BUSINESS PLAN

FOR A

NEW WATERPROOF MATERIAL CONSTRUCTION PROJECT

FEASIBILITY STUDY REPORT

Project Overview:

Project name: **New waterproof material construction project**

Company name: **Tanzania Timeless Waterproof Co. Limited**

Construction address: **Sino-Tan Industrial Park, Tanzania**

Total construction **investment: 40 million yuan (Equivalent to TZS 13,976,400,000/=)**

Project annual output value: **15 million USD (Equivalent to TZS 37,575,000,000/=)**

Covered area: **about 47 acres; 3150 0m2**

Land use life: **98 years**

Chapter 1

General Introduction

1.1 Company Profile

Sichuan Shenghe Chuangyi Construction Engineering Co., Ltd. was established in September 2017. Since its establishment, the company's production and operation business mainly focuses on foreign projects. It has completed the Ethiopian Social Development Building (52,000 square meters) and the Ethiopian Airlines large hangar apron. (120,000 square meters), the civil construction project of the second phase of the Ethiopian Airlines Hotel (80,000 square meters), partial renovation and decoration of the Shuangliu Airport terminal building, Liupanshui Airport slope drainage project and other projects. Currently, the Ethiopian Airlines maintenance hangar and consumables warehouse are under construction in Ethiopia. project. In its overseas business activities, Sichuan Shenghe Chuangyi Construction Engineering Co., Ltd. cooperates with China Civil Engineering Group, AVIC International Engineering Company, Jiangxi International, China Railway Seventh Bureau Ethiopian Company, Shougang Construction Group Overseas Company, West China Group Overseas Investment Company and other related units A good cooperative relationship has been established. In 2022, it also signed an agency agreement for the African market with **Xiniuhide Waterproof Materials Company and Beixin Waterproofing** , and extensively carried out overseas project cooperation and waterproof material sales and subcontracting business.

Our company’s waterproof construction team in Ethiopia

1.2 Project proposal background

Development Trend of New Waterproof Materials in China

The world situation is constantly changing, and my country's new waterproof material industry has gone through more than 20 years of development and achieved gratifying results. Under the new economic situation, people's concept of building waterproofing has changed from focusing on a single economic cost concept to a functional concept. At the same time, the cost and service life of waterproofing projects have also been taken into consideration.

My country's petroleum asphalt linoleum began to be used in the early 1950s. By 1958, the output reached 190 million m2. By the early 1980s, at the beginning of reform and opening up, the output of asphalt paper linoleum rose to 530 million m2. With the reform and opening up, the petroleum industry and with the rapid development of the construction industry,

linoleum manufacturers have improved their production capacity of oxidized asphalt through technological transformation. By 1995, the output of asphalt paper linoleum has reached 1.22 billion m2. Because the construction application of paper tire felt still follows the traditional practice for many years, hot asphalt mastic is used as the binding material. Environmental pollution is produced during the hot melt process and construction operations of thermal mastic. Due to environmental protection reasons, in recent years some provinces and cities have explicitly banned the use of paper felt for construction in urban areas and have replaced it with polymer-modified asphalt waterproofing membranes. Paper-based linoleum was produced, so the output of paper-based linoleum was 800 million m2. Judging from the current overall structural proportion of new waterproof materials in my country, asphalt-based waterproof materials are still the main product, accounting for 80% of all waterproof materials, polymer waterproof membranes account for about 10%, and waterproof coatings and waterproof materials account for 10%. about.

At present, the ten most promising categories of waterproof material products in my country include:

1) **Polymer-modified asphalt waterproofing membrane**

   Consolidate the application of SBS , APP modified asphalt waterproofing membranes and self-adhesive rubber asphalt waterproofing membranes, **vigorously develop wet-lay self-adhesive modified asphalt waterproofing membranes** , promote the practice of roof greening and the application of root resistance membranes, and actively apply fiberglass tires For asphalt tiles, the use of composite

asphalt waterproofing membranes and paper tire linoleum is restricted, and the use of coal tar sand surface waterproofing membranes is prohibited.

2) **Synthetic polymer waterproof membrane**

Consolidate the application of polyvinyl chloride and EPDM waterproofing membranes, advocate one-time molding of polyethylene-propylene (polyester-propylene) waterproofing membranes and polymer cement bonding systems, and accelerate the research and development of wet-laid self-adhesive synthetic polymer waterproofing membranes restrict the use of chlorine Chemicalized polyethylene waterproofing membranes and eliminated recycled rubber waterproofing membranes.

3. **Waterproof coating**

Consolidate the application of polyurethane waterproof coatings, polymer cement waterproof coatings, cement-based waterproof coatings, promote cement-based permeable crystalline waterproof materials and silicone waterproof coatings, develop and apply spray polyurea polyurethane waterproof coatings, and research and apply high-solid content water-based asphalt-based waterproof coatings , promote the application of waterproof coatings for special purposes such as road and bridge waterproof coatings

4. **Sealing materials**

Consolidate the use of acrylic sealing materials (mid-range), strongly advocate the use of high-end sealing materials such as polysulfide, silicone, and polyurethane, and actively research the use of special

primers for sealing materials to improve the adhesion, water resistance, and durability of sealing materials. It is prohibited to use plastic grease, polyvinyl chloride glue and other sealing materials.

