

# Zacks Small-Cap Research (NOTE)

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## CDT Environmental Tech (NASDAQ: CDTG)

**CDTG: High-growth China based wastewater treatment and technology company poised for rapid expansion. The market size of Chinese rural sewage treatment is expected to reach \$30.0 billion by 2030.**

### Research Note



Source: [cdthb.cn/en/index.php](http://cdthb.cn/en/index.php)

### OVERVIEW

CDT Environmental Technology (NASDAQ: CDTG) is a China-based wastewater treatment company that manufactures and operates sewage treatment systems and septic tank treatment services in both rural and urban areas.

In the rural sewage treatment business, the company sells complete sewage treatment systems, constructs rural sewage treatment plants, provides installation services, and offers ongoing operation and maintenance services for these plants and systems. The rural sewage treatment services utilized are an integrated and proprietary system using advanced quick separation technology. The quick separation technology uses a biochemical process for economically and sufficiently treating rural sewage. The company has completed more than 60 rural sewage treatment plants in China, with a total treatment capacity of more than 3,400 tons of sewage per day.

In the septic tank treatment business, the company provides on-site septic tank treatment services with its proprietary systems in the urban and rural areas of China for municipalities and residential and business property management companies. This includes both mobile and fixed systems.

The company has established sales and marketing networks in many cities across several provinces in China with fourteen majority-owned subsidiaries and two branch offices in China. CDT has created proprietary technology and as of December 31, 2023, the company has two invention patents, thirty-eight utility model patents, three trademarks, and two software copyrights. The company continues to upgrade its quick separation technology and septic tank treatment systems through additional research and development and partnerships with third-party institutions to further develop the advanced mobile septic tank treatment system.

The market for rural sewage treatment in China is large and growing and is expected to reach approximately \$30.0 billion by 2030. Total revenue generated from decentralized rural sewage treatment services and equipment in China was approximately \$13.8 billion in 2019 and increased at a compound annual growth rate of 40.3% from 2015 to 2019. The septic tank treatment industry is highly segmented and is operated by small and regional companies or contracted individuals. Traditional treatments pump a mixture of solid waste and sewage into a tank truck and transport it to a treatment center for processing. Many of these operators do not meet current government regulations concerning sewage discharge. The company believes the market for effectively treating the sewage from septic tanks in compliance with such government standards is significant and a major growth driver for the company.

The company went public in April 2024 and raised \$6.0 million in gross proceeds selling 1.5 million shares at \$4.00 per share. The company generated revenues of \$34.2 million in 2023 and recorded a net profit of \$7.0 million. The current market capitalization is approximately \$36.0 million.

## BUSINESS SEGMENTS

### 1) Rural Sewage Treatment

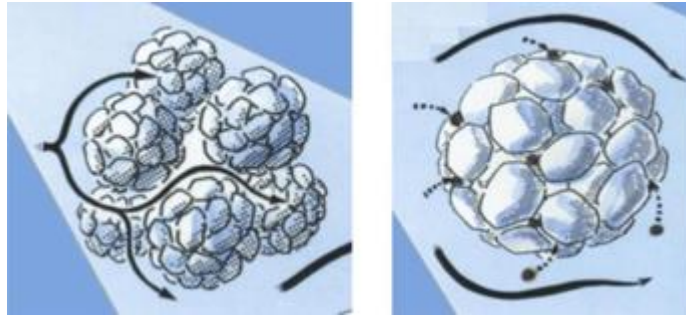
CDT Environmental Technology sells, constructs and installs rural sewage treatment plants and provides ongoing operation and maintenance services. The company's quick separation technology uses a biochemical process for treating rural sewage in an economically efficient manner and the integrated equipment generally has a lifespan of over 10 years without the need for replacement of the core components. Due to the quick separation technology and technological expertise and experience, the entire system produces a high quality of outflowing water with high degrees of automation, efficient construction, and low operational costs. In addition, the equipment is typically able to process abrupt increases in sewage inflows and high contamination. The integrated equipment consists of a compact structure and is buried underground to minimize damage to the surrounding environment. These systems have the capacity to treat 5 to 500 tons of sewage per day, which is sufficient for most villages and towns in China.



