576	2,769,909	2,669,242	2,518,916	
Taxable Income	-400,000	11,716,847	10,596,291	10,621,868	10,648,826	10,775,291	10,901,968	11,528,826	11,156,291	11,281,968	11,778,196	
Taxes	0	3,514,734	3,118,587	3,185,567	3,194,587	3,230,587	3,270,587	3,308,587	3,245,587	3,284,587	3,533,458	
Investment Tax Credit	0	-3,514,734	-3,118,587	-3,185,567	-3,194,587	-3,230,587	-3,270,587	-3,308,587	-3,245,587	-3,284,587	-3,533,458	
After-Tax Income	-400,000	11,716,847	10,596,291	10,621,868	10,648,826	10,775,291	10,901,968	11,528,826	11,156,291	11,281,968	11,778,196	
Plus: Financial Book Deprec.	0	380,200	380,200	380,200	380,200	380,200	380,200	380,200	380,200	380,200		
Less: Development Expenses:	-400,000											

Less: Purch. of Mining Equip. & Plant Mach.	-1,800,000										
Total Capital Expenditure	-4,200,000	0	0	0	0	0	0	0	0	0	0
Working Capital		-462,338									
Net Cash Flow	-4,602,000	11,628,608	10,746,291	10,871,858	10,998,425	11,125,291	11,261,968	11,378,825	11,526,291	11,631,958	12,128,196
NPV (12%)	\$46,215,119										
IRR(%)	40.1%										
OPENING BALANCE		-462,338	11,141,171	21,886,482	32,758,422	43,787,246	54,862,338	66,154,294	77,612,919	89,016,211	100,660,189
CLOSING BALANCE		11,141,171	21,886,482	32,758,422	43,787,246	54,862,338	66,154,294	77,612,919	89,016,211	100,660,189	112,778,384

Table 6.2: Important Economic Indicators of the Project

NO.	ECONOMIC INDICATOR	VALUE
1.	Net Present Value of the Project (NPV)	US\$46,215,119
2.	Internal Rate of Return of the Project (IROR)	40.1%
3.	Discount Rate of the Project	12.00%
4.	Nominal Interest rate on the Loan (Debt)	30.00%
5.	Capital Expenditure of the Project	US\$ 4,200,000
6.	Working Capital	US\$ 462,338
7.	Development Expenses	US\$ 400,000

6.2.2 Sensitivity analysis

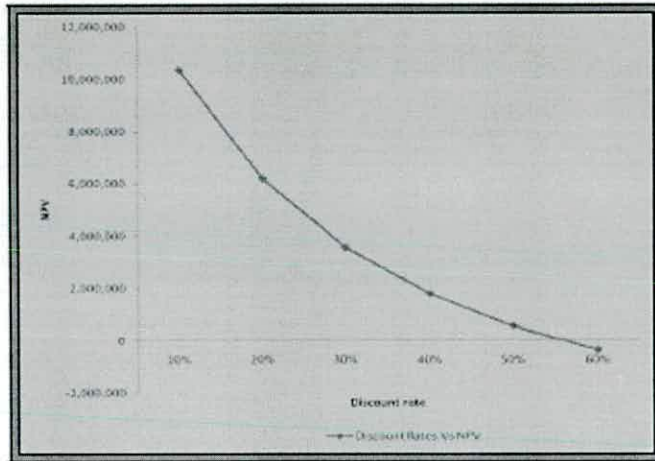
Sensitivity of the cash flow or cash flow deviations from the planned projections provides a picture of the level of risk the project will be undertaking when some economic parameters of the project changes. Some of the parameters such as price of the product, price of inputs, exchange rates, market interest rates, etc., greatly influence the profitability of the project. Sensitivity analysis for the copper project is conducted to see how the discount rate, price of copper, and changing interest on the bank loan affects the Net Present Value of the project.

o Changing Project's Discount Rate

As seen in Figure 6.1, the Discount rate is negatively correlated with the Net present value. As the discount rate is lowered, the NPV improves while as the discount rate increases, the NPV is significantly lowered. This discount rate of 40.1% is the Internal Rate of Return (IRR) of the project.

The IRR is relatively high indicating a low risk of investment provided by the project.

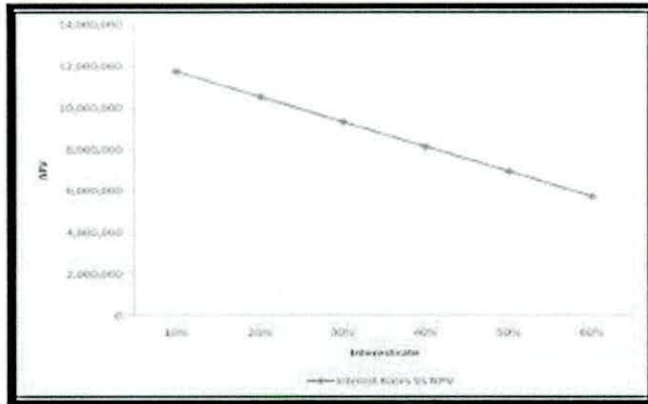
Figure 6.1: Effect of Discount Rate on the Net Present Value (NPV)



o *Changing Interest on Bank Loan*

Short-term loans (up to 12 months) in most of the banks in Tanzania charge interest that may range from 8% to 20%. For long-term loans, the rate is normally lower than the stated percent. Charging 20% interest on the loaned amount is crudely fixed to account for unforeseen risk in the investment of the project, however a 30% rate has been used in the analysis. Figure 6.2 shows the effect of bank loans on the NPV of the project. It is seen that the bank loans have insignificant effect on the profitability of the project unless it is raised to more than 50% which is highly unlikely. This again provides assurance of the low risk carried by the project investment.

Figure 6.2: Effect of Interest on a Bank Loan



o *Changing Price of copper*

The price of copper is one of the most volatile parameter, which can severely affect the level of profitability of the project. Figure 6.3 shows the effect of price rise and drops on the Net Present Value of the Project. The US\$ 5,100/ton is the break-even price of copper for the project to start running at a loss, given all other conditions remains constant.