5. **Waterproofing agent**

   Consolidate the application of general-purpose waterproofing agents, advocate m1500 water-based penetrating waterproofing agent and permanent setting liquid (dps), and promote the application of silicone waterproofing agents and fatty acid waterproofing agents. The use of waterproofing agents with high chloride ion content is restricted, and the use of powdery waterproofing agents with excessive alkali aggregate content is prohibited.

6. **Grouting materials**

   Cement-based grouting materials are used for foundation reinforcement, cement-based and epoxy grouting materials are used for structural reinforcement, especially low-viscosity moisture-cured epoxy grouting materials, and ultra-early-strength self-leveling grouting cement and polyurethane and acrylic grouting materials are used for waterproofing and plugging. Composite grouting technology is recommended for different engineering situations. It is prohibited to use toxic and polluting grouting materials such as propylene glycol.

7. **Waterproof mortar**

   Actively apply polymer cement waterproof mortar, promote polypropylene fiber (PP), nylon fiber, and wood fiber anti-crack waterproof mortar, and study the application of zeolite siliceous dense waterproofing agents. Vigorously promote the application of

commercial mortars (special mortars such as waterproofing, thermal insulation, anti-corrosion, bonding, joint filling, and self-leveling).

8. **Waterproof and thermal insulation materials**

   Consolidate the application of extruded, molded polystyrene boards and mortar exterior wall insulation systems, actively promote the application of spray polyurethane rigid foam waterproof insulation materials, and appropriately develop and apply rubber powder polystyrene particle insulation mortar systems. Limit the use of insulation materials with high water absorption rates such as expanded vermiculite and expanded perlite. The use of loose material insulation is prohibited.

9. **Bentonite waterproof material**

   Actively apply natural waterproof materials - sodium bentonite waterproof materials. Specific varieties include bentonite water-swelling water-stop strips, bentonite waterproof boards, bentonite waterproof blankets and bentonite powder waterproof materials.

10. **Special waterproof materials**

    Choose to apply metal waterproofing membranes, research and apply special waterproof coatings for cultural relic protection.

1.2.2 The African market has huge market demand:

By the end of 2020, Africa's population has exceeded 1.5 billion, and the booming population needs to face the two most intuitive problems of housing and jobs. Housing demand provides opportunities for investment in residential and commercial real estate, while job demand needs to be met through urbanization construction such as railways, highways, ports, and

buildings. These have provided strong impetus for the sustained growth of the building materials industry in Africa. At the same time, the African continent's own technological backwardness in the building materials industry has destined it to rely on imports for most of its building materials. However, the high prices of imported building materials from Europe and the United States have kept the African public away.

Relatively speaking, China's building materials products, production equipment and construction machinery meet the needs of the African people in terms of product variety, grade and price. The African building materials market is offering great business opportunities. Although many African countries develop their own construction manufacturing industries by importing and exporting processing machinery and introducing processing technologies, they are unable to meet demand in the short term due to insufficient foundation and technical constraints. **Therefore, it is very urgent for our company to quickly deploy the African waterproof building materials market, establish a production factory as soon as possible, and cover the African market with marketable products.**

In order to adapt to the development trend of the world's new waterproof material industry, the company decided to invest in the construction of new waterproof material factories in Ethiopia, Tanzania, and other countries through rigorous market research. The main products include **modified asphalt self-adhesive waterproofing membranes**, **waterproof ointments**, and synthetic Polymer waterproof membranes. Through localized management and optimization and integration of corporate resources, after earning the first pot of gold, we will gradually increase product research and

development efforts, adjust product structure, promote product quality upgrades, and optimize product markets, thereby further improving the overall market service functions and product quality. Competitiveness, control product market equalization, reduce product costs and improve economic benefits so that corporate resources can be fully developed and utilized.

In line with the business philosophy of seeking survival by quality, development by science and technology, and efficiency by management, it is our responsibility to create wealth and serve society, and develop one generation after another as the driving force for enterprise development.

Serve domestic and foreign enterprises with first-class waterproof technology, product quality, and variety diversification; improve the core competitiveness of enterprises with technological innovation and product innovation.

1.2.2 Advantages of Project Construction

First of all, market advantage: after the project is put into operation, it will fill the gap in the waterproof market in Tanzania and surrounding countries and has the advantage of import substitution. It is a project supported by the Tanzania Investment Authority.