Source: [cdthb.cn/en/index.php](http://cdthb.cn/en/index.php)

## Quick separation technology

The rural sewage treatment systems utilize advanced quick separation technology which is a recently developed biochemical process for sewage treatment. The primary filtration and treatment process occurs inside quick separation balls which are numerous porous ceramic balls hosting microorganisms collected in a spherical plastic frame and require no additional pressure to be functional. As the blowing equipment forces sewage through these quick separation balls, the flow rate on the surface of the porous ceramic balls is lowered and the suspended solids in the fluid accumulate inside the balls. An aerobic process that decomposes organic matter occurs near the surface of ceramic balls and an anaerobic process that decreases phosphorus and nitrogen occurs near the core. This quick separation technology creates a varied, aerobic and anaerobic environment in one tank while traditional biochemical methodologies, such as A/O methodology, maintain only one environment in one tank.



Source: [cdthb.cn/en/index.php](http://cdthb.cn/en/index.php)

Further, the quick separation technology is effective in treating sewage at small scales. Other methodologies currently being used such as MBR, A2/O and A/O typically require high capital investment or produce unstable treated water which sometimes fails to meet current regulatory standards for sewage discharge.

The company's quick separation technology has the advantage of not needing to use additional chemicals to reduce sulfur in wastewater and the low level, at times, of the biochemical oxygen demand level in the quick separation tank. This can make it difficult to sustain the microorganisms in the quick separation balls without additional carbon sources.

## 2) Septic Tank Treatment Systems

The company offers on-site septic tank treatment services with its proprietary systems in both urban and rural areas of China for municipalities and both residential and business property management companies. The company has developed both mobile and fixed systems. The mobile system uses automated equipment assembled on a vehicle to allow for transport between dispersed septic tanks and treats the waste at each site and extracts the waste from the septic tank through a narrow opening, which reduces odor and noise as well as spills. The mobile system treatment processes include septic tank waste extraction, separation of solid waste from liquid sewage, dehydration of separated waste, residue filtration, and solid waste compacting.

The fixed system is an integrated waste treatment system that uses quick separation technology to service septic tank sewage collection stations for public toilets in urban areas and to service public toilets in the service stations along highways. It is a compact, stand-alone system that can decompose solid waste and treat sewage to meet regulatory guidelines established by the Chinese government.



Source: cdthb.cn/en/index.php

Currently, the sewage from septic tanks in urban areas is discharged into the sewer systems after simple treatment methods. The Chinese government implemented the new Wastewater Quality Standards for Discharge to Municipal Sewers (GB/T 31962-2015) in 2016 to enhance the treatment of septic tank sewage. However, it is believed that in most regions, the sewage discharged from septic tanks to municipal sewers does not meet the standards required by Chinese authorities. This is expected to drive revenue growth for the company as its methodology and systems meet the highest standards required by the regulatory authorities.



Source: cdthb.cn/en/index.php

## ADDRESSABLE MARKET

### Rural Sewage Treatment Industry

The market size of rural sewage treatment in China is large and expected to reach approximately \$30.0 billion by 2030. The large and growing annual volume of rural sewage discharge creates a significant revenue opportunity for companies that can provide effective and regulatory compliant services. Revenues generated from decentralized rural sewage treatment services and equipment in China reached approximately \$13.8 billion in 2019 and increased at a compound annual growth rate of approximately 40% from 2015 to 2019. Only roughly 22% of incorporated villages in China treated rural sewage water in 2016 according to government data. That number increased to 28% in 2022 which leaves significant room for growth for these products and services. The Ministry of Housing and Urban-

Rural Development of China has set a goal of establishing sewers and sewage treatment facilities in 90% of the villages and towns in China within 30 years.