Figure 6.3: Effects of Price Change on the NPV

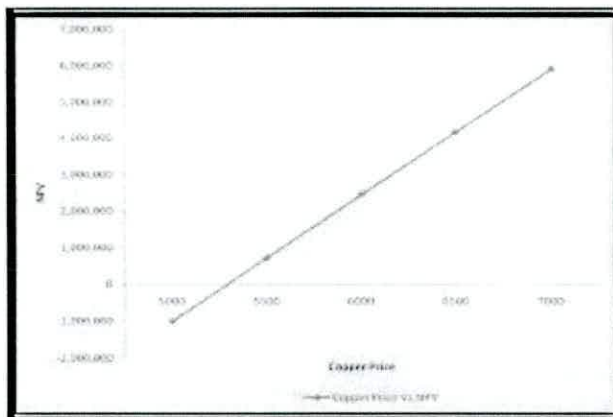


Figure 6.3: Effects of Price Change on the NPV

6.2.3 Debt servicing

It has been determined that the project will secure a loan of US\$ 3,800,000 on the first year that can be repaid in a period of 9 years. This loan will fetch an interest of 30%. When this

30% interest plus the loan recovery amount are scheduled over the 9-year period, each year the project will be required to remit to the bank amounts shown in Table 6.3. The total loan payment at the end of 9th year will be US\$ 7,388,889

Table 6.3; Loan Recovery and Interest Payment Schedule

Table 6.3; Loan Recovery and Interest Payment Schedule

YEAR	0	1	2	3	4	5	6	7	8	9	10
LOAN INTEREST	30.00%										
LOAN TAKEN	3,800,000										
PRINCIPAL	0	0	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000
INTEREST	0	0	1,012,333	884,667	760,000	633,333	506,667	380,000	253,333	126,667	0
Total Payment		0	1,408,668	1,304,668	1,162,222	1,036,668	908,668	782,222	653,668	526,668	400,000
Total Payments made		7,388,889									



TANZANIA INVESTMENT CENTRE

REGISTRATION FORM

FOR

CERTIFICATE OF INCENTIVES

(Tanzania Investment Act 1997, Section 17 and 18,
and the Investment Regulations:
Regulation 42, Government Notice No. 318A of 2002)

Tanzania Investment Centre
9A & B Shaaban Robert Street
P. O. Box 938
DAR ES SALAAM
Tel. 022 2116328
Fax. 022 2118253
e-mail: information@tic.co.tz
Website: www.tic.co.tz

(Please fill the form in duplicate)

UNITED REPUBLIC OF TANZANIA

THE TANZANIA INVESTMENT ACT

(No. 26 of 1997)

APPLICATION FOR REGISTRATION

(Made under Regulation 42)

To: The Executive Director
Tanzania Investment Centre
P. O. Box 938
DAR ES SALAAM
Tanzania

1. I/We Li Aingmin.....

(~~director/directors~~/agent of Sino Energy Co. Ltd.....

(name of business enterprise) apply for registration of Certificate of Incentives.....

under Section 17 of the Act and Part IV of the Investment Regulations, 2002.

2. The registered office of the company will be situated at B6, Blue Lagoon, Mtsangani Peninsula

.....

Copies of the following documents are attached to this application:

- (i) The Memorandum and Articles of Association/or partnership agreement
- (ii) Certificate of Incorporation/Registration
- (iii) A copy of the Project Profile or Feasibility Study showing the implementation period, programme of implementation and operative date
- (iv) Evidence of financing and evidence of land ownership for the project

3. The Head Office of the Company will be situated at B6, Blue Lagoon, Mtsangani Peninsula

4. The Principal Officers of the Company are Mr. Lin Jinghua, and Mr. Li Guomei

.....

.....

5. Auditors of the Company are

.....

6. The authorized share capital of the Company is ~~Tshs~~/US\$ 1,000,000..... One Million USD

.....

.....

7. The intended capital investment of the Company in terms of Section 2(2) of the Act is Tshs./US\$ 3,800,000/-

8. The month and day of the financial year end is 31st, Dec.

Note: **failure to provide all the required information will result in the return of the application by the Centre.**

I/We enclose a cheque/cash made payable to the **Tanzania Investment Centre** for Tshs./US\$ One Hundred Only Being the Registration Fees. **In the event this application is unsuccessful we understand that this fee will not be refunded.**

I, Li Dingmin of Post Office Number 11461 Dar

do solemnly and sincerely declare that I am a ~~director~~/duly

authorized agent of Sino Energy Co. Ltd

AND that all the requirements of the Tanzania Investment Act, 1997 in respect of matters precedent to the registration of the business enterprise under the Act and incidental thereto have been complied with, **AND I** make this solemn declaration conscientiously believing the same to be true.

Declared at Dar es Salaam by }

Li Dingmin }

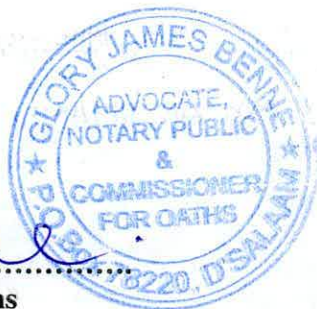
The 7th day of March 2013 }

Applicant



Before me:

Benne
Commissioner for Oaths



APPLICATION SUMMARY

Company Name: Sino Energy Co. Ltd

Certificate of Incorporation Number: 88077 Status:

Certificate of Incorporation Date: 13th Dec 2011

Post Box: 11461

Town: Var es Salacm

Sector: Manufacturing Sub-Sector: Mine Processing

Investment Financing Plan in Million US\$/Tshs.

Foreign Equity	Local Equity	Foreign Loan	Local Loan
<u>900000</u>	<u>100000</u>	<u>2800000</u>	<u>N/A</u>

Project Objectives: Prospecting, Mining and Processing Copper Ore to make a good profit while giving due attention to environment protection, Creating job opportunities to local people, and contributing to charity

Capacity: dig out and process 289900 tons of ore each year for 10 consecutive years

Employment: Foreign: 25 Local: 250 Total: 275

Implementation Period: 10 years

Project Location

Site/Plot/Block No.: Muyundwe, Mpanda, Katavi Region

Village: Itunja District: Mpanda Region: Katavi

(Attach sketch map showing project location)

Shareholders	Nationality	%
<u>Lin Yinghua</u>	<u>Chinese</u>	<u>54</u>
<u>Li Guomei</u>	<u>Chinese</u>	<u>36</u>
<u>Emmanuel Stephen Milwano</u>	<u>Tanzanian</u>	<u>10</u>
.....
.....

