

**FLOAT GLASS MANUFACTURING  
PROJECT BUSINESS PLAN**

**KEDA TANZANIA CERAMICS COMPANY**

# **Executive Summary**

## **1 Project Introduction**

This new project of KEDA(T) CERAMICS COMPANY will be jointly invested by KEDA and SUNDA group, focusing on manufacturing float glass. The total plan is 2 lines of float glass with capacity of 600 tons/day per line. Also, at the same location, another project of 2 lines of ceramic sanitary ware will also be brought with daily production of 4000 pcs sanitary ware/day per line.

The project, together with sanitary ware factory, will make up for the vacancy of local float glass factories and ceramic sanitary ware factories in Tanzania, hence strongly promoting the industrialization of Tanzania.

## **2 Factory Address and land needed**

Mkuranga district, Tanzania

The land needed is 150 acres in total.

## **3 Investment Amount**

The estimated investment amount for float glass factory and sanitary ware factory will be USD 369 Million. Separately, the investment for 2 lines float glass is 309 Million USD and for 2 lines sanitary ware is 60 Million USD.

## **4 Market Information**

The produced float glass will be sold 20% in Tanzania, 60% to EAC and SADC and 20% to other countries globally.

## **5 Employment Creation**

2,000 direct local employment and 18,000 indirect local employment for float glass factory and sanitary ware factory

## **6 Implementation Schedule**

The first float glass line will start producing at the end of year 2023. The whole project will be implemented within three to five years.

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# **1 Project Profile**

## **1.1 Project Objective**

KEDA's float glass project is planned to be completed and put into production at the end of 2023. There will be one float glass line under production in 2024, with a production capacity of 600 tons per day. Another one float glass production line will be brought within five years, reaching totally 2 lines of float glass.

The Mkuranga projects (including float glass and ceramic sanitary ware) investment will be US\$369 million and this project will create over 2,000 direct jobs over 18,000 indirect jobs through suppliers and distributors in Tanzania. Within three years, the float glass product export rate will reach 80%, generating more than USD\$100 million foreign exchange income for Tanzania each year. When the 2 lines are both constructed, the annual foreign exchange will reach USD\$200 million. After the whole Mkuranga project being completed, under operation of 2 lines of float glass and 2 lines of sanitary wares, the annual foreign exchange will be more than USD\$300 million.

## **1.2 Background**

### **1.2.1 Current status of Tanzania float glass industry**

The current glass products in Tanzania market are all imported or shallowly processed after importing, such as toughened glass that are processed from imported float glass, which does not involve the use of local resources in Tanzania. Therefore, Tanzania has no any factory who manufactures plate float glass from quartz sand. This project will introduce two large glass production lines, including huge equipment for raw material processing, melting, pressing and annealing, so that Tanzania glass manufacturing can be localized from the source. While promoting the development and utilization of Tanzania's resources, it will effectively reduce the cost of transportation and import and export, so that an extraordinary cost advantage will be gained.

The radiation area of this float glass project includes the entire East African Community, South African Community and even West Africa. At present, there are no float glass factories in East Africa, so the local production of glass in Tanzania will create a trade surplus and a large amount of foreign exchange.

### **1.2.2 Convenience of resources and infrastructure**

This project is located in the Mkuranga area because of its rich resources. The convenience of obtaining groundwater and minerals and the availability of natural gas will effectively reduce the transportation cost and fuel cost, improve the quality of products and reduce the rate of defective products.

From the perspective of whole Tanzania, government is vigorously pushing national infrastructure to be developed. Traffic and logistic facilities like high way and ports are under construction. Large pieces of lands are waiting to be developed. The construction industry is a booming industry in this nation. At the same time, rich mineral resources provide the most important raw materials for the development of the construction industry. This means that our investment project is also consistent to the trend of Tanzania's development in the long run.

### **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. This float glass project is also based on positive expectations for the stability of Tanzania's national policy in the next ten years. We regard Tanzania as the best investment destination and the most potential country in East Africa.

### **1.2.4 Population**

With a population of about 63.3 million (2022), Tanzania ranks sixth among African countries in terms of population. The urban population accounts for about 33.8% of the total population. The Tanzania government attaches great importance to the development of education, with an adult literacy rate of 78%. In recent years, the Tanzanian government's investment in education has remained at around 6% of GDP, ranking among the top African countries.

