



A STUDY ON NEW ENVIRONMENTAL PROTECTION TECHNOLOGY  
BASE ON HIGH TECH ENTERPRISE IN CHINA

BY  
XIAOCHUN QU

AN INDEPENDENT STUDY SUBMITTED IN PARTIAL FULFILLMENT  
OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF  
BUSINESS ADMINISTRATION (INTERNATIONAL PROGRAM)  
SOUTHEAST ASIA UNIVERSITY  
ACADEMIC YEAR 2022  
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**Independent Study Title** A Study on new environmental protection technology  
Base on High Tech Enterprise in China

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**Program** Master of Business Administration (International Program)

**Advisor(s)** Tanaset Morasilpin, Ph.D.

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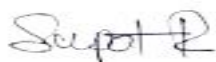


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### Abstract

This research aim to study on Yieli Green Technology. this study were qualitative methodology via in-depth interview, and content analysis. The study found that: 1) Market Segmentation were the group of hospital want to medical waste treatment and manufacturing, target focus on the group of hospital, Market positioning, strengthen the company's environmental protection service capacity, and constantly expand the scope of environmental protection services, to realize the extension of service mode, Market strategy establish a brand image, enhance the brand value. Within the enterprise, improve the company system, and shape a positive corporate culture. At the same time. 2) Management Plan encourage innovation: As a high-tech enterprise, innovation is the life of an enterprise, Production plan strictly required and controlled, and clean production according to the requirements of ISO14000 standard, Operation plan installation and design capacity, the transport capacity of this project is about 3000 tons / year, and the shipment capacity is about 300 tons / year. Considering the particularity of medical waste, the company has set up a special logistics department, which is responsible for the collection and transportation of medical waste, and the factory transportation basically relies on the self-provided transportation force. 3) Financial projection for 5 years, initial investment = 500 (Ten thousand Yuan), NPV = 207.923 (Ten thousand Yuan), IRR = 21.34 %, and Payback Period = 3 years and 2 months.

**Keywords:** Green Technology, medical waste treatment

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## Section 1

### Introduction

#### 1.1 Company Profile

Yieli Green Technology Co., Ltd. is a high-tech environmental protection enterprise based on new environmental protection technology. Company will make full use of the national support for environmental protection enterprises and preferential policies, relying on the thermal engineering institute of Zhejiang university talent and technical advantages, based on the existing medical waste disposal technology, according to the market needs, is committed to the development and utilization of environmental protection technology, make the natural environment and resources get reasonable and effective use, promote the development of environmental protection in our country.

The company has mastered the core technology of harmless treatment of medical waste, and in the future will mainly engage in the maturity and promotion and application of the technology. The company plans to adopt the intelligent operation monitoring system, which is a technology-intensive enterprise rather than a labor-intensive enterprise. The company will not only with a new environmental protection concept and technology, but also with high work enthusiasm and prudent working attitude, always with the company's purpose "to protect nature, care for life" to spur themselves and influence others.

In 5-8 years, the company will be established into a business scope throughout the country, integrating environmental protection technology research, environmental protection equipment manufacturing, project engineering design and construction investment, involving medical waste treatment, urban hazardous household waste treatment, industrial hazardous waste treatment and other fields, advocating green life of a large environmental protection group company. To become the top three in the industry in China.

Encourage innovation: As a high-tech enterprise, innovation is the life of an enterprise. Set up an innovation incentive mechanism within the enterprise. Whether technical personnel or operators, whether technical, operational procedures or cost

reduction, as long as the contribution, will give the corresponding reward.

Different management: Researchers and the introduced senior talents must pay full attention to the value of their human capital to the development of the enterprise, and they must adopt more flexible management and incentive methods, such as option incentive, work autonomy and so on. For ordinary workers, it is appropriate to adopt institutionalized management, write a more detailed job description, and standardize the operation process.

Double-track promotion: two promotion mechanisms are technical and administrative, namely, technical promotion means is technician senior technician engineer senior engineer, and administrative promotion means is general employee supervisor senior administrative personnel. With the promotion of the position, the remuneration and welfare benefits are also increased accordingly. This way can better mobilize the enthusiasm of employees and overcome the disadvantages of single administrative promotion ignoring technical personnel.

## 1.2 Current Situation analysis

Yieli Green Technology. have good growth opportunities, but certainly will also face many challenges and uncertainties.

### 1.2.1 Opportunities

- ✧ With the development of medical conditions in China, the widespread use of disposable medical devices, the output of medical waste will increase;
- ✧ The public's general understanding of the harmfulness of medical waste requires the strict treatment of medical waste;
- ✧ The state attaches great importance to the development of high and new environmental protection technologies, and issues supporting policies for environmental protection enterprises;
- ✧ Less investment, good environmental protection, easy to obtain the local government support.

### 1.2.2 risk

- ✧ Changes in national policies on medical waste disposal;

- ✧ With the development and change of the economy, the corresponding fee standard will change;
- ✧ The addition of potential competitors;
- ✧ The improvement of national environmental emission standards requires some investment in further research and development and improvement of exhaust gas treatment devices.
- ✧ Local protectionism limits the industrialization of medical waste treatment

#### 1.2.3 Strengths

- ✧ "Yili profit" treatment technology is advanced, can be expanded to other hazardous waste treatment market, so the prospect is broad;
- ✧ Relying on the technical and talent advantages of Zhejiang University, with the ability of interdisciplinary research and product development;
- ✧ Leading technology, the technology support party has rich experience in technology development;
- ✧ Low production cost, high investment rate of return, and the investment payback period is short.

#### 1.2.4 Weaknesses

- ✧ Weak public awareness of environmental protection, especially in economically underdeveloped areas; some wrong media reports on the negative impact of incineration technology have caused a few public resistance to incineration treatment technology;
- ✧ After joining the WTO, the environmental protection market will be open to foreign competitors, and we lack the experience of competing with foreign competitors;
- ✧ The national regulations on medical waste treatment are not detailed enough, resulting in the ambiguity and uncertainty in the treatment technology.

#### 1.2.5 Response measures

- ✧ Familiar with the laws and regulations of environmental protection and other related industries;

- ✧ Invite Professor Yan Jianhua from Zhejiang University as a consultant of the company to assist in the formulation of the company strategy;
- ✧ Establish good cooperative relations with the local government;
- ✧ Improve R & D investment, implement in-depth development, improve the technical advantages of processing, and reduce the single risk of technology;
- ✧ Actively expand in the treatment process and region, and reduce the dependence on the single treatment process and region;
- ✧ Establish timely and effective information feedback channels to keep abreast of the market and technology trends;
- ✧ Flexible use of financial leverage, in the appropriate risk range, to ensure that the maximum benefits.

### **1.3 Feasibility analysis**

#### 1.3.1 The development trend of the environmental protection industry

The development of environmental protection-related industries has become a global economic phenomenon today. Since the 1990s, with the Chinese government's intensified efforts in governance and ecological protection, environmental protection-related industries have grown and grown rapidly. Compared with 2020, in 2023, the number of environmental protection related industries nearly doubled, the number of employees increased by 87%, the total annual income increased by 268%, the total annual profit increased by 187%, the per capita income and per capita profit increased by 73% and 53% respectively.

### The development of environmental protection-related industries in China

project	In 2021	In 2022	In 2023
Total number of enterprises and public institutions (one)	8651	9090	18144
Number of employees (ten thousand people)	188.2	169.9	317.6
Total annual revenue (RMB 100 million yuan)	311.5	459.2	1689.9
Among them: environmental protection products production	104.0	182.1	236.9
Clean product production	-	21.6	281.1
Environmental protection services, waste disposal and utilization	180.4	239.2	886.5
Natural ecological protection	27.1	16.3	285.4
Total annual profit (RMB 100 million yuan)	40.9	58.1	166.7
Per capita income (ten thousand yuan)	1.66	3.07	5.32
Per capita profit (ten thousand yuan)	0.22	0.34	0.52

Source: Environmental Protection, 2002.1, Bulletin of the State Environmental Protection Administration

China's environmental protection industry has developed rapidly in recent years, and the income of related industries has been increasing. The figure below shows the income growth of China's environmental protection-related industries from 2000 to 2023.

#### 1.3.2 Good policy environment

The technical Policy on the Prevention and Control of Hazardous Waste Pollution issued by the State Environmental Protection Administration, the State Environmental Protection Administration, the State Economic and Trade Commission

and the Ministry of Science and Technology pointed out that the phased goal of hazardous waste management in China is to realize the environmental harmless treatment of clinical waste in hospitals by 2005. It also pointed out that governments at all levels should formulate encouraging economic policies and measures to accelerate the establishment of hazardous waste collection, storage, treatment and disposal systems that meet the requirements of environmental protection, and actively promote the pollution prevention of hazardous waste

Article 5 of the Law on the Prevention and Control of Environmental Pollution by Solid Waste clearly stipulates: " The state encourages and supports measures for the centralized disposal of solid waste conducive to environmental protection. "And give preferential tax policies.

In the state economic and trade commission and the state administration of taxation jointly issued the economic and trade resources [2000] 159 file "published about the current state encourages the development of the environmental protection industry equipment (product) directory (the first) notice", will be used in hospitals, airports, living communities and other solid waste treatment of small solid waste incineration equipment.

At present, most regions of China lack centralized treatment stations of medical waste, and the government in some regions is lax in the management of medical waste, resulting to the loss of a large amount of medical waste and endless disasters. A few hospitals use self-provided furnace to treat medical waste, with poor treatment equipment, serious secondary pollution, and at the same time cause a great waste of resources and energy, and the treatment of residues after incineration is not standardized, which seriously pollutes the environment. Now, the government urgently needs the social funds to invest in this field, which can not only reduce the burden on the government and benefit the people, but also bring rich profits to the investors themselves. Considering the huge potential of the environmental protection industry and the current policy environment and development trend, the investment in the medical waste harmless treatment industry enjoys extremely high policy advantages and opportunity advantages.

### 1.3.3 Industry analysis

#### 1.3.3.1 Special analysis of the industry

The "Technical Policy on the Prevention and Control of Hazardous Waste Pollution" points out that the harmless treatment of medical waste should be realized in 2005, so the development of this field is imperative and urgent.

As a sunrise industry, the harmless treatment of medical waste is the key field of high-tech industrialization given priority by the country, which requires high technical content and technical requirements. Due to the previous policies are not perfect, the government lacks enough funds to invest in this field, and there is a large amount of idle funds in the society, because of the lack of key technologies, unable to enter the field.