Ongoing policy support from the China government includes: *The 13th Five Year Plan for National Economic and Social Development of the PRC*, *Three-Year Action Plan for Improving the Quality and Efficiency of Urban Sewage Treatment*, and *the 14th Five Year Plan for National Economic and Social Development of the PRC*

### Septic Tank Treatment Industry

Currently, the septic tank treatment industry is highly fragmented with many small or regional companies and individuals as well. Traditional treatment methods include pumping a mixture of solid waste and sewage into a tank truck and transporting it to a treatment center for processing. Sewage is often discharged directly onto the ground or into nearby rivers and lakes, which raises environmental and safety concerns. There is currently a lack of capacity at existing treatment centers and the distance of transportation creates logistics and safety concerns.

Trends that may play into the company's favor include the increasing oversight and scrutiny of the septic treatment industry by environmental protection departments in the China government. The government implemented the new *Wastewater Quality Standards for Discharge to Municipal Sewers (GB/T 31962-2015)* in 2016 to enhance the treatment of septic tanks. It is believed that in most regions, the sewage discharged from septic tanks to municipal sewers does not meet government standards. CDT's systems, services and products are believed to comply with all government regulations.

## **GROWTH STRATEGY**

### Increase Market Share in the Rural Sewage Treatment Industry

The company plans to increase market share in the locations where it operates by expanding sales and marketing efforts in those areas as well as expand its marketing efforts to new geographic markets.

The company also plans to expand its sales and marketing team to target state-owned organizations to find additional opportunities for rural sewage treatment. Particularly at the central government level, state-owned companies have established networks throughout China which would help to expand to other provinces. The company is currently in negotiation for several projects in the Fujian province of China.

### Expand Septic Tank Treatment to Sewage Collection Stations

The company plans to provide septic tank treatment services to septic tank sewage collection stations. They will provide the system, along with installation, operation and maintenance services for the system, to these septic tank sewage collection stations.

The company is promoting and marketing the system in the Shunyi, Dongcheng, and Chaoyang Districts of Beijing. In Beijing, there are an estimated 20,000 public toilets, and on average, each public toilet generates 2 to 3 tons of sewage daily. For every 50 public toilets, the government would need to build a septic tank sewage collection station capable of holding approximately 100 tons for temporary storage.

Currently, the sewage from public toilets at service stations is traditionally discharged directly onto the ground or into nearby rivers and lakes, which raises serious safety and environmental concerns.

The company's upgraded fixed septic tank treatment system meets the strictest water quality standards - Grade I Standard A, as specified in the *Discharge Standard for Pollutants of Urban Wastewater Treatment Plants (GB18918-2002)*.

This septic system would be installed in service stations along controlled-access highways, particularly those highways in remote areas where sewer systems or wastewater treatment plants are not available. A demonstration site in Inner Mongolia began operation in May 2019 and treats approximately 4,238 cubic feet of wastewater per day.

#### Partner for Organic Fertilizer Production

In another innovative effort, the company is partnering with third parties to begin organic fertilizer production. This includes strategic cooperation with organic fertilizer manufacturing companies and would provide dehydrated solid waste to the partnered companies which would be responsible for manufacturing and sales.

## **SALES & MARKETING**

#### Rural Sewage Treatment

The company's primary customers are city or provincial level state-owned construction companies that provide turnkey solutions for rural sewage infrastructure construction including drainage, pipeline and sewage treatment for local governments.

When obtaining a new customer, the company typically identifies the demand of local governments in rural sewage treatment and then approaches these state-owned companies that are capable of and experienced in undertaking sewage treatment related projects. The company then assists the state-owned companies in their bidding process with local governments, particularly on the technology and process of rural sewage treatment.

These are mutually beneficial partnerships with these state-owned companies. CDT provides technological support in rural sewage treatment and the state-owned companies have good relationships with local governments, well-known brands, and sufficient working capital.

## **BACKLOG & PIPELINE**

The company currently has two projects in backlog totaling \$23.2 million. This includes the Lianjian Project valued at approximately \$19.1 million and the Wuyishan Project–Phase 2 valued at approximately \$4.1 million.

