

(Incorporated in the Cayman Islands as an exempted company with limited liability)

Stock Code: 1873

2021

ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT















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ABOUT THE REPORT

Overview of the Report

Viva Biotech Holdings (the "**Company**", together with its subsidiaries, "**Viva Biotech**", the "**Group**" or "**we/us**") is pleased to release the third Environmental, Social and Governance Report (the "**Report**") to society, in a bid to disclose the relevant performance of the Group in environmental, social and governance (the "**ESG**") aspects in the past year in a transparent and open manner and address the concerns and expectations of various stakeholders on the sustainable management of the Group.

Reporting Scope

The Report covers the performance of Viva Biotech Holdings and its subsidiaries in fulfilling corporate social responsibility in the ESG aspects, and a time span from January 1, 2021 to December 31, 2021 (the "**Reporting Period**" or the "**Year**").

Basis of Preparation

The Group prepared the Report in accordance with the Environmental, Social and Governance Reporting Guide (the "**Guide**") as set out in Appendix 27 to the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited (the "**Hong Kong Stock Exchange**"). The Report has complied with the "Comply or Explain" provisions contained in the Guide and followed the four reporting principles of materiality, quantitative, balance and consistency as the basis of preparation.

Reporting Principles

- Materiality: Stakeholder communication and materiality assessment have been incorporated into the preparation of this ESG report as a basis for identifying material ESG issues.
- Quantitative: The Report presents environmental and social KPIs in the form of quantitative data, accompanied by explanations to illustrate their purposes and impacts. We also provide comparative data on environmental KPIs in the Report.
- Balance: This ESG report follows the principle of balance and presents our ESG performance in an impartial manner.
- Consistency: Environmental data for the Year is disclosed by the Group in a consolidated manner for the first time. For the consistency and comparability of the scope of disclosure, the environmental data of the Company and Langhua Pharmaceutical for the previous year are aggregated and disclosed in the Report. The relevant KPIs set out herein have been annotated to disclose the methodologies for working out the environmental and social data.

ABOUT THE REPORT

Release Channel

The Report is available for inspection and download at the "HKEXnews" website of the Hong Kong Stock Exchange (www.hkexnews.hk) and the website of Viva Biotech (www.vivabiotech.com).

Feedback to the Report

Your valuable advice serves as impetus for our continuous improvement. If you have any comments or suggestions on the Report or our related efforts, please contact the Group via the following means:

 I Tel:
 +86 (0)21 6089 3288

 I Fax:
 +86 (0)21 6089 3290

 I Website:
 www.vivabiotech.com

 I Email:
 info@vivabiotech.com

CHAIRMAN'S STATEMENT

The past year of 2021 marked a crucial milestone for Viva Biotech. Upon the prior strategic acquisition of Langhua Pharmaceutical, the Group has extended its presence downward the industrial chain to contract development manufacture organization ("**CDMO**") business field. Over the year, the Group initiated the establishment of the one-stop comprehensive service platform for early stage structure-based drug discovery to commercial drug delivery. Meanwhile, leveraging the acquisition of 100% equity interests in SYNthesis med chem (Hong Kong) Limited in the first half of 2021, the Group further reinforced its competency in the contract research organization ("**CRO**") chemical business field.

I wish to look back on our results and operating highlights achieved in 2021 together with you:

- During the Reporting Period, revenue of the Group surged to RMB2,104.1 million from RMB697.0 million in 2020, representing a year-on-year increase of approximately 201.9%.
- As a global leading structure-based drug discovery service provider, during the Reporting Period, the Company delivered approximately 13,134 new protein structures to our clients, representing a year-on-year increase of 73.8%, and launched R&D on 226 new independent drug targets. Besides, the cumulative number of our clients increased to 1,032, and our utilization of synchrotron radiation source reached 1,934 hours during the Reporting Period.
- In 2021, the Group made on-going efforts to expedite the strategic integration with Langhua Pharmaceutical. In particular, with respect to CDMO capacity building, the annual usable capacity reached 671 cubic meters, and it is expected that the T02 plant will be formally put into operation in 2022, with a new capacity of 189 cubic meters. With respect to CMC business, a CMC R&D center of approximately 10,000 square meters was partially put into use in December and the number of CMC R&D personnel had reached 120.

Chairman and Chief Executive Officer of Viva Biotech **Dr. Mao Chen Cheney**



CHAIRMAN'S STATEMENT

- In respect of the EFS investment & incubation business, further progress has been secured for the pipeline candidates of our incubation portfolio companies. In 2021, the total number of pipeline projects increased to 185, of which 20 had entered the clinical stage. On June 14, 2021, AbSci Corporation (NASDAQ: ABSI), a synthetic biology company, announced that it had reached an acquisition agreement with Totient Inc., a portfolio company of ours.
- During the Reporting Period, the Company acquired several new properties and land reserves in Zhoupu and Zhangjiang of Shanghai, Chengdu of Sichuan, Qiantang New District of Hangzhou and Xiuzhou District of Jiaxing to cater to its rapidly growing business requirements and workforce expansion plans, and provide the Company with stable R&D, production and operation premises.
- The Company was included in the MSCI China Small Cap Index and granted such honors as the "Best Small and Mid-cap Company" of the Golden Hong Kong Stock Awards, "2021 Greater China CRO Entrepreneurial Company of the Year" by Frost & Sullivan and "List of Golden Enterprises Enterprise with Top Growth Potential" by Xueqiu (雪球). In addition, Viva BioInnovator was listed as the first batch of the "Grand Enterprise Open Innovation Center Program" (hereinafter referred to as GOI) organized by the People's Government of Shanghai Pudong New Area. Such numerous honors suggested that the Group has been highly recognized among peers.

The Company has been committed to aligning pursuit of business development with fulfilment of its environmental and social responsibilities, and while proactively propelling business growth, the Group has integrated the ESG philosophy into the whole process of business development. Dedicated to operation with integrity, we have made constant efforts to improve corporate governance standards and optimize our ESG governance structure. Meanwhile, the Company has been pursuing sustainability in each and every process of its production and operation activities, in an endeavour to reduce emission and enhance efficiency, conserve resources and contribute to the establishment of an environmental-friendly society and ecological value chain.

We believe that our growth is indispensable from the trust and support of various stakeholders, including our shareholders, employees, clients and business partners. This is the third environmental, social and governance report of the Company since its listing on the Hong Kong Stock Exchange, which demonstrates the achievements made by the Group in the environmental, social and governance aspects during the Reporting Period, as well as how we actively responded to the expectations and concerns of our stakeholders with concrete acts. Looking ahead, the Company will continue to improve business performance, cement our foundation with core competitiveness, bear in mind our corporate social responsibilities along our journey forward and live up to our mission to be innovation-driven, empowered by cutting-edge technology, strive for excellence and benefit patients all around the world, aspiring to realize our vision of becoming a long-term partner of global innovative biotech companies.

> Dr. Mao Chen Cheney Chairman and Chief Executive Officer of Viva Biotech May 19, 2022

STATEMENT OF THE BOARD OF DIRECTORS

Viva Biotech proactively promotes the sustainable development of the Company, continuously improves the ESG management system, and integrates ESG issues into strategic decision-making and daily operations and management, with a view to creating long-term stable environmental, social and corporate value.

The Board of Directors (the "**Board**") attaches great importance to sustainable development. In order to practice the concept of sustainable development, Viva Biotech has established an ESG working group in 2020. The ESG working group promotes the application of sustainability measures in day-to-day operations and has developed an effective feedback and communication mechanism. The group, composed of members from key functional departments of the Company and led by the Board and the management, is in charge of designing sustainable development action plans, guiding and advancing sustainability-related affairs, and ensuring the implementation of relevant measures by all employees of the Company.

Viva Biotech has a deep understanding of the ESG concept and constantly optimizes the organizational structure for ESG management. The Board is responsible for leading and overseeing the Company's ESG strategy planning, management and performance; the management of the Company regularly reviews whether the internal control system is effective and reports to the Audit Committee which will in turn report to the Board; the ESG working group is responsible for the implementation of ESG work. By improving the business execution and supervision procedures, regularly reviewing, summarizing and improving relevant practices, and reporting to the management, the group incorporates the concept of sustainable development into the Company's development, customer rights and interests, environmental protection, employee care, shareholder rights and interests and social contributions, so as to better fulfill the Company's responsibilities to shareholders, employees, customers, society and other stakeholders.

The Report discloses in detail the management and practical progress of Viva Biotech in the above efforts and ESG issues that are of great significance to the Company's development. The Group practices green development by setting targets for energy conservation, emission reduction and water conservation. The Board reviews the formulation of the targets, related action plans and the completion of them on a regular basis.

The Board and all directors warrant that there are no false representations or misleading statements contained in, or material omissions from, the Report and jointly and severally accept responsibility for the truthfulness, accuracy and completeness of the Report. The Report has been considered and approved by the Board on May 19, 2022.

ABOUT VIVA BIOTECH

Business

Established in 2008, Viva Biotech (01873.HK) provides one-stop services ranging from early-stage Structure-Based Drug R&D to commercial drug delivery to global biopharmaceutical innovators. We offer leading early-stage to late-phase drug discovery expertise by integrating our dedicated team of experts, cutting-edge technology platforms, and state-of-the-art equipment in X-ray crystallization, Cryo-EM, ASMS, SPR, HDX-MS, CADD, etc. Our business covers all aspects of therapeutic strategies and drug modalities including small molecules and biologics across the pharma and biotech spectrum. Through our subsidiary Langhua Pharma, we offer our worldwide pharmaceutical and biotech partners One-Stop integrated CMC (Chemical, Manufacturing, and Control)/CDMO service from preclinical to commercial manufacturing. In addition, we are committed to the identification of and investment in biopharma start-ups with high potential. Viva has embedded an equity for service (EFS) model to high potential startups to address unmet medical needs.

As of December 31, 2021, Viva Biotech has provided drug R&D and production services to 1,820 biotech and pharmaceutical clients around the world. We have invested and incubated 87 biotech start-ups in total. In the future, the Company will continue to strengthen its technical barriers, improve R&D and production level, and the service capacity, so as to provide high-quality and diversified services for more drug discovery start-ups, as well as the medium and large pharmaceutical enterprises around the world. We hope to benefit more patients through Viva's platform.



