

GREENLIFE CHEMICAL INDUSTRIAL LIMITED

ENGRUKA SODA ASH PROJECT DEVELOPMENT BUSINESS PLAN

15 December 2023



Executive Summary

1. Project Introduction

This new project of **ENGRUKA SODA ASH PROJECT** will be invested by GREENLIFE CHEMICAL INDUSTRIAL LIMITED, focusing on manufacturing Soda ash. The total plan is including:

- ◆ Phase I with capacity of 500,000 tons/year soda ash;

Soda ash is one of key basic chemical raw material and is known as the "Mother of Chemical Industry". Its application fields are very wide, such as glass, daily chemicals, fine chemicals, etc. The project will make up for the vacancy of local soda plant in Tanzania and strongly promoting the industrialization of Tanzania.

2. Factory Address and Land Needed

Engruka basin, Monduli district, Arusha Region, Tanzania.

The land needed is 1000 hectare in total.

3. Investment Amount

The estimated investment amount for the **ENGRUKA SODA ASH** plant will be USD 500 Million(Phase I) .

4. Market Information

Region	Country	Population (million)	Ave.GDP (usd)	Import Qty (MT)	
				2021	2022
East Africa	Ethiopia	112	1080	16,591	22,769
	Kenya	47.56	1782	10,015	9,764
	Tanzania	61.74	1890	46,506	55,838
	Uganda	44.3	858	18,415	17,339
	Congo, D.R	99.95	380	15,418	9,315
East-South Africa	South Africa	59.62	6771	375,406	457,877
	Mozambique	27.22	620	366	413
	Malawi	13.9	250	113	33
	Zimbabwe	16.9	741	3,990	530
	Zambia	18.9	1305	9,041	15,749
West Africa	Nigeria	222	2062	83,573	108,766
	Cameroon	28.61	1580	2,423	3,694
	Senegal	17.74	1409	2,323	6,573
	ghana	32.83	2545	3,764	12,262
	Côte d'Ivoire	29.38	2506	4,239	5,944
	Guinea	15.04	1338	16	168
Middle East	Egypt	104	3780	347,699	495,250
	Saudi Arabia	36.17	23500	195,118	328,404
	UAE	9.5	47700	187,237	175,412
	Qatar	2.98	61800	3,369	3,894
	Oman	5	19000	49,447	41,055
	Kuwait	4.46	27900	21,966	22,098
	Syrian	19.29	870	30,010	20,474
	Bahrain	1.5	26200	3,328	2,097
India	india	1410	2280	690,397	532,762
Total				2,120,770	2,348,480

Table No.1 is showing import Qty in MT by Country

The total import volume of soda ash in the potential markets in the above table is about 2.3 million tons. The main importing countries are India, South Africa, the Middle East and Egypt which can be used as potential target markets for this project. However, we must see that the competition for soda ash supply in target regions is also very fierce. Turkish trona, Botswana trona and European synthetic alkali have large market shares and also price advantages in the above regions..

5. Employment Creation

3000 direct local employment and 3,950 indirect local employments (Including Transport\Labor\Distributors) for the Soda ash plant.

6. Technology Source

The technology of trona mining is divided into: open-pit mining and drilling dissolved brine mining.

Trona production process: Using natural alkali minerals as raw materials to produce soda ash. The main processing methods of trona include monohydrate alkali production technology, sodium carbonate monohydrate method, and sodium sesquicarbonate method. This project will adopt monohydrate alkali production process route for drilling brine extraction based on local actual conditions and brine indicators.

Monohydrate alkali production process: Alkali monohydrate method uses trona brine or trona ore as raw material, refines the brine, decomposes sodium bicarbonate and then evaporates and crystallizes to obtain sodium carbonate monohydrate crystals, which are then calcined to obtain heavy soda ash.

7. Local Content

From the value chain of factory construction, raw material, supply chain, manufacturing and packaging, sales and distributors, all points will involve 99% percent of local people

8. Implementation Schedule

The Phase I will start produce at the end of year 2025. The whole project will be implemented within five years.

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1 Project Profile

1.1 Project Objective

Tanzania is endowed with huge deposit of soda ash at Engaruka Basin in northern part of Tanzania about 190 km north-west of Arusha town. The Engaruka Basin is located about 58 km south-east of Lake Natron in the East Africa Rift Valley System. The basin is very flat area extending for about 18 km in a north-south and 13 km in an east-west direction. It is an internally drained basin which is fed by water from streams, rivers and ion-rich underground springs flowing from the surrounding volcanic cones and up thrown blocks.

NDC has conducted a drilling exploration and preliminary brine simulation at the Engaruka Basin. Based on the size of the basin and the thickness of the aquifer, it is estimated that there is a total of 4,680,000,000 m³ of brine in the basin. This brine is being replenished at a rate of 1,875,000 m³/year.

The total planned investment of the trona project is \$500 million, including: fixed asset investment of \$410 million, accounting for 82% of the total project investment; working capital of \$90 million, accounting for 18% of the total project investment. The total plan is including:

- ◆ Phase I with capacity of 500,000 tons/year soda ash;

The annual operating income of the first phase is \$ 80 million,, the total profit is \$45 million , the investment return period is 11 years, and it will provide 3000 jobs.