A large number of laborers can reduce the labor cost of investing and building factories in Tanzania, and bring a large demand for building materials and home decoration, which will make Tanzania's future market demand of float glass continue to rise. At the same time, these educated workers will continue to accumulate wealth, and the demand for high-end building materials will also increase.

## **1.3 Investor information**

### **1.3.1 KEDA Industrial Group Co., Ltd**

KEDA Industrial Group Co., Ltd was founded in 1992 and listed on the Shanghai Stock Exchange in 2002 (stock code: 600499). KEDA's business covers building materials machinery, global ceramic R&D, production and sales, clean energy, lithium battery materials, hydraulic pumps, fluid machinery and others. In the field of ceramic machinery, KEDA ranks first in Asia and second in the world, with strongest capabilities in factory design, production, sales, installation, technical services, financial services, and production management. It owns well-known brands such as KEDA, Litai (HLT, DLT), WELKO, TWYFORD, XINMINGFENG, etc. The products are sold to more than 50 countries and regions. In 2021, KEDA group's overall income reach 1.45 billion USD.

After 28 years of innovation and development, in the field of building materials machinery, KEDA Manufacturing has achieved the historical goals of "localization of ceramic machinery equipment" and "becoming a strong player in the world's building materials equipment industry", and has successfully completed the transformation from a single equipment supplier to a complete ceramic factory designer and builder. KEDA has grown into a leading enterprise in the ceramic machinery industry in China and even in the world.

In recent years, KEDA is closely following the China' development strategy of "One Belt, One Road", establishing more than 60 subsidiaries around the world, distributed in Italy, India, Turkey, Kenya, Ghana, Tanzania, Senegal, Zambia and other countries. Also, KEDA set up sales offices or agencies in Indonesia, Thailand, South Korea, Vietnam, Russia, Egypt, etc.

KEDA started its overseas business since 2009. In 2021, the group's overseas operating income has reached 681 million USD, accounting for 47% of the group's total income. KEDA's globalization process has been steadily promoted.

### **1.3.2 Guangzhou SUNDA International Trading Co., Ltd**

SUNDA Company has been deeply rooted in Africa for more than 20 years, focusing on integrating overseas sales channel network and domestic production supply chain system. At present, SUNDA's sale has covered more than 20 countries, with more than 3000 sale point in Africa, ranking among the "Top 100 Chinese Exporters to Africa" for several consecutive years. In 2021, SUNDA's annual operating revenue is 1.523

billion USD, under a growth rate of over 50% every year.

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 small commodities. Today, SUNDA has become an industry benchmark for Chinese companies in African markets, with the development strategy of "Base on Ghana, Côte d'Ivoire in West Africa, Kenya, Tanzania in East Africa, Cambodia in Southeast Asia and Peru in South America to radiate to the entire emerging countries".