Therefore, as long as the investors invest in this emerging field, with excellent opportunities and advantages, they will be able to get the support of the government, and can promote the industry's policies and norms to develop in a benign direction. This is not only in line with the trend of the development of The Times, but also will bring rich economic benefits to the investors.

#### 1.3.3.2 Development status of domestic health undertakings

In recent years, the medical institutions in major cities across the country have changed little, increased and decreased, but the total number of hospital beds is still increasing. The following table shows the development situation of some urban health undertakings:

**The development of medical and health undertakings in some cities**

area	a particular year	Beijing	Tianjin	Hebei	Liaoning	Shanghai	Jiangsu	Zhejiang	Guangdong	Shandong
Total organization (s)	1998	5722	3190	20071	11710	5467	13364	17457	15435	14642
	1999	5990	2969	20023	11994	5362	13699	16712	12680	14611
	2000	6176	2983	20663	12564	5136	12813	17034	13499	17118
Total beds (ten thousand)	1998	6.9	4.0	16.6	19.6	7.0	17.0	11.1	15.8	20.8
	1999	6.9	4.0	16.6	19.4	7.2	17.2	11.0	16.2	21.3
	2000	7.1	4.0	16.9	19.1	7.5	17.3	11.4	16.8	21.5

As the number of hospital beds increases, so does the production of medical waste. Therefore, the capacity of the medical waste disposal market is also increasing.

#### *1.3.3.3 Development situation of domestic medical waste treatment industry*

Although China's laws and regulations also have provisions on the management and disposal of medical waste, they are not perfect. The harmless treatment of medical waste is just starting.

At present, there are several economically developed provinces and cities in China, such as Guangzhou, Hangzhou, Fuzhou, Shenyang, etc., have begun to centralized treatment of medical waste, but due to the introduction of foreign technology, the investment cost is extremely high, and does not conform to the characteristics of domestic medical waste. In addition, some domestic colleges and universities and research institutes are also engaged in the research and development of medical waste harmless treatment technology, but they are generally in the experimental stage.

In view of China's existing national conditions, under the guidance of Academician Cen Kefa and Professor Yan Jianhua, thermal Energy Institute of Zhejiang University actively developed new practical treatment technology, and developed medical waste treatment technology with two-stage gas-controlled rotary combustion method and advanced flue gas treatment device. This technique fully considers the particularity in the medical waste disposal process and minimizes the secondary pollution through various measures. The whole equipment has simple structure, convenient operation, low cost and reliable operation, which can make up for the shortage of current medical waste treatment technology in China. At the same time, it overcomes the application obstacle of direct introduction of foreign technology, not only the exhaust emission reaches the national environmental protection standards, but also can recover energy, which has the dual advantages of low input and high social benefits.

#### *1.3.3.4 Development of harmless treatment of foreign medical waste*

The importance of centralized treatment of medical waste was recognized earlier abroad. As early as 1986, the EPA Solid Waste Office (EPA) published the "Infectious Waste Manual", which implemented the tracking management of medical waste from

transportation, storage to final incineration. In 1989, Japan promulgated the "Medical Waste Treatment and Cleaning Law", which detailed the standards and procedures for medical waste treatment. The Netherlands adopts a second-stage combustion system to establish a medical waste centralized treatment center with an annual processing capacity of 6,000 tons, using a waste heat boiler for heat recovery and a wet dust collector for exhaust treatment by activated carbon filter. Between 1995 and 2001, the EU also invested 50 million euros in research on medical waste and its disposal technologies.

From the current example of centralized treatment of medical waste, the incineration method of centralized treatment of medical waste is in line with the international trend.

#### 1.3.4 Competition analysis

Medical waste treatment is still in its infancy in China, and it is also a promising emerging industry at present. Due to the particularity of the industry and its huge role in promoting social public welfare undertakings, its development will be strongly advocated and supported by the government. From the perspective of social benefits, both the enterprises and the government engaged in medical waste treatment will benefit from it, and the development of this industry has obvious external economy.

As the leader of domestic counterparts, Thermal Engineering Institute of Zhejiang University has done a lot of advanced research, and the experience of project design and management is beneficial to the smooth implementation of the project and reduce the risk, as a pioneer, with the strong support of the government, can quickly create a high barriers to entry, thus ensure high market share.

#### 1.3.5 Customer analysis

The customer of this service is all the medical waste generating units within a certain area. Under the provisions of the policy, all the waste generated by the medical and health institutions by 2005 must be handled by the designated company. And with the widespread use of disposable medical devices, medical waste will continue to increase in the recent years. According to the statistics of nearly 10 years, the annual growth rate of medical waste production is 3% to 6%. Therefore, due to the mandatory nature of the policy, once the enterprise is established and starts to

operate, there is no customer problem. The establishment of medical waste disposal sites is closely related to urban planning. Under the authorization of the government, there is generally a medical waste disposal center in a city, so the government itself is also our customer. We expect a mutually beneficial cooperation with the government.

#### 1.3.6 Analysis of the existing competitors

The enterprise faces two aspects of competition: the domestic similar technology owners and the foreign similar technology owners.

The medical waste treatment industry has a strong geography, and the establishment and development of other similar enterprises have limited influence on the development of enterprises. Due to its large population and wide region, the harmless centralized treatment of medical waste is still in its initial stage, so the industry has considerable space for development. Aiming at the existing technologies of domestic medical waste treatment enterprises, we have the advantages of low project start-up cost and operation cost, stable operation, wide adaptation range, no secondary pollution, and have considerable competitiveness in the market. Although the processing technology of imported equipment is advanced, the price is high, and there are technical problems in the direct application of medical waste treatment in China. In addition, the company is located in China, compared with foreign similar technology competitors, in the service response is more timely, occupy a favorable position.

#### 1.3.7 Analysis of potential competitors

The medical waste treatment industry has extremely high barriers to entry, mainly reflected in the following three aspects:

Technical barriers: the country has put forward very high requirements for the treatment of medical waste, from equipment manufacturing to operation, as well as exhaust gas and ash emissions have strict requirements. And medical waste treatment is a complex comprehensive treatment process, including pretreatment, heat treatment, ash treatment and slag treatment and tail gas treatment. Heat treatment also includes pyrolysis and incineration. Only on the basis of fully studying the combustion mechanism and the formation mechanism of harmful substances, can

the "three T" relationship of combustion condition be reasonably determined, ensuring that the treatment is completely and the minimum secondary pollution. At present, most of the domestic technologies have problems in heat treatment and tail gas treatment. In the short term, domestic scientific research institutions cannot put forward the treatment technologies that meet the national requirements. In addition, our core heat treatment technology is applying for patent protection to ensure the exclusive use of this technology.

Policy barriers: Waste generated by health care institutions is generally disposed of by government-designated companies. Therefore, in order to establish a medical waste treatment enterprise, we must first get the policy support of the local government.

Regional barriers: Due to the strong regional nature of medical waste treatment, once the processing capacity of a certain region reaches saturation, the regional nature becomes a strong barrier to prevent potential competitors from entering the region. Based on the existence of the above barriers, once the project is established, it can be in a certain period and within a certain region, making it difficult for potential competitors to enter.

#### 1.4 Chance description

##### 1.4.1 Pollution situation of medical waste and its treatment status

###### 1.4.1.2 *Definition, composition and characteristics of medical waste*

###### 1.4.1.3 *Definition of medical waste*

According to the National Hazardous Waste List, jointly promulgated by the State Environmental Protection Bureau, the State Economic and Trade Commission, the Ministry of Foreign Trade and Economic Cooperation and the Ministry of Public Security since July 1, 1998, medical waste includes hospital clinical waste, waste drugs and waste drugs:

1. HW 01 Hospital clinical waste generated from medical services in hospitals, medical centers and clinics, including:

- Surgery, and dressing of the residue

- Biological culture, animal test residues
- Test for the residue
- Infectious waste oneself
- Waste water treatment sludge

2. HW 03 waste drugs, expired waste drugs, scrapped unlabeled and multiple mixed drugs and drugs (excluding waste drugs in HW 01 and HW 02), including:

- Scrapped drugs produced in production (including drug waste raw materials and intermediate reactants)
- Units (scientific research, monitoring, schools, medical units, laboratories, etc.)
- Expired and scrapped drugs (materials) of the management department

Note: HW 02 refers to the waste generated during the production of medical drugs, including veterinary drug products (excluding traditional Chinese medicine wastes).

#### *1.4.1.3, Composition of medical waste*

Taking Beijing as an example, according to the investigation of the waste generated by medical units in Beijing since 1996, the composition of hospital waste is divided into the following 10 categories according to the National Hazardous Waste List:

Beijing municipal medical waste classification table

number	classify	form
1	disposable Plastic supplies	Including disposable syringes, infusion sets, infusion tube, drainage tube, diversion tube, test tube, gloves, mattresses and other plastic supplies;
2	disposable Paper supplies	Including disposable specimen boxes (such as stool boxes, sputum boxes), mouth cups, masks, hats, tissues, paper sheets, gynecological and pediatric supplies and other paper supplies;
3	disposable Rubber supplies	Including disposable latex gloves, latex tubes and other rubber supplies;
4	Laboratory waste	Including waste culture medium, waste solvent, waste acid and alkali, waste medicine liquid, waste test samples, etc.;
5	sundry Surgical dirt	Including gynecological surgery, artificial abortion, surgical operation of human tissue residues, stained blood, stained cotton yarn, stained mattress and cloth and other postoperative stains;
6	animal test specimen	The experimental animal carcasses and experimental animal organs produced in the course of medical research and testing;
7	effluent disposal mud	Sludge produced by the hospital wastewater treatment facilities;
8	dressing	Waste cotton swabs, bandages, gauze and other wastes produced in outpatient clinics, clinical clinics, wards, laboratories and laboratories;
9	expired waste drugs	The expired or invalid waste western medicine tablets, injection, powder, ointment produced by the pharmacy;
10	disposable inspecto scope	All kinds of disposable examination instruments used in medical activities in outpatient clinics and wards.