Investment Breakdown US\$/Tshs.M

Land/Building	.....	100,000/
Plant	.....	700,000/
Vehicles	.....	248,000/
Furniture & Fittings	.....	80,000/
Pre-expenses	.....	600,000/
Others (mainly heavy equipment and instruments)	.....	2,720,000/ 6,720,000/
Working Capital	.....	100,000/
TOTAL	.....	38,000,000/

Contact Details:

Name: Li Qingmin.....

Title: Deputy General Manager.....

Telephone: 0769689999.....

Fax: N/A.....

Email: Sinoenergy2012@gmail.com.....

Payments to be made payable to:

TANZANIA INVESTMENT CENTRE
STANDARD CHARTERED BANK TANZANIA LTD.
SWIFT ADDRESS: **SCBLTZTX**
ACCOUNT NO.: **8702006002000**

APPLICATION SUMMARY

Company Name: Sino Energy Co. Ltd

Certificate of Incorporation Number: 88077 Status:

Certificate of Incorporation Date: 13th Dec. 2011

Post Box: 11461

Town: Var es Salween

Sector: Manufacturing

Sub-Sector: Mine Processing

Investment Financing Plan in Million US\$/Tshs.

Foreign Equity	Local Equity	Foreign Loan	Local Loan
<u>900000</u>	<u>100000</u>	<u>2800000</u>	<u>N/A</u>

Project Objectives: Prospecting, Mining and Processing Copper Ore to make a good profit while giving due attention to environment protection, Creating job opportunities to local people, and contributing to charity

Capacity: dig out and process 289,900 tons of ore each year for 10 consecutive years

Employment: Foreign: 25 Local: 250 Total: 275

Implementation Period: 10 years

Project Location

Site/Plot/Block No.: Mujundwe, Mpanda, Katavi Region

Street: Itunja District: Mpanda Region: Katavi

(Attach sketch map showing project location)

Shareholders	Nationality	%
<u>Lin Yinghua</u>	<u>Chinese</u>	<u>54</u>
<u>Li Guomei</u>	<u>Chinese</u>	<u>36</u>
<u>Emmanuel Stephen Mfwanza</u>	<u>Tanzanian</u>	<u>10</u>
.....
.....

Investment Breakdown **US\$/Tshs.M**

Land/Building 100,000 /
Plant 700,000 /
Vehicles 248,000 /
Furniture & Fittings 80,000 /
Pre-expenses 600,000 /
Others (mainly heavy equipment
and instruments) ~~272,000 /~~ 607,200 /
Working Capital 100,000 /
TOTAL **3809,000 /**

Contact Details:

Name: Li Qingmin Title: Deputy General Manager
Telephone: 0769689999 Fax: N/A
Email: Sinoenergy2012@gmail.com

Payments to be made payable to:

TANZANIA INVESTMENT CENTRE
STANDARD CHARTERED BANK TANZANIA LTD.
SWIFT ADDRESS: **SCBLTZTX**
ACCOUNT NO.: **8702006002000**