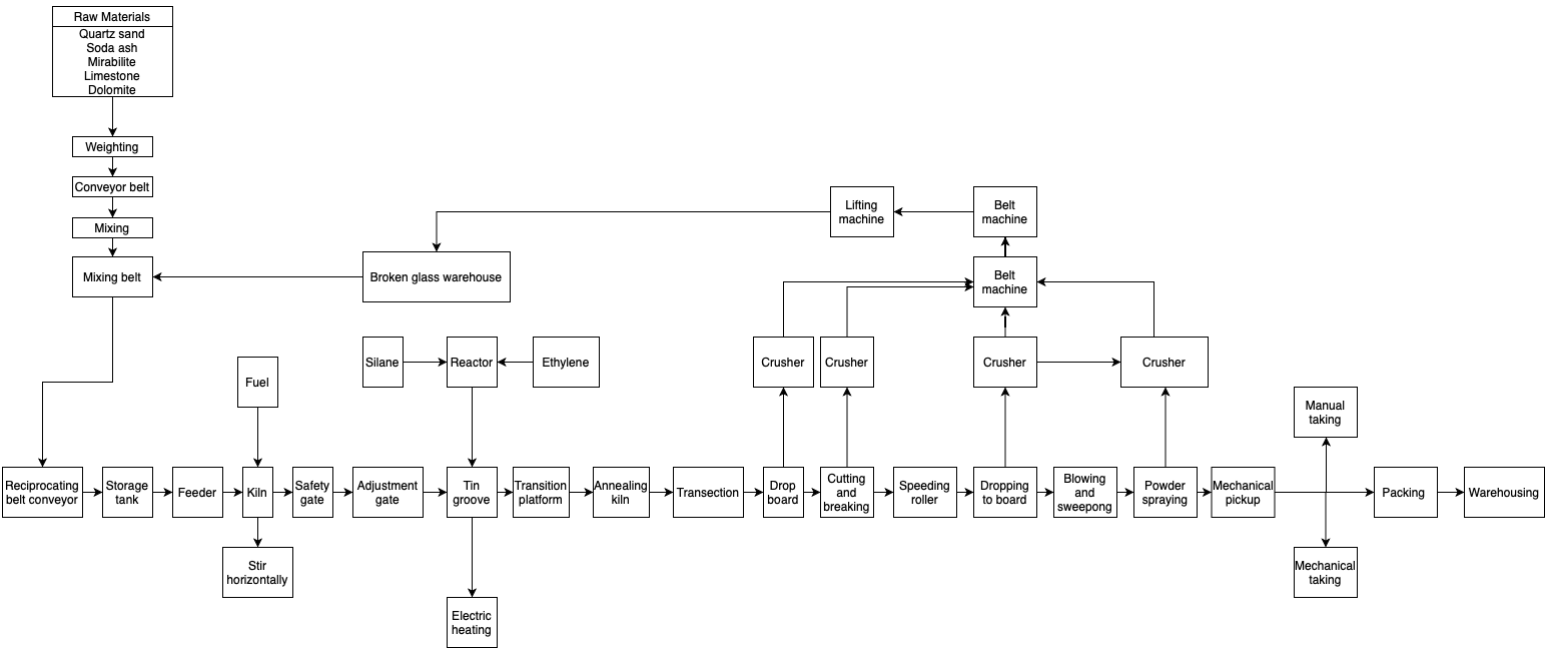
## 2 Business description and structure

### 2.1 Product and Capacity

Indicator	Description
Kiln melting capacity per line	600t/d
Glass thickness	3-12mm
Original board width	4100mm
Qualified board width	3660mm
Glass color	Clear, blue, green, tea, gray
Quality Standard	International standard
Product yield rate	≥90%
Machine utilization rate	98%
Annual output	≥219,000 T
Heat consumption per kg of molten glass	7604.4kJ/kg

### 2.2 Production process

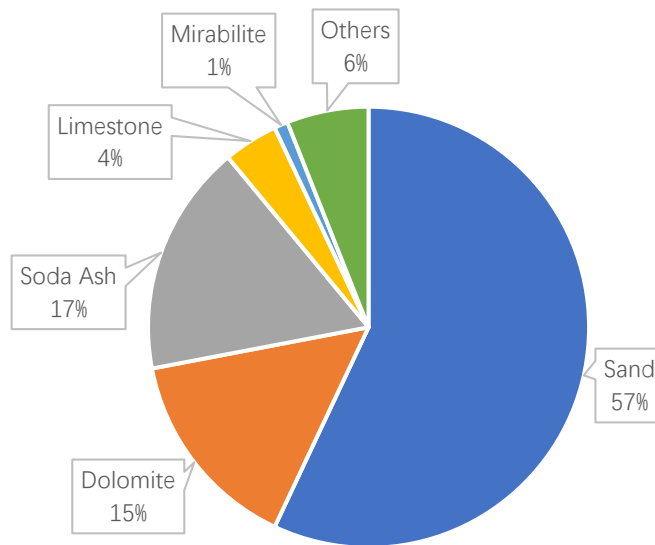
The float glass manufacturing process consists of five main steps:



### 2.2.1 Ingredients preparation

Raw materials of float glass including sand, dolomite, limestone, soda ash and mirabilite, are delivered by truck or train. These raw materials are stored in the batching room. There are silos, hoppers, conveyor belts, chutes, dust collectors, and the necessary control systems in the material room, which control the conveying and mixing of raw materials. From the moment the raw materials are delivered to the warehouse, they are constantly moving.

Inside the batching room, a long flat conveyor belt continuously delivers the raw materials layer by layer from the silos of various raw materials to the bucket elevator, and then to the weighing device to check the composite weight. Recycled glass shards will be added to these components. The dry material is added to the mixer and stirred into batches. The mixed batches are sent to the kiln head silo through the conveyor belt for storage, and then they will be fed into the kiln under controlling by the feeder.