### The proportion of medical waste composition in Beijing

As can be seen from the figure, among all kinds of waste, the surgical dirt in each department was the most, accounting for 25.23% of the total production, followed by wastewater treatment sludge, disposable paper supplies and disposable plastic supplies. These four items accounted for 73.83% of the total production. However, from the summary results of the registration form, there are certain differences in the proportion of hospital waste in each generating unit. Due to the large proportion of plastic and paper products in medical waste (accounting for about 30.00%), the calorific value of medical waste is large, and the average combustion heating value can reach about 12,000 KJ/Kg.

#### 1.4.1.4 Characteristics of medical waste

As a kind of special waste, medical waste has its own special properties. Only by fully understanding its characteristics can we find the right way to deal with it.

The composition of medical waste is very complex. In addition to the composition of ordinary household waste, there are also some special components, such as wastewater treatment sludge, surgical residue, dressings, laboratory waste, infectious waste, animal test waste, etc. The following table gives the physical composition of medical waste:

The physical composition of the medical waste site

Organic matter content of (%)					Inorganic content of (%)		else (%)
visceral organ	cotton bud	paper products	textile	plastics	glass	metal	else
0.05	9.36	22.08	11.53	17.91	26.66	3.70	8.71
60.93					30.36		8.71

Medical waste is also characterized by its high moisture content, which needs special attention when processing. In the yikeli medical waste treatment technology, we fully consider the characteristics of medical waste, set up a waste pretreatment system, and use the waste heat to remove the water in the waste. This can not only ensure the effect of garbage treatment, but also can save energy. The following table

shows the moisture content and ash content of some components in medical waste:

**Water content and ash content of medical waste are (%)**

	broke	cotton cloth	visceral organ	plastics	woodines	average
rate of water content	8.51	65.61	56.91	20.49	42.69	43.84
ash content	15.7979	5.3700	2.6815	0.7153	0.7730	5.84

As mentioned above, plastic and paper articles accounted for a large proportion of medical waste (about 30.00%), so the calorific value of medical waste is relatively high. According to the theoretical calculation and practical operation experience, it is economical and reasonable to use incineration treatment when the calorific value of garbage is above 10,000~12,000 KJ/Kg.

**Thermal value of each component of medical waste (kJ/kg)**

		visceral organ	paper	Cotton woven dressing	plastics	grass and trees	Mixed garbage
dry basis	higher calorific value	11571	11728	15788	41882	18429	10983
	lower calorific value	10290	10530	14708	41395	17718	9523
wet basis	higher calorific value	10286	10526	14704	41394	17716	5600
	lower calorific value	9005	9328	13624	40907	17006	5372

Note: The above data sources: Environmental Sanitation Engineering, December 2000

The above table shows that the high calorific value of each component of medical waste is greater than 10,000 KJ/Kg, which is very suitable for incineration treatment.

#### 1.4.2 Hazards of medical waste

Medical waste contains harmful bacteria and viruses such as *Escherichia coli*, *Salmonella*, *Pseudomonas aeruginosa*, dysentery and hepatitis B surface antigen. The total number of bacteria (860~1400) is 104 / cm<sup>3</sup>, which is a kind of harmful waste and seriously pollutes the environment. From the perspective of biological pathogenic danger, the human body may be infected with the following diseases:

Viral diseases (including hepatitis B, non-A-hepatitis B, AIDS, adult T cell leukemia, herpes virus infection, cytomegalovirus infection, rubella, Creutzfeld-Jacob disease, etc.), bacterial infections (including tuberculosis, atypical acid bacteria, syphilis, etc.), chlamydia, rickettsiae, and other diseases.

Medical waste is harmful to people. In 1988, there were reports of medical waste along Maine to Florida to the east coast, Atlantic and Gulf beaches, resulting in massive beach closures and a dramatic decline in tourism revenue in these areas. In 1989, the staff and cleaners of Mie Prefecture Hospital in Japan were infected with hepatitis B. In 1989, the United States reported that 20 people were infected with AIDS by sharp devices.

In China, the harm of medical waste cannot be ignored. In Jiangbei area of Jilin City, water pollution, typhoid fever, 400 people died, 5 people died; Fushun tuberculosis hospital contaminated water, causing more than 300 residents from tuberculosis. In 1986, the hepatitis A outbreak in Shanghai was confirmed by an expert from the monitoring department of the State Environmental Protection Bureau that it was caused by the consumption of the cockles contaminated with viral sewage from the hospital.

In addition, examples of medical waste entering the market are also common. Xiazhai Village, Dongyang City, Zhejiang Province, illegally purchased, processed and sold discarded disposable syringes, infusion (blood) devices and other medical supplies for 10 years, and was not investigated until it was exposed in the news media in July 2000. Since then, similar cases have been seized in Ningbo in Zhejiang, Ouhai District in Wenzhou and Yuhuan County in Taizhou.

Therefore, no matter from the perspective of environmental protection, or from the perspective of public health, it is imperative to implement the harmless treatment of medical waste.

#### 1.4.3 Treatment status of medical waste

At present, the annual output of domestic medical waste has been close to 1 million tons, but only about 10% of domestic medical waste has been reasonably treated by now, and about 90% of domestic medical waste has not been treated scientifically or even untreated. The amount of medical waste in several major cities in China has been very large. The following table shows the production status of medical waste in several major cities:

**The production status of medical waste in major cities in China**

city	Hospitals above the county level (one)	Number of beds (zhang)	Number of outpatients (ten thousand people)	Daily output of medical waste (ton / day)
Beijing	458	71245	4576.26	40
Tianjin	129	31037	1622.24	17
Shanghai	198	56704	7108.48	33
Hangzhou	93	15530	6827.35	14
Harbin	494	32000	15530	30
Shenyang	270	30587	5153.62	20

Note: The above data are from the local statistics bureau, and the daily garbage output is calculated according to 30 outpatients / 1 kg and 0.5 kg / (bed day)

As can be seen from the above table, the daily output of medical waste in all major cities is more than 10 tons, which provides a basis for the capacity design of this demonstration project.

At present, these big cities have begun to actively look for a way out of medical waste disposal. However, medical waste in most other cities is still incinerated by hospitals' their own incinerators. These medical incinerators are small incinerators, no secondary combustion chamber, furnace temperature is low, insufficient exhaust

height, no monitoring device and emergency treatment device, no display and record the incineration process, combustion chamber temperature and furnace pressure instruments, no exhaust purification device, the exhaust gas contains dioxins, causing secondary pollution to the air. At the same time, many hospitals are located in densely populated urban areas, and the gas generated during incineration has a great impact on the lives of the surrounding residents.

What is more, in some areas, medical waste and household waste are mixed together, resulting in a large number of harmful bacteria into the environment, endangering public health. According to the statistical data of Fuzhou Municipal Bureau of Environmental Protection, according to the Technical Requirements for Medical Waste Incineration Equipment (CJ / T3083-1999) and Hazardous Waste incineration Pollution Control Standard (GWK 2-1999), there is no medical waste incineration equipment that fully meets the control standards.

In short, the overall disposal rate of medical waste in China is low (about 10%), the overall treatment level is not high, and the existing treatment technology and equipment cannot meet the requirements of environmental protection. The emergence of yikeli medical waste treatment technology undoubtedly provides the hope and the way to solve this problem.

#### 1.4.4 Comparison of medical waste treatment methods

In view of the great harm of medical waste and the particularity of treatment, countries around the world have carried out extensive research on it. At present, a variety of technologies can be used for the disposal of medical waste, such as cleaning and disinfection, high-temperature disinfection, landfill and incineration. At present, the most commonly used is the incineration method, because it can achieve the waste reduction, stabilization, harmless. Among all the viable medical waste disposal techniques, incineration has been shown to be one of the most effective ways to destroy infectious and toxic substances and reduce volume and weight. Countries are also constantly improving the regulations and standards of waste incineration, making them one of the most effective methods to deal with medical waste.

##### *1.4.4.1 Comparison of incineration method and landfill method*

Landfill method as one of the most primitive methods of disposal of waste has

been continued for hundreds of years, and it itself is the final method of waste disposal. As the intermediate process of medical waste treatment, some ash needs to be disposed of in other ways. There are many problems in directly treatment of medical waste by landfill, and the emergence of incineration method just makes up for the deficiency of landfill method. The advantages and disadvantages of the two are compared in the following table:

**Comparison of incineration and landfill methods**

item compared	The landfill method	burning method
engineering reliability	Reliable, it is a traditional landfill method	More reliable, mature technology
Project scale	Depending on the work site and the service life, they are generally large	Mobile ability is large, can depend on the number of quantity and set up multiple incinerators
The difficulty of site selection	More difficult	Less difficult
floor space	500~900m <sup>2</sup> /t	60~100m <sup>2</sup> /t(main building)
application condition	There is no strict requirements for garbage composition, which is not applicable when the water content is too high	The low calorific value of garbage is required to be greater than 3,767 KJ/Kg
processing safety	Better, biogas guide discharge to be smooth	Better, in strict accordance with the standard operation
level of management	same as	very high
duopsony	There are sanitary landfills for biogas recovery, and the biogas can be used for power	Thermal energy or electric energy can be used by the society and need policy support

	generation	
Energy significance	Biogas collection can generate electricity	Burning waste heat can generate electricity
resource utilization	In view of the special situation of medical waste, the medical department clearly stipulates that no recycling	
Stabilization time	5~7 Years	About 2h
final disposal	Landfill itself is a final treatment technique	The incineration residue needs to be treated, accounting for about 10% of the waste in the furnace
surface water pollution	There should be perfect infiltration water treatment equipment, but not easy to reach the standard	Residue landfill is the same as the landfill method
ground water pollution	Need to prevent seepage measures, but still may leakage, the substrate investment is great	The possibility of contamination is minimal
soil pollution	Limited to landfill area	not have
technical feature	simplicity of operator	Small footprint, stable and reliable operation, good reduction effect
main risk	Infectious disease bacteria contamination, field bottom leakage	Flue gas treatment is not up to the standard

The landfill method not only wastes a lot of land, leads to soil and groundwater pollution, which has a long stability time and increases the possibility of expanding the pollution surface, but also the moisture content of medical waste is relatively

high (about 43.84% on average), so the landfill method is not ideal. The incineration method solves the above difficult problems well. In view of the main risk of incineration method (substandard flue gas treatment), our technology can effectively solve this point.