1.2 Background

1.2.1 Current status of Tanzania Soda Ash industry

Currently, There is no soda ash manufacturing plant in Tanzania, and all the soda ash required was imported. The import data was around 52000 tons/year. It should be noted that after 2024, two glass factories in Tanzania will be completed and put into operation, and the use of soda ash is expected to increase by 150,000 tons/year. It is become more and more important to development the Soda ash manufacture plant for Tanzania industry.

1.2.2 Convenience of Raw materials and Resources

1.2.2.1 Raw Materials

Major of Soda ash Raw materials are Brine containing sodium carbonate. According to the NDC survey report, Based on the size of the basin and the thickness of the aquifer, it is estimated that there is a total of 4,680,000,000 m³ of brines in the basin. This brine is being replenished at a rate of 1,875,000 m³/year.

1.2.2.2 Energy

The energy required for process production mainly comes from coal. Tanzania has very abundant coal resource reserves. Most of the operation coal mines are located in the southwest and can be transported to the site by truck.

1.2.3 Policy Support

China has become Tanzania's largest trading partner, largest source of foreign investment and largest contractor due to Tanzanian government's strong support for foreign investment. The good investment policy brings an upsurge in investment amount in Tanzania in recent years especially in 2021 and 2022. The GREENLIFE CHEMICAL Soda ash project is also based on positive expectations for the stability of Tanzania's national policy in the next ten years. We are convinced that cooperation with NDC will achieve a win-win situation. We regard Tanzania as the best investment destination and the most potential country in East Africa.

1.2.4 Population

Tanzania Population has been projected to grow by 2.8% from about 56 million currently to about 90 million by 2035 (NBS). As the population grows, Tanzania's chemical, light industry and glass building materials industries will develop accordingly, and the demand for soda ash will inevitably increase.

1.3 Investor Information

GREENLIFE CHEMICAL INDUSTRIAL LIMITED

◆ Profile

GREENLIFE CHEMICAL INDUSTRIAL LIMITED is 100% owned by Sunda Group. Sunda was founded in 2000, it has been focusing on emerging markets such as Africa (countries in sub-Saharan Africa) and South America. SUNDA's core company

philosophy is to improve the quality of life of people in emerging countries. Now, SUNDA has built a strong R&D team which provides advanced technology, bringing high-quality building materials, fast-moving consumer goods, daily household goods and Chemical products.

◆ Business

Sunda's businesses are covering more than 24 countries and regions around the world, the company has established a complete industrial chain of one-stop procurement, transportation, storage management and independent marketing network.

◆ Industrial Manufacture

Ceramic Factories: 7; Glass Factory 1+1; Baby diaper & Sanitary napkins : 11; Washing powder: 2; Hardware :5; Soap :1

Country	BMMC			FMCG				HHMC
	Ceramics Factory	Sanitary ware factory	Glass Factory	Detergent Factory	Baby Diaper & sanitary pad Factory	Soap Factory	Drinks & Beverage	Hardware Factory
Ghana	√ (6 Lines)	In construction		√	√ (11 Lines)	√	On Schedule	√
Kenya	√ 2 factories	In construction			√			
Tanzania	√		In construction	√	√			
Sénégal	√				√			√
Cameroon	√				√			
Nigeria					√			
Zambia	√				√			
Guinea					√			√
Côte d'Ivoire	On Schedule				On Schedule		On Schedule	√
Benin					√			
Uganda					√			
PERU	On Schedule							

◆ Revenue

In 2022, The Revenue of Sunda Group is 2 Billion USD, Annual Revenue growth rate is 26~50% in past four years.

◆ Employees

Sunda Group has a total of 17,000 employees, 90% of whom are African local employees.

◆ Glories

China A tax credit grade certificate; China Customs Senior Certificate; Guangdong Provincial Enterprise of Honoring Contract and Keeping Credit; ISO9001 certification; 2008 international quality management system certification.

2 Business Description and Structure

2.1 Sources of technology

Overview:

◆ Concept:

Trona is a soluble salt mineral. Its main components are sodium carbonate and sodium bicarbonate. In essence, they are not "alkali" but "salt". Non-metallic minerals whose main components are sodium carbonate and sodium bicarbonate are collectively called trona. A common type of trona is sodium sesquicarbonate ($\text{Na}_2\text{CO}_3 \cdot \text{NaHCO}_3 \cdot \text{H}_2\text{O}$). At present, the so-called trona generally refers to the salt minerals of Na_2CO_3 and NaHCO_3 .

◆ Process introduction:

The technology of trona mining is divided into: open-pit mining and drilling dissolved brine mining; Trona production process: Using natural alkali minerals as raw materials to produce soda ash. The main processing methods of trona include brine carbonization method, sodium carbonate monohydrate method, and sodium sesquicarbonate method.

1) Alkali monohydrate production process: Alkali monohydrate method uses trona brine or trona ore as raw material. The brine is refined, sodium bicarbonate is decomposed and then evaporated and crystallized to obtain sodium carbonate monohydrate crystals, which are then calcined to obtain heavy soda ash.

2) Sesquialka production process: The sesquialka method uses sodium sesquicarbonate ($\text{Na}_2\text{CO}_3 \cdot \text{NaHCO}_3 \cdot 2\text{H}_2\text{O}$), the most common component in trona ore, as the main raw material. First, the natural sesquialkali ore is crushed, then dissolved in water and removed. After sedimentation, activated carbon is used to remove organic impurities in the solution, and then filtered, evaporated, crystallized, and calcined to obtain a light soda ash product.