The major components for float glass

### 2.2.2 Melting

The kiln is a cross-fired kiln with six regenerator chambers. The production capacity will be 600 tons per day. The main parts of the melting kiln are the melting pool, working pool, regenerator chambers and small furnace. They are constructed by special refractory materials, and the outer frame is steel structure. The raw materials are sent to the melting pool, heated to 1,650 degrees by the natural gas spray gun. The molten glass flows will go from melting pool to the neck area, and being stirred evenly. Then the temperature will slowly go down to about 1,100 degrees so the molten glass flows will reach the correct viscosity before reaching the tin bath.

### 2.2.3 Forming and coating

The process of forming the clarified liquid glass into a glass plate is a process of mechanical manipulation according to the natural inclination of the material. The molten glass is poured out of the kiln through the running channel, and its flow is controlled by an adjustable gate. It floats on top of molten tin, that is where float glass gets its name. Glass and tin do not react with each other and are separable, their molecularly resistive properties make glass smooth.

A tin bath is a unit sealed in a nitrogen and hydrogen atmosphere. It is made up by support steel, top and bottom shells, refractory materials, tin and heating elements, reducing atmosphere, temperature sensors and computerized process control system.

When the glass forms a thin layer at the end of the tin bath entrance called a glass sheet, adjustable edger machines will operate on each side. The operator sets and controls the

speed of the annealing furnace and the edger. As the glass plate continuously flows through the tin bath, the temperature of the glass plate will gradually drop, making the glass flat and parallel.

The glass is spread into a thin layer on the molten tin liquid. Being separate from the tin liquid, it forms into a plate shape. The heat is provided by hanging heating elements, and the width and thickness of the glass are controlled by the speed and angle of the edger.

#### **2.2.4 Annealing**

The formed glass leaves the tin bath under the temperatures of 600 degrees. If the glass sheet is left to cool in the atmosphere, the surface of the glass will cool faster than the inside of the glass, which will bring severe compression of the surface and cause harmful internal stresses in the glass sheet.

The heating process of glass before and after forming is also the process of internal stress formation. Therefore, it is necessary to gradually reduce the temperature of the glass to the ambient temperature by controlling the heat, that is, annealing. In practice, the annealing takes place in an annealing kiln, which includes electronically controlled heating elements and fans to maintain a constant and stable temperature distribution across the glass sheet.

The result of the annealing process is cooling of the glass to ambient temperature without introducing stress or temporary stress.

#### **2.2.5 Cutting and packaging**

The glass sheets cooled by the annealing kiln are conveyed to the cutting area through the roller table connected with the annealing kiln drive system.

The glass passes through an in-line inspection system to be ruled out of any defects, and is cut with a diamond cutting wheel to remove the edges of the glass (edge material is recovered as shattered glass). Then the glass will be cut to the size required by the customer. The glass surface is sprinkled with a powder so that the glass plates can be stacked and stored without sticking together or scratching. The flawless glass sheets are then packed in stacks by manual or automated machines, transferred to warehouses for storage or shipped to customers.

## 2.3 Expected employment generation and industry influence

### 2.3.1 Direct local employment

Department	Numbers
Managing director office	8
Purchasing	42
Finance	28
Warehouse	134
Factory management	94
Admin	133
Clearance	20
Human resources	16
Quality control	43
Sales	100
Transport	20
Planning	18
Design	10
Glass float joint workshop	350
Glass energy and power workshop	110
Glass transfer and packaging workshop	80
Glass factory management	20
Glass production assistance	70
Sanitary ware raw material workshop	30
Sanitary ware slurry Workshop	40
Sanitary ware molding workshop	350
Sanitary ware glazing workshop	110
Sanitary ware firing workshop	70
Sanitary ware sorting and packaging workshop	50
Sanitary ware model workshop	10
Sanitary ware glaze preparing workshop	30
Sanitary ware cover workshop	30
Sanitary ware electromechanical and others	30
Total	2046

In addition to above regular positions, KEDA 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

### **2.3.2 Indirect local job creation**

Supplier	3000
Distributors and retailers mining	7000
Mining labor	1000
Glass constructing and installing	2000
Transporters	700
Customs clearance and logistics	100
Food service industry around the factory	2000
Others	2166
Total	18166

### **2.3.3 Glass downstream industries bringing**

In addition to above driving employment, since float glass can be further processed into toughened glass, laminated glass, insulating glass, coated glass, fireproof glass and art glass etc. and these deep processed glasses can be used for architectural glass, automotive glass field, photovoltaic glass, electronic glass, home appliance glass, equipment manufacturing and other industries. When the float glass factory is officially put into operation, the glass-related downstream industries will also be driven. The convenient acquisition of raw materials will make small glass processing factories continuously attracted to Tanzania and promote the deepening, differentiation and development of the entire glass industry in Tanzania.