#### 1.4.4.2 Comparison of other treatment methods

In addition to using the incineration method as the intermediate method of medical waste, there are also steam autoclave disinfection, compaction autoclave disinfection, mechanochemical treatment, microwave treatment and other methods. The comparison between them is shown below:

**Comparison of other medical waste treatment technologies**

processing method	Deal with the object	Reduce capacity	Weight loss	handling time
Steam high pressure disinfection	All wastes except for the disease	0	0	long
Compact high pressure disinfection	All wastes except for the disease	60%-80%	0	long
Mechanical chemistry	All waste	60%-90%	0	long
Microwave method (with crusher)	All waste*	60%-90%	0	long
burning method	All waste	About 90%	80-90%	short

Note: Toxic waste is not usually treated by the microwave method, due to cytotoxicity and other toxic treatments that do not sufficiently reduce the toxicity of other compounds.

Other treatment methods are piloted in a few places due to their narrow surface, long treatment time, or failure to effectively reduce the volume and weight of waste,

so they are only piloted in a few places in developed countries and are not widely used.

#### 1.4.4.3 Reasons for using incineration treatment

Medical waste is infectious, pathogenic, and chemotoxic. In terms of medical microbiology, bacteria belong to prokaryotic cell type microorganisms, fungi belong to eukaryotic cell type microorganisms, viruses belong to non-cellular microorganisms, plus parasites, they all have a suitable temperature for growth and reproduction, generally 37°C. Low temperature can generally cause slow metabolism and inhibit its growth and reproduction, but still maintain its life; high temperature can kill all bacteria and viruses (including bacterial spores) and destroy the antigenicity of viruses. The lethal conditions of various bacteria and viruses are shown in the following table:

**Table of lethal conditions for temperature against various viral bacteria**

Name of virus bacteria and parasitic worm eggs	Determination conditions	
	temperature (°C)	time (Min)
staphylococcus	80	60
streptococcus	60	30
pneumococcus	55	5
Bacillus comma	60	10-20
Bacillus typhi	60	10
Bacillus dysenteriae	60	10
	boiling	2
salmonella	60	15
Pay Vibrio hemolymp	56	30
anthrax bacillus	50-55	60
	Blessed spores boil	20-40
Bacillus tetani	boiling	60
Much's bacillus	60	30
measles virus	56	15
A liver virus	Heating for 60°C was resistant for 30 min	

	Heat was lethal for 100°C for 5 minutes	
HBV	Heat for 100°C 10 min allowed for loss of infectivity But there is still antigenicity	
Japanese encephalitis virus	56	30
Forest encephalitis virus	60	10
hydrophobin	60	30
foot-and-mouth disease virus	60	30
Monoblast virus	50-60	15
Leptospira	56	10
chlamydia	56-60	5-10
mycoplasma	45	15-30
fungus	60	60
Pseudomonas aeruginosa	55	7 Hours
Ascaris eggs	33-38	grade
hookworm ovum	More than 37°C	Can't develop
Endyiceps eggs	36	A few hours

According to the literature and the practice, to kill all bacteria, bacteria spores and viruses, and destroy the antigenicity of viruses, the incineration temperature should be maintained between 650°C and 700°C, and the incineration temperature of 900°C ~1000°C can destroy the toxin in instantaneous time. Incineration method can also effectively eliminate the stench while sterilization.

As early as in The State Council (1986) no. 57 document clearly pointed out that "hospital garbage and toxic and harmful waste from other units, must be separately collected, transported and burned". According to the Technical Policy on the Prevention and Control of Hazardous Waste Pollution, which was implemented in 2002, some special hazardous wastes with infectious or toxic substances, such as hospital clinical waste and PCBs waste containing persistent organic pollution, should be burned in special incineration facilities.

In China, although the history of using incineration method to treat medical waste is not short, but because there is no strict treatment standard, the vast majority of hospitals use simple incinerators and incineration pits to burn medical waste. The environmental pollution caused by this scattered simple treatment is very serious. In the 1970s, there was a pandemic of hepatitis B due to improper disposal of medical waste, especially the simplicity of incineration equipment, which raised the risk of cancer. After 1986, some enterprises in our country also copied the distillation bed two sections of incinerator, there are also some incinerator made some energy saving improvements, but this kind of incinerator structure is simple, no perfect exhaust gas treatment device and operation monitoring device, so is rarely adopted, has adopted also more due to the secondary pollution problem. In the late 1980s, special incineration sites began to appear in some cities in China, which improved the environmental pollution caused by decentralized treatment in the past; However, medical waste was not strictly collected, the specialization of incinerator was not high, and the quality of incineration, especially the purification efficiency of exhaust gas, was not high.

In short, incineration is still the basic means of the treatment of medical waste, and the state has also issued mandatory regulations on the treatment of medical waste. The key to medical waste treatment is to have a incineration treatment technology with high disposal rate, environment friendliness and no secondary pollution. 1450 million profitable medical waste comprehensive treatment technology

#### *1.4.5.1 Patent protection*

This project has passed the small test, and has applied for a patent on June 7, 2002. At present, the patent application has been accepted and is in the process of approval.

#### *1.4.5.2 Safety and environmental protection*

Yikeli medical waste comprehensive treatment technology adopts intelligent control device to ensure the optimal operating conditions. At the same time, supplemented by advanced exhaust gas treatment technology, emissions fully meet the national standards. The water in the whole plant area (mainly produced by the

cleaning garbage transport vehicles) is comprehensively recycled, and will not pollute the groundwater and the surrounding environment.

The whole medical waste treatment process is strictly managed, using fully closed, automatic equipment, workers do not need to directly contact with the waste, eliminate the possibility of infection because of contact with waste, and create a safe working environment for workers.

#### *1.4.5.3 Process extensibility*

Because we use the rotary kiln as a combustion chamber, we consider in the design that it can deal with industrial hazardous waste, agricultural hazardous waste, urban domestic hazardous waste and other hazardous waste, which reflects the scalability in the process of making equipment. In the existing equipment only slightly changed, can treat solid, liquid, gas and other states of other hazardous waste.

At the same time, yikeli medical waste treatment technology has a strong capacity expansion. Equipment with corresponding processing capacity can be built for different city sizes to meet the needs of large, medium and small cities.

## 2.4 Chance Description

In the tenth Five-year Plan, the Chinese government proposed to focus on supporting the development of the environmental protection industry, implement the "sustainable development strategy", legislate on the environmental protection industry, and strengthen the investment and support for the environmental protection industry. The technical Policy on the Prevention and Control of Hazardous Waste Pollution issued by the State Environmental Protection Administration, the State Economic and Trade Commission and the Ministry of Science and Technology points out that the phased goal of hazardous waste management in China is to realize the environmental harmless treatment of clinical waste in hospitals by 2005. It can be predicted that in the 21st century, the green environmental protection industry will get an important development opportunity.

With the increase of China's population (experts predict that China's population will continue to increase before 2050), the further development of medical and health undertakings and the popularization of various disposable medical devices, the output of medical waste in China is bound to continue to grow. Simple

landfill or mixing treatment with household garbage, it is difficult to avoid secondary pollution with the environment.

This project adopts advanced technology, complete treatment, safe and environmental protection treatment process, and can get the national and local government support and the corresponding preferential measures. At the same time, due to the growing trend of medical waste production, and the public awareness of medical waste harmfulness and strengthen the awareness of environmental protection, as well as various government policies and regulations, will be in the near future for all medical waste harmless centralized treatment, medical waste disposal market is gradually expanding. Yili has the medical waste treatment technology and process synchronized with the world level. Therefore, the close combination of internal treatment technology advantages and external favorable environment will obtain rich economic and social benefits.

#### 1.4 Study Objectives

To study on Yili Green Technology Co., Ltd. The detail as follow :

In view of the technical advantages and operational cost control ability of the "billion" project, and the broad space for the development of the environmental protection industry in the future, if enough investment is obtained, the project will bring rich returns to investors and bring huge social benefits.

Firstly, to study the development trend of the industry to lay a good foundation for future entrepreneurship and investment; secondly, to study the development and development content of the industry deeply.

## Section 2

### The Marketing Plan

#### 2.1 Segmentation, target, and positioning

##### 2.1.1 Strategic Objectives

In 5-8 years, the company will be established into a business scope throughout the country, integrating environmental protection technology research, environmental protection equipment manufacturing, project engineering design and construction investment, involving medical waste treatment, urban hazardous household waste treatment, industrial hazardous waste treatment and other fields, advocating green life of a large environmental protection group company. To become the top three in the industry in China.

##### 2.1.2 Master planning

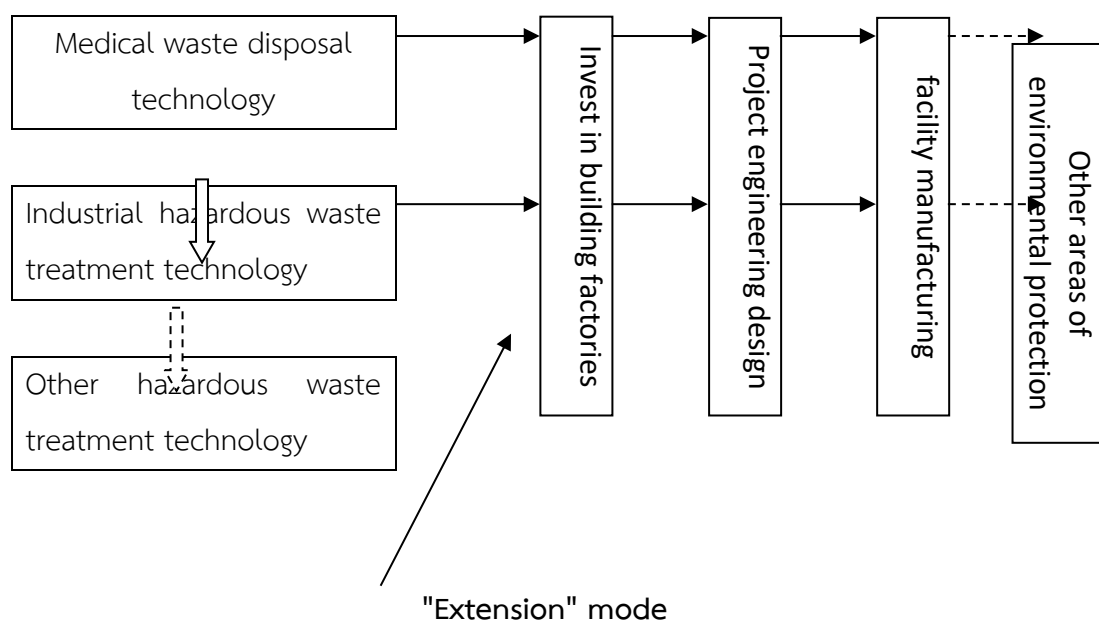
Environmental protection industry is an important material basis and technical guarantee for environmental protection, and it is one of the most potential new economic growth point's in the future economic development. In the process of the development of the company, to further increase investment in ecological construction and environmental protection, for environmental protection industry with broad market space as the background, on the basis of advanced technology, using the country in the fiscal and taxation, financial preferential and support, for the cooperation, the "development" mode, become the competitive power leader of the industry.