3) Carbonization generation process: The brine carbonization method uses brine from trona lake water as raw material. Through the carbonation process, sodium carbonate and other sodium salts in the brine are first converted into sodium bicarbonate, and then the sodium bicarbonate is crystallized from the solution. Then filter and calcine to obtain light soda ash. Light soda ash is hydrated and dried to obtain heavy soda ash.

This project adopts the No.1--**Alkali monohydrate production process** based on local actual conditions and brine indicators.

2.2 Production Process Technology Solutions and Capacity

2.2.1 Original brine index:

No.	Materials	unit	concentration
1	Na ₂ CO ₃	%wt/wt	18.84
2	NaHCO ₃	%wt/wt	1.03
3	NaCl	%wt/wt	7.79
4	Na ₂ SO ₄	%wt/wt	0.008
5	KCL	%wt/wt	0.19

2.2.2 Production Capacity:

Soda ash: 500,000 tons/year

2.2.3 Quality standards:

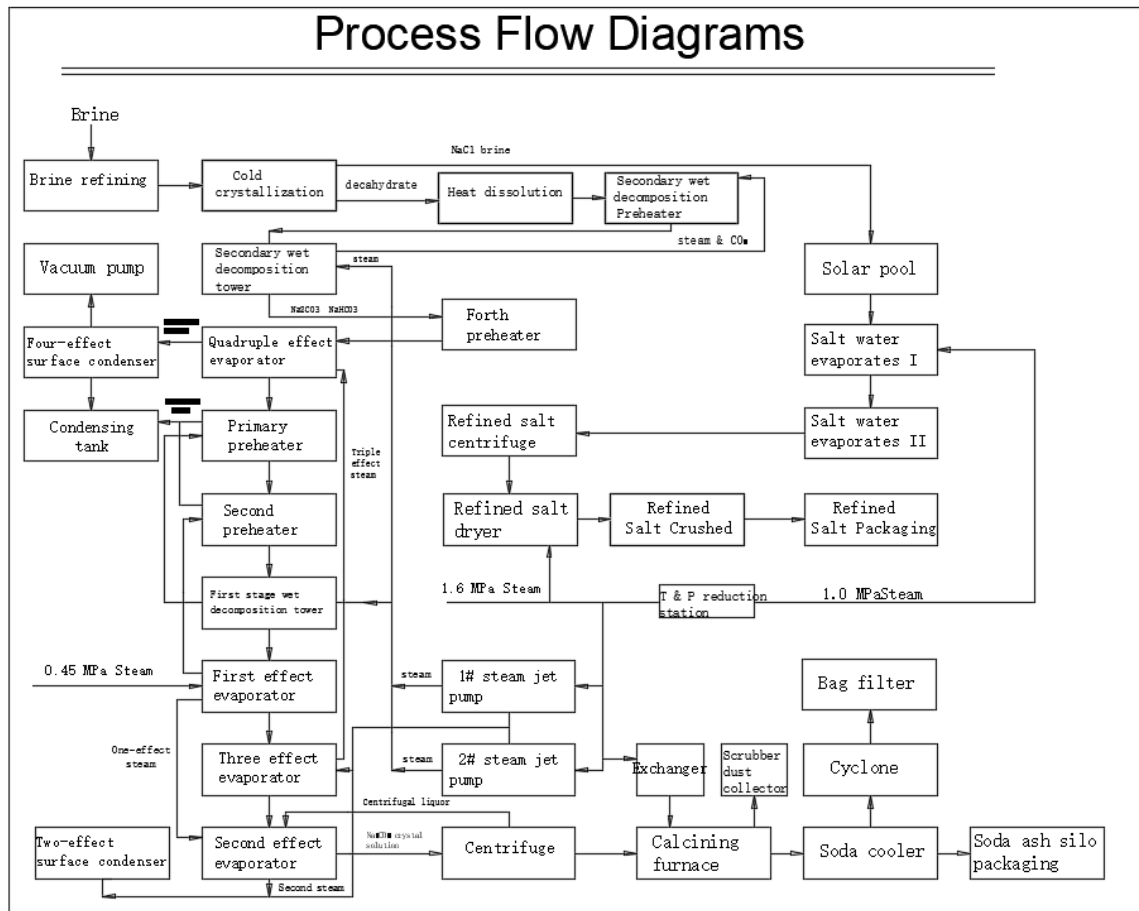
- ◆ Soda ash index implementation standard: GB/210-2022
 - Class I is heavy sodium carbonate for special industrial use;
 - Class II is sodium carbonate for general industrial use.

- ◆ Refined salt quality implementation standards:

GB/T5461-2016

Items		Index			
		Class I	Class II		
			Superior	Grade One	Quallified
Total alkali(Na ₂ CO ₃ ,Dry) ω/%	≥	99.4	99.2	98.8	98.0
Total alkali(Na ₂ CO ₄ ,Wet) ω/%	≥	98.1	97.9	97.5	96.7
NaCl ω/%	≤	0.30	0.70	0.90	1.20
Fe ω/%	≤	0.0025	0.0035	0.0055	0.0085
SO ₄ ω/%	≤	0.03	/	/	/
Insoluble ω/%	≤	0.02	0.03	0.10	0.15
Bulk density/(g/mL)	≥	0.85	0.9	0.9	0.9
Granularity	180μm screenings ω/% ≥	75.0	70.0	65.0	60.0
	1.18mm screenings ω/% ≤	2.0	/	/	/

2.3 Alkali monohydrate Production process



◆ **Brine extraction:** Brine is extracted from the subsurface aquifer with a deep well pump. The flow rate of the pump is 30m³/h (20 units), which is adjusted according to the brine conditions in each well. The extracted brine is sent to the brine storage tank through the brine pipeline.