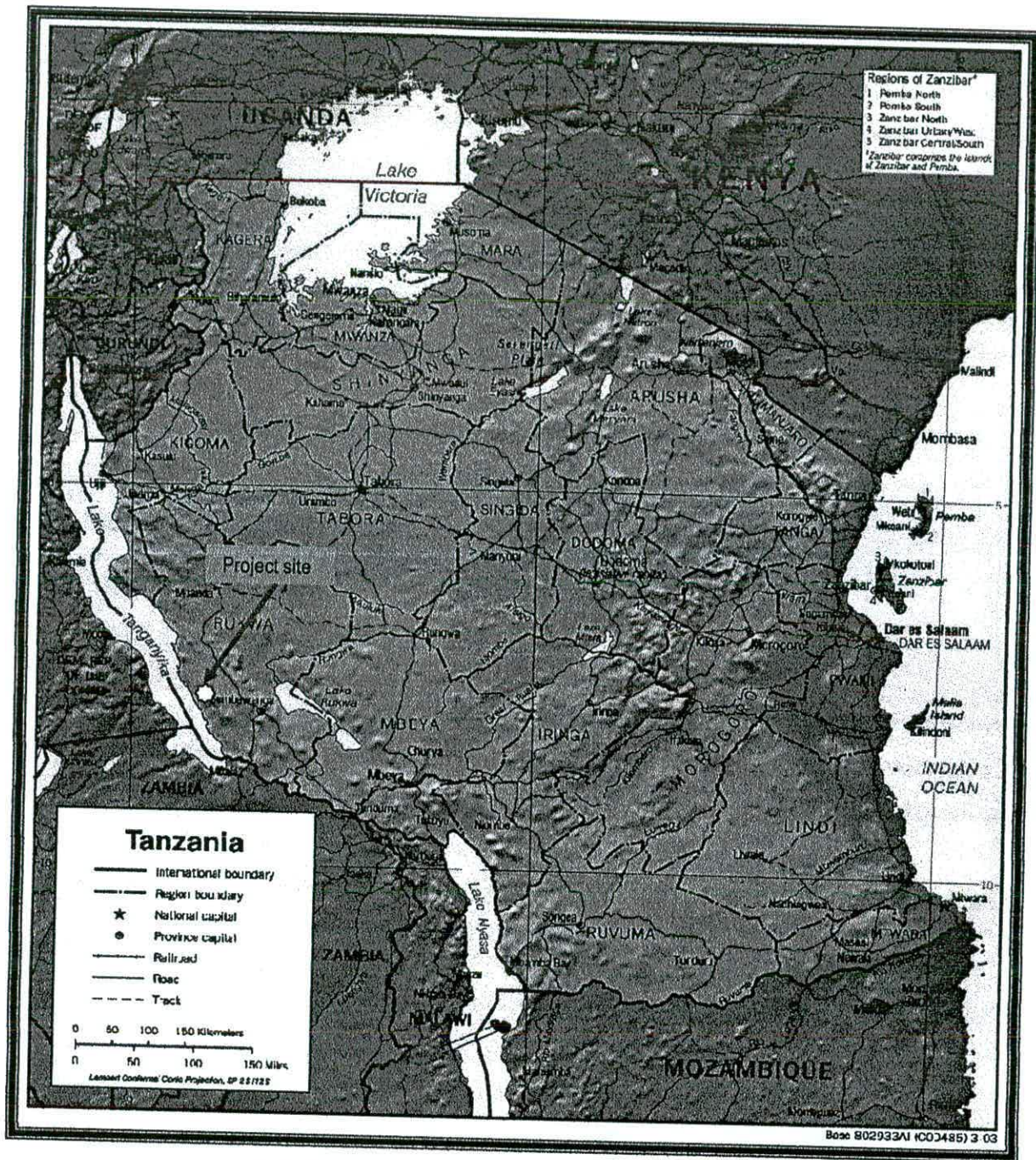
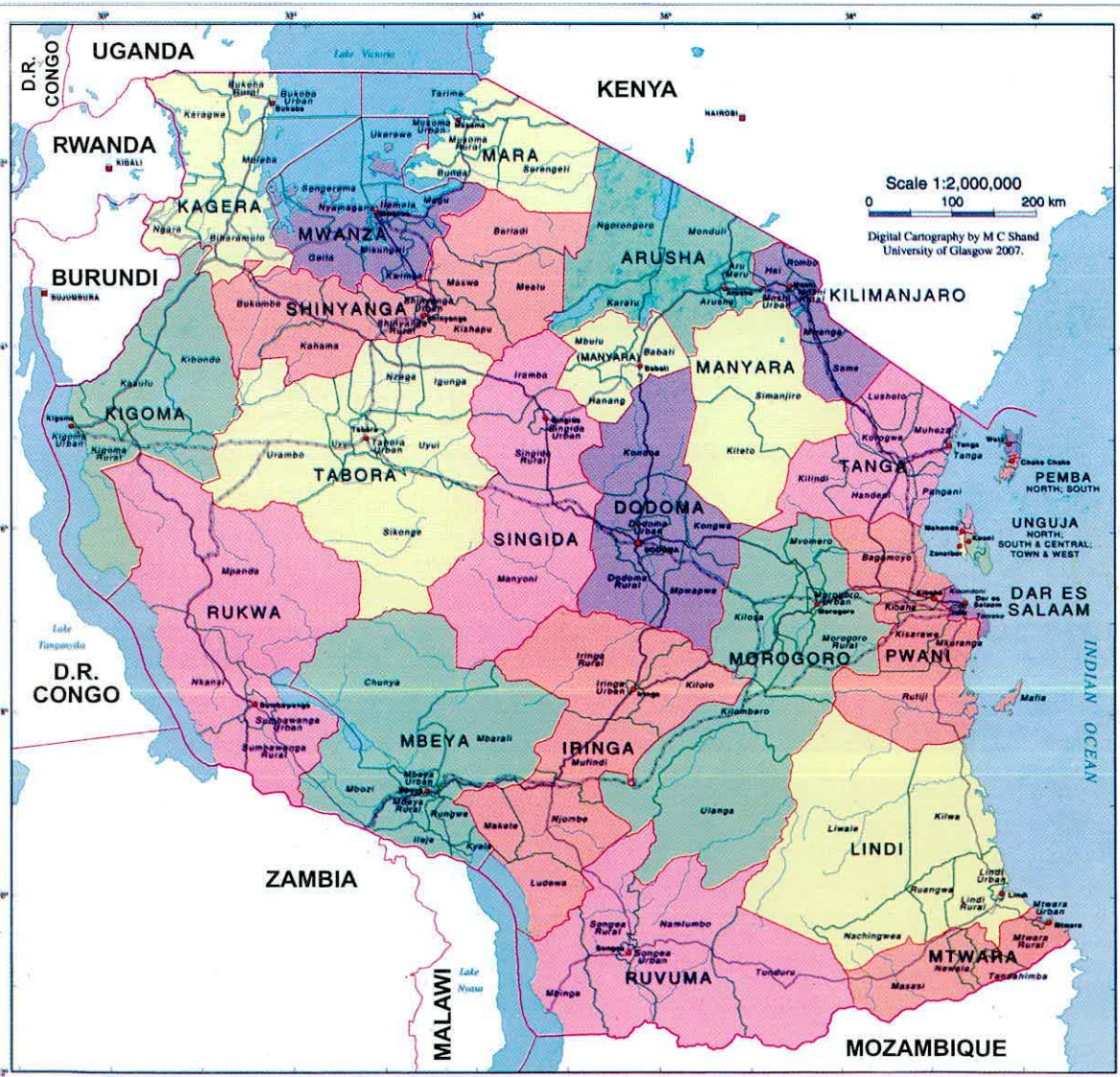


Figure 1.1: Map of Tanzania showing the project location

SKETCH MAP SHOWING PROJECT LOCATION





IB/ABCT/0134/13

Date: 4th March 2013

Tanzania Investment Centre,
Shaaban Robert Street,
P.O Box 938,
Dar es Salaam.

Dear Sir/Madam,

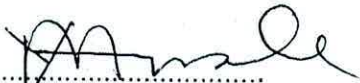
SUBJECT: BANKER'S REFERENCE LETTER FOR SINO ENERGY COMPANY LIMITED

SINO ENERGY COMPANY LIMITED has a business relationship with African Banking Corporation Tanzania Limited (BancABC).

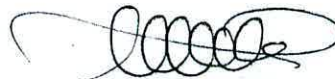
SINO ENERGY COMPANY LIMITED has been known to BancABC since November, 2012 when the customer approached the bank to open a bank account in the name of SINOENERGY COMPANY LIMITED.

This reference has been given to you for information purposes only, African Banking Corporation Tanzania Limited or its officials shall not be held liable or responsible for any loss or liability as a result of this reference.