Ten-year preferential treatment for imported raw materials, equipment, and other tariffs, value-added tax, and income tax exemptions for production enterprises settled in the China-Tanzania Industrial Park ;

第三、**Cost advantage:** Waterproof products exported to Tanzania from China and other countries are not tax-free. With 25% tariff, 18% value-added tax and freight, the cost is much higher than the local production cost, which is approximately 1.7 times more than the factory cost.

第四、**Market advantage**: Tanzania has a population of more than 64 million, and together with neighboring countries, it can reach a population of more than 300 million. Especially the six countries of the East African Alliance, with a population of 280 million, have free internal trade and no tariffs. The Union of East African Nations has experienced rapid economic development in the past 10 years, and its demand for housing and employment has become increasingly strong. Calculated year-on-year, the annual demand for asphalt waterproofing membranes should be no less than 100 million square meters.

第五、Local labor, electricity, and land costs are relatively cheap.

第六、The Association of East African Nations is politically stable and friendly to China, and its real estate industry has developed rapidly after the epidemic.

第七、Huang Zaisheng, the developer of the China-Tanzania Industrial Park, has worked in Tanzania for more than 20 years. He serves as the president of the Chinese General Chamber of Commerce. He has a close relationship with the current president and has extensive contacts with local enterprises and governments.

Chairman Huang and I attended the Presidential Commendation Ceremony

1. 3 Feasibility study and construction scope

1.3.1 Scope of feasibility study

1. Through market analysis and forecast, determine the R&D and production scale, public works, warehousing, and logistics plans of the construction project.
2. Determine the size of the site and the construction of major ancillary facilities through analysis of construction conditions. According to the requirements of research and development capabilities and production technology, we will improve the management level, draw up the enterprise organization and determine the job vacancies based on the principle of efficiency and leanness.
3. Formulate water supply, power supply, heating methods and general transportation plans.
4. Determination of environmental impact, labor safety, and fire

protection measures.

5. Estimate the total investment of the project, propose the project implementation progress, calculate the investment benefit of the project, and analyze the project's risk resistance ability, etc. Evaluate the social, environmental and economic benefits of the project.

1.3.2 Construction scope

In the first phase , a comprehensive production line and supporting facilities containing polymer-modified asphalt self-adhesive wet-lay waterproofing membranes and SBS-modified asphalt waterproofing membranes will be constructed, including:

1. **Civil construction part**: factories, warehouses; office and living complex buildings; equipment foundation and auxiliary facilities.
2. **Asphalt storage**, loading, and unloading equipment; ball mill and colloid mill, etc.
3. **Coil production process** equipment and equipment installation, including batching system, conveying system, production system, packaging system, etc.
4. **Mechatronic measurement** and control device.
5. **Five connections**, one leveling and greening project for the newly built site.
6. **Environmental protection** and fire-fighting facility projects.
7. **Urban sales display center** and on-site display center.

1.4 Research Conclusion

1. 4.1 Adopt domestic advanced and mature technology and process equipment, so the product quality is reliable, and the operation is stable.

1. 4 .2 The construction of this project aims to meet the needs of energy conservation and environmental protection and to increase profits; at the same time, it is equipped with safety and environmental protection facilities to ensure that safety and environmental protection standards are met.

1. 4 .3 With the popularization of computer applications and the increasing maturity of monitoring software technology, this project is planning to use dynamic software to automate the entire process of product production to avoid human errors, further improve product quality, and achieve production Precise adjustment of process technical parameters to meet production process requirements. It has laid the foundation for the creation of a resource-saving, environmentally friendly, and technologically innovative enterprise.

Chapter 2

Product Market Forecast

2.1 Product market forecast

At present, the waterproof materials of the East African Alliance are mainly SBS and APP-modified asphalt waterproof membranes. There are still many problems in terms of product quality, application technology, market cultivation, etc. In particular, the proportion of high-quality products is small, and the overall level is not high.

According to the survey, the new waterproof materials produced by our company will have better product quality and cost advantages, coupled with the typical advantages of convenient construction and construction in the rainy season, they can better occupy the market. The prospects for the construction market in the East African Union are bright in the coming decades. With the rapid development of the construction industry and the

continuous improvement of people's lives, we will be required to provide better-quality waterproof materials and build numerous waterproofing projects. We believe that through hard work, by 2025, our new waterproof materials will dominate, the product structure will be more reasonable, and product quality and application technology will be close to Western cowhide products.

2.2 **Market Sales Forecast**

2.2.1 Business operation method

The company currently focuses on the production of waterproof materials, and in the future can develop into a large group company integrating design and research and development, technical consulting, and construction services. The company adheres to the business philosophy of "customer first, integrity and innovation" and adheres to the principle of "customers first, quality first, service first " to provide our customers with better services.

2.2.2 Market demand

The company has an advanced modified asphalt waterproofing membrane production line, with a planned annual production capacity of 10 million square meters in the near future and 20 million square meters in three years. In the future, it will expand production according to market demand and strive to achieve a market share of 80% in the local and surrounding areas. % . Due to the characteristics of our company's products, such as easy construction, good waterproofing effect, low cost and easy promotion, after the project is completed and put into production, the products will be in short supply and have a wide market space. It can even cover the building materials market in neighboring countries and earn foreign exchange for

Tanzania's exports. This could make the Tanzania Investment Authority more supportive.