◆ **Refining:** The brine in the brine storage tank is transported to the clarification barrel through a pump, and the refining agent is added to the clarification barrel. The precipitated calcium, magnesium, organic matter and other impurities in the brine are separated from the clear liquid. The sediment passes through the filter press, and the clear brine liquid enters the cold water. Crystallization process.

◆ **Cold crystallization:** The brine enters the cold crystallization tank. After cooling, 10H₂O Na₂CO₃ crystallizes out. It is dissolved by heating to become fine brine and enters subsequent evaporation. The main component of the clear liquid is sodium chloride. It reaches a saturated solution by drying and then enters the second effect. The evaporator evaporates, the sodium chloride crystals are separated by a centrifuge, the packaged refined salt product is dried, and the centrifuged mother liquor is returned to

the first-effect evaporator for re-evaporation.

◆ **evaporation:** The main material flow direction is: refined brine → second-level preheater → second-level wet decomposition tower → four-effect evaporation preheater → four-effect evaporator → first-level preheater → second-level preheater → first-level wet decomposition tower → First effect evaporator → three effect evaporator → second effect evaporator. That is, the fine brine sent from the cold crystallization process is sent to the secondary preheater by the fine brine pump for preheating and then enters the secondary wet decomposition tower. After decomposition, part of the NaHCO_3 in the solution is sent to the preheater by the pouring pump. Four-effect evaporator, the fourth-effect completed liquid enters the first-level preheater and the second-level preheater and is sent to the first-level wet decomposition tower. The qualified liquid of the first-level wet decomposition is sent to the first-effect evaporator. The first-effect evaporation completed liquid Introduce the three-effect evaporator, and then pour the three-effect evaporator into the second-effect evaporator to continue evaporation. Finally, the alkali monohydrate crystallized by the second-effect evaporator is then centrifugally separated by subsequent evaporation to obtain alkali monohydrate, and heavy soda ash is obtained through subsequent calcination and drying. Product, the centrifuged mother liquor returns to the II effect evaporator after passing through the mother liquor preheater.

◆ **Calcination Process:** The alkali monohydrate from the evaporation and crystallization process is fed into the calciner. After being decomposed and dried by indirect heating with medium-pressure steam, the soda ash is sent from the end of the furnace to a scraper conveyor through a star unloader, and then sent to the cool alkali equipment for cooling, and finally enters the finished product. packaging system.

The furnace gas in the calcining furnace is led out from the furnace head gas outlet box and enters the cyclone separator for dust removal. The alkali dust is returned to the calcining furnace through the spiral reamer. The furnace gas enters the washing tower and is washed in counter-current with the washing water coming down from the top of the tower. After washing, The furnace gas is exhausted after passing through the cyclone mist eliminator. The medium-pressure steam sent from the boiler enters the heating system of the calciner from the furnace end. It exchanges heat with soda ash through the finned tubes in the furnace. The generated condensed water goes to the condensed water storage barrel. After being flashed by the flasher, part of it becomes The steam enters the low-pressure steam pipe network, and part of the condensed water

is sent back to the thermal power plant.

2.3.1 Main raw and auxiliary material consumption:

Main raw and auxiliary material consumption of 500,000 tons of soda ash (calculated as 7,200 hours per year)

No.	Items	Unit consumption	Hourly consumption	Annual consumption
1	Brine 17% (m ³)	5.9	409.7	2950000
2	NaOH (30%) t	0.0	0.3	1950
3	Power (kwh)	340.0	23,617.0	170038912
4	Coal (t) 6500kcal	0.2	11.3	81231
5	Packaging(Pcs)Na ₂ CO ₃	25.0	1,736.1	12500000
6	Packaging(Pcs)NaCl			
7	Employee	250		

2.4 Device Composition

The main production equipment includes: See the table below for details.

No.	Devicename	Specification	Qty	Unit
1	Submersible pump	Q=30m ³ /h,H=400m	20	Pcs
2	Brine pump	IJ250-200-400,Q=400-300m ³ /h,H=40-55m ,1450r/min,1.6MPa,160KW Motor: Y2-315L1-4W	3	Pcs
3	Wet decomposition tower I	Φ3400X36000; texture: 304 Hight of padding 20m;Type of Padding ZUPAK250Y	1	Pcs
4	Wet decomposition tower II	Φ5200X30000; texture: 304 Hight of padding 15m;Type of Padding ZUPAK125Y	1	Pcs
5	Efficiency falling film evaporator I	φ8500×6000; Heating chamber specification S=1627 m ²	1	Pcs
6	Forced circulation pump	IJ350-350-400; Q=1155m ³ /h; H=15m	2	Pcs
7	Effect crystallizer II	φ6096×9754 S=1170m ²	2	Pcs
8	Circulating pump	ZWXESA-MD900 Q=8200m ³ /h; H=4.22m	4	Pcs
9	III-Effect evaporator	φ9296×7900;S=783m ²	1	Pcs