Yours Faithfully,
for African Banking Corporation Tanzania Limited



.....
Authorized Signatory



.....
Authorized Signatory

BancABC Head Office

1st Floor, Barclays House, Ohio Street, P.O. Box 31, Dar es Salaam, Tanzania
t: +255 22 2119422 - 3 f: +255 22 2112402

Web: www.bancabc.co.tz

Directors: Dr J.P. Kipokola (Chairman), B. Nyoni (Managing), R.J. Dave, Prof. J. Doriye, W.L. Nyachia, D.T. Munatsi, L.H. Sondo
BancABC is a brand name for African Banking Corporation Tanzania Limited.

3

TICC/PP.10/042403/3

2nd April, 2013

Managing Director,
Sino Energy Co. Ltd.,
P.O. Box 11461,
KATAVI

**RE: CERTIFICATE OF INCENTIVES FOR INVESTMENT IN THE
ESTABLISHMENT OF A PROJECT FOR COPPER ORE PROCESSING IN
MPANDA**

We wish to acknowledge receipt of your project proposal to establish a project for copper ore processing in Mpanda as presented in the TIC P.A. 1 Form No. 10889 and Feasibility Study with a projected investment of USD 3.8m.

We have studied your project proposal and are pleased to inform you that your investment proposal is now officially registered and therefore your project will be granted a CERTIFICATE OF INCENTIVES, given under authority conferred upon TIC under Part III, Section 17 (1-8) of the Tanzania Investment Act, 1997. In order to enable TIC prepare your Certificate of Incentives, You will be required to submit the following:-

- Certified document showing evidence of Land ownership for the location of the project.

You will also be required to submit to the Centre a Progress Report on the implementation of the project after every six months for our information and review. Guidelines for the preparation of the report are contained in annexure 2 also attached to this letter. Please do not hesitate to contact the Centre for any clarification if the need arises. Please also note that a facilitation fee equivalent to US\$ 750.00 is payable at the ruling exchange rate before your Certificate of Incentives is prepared. Please make deposit direct to the bank as per bank details below:-

... /2

TICC/PP.10/042403/3

2nd April, 2013

*Tanzania Investment Centre
Standard Chartered Bank(T) Ltd
US Dollar A/C 8702006002000
T.Shs A/C 0102006002000*

We wish you every success in the implementation of the project.

Yours sincerely,

TANZANIA INVESTMENT CENTRE



B.D. Chonjo

For: EXECUTIVE DIRECTOR

Copy to: Permanent Secretary,
Ministry of Finance,
P. O. Box 9111,
DAR ES SALAAM

Permanent Secretary,
Ministry of Industry, Trade and Marketing,
P.O. Box 9503,
DAR ES SALAAM

Commissioner General,
Tanzania Revenue Authority,
P. O. Box 11491,
DAR ES SALAAM



TIC Evaluation Report

Name of the Company
Sino Energy Co. Ltd.

Post Box	Itunya, Mpanda	COI Number	88077	Contact	Mr. Li Qingmin
Post Office	11461	COI Date	13/12/2011	Designation	Deputy General Manager
Region	Katavi	Application F. No	10889	Phone	0
Country	Tanzania	Status	New	Direct Phone	0
		Sector	Manufacturing	Cell Phone	0769 689 999
		Sub Sector	Copper Processing	Fax	0
		File No	042408	E-Mail Address	0

Project Location		Investment Finance Plan in Millions USD											
Block	Mufundwe	<table border="1"> <thead> <tr> <th>Foreign Equity</th> <th>Local Equity</th> <th>Foreign Loan</th> <th>Local Loan</th> </tr> </thead> <tbody> <tr> <td>0.9</td> <td>0.1</td> <td>2.8</td> <td>0</td> </tr> </tbody> </table>	Foreign Equity	Local Equity	Foreign Loan	Local Loan	0.9	0.1	2.8	0			
Foreign Equity	Local Equity		Foreign Loan	Local Loan									
0.9	0.1		2.8	0									
Street	Ifunya												
District	Mpanda												
Region	Katavi												

Shareholders Detail			Investment Breakdown (USD Million)	
Name	Nationality	(%)	Land/Building	0.1
Emmanuel Stephen Milwano	Tanzanian	10	Plant	0.7
Li Guomei	Chinese	36	Vehicles	0.248
Lin Yingling	Chinese	54	Furniture & Fittings	0.08
			Pre-expenses	0.6
			Others	1.072
			Working Capital	1
			Total	3.8

Employment	275	Evaluated By	,wf officer2
Capacity	xxxxx	Drawn By	wf regist3
Project Turn Over		Project Type	Mixed(Local & Foreign)

Description

To establish a project for copper ore processing in Mpanda

Recommendations

Be approved subject to providing evidence as required by section 17 of Tanzania Investment Act, 1997

Decision

Approved

[Signature]
AG EXT
28/03/13

1

COVERING LETTER FOR APPLICATION DOCUMENTS

THE EXECUTIVE DIRECTOR
TANZANIA INVESTMENT CENTRE
P.O.BOX: 938, DAR ES SALAAM

RE: APPLICATION FOR CERTIFICATE OF INCENTIVES



Dear sir/madam,

The board meeting of Sino Energy Co. Ltd. has decided to apply for the Certificate of Incentives from TIC. Please check our documents following this letter and process our application at your earliest convenience.

The documents following this letter include:

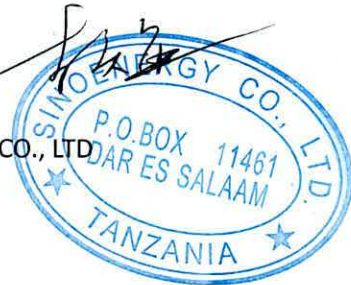
1. Project feasibility study
2. Company memorandum and articles of association (joint venture agreement)
3. Photocopy of certificate of company incorporation
4. Bank reference letter
5. Land ownership evidence (Mining License)
6. Board resolution
7. TIC application form



BEST REGARDS

LI QINGMIN

FOR SINO ENERGY CO., LTD



**BOARD RESOLUTION
OF SINO ENERGY CO. LTD.**

The 11th board meeting of Sino Energy Co., Ltd. held on 5th, March, 2013 resolves that the company should apply for Certificate of Incentives from TIC, and Mr. Li Qingmin, is entrusted to this job.