2. 3 Product sales measures

In a market economy environment, according to market conditions, we strive to expand market share, stabilize sales prices, and improve product competitiveness by formulating appropriate sales strategies. Therefore, this project adopts flexible measures for sales measures, promotion methods and sales services.

The company's business model is mainly based on the production of waterproof materials, integrating waterproof design and construction services. While selling the company's products, it can also provide customers with engineering construction services, so the sales methods are flexible and diverse.

Sales methods adopt the following three methods:

First, for agents, establish a regional agency mechanism and a project registration mechanism to give agents higher profit margins.

Second, the company relies on its existing agency product resources to undertake waterproofing subcontracting construction business and establishes several construction teams to promote product sales and create more profit margins through construction.

The third is to set up a sales display center in Dares Salaam to provide sales training to group customers and agents to enhance the advertising effect.

Sales measures:

1. Establish a distribution agency, conduct necessary advertising and media publicity; provide pre-sales consulting services and after-

sales guidance services for sold products.

2. Build a high-quality construction team. While providing the company's products, we also provide high-quality engineering and construction services according to customer needs. Attract more customers with quality engineering construction client.
3. Price system: New products will be sold at a higher price in the initial stage of production, and corresponding cost control measures will be taken. After a certain period of time, the product price can be gradually adjusted according to product sales tend to market average.

Chapter 3

Technical Feasibility Analysis

The production line to be purchased this time can produce the following products:

3.1 Product solution

3.1.1 Modified asphalt waterproof membrane

1. Product Description:

SBS and APP-modified asphalt waterproofing membranes use SBS-modified asphalt and APP-modified asphalt as the coating layer respectively, polyester felt as the base, and fine sand, shale flakes, PE film, etc. as the covering.

A waterproof material made by soaking, coating, cooling, calendaring, and curling the material.

Modified asphalt composite tire flexible waterproofing membrane is made of rubber, resin, and other polymer-modified asphalt as the coating layer, composite tire base material as the carcass, and fine sand, shale flakes, PE film,

etc. as covering materials A waterproof material.

Modified asphalt polyethylene tire waterproofing membrane is made of oxidized modified asphalt or styrene-butadiene rubber modified oxidized asphalt or polymer-modified asphalt as the coating layer, polyethylene as the tire base, and vinyl film as the waterproof material made of cladding material;

2. Scope of application: waterproofing bridges, highway bridges, subways, roofs and underground projects.

3. Product features:

1) SBS-modified asphalt waterproofing membrane has excellent low-temperature resistance and elasticity, and good fatigue resistance. It is especially suitable for roofing, underground, subway, etc. in low temperatures and severe cold environments.

Bridges etc. are waterproof.

2) APP-modified asphalt waterproof membrane has good strength, heat resistance, and aging resistance, and is more suitable for roofs, undergrounds, subways, bridges, etc. in high temperature and hot environments.

waterproof.

3) Modified asphalt composite tire flexible waterproofing membrane. Since the composite tire is used as the carcass, the tensile strength is higher than the same kind of membrane with a single carcass. It is used for building waterproofing with higher strength requirements.

4) Modified asphalt polyethylene tire waterproofing membrane has excellent elongation performance and good water pressure resistance and is more suitable for underground engineering waterproofing.

4. Key points for design selection:

1) When multiple lines of defense are used, the thickness of the coil should not be less than 3mm; when one line of defense is used, the thickness should not be less than 4mm.

2) Use the roll material on the surface of mineral granules (sheets). No additional protective layer is needed. A rigid protective layer must be added to the roof. Polyester-modified asphalt membranes should be used for vibration-prone industrial factory roofs and other roofs with large structural deformations.

3) When the road and bridge pavement is asphalt concrete, mineral grain (flake) material polyester tire APP should be used

Membrane material, polyester tire SBS membrane material can also be used when the road surface is concrete.

3.1.2 BAC wet-lay composite double-sided self-adhesive rubber asphalt waterproofing membrane

1. Product introduction:

BAC wet-laid composite double-sided self-adhesive rubber asphalt waterproofing membrane is made of polyester felt or fiberglass felt.

It is composed of the carcass, SBS-modified asphalt, self-adhesive rubber asphalt glue, and isolation paper. The polymer structure in the self-adhesive glue and the cement molecular structure in the newly poured concrete react under the action of water to form an interpenetrating network. The two interfaces of the newly poured concrete and the self-adhesive glue produce adsorption and mosaic effects at the same time, making the polymer composite. The self-adhesive waterproof membrane forms a "skin-like" overall combination with the main structure, and the damaged areas of the self-

adhesive adhesive have a self-healing function, forming a perfect waterproof defense system with the secondary lining. The cement slurry used in wet paving is covered and waterproof. The initial setting, final setting, and subsequent critical one-week hydration process are all completed in an ideal environment. Its strength, compactness, and crack resistance are all good.