10	Circulating pump	ZWXESA-MD1000 Q=1860m ³ /h; H=15m	2	Pcs
11	IV effect falling film evaporator	φ9500×6000; S=2324m ²	1	Pcs
12	Circulating pump	IJ450-400-450D	1	Pcs
13	II-effect condenser	φ1000×6000	1	Pcs
14	IV-effect condenser	S=2600m ²	2	Pcs
15	IV-effect condenser condensate pump	Q=85-105m ³ /h H=50-60m 6NG6 motor N=37Kw n=2900r/min Y200L2-2	2	Pcs
16	Centrifuge	H1000;Motor ILA6 2834AA N=90KW Rotate speed 1480rpm Oil pump motor N=0.37KW	2	Pcs
17	Mother liquor circulating pump	IJ125-80-250A Q=70~150m ³ /h H=50~67m	2	Pcs
19	water ring vacuum pump	Q≥12000m ³ /min inlet pressure 30kPa Temp 60°C Discharge pressure 1000mbar 2BE3 420-2ZY4 motor N=250Kw YJS400-4 6Kv	3	Pcs
20	Cooling tower	NTG-4000T, FRP Q=4000m ³ /h t=10°C	2	Pcs
21	Charging pump	Q=3170m ³ /h 24SH-13 H=38m NPSH 6.5m Motor YKK560-6 N=500Kw 6kV	4	Pcs
22	Circulating pool	V 2034.9 m ³	1	Pcs
23	Calcining furnace	φ2500×27000 Production 800t/d Heat exchanger≥3000 m ² Furnace speed 5.47r/min (Max) 0.26r/min(Min) Main reducer ratio 31.5 ZSY500-31.5-V TBWD9190-21-30Kw Motor N=30KW n=1500r/min speed ratio 23	2	Pcs
24	Furnace gas scrubber	φ2200×15618×14	2	Pcs
25	Fan	Q=10947m ³ /h motor 30kw; 9-19NO10D	2	Pcs
26	Screw conveyor	XWD8190-23-30 KW	2	Pcs
27	Heavy alkali belt	L=26.87m; W=800mm; Motor N=11KW	2	Pcs
28	Alkali cooling machine	TB-2; S=80 m ² ;ZL75-22-4-I Motor N=55KW Y250M-	2	Pcs
29	Crusher	Motor Y132 M2- 6 N =5.5 K W	1	Pcs

30	Scraper	MX52 L=16.4m; Motor Y225M-6 N=30KW Reducer ZSY200-25-I	1	Pcs
31	Bucket elevator	TBG450 H=23.2m; Motor Y180M-4 N=22KW Reducer ZSY200-25	1	Pcs
32	Cyclone dust collector	φ1500×5000	2	Pcs
33	Fabric filter	DMC432; Motor Y100L1-4 N=2.2KW Reducer RV90-30-FA	1	Pcs
34	Fluidized bed cooling soda furnace	GLWN12.0; Motor 1 Y112M-4 N=4KW Motor 2 Y90S-4 N=1.1K	1	Pcs
35	Blower	Y9-26 N O 14D; motor Y355-4 N=250KW	2	Pcs
36	Induced draft fan	Y4-68 N O 11.2D; motor Y280M-4 N=90KW	2	Pcs
37	Air filter	GLQ-00 Treatment ability 40000 m ³ /h	2	Pcs
38	Scrubbing tower	φ2000×12375; Hight of padding 6m	2	Pcs
39	Plate heat exchanger	M15-MFML S=31.6 m ² P drop=100KP	1	Pcs
40	Product storage tank		4	Pcs
41	Automatic packaging machine		4	sets

2.5 Expected Employment Generation and Industry Influence

2.5.1 Direct local employment

Department	Numbers
Managing	45
Functional Department	164
Sales	185
Production line	1406
Labor	1200
Total	3000

In addition to above regular positions, GREENLIFE CHEMICAL INDUSTRIAL LIMITED Soda ash Plant will recruit 80 to 100 graduates every year. While enhancing

the factory's high-quality talent pool, it will contribute to college student employment and cultivate more young technical talents for this country

2.5.2 Indirect local job creation

Supplier & Mining labor	1000
Distributors and retailers	1000
Project constructing and installing	1000
Transporters	400
Customs clearance and logistics	50
Food service industry around the factory	500
Total	3950

2.5.3 Soda ash downstream industries bringing

According to the different process, the upstream raw materials of soda ash mainly include raw salt, limestone, synthetic ammonia, etc., and the fuel mainly includes thermal coal and natural gas. The downstream of soda ash mainly includes flat glass, photovoltaic glass, daily glass, bubble alkali, baking soda, sodium, detergent and other industries. Among them, heavy alkali is mainly used in the field of flat glass and photovoltaic glass, and the downstream of light alkali is more dispersed, generally used in daily glass, foam alkali, baking soda, sodium, detergent, alumina, lithium carbonate, monosodium glutamate and other fields.

After this project is completed and put into operation, **From soda ash industry to downstream glass, daily chemical, food industry will be effectively connected together to form a complete industrial chain.** However, Whether it is the daily chemical industry downstream of light alkali or the glass industry downstream of heavy alkali, Sunda Group's business will perfectly fit with it. Which will boost Tanzania's industrialization to a new level.