COMPANY STAMP



SIGNATURE OF BOARD MEETING SECRETARY

A handwritten signature in black ink, appearing to be "Li Qingmin", written over the stamp.

5th, March 5, 2013

TANZANIA



Certificate of Incorporation

Section 15

No 88077

I HEREBY CERTIFY THAT

SINO ENERGY CO.LIMITED

.....

.....

is this day incorporated under the Companies Act, 2002 and that the Company is Limited.

Given under my hand at Dar es salaam

this 13TH day of DECEMBER**TWO THOUSAND AND ELEVEN.**

.....


Asst. Registrar of Companies

Plot Lease Agreement

Party A: Emmanuel Stephen Milwano

Address: P.O. box 66 Mpanda, Katavi

Party B: Sino Energy Co. Ltd

Address: 6B, Blue Lagoon, Plot No. 1509, Msasani Peninsula, Dar es Salaam

General Manager: Li Guomei

WHEREAS Party A is the legal owner of the plot for lease (as defined below) and intends to let the plot for lease to Party B and Party B intends to rent the Plot for lease from Party A;

NOW in accordance with the laws of the United Republic of Tanzania and other relevant stipulations and with reference to current practices in Tanzania, both parties reach the following unanimously with regard to the leasing of the plot:

1. Definition

1.1 Plot for lease: refers to the plot which is defined by border coordinates as follows:

- | | | |
|----|----------------|-----------------|
| a. | 06° 55' 55.66" | 030° 35' 38.40" |
| b. | 06° 55' 55.66" | 030° 36' 59.72" |
| c. | 06° 56' 08.52" | 030° 36' 59.72" |
| d. | 06° 56' 08.52" | 030° 35' 38.40" |

1.2 Supporting facilities: the following two areas are not included in this Agreement:

- (1) Power supply, water supply, telecommunication and gas pipes;
- (2) Drainage of rain water, waste water drainage pipes and connections;

1.3 Periodic Year: In this Agreement, it refers to 1st March of the preceding year to 28st February of the following year.

2. The legal status of both parties

2.1 Party A is an economic entity approved by the state, doing mine Processing in Tanzania. And it is incorporated in Tanzania.

2.2 Party B is a citizen of Tanzania,

3. Use of Plot for lease

Usage of the plot: the plot shall be used for mine processing activities and dwelling, storage, and other uses which are closely related to the processing activities. Usages irrelevant to the processing activities are not allowed.

4. The Lease Period

- 4.1 Party B shall rent the Plot for lease for a period of ten years from 1st March 2013 (hereinafter referred to as “the Date of Commencement of Lease”) to 28st February 2023 (hereinafter referred to as “the Expiry Date”).
- 4.2 During the lease period, the right of use of the plot for lease shall belong to Party B. Its lawful rights and interests shall be protected by state laws.

5 Rent for the factory lot, property management fee and the mode of payment

- 5.1 Rent for the plot shall be thirty thousand dollars per year.
- 5.2 The payment should be made at the beginning of each periodical year.
- 5.3 The payment shall be made either in form of cash or cheque.

6. Other expenses for the plot for lease

Property taxes and any other government charges on the land shall be paid the party A.

7. Hand over of factory lot for lease

- 7.1 Party A shall hand over the factory lot for lease to Party B on 1 March 2001 (referred to as “the date of hand over” below).
- 7.2 Before the date of handover, Party A shall clear the plot to make it suitable for the usage, and Party B shall be allowed to go into the ground to check whether the job of clearing is properly done.

8. Sub-lease

Sub lease of the plot is strictly not allowed by any party.

9. Extension of contract

Upon expiry of the lease period of the plot, Party B may apply for extension. To apply for an extension, Party B shall satisfy the following conditions:

- (1) Written application for extension should be delivered to Party A at least three months before the expiry of the prevailing lease;
- (2) Should the extension exceed the operational period, Party B shall also submit approval document from the Examining and Approving Department for Investment indicating its consent to the extension of Party B's operational period. Such document should be delivered to Party A together with the document mentioned in the previous clause;
- (3) Both Parties A and B have agreed on the rent of the plot for lease.

If another party offers the same rent, Party A shall lease the plot to Party B other than the third party.

10. Liability for default

10.1 Unless otherwise stated in this Agreement, any of the following events shall constitute a default by Party A:

- (1) Failure to hand over the plot for lease to Party B by the date of hand over;
- (2) The factory provided fails to comply with the conditions stipulated in this Agreement;
- (3) Carry out works in the plot for lease without informing Party B in advance, thus causing damages to Party B's normal production operation;
- (4) Violation of other articles and clauses of this Agreement.

10.2 Unless otherwise stated in this Agreement, any of the following events shall constitute a default by Party B:

- (1) Sub-lease of the plot
- (2) Failure to return the factory to Party A in according with provisions;
- (3) Violation of other articles and clauses of this Agreement.

10.3 If any of the events described above occurs, the defaulting party shall pay penalty to the other party. The penalty shall be calculated on a daily basis. The method of calculation is as follows:

- (1) The daily penalty shall be 0.3% of the annual rent.
- (2) Number of days of default = Number of calendar days from the day of

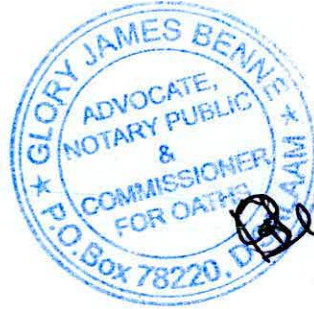
- occurrence of default to the day the default is rectified;
- (3) Amount of penalty = daily penalty × number of days of default.