2. Coiled material specifications: Thickness: 2mm, 3mm; Width: 1m; Length: 15 ~20 m (or according to user needs)

3. BAC wet-lay composite double-sided self-adhesive rubber asphalt waterproofing membrane has the following characteristics:

●The most reliable waterproofing system reacts chemically with uncured cement, allowing the waterproofing layer and the main structure to jointly build a "skin"-style solid waterproofing system with high reliability.

●Short construction period and low system cost. It can be constructed on humid and even unleveled base surfaces. It can be constructed in rainy seasons. No primer is required. The leveling layer and base plate protective layer are omitted. The construction period is ensured and the system cost is low.

●The pre-paved anti-adhesion can be integrated with the subsequently poured concrete and remain inseparable even after long-term immersion. It solves the problem of exterior and interior protection for underground projects.

●Good bonding with sealing materials. Self-adhesive glue can be integrated with other sealing materials. Solution

Solve the waterproof problem of special parts.

●Easy to find leaks and repair. BAC membrane and structure are permanently

and firmly bonded. Even if the membrane is partially damaged, the water will be limited to a small range, there will be no channeling, no leakage, and it is easy to repair.

●Safety and environmental protection

Solvents and fuels are saved during the construction process, environmental pollution and fire hazards are avoided, and resources are saved.

4、Scope of application: tunnels, subways, underground projects, roofs, exterior walls, and toilets.

3.2 Product Standards Adopted

"Polymer Waterproof Materials" GB18173.1-2000

"Elastomer modified asphalt waterproofing material" GB18242-2000

"Plastomer Modified Asphalt Waterproof Material" GB18243-2000

"Modified asphalt polyethylene tire waterproofing material" GB18967-2003

"Polyurethane Waterproof Material" GB/T19250-2003

"Chlorinated polyethylene waterproofing membrane" GB12593-2003

"Modified asphalt composite tire plastic waterproof material" JC/690-1998

JC/T975-2005 (Building Materials Industry Standard)

JT/T535-2004 (Transportation Industry Standard)

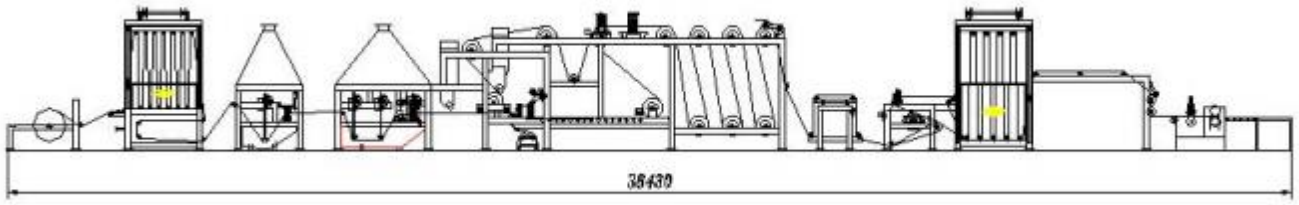
"Provisional Technical Conditions for Railway Tunnel Waterproofing Materials" Part 1 Waterproofing Regulations;

"Railway Engineering Construction of Passenger Dedicated Line Railway Roads and Bridges (2006) 8388

"Interim Technical Conditions for the Waterproof Layer of Concrete Deck of Passenger Dedicated Line Bridges"

3.3. Modified asphalt production process

1. Modified asphalt production line



2. Production process:

3. Production line system composition

(1) Main production line system;

(2) Cooling system;

(3) Electrical and control systems;

(4) Asphalt storage system;

(5) Modified asphalt preparation system;

(6) Thermal oil heating furnace and its supporting systems;

(7) Environmental protection system;

4. Equipment characteristics of modified asphalt waterproofing membrane production line

(1) Flexible design: to meet different product needs;

(2) Versatility: Able to produce a variety of asphalt bases with different carcasses and coverings at the same time

waterproof materials;

(3) Combined use of direct cooling and indirect cooling: suspended water tank cooling, comprehensive improvement

Cooling efficiency; integrated storage and drying of the carcass.

(4) Secondary oiling technology: The position of the carcass in the coil can be adjusted to ensure that the coil

Construction performance of materials;

(5) Sand can be spread on both sides: to meet the production of asphalt felt tiles;

(6) The automatic deviation adjustment mechanism is equipped with one or two sets at different positions according to the output.

set the device;

(7) Constant tension control: The tension is adjustable to adapt to different carcass varieties;

(8) Frequency conversion speed regulation;

(9) The colloid mill adopts advanced super shear force mill: greatly shortening the modification time;

(10) Unique structure of the mixing tank: with extremely strong shearing force and wall scraping function, from And avoid precipitation and scaling;

(11) Flue gas treatment system: multiple treatments of condensation, filtration and adsorption, fully compliant with environmental regulations Guarantee requirements; make it reach GB4916-85, with low cost and good effect.