##### 2.1.3 The "Extended Development" mode

The medical waste disposal technology mastered by the company is synchronized with the international advanced technology, not only the discharge of the treated waste fully reaches the national standard, and the cost is low, which has a great competitive advantage in the domestic market. The high profitability of the industry and the government's strong support for environmental protection enterprises have laid the foundation for the extended development of the company. At the same time, with the strong talents and technical strength of the Thermal Energy Engineering Research Institute of Zhejiang University, as well as the successful

experience in technology industrialization in the field of domestic waste treatment, we also provide the possibility for the extension and development of the company.

The basic idea of "extension development" mode is: to make the promotion and application of the existing medical waste treatment technology stronger and bigger, and achieve scale benefits, at the same time, to invest in the development of urban dangerous household waste treatment, industrial hazardous waste treatment and other technologies, and gradually industrialize it to realize the extension development of technology. The business involved in the company has also expanded from the simple technical research and construction of investment waste treatment plant to environmental protection equipment manufacturing, environmental protection project engineering design, environmental protection project consulting, etc., to achieve the extended development of the service mode.



#### 2.1.3.1 Promotion and application of existing medical waste treatment technologies

The only city in Zhejiang province has a medical waste treatment plant, which cannot be promoted throughout the province due to technical reasons. Several other prefecture-level cities such as Ningbo, Huzhou and Jiaxing are in urgent need of mature and advanced medical waste treatment technology, and the market space is

relatively large. In view of the fact that local investment is easy to manage and control, and is conducive to the further improvement and development of technology, the application of this technology is first based on Hangzhou-jiahu area, and then gradually promoted to the whole province and the whole country.

Now most of the developed areas, such as Shenyang, Fuzhou, Guangzhou have started related projects, and the processing capacity can basically meet the local needs. However, because all their existing technical equipment is imported, not only expensive, the initial investment is large, but also a long debugging cycle, unstable operation, has not been promoted nationwide. Therefore, in the process of project promotion, the company should show its own technical advantages and cost advantages, and put the breakthrough in the moderately developed areas that have not yet established the project. These areas have certain demand for medical waste disposal, but insufficient financial strength, unable to buy expensive imported equipment, domestic existing other technology is not perfect, and my company development of the technology just meet the needs of this part of the market, has great attraction to them, will be the support of the local government and welcome.

In terms of investment, sole proprietorship, joint venture, technical cooperation, and the government, enterprises and medical units can be selected to make full use of local resources and achieve rapid development.

#### *2.1.3.2 Technology extension and development*

For high-tech enterprises in the environmental protection industry, a single technology cannot make the company maintain a long-term competitive advantage. In order to achieve the sustainable development of the company, "extension" is the only way. Combined with the technical characteristics of the Research Institute of Thermal Energy Engineering of Zhejiang University and the national "tenth Five-year Plan" development priorities, the company plans to carry out the development and industrial application of the following technologies in a purposeful and planned way:

- Urban hazardous waste treatment technology

For the urban hazardous waste, such as waste batteries, the waste containing toxic organic matter produced in the building decoration, as well as waste home appliances, waste computers and other disposal.

- Industrial hazardous waste treatment technology

Including for various industries of toxic waste and waste liquid treatment, the waste often include heavy metals, such as beryllium, chromium, copper, zinc, arsenic, selenium, cadmium, antimony, tellurium, mercury, thallium, lead, nickel and barium, etc., or contains strong toxic organic matter, such as polychlorophenzofuran waste and polychlorophenylene dioxins waste, containing cyanide waste, waste acid, alkali, waste halogenated organic solvents, etc.

- Agricultural hazardous waste treatment technology

Including the treatment of all kinds of agricultural waste, such as waste pesticides and waste liquid produced by pesticide manufacturing enterprises.

- Treatment technology of other toxic and harmful substances

#### 2.1.3.3 Extension of service mode

After joining the WTO, the environmental protection market, especially the environmental protection products market, environmental services market and investment and financing market, will be fully open to the outside world. In the face of the fierce competition in the international market, the technology alone is not enough, we must combine their own technical advantages, and actively develop a variety of environmental protection service business.

- Environmental protection equipment manufacturing

With the improvement of people's environmental awareness of environmental protection, the demand for environmental protection equipment in China is also being greatly increased. And the national policy support for environmental protection equipment production enterprises, also makes the environmental protection equipment industry become a new growth point of China's economy. With the company's technical advantages and cost advantages, there will be much to enter the field here. In the face of the recession of the machinery industry, mergers and acquisitions can be adopted to achieve low-cost expansion.

- Renewal of environmental protection equipment

This business mainly includes two aspects: one is to the original outdated, aging equipment, do not meet the national environmental protection indicators for technical transformation and update. Second, on the basis of the development of

new technology, the original equipment is improved.

- Environmental project engineering design

Develop environmental engineering general contracting services, including financing, design, equipment sets, installation, commissioning and operation services. Special design can be carried out according to the needs of the environment, so that it is more compatible with the specific environment, and to achieve the maximum benefit with the minimum investment.

- Environmental protection technology, management, and information consulting

At present, there is a large gap between the scale and technical means of information consulting services in China and the international advanced level. The construction of the service network of consulting companies and various intermediary agencies is far from meeting the market demand, which can be regarded as the focus of our company to develop environmental protection services. Guide the operation of enterprises to reduce the production of hazardous waste.

- Other environmental services

Develop environmental pollution control services and specialized environmental protection facilities operation; develop consulting services on environmental impact assessment, environmental monitoring, environmental investment and risk assessment.

## **2.2 Marketing strategy**

### *2.2.1 Prep Period (0-0.5 years)*

In the preparatory period, mainly for the normal operation of the company, further improve the existing processing technology, design process, complete the patent application and trademark registration, solve the problem of medical waste source, complete plant, equipment design, construction, and complete the corresponding hydropower and other supporting engineering installation, the necessary debugging of equipment, and ultimately ensure the stability of the equipment, and personnel recruitment and training, etc.

### *2.2.2 Initial stage (0.5-3 years)*

This period is a period of steady development of the company. First of all, taking Zhejiang province as the center, focusing on the medium developed cities that have not established medical waste treatment projects, with the help of national policy advantages, we strive to obtain the support of local governments and local funds to carry out the application and promotion of medical waste treatment technology. Through a variety of ways to establish a "billion can profit" brand image, enhance the brand value. Within the enterprise, improve the company system, and shape a positive corporate culture. At the same time, on the basis of the existing technology, the development of hazardous waste treatment technology, and the preliminary industrialization.

- The first and second years

Improve the process design and trial operation, analyze the technical problems and management problems in the operation of the system immediately, and solve them;

Establish a sound enterprise internal management mechanism;

Take advantage of technology and cost advantages, strive for government support and enterprise funds, expand medical waste treatment business by sole proprietorship, joint venture, technology transfer and other ways, establish "billion profit" chain enterprises;

Shape the "billion can profit" positive, pioneering and innovative corporate culture;

The establishment of "billion can profit" their own website, the use of e-commerce means to attract investment, publicity enterprises.

- The third year

Through public service advertising, public relations and other marketing means, establish environmental awareness in the public mind, establish the corporate image of "billion can profit" green guard, and increase the intangible assets of enterprises.

Use their own scientific research strength to maintain the leading position in the field of medical waste treatment;

Make the company's medical waste treatment enterprises basically all over the country;

The company's business began to involve other environmental protection services, such as equipment manufacturing and transformation, technical consulting, etc.;

Strengthen the research and development of other hazardous waste treatment technologies, and make the preliminary application of the research results.

#### *2.2.3 Mid-term (3-5 years)*

The medium term is a period of rapid development of enterprises on the basis of the initial capital and technology accumulation. In this stage, the development focus of the enterprise is the extension.

Further improve the existing technology, carry out technical transformation of the original construction enterprises, optimize and reorganize;

According to the accumulation of previous technology and experience, comprehensive consideration of the financial strength of the enterprise, the focus will be shifted to vigorously invest in other hazardous waste treatment fields, to achieve technology extension;

Establish the company's independent technology development organization, to further expand the company's technical advantages;

Strengthen the company's environmental protection service capacity, constantly expand the scope of environmental protection services, to realize the extension of service mode.

#### *2.2.4 Long-term (5-8 years)*

This stage is the company in the previous stage of rapid development after the adjustment, and then the development period.

In the process of extension and development, the company's restructuring of the organization was completed, and the original linear functional system was adjusted to the divisional system, so as to better meet the strategic needs;

In the scope of the company has entered the field, from the technology and scale of the two aspects of bigger and stronger;

Prepare to enter the international market, establish technology, equipment import and export business.