## 2.4 Implementation schedule

No	Item	Scheduled Days	Beginning Date	Ending Date
1	Project establishment	60	2022.9.1	2022.10.31
2	Company registration	1	done	done
3	Team building	365	2022.9.1	2022.9.1
4	Natural gas framework agreement content discussion	30	2022.10.1	2022.10.31
5	Signing of natural gas framework agreement	30	2022.11.1	2022.12.1
6	Land Purchase (Signing of Sales Agreement)	90	2022.8.1	2022.10.30
7	Land title acquisition	30	2022.10.31	2022.11.30
8	Signing of natural gas sales agreement	30	2022.12.1	2022.12.31
9	Hazard assessment and environmental assessment	30	2022.12.1	2022.12.31
10	Detailed report and license for hazard assessment and environmental assessment	90	2023.1.1	2023.4.1
11	Construction permit application	90	2022.12.1	2023.3.1
12	Project launching all permits done	90	2022.12.1	2023.3.1
13	Drilling and water exploration	30	2022.12.1	2022.12.31
14	Collecting permit for industrial surface water access	90	2023.1.1	2023.4.1
15	Purchasing and leasing of machinery	60	2022.10.1	2022.11.30
16	Logging and land surface cleaning	30	2022.12.1	2022.12.31
17	Land survey	30	2022.9.1	2022.10.1
18	Signing contract of factory design	20	2022.8.15	2022.9.10
19	Factory design plan	30	2022.9.1	2022.9.30
20	Design of factory engineering	180	2022.10.1	2023.3.30
21	Design of production process	120	2022.10.1	2023.1.29
22	Design of land construction	90	2022.10.1	2022.12.30
23	Design of power supply and distribution	90	2022.10.1	2022.12.30
24	Land levelling	30	2023.1.1	2023.1.31
25	Construction tender	30	2022.12.31	2023.1.20
26	Construction	180	2023.2.1	2023.7.31
27	Signing of workshop steel structure purchasing	30	2023.1.31	2023.4.1
28	Production of workshop steel structure	60	2023.1.31	2023.4.1
29	Shipping of workshop steel structure	60	2023.4.2	2023.6.1
30	Installation of workshop steel structure	60	2023.6.2	2023.8.1

31	Production equipment investigation and tender	60	2022.10.25	2022.12.24
32	Signing contract of equipment	45	2022.12.30	2023.2.13
33	Equipment manufacturing	30	2023.2.14	2023.6.14
34	Equipment and material duty exemption list	120	2023.2.14	2023.6.14
35	Shipping of equipment	60	2023.6.15	2023.8.14
36	Installation of equipment	120	2023.8.15	2023.12.13
37	Local raw material research and mining rights application	365	2023.9.1	2023.9.1
38	Raw materials delivering	120	2023.8.15	2023.12.13
39	Natural gas pipeline construction and equipment installation and adjustment	150	2023.7.16	2023.12.13
40	Kiln heating	15	2023.12.14	2023.12.29
41	Trial production	15	2023.12.29	2024.1.13
42	Start production formally		2024.1.13	

## 2.5 Environmental impact assessment

The construction of this project will be in conformity with the national and local industrial policies. KEDA 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 Urbanization level

With a population of about 63.3 million (2022), Tanzania is the second populous country in East Africa, ranking after Ethiopia and the sixth largest among African countries. Tanzania has the highest population growth rate in Africa, with a population growth rate of 3.11% in 2021. Similar to other African countries, the population

structure is highly youthful, with two-thirds of people under the age of 25 and 8 million adding working-age people every year. Moreover, the Tanzanian government attaches great importance to the development of human capital. The adult literacy rate is high up to 78%. The urban population accounts for about 33.8% of the total population, which is higher than that of neighboring countries such as Kenya and Uganda, and it grows at a rate of 30%. Dar Es Salaam is the largest city in Tanzania and even in the whole of East Africa. According to the United Nations, the population of Dar Es Salaam exceeds 6 million and will exceed 13 million by 2035.