(12) Electronic weighing and measurement of batching system. Greatly improve the stability of product quality, strict Strictly control product quality and improve stability;

(13) Semi-automatic and fully automatic felt rolling machines: program control and exquisite structure;

(14) The whole set of equipment has a high degree of automation, easy operation and maintenance, and strong practicability.

(15) Thermal oil furnace system uses combustible coal, fuel oil and gas.

(16) The mixing tank has a unique structure. The paddle blades are divided into five layers. The second layer is fixed and the third layer is fixed. It has layer activity, extremely strong shearing, and wall scraping function, thereby avoiding precipitation and scaling.

5. Main technical parameters of modified asphalt waterproofing membrane production line

(1) Production scale: Annual output of various types of modified asphalt waterproofing membranes is 10 million m2/a. The production line operates in two shifts. 16h/d; 300 days/a,; 4800h/a

(2) Carcass: polyester tire, fiberglass tire, composite tire;

(3) Modified materials: SBS, APP, etc.;

Covering materials: sand, schist, PE film, aluminum foil, etc.;

(4) a. Two sides of sand b. One side of PE film, one side of sand c. Two sides of PE film d. Embossed or

Not embossed;

(5) Product specifications: 1.5- 4mm;

(6) Production line speed: 0 ~ 25m/min adjustable (according to production capacity);

(7) Total installed capacity: 415 KVA

(8) Fuel consumption: 600000kcal/h ~ 1000000kcal/h Thermal efficiency ≥65%;

Coal burning index: 4000kcal/kg

Total caloric consumption: 800000×4800=7680000000kcal

Coal consumption: 7680000000/4000/1000=1920t

(9) Water consumption: 0.2t/day (according to the specific configuration of the

production line);

(10) Minimum size of main workshop: 80m ×12m× 10m (based on annual output).

3.4 Production equipment

1. Electrical power

1 set of wires, cables, bridges, distribution boxes and cabinets

2 transformers 600 KVA 1 set

2. Production equipment

1 Modified asphalt waterproofing membrane production line 10 million square meters/ 2 lines

Three other equipment

1) asphalt storage tank 5 00m3 1 set (digging underground storage pool)
2) floor scales 100t 1 set
3) other pieces of equipment (pumps and others) 1 set
4) 1 set of fire protection and environmental protection equipment
5) 1 set of test and inspection equipment
6) automatic control systems 1 set
7) thermal oil boilers 4t (desulfurization type) including 1 dust removal water treatment.
8) 1 set of asphalt barrel removal equipment
9) 400KV generator set 1 set
10) 2 forklifts

Four transport cars

1) Jiefang truck 10ft 2 units (can be delayed)
2) pickup trucks 2 units

3) 2 off-road vehicles

The total investment is expected to be **15 million yuan.**

Chapter 4

Raw Material Sources, Production Scale, and Product Plans

4.1 Raw and auxiliary materials and energy consumption

4.1.1 Polyethylene, ethylene vinyl acetate, and modified asphalt are purchased from China or the Middle East.

4.1.2 Tire cloth and other fillers and additives are purchased domestically in China.

4.1.3 The daily water consumption of this project for production and living is 5t, the maximum electricity consumption is 800kw /h; the annual diesel consumption is 100t .

4.2 Production scale and product plans

The maximum annual plan for asphalt waterproofing membrane is 20 million square meters.

The unit price is 20.0 yuan and the annual output value is expected to be 200 million yuan.

The unit price of 1,000 tons of waterproof ointment is 20,000.0 and the estimated output value is 20,000,000 yuan.

Total 220 million yuan (Equivalent to TZS 76,870,200,000)

The first-year output is calculated as 30%, with production and sales of 3 million square meters (SBS 2.5 million, wet-lay self-adhesive membrane 500,000), 300 tons of ointment, and a planned output value of 76 million yuan.

Production capacity in the second year is 5 million square meters.

Production capacity in the third year is 7-8 million square meters.

Maximum production capacity 20 million square meters

4.3 Device running time

The device is planned to operate for 300 days per year; 16h/d (two shifts per day) ; 4800h/ year .

Chapter 5

Project Implementation Plan

5.1 Factory construction area conditions and factory site selection

5.1.1 General physical geography of the factory site

The project is located in a good location in Zhongtan Industrial Park, with convenient transportation and superior geographical environment. The China-Tanzania Industrial Park covers an area of 10 square kilometers, about 90 kilometers away from Dar es Salaam, and is located on Tanzania's main route to the East African Union, with both roads and railways leading to the area. The Tanzanian government has built a land port near the industrial park, which provides one-stop service conveniences such as customs clearance and shipping. It is very convenient for products to be exported to various countries. The industrial park has complete roads, water and electricity facilities , and has corresponding tax incentives.