ABOUT VIVA BIOTECH

Corporate Culture

We are a one-stop integrated service platform from early-stage structure-based drug discovery to commercial drug delivery.

	Vision	• To become a long-term partner of global innovative biotech companies.
F	Mission	• To be Innovation-Driven, to be Empowered by Cutting-Edge Technology, to Strive for Excellence, and to benefit patients all around the world.
	Our values	• Innovation, Integrity and Professionalism, Customer Success and Win-win Cooperation

ABOUT VIVA BIOTECH

Honors

Year of Award	Honor
January 2021	Won the "Best Small and Mid-cap Company" Award at the 5th Golden Hong Kong Stocks Awards Ceremony
April 2021	Received the "2021 Greater China CRO Entrepreneurial Company of the Year" Award from Frost & Sullivan
May 2021	Included in the MSCI China Small Cap Index
June 2021	Won the "List of Golden Enterprises – Enterprise with Top Growth Potential" Award from Xueqiu
July 2021	Viva BioInnovator was certified as one of the first batch of "Grand Enterprise Open Innovation Center Program" in Pudong New Area
September 2021	Certified as a "Little Technology Giant in Shanghai"
October 2021	Became a standing member of Zhejiang Environmental Monitoring Association
December 2021	Obtained the High-tech Enterprise Certificate of Zhejiang Province



Viva Biotech is committed to compliance and operates in good faith. Responsible corporate management is the foundation for the healthy development of the Group's business. We always strictly follow professional ethics, establish and improve business ethics and anti-corruption rules and regulations, and refine internal risk management and internal control systems to ensure transparent corporate governance.

1.1. Governance Structure

Corporate Governance

Good corporate governance standards are the basis for the Group to protect the interests of shareholders, enhance corporate value, develop business strategies and policies, and improve transparency and the sense of responsibility. The Group strictly abides by the company laws of the Cayman Islands, the Corporate Governance Code contained in Appendix 14 to the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited and other laws, regulations and regulatory documents, and has formulated internal policies such as the Memorandum and Articles of Association of Viva Biotech (the "Articles of Association") and the Management Measures of the Audit Committee of the Board of Directors to ensure that the Group's business activities and decision-making procedures are properly and prudently supervised and its governance mechanism is constantly improving.



The Board of Viva Biotech has three committees, namely, the Nomination Committee, the Remuneration Committee and the Audit Committee. The Board leads and provides guidance to the management directly and indirectly through these committees, including formulating strategies and overseeing their implementation, monitoring the Company's operational and financial performance, and ensuring that sound internal control and risk management systems are in place. The terms of reference of each committee of the Board have been published on the website of the Group and the website of the Hong Kong Stock Exchange and are available for inspection by shareholders upon request.

We are convinced that the diversity of the Board will facilitate the Company's ESG performance and help achieve the Group's strategic objectives and sustainable development. The Board adopts and implements a Board diversity policy in accordance with the Articles of Association and other relevant regulations. When selecting the members of the Board, the Group will consider the diversity of the Board from many aspects, including but not limited to professional experience, skills, knowledge, gender, age, cultural and educational background, ethnicity and term of office to ensure that directors maintain an appropriate balance in diversity of skills, experience and perspectives, so as to enhance the effectiveness of the Board. As at the end of the Reporting Period, the Board consisted of seven directors, including three executive directors, one non-executive director, and three independent non-executive directors; there were two female directors. In the future, the Board will continue to supervise the implementation of the Board diversity policy and review such policy from time to time to ensure its continued effectiveness.

Sustainability Governance

Sustainable development is an important part of Viva Biotech's corporate governance. The Group continuously improves corporate governance for sustainable development by establishing and improving the governance structure for sustainable development and having organizations at all levels implement their functions on the management of sustainability-related issues. With the approval of the Board, Viva Biotech established an ESG working group in 2020. At present, the Group's governance structure for sustainable development is divided into four levels, i.e. the Board, the management, the ESG working group and functional departments, in a bid to jointly promote the sustainable development of the Group.

Board of Directors: It is responsible for leading and overseeing the Company's ESG strategy planning, management and performance;

Management: It regularly reviews whether the internal control system is effective and reports to the Audit Committee which will in turn report to the Board;

ESG working group: It identifies ESG issues that have a material impact on the Group, updates and implements ESG-related management measures, assesses ESG related risks, monitors the implementation of the Group's ESG-related management measures, reviews annual ESG reports or relevant special reports, and performs other duties related to ESG management;

ESG-related functional departments: They are jointly responsible for implementing relevant policies and targets.



1.2. Communications with Stakeholders

Viva Biotech regards stakeholders as indispensable partners for its sustainable development. The expectations of stakeholders are an important consideration for the Group to develop ESG work plans and improve ESG performance. We attach importance to the opinions of stakeholders, listen to their voices by building well-established and smooth communication channels, and actively respond to issues of common concern.

During the Reporting Period, we reviewed and identified important stakeholders based on the two dimensions of "impact by the Group" and "impact on the Group", and ultimately confirmed the following seven types of stakeholders as the most important stakeholders of the Group. The following table sets forth the concerns of various stakeholders, as well as the communication channels and response of the Group.

Stakeholders	Focus issues	Communication channels and response of the Group
Government and regulators	 Compliance with laws and regulations Promote employment Drive local economic development Address climate change 	 Abide by laws and regulations and strictly implement the government's policy requirements Actively participate in government-enterprise cooperation projects
Shareholders/investors	Information disclosureFinancial performanceESG management	 Convene general meetings Improve information disclosure and issue financial reports and other special reports Hold investor conferences, conduct roadshows, publish newsletters or WeChat official account articles, and communicate online
Portfolio companies/ clients	 Product quality and safety Privacy and security Intellectual property protection Efficient delivery Increase R&D investment 	 Improve the customer service mechanism Conduct customer satisfaction surveys Organize regular visits to customers Regular teleconferences

Stakeholders	Focus issues	Communication channels and response of the Group
Suppliers	 Fair trading Win-win cooperation	 Improve the procurement and tender system Strengthen supplier management and annual supplier evaluation
Business partners	 R&D platform and investment Supply chain management	 Hold meetings for communication Actively participate in industry cooperation and exchanges
Employees	 Compensation and benefits Occupational health and safety Employment compliance Talent attraction and retention Career development and growth 	 Employ staff legally, formulate and implement sound employment policies Provide comprehensive and competitive compensation and benefits Provide comprehensive safety protection for employees and strictly implement epidemic prevention and control policies Hold employee communication meetings regularly Set up an employee suggestion box Improve the training system and carry out training activities
Media	• Information disclosure and transparency	 Hold press conferences Attend media events and accept media interviews

1.3. Materiality Assessment

Materiality assessment can help Viva Biotech identify risks and opportunities related to sustainable development, understand where to make improvements, and enhance the transparency of the Report, so as to better share the process of the Group's sustainable development with all stakeholders. During the Reporting Period, with the assistance of third-party consultants and in accordance with the Guide of the Hong Kong Stock Exchange, we readjusted the material issues after a comprehensive consideration of the mainstream industry guidelines for sustainability and sustainable development trends at home and abroad.

Materiality Assessment Steps



Materiality Matrix



Based on the materiality matrix, during the Reporting Period, we identified a total of 9 highly material issues, i.e. employee health and safety, information security and privacy protection, product quality and safety, employment compliance, emissions management, talent attraction and retention, R&D and technological innovation, intellectual property management, and high-quality customer service. The Report will respond to and disclose the material issues, particularly the highly material issues.

Highly material issue	Relevant section
Employee health and safety	Caring for Employees and Retaining Talents – Safety and Health
Information security and privacy protection	Quality Operations in Multiple Dimensions – Protection of Clients' Rights and Interests
Product quality and safety	Quality Operations in Multiple Dimensions – Quality Control
Employment compliance	Caring for Employees and Retaining Talents – Employment
Emissions management	Green Development and Ecological Protection – Addressing Climate Change; Green Production
Talent attraction and retention	Caring for Employees and Retaining Talents – Empowering the Company with Talents
R&D and technological innovation	Quality Operations in Multiple Dimensions – Product R&D
Intellectual property management	Quality Operations in Multiple Dimensions – Product R&D
High-quality customer service	Quality Operations in Multiple Dimensions – Protection of Clients' Rights and Interests

1.4. Business Ethics and Anti-Corruption

Viva Biotech upholds the business ethics of honesty and trustworthiness, legal compliance, integrity and self-discipline, and acts in strict accordance with relevant laws and regulations on corporate governance and the Corporate Governance Code. We observe the highest ethical and professional standards in our interactions with the Board members, employees, shareholders and investors, government and regulators, suppliers, clients, partners, communities and the public, and have zero tolerance for bribery, extortion, fraud and money laundering.

The Group strictly follows the Criminal Law of the People's Republic of China, the Company Law of the People's Republic of China, the Anti-Unfair Competition Law of the People's Republic of China and other relevant laws and regulations, has established an anti-fraud working group, and has formulated the Anti-Money Laundering Management System and the Anti-Fraud Work Regulations which set out prohibited acts and corresponding penalties to promote the systematic management of anti-corruption activities.

In order to integrate the awareness of business ethics into its operations and daily management of employees, the Group has set forth in detail the requirements of business ethics covering anti-money laundering, anti-fraud, business gifts and conflicts of interest in the Employee Handbook. In an effort to ensure that every employee of the Group remembers and practices the business ethics and compliance, during the Reporting Period, Viva Biotech conducted routine compliance training and two special training sessions on business ethics and anti-corruption for employees at and above the level of department heads. Through the "Anti-corruption Training – Learning Lessons from Others' Mistakes and Ringing the Alarm Bell" and the lecture on "Reasons for the High Incidence of Corruption and Preventive Measures", the Group comprehensively elaborated on the basic knowledge of anti-corruption, risk control and related cases to enhance employees' awareness of corruption prevention. 25 and 30 personnel participated in the two special training sessions, respectively. In addition, 100% of the seven Board members participated in the anti-fraud training for directors.