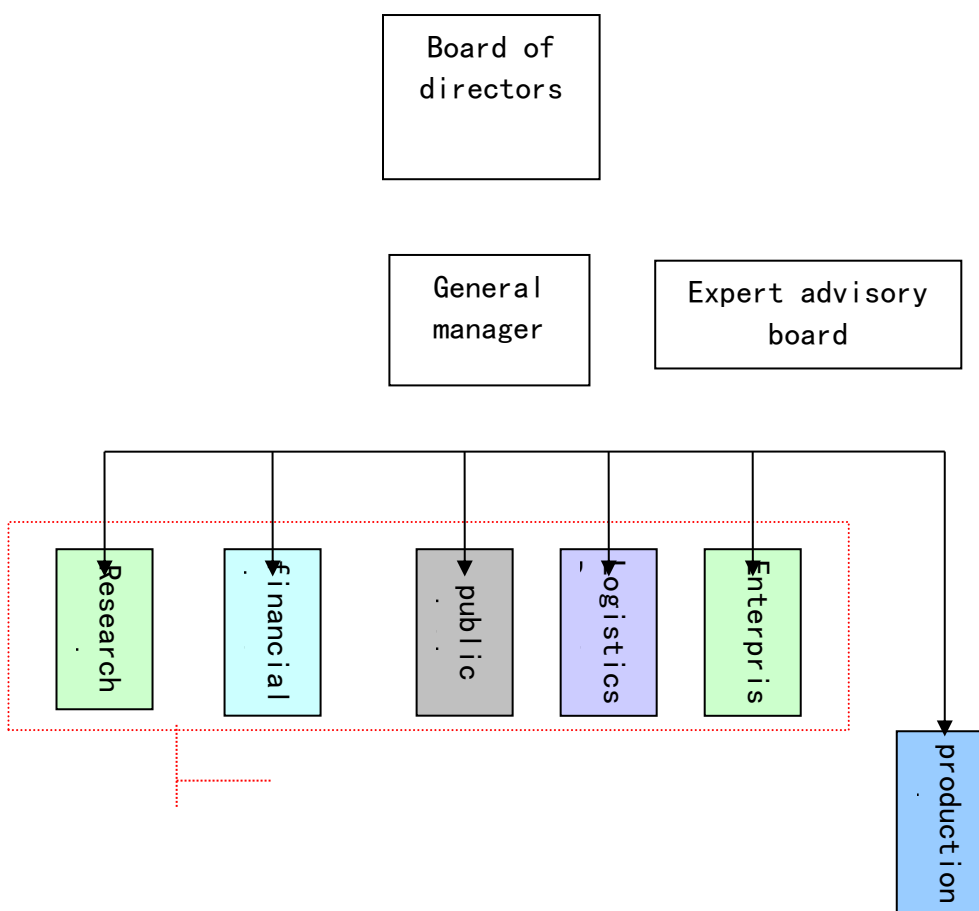
## Section 3

### Management and Operational Plan

#### 3.1 Management plan

##### 3.1.1 Organizational structure of the company

The organizational structure of the company should be adapted to its strategy. Considering the scale and development strategy of the company at the early stage of its establishment, it is planned to adopt the organizational form of linear functional system and implement the general manager responsibility system under the leadership of the board of directors. The specific settings are as shown in the figure:



Company organization chart

### 3.1.2 Main responsibilities of the department

#### Board of directors:

- ✧ Decide on the company's business plan and investment plan
- ✧ Formulate the company's annual financial budget and final accounts plan
- ✧ To appoint or dismiss the general manager of the company
- ✧ Formulate the basic management system of the company

#### General Manager:

- ✧ To complete the annual business objectives agreed upon by the Board of Directors
- ✧ With the assistance of various department heads and the guidance of the think tank, formulate the development strategy plan of the company
- ✧ To take charge of the production, operation and management of the company
- ✧ Attend various public relations activities on behalf of enterprises

#### The Expert Advisory Committee:

- ✧ Give professional advice to the company's development strategy
- ✧ Assist the general manager to deal with the problems in the production and operation of the company
- ✧ Give professional guidance to the department heads

#### Enterprise Management Department:

- ✧ Responsible for the daily operation and management of the company
- ✧ Responsible for the company's human resource management (including personnel recruitment, labor contract, skill training, cadre performance appraisal)
- ✧ Establish systems and formulate annual development plans
- ✧ Provide support for the work of other functional departments
- ✧

#### Public relations department:

- ✧ Get strong support from the government

- ✧ Also manage the function of the Marketing Department, the double public relations for the government and the hospital
- ✧ Conduct public service advertising to improve the public's awareness of environmental protection
- ✧ Corporate image publicity, and constantly improve the enterprise visibility
- ✧ Responsible for attracting investment and expanding the scope of medical waste treatment business
- ✧ Exploration of enterprise capitalization operation

Financial department:

- ✧ To manage the company's funds, and formulate financing, fund use and fund management plans
- ✧ Provide the company's financial data and financial statement analysis
- ✧ Submit the profit distribution plan of the company
- ✧ Responsible for daily accounting work, cash flow monitoring and cost control

Research and development department:

- ✧ Improvement and improvement of the existing medical waste disposal technology
- ✧ Research and development of new technologies
- ✧ Under the guidance of the company's strategy, we will cooperate with other scientific research institutions to develop new technologies
- ✧ Provide technical guidance to the operation department
- ✧ Responsible for the skill training and innovation awareness training for new technicians

Production base:

- ✧ Ensure normal production and meet the planned output and quality requirements
- ✧ Responsible for the maintenance and maintenance of the equipment, and assist the R & D department in the process improvement
- ✧ Assist in making production plan, assist in planning and expansion

matters

- ✧ Responsible for management and coordination of production to maintain high work efficiency

Logistics Department:

- ✧ Responsible for the transportation and storage of medical waste
- ✧ Responsible for the procurement, transportation and storage of various consumables
- ✧ Responsible for the transportation of ash and slag

### 3.1.3 Management mechanism

Encourage innovation: As a high-tech enterprise, innovation is the life of an enterprise. Set up an innovation incentive mechanism within the enterprise. Whether technical personnel or operators, whether technical, operational procedures or cost reduction, as long as the contribution, will give the corresponding reward.

Different management: Researchers and the introduced senior talents must pay full attention to the value of their human capital to the development of the enterprise, and they must adopt more flexible management and incentive methods, such as option incentive, work autonomy and so on. For ordinary workers, it is appropriate to adopt institutionalized management, write a more detailed job description, and standardize the operation process.

Double-track promotion: two promotion mechanisms are technical and administrative, namely, technical promotion means is technician senior technician engineer senior engineer, and administrative promotion means is general employee supervisor senior administrative personnel. With the promotion of the position, the remuneration and welfare benefits are also increased accordingly. This way can better mobilize the enthusiasm of employees and overcome the disadvantages of single administrative promotion ignoring technical personnel.

### 3.1.4 Staffing

In the initial stage, the whole company needs 29 employees. The personnel composition is shown in the table below.

Personnel configuration table

department	precise arrangement	number of people
Research and development	1 chief engineer and 2 researchers	3
Production Department	With 1 supervisor and 17 employees	18
financial department	1 supervisor, 1 accountant, 1 cashier each	3
Administration Department	1 general manager, 1 executive director and 3 employees	5
amount to		29

## 3.2 Production Plan

### 3.2.1 Overview

Production management is the guarantee of the treatment effect, is the guarantee of the standardized development of enterprises. As an environmentally friendly factory for medical waste treatment, its management requirements are different from other enterprises. It has high technology content, high requirements for environmental protection, and strict requirements for the quality of production and management personnel. From the collection of garbage to the transport of ash, all links need to be strictly required and controlled, and clean production according to the requirements of ISO14000 standard. The treatment of medical waste is a continuous treatment process. The preheating, pyrolysis, incineration, waste heat utilization and tail gas treatment of the waste are carried out simultaneously, and there is no secondary pollution in the whole process. Controlling the waste pyrolysis, incineration and tail gas treatment process is the key to the whole treatment process. The company will establish a complete set of supervision system and management system, to ensure that the complete medical waste treatment and exhaust emission standards.

### 3.2.2 General plane layout

Due to the particularity of medical waste treatment, this project suggests to invest in the construction of a treatment plant. According to the characteristics of the project, the processing equipment, utilities and auxiliary facilities are relatively concentrated in the same area.

Civil construction of the project includes plant, chimney, warehouse and office building. The main workshop is a single-story frame structure workshop with a construction area of 800 square meters. The height of the chimney is 20 meters according to the state regulations. The building area of the office building is 400 square meters. At the same time, there are 200 square meters of ash and slag temporary storage warehouse.

### 3.2.3 Greening

The open space around the building is planted with turf greening, especially in the front of the factory, lush trees, fountain, flower pool interspersed.

### 3.2.4 Production and operation

#### 3.2.4.1 *Collection and transportation of medical waste*

Installation and design capacity, the transport capacity of this project is about 3000 tons / year, and the shipment capacity is about 300 tons / year.

Considering the particularity of medical waste, the company has set up a special logistics department, which is responsible for the collection and transportation of medical waste, and the factory transportation basically relies on the self-provided transportation force.

Starting from hospitals, medical waste should be collected in a container to prevent the harm of medical waste from spreading from the source. In the process of the company's development, we will gradually realize the classification, collection and treatment of medical waste according to international practice.

After collection, the hospital waste is temporarily stored in a special container. The company adopts fully closed and mechanized garbage transport vehicles to collect medical waste regularly. The collection, transportation and treatment process are strictly in accordance with the Management Measures of Hazardous Waste Transfer issued by the State Environmental Protection Administration in 1999 to track the

whole process of medical waste to ensure that medical waste is not lost illegally.

### 3.2.5 Treatment process and equipment

#### 3.2.5.1 Process features

The State Environmental Protection Administration, the State Economic and Trade Commission and the Ministry of Science and Technology jointly issued the Technical Policy on the Prevention and Control of Hazardous Waste Pollution on December 17, 2001. The policy specifically stipulates the disposal of medical waste, prohibiting the recycling of disposable medical devices and dressings.

Yikeli medical waste incinerator is designed in strict accordance with the "Hazardous Waste incineration Pollution Control Standard" issued by the State Environmental Protection Administration, and organizes the 3T in the furnace, namely:

Temperature (Temperature): Ensure that the temperature of the main combustion zone of the incinerator reaches 850-1100°C, make dioxins and other substances decomposed at high temperature; Time (Time): ensure that the residence time of flue gas in the furnace is more than 2 seconds, the unburned components and dioxins and other pollutants can be fully decomposed at high temperature; Turbulence (turbulence): optimized furnace design, unique "two section gas control" air feeding system, reasonable air volume control and tuyere control, make the flue gas fully mixed in the secondary room, and the decomposition efficiency of dioxins and other harmful substances exceeds 99.99%.

At the same time, yikeli medical waste treatment system is equipped with a complete exhaust gas treatment system: the exhaust gas treatment system including semi-dry acid gas purification tower, dispensing / dosing device, electrostatic precipitator and continuous flue gas continuous monitoring system. In this way, the flue gas emission standard, there is no secondary pollution to the environment.

#### 3.2.5.2 Treatment process

The collected medical waste is transported by sealed garbage trucks to a fully closed garbage storage warehouse for temporary storage. When the moisture content of the garbage is particularly high, remove the wet pretreatment first. Then, the garbage enters a burning chamber through the feeding per, and completes drying, pyrolysis and incineration. The decomposed ash residue goes into the slag cooler for

harmless treatment. The generated flue gas enters the secondary combustion chamber and is further burned under the action of the combustion helper, so that the harmful substances and unburned components produced by the primary combustion chamber are completely decomposed and burned. The temperature of the whole secondary combustion chamber is controlled at more than 850°C, and the residence time of the flue gas is more than 2 seconds.