Industrial park under construction

5.1.2 Meteorological data

Tanzania has a typical maritime climate , with a slightly hot dry season and distinct rainy seasons. December is the hottest month in Dar es Salaam, with a maximum temperature of about 32 degrees and ample sunshine.

5.2 General plan transportation

layout principles and functions According to the construction conditions of the project, combined with the requirements of environmental protection, sanitation, safety, fire protection, transportation and construction and installation, a reasonable general layout is carried out and made to meet the requirements of the overall plan. At the same time, according to the development trend of the company, in the overall layout Considering that there is room for future enterprise development, the general plan is kept compact while ensuring a safe distance to save land and investment. Pay attention to economic, social and environmental benefits, and create good working conditions for employees to produce.

The vertical layout and the overall layout are considered together, and the site

elevation meets the requirements of construction, creating good conditions for production, operation and management.

Meet the requirements for on-site road transportation and loading and unloading facilities.

The elevation and slope of the building, shopping and site must be conducive to drainage and not be washed away by rain. The natural terrain must be fully utilized and reasonably transformed to reduce the amount of earthwork.

5.3 Construction content

According to the master plan, one production plant building with an area of 2000m2 will be constructed ; two warehouse buildings with an area of 4000m2 ; a boiler room and a tank farm; a comprehensive office and living building with an area of 1000m2 and a janitor; and equipment purchase and installation. Water supply, drainage, power transformation and distribution systems, roads, greening and fire-fighting facilities. The house construction plan uses light steel structure or finished board house.

Construction investment: 40 million yuan. Among them, investment in fixed assets: 33 million yuan (including 10 million yuan for civil construction , 8 million yuan for land , and 15 million yuan for equipment); working capital 7 million yuan.

5.5 Organizational setup, staffing and training

5.5.1 Organizational setup

The company is a partnership enterprise and implements the general manager responsibility system under the leadership of the board of directors. The company's organizational structure consists of a production department, a sales department, a purchasing department, an experimental department

and an auxiliary department.

5.5.2 On-the-job training

New project capacity: 130 people; asphalt waterproofing membrane workshop 30 people; 30 people in asphalt loading and unloading and stone powder grinding and rubber powder grinding workshops; 10 people in power workshop ; 20 people in storage and transportation; 20 people in sales; 20 people in purchasing, finance and logistics personnel implement scientific management. The proportion of Chinese personnel shall not exceed 20%.

Training plan: Each position needs to train 2-4 people. Pre-job training and on-site operation are combined. Pre-job training is 10 days and on-site training is 20 days, totaling 1 month. The training method is based on "process specifications", "operation specifications", "inspection specifications", "safety specifications" and related enterprise management systems as teaching materials, combined with on-site operations. After passing the examination, you will be employed with a certificate.

5.6 Project implementation schedule

20 Completed scientific research, inspections and plans in December 2023

Equipment procurement and shipment, factory construction, and various start-up procedures at company registration level from January to May 2024

and personnel recruitment level technical training in June 2024

In July 2024, the procurement of production materials was in place, inspection and testing , etc., product sales training trial production, product testing, branding, packaging, etc. in August 2024 Officially put into operation in September 2024

Chapter Six

Production Safety and Fire Fighting

6.1 Production safety and labor protection

6.1.1 Hazard sources

(1) Storage and use of drugs in the laboratory.

(2) Oil storage tanks and transmission pipelines.

(3) High-temperature medium transportation pipeline.

(4) Electrical appliances and circuits

(5) Power Equipment

(6) Working at heights

6.1.2 Safety measures and labor protection

(1) Earnestly implement the "Safety Operating Regulations", "Emergency Plans" and "Labor Insurance Regulations", and operators must strictly implement the safe production operating regulations formulated by the company. Strengthen safety protection measures. Give.

(2) The drugs in the laboratory must be stored in categories according to regulations, and the room must be well-ventilated and equipped with There is an alarm device for concentration exceeding the standard. During operation, the "operating specifications" must be strictly followed, and labor protection supplies must be provided.

(3) Electrical appliances and circuits must be equipped with leakage, overload, short-circuit protection and explosion-proof devices.

(4) The transmission mechanism of power equipment must have a safety cover.

(5) Equipment settings should be grounded repeatedly, and buried cables

should be protected with plastic tubes (steel should be added to the crossing casing), switch boxes and cabinets are equipped with leakage protectors.

(6) For work at height, all equipment that is frequently operated and inspected is equipped with an operating platform and Protective fence.

6.2 Fire protection

(1) Firewater; Firewater is uniformly allocated by the park, and the water consumption is 50m3/h for 3 consecutive hours.

(2) Firefighting facilities; The reservoir in the park is equipped with two high-pressure water pumps (one on and one on standby), which are transported to the factory by the high-pressure pump.Fire hydrants and fire wells are arranged on both sides of the main road in the factory, with a turning radius of less than 80m.