In order to collaborate with stakeholders in and out of the Group to supervise the implementation of compliance requirements and business ethics, Viva Biotech has developed transparent and open whistleblowing procedures, and set up a number of whistleblowing channels including telephone hotline and e-mail. Through such channels, employees at all levels and stakeholders who have direct or indirect economic relations with the Group may report cases or suspected cases of violation of professional ethics or fraud by employees of the Group. The telephone hotline also receives complaints about accounting, internal control or auditing matters. The Group protects whistle-blowers to the greatest extent possible and avoids unfair treatment of or retaliation for them due to their whistleblowing actions. The anti-fraud working group will keep a written record of the real-name or anonymous reports lodged by employees or external suppliers, and archive the reported fraud cases after investigation and handling. Where a whistleblowing report involves any senior management personnel of the Group, the anti-fraud working group and the officers of relevant departments of the Group will jointly form a special investigation team to conduct investigation subject to the approval from the Board and the Audit Committee. When conducting such an investigation, if necessary, external experts will be invited to participate in the investigation, and to evaluate the internal control of the affected business units and make improvement suggestions.

During the Reporting Period, the Group did not receive any whistleblowing reports and there were no judicial proceedings against the Group or its employees for corruption, bribery, extortion, fraud or money laundering.

1.5. Risk Management

A sound and effective risk management system and risk response capabilities serve as a solid guarantee for the Group's stable and long-term development. We strictly abide by the Company Law of the People's Republic of China, the Articles of Association and other policy requirements, and have formulated a series of policies such as the Basic Standards for Internal Control of the Company, the Risk Management Measures and the Business Continuity Management.

In order to effectively manage and control risks, the Board of the Group is responsible for assessing and determining the nature and extent of risks that the Group is willing to take to achieve its strategic objectives, and establishing and implementing compliant and effective risk management measures and internal control systems. The Audit Committee of the Group is responsible for assisting the Board in strengthening the risk management and internal control systems, and for obtaining important findings on risk management and internal control issues.

In terms of risk management, during the Year, we continued to evaluate the business development strategy and the internal and external risks faced by the Company, and to monitor and track major risks. In addition, in 2021, we incorporated ESG-related issues such as waste management, biodiversity protection and anti-fraud and anti-bribery into the risk management system, studied and assessed the impact of ESG risks on the Company's development and operations from the aspects of laws and regulations, market, technology, reputation and low-carbon transformation, and strengthened risk management measures.

In terms of internal control, during the Reporting Period, the Group reviewed and updated 10 relevant systems and processes, and carried out 14 internal audit projects.

Risk Management and Internal Control Framework of Viva Biotech

- Board of Directors: It manages and monitors the risk management and internal control systems
- Audit Committee: It guides risk avoidance, and supervises and verifies the implementation and effectiveness of risk management and internal control systems
- Internal Audit Department: It leads the risk management and internal control of day-to-day operations and establishes a risk avoidance and internal control system to improve the Group's operation and management process and effectively address and reduce overall operational risks
- Various departments: They monitor and manage daily operational processes and procedures, identify major risks, conduct self-inspection, and implement main monitoring processes

Over the years, based on innovation and deep integration of resources, Viva Biotech has been providing clients with one-stop integrated services from early-stage structure-based drug discovery to commercial drug delivery. Remaining honest and diligent, we consistently ensure the quality of products and services, continuously improve customer communication and satisfaction, and proactively build an open, win-win ecosystem for cooperation of biomedical innovators around the world.

2.1. Product R&D

Technological Innovation

Under the corporate vision to "become a long-term partner of global innovative biotech companies", Viva Biotech is always highly enthusiastic about technological innovation. During the Reporting Period, the Group's R&D investment amounted to RMB92.4 million, an increase of 40% over the same period of last year. For CRO business, we proactively built capabilities in Cryo-EM (Micro-ED), AI-assisted drug discovery, antibody and macromolecule discovery, photochemical reaction platform, etc.; for CDMO business, we strengthened automation transformation during the Reporting Period to further improve the level of production automation. In terms of process development, we continued to develop flow chemistry technology, catalyst and ligand screening platform, oral product production lines, injectable dosage form development platform, amorphous solid dispersion technology, etc.

The Group accelerated the construction of office and laboratory facilities in line with its high-tech workforce expansion plan, and expanded production capacity to meet the Company's business needs for rapid technology-driven development. During the Reporting Period, our newly-built facilities included:

- The Incubation Center located in Faladi Road, Shanghai covering approximately 7,576 square meters has been put into full operation in the first quarter, including 5,552 square meters of laboratory area.
- The Group's new headquarters in Zhoupu, Shanghai with a total area of approximately 40,000 square meters was partially put into use in December, including a chemistry, manufacturing and controls ("CMC") R&D center.
- The park with a total GFA of 54,564 square meters in Chengdu has been completed, of which 12,000 square meters of properties have been partially put into operation in December, including 8,848 square meters of laboratory area.
- The novel drug incubation center with a GFA of approximately 77,500 square meters in Qiantang New District, Hangzhou has commenced construction in July 2021.
- In November, we signed a strategic cooperation agreement with Jiaxing Municipal Government to set up the Viva Biotech AI Novel Drug Incubation Center in Xiuzhou District, Jiaxing.

The Group believes that the development and use of these parks and laboratories will help us fully integrate our scientific research and technological advantages from an international perspective, continuously enrich and broaden the R&D pipelines, and further empower the Group's modern scientific research and production in the future.

In addition, our excellent performance in scientific research also included the establishment of the Biomedical Engineer Collaborative Innovation Center and the Jiaxing Key Laboratory of Targeted Membrane Protein Drug Discovery by Jiaxing Viva Biotech. Langhua Pharmaceutical obtained the High-tech Enterprise Certificate.

The Group has obtained 49 domestic and foreign patents (including 7 utility model patents granted in 2021) and two software copyrights.

Intellectual Property Protection

Viva Biotech always upholds the mission to "to be Innovation-Driven, to be Empowered by Cutting-Edge Technology, to Strive for Excellence, and to benefit patients all around the world". In a series of innovation-oriented business activities aiming for win-win cooperation, we realize that patented core technologies and proprietary expertise are the foundation for us to raise technical barriers, enhance business competitiveness and win over clients. In order to better protect, manage and use intellectual property rights and tap the rising potential of intellectual property rights, Viva Biotech strictly abides by the Patent Law of the People's Republic of China, the Trademark Law of the People's Republic of China and other laws and regulations related to intellectual property rights and their implementation rules. In the meantime, as a biopharmaceutical company targeting the international market, the Group strictly complies with the Patent Cooperation Treaty and other relevant international provisions and treaties.

In accordance with the requirements of the Enterprise Intellectual Property Management Standards (GB/T 29490-2013), the Group has established a dedicated intellectual property department to continuously improve its intellectual property management system. The Company's intellectual property department, equipped with full-time and part-time staff, undertakes the responsibilities of formulating intellectual property development plans, establishing a performance evaluation system for intellectual property management, supervising and evaluating other relevant management bodies, and managing the Company's intellectual property rights. In addition, the Group has developed intellectual property control procedures covering the management of resources (human resources, infrastructure, financial resources and information resources), basic management (acquisition, maintenance, application, protection, contract management and confidentiality of intellectual property), implementation and operation (project initiation, research and development, sales and after-sales service), and audit and improvement (internal audit, analysis and improvement) to implement the responsibility to protect intellectual property, so as to ensure that intellectual property rights are effectively managed in all aspects.

R&D Milestones of Viva Biotech



nanghai Langhua's CMC R&D center was fully put into operation; Viva Biotech's Incubation Center was fully put into use.

2.2. Quality Control

The Group adheres to the self-imposed requirement of "providing high-quality products with high standards", and persistently improves product quality management capabilities to empower clients and the industry. The Group strictly abides by the Product Quality Law of the People's Republic of China and other relevant laws and regulations on production and quality. In view of the higher requirements for product health and safety in the pharmaceutical industry, the Group pays special attention to and complies with relevant industry laws and regulations including the Drug Administration Law of the People's Republic of China, the Regulations for the Implementation of the Drug Administration and Law of the People's Republic of China, and the Measures for the Administration of Drug Registration.

Viva Biotech has obtained ISO 9001:2015 Quality Management System Certification. In terms of CDMO business, Langhua Pharmaceutical has passed the GMP quality management system certification of the State Food and Drug Administration and the certifications of the FDA, the WHO and the EDQM, and has become a qualified supplier and R&D and production base of many renowned multinational pharmaceutical companies. During the Reporting Period, all API products of Langhua Pharmaceutical have passed China's GMP certification, and its main products have obtained such international certifications as EU-GMP, WHO-PQ, and Accreditation of Foreign Manufacturers (AFM) in Japan.

The Group, as always, is committed to improving the quality management system. We have established a complete set of procedures for quality review and assessment and quality and safety emergency response, and regularly re-examine, sort out and revise internal regulatory documents. We constantly reiterate the quality-first philosophy in the aspects of risk management, internal audit and correction, personnel training, supplier verification and training in relation to quality control, and has established a consistent and effective quality control system. During the Reporting Period, the Group continuously strengthened the quality improvement and management of CDMO business. The complaint management procedures established by Langhua Pharmaceutical include management procedures for deviation handling, procedures for management of corrective and preventive measures, quality risk management procedures, etc. In addition, we have formulated the QC Procedures for Laboratory Inspection Process Management to prevent the pollution or cross-pollution of samples in circulation which will affect the accuracy and validity of inspection data.

In 2021, in the context of continuous business growth, the Group maintained strict control over product quality and safety. During the Reporting Period, the Group did not have any product recalls for health and safety reasons.

2.3. Protection of Clients' Rights and Interests

Customer Service

The Group takes customer feedback very seriously and provides high-quality services to clients. For responsible marketing, the Group strictly abides by the Advertising Law of the People's Republic of China and other local legal requirements and industry standards. The Group has developed marketing-related measures, such as the Brand Strategy Management Measures and the Anti-Unfair Competition and Fair Marketing Procedures, which stipulate that all marketing materials and forms shall be reviewed by the Company to ensure they are compliant, authentic, scientific and accurate, and it is strictly prohibited to release deceptive and misleading promotional information and materials, so as to protect the legitimate rights and interests of customers.