The company is also in negotiations on three new sewage treatment system projects. These projects are expected to be signed and commence operations in the middle or 2<sup>nd</sup> half of 2024.

## **RECENT NEWS**

On June 18, 2024, the company announced the signing of a strategic cooperation agreement with a subsidiary of a large state-owned construction organization in China. The two parties will jointly plan and build a number of infrastructure and construction projects in Fuzhou New Area. These include water, sewage treatment, roads, and pipelines, with an estimated value of more than \$400 million billion, of which an estimated \$135 million could flow to CDT. This would increase CDT's revenue by more than 50% over the next 3-5 years.

Fuzhou New Area is the 14th State-level new district in China and was established in September 2015. It is expected to model a new path of urbanization and promote the integrated development of urban and rural areas. Fuzhou New Area is located in the coastal area of Fuzhou, which is the capital city of Fujian

Province, and has a planned area of 800 square kilometers and a current permanent population of 1.55 million.

CEO of CDT, Yunwu Li, stated, *“This is an important step for us in the domestic market and will also significantly help the infrastructure construction and economic development of Fuzhou New Area. This strategic cooperation will undoubtedly further enhance the market position of CDT. Investors and the market can expect the company to demonstrate synergistic value in more areas and create superior results. In addition to this cooperation, CDT and its partners will also cooperate on projects in other regions of China. As a company rooted in China, we remain committed to promoting the modernization of domestic infrastructure and continued economic prosperity through cooperation with top enterprises.”*

## **MANAGEMENT**

### **Yunwu Li**

#### **Chairman and Chief Executive Officer**

- Chairman of the board of directors and general manager of Shenzhen CDT Environmental Technology Co., Ltd.
- General manager of Fujian Optical Instrument Co., Ltd. (1987 to 1996)
- Chairman of the board of directors of Fujian Furi Electronics Co., Ltd. (Ticker: 600203), listed on the Shanghai Stock Exchange (July 1999 to November 2003)
- Chairman of the board of directors and general manager of Beijing Xinyuan Shidai Real Estate Development Co., Ltd. (March 2007 to May 2015)
- MBA degree from The Open University of Hong Kong

### **TiefengWang**

#### **Chief Financial Officer**

- Investment manager, Zhejiang Feida Environmental Science & Technology Co., Ltd. (Ticker: 600526) (January 2010 to July 2012)
- Financial controller, Xingyuan Environment Technology Co., Ltd. (Ticker: 300266), listed on the Growth Enterprise Market of the Shenzhen Stock Exchange (May 2015 to November 2019)
- Certified public accountant in China
- Bachelor’s Degree in Industry and Business Administration from Hebei University of Geosciences

### **Zijiang Liu**

#### **CTO and VP**

- Chief technology officer and vice president of septic tank treatment of Shenzhen CDT Environmental Technology Co., Ltd.
- Engineer of Volvo (China) Investment Co., Ltd. (April 2006 to November 2015)
- Bachelor’s Degree in Automotive Design from Xi’an Highway Communication University

## SUMMARY

China continues to show a strong need for effective and regulatory-compliant sewage treatment and septic tank services. The rural sewage treatment market in that country is expected to reach approximately \$30 billion by 2030. CDT Environmental Technology continues to maintain a competitive advantage with its service offerings that include advanced rural sewage treatment technology, quick separation technology for cost-effective and decentralized treatment, and advanced mobile and fixed septic tank treatment systems.

The company has multiple levels of value creation including a comprehensive investment plan and credibility among many government and regulatory bodies. The company is widely recognized for its operational excellence.

We believe CDT Environmental Technology is currently well positioned for long-term profitable growth if the current management team can execute on its strategic growth and marketing plans. We do not believe the company's current market capitalization of \$36.0 million reflects the shareholder value that can be created with profitable growth going forward.



Shentu Town, Zhangpu County, Fujian Province



Dongsheng Township, Shenyang City, Liaoning Province



Lianhua Town, Xiamen City, Fujian Province

Source: [cdthb.cn/en/index.php](http://cdthb.cn/en/index.php)



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