Party A's Signature:

Fisher

Party B's Signature and stamp:

[Handwritten signature]



Benne

Witnessed by:



Unclaimed refund beyond three years will be forfeited



4

TANZANIA INVESTMENT CENTRE

Shaaban Robert Street, P.O. Box 938, Dar Es Salaam, Tel. +255 22 2116328-31, Fax: +255 22 2118253

RECEIPT REC010876

No. 000150

Received from : **SINO ENERGY CO. LTD**

Address **P.O. Box 11461 DSM**

Received the sum of (In words): **SEVEN HUNDRED FIFTY AND ZERO ONLY**



Executive Director
Tanzania Investment Centre



Being payment in respect of: **CERTIFICATE OF INCENTIVES FEES**

Amount : **USD 750.00**

Cash / Cheque No: **D/deposit 5/4**

Date : **05-APR-2013**

BUisso

Receiving Officer

TIC

(5)

Sino Energy Company Limited

6b, Blue Lagoon, Plot No. 1509 Msasani Peninsula, DSM
P.o.box: 11461, Dar es Salaam, Tel: +255 769 689999

Commissioner for Customs & Excise,
Tanzania Revenue Authority,
P.O. Box 9053,
DAR ES SALAAM

30 July 2013

UFS
Executive Director,
Tanzania Investment Centre,
P.O. Box 938,
DAR ES SALAAM



Received on
30/7/13
Ma
TIC/TIC

Dear Sir/Madam,

**RE: DUTY/VAT EXEMPTION ON THE CAPITAL/DEEMED
CAPITAL GOODS OF CERTIFICATE OF INCENTIVES
NO. 042408 Serial No.00219798**

We are TIC approved project with Certificate of incentives No: **042408** Serial No 00219798 which is valid up to April 2016.

The company has been registered with objectives of **Copper Processing**.

Attached with this application letter, please find a list of Capital/Deemed Capital Goods, certificate of incentives, and photocopy of tin.

Yours sincerely

Li Guomei
Managing Director



Li Guomei

copy of this cert
of the original
signature
date 14/2/03



No 00219798

For: Executive Director
Tanzania Investment Centre THE UNITED REPUBLIC OF TANZANIA

Certificate of Incentives

(Section 17 of the Tanzania Investment Act, 1997)

No: 042408

This is to certify that

SINO ENERGY CO. LTD

of address P.O. BOX 11461

DAR ES SALAAM


has been granted a Certificate of Incentives to invest in a new, ~~XXXXXXXXXXXXXXXXXXXX~~
~~XXXXXXXXXXXX~~ enterprise known as

SINO ENERGY CO. LTD

Which is located at ITUNYA, NKASI DISTRICT

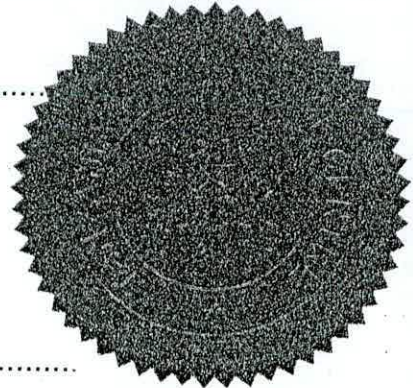
KATAVI

Further particulars required by Section 17 of the Tanzania Investment Act are set out overleaf.


Ag. Executive Director

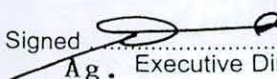
Tanzania Investment Centre
P.O. Box 938, Dar es Salaam

Dated 16TH APRIL 2013



This Certificate is issued in accordance with the provisions of Section 17 of the Tanzania Investment Act, 1997 and subject to the conditions prescribed under item 14 and 15 hereafter:—

1. Shareholders
- | | Nationality | Shareholding (%) |
|---------------------------------|------------------|------------------|
| <u>Emmanuel Stephen Milwano</u> | <u>Tanzanian</u> | <u>10</u> |
| <u>Guo Mei Li</u> | <u>Chinese</u> | <u>36</u> |
| <u>Ying Hua Lin</u> | <u>Chinese</u> | <u>54</u> |
2. Proposed Activities : To establish a project for copper processing in Mpanda
3. Sector: Manufacturing Subsector Copper Processing
4. Investment cost: Foreign USD 3.8m. Local - Total USD 3.8m.
5. Project Financing:
Equity USD 1m. Loans USD 2.8m. Total USD 3.8m.
6. Source, terms and conditions of loan.....
7. Assets to be invested:
- | Capital items: | Foreign | Local | Total |
|----------------|------------------|----------|------------------|
| | <u>USD 3.8m.</u> | <u>-</u> | <u>USD 3.8m.</u> |
8. Technology Agreement None
9. Date of TIC Registration: 2nd April 2013
10. Implementation period April 2013 - March 2016
11. Operative date. April 2016
12. Investment Incentive Grade: As defined in part III Section 19 (1), (2) and Section 20 of the Tanzania Investment Act, 1997
- | | | |
|-------|-----------------------------------|--|
| (i) | Applicable Import Duty | <u>And VAT as per Customs Tariff Act, 1976 & VAT Act, 1997</u> |
| (ii) | Applicable with-holding Tax | <u>As per Income Tax Act, 2004 (as amended)</u> |
| (iii) | Eligibility of Capital Allowances | <u>As per Income Tax Act, 2004 (as amended)</u> |
13. Protection of Investment, Arbitration and Transfer of Foreign Currency: as defined in part III Section 21, 22 and 23 of the Act.
14. Conditions attached to this Certificate of Incentives
- Date of Commencement of investment has to be notified to the Centre.
 - Certificate not to be transferred, assigned or amended
 - Failure to commence implementation within two years invalidates Certificate
 - Failure to operate investment must be notified to the Centre
 - Changes in shareholding, project activities and level of invested capital must be notified to the centre
15. Additional conditions attached to Certificate
Finished goods are not allowed under this Certificate

Signed 
Ag. Executive Director

CTIN.: 1769797

ISO 9001 : 2008 Certified



TANZANIA REVENUE AUTHORITY

CERTIFICATE OF REGISTRATION

FOR

TAXPAYER IDENTIFICATION NUMBER (TIN)

(ISSUED UNDER SECTION 133 OF THE INCOME TAX ACT NO. 11 OF 2004)