We always standardize and improve our services with the highest standards in the industry. After years of accumulation and development, the Group has built a well-established customer-centric customer service system. We uphold the customer-centric philosophy and actively communicate with clients to understand their evaluation of our services and improve service standards and quality. In terms of the service process, we require that clients' inquiries be answered within one working day; communicate with clients on project progress on a weekly or bi-weekly basis; and regularly invite clients to visit us and have deep communication. In terms of ensuring customer satisfaction, in order to objectively and comprehensively understand the customer satisfaction with the Group's service quality and their needs, opinions and suggestions, the Group has formulated the Customer Questionnaire Management Process, conducts customer satisfaction surveys on a regular basis to investigate the satisfaction of key and new clients with regard to service quality, response speed, intellectual property protection and service charges, and quickly respond to the problems and suggestions raised in the process and analyze and rectify the problems involved. In 2021, the Group's customer satisfaction score based on surveys was 96.37.

Viva Biotech provides smooth channels for customer complaints and carefully listens to customers' opinions and suggestions. The Group has formulated the Operational Procedures for Handling Customer Complaints to standardize the complaint handling and feedback mechanism. For each customer compliant, the relevant department head and project head, the internal control department and the customer service department will discuss the reasons for the complaint and propose solutions to the compliant. We also summarize and evaluate the customer complaint handling process from time to time, draw lessons from experience, and put forward suggestions for improvement, so as to continuously improve the operations management and business processes and enhance the quality and level of customer service. During the Reporting Period, the Group received a total of 20 complaints from clients, all of which had been properly addressed in a timely manner.

Privacy Protection and Information Security

The Group attaches great importance to the protection of customer information and trade secrets. We strictly abide by the relevant laws, regulations and rules on information security and privacy protection, including the Data Security Law of the People's Republic of China and the Personal Information Protection Law of the People's Republic of China. We have established an information security team and an information management system based on the Regulations on Confidentiality of Customer Information, which defines the scope of confidential information of the Group and departments and confidentiality methods, and sets out measures for dealing with information leaks including written warning, compensation and termination of labor contract. The information security team, which is accountable to the Group's Public Management Department, is responsible for publishing information security-related documents, conducting information security training, preventing information leakage, and continuously improving the information security process.

In terms of information security management, the Group strictly abides by laws and regulations, and has formulated the Standards for Computer Information Security Management and the Computer Management System to specify the management requirements for computer use, data management, information backup, user management, system security, virus prevention and computer information system security inspection, thus ensuring the stability of the Group's IT network and its information security.

2.4. Supplier Management

Building a sustainable supply chain is the foundation for the stable and healthy development of the Group. In the process of procurement and operations, Viva Biotech strictly abides by the laws and regulations of the countries and regions where it operates, including the Civil Code of the People's Republic of China and the Law of the People's Republic of China on Tenders and Bids. The Group has formulated the Supplier Access Regulations, the Supplier Management Procedures and the Bidding Management System to set clear rules on supplier access, selection, classification, acceptance inspection, evaluation and management with a fair and impartial attitude of cooperation.

Supplier Access

In 2021, the Group gave top priority to building a green supply chain in terms of supplier management. By integrating green procurement into the entire process of purchasing raw materials, equipment and services, we led upstream and downstream companies in the supply chain to continuously enhance the utilization efficiency of resources and energy, improve environmental performance, and achieve sustainable development. In the procurement process, Viva Biotech pays attention to the environmental performance of suppliers, and requires that the products provided by suppliers shall be friendly to the human body and the environment; the use of the products does not generate excess energy consumption and waste; and the product packaging is simple, reasonable and degradable. For suppliers of controlled chemicals, we require them to provide licenses for production, operation or transportation of hazardous chemicals. For suppliers providing product-related services, we require them to present relevant certificates such as ISO 9001 Quality Management System, ISO 14001 Environmental Management System and ISO 45001 Occupational Health and Safety Management System certificates. In terms of logistics and warehousing, the Group, with an aim to achieve green logistics, actively leverages the advantages of information technology, strengthens the application of automation, and realizes the effective management of toxic and hazardous materials. We realize green storage and transportation in the supply chain through low-carbon transportation and storage measures such as inventory optimization, recycling and reuse of waste raw materials and reagents, and noise pollution reduction during transportation.

In addition, we implement a standardized operating model with unified planning, price inquiry, and unified procurement. We proactively collaborate with suppliers to solve problems related to product safety and quality assurance, and support raw material suppliers and technical service providers to obtain relevant certifications, so as to establish good, win-win partnerships with upstream and downstream players. In addition, the Group guards against potential violations of laws and regulations, corruption and fraud in the supply chain, cracks down on unfair competition, and maintains fair and impartial partnerships. The Group adopts a bidding model for all procurement processes, conducts internal audits, implements a multi-party supervision mechanism for all procurement contracts, and effectively prevent procurement risks through joint review and approval by multiple departments. The payment process also requires multiple approvals to complete the payment. The full purchase process will be filed for the record and for customer review.

Supplier Evaluation

The Group regularly reviews suppliers and implements an annual performance evaluation system for suppliers. Regular suppliers are evaluated once a year and qualified suppliers are reviewed once a year to effectively manage potential risks in the supply chain.

We improve the awareness and performance of suppliers in environmental protection and corporate social responsibility through social responsibility questionnaires for suppliers and on-site social responsibility audits of suppliers. Our on-site audit mainly reviews the performance and measures of suppliers in the aspects of child labor, forced labor, working hours, salaries and benefits, health and safety, and environmental protection, and confirms whether the performance of suppliers in relevant aspects is in line with the Supplier Management Procedures and the Group's values of green supply chain. We require all suppliers to observe the standards of business ethics, strictly control the quality standards in the process of delivering products and services, respect the rights and interests of employees including equal pay and other employment rights, promote the occupational safety and health of employees, and adhere to green production and transportation.

In order to improve the stability and continuity of the supply chain, we try our best to select two or three manufacturers for each type of raw and auxiliary materials and packaging materials, and establish a long-term partnership with them to minimize the frequency of changing suppliers, so as to ensure long-term supply and minimize the supply risk.

During the Reporting Period, the Group had a total of 1,612 suppliers in mainland China, of which approximately 84% in East China, 11% in Central China, 4% in North China, and 1% in South China and Northeast China. All suppliers are subject to the Group's supplier engagement and management regulations.



Number of Suppliers by Region

The Group regards talents as the most valuable resource for corporate development. We adhere to the principles of legal compliance, people-oriented and meritocracy, take various measures to create a diverse, inclusive, healthy, safe and dynamic work environment for employees, and help employees grow together with Viva Biotech through a vocational training and development system.

3.1. Employment

We believe that bringing together outstanding talents from all over the world can promote the Group's development and strengthen our leading edge in the construction of a one-stop drug discovery and production service platform. The Group strictly abides by the Labor Law of the People's Republic of China, the Labor Contract Law of the People's Republic of China, the Social Insurance Law of the People's Republic of China, the Regulations on the Implementation of the Labor Contract Law and other relevant national and local laws and regulations. Internally, we have formulated and implemented a series of rules and regulations including the Salary Management Procedures, the Working Time Management Procedures for recruitment and employment management, ensure compliance and fairness in recruitment, employment, post arrangement, promotion, redistribution, remuneration, training, discipline and dismissal, and prevent discrimination based on gender, disability, family and marital status, sexual orientation, age, political and philosophical beliefs, religious beliefs, trade union activities, race, society, culture or nationality.

Viva Biotech is committed to building a diverse and equal recruitment and employment mechanism. For the employment of female employees, we strictly abide by the Special Provisions on Labor Protection of Female Workers and other relevant policies and regulations to ensure the fairness and impartiality of the employment and work systems and protect the legitimate rights and interests of female employees. We adopt a "zero tolerance" policy and resolutely prohibit child labor, forced labor and prison labor. In accordance with the Provisions on Prohibition of Child Labor issued by the State Council and the Law of the People's Republic of China on the Protection of Minors, we have formulated relevant policies, procedures and remedial measures to prevent the recruitment of child labor, and impose the same requirements on contractors/suppliers who cooperate with the Company in management, practices and employment. Our recruitment system automatically excludes all job applicants under the age of 18, and we check the identity documents of applicants in the process of employee recruitment, employment approval and registration to ensure the authenticity of their information. During the Reporting Period, there were no incidents of child labor or forced labor within the Group.

The Group has developed detailed salary management procedures to define the salary calculation method and enhance the transparency of labor remuneration, subsidies and benefits, the form and time of salary payment, and relevant legal requirements. In addition, on the basis of statutory requirements, we offer generous compensation and benefits to interns, including reasonable salary, free accommodation during the internship period and holiday allowances, and provide interns with bonuses on a quarterly basis based on their performance. In terms of working time management, the Group strictly complies with relevant national laws, and has set clear rules on overtime, working hour calculation, attendance, statutory leave, annual leave and statutory holidays. For special occupations, the Group will reasonably and legally determine the work system based on the actual situation, and implement a system with comprehensive calculation of working hours or a system with irregular working hours.

During the Reporting Period, the Group continued to promote its talent recruitment and workforce expansion plans. As of the end of the Reporting Period, the Group had a total of 2,127 employees, an increase of 31.4% over the previous year. In terms of employee diversity, our female employees accounted for 42.31% of the total, an increase of 3.2% over the previous year. Our employees are located in Shanghai, Jiaxing, Chengdu, Ningbo, Taizhou, Suzhou and overseas.



Total number of employees







Indicator		2021
Total employee turnover rate ¹		22%
Employee turnover rate by gender	Male	23%
	Female	20%
Employee turnover rate by age	Aged under 30	27 %
	Aged 31-40	18%
	Aged 41-50	13%
	Aged over 50	9%
Employee turnover rate by region	Shanghai	24%
	Jiaxing	13%
	Chengdu	19%
	Ningbo	8%
	Taizhou	21%
	Suzhou	24%
	Overseas	0%

The employee turnover rate is a percentage arrived at by dividing the number of employees in the specified category leaving employment during the Reporting Period by the sum of the number of employees in the specified category at the end of the Reporting Period and the number of employees in the specified category leaving employment during the Reporting Period.