## **3.2 Development of the real estate market**

Tanzania has a large population and its economy is gradually developing and the demand for modern housing will increase. The market for building material must be increasing gradually.

## **3.3 Glass Capacity in East and West Africa**

### **3.3.1 East Africa Glass Capacity**

The four East African countries Kenya, Tanzania, Uganda, and Zambia have a total annual volume of 12,990 containers; the total annual market tonnage is 324,750 tons, with a monthly average of 27,062 tons.

Among them Tanzania's volume is the highest, with 6,230 containers per year; 155,750 tons per year and 12,979 tons per month.

Kenya has 4,020 containers, 100,500 tons, with a monthly average of 8,375 tons.

Uganda has 2,200 containers per year, 55,000 tons, and the monthly average is 4,583 tons.

Zambia has 540 containers per year, 13,500 tons, and the monthly average is 1,125 tons.

Analysis: From the perspective of market capacity, the overall East African market is large, and there are no local float glass factories in countries above. It will quickly establish industry barriers and quickly occupy the market. When we bring production locally, we will have cost advantage to establish industry barriers and quickly occupy the market.

### **3.3.2 West Africa Glass Capacity**

The five West African countries, Ghana, Cote d'Ivoire, Cameroon, Senegal, and Guinea,

have a total annual volume of 8,520 containers which is 213,000 tons, and the monthly average is 17,750 tons.

Ghana has the highest volume of 2,920 containers per year which is 73,000 tons, and a monthly average of 6,083 tons.

Cote d'Ivoire has volume of 1,900 containers, 47,500 tons per year, and the monthly average is 3,958 tons.

Cameroon has volume of 1,600 containers 40,000 tons per year, and the monthly average is 3,333 tons.

Guinea has volume of 1,300 containers 32,500 tons per year, and the monthly average is 2,708 tons.

Senegal has volume of 800 containers 20,000 tons per year, and the monthly average is 1,667 tons.

The overall market volume of West Africa is smaller than that of East Africa, and West Africa has factories invested by Nigeria and China. The competition will be fierce.

## **3.4 Glass Consumption Market in East Africa and West Africa**

### **3.4.1 Glass Consumption Market in East Africa**

Color: white color glass 32.66%, dark gray color glass 16.42%, tea color glass 7.13%, dark gray film glass for 22.37%, and dark blue film accounts for 15.30%, that is, the color needs to be switched frequently.

Thickness: 4MM accounts for 50.7%, 5MM accounts for 38.06%, 3MM accounts for 9%, others 2.24%

Size: The main size in the market is 1650\*2140 and 1220\*1830, that is, the mainstream of color glass is 5.5\*7FEET, and the mainstream of white glass is 4\*6FEET.

### **3.4.2 Glass Consumption Market in West Africa**

Color: white glass accounts for 26.46%, dark gray glass accounts for 17.21%, tea glass accounts for 17.93%, dark gray film accounts for 18.37%, and dark blue film accounts for 29.11%, that is, the color needs to be switched frequently.

Thickness: 5MM accounts for 56.63%, 4MM accounts for 40.08%, that is, the frequency of conversion of West African thickness is small.

Size: The mainstream is 3300\*2250, 3300\*2140 and 1650\*2140

# 4 Financial Analysis

## 4.1 Total investment amount

### 4.1.1 Glass production line

No	Item	Investment Amount/Million USD	Percentage
1	Main production equipment (including installation)	\$130.08	42.10%
2	Production auxiliary equipment	\$4.85	1.57%
3	Shipping fee	\$11.71	3.79%
4	Infrastructure development	\$84.82	27.45%
5	Steel structure workshop	\$25.12	8.13%
6	Electric power access	\$1.67	0.54%
7	Water wells	\$0.68	0.22%
8	Chimney	\$0.49	0.16%
9	Water tower	\$0.25	0.08%
10	Auxiliary materials	\$1.54	0.50%
11	Working funds	\$36.65	11.86%
12	Pre-production operating expenses	\$11.09	3.59%
	Total	\$308.95	100.00%