2.6 Local Contain (Value chain analysis)

2.6.1 Factory construction

The land surface clearing and land leveling, construction of workshop, and installment of equipment will all be main done by local staffs. The total project duration is around 2.5 years.

2.6.2 Raw material

99% of the raw materials (except the small special chemical) will be sourced locally in Tanzania. The main Raw materials are Brine, the demand of brine is around 310m³/h.

2.6.3 Supply chain

During the whole supply chain, including raw material purchasing, transportation packaging and warehousing, importing and exporting clearance and delivering, local staff are fully involved in this project. We will cultivate a plenty number of local supply chain management experts, who are key talents in Tanzania's manufacture field.

2.6.4 Manufacturing and packaging

As a factory with a complex production process, more than 1,000 labor are needed for processing the raw materials, operating the machines, picking and packaging. Technical experts for equipment operation and maintenance will come from China to Tanzania and bring these technologies to local workers. With the development and operation of the factory, we will cultivate a large number of industrial talents

2.6.5 Sales and distributors

The sales of the finished goods produced by the factory to the distributors and the terminal retail will be all completed by the local company.

2.7 Implementation Schedule (Phase One)

No	Item	Scheduled Days	Start Date	End Date
1	Project organization set up	30	2024.1.1	2024.1.31
2	Company registration	30	done	done
3	Detailed exploration and experimental analysis of underground brine	120	2024.1.30	2024.4.30
4	Potential land exploration	45	2024.4.15	2024.5.31
5	Land Purchase (Signing of Sales Agreement) and Land title /ML acquisition	60	2024.2.1	2024.3.31
6	Detailed report and license for hazard assessment and environmental assessment	30	2024.3.31	2024.4.30

7	Construction permit application	90	2024.3.1	2024.5.15
8	Project launching other permits done	90	2024.4.15	2024.6.15
9	Logging and land surface cleaning	120	2024.4.15	2024.6.15
10	Signing project designing contract	45	2024.4.15	2024.5.31
11	Production process designing	45	2024.3.1	2024.4.15
12	Architectural designing	120	2024.5.15	2024.9.15
14	Equipment designing	60	2024.5.30	2024.7.30
13	Electrical&Instrument designing	120	2024.6.15	2024.10.15
15	Land levelling	90	2024.7.15	2024.10.15
16	Civil works construction	45	2024.5.15	2024.6.30
17	Steelstructure&Equipments&Electric instrument procurement	360	2024.7.1	2025.6.30
18	Steel-structure&Equipments&Electric instrument Production	150	2024.6.15	2024.11.15
19	Steel-structure&Equipment&Electric instrument Shipping and Delivery	180	2024.7.10	2025.1.10
20	Steel structure Installation	180	2024.9.10	2025.3.10
21	Equipment&Electric instrument Installation	150	2024.9.30	2025.2.28
22	Coal Mining LEC application and operation	360	2024.9.30	2025.9.29
23	Commission	180	2024.9.15	2025.3.14
25	Start production formally (Trail Operation)	45	2025.10.10	2025.11.25
26	Start production formally	30	2025.12.24	

2.8 Environmental impact assessment

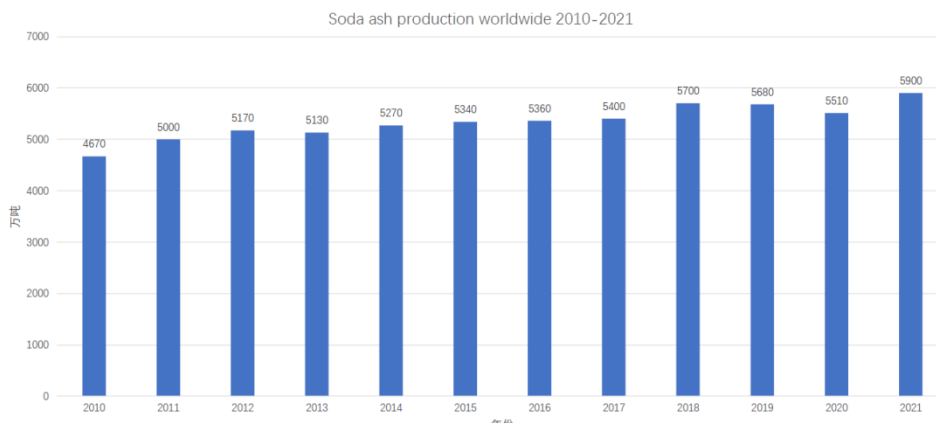
The construction of this project will be in conformity with the national and local industrial policies. GREENLIFE CHEMICAL ash Plan will take the advanced technology and equipment and adopt technically and economically feasible control measures to prevent pollutions. By stable discharge of pollutants up to the standard, the impact on the environment and the total amount of pollutants will be minimized, at the same time, this project will bring certain social and economic benefits after the implementation.

By making a feasible risk emergency plan and taking effective risk prevention measures, the environmental risk level is acceptable. Therefore, from the perspective of environmental protection, the construction of this project has environmental feasibility.