1

3.2. Empowering the Company with Talents

Training and Development

In line with the Group's development, we constantly innovate in the training system and vigorously carry out personnel training programs. The Group has developed the Employee Training Management Regulations, based on which we prepare the annual training plan and coordinate the Group's staff training planning. Our annual training plan is roughly divided into induction training for new employees, professional skills training, and English training. The training methods are generally divided into two types–centralized teaching and experimental operations to balance theoretical study and experimental operations to the greatest extent, so that employees can have more comprehensive and in-depth learning opportunities. For employees at the project manager level, our training is focused on improving management skills; for middle and senior management staff, we pay more attention to the development of management capacity and leadership. While increasing external training efforts, we also try to drive internal training with external training, cultivate internal trainers, and improve the internal training curriculum.

In addition, the Group is improving the training effect tracking system, strengthening training evaluation and incentives, and establishing a training feedback and effect evaluation mechanism. After the annual training, the Company will select and reward excellent lecturers based on the results of the survey on students' satisfaction with lecturers. We hope to improve the training effect and get great results from training by combining training and incentives.

Set out below is an overview of our training activities during the Reporting Period:

Indicator		2020	2021	Unit
Total number of employees trained ²		1,028	2,133	persons
Percentage of employees trained by	Male	65%	59%	/
gender ³	Female	35%	41%	/
Percentage of employees trained by	R&D staff	44%	62%	/
employee category ⁴	Management staff	8%	2%	/
	Other staff	48%	36%	/
Average training hours by gender ⁵	Male	19	21	hours
	Female	26	27	hours
Average training hours by employee	R&D staff	30	36	hours
category ⁶	Management staff	5	8	hours
	Other staff	10	24	hours



Quality training

Orientation for new employees

Laboratory standard training of the biology department

- ² The total number of employees trained is the total number of the Group's employees who took part in training activities during the Reporting Period.
- ³ According to the advice on data calculation set out in Appendix 3: Reporting Guidance on Social KPIs to How to prepare an ESG Report of the Hong Kong Stock Exchange, the percentage of employees trained by gender is calculated by dividing the number of employees trained in the specified category by the total number of employees trained.
- ⁴ According to the advice on data calculation set out in Appendix 3: Reporting Guidance on Social KPIs to How to prepare an ESG Report of the Hong Kong Stock Exchange, the percentage of employees trained by employee category is calculated by dividing the number of employees trained in the specified category by the total number of employees trained.
- ⁵ According to the advice on data calculation set out in Appendix 3: Reporting Guidance on Social KPIs to How to prepare an ESG Report of the Hong Kong Stock Exchange, the average training hours by gender is calculated by dividing the total number of training hours for employees in the specified category by the total number of employees in the specified category.
- ⁶ According to the advice on data calculation set out in Appendix 3: Reporting Guidance on Social KPIs to How to prepare an ESG Report of the Hong Kong Stock Exchange, the average training hours by employee category is calculated by dividing the total number of training hours for employees in the specified category by the total number of employees in the specified category.

Talent Attraction and Retention

The Group strives to cultivate and retain talents through competitive salaries and benefits, smooth promotion channels, and a reasonable and effective performance management system. In order to fully stimulate the enthusiasm and initiative of employees and better motivate, develop and retain talents, Viva Biotech has established standardized procedures for promotion. Each year, Viva Biotech provides two promotion opportunities to employees with outstanding performance or special contributions in April and October, respectively. Promotion is subject to evaluation, approval and defense, where each candidate's morality, ability, performance and potential will be comprehensively considered, with a view to selecting talents through fair, impartial and open competition.

In order to meet the needs of the Company's rapid growth and efficient operation, Viva Biotech has developed a mechanism for self-motivation, self-management and self-improvement of employees through performance appraisal. The Company's performance appraisal is led and managed by the HR Department. Each business department is responsible for formulating the indicators for performance appraisal of its employees, implementing, following up and evaluating such indicators, and guiding employees to improve performance through performance interviews. In addition, performance appraisal is also linked to the promotion and dismissal of employees and the annual adjustment of salaries.

The Group attaches great importance to the introduction of key technicians and senior talents. Based on the basic conditions of the Company and external market dynamics, Viva Biotech endeavors to provide all kinds of personnel with competitive and comprehensive compensation and benefits as well as performance bonuses, innovation subsidies, multi-tranche option incentives, talent apartments and other life services.

In addition, we assist overseas or other high-level talents to apply for work permits and work visas and purchase commercial insurance, help those eligible apply for Chinese green cards, and provide them with paid leave for family visits and relevant subsidies. In addition, pursuant to the national and local talent introduction and incentive policies, we also apply for talent programs and talent subsidies for various scientific and technological talents, high-skilled talents and college graduates.
3.3. Safety and Health

Viva Biotech gives top priority to employee health and production safety. The Group strictly abides by the Law of the People's Republic of China on Production Safety, the Labor Law of the People's Republic of China and other relevant laws and regulations, and strives to create a healthy and safe work environment for employees.

In order to improve the stability and safety of the production process, the Group has prepared the list of Occupational Hazards for Identification based on relevant units and position titles in accordance with the Law of the People's Republic of China on Prevention and Control of Occupational Diseases, and ensure that employees are aware of the occupational hazards that may occur in the course of work and their consequences before taking up their jobs. Moreover, we provide pre-job and on-the-job training on occupational safety and health to guide employees to correctly use occupational disease prevention equipment and personal labor protection articles. We arrange occupational health check-ups for employees before, during and after their employment, and truthfully inform them of the check-up results. In addition, we provide special allowances for employees in high-risk occupations, and take active measures to prevent and minimize the safety hazards in the workplace for employees. We have also set up an EHS (environment, health and safety) bulletin board in the Company to regularly publicize occupational health-related information.

Accident emergency response is closely related to safety production. The Group has prepared the Comprehensive Emergency Response Plan for Production Safety Accidents in Production and Business Units in accordance with the Emergency Response Law of the People's Republic of China, the Regulations on Emergency Response to Production Safety Accidents, and the Regulations on the Safety Management of Hazardous Chemicals. Based on hazard analysis, we have made contingency plans for fire, electric shock, chemical leakage, natural disasters and equipment accidents, and developed an effective warning information release and emergency organization system, so as to quickly and effectively control and deal with accidents that may occur, protect the personal safety of employees and the Company's property, and reduce the impact of and losses caused by accidents. Before the occurrence of extreme weather, the Company's safety warning system will give an alarm and inform employees of relevant information in a timely manner.

Langhua Pharmaceutical has obtained ISO 45001:2018 Occupational Health and Safety Management System certification. In addition, during the Reporting Period, Langhua Pharmaceutical was granted the title of Second-Class Enterprise in Production Safety Standardization (Hazardous Chemicals) by Zhejiang Emergency Management Department.

During the Year, the Group had 781 lost working days due to work injury, which was mainly attributable to Langhua Pharmaceutical. The relevant accidents mainly occurred in workshops and did not cause serious work-related injuries. We have properly handled the accidents and made related arrangements in accordance with the relevant provisions of the Group's Work-related Injury Insurance Regulations, and lived up to our commitment to employee health and safety by constantly improving the system and process and strengthening safety training. In addition, the Group had no work-related deaths in the past three years (2019, 2020 and 2021).

The Group regards occupational health and safety training as an important part of employee health and safety management and injury risk reduction. The Group has formulated the Management Measures for Safety Education and Training of Viva Biotech, and organizes employees to receive training on safety production and occupational health from time to time, in an effort to improve employees' safety technical quality and their ability to prevent accidents. We ensure that employees are familiar with the Company's safety and health policies and can better protect their own and the Company's interests in the case of emergencies. During the Reporting Period, the Group expanded the coverage of health and safety training, which benefited a total of 1,162 personnel. Specifically, we conducted 12 safety training sessions and 2 fire drills.



Field sampling



Fire drill



Safety training

3.4. Humanistic Care

Employee Communication

We continuously deepen and diversify employee communication and complaint channels to improve the efficiency of information dissemination within the Company and protect the rights and interests of employees and the Company. For each new employee, the HR Department, the IT Department and his/her business department will provide orientation and guidance to help him/her quickly adapt to the work environment and integrate into the Company's atmosphere. In day-to-day work, the Company's OA system and other relevant platforms provide convenient channels for employees' business communication, submission of matters for approval, and consultation on important issues. In addition, employees may inquire or complain about any issues with which they are confused or dissatisfied through complaint mailboxes set up in factories and office locations.

Caring for Employees

The Group steadily improves the well-being of employees and provides life support for them. During the Reporting Period, we vigorously carried out team building activities to increase the cohesion of employees across departments and improve the team harmony and enthusiasm. We provided dormitories for graduates, interns and other employees in need, and added shuttles between dormitories and the Company to facilitate employees' commuting. In addition, we provided summer relief items for employees sticking to their posts in hot days; and offered Chinese New Year gift packages to workers staying in their jobs during the Spring Festival. Our laboratory researchers invited employees' children to visit the laboratory and participate in small biological experiments, so that the teenagers can learn about their parents' work and generate and enhance interest in bioscience.



Laboratory Visiting Day for Employees' Children

Employee Incentives

Innovation is the primary driving force and talents are the primary resource. In order to stimulate the innovation vitality of talents, the Group encourages employees to be self-driven, create social value, and achieve self-worth through more active, open and effective employee incentive policies. We encourage employees to learn from role models by offering promotion and performance incentives and annual commendation, so as to form a sound competitive atmosphere in the Company and enhance employees' recognition of our corporate culture and spirit.

Case Highlight: 2021 Annual Commendation Conference of Viva Biotech



Viva Biotech successfully held the 2021 Annual Commendation Conference to thank the employees who worked hard with the Company to create brilliant achievements. Through the commendation conference, we hope to enhance the cohesion of the Company, improve the communication and sense of teamwork among employees and leaders, and enrich our corporate culture.