#### 4.1.2 Sanitary ware production line

No	Item	Investment Amount/Million USD	Percentage
1	Main production equipment (including installation)	23.247	38.61%
2	Production auxiliary equipment	2.282	3.79%
3	Shipping fee	2.565	4.26%
4	Infrastructure development	8.953	14.87%
5	Steel structure workshop	7.605	12.63%
6	Water wells	0.072	0.12%
7	Design of general layout	1.150	1.91%
8	Electric power access	0.187	0.31%
9	Land	1.397	2.32%
10	Working capital during construction period	12.752	21.18%
	Total	60.210	100.00%

#### 4.2 Investment sources

The total investment is 369 Million USD, among it, 172 Million USD (46.5%) is from KEDA Tanzania and Mauritius, and 197 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
Income	1	0	90,000	95,000	101,000	101,000	101,000	101,000	101,000	101,000	101,000	101,000
Cost	2	0	82,800	87,400	92,920	92,920	92,920	92,920	92,920	92,920	92,920	92,920
Gross Profit	3	0	7,200	7,600	8,080	8,080	8,080	8,080	8,080	8,080	8,080	8,080
Gross Profit Rate	4		8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Expenses	5	15,000	4,500	4,750	5,050	5,050	5,050	5,050	5,050	5,050	5,050	5,050
Total profit	6	-15,000	2,700	2,850	3,030	3,030	3,030	3,030	3,030	3,030	3,030	3,030
Income tax	7	0	0	0	0	0	0	801	909	909	909	909
Net profit	8	-15,000	2,700	2,850	3,030	3,030	3,030	2,229	2,121	2,121	2,121	2,121
Net profit rate	9		3.00%	3.00%	3.00%	3.00%	3.00%	2.21%	2.10%	2.10%	2.10%	2.10%

# **5 Opportunities, challenges and support needed**

## **5.1 What we will bring to Tanzania**

### **5.1.1 Promoting industrialization and economic development in Tanzania**

At present, the architectural glass products available in the Tanzanian market are all directly imported or simply processed by toughening the imported large-plate float glass, which are expensive and prevents a lot of people from buying it as building materials. Also, Tanzania's sanitary ware products are 100% imported. The float glass factory and sanitary ware factory we bring will solve this problem by realizing the local production of glass and ceramic sanitary ware which will greatly reduce the cost of bring glass products to Tanzania, and then reduce the construction costs of the local people. At the same time, the operation of the factory will drive the development of upstream and downstream enterprises in the entire industry, creating a large number of direct and indirect jobs. While improving the quality of life of residents, it will bring wealth to the local people and promote their consumption, which in turn will promote production and generate a good internal economic cycle.

This project will realize the integration of building material production localization from raw material mining to final product sales, and introduce complete technology and high-end equipment into Tanzania, filling the vacancy in this field in the past. At the same time, we are located in the undeveloped Mkuranga area. The construction and transportation needs will promote the development of infrastructure in this area, including water conservancy, road, resource extraction, etc. This will also promote the industrialization of the country.

At the same time, the project will create a large amount of government tax revenue for Tanzania, which can be used for the development of other fields of the country. Under this model of domestic capital accumulation driven by foreign capital, Tanzania will accumulate a large amount of capital which lays the foundation for its future independent development.

### **5.1.2 Creating employment and cultivating technical talents**

As a large project with an investment of up to 369 million US dollars, the glass factory and ceramic sanitary ware factory requires a lot of manpower during the preparation period, the construction period, and the operation period. It will directly create more than 2,000 local jobs, which in turn will drive 18,000 indirect jobs in supplier, transporters, distributors, retailers, logistics agents, etc. This will not only increase residents' income but also promote social stability.

We will introduce management talents, advanced technology and high-end equipment to Tanzania. While hiring local laborers, we will train their working skills and improve their labor quality, turning them from ordinary laborers into professionals with certain skills, hence improve the quality of the national population. At the same time, we will introduce China's advanced talent management concept. Every year, we will recruit a certain number of college students as technical reserves, which will not only promote college student employment rate, but also cultivate high-quality young talents for Tanzania.

### **5.1.3 Creating foreign exchange and promoting internationalization**

The average daily production capacity of the glass factory and sanitary ware factory is 600 tons per day and 4,000 pcs per day for one line each. 98% of the raw materials of the factory are locally sourced, and 80% of the production will be sold to the East African Community, the South African Community and even India, Southeast Asia, and the Middle East. This big volume of international trade will create an annual foreign exchange income of 300 million US dollars for Tanzania (after completion of the whole 2 lines of float glass and 2 lines of ceramic sanitary ware). Such a large amount of exports is conducive to balance of international payments, development of the national financial market of Tanzania, and provides conditions for bridging the balance of payments deficit.