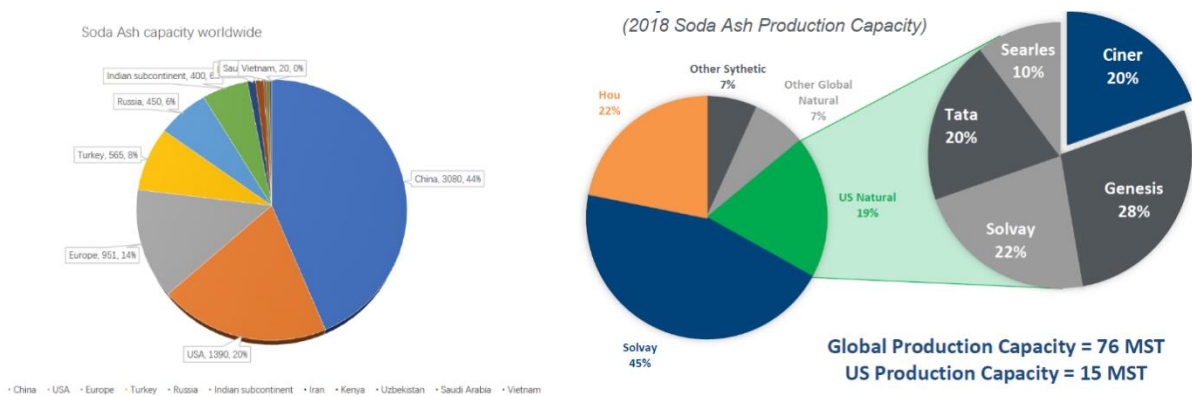
3 Market Analysis

3.1 Global supply resources

1) As of June 2022, the global capacity of 70.46 million tons, the demand of 63.6 million tons, of which the United States, Europe, Turkey combined capacity of 29.06 million tons, accounting for 73.3% of the total capacity of the world outside China. The world trade volume of soda ash is 17 million tons, of which the United States, Turkey and China are the top three export countries in the world.



2) 45% of the global soda ash is ammonia base, 22% diaconine and 26% trona. Currently, Tanzania import qty is only 55,000 tons/year, The demand will increase to 150,000 tons at 2024 due to the new glass factories established and operation. As a result, 70% of the production capacity still needs to be exported to overseas markets.



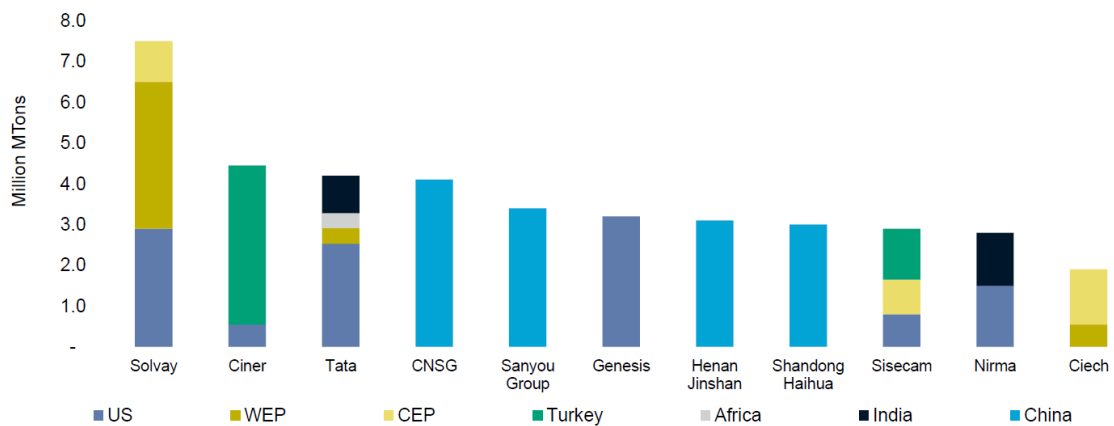
3) The United States: 100% trona, heavy alkali, most of the naked bulk carriers, the United States trona is mainly sent to the Americas and Asia, did not send to Africa, the reason not to Africa is mainly from the address location, sea freight, regional market policies and other considerations. At present, only LEADER and SOLVAY offer prices in Africa. LEADER has a lower price and should be cultivated as the main supplier of

the United States.

4) Europe: 100% ammonia base, main factories are SOLVAY, CIECH, TATA. After the conflict between Russia and Ukraine, the production cost rose sharply, and the price advantage was not obvious in the first half of 2022-2023, and in the second half of 2023, with the decline in European energy prices, the production cost of European alkali fell, and the price gap with China gradually shortened. SOLVAY has a strong willingness to cooperate and stronger comprehensive competitiveness than other European countries, so it should be cultivated as the main supplier in Europe.

5) Turkey: Mainly CINER trona and SISECHEM ammonia base, are sold through agents, do not directly docking terminal. Russia-ukraine conflict and inflation, increased production and transportation costs, the past year more than the advantage is not obvious, recently China's price is high and sea freight rose, Turkey's price also gradually fell, the price gap narrowed. Although the LEADER has a good fit, the cost of synthetic alkali is higher than trona, so PROTEA (CINER Trona agent) should continue to be developed.