Case Highlight: Performance Appraisal and Reward System for Researchers of Chemical Synthesis Research Institute of Langhua Pharmaceutical

According to the characteristics of the drug discovery industry, the Chemical Synthesis Research Institute of Langhua Pharmaceutical has established an innovative and efficient performance appraisal and reward system for researchers. Each quarter, the research institute conducts performance appraisal of design and development researchers and technical engineers as well as project heads, technicians and other managers on target management, project execution, personal behavior and functions. The appraisal methods include peer evaluation and supervisor evaluation applicable to project engineers and superior evaluation applicable to project managers, with a view to maximizing the accuracy and effectiveness of performance appraisal based on the principles of fairness and impartiality. The appraisal results will eventually be linked to compensation and rewards to better motivate employees.

For years, Viva Biotech has been deeply engaged in investment and incubation business with a focus on global biomedical innovation. We integrate the concept of responsible investment into our dual drivers–cash-for-service ("CFS") business and equity-for-service ("EFS") business and continuously deepen industry cooperation, in an effort to promote the development of the global biopharmaceutical industry. In addition, we have long been performing our corporate social responsibility to give back to the community, with a view to building a better community together.

4.1. Responsible Investment

Viva Biotech commits itself to better satisfying the medical needs of patients around the world through drug discovery services and active investment. We integrate the concept of responsible investment into our dual drivers – CFS business and EFS business, and apply it in pre-and post-investment management, covering due diligence, post-investment participation in the decision-making of portfolio companies, systematic analysis of ESG factors, etc. Through prudent and responsible investment decisions, we promote the growth of biotech start-ups and the sustainable development of the biopharmaceutical industry, thus contributing to the realization of the UN Sustainable Development Goal of "Good Health and Well-Being".

During the Reporting Period, in an ongoing effort to explore business opportunities around the globe, the Group reviewed a total of over 979 projects globally, added 20 start-ups to its portfolio companies, and made additional investment in 7 existing portfolio companies, covering various indications, modalities and regions. As of December 31, 2021, the Group had invested in a total of 87 portfolio companies.



No.	Company Name	Туре	Indications/Primary Technology/ Business
1	Argonaut Genomics, Inc.	Strategic investment	Utilizing bioinformatics/proteomics to build a high-throughput discovery platform, which can mine from the dark genome for immune-dominant cancer antigens.
2	Ribogenics, Inc.	Strategic investment	Pursuing the vast potential of small molecule medicines for RNA mis-splicing diseases.
3	AIxplorerBio (Zhejiang) Co., Ltd.	EFS	Driven by AI technology, focusing on the R&D of novel drugs in the field of autoimmune system and neurodegenerative diseases.
4	NAKI Therapeutics Inc.	Strategic investment	Focusing on CAR-NK and NK cell-based immunotherapy.
5	Suzhou Genhouse Bio Co., Ltd.	EFS	Focusing on the development of global next-generation anti-cancer therapeutics.
6	Dorian Therapeutics, Inc.	EFS	Working on a new class of therapeutics that can rejuvenate cells and tissues.
7	AbSci Corporation	Strategic investment	Focusing on accelerating drug development in the pre-clinical stage
8	Fuse Biotherapeutics Inc.	EFS	Focusing on developing a platform o T cell engagers and NK cell engagers

New Portfolio Companies Added During the Year

No.	Company Name	Туре	Indications/Primary Technology/ Business
9	ORNOVI, INC.	EFS	Focusing on therapies for inflammatory and autoimmune diseases and dedicated to developing small molecule medicines targeting innate immune cells.
10	Shanghai Zizhan Pharmaceutical Technology Co., Ltd.	Strategic investment	Focusing on the technology R&D, manufacturing, application and promotion of human organs-on chips.
11	IpiNovyx Bio, Inc.	EFS	A biotech company focused on developing immunoproteasome inhibitors for the treatment of autoimmune diseases.
12	ArrePath, Inc.	EFS	A preclinical biotech company focused on developing new antibiotics.
13	Exarta Therapeutics	Strategic investment	A drug R&D company focused on the field of ferroptosis.
14	i2O Therapeutics, Inc.	Strategic investment	Focusing on developing an oral administration platform based on ionic liquid (IL).
15	Deka Biosciences, Inc.	Strategic investment	Focusing on developing novel cytokine-based therapies.
16	Aleta Biotherapeutics, Inc.	Strategic investment	A biotech company focused on developing novel tumor immunotherapies.
17	Amberstone Biosciences, Inc.	EFS	Focusing on developing immunotherapies specifically activated by the tumor.

No.	Company Name	Туре	Indications/Primary Technology/ Business
18	Full Circles Therapeutics, Inc.	Strategic investment	Focusing on developing an efficient non-virus, gene-editing tool development platform.
19	TATARA THERAPEUTICS, INC.	EFS	A novel drug company focusing on the development of small molecule cancer drugs.
20	KARMA BIOTECHNOLOGIES, INC.	EFS	Focusing on treating autoimmune diseases through its Xavine vaccine platform.

Portfolio Highlight: VivaVision Biotech Closed RMB300 million Series D Financing and Completed the Enrollment of and Administration to the First Subject in Phase II Clinical Trial of its Self-developed Novel Drug for Dry Eye

In April 2021, VivaVision Biotech, an innovative ophthalmic drug company invested by Viva Biotech, announced that it had closed a Series D financing of RMB300 million. The proceeds raised will be used to support the clinical development of several innovative ophthalmic drugs, including the US clinical Phase II study of the ongoing dry eye program VVN001. In December, VivaVision Biotech announced the establishment of a Scientific Advisory Committee. After that, it announced that it had successfully completed the enrollment of and administration to the first subject in the China Phase II clinical trial of its self-developed novel drug for dry eye – VVN001, a new-generation LFA-1 antagonist.

Portfolio Highlight: Genhouse Bio Develops a New Generation of Anti-tumor Small Molecule Drugs in the World

In May 2021, Viva Biotech participated in the Series A financing of Genhouse Bio. As an innovative biopharmaceutical company, Genhouse Bio focuses on the research and development of novel small molecule anti-cancer drugs. As of now, it has built a world-class R&D team of nearly 100 personnel, and established four new drug R&D centers – Innovation Research Center, Drug Design and Discovery Center, New Drug Screening and Evaluation Center and Clinical Development Center, and scientifically developed a third-generation pipeline with more than 10 products. In September 2021, Genhouse Bio's leading pipeline product GH35 (KRAS G12C inhibitor) was administered to the first patient. In November, Genhouse Bio's IND application for SHP2 inhibitor GH21 IND was approved by the CDE. The combination of SHP2 inhibitor and a variety of drugs including immune checkpoint inhibitors has a good effect. It is one of the most promising targets in the field of anti-cancer drugs in recent years, but no SHP2 inhibitor is available on the market yet globally.

Portfolio Highlight: ApicHope Participated in Series C2 Financing of Arthrosi, a Portfolio Company of Viva Biotech

In July 2021, Reichstein Biotech (HK) Co. Limited, a subsidiary of ApicHope, participated in the Series C2 preferred stock financing of Arthrosi Therapeutics, Inc. with US\$25 million of selfowned capital. Arthrosi, invested and incubated by the Group, is a high-tech company dedicated to the research and development of novel drugs for metabolic diseases, particularly uric acid-lowering drugs and therapies for hyperuricemia-related diseases. At present, the main products of its R&D pipeline are the novel drug AR882 for the treatment of gout and the novel anti-tumor drug AR035.

4.2. Promoting Industry Cooperation

Viva Biotech deepens technology development, model development and cooperation to facilitate the construction of a one-stop platform for drug discovery, production and cooperation. During the Reporting Period, we acquired SYNthesis to strengthen front-end services and expand the scope of clients and the coverage of services. Our strategic integration of Langhua Pharmaceutical strengthened small molecule CDMO services in the clinical and commercial stages, brought more clients, and greatly promoted the development of the Group's CDMO segment. We worked with companies in and out of the industry to increase the Group's scope of services and improve our ability to incubate start-ups. In addition, we build an industry ecosystem and promote industry exchanges and cooperation at home and abroad by holding or participating in seminars, forums and other industry exchange activities.

Case Highlight: Viva Biotech and BioMap Signed a Strategic Cooperation Agreement to Accelerate Early-stage Drug Discovery Using AI Technology



From May 10 to 11, 2021, the first China Biocomputing Conference was held in Suzhou. Viva Biotech was invited to attend the conference and signed a strategic cooperation agreement with BioMap, a biocomputing-driven novel drug discovery company affiliated to Baidu. This strategic cooperation will be based on the AI+ biological computing engine of BioMap, which will complement the structure-based integrated drug discovery platform of Viva Biotech to accelerate the discovery and design of novel biologics.

Case Highlight: Viva Biotech Reached a Strategic Cooperation Agreement with Nanolmaging Services to Develop Integrated Cryo-EM Services from Gene to Structure

In October 2021, Viva Biotech and Nanolmaging Services, Inc ("NIS") reached a strategic cooperation to create synergy through the technical platforms of both sides. As a world-leading Cryo-EM service provider, NIS has sufficient advantages in the fields of structural analysis technology and electron microscopy equipment. Based on Viva Biotech's efficient protein expression and production capacity and proprietary membrane protein expression and screening technology, this cooperation is expected to further empower innovative pharmaceutical clients worldwide, improve R&D efficiency and benefit more patients.

4.3. Community Welfare

Upholding the corporate values of "giving back to the community", Viva Biotech proactively undertakes its corporate social responsibility and carries forward the spirit of public welfare. We continuously pay attention to the needs of the people in the communities where we operate, and support social undertakings such as education, elderly and charity by various means. In addition, we organize employees to engage in public welfare activities, with a view to developing their enthusiastic and dedicated volunteer spirit.

During the Reporting Period, the Group continued to donate goods and money to charity organizations, and cooperated with a number of universities based on its own advantages to contribute to the cause of education. We also organized employees to participate in public welfare activities such as Linhai New Residents Social Club and social working training, so as to bring warmth to the people in the community. In 2021, we donated a total of RMB80,000, benefiting approximately 205 people.