At the same time, a large number of export business will help to realize the economic transformation of Tanzania: the transformation from the previous agricultural exporting country to an exporter of industrial products. This will promote Tanzania's participation in the international division of labor and access Tanzania to the global market, increasing Tanzania's influence in global economy.

## **5.2 Challenges**

### **5.2.1 Imported glass under low import duty rate**

Currently the imported rate tariff for float glass is 10% in Tanzania and other EAC countries, but other products that can be produced locally in EAC are usually having an import rate of 35%. Which means the protection to float glass is not enough for us to have absolute advantage over imported float glass in Tanzania.

What worse, EAC currently has special policies in Gazette for toughened glass factories. They can enjoy zero IMP when importing float glass as the raw material of toughened glass, which means that even our factory is built, the downstream industry factories may not choose us as a supplier, which will make us lose some customers.

### **5.2.2 Requirements of continuous production**

Float glass production equipment is different from other industrial production equipment. The melting kiln under temperature of up to 1600 °C needs to run continuously for more than ten years before cold repair period. Once production is stopped, the temperature of the furnace will decrease, which will cause irreparable damage to the equipment. Therefore, once it is put into production, we need to ensure that the kiln runs for at least fifteen years, so the sales of glass must be stable and continuous, which puts forward high requirements in terms of market, production, national environment stability, raw material supply, natural gas connection, etc.

Among them, the natural gas supply is a key point because it's impossible to be replaced by other fuels since the fuel has been decided at the beginning of design of the whole production line. Once the supply of natural gas stops, the production of the whole factory will stop and the cooling of kiln will bring loss of millions of USD.

### **5.2.3 Policy**

Glass production is a heavy industry with high threshold, large investment and low return rate. That means, in 5 to 10 years, we are going to gain little profit from the factory. So at the beginning years, we need more protection from government so that the new business can develop smoothly and safely.

Currently, the glass factory in other countries are under big protection of government. For example, in South Africa, the government has set anti-dumping duty for glass

product, the rate is 30.8 USD/m<sup>2</sup> to 76.08 USD/m<sup>2</sup>. These protection policies have set up trade barriers for the glass industry in South Africa and effectively protect the smooth operation of local glass factories

As big investor with investment amount of 369 million USD, this amount means big risk if the long-term revenue and profit is not good as expected. To make sure smooth operation, we need more government support to make sure the factory will last long in Tanzania. However, the essential tax incentives are not clear so far.

### **5.3 Excepted incentives from TIC**

1 Exemption of customs duty (including import duty, railway development levy, customs processing fee, excise duty and other duties) and importing value added tax and any other tax charged on raw materials, machineries, equipment, tools, vehicles or any other goods of capital nature related to the factory construction and production.

2 Exemption from payment of corporate tax

3 Exemption from payment of value added tax charged on locally purchased building materials, vehicles, raw materials, machineries, equipment, tools, vehicles, public utilities (coal and natural gas) or any other goods of capital nature related to the factory construction and production.

4 Exemption from payment of IMP duty for office use cars and other office use materials

5 Exemption from payment of PAYE (Pay as you earn) and SDL (Skill Development Levy)

6 Exemption from payment of Capital Gains Tax and Stamp duty

7 Exemption from payment of withholding taxes from dividends

8 Granting AEO qualification on importing, exporting, manufacturing and transporting

9 Relief from double taxation for foreign investors and employees where Tanzania has no double taxation agreement with the country of the investors or employees

10 There are no conditions or restrictions on: repatriation of dividends or net profit; payments for foreign loan servicing; payments of fees and charge for technology for foreign factory and production line design installation service and foreign professional export of labor service; and remittance of proceeds from sale of any interest in Tanzania investment

11 Investments are also guaranteed against nationalization and expropriation

12 Gas supply and piping works: accelerate the follow-up of TPDC in regard to the piping work for our project, actively control the progress of pipeline connection for glass factory, and promise to complete the construction before operation; offer the most

preferential unit price no higher than any other strategic investors, for the consumption of natural gas in this project

13 Permission to issue working visa to at least 300 Chinese technical experts during the construction period and exemption of the visa charge. Permission to issue working visa to at least 150 Chinese technical experts during the operation period.

This list may be amended when official incentive requirement list being submitted. Further details will be provided.