THIS IS TO CERTIFY THAT

SINO ENERGY CO.LIMITED

has been registered with the Tanzania Revenue Authority and assigned the Taxpayer Identification Number

115-720-600

16-12-2011

with effect from


P. N. Kassera

OFFICIAL SEAL

COMMISSIONER FOR DOMESTIC RE

Item No.	Category	Item name	quantity	Remarks
01	Generator	75kw generator	3 pcs	
		50kw generator	3 pcs	
		30kw generator	3 pcs	
		12kw generator	2 pcs	
02	Rock breaker		10 pcs	
03	Air compressor		20 pcs	
04	Water pump		20 pcs	
05	Chisel drill		40 pcs	
06	Power Cable		30000 meters	
07	Pneumatic pick		30pcs	
08	Pillar drill		5pcs	
09	Bench cutter		3pcs	
10	Prefab house	Toilet pan	40pcs	
		freezer	5pcs	
		Electric fan	40pcs	
		Square iron	100pcs	
		Prefab sheets	2000pcs	
11	Mineral processing line	Square iron	200pcs	
		Ore separation equipment	10sets	
		Carpentry tools	2 sets	
		Welding machine	5pcs	
		Conveying belt	3 sets	
		Electrical products	10 sets	
		Drill stem	1000pcs	
		Iron pipe	80 pcs	
		H-iron	50 pcs	
		Channel iron	60 pcs	
		Angle iron	30 pcs	
		Iron rod	200 pcs	
		Spring iron rod	100 pcs	
12	Drill rig		10 sets	
13	Heavy equipment	Heavy duty truck	10 pcs	
		Excavator	5pcs	
		Bull dozer	5pcs	
		Pickup	4pcs	
		Loader	4 pcs	
		Front shovel		



Nº 00219798

THE UNITED REPUBLIC OF TANZANIA

Certificate of Incentives

(Section 17 of the Tanzania Investment Act, 1997)

No: 042408

This is to certify that

SINO ENERGY CO. LTD

of address P.O. BOX 11461

DAR ES SALAAM

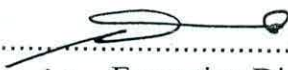
has been granted a Certificate of Incentives to invest in a new, ~~XXXXXXXXXXXXXXXXXXXX~~ enterprise known as

SINO ENERGY CO. LTD

Which is located at ITUNYA, NKASI DISTRICT

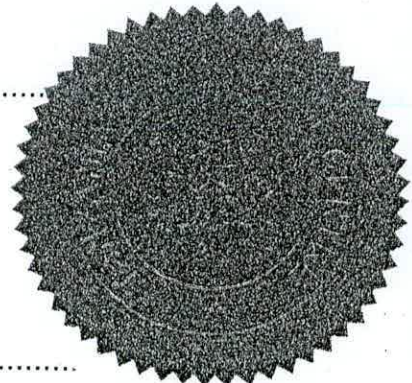
KATAVI

Further particulars required by Section 17 of the Tanzania Investment Act are set out overleaf.


Ag. Executive Director

Tanzania Investment Centre
P.O. Box 938, Dar es Salaam

Dated 16TH APRIL 2013



This Certificate is issued in accordance with the provisions of Section 17 of the Tanzania Investment Act, 1997 and subject to the conditions prescribed under item 14 and 15 hereafter:—

1. Shareholders

	Nationality	Shareholding (%)
Emmanuel Stephen Milwano	Tanzanian	10
Guo Mei Li	Chinese	36
Ying Hua Lin	Chinese	54

2. Proposed Activities : **To establish a project for copper processing in Mpanda**

3. Sector: **Manufacturing** Subsector **Copper Processing**

4. Investment cost: Foreign **USD 3.8m.** Local **-** Total **USD 3.8m.**

5. Project Financing:

Equity..... USD 1m.	Loans..... USD 2.8m.	Total..... USD 3.8m.
----------------------------	-----------------------------	-----------------------------

6. Source, terms and conditions of loan.....

7. Assets to be invested:

Capital items:	Foreign	Local	Total
	USD 3.8m.	-	USD 3.8m.

8. Technology Agreement **None**

9. Date of TIC Registration: **2nd April 2013**

10. Implementation period **April 2013 - March 2016**


11. Operative date..... **April 2016**

12. Investment Incentive Grade: As defined in part III Section 19 (1), (2) and Section 20 of the Tanzania Investment Act, 1997
 - (i) Applicable Import Duty **And VAT as per Customs Tariff Act, 1976 & VAT Act, 1997**
 - (ii) Applicable with-holding Tax **As per Income Tax Act, 2004 (as amended)**
 - (iii) Eligibility of Capital Allowances **As per Income Tax Act, 2004 (as amended)**

13. Protection of Investment, Arbitration and Transfer of Foreign Currency: as defined in part III Section 21, 22 and 23 of the Act.

14. Conditions attached to this Certificate of Incentives
 - (i) Date of Commencement of investment has to be notified to the Centre.
 - (ii) Certificate not to be transferred, assigned or amended
 - (iii) Failure to commence implementation within two years invalidates Certificate
 - (iv) Failure to operate investment must be notified to the Centre
 - (v) Changes in shareholding, project activities and level of invested capital must be notified to the centre

15. Additional conditions attached to Certificate
Finished goods are not allowed under this Certificate

Signed 
 Ag. Executive Director

6

TICC/PP.10/042408/6

06/08/2013

Commissioner for Customs & Excise,
Tanzania Revenue Authority,
P.O. Box 9053,
DAR ES SALAAM

Dear Sir,

**RE: DUTY/ VAT REMISSIONS ON CAPITAL/ DEEMED CAPITAL
GOODS – CERTIFICATE OF INCENTIVES No: 042408**


M/S Sino Energy Co. Limited is a TIC registered company with
certificate of incentives **No. 042408** which is valid up to **March 2016**

The company has been registered with objectives of establishing a project
for Copper Processing in Mpanda.

Attached herewith please find a list of Capital/ Deemed Capital Goods for
Duty/ VAT remissions approval.

Yours sincerely

TANZANIA INVESTMENT CENTRE



N.A. Senzia

FOR: EXECUTIVE DIRECTOR