•	Organized students to visit and study in the Company
•	Provided academic study and employment guidance
•	Set up "Langhua" Innovation Practice Scholarship
•	Provided an internship practice base
•	Sponsored basketball team uniform
	• • • • • •

Educational public welfare activities



Exchanges with students of School of Biological and Chemical Engineering, Jiaxing University



Employees' participation in public welfare activities of Linhai New Residents Social Club

4.4. Fighting COVID-19 Together

In 2021, COVID-19 continued to have impacts on and pose challenges to the world and the industry to varying degrees. Viva Biotech matched social needs with its own advantages to assist the society in building a solid line of defense for epidemic prevention and control. In strict accordance with the guiding requirements of local governments on epidemic prevention and control, the Group formulated the Epidemic Prevention and Control Measures of Viva Biotech, and set up an epidemic task force to take charge of the work arrangements and administrative allocation related to COVID-19 and implemented a series of stringent measures for health and safety management. We worked with all employees and partners to normalize the epidemic prevention and control by enabling off-peak commuting, flexible clock-in, temperature measurement in the park and daily health punch-in for employees and implementing strict entry control measures for customers and contractors.

In addition, Viva Biotech joined and signed the public declaration of global generic drug manufacturers to fight COVID-19. We cooperated with the Medicines Patent Pool (MPP) and patented drug companies to provide low- and middle-income countries worldwide with anti-COVID-19 drugs in urgent need, and responded to and supported the SUCCESS (Sustainable Universal access through Collaboration, Coordination, Emergency measures, Scale and Speed) scheme proposed by MPP, so as to contribute to the global fight against COVID-19.

As an active player in the global biopharmaceutical industry, Viva Biotech consistently practices green production, green operation and green development. By formulating strict rules and regulations and performing high-standard environmental obligations, we implement the responsibilities of environmental management, resource conservation and addressing climate change, and integrate the concept of sustainable development into the Group's daily operations.

5.1. Address Climate Change

The impact of climate change on human society and natural systems continues. Reducing carbon emissions and addressing climate change are the key issues that a company must face for future development. From energy consumption policy to daily operations, Viva Biotech implements the corporate responsibility to reduce greenhouse gas emissions in an all-out effort to address climate challenges.

The Group closely monitors the dynamics of climate change, and has identified the transition risks that may arise in business development, production and operations, including legal risk and policy risk, as well as physical risks caused by rising temperatures and extreme weather. These risks will bring challenges and opportunities to our business development. For example, the formulation and implementation of laws and regulations related to climate change will increase the investment cost of enterprises in technological transformation of processes, equipment and facilities in the short term, but will also improve the competitiveness of enterprises and reduce their daily operating costs in the long run; rising temperatures will push up office and production energy consumption and increase the loss of volatile solvents, leading to increased safety risks; environmental emergencies caused by extreme climate disasters such as typhoons and floods will have a significant impact on the continuity of production and operations.

To address climate change, Viva Biotech has developed a series of management measures, including the Energy and Resource Management Procedures, the Measures for Energy Procurement and Approval Management, the Management Measures for Energy Production, and the Measures for Energy Performance Evaluation, Rewards and Punishments, to regulate the use of energy and resources, reduce energy and resource consumption, and improve the utilization rate of energy and resources, in an effort to achieve coordinated development of the economy and the environment.

The Group is fully aware of the importance of creating sustainable value. As such, we have set goals to lower energy consumption and reduce the intensity of Scope 1 and 2 greenhouse gas emissions, so as to address climate change by reducing carbon footprint.

In order to achieve the goals of energy conservation and emission reduction, Langhua Pharmaceutical has launched and implemented the Energy Conservation Plan to strengthen energy management and tap the potential of energy conservation. In addition, we conduct dynamic management of relevant policies and measures to maintain the appropriateness, sufficiency and effectiveness of the Energy Conservation Plan. During the Reporting Period, we continued to promote energy-saving measures such as gradually replacing old lamps with energy-saving lamps in workplaces, installing photovoltaic panels on the roof, and using clean energy, thus organically integrating the concept of energy conservation and emission reduction into business development. By installing solar photovoltaic panels, we generated and used 66.83 MWh of renewable electricity during the Reporting Period.



Photovoltaic power generation in the factory

Case Highlight: Responding to Climate Change Questionnaire of CDP⁷

Upholding the philosophy of being responsible to stakeholders, we continuously monitor and manage energy consumption and greenhouse gas emissions, and constantly improve the transparency of carbon emission information disclosure. During the Reporting Period, we accepted the invitation of CDP to fill in its climate change questionnaire to report on our Scope 1 and 2 emissions. We also plan to improve the disclosure of Scope 3 emissions and the setting of emission reduction targets in the future. By continuously participating in CDP environmental information disclosure, we become keenly aware of the impact of carbon emissions on corporate development, gradually integrate low-carbon development into our core development strategy, and improve climate information disclosure and risk management across the value chain, thus contributing to protecting the ecology together.

CDP: The Global Environmental Information Center, formerly known as the Carbon Disclosure Project, is a non-profit organization that runs a global information disclosure system for investors, businesses, cities, provinces/states and regions and helps manage environmental impacts.

During the Reporting Period, the types of energy used by Viva Biotech in production and laboratories were mainly purchased electricity and heat. We use diesel in self-power generation and regenerative incinerators, and some of our own vehicles use petrol. During the Reporting Period, the energy consumption intensity of the Group was 39.89 MWh per RMB million of revenue, down 57.5% compared with the previous year.

Our energy consumption and greenhouse gas emissions during the Reporting Period are as follows:

Indicator	2020 ⁸	2021	Unit
Energy consumption			
Petrol consumption	39,451.59	28,991.00	liter
Diesel consumption	461,267.11	330,417.50	liter
Renewable energy ⁹	/	66.83	MWh
Total direct energy	4,919.51	3,750.37	MWh
consumption			
Direct energy consumption	7.06	1.78 ¹⁰	MWh per RMB million of
intensity			revenue
Consumption of purchased	21,485.14	30,906.36	MWh
electricity			
Consumption of purchased	140,466.02	49,278.51	GJ
heat			
Total indirect energy	60,503.48	80,184.87	MWh
consumption			
Indirect energy	86.81	38.11	MWh per RMB million of
consumption intensity			revenue
Total energy consumption	65,422.99	83,935.24	MWh
Energy consumption	93.86	39.89	MWh per RMB million of
intensity			revenue

⁸ Environmental data for the Year is disclosed by the Group in a consolidated manner for the first time. For the consistency and comparability of the data, the environmental data of Viva Biotech and Langhua Pharmaceutical for the previous year (2020) are aggregated and disclosed herein.

⁹ During the Reporting Period, the Group generated and used renewable energy electricity by installing solar photovoltaic panels.

¹⁰ The Group's revenue for 2021 was RMB2,104.1 million, and its revenue for 2020 was RMB697 million.

Indicator	2020	2021	Unit
Greenhouse gas emissions			
Direct emissions from	152.01	958.11 ¹²	tCO ₂ e
energy use (Scope 1) ¹¹			
Indirect emissions from	27,929.35	36,499.03	tCO ₂ e
energy use (Scope 2) ¹³			
Forestry emission	0.39	0.99	tCO ₂ e
reduction			
Total greenhouse gas	28,710.97	37,456.15	tCO ₂ e
emissions ¹⁴			
Greenhouse gas emission	41.19	17.80	tCO ₂ e per RMB million of
intensity			revenue

In terms of emergency management, the Group formulated the Emergency Response Plan for Environmental Emergencies, strengthened the construction of emergency rescue team, and implemented the preparation of emergency rescue supplies. We strive to ensure that environmental emergencies be addressed in a timely manner to minimize personnel losses and property losses caused by accidents.

In the future, we will continue to carry out a series of low-carbon transformation projects in production and laboratories through measures for energy conservation and emission reduction and the use of renewable energy. Viva Biotech will invest more resources and work with stakeholders to jointly address climate change and contribute to the national carbon neutrality strategy.

- ¹³ Among the greenhouse gas emissions (Scope 2), the electricity emissions from production were calculated with reference to the Notice on the Preparation of the Management of Corporate Greenhouse Gas Emissions Reporting in 2022 issued by the Ministry of Ecological Environment of the People's Republic of China in 2022; the electricity emissions from non-production areas were calculated with reference to the Accounting Methods and Reporting Guidelines for Greenhouse Gas Emissions from Enterprises in Other Industries (Trial) issued by the National Development and Reform Commission and the Notice on the Adjustment of the Relevant Emission Factor Values of the City's Greenhouse Gas Emissions Accounting Guidelines issued by Shanghai Municipal Bureau of Ecology and Environment in 2022. The thermal emission data was calculated based on the default value of carbon dioxide emission factor for thermal power in the accounting guidelines of various industries published by the National Development and Reform Commission.
- ¹⁴ Due to the limitation of the calculation method, the indirect emissions from energy use (Scope 2) represented by the data include only carbon dioxide emissions and exclude other types of greenhouse gas emissions.

¹¹ The greenhouse gas emissions (Scope 1) were calculated with reference to the Accounting Methods and Reporting Guidelines for Greenhouse Gas Emissions from Enterprises in Other Industries (Trial) issued by the National Development and Reform Commission.

¹² It is the first time that the Group discloses Scope 1 greenhouse gas emissions from production and operations for the Year, and the Scope 1 greenhouse gas emissions disclosed for the previous year were only vehicle emissions.

5.2. Green Production

Viva Biotech attaches importance to green production, strictly abides by local laws, regulations and standards on emission management and resource conservation, and takes the initiative to assume environmental responsibility. In terms of emission management, we have established measures and procedures for waste gas emissions, wastewater management, hazardous waste management and non-hazardous waste management, and reduce the impact of emissions on the environment through equipment upgrade and technological innovation. In addition, the Group lays great emphasis on resource management. In addition to the energy conservation mentioned above, we also have internal measures for active management of water resources and packaging materials in order to create a green production chain.

In the CDMO segment, Langhua Pharmaceutical undertakes to reduce carbon emissions by 50% by 2030, reduce water consumption per RMB10,000 of revenue by 25% by 2025, and reduce solid waste generation per RMB10,000 of revenue by 50% by 2025, as compared with 2020.