The high temperature flue gas discharged from the second combustion chamber passes through the air heater preheater to use the waste heat and reduce the temperature of the exhaust gas. Subsequently, the liquid is sprayed to quickly reduce the gas temperature and avoid the recurrence of dioxins. Then after the cooling of the flue gas sprayed into the activated toner, further adsorption of residual dioxins and other harmful substances in the flue gas. Then the flue gas is dusted by the dust collector, and the purification tower removes the acid gas (such as HCL, HF, SO<sub>2</sub>And NO<sub>x</sub>, etc.), by the air introduction system into the atmosphere. Under the joint action of blower and induced draft fan, the whole system is maintained at negative pressure to ensure that the flue gas does not leak in the combustion process, so as to avoid secondary pollution.

The landfill leachate in the garbage storage room is pumped into a combustion chamber by the sewage pump, and decomposed and burned after atomization. The air in the garbage storage room is fed into the secondary combustion room by the blower, which is decomposed in a high temperature environment to prevent the odor overflow.

The whole processing flow chart is shown in the Appendix.

### 3.2.5.3 Main processing equipment:

#### Main processing equipment

Production project	device name	device type
Pre-processing system	Feed motor	conventional equipment
	Dryer equipment	Design by yourself
host processing system	rotary kiln	Design by yourself
	portfire	conventional equipment

	Second combustion chamber	Design by yourself
	Fuel injection fuel dispenser	conventional equipment
	blower	conventional equipment
bootstrap system	air preheater	Design by yourself
Flue gas treatment system	desuperheater	Design by yourself
	dust wiper	conventional equipment
	purification tower	Design by yourself
	induced draft fan	conventional equipment
water management system	circulating pump	conventional equipment
	sewage pump	conventional equipment
	treating column	Design by yourself

### 3.2.6 Plant site selection

Our goal is to build a factory in the outskirts of the city, rather than the productive department in the high-tech science park. Our location principles are as follows:

- Areas supported by national environmental protection policies and local policies;
- convenient transportation;
- The output of medical waste in medical institutions in the surrounding areas is above the designed capacity;
- High quality of workers;
- Located downwind of the city.

### 3.2.7 Personnel Management and Configuration

High-quality technical personnel and workers is the key to ensure the processing effect, we need the environment or energy professionals 1 (undergraduate course or above or have many years of working experience of the relevant technical personnel), electrical and mechanical equipment professionals each 1, has the relevant knowledge background of skilled workers (with high school culture or equivalent) 9 people, after strict training.

In view of our continuous production, the production of this project implements four shifts and three operation system, with management and technical personnel for the daily shift system. This project has a total of 12 staff, and the specific allocation is shown in the following table.

Workshop staff table

name	produce	manage	technology	other	amount to
workshop director		1			1
mechanical engineer			2		2
worker	9				9
amount to	9	1	2		12

### 3.2.7.1 Logistics management

#### 1. Raw materials and spare parts

The raw materials we need are mainly medical waste and alkali powder. Medical waste is collected from hospitals, and alkali powder is general chemical products, which can be purchased by the market. The total waste disposal capacity in a month is about 300 tons, and the temporary storage of waste is considered in the design of the plant. Other relevant ingredients are purchased by the technical personnel.

According to the characteristics of our production equipment, as long as a thorough equipment maintenance before production, the continuous production process generally does not need large maintenance, valves, pipes and other small accessories can be purchased at any time according to the situation.

#### 2. Other logistics services

Other logistics services mainly include the safe supply of electricity and water power.

- electricity

The project has a total installed capacity of 42.5kW and one 100VA transformer.

- process water

Annual water consumption is 5000m<sup>3</sup>.

#### 3. Ash and slag inventory

Because about 10% of the weight of medical waste needs to be transported to the safe landfill for treatment, and the daily output is not large, so it is temporarily stored in the warehouse and transported once a week.

#### *3.2.7.2 Energy-saving energy*

Yikeli two gas controlled medical waste treatment device and its treatment process represent the advanced level of today's world, and adopts large-scale treatment, effectively use of resources, reduce environmental pollution, improve labor productivity, reduce energy consumption.

In the design of the equipment, high efficiency and high quality insulation materials are used to ensure the temperature in the furnace and reduce the amount of fuel. In the equipment layout, use the position difference as far as possible, make the processing process more reasonable, can save the energy consumption of the feeding motor. The heat pipes in this project use high efficiency and high quality materials to reduce energy loss.

#### *3.2.7.3 Discharge of "three wastes" and environmental protection*

Waste gas: the exhaust gas is discharged into the atmosphere after strict treatment, and the project technology can ensure that the exhaust gas meets the national emission standards. The air (odor) in the garbage warehouse is sent to the furnace by the air fan, which can be quickly deodorized in a high temperature environment.

Waste water: in the whole treatment process, the alkali liquid is recycled, without special sewage discharge. After the domestic sewage is treated by the grille and precipitation, the precipitated impurities are removed manually, and the clarified sewage is pumped to the biochemical treatment plant for greening. The waste water in the garbage warehouse is pumped into a combustion chamber by the sewage pump, and then burned and decomposed after atomization.

Waste residue: transported to the designated safe landfill site according to the state regulations.

Expected target: the flue gas generated in the treatment process is concentrated at high altitude emission, and all indicators can meet the "Hazardous waste incineration pollution control standard" (GBKB 2-1999). After the biochemical

treatment of the wastewater, all the indicators can meet the "comprehensive sewage discharge standard" (GB8978-1996), as the green water. The noise reaches the "factory boundary noise standard of industrial enterprises" (GB12349-90).

#### *3.2.7.4 Labor protection, safety and health*

(1) Because the whole system is running under negative pressure, there is no harmful gas escaping. In order to prevent the reactor gas escape in emergency, the workshop set ventilation device to prevent the accumulation of harmful gas to ensure safety.

(2) In order to ensure production safety, the lifting holes, operating tables and ladders should be set up according to the specified height. Transmission equipment and feeding port should be equipped with protection and suction cover to avoid operation accidents.

(3) Take the noisy parts to make the environmental noise control within the specified range.

(4) Considering the timely evacuation of operators in case of accidents, in addition to the main stairs, in addition to the safety stairs.

(5) Operators should wear protective gloves during the treatment process.

(6) All the sewage concentrates are sent to the secondary combustion chamber for treatment.

(7) The staff should receive safety training in production and the occurrence of special dangerous accidents, and learn emergency measures for self-rescue and rescue others.

(8) All factories and warehouses are set according to seismic intensity.

#### *3.2.7.5 Fire protection*

A certain number of fire hydrants and fire extinguishers are installed in the factory, and a fire reservoir with an effective volume of 200m<sup>3</sup> (used as a fountain). According to the relevant provisions of "Code for Fire Protection for The Design of Buildings" GBJ 16-87 (1997), the water quantity of indoor and outdoor fire hydrant is 15 L/s and 10 L/s respectively, and the total fire water quantity is 90 m<sup>3</sup>/h. Considering the consumption of 2 hours, 200m<sup>3</sup> reservoir is needed, so the company will build a 200m<sup>3</sup> reservoir. In addition, the whole plant fire water pipe network system is added,

so that the fire water pipe network into a ring. A number of fire hydrants, carbon dioxide fire extinguishers and dry powder fire extinguishers and other fire fighting equipment are installed in the building of this project to ensure fire safety. Set the fire emergency alarm button at the entrance and exit of the production device for timely alarm.

## Section 4

### Financial Projection

#### 4.1 Operating cost and expense estimation

##### 4.1.1 Operating cost and expense estimation basis and description

(1) Fuel, water, electricity and alkali costs are calculated according to their annual consumption multiplied by the corresponding price, and consider certain losses. Among them, the price of fuel is 1.8 Yuan / kg, the water fee is 2 Yuan / ton, the alkali is 250 Yuan / ton, the electricity fee is 0.8 Yuan / degree, and the fuel, water, electricity and alkali fees per year (300 days on day) are 215,700 Yuan, 10,000 Yuan, 230,400 Yuan and 108,000 Yuan respectively.

(2) The employee salary is divided into four grades: 4,000 Yuan, 3,000 Yuan, 2,500 Yuan and 2,000 Yuan, and 14% of the welfare funds, 2% of the employee education funds and 2% of the union funds.

(3) Plant building depreciation is 3%; equipment depreciation is 3% for 10 years; vehicles and office equipment are depreciated for 5 years: 3% and the residual value of office equipment is excluded.

(4) Other manufacturing expenses shall be calculated at 20% of the direct wages.

(5) Other management fees shall be 10% of the manufacturing cost excluding depreciation.

## 4.1.2 Total cost statement

Table 4 – 1 total cost statement (unit: ten thousand Yuan)

order number	project name	a particular year				
		2023	2024	2025	2026	2027
1.	cost of production	163.58	163.58	163.58	163.58	163.58
1.1	direct labor	44.40	44.40	44.40	44.40	44.40
1.2	shipping charge	10.00	10.00	10.00	10.00	10.00
1.3	cost of production	109.18	109.18	109.18	109.18	109.18
1.3.1	Fuel and power	21.57	21.57	21.57	21.57	21.57
1.3.2	water and electricity	24.04	24.04	24.04	24.04	24.04
1.3.3	Material consumption	10.80	10.80	10.80	10.80	10.80
1.3.4	depreciation	47.98	47.98	47.98	47.98	47.98
1.3.5	repair cost	3.90	3.90	3.90	3.90	3.90
1.3.5	other	0.89	0.89	0.89	0.89	0.89
2.	general expenses	144.32	79.32	79.32	79.32	79.32
2.1	salary	35.40	35.40	35.40	35.40	35.40
2.2	welfare benefits	11.17	11.17	11.17	11.17	11.17
2.3	Staff education funds	1.60	1.60	1.60	1.60	1.60
2.4	labor union expenditure	1.60	1.60	1.60	1.60	1.60
2.5	amortization charge	83.00	18.00	18.00	18.00	18.00
2.7	other	11.56	11.56	11.56	11.56	11.56
3.	cost of financing	10.62	10.62			
4.	total cost	318.52	253.52	242.90	242.90	242.90
4.1	constant cost	252.11	187.11	176.49	176.49	176.49
4.2	controllable cost	66.41	66.41	66.41	66.41	66.41

Note: Considering the small depreciation amount in administrative expenses, the depreciation is credited in manufacturing expense.