Shareholder Total Capacity by Location 2022



Top 10 global enterprises

3.2 Target Marketing Analysis

Region	Country	Population (million)	Ave.GDP (usd)	Import Qty (MT)	
				2021	2022
East Africa	Ethiopia	112	1080	16,591	22,769
	Kenya	47.56	1782	10,015	9,764
	Tanzania	61.74	1890	46,506	55,838
	Uganda	44.3	858	18,415	17,339
	Congo, D.R	99.95	380	15,418	9,315
East-South Africa	South Africa	59.62	6771	375,406	457,877
	Mozambique	27.22	620	366	413
	Malawi	13.9	250	113	33
	Zimbabwe	16.9	741	3,990	530
	Zambia	18.9	1305	9,041	15,749
West Africa	Nigeria	222	2062	83,573	108,766
	Cameroon	28.61	1580	2,423	3,694
	Senegal	17.74	1409	2,323	6,573
	ghana	32.83	2545	3,764	12,262
	Côte d'Ivoire	29.38	2506	4,239	5,944
	Guinea	15.04	1338	16	168
Middle East	Egypt	104	3780	347,699	495,250
	Saudi Arabia	36.17	23500	195,118	328,404
	UAE	9.5	47700	187,237	175,412
	Qatar	2.98	61800	3,369	3,894
	Oman	5	19000	49,447	41,055
	Kuwait	4.46	27900	21,966	22,098
	Syrian	19.29	870	30,010	20,474
	Bahrain	1.5	26200	3,328	2,097
India	india	1410	2280	690,397	532,762
Total				2,120,770	2,348,480

The total import volume of soda ash in the potential markets in the above table is about 2.3 million tons. The main importing countries are India, South Africa, the Middle East and Egypt, which can be used as potential target markets for this project. After analysis, our potential market and sales are deduced as follows :

Region	Country	Population (million)	Ave.GDP (usd)	Import Qty (MT)		Sales simulation (MT)
				2021	2022	
East Africa	Ethiopia	112	1080	16,591	22,769	10000
	Kenya	47.56	1782	10,015	9,764	
	Tanzania	61.74	1890	46,506	55,838	80000
	Uganda	44.3	858	18,415	17,339	10000
	Congo, D.R	99.95	380	15,418	9,315	
East-South Africa	South Africa	59.62	6771	375,406	457,877	100000
	Mozambique	27.22	620	366	413	
	Malawi	13.9	250	113	33	
	zimbabwe	16.9	741	3,990	530	
	Zambia	18.9	1305	9,041	15,749	
West Africa	Nigeria	222	2062	83,573	108,766	20000
	Cameroon	28.61	1580	2,423	3,694	
	Senegal	17.74	1409	2,323	6,573	
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	Côte d'Ivoire	29.38	2506	4,239	5,944	
	Guinea	15.04	1338	16	168	
Middle East	Egypt	104	3780	347,699	495,250	100000
	Saudi Arabia	36.17	23500	195,118	328,404	50000
	UAE	9.5	47700	187,237	175,412	50000
	Qatar	2.98	61800	3,369	3,894	
	Oman	5	19000	49,447	41,055	10000
	Kuwait	4.46	27900	21,966	22,098	
	Syrian	19.29	870	30,010	20,474	
	Bahrain	1.5	26200	3,328	2,097	
India	india	1410	2280	690,397	532,762	100000
South America	Brazil	203	7507	1,399,141	1,631,962	
	Mexico	128	8800	1,367,818	1,587,997	
	Argentina	46.04	8524	213,076	293,064	

However, we must see that the competition for soda ash supply in these regions is also very fierce. Fiercely, Turkish trona, Botswana trona, US trona and European synthetic alkali have large market shares and price advantages in these regions..

4 Financial Analysis

4.1 Total investment amount

No	Item	Investment Amount/Million USD
1	Main production equipment (including installation)	\$240.12
2	Production auxiliary equipment	\$14.42
3	Shipping and transportation	\$7.13
4	Infrastructure development	\$32.30
5	Steel structure workshop	\$28.75
6	Electric power access	\$6.17
7	Utility facility	\$78.67
8	Land purchasing	\$3.00
9	Working funds	\$90.85
	Total	\$501.41

4.2 Investment Sources

The total investment is 501.41 Million USD, among it, **233.16** Million USD (46.5%) is from Sunda Group HK, and **268.25** Million USD (53.50%) will be long term loan provided by commercial banks.

4.3 Financial Estimation

4.3.1 Statement of income and profit

Unit: '000USD													
Item	No	Construction	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Income	1	0	90,000	95,000	101,000	101,000	101,000	101,000	101,000	101,000	101,000	101,000	101,000
Cost	2	0	63,000	66,500	70,700	70,700	70,700	70,700	70,700	70,700	70,700	70,700	70,700
Gross Profit	3	0	27,000	28,500	30,300	30,300	30,300	30,300	30,300	30,300	30,300	30,300	30,300
Gross Profit Rate	4		30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
Expenses	5	35,000	5,500	6,750	7,050	7,050	7,050	7,050	7,050	7,050	7,050	7,050	7,050
Total profit	6	-35,000	21,500	21,750	23,250	23,250	23,250	23,250	23,250	23,250	23,250	23,250	23,250
Income tax (Special strategic investor)	7	0	0	0	0	0	0	0	0	0	0	0	0
Net profit	8	-15,000	21,500	21,750	23,250	23,250	23,250	23,250	23,250	23,250	23,250	23,250	23,250
Net profit rate	9		23.89%	22.89%	23.02%	23.02%	23.02%	23.02%	23.02%	23.02%	23.02%	23.02%	23.02%