(3) Equipped with fire extinguishing equipment; The workshops, warehouses, and tank areas are equipped with 1 trolley-type 15kg dry fire extinguisher each. Prepare fireproof sand and other fireproof equipment. Other facilities are equipped with 5kg foam fire extinguishers; 2 cans on each floor of the complex building; 1 in each canteen and dormitory.jar; janitor 1 jar.

The design and construction of the factory strictly comply with the relevant fire protection regulations, leaving sufficient safety and fire prevention measures. distance, the factory area is equipped with a circular fire escape of 7m and a corner radius of 12m.

There are fire hydrants on each floor of factories and complex buildings.

Chapter 7

Investment Estimation

7.1 Preparation instructions

The proposed project covers an area of 47 acres. Its investment estimate mainly includes **asphalt loading and unloading storage equipment, asphalt insulation pool, stone powder, and rubber powder grinding and storage workshop,** comprehensive batching workshop, coil production workshop, finished product, and raw material warehouse, office complex, and Other public works; major project costs such as production and living facilities and equipment purchase and equipment installation; the entire calculation period is 10 years.

7.2 Investment estimation

7.2.1 Compilation basis and method

The construction project cost is estimated based on the technical information provided by the architecture and structure majors, its structural form and use function, and combined with local construction and installation standards for similar projects and is estimated based on the square meter cost index.

Equipment purchases costs refer to domestic order quotations and market inquiries. Equipment transportation and installation costs are estimated according to industry charging standards.

7.2.2 Investment estimation and implementation

Total investment: Total investment in capital construction + all working capital = **40 million yuan to be implemented in 5 years.**

Among them, fixed assets are 33 million yuan (land investment is 8 million yuan, civil construction investment is 10 million yuan, and equipment

investment is 15 million yuan), and working capital is 7 million yuan).

7.2.3 Allocation Table of the Local and Foreign Employees to Set up the Factory in Tanzania

S/N	Local Expert	Foreign Expert	Total
1.	100	10	110

7.3 Financing.

The total investment is 40-million-yuan equivalent to more than USD 500,000 all raised and sourced by shareholders themselves.

Chapter 8

8.1 Financial Evaluation

Investment Breakdown

Cost of the Project

S/No.	Items/Description	Amount in USD
1.	Land & Building	2,000,000/=
2.	Plant & Machinery	2,000,000/=
3.	Furniture, Computers & Fixtures	500,000/=
4.	Vehicles	50,000/=
5.	Others	
6.	Pre-operating Costs (Rent)	
7.	Initial working capital	450,000/=
	Total Cost of the Project	5,000,000/=

8.2 Five-year Financial Plan

No.	item	Investment (US10000)	Profit (US10000)
1	2024	400	0
2	2025 & 2026	100	80
3	2027 & 2028	0	150

8.3 Cash Flow Statement in US $ (1,000)

SN.	Item	2024	2025	2026	2027	2028
1	Investment	840	300	340	390	410
2	Cash in	3450	3797	4167	4572	4848
3	Purchase Payment	2760	3038	3334	3658	3878
4	Salary	104	114	125	137	145
5	Operation Expenses	414	456	500	549	582
4	Tax	52	57	63	69	73
5	Fix Assets Investment	400	120	132	145	160
6	Cash Surplus	121	133	146	160	169

8.4 Liabilities Chart of Assets

	2024	2025	2026	2027	2028
Current Assets	800	840	882	926	972
Fixed Assets	400	520	652	797	957
Depreciation Accumulated	80	104	130	159	191
Equity	400	420	441	463	486
Liability	80	84	88	93	97
Total Assets	640	752	874	1,008	1,155

8.5 Estimated Profit & Loss Statement in USD (1,000)

	The 1st Year	the 2nd Year	the 3rd Year	the 4th Year	the 5th Year
Indicated Fiscal Year	2024	2025	2026	2027	2028
Total Sales Amount	3450	3797	4167	4572	4848
Cost of Sales	3278	3608	3959	4344	4606
Initial Inventory	660	813	1002	1235	1523
Purchase	627	772	952	1173	1447
Ending Balance	550	678	835	1029	1269
Total Investment	800	240	264	290	319
Productive Salary	84	92	102	112	123
Operation Fee	414	456	500	549	582
Salary of Management Staff	80	100	100	95	80
Management Cost	124	137	150	165	175
Other Cost	33	41	50	62	76
Operation Income (Loss)	173	190	208	229	242
Profit at the End of the Year/(Loss)	121	133	146	160	169

9. Conclusion

The construction period of this project is short, and the investment profit rate is above ; it is higher than the indicators specified by the industry, and the return on investment is very good ; the investment payback period **limit** is one year, the payback period is relatively short, and the risk is small; the break-even point is 30% of the design production capacity %, the project has greater risk resistance; therefore, it is feasible to construct the project. The risk lies in Tanzania's political stability and policy changes. Considering that Tanzania currently has good relations with the country, the project can be promoted as soon as possible.