## 4.2 Estimate

### 4.2.1 Revenue estimation basis and description

#### (1) Price description

At present, there are two current charging fees in China: the number of hospital beds and the weight of garbage. Their typical representative cities are Guangzhou and Fuzhou. Guangzhou charges 2 Yuan per day for each hospital bed; Fuzhou charges 2.7 Yuan per 1 Kg of medical waste. Statistics from the literature indicate that each bed generates medical waste 0.5~1.0Kg per day. Therefore, the two charging methods are basically flat. But considering the actual bed utilization is not 100%, if according to the number of bed charge easy to misunderstanding, and ignore the outpatient medical waste, at the same time easily cause originally should belong to the sanitation pickup department is responsible for general garbage also into medical waste, we adopt the method of charging by weight, so more scientific.

At present, Hangzhou also uses a charging method based on the number of beds, that is, 2 Yuan per bed per day. But there are a lot of difficulties in the actual operation. So we use the billing by weight method, which is more acceptable to the public.

At present, the current charging standards of Zhejiang, Guangdong and Fujian are 2 Yuan / bed, 2 Yuan / bed and 2.7 yuan / Kg respectively. The comparison of resident income level and consumer price index in the three places is shown in the following table:

**Table 4 – 2 the household income level and the consumer price index of the three regions**

project	Zhejiang	Guangdong	Fujian
Per capita disposable income of urban residents (RMB / month)	844.24	826.99	689.21
consumer price index	99.0	97.4	98.7

Data source: National Bureau of Statistics, the People's Republic of China, June 2002  
According to the above information, the price estimate of this project adopts the

conservative charging standard of 2 Yuan / kg.

## (2) Profit estimation statement

Because the first year of the operation period is in the trial operation stage, the processing capacity is estimated at 50%.

The company is a high-tech environmental protection enterprise, so the income tax rate for the first two years of the production period is 0%, and the subsequent income tax rate is 15%.

The applicable business tax rate of the Company is 5%.

10% of the provident fund's profit after tax.

5% of the charity's profit after tax.

### 4.2.2 Income statement

**Table 4-3 Income and loss (Unit: ten thousand Yuan)**

class	project name	2023	2024	2025	2026	2027
1.	income	300.00	600.00	600.00	600.00	600.00
2.	cost of production	163.58	163.58	163.58	163.58	163.58
3.	general expenses	144.32	79.32	79.32	79.32	79.32
4.	cost of financing	10.62	10.62			
5.	expenses of taxation	16.65	33.30	33.30	33.30	33.30
5.1	business tax	15.00	30.00	30.00	30.00	30.00
5.2	Urban and rural maintenance and construction tax	1.05	2.10	2.10	2.10	2.10
5.3	extra charges of education funds	0.60	1.20	1.20	1.20	1.20
6.	total profit	-35.17	313.18	323.80	323.80	323.80
	make up the annual losses of previous years		-35.17			
	taxable income	0.00	278.01	323.80	323.80	323.80
7.	Applicable tax rate	0%	0%	15%	15%	15%
	income tax	0.00	0.00	48.57	48.57	48.57
8.	after-tax profits	-35.17	278.01	275.23	275.23	275.23
9.	Surplus reserve fund and public welfare fund	0.00	41.70	41.28	41.28	41.28
10.	Profits available for distribution	35.17	236.31	233.95	233.95	233.95

## 4.3 Statement of investment and financial cash flow

Table 4 – 4 Statement of investment financial cash flow (unit: ten thousand Yuan)

project name	0	2023	2024	2025	2026	2027
inward cash-flow						
income		300.00	600.00	600.00	600.00	600.00
Cash flows into small counts	0.00	300.00	600.00	600.00	600.00	600.00
cash drain						
Construction investment	632.92					
Pre-project cost						
floating capital			200.00			
Business tax and additional		16.65	33.30	33.30	33.30	33.30
handling cost		187.54	187.54	176.92	176.92	176.92
income tax		0.00	0.00	48.57	48.57	48.57
Cash outflows	632.92	204.19	420.84	258.79	258.79	258.79
net cash flow	-632.92	95.81	179.16	341.21	341.21	341.21
accumulative total of net cash flow	-632.92	-537.11	-357.95	-16.74	324.47	665.68

#### 4.4 The Balance Sheet

Table 4-5 Balance sheet (Unit: ten thousand Yuan)

class	project name	0	2023	2024	2025	2026	2027
1.	property						
1.1	Total current assets	17.08	112.89	256.88	598.10	939.31	1280.52
1.1.1	receivables	0.00	0.00	0.00	0.00	0.00	0.00
1.1.2	stock	0.00	0.00	0.00	0.00	0.00	0.00
1.1.3	ready money	0.10	0.10	0.10	0.10	0.10	0.10
1.1.4	bank deposit	16.98	112.79	256.78	598.00	939.21	1280.42
1.2	construction in process	169.00	0.00	0.00	0.00	0.00	0.00
1.3	fixed assets-net value	368.92	489.94	441.96	393.97	345.99	298.01
1.4	Net intangible assets	180.00	162.00	144.00	126.00	108.00	90.00
1.5	deferred expenses	65.00	0.00	0.00	0.00	0.00	0.00
	Total assets	800.00	764.83	842.84	1118.07	1393.30	1668.53
2.	Liabilities and owners' equity						
2.1	Total current liabilities						
2.1.1	account payable						
2.1.2	current liabilities	200.00	200.00				
2.2	long-term advance						
	Debt a small amount	200.00	200.00				
2.3	owner's equity						
2.3.1	Capital of this	600.00	600.00	600.00	600.00	600.00	600.00
2.3.2	Provident fund and public welfare fund	0.00	0.00	41.70	82.99	124.27	165.55
2.3.3	Accumulated undistributed profits	0.00	-35.17	201.14	435.08	669.03	902.98
	Subtotal of the owners' equity	600.00	564.83	842.84	1118.07	1393.30	1668.53
	Total liabilities and owners' equity	800.00	764.83	842.84	1118.07	1393.30	1668.53

Note: (1) according to the non-dividend calculation;

(2) Excluding bank deposit interest.

#### 4.5 Financial analysis NPV, ROI, IRR, Payback Period

Table 4 -6 Cash flow of Yieli Green Technology Co., Ltd projection for next 5 years

	2023	2024	2025	2026	2027
Turnover (10 thousand Yuan)	35.17	236.31	233.95	233.95	233.95
Discount factor 10%	0.909	0.826	0.751	0.683	0.621
Cash flow PV 10 %	31.969	195.191	175.694	159.787	145.282
<b>Accumulate</b>	31.969	227.16	402.854	562.641	707.923

From table 4.6

Initial investment = 500 Ten thousand Yuan

NPV = 707.923 - 500.0 = 207.923 (Ten thousand Yuan)

IRR = 21.34 %

ROI = 707.923/5 = 141.584 (Ten thousand Yuan)

ROI = 141.584/500 X100 = 28.31 %

Payback Period = 3 years and 2 months

## Section 5

### Conclusion and Suggestions

#### 5.1 Conclusion

The patent protection of the comprehensive medical waste treatment technology has obvious advantages. This project has passed the small test, and has applied for a patent on June 7, 2002. At present, the patent application has been accepted and is in the process of approval.

##### 5.1.1 Safety and environmental protection of the treatment process

Yikeli medical waste comprehensive treatment technology adopts intelligent control device to ensure the optimal operating conditions. At the same time, supplemented by advanced exhaust gas treatment technology, emissions fully meet the national standards. The water in the whole plant area (mainly produced by the cleaning garbage transport vehicles) is comprehensively recycled, and will not pollute the groundwater and the surrounding environment.

The whole medical waste treatment process is strictly managed, using fully closed, automatic equipment, workers do not need to directly contact with the waste, eliminate the possibility of infection because of contact with waste, and create a safe working environment for workers.

##### 5.1.2 Strong expansiveness of the process

Because we use the rotary kiln as a combustion chamber, we consider in the design that it can deal with industrial hazardous waste, agricultural hazardous waste, urban domestic hazardous waste and other hazardous waste, which reflects the scalability in the process of making equipment. In the existing equipment only slightly changed, can treat solid, liquid, gas and other states of other hazardous waste.

At the same time, yikeli medical waste treatment technology has a strong capacity expansion. Equipment with corresponding processing capacity can be built for different city sizes to meet the needs of large, medium and small cities.

## 5.2 Suggestions

In the tenth Five-year Plan, the Chinese government proposed to focus on supporting the development of the environmental protection industry, implement the "sustainable development strategy", legislate on the environmental protection industry, and strengthen the investment and support for the environmental protection industry. The technical Policy on the Prevention and Control of Hazardous Waste Pollution issued by the State Environmental Protection Administration, the State Economic and Trade Commission and the Ministry of Science and Technology points out that the phased goal of hazardous waste management in China is to realize the environmental harmless treatment of clinical waste in hospitals by 2005. It can be predicted that in the 21st century, the green environmental protection industry will get an important development opportunity.

With the increase of China's population (experts predict that China's population will continue to increase before 2050), the further development of medical and health undertakings and the popularization of various disposable medical devices, the output of medical waste in China is bound to continue to grow. Simple landfill or mixing treatment with household garbage, it is difficult to avoid secondary pollution with the environment.

This project adopts advanced technology, complete treatment, safe and environmental protection treatment process, and can get the national and local government support and the corresponding preferential measures. At the same time, due to the growing trend of medical waste production, and the public awareness of medical waste harmfulness and strengthen the awareness of environmental protection, as well as various government policies and regulations, will be in the near future for all medical waste harmless centralized treatment, medical waste disposal market is gradually expanding. Yili has the medical waste treatment technology and process synchronized with the world level. Therefore, the close combination of internal treatment technology advantages and external favorable environment will obtain rich economic and social benefits.

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# CERTIFICATE

Multidisciplinary Challenges in Business, Education, Innovation and Advanced Social Intelligence Forward Era 6.0 in 3rd IC-RMUTK INTERNATIONAL CONFERENCE 2023 held on 30 April – 1 May 2023 at Rajamangala University of Technology, Bangkok, Thailand.

THIS IS TO CERTIFY THAT

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