Emissions Management

Viva Biotech is committed to improving the operating model to protect the environment and reducing the environmental impact of its development. The Group strictly abides by the Environmental Protection Law of the People's Republic of China, the Law of the People's Republic of China on Environmental Impact Assessment, the Water Pollution Prevention and Control Law of the People's Republic of China, the Atmospheric Pollution Prevention and Control Law of the People's Republic of China, the Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste, the Law of the People's Republic of China on the Prevention and Control of Noise Pollution, the Law of the People's Republic of China on the Prevention and Control of Soil Pollution, the Regulations on the Management of Medical Waste and other environmental laws, regulations and industry standards. During the Reporting Period, we had no violations of laws and regulations related to environmental protection, excessive pollutants or illegal discharge.

The Environmental Protection Management Rules formulated by the Group, as a programmatic environmental management system, establishes the Group's environmental work principles and organizational structure responsibilities, and covers all environmental management issues that may be involved in production and operations. By developing such rules, we regulate the operation and management of wastewater, waste gas and solid waste in detail.

Viva Biotech continuously performs responsibility for sustainable development in terms of emission and waste reduction. We set targets for waste gas emission and wastewater management, and monitor, prevent and manage possible environmental impacts of production and operations. We take the treatment of hazardous waste and general solid waste very seriously, and set targets for solid waste reduction based on the product mix and production plan.

We constantly improve our environmental management system, have set up a dedicated environment, health and safety ("EHS") department, and strengthen emission management, resource management and pollution prevention and control in the course of production and operation to reduce environmental impact and maintain environmental quality. We encourage our companies to promote the certification of environmental systems. During the Reporting Period, Langhua Pharmaceutical established an EHS management system based on ISO 14001 (environmental management system) and China's safety production standards, and passed the ISO 14001 certification. The EHS management system has passed PSCI (Pharmaceutical Supply Chain Initiative) audit and special audits by a number of multinational companies, and has been awarded a Silver Medal by EcoVadis.

Waste Gas Emissions and Wastewater Management

Viva Biotech manages waste gas emissions in a holistic way according to the Environmental Protection Management Rules. For CDMO business, we have formulated management procedures for waste gas and wastewater discharge to ensure the up-to-standard discharge of waste gas and wastewater and reduce the negative impact on the surrounding atmosphere and water environment. Moreover, we have in place professional technical personnel and facilities, and follow local government requirements to conduct monitoring. During the Reporting Period, Langhua Pharmaceutical continued to carry out volatile organic compounds ("VOCs") emission reduction program, including improving waste gas treatment facilities in sewage stations, increasing odor treatment capacity of RTOs, and retrofitting workshop centrifuges, and achieved good results.



Regenerative thermal oxidizer (RTO) for waste gas treatment



Wastewater pre-treatment plant

Viva Biotech strictly abides by the waste gas emission requirements and the emission rules of the places where it operates, and constantly improves the management of waste gas emissions. The Group's waste gas emissions during the Reporting Period are as follows:

Indicator	2020	2021	Unit
Waste gas emissions			
VOCs	/	10,385.71 ¹⁵	kg
Vehicle air pollutant emissions ¹⁶			
Carbon monoxide (CO)	747.21	707.21	kg
Hydrocarbons (HC)	/	38.7217	kg
Nitrogen oxides (NO _x)	1,408.02	1,301.70	kg
Respirable particulate matter (PM ₁₀)	44.48	42.25	kg
Fine particulate matter (PM_{25})	40.10	38.10	kg
Sulfur oxides (SOx)	0.97	1.05	kg

Our wastewater mainly includes wastewater from production and laboratories, wastewater from equipment and site cleaning, and domestic sewage. Viva Biotech gives priority to ensuring the compliance of wastewater discharge. We have established wastewater management procedures according to the Group's Environmental Protection Management Rules, discharge wastewater to the municipal pipe network after treatment in accordance with the local government requirements, and regularly monitor wastewater to prevent excessive discharge. In the CDMO segment, Langhua Pharmaceutical has formulated and implemented the Wastewater Management Procedures, and strictly implements the national wastewater discharge standards to collect and treat all kinds of wastewater, so as to control water pollution and reduce the impact on the surrounding water bodies. We have developed the Operational Procedures for Wastewater Treatment to adopt appropriate methods for transportation, collection and treatment of different types of wastewater generated from production and operations, including high-concentration wastewater from workshops, low-concentration wastewater such as floor cleaning wastewater, domestic sewage, etc. We use wastewater treatment technology to separate rainwater and wastewater, clean water and wastewater, and different types of wastewater. In addition, we engage a qualified third party to carry out leak detection and repair of pipes on a regular basis.

¹⁵ The disclosure of such data started from 2021.

¹⁶ The vehicle air pollutant emissions were calculated with reference to the Technical Guide for Compilation of Emission Inventory for Air Pollutants from Road Motor Vehicles (Trial) issued by the Ministry of Ecology and Environment of the People's Republic of China.

¹⁷ The disclosure of such data started from 2021.

Indicator 2020 2021 Unit Wastewater discharge **190.905.52**¹⁸ Industrial wastewater 119.133.60 tons Including: COD 20.03 15.20 tons Ammonia nitrogen 0.17 0.09 tons **96.943.71**¹⁹ Domestic sewage 52,891.39 tons

The Group's wastewater discharge during the Reporting Period is as follows:

Hazardous Waste Management

The main types of hazardous wastes generated by Viva Biotech include waste fuels, chemicals and glass from chemical laboratories; the hazardous wastes generated by the CDMO segment are mainly waste residue, waste activated carbon, waste solvent, high-boiling residue, waste salt, waste samples, waste packaging materials, wastewater treatment sludge, waste mineral oil, etc.

The Group strictly abides by the Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste, the National Catalogue of Hazardous Wastes, and other relevant laws and regulations when dealing with hazardous wastes generated from production and operations. The Group adheres to the principles of "unified collection, classified disposal, centralized incineration and elimination of hidden dangers", aims for "reduction, recycling and harmless treatment" of hazardous wastes, and has developed the Hazardous Waste Management Measures and the Procedures for Solid Waste Management.

We have defined the responsibilities of relevant departments and personnel in key positions and made detailed regulations on the inspection, warehousing, storage, collection and transportation of hazardous wastes to ensure standardized management of all steps of hazardous waste handling. The hazardous waste generated by us is handed over to agencies qualified for hazardous waste disposal for centralized disposal, and is sealed in the collection and transportation process, thus ensuring no pollution to the environment and protecting the health and safety of employees. For the small amount of hazardous waste in domestic waste, we follow the domestic waste management regulations of the places where we operate to classify and dispose of such waste as harmful waste. In 2021, our hazardous waste intensity was 4.15 tons per RMB million of revenue, down 24.27% from the previous year.

- ¹⁸ The amount of the industrial wastewater includes the industrial wastewater from the previous year discharged during the Reporting Period.
- ¹⁹ The amount of domestic sewage increased due to the Group's business growth and workforce expansion in 2021. In addition, the domestic swage during the Reporting Period includes the amount of rainwater discharged from the rainwater collection tank after reuse.

Indicator	2020	2021	Unit
Hazardous waste			
Laboratory organic waste liquid, waste	223.03	390.15	tons
fuel and chemicals			
Laboratory solid waste and glass	0.06	92.38	tons
Waste solvent	1,136.28	3,395.23	tons
High-boiling residue	902.22	2,298.60	tons
Waste salt	895.67	1,625.75	tons
Waste residue	306.77	325.52	tons
Waste activated carbon	125.86	239.70	tons
Waste packaging barrels	112.33	210.66	tons
Sludge	73.97	105.07	tons
Waste packaging bags	26.64	45.43	tons
Waste reagent bottles	2.49	4.78	tons
Waste mineral oil	0.70	2.48	tons
Other hazardous waste	0.89	2.71	tons
Total amount of hazardous waste	3,816.84	8,737.57 ²⁰	tons
Intensity of hazardous waste	5.48	4.15	tons per RMB
			million of
			revenue

The hazardous wastes generated by Viva Biotech during the Reporting Period are as follows:

²⁰ The total amount of hazardous waste generated increased due to the rapid growth of the Group's business in 2021, especially the increase of CDMO capacity.

Non-hazardous Waste Management

The non-hazardous waste generated by Viva Biotech is mainly general solid waste and domestic waste generated from daily office operations and production. We strictly supervise and manage the collection, storage and disposal of non-hazardous waste. Langhua Pharmaceutical has developed the Procedures for Solid Waste Management to manage all types of solid waste and specify the methods for collection and disposal of various wastes, and endeavors to realize the recycling and harmless treatment of all types of solid waste in compliance with national laws and regulations, so as to achieve the purpose of saving resources and controlling environmental pollution. Specifically, domestic waste is primarily transported away by the sanitation department on a regular basis, and general industrial waste is handed over to qualified solid waste disposal agencies for disposal. In 2021, our non-hazardous waste intensity was 0.40 ton per RMB million of revenue, down 55.06% from the previous year.

Indicator	2020	2021	Unit
Non-hazardous waste			
Waste paper	35.35	40.09	tons
Waste glass	43.17	7.76	tons
Waste plastic	86.43	43.45	tons
Scrap metal	219.99	475.58	tons
Fly-waste and waste cotton	83.56	88.08	tons
Waste packaging	79.00	38.04	tons
Kitchen waste	28.79	61.30	tons
Other waste	42.85	91.79	tons
Total amount of non-hazardous waste	619.14	846.08	tons
Non-hazardous waste intensity	0.89	0.40	tons per RMB
			million of
			revenue

The non-hazardous wastes generated by Viva Biotech during the Reporting Period are as follows:

Case Highlight: Langhua Pharmaceutical Promotes the Construction of "Waste-free Factory" and Advocates Green Production

In order to demonstrate the charm of "waste-free culture" and create a green and healthy working environment, Langhua Pharmaceutical has established a leading group and management body for the construction of "waste-free factory", defined the responsibilities of various departments, and adopted a series of measures to promote the construction of "waste-free factory".

During the Reporting Period, in order to strengthen green production which is one of the important tasks to promote the construction of "waste-free factory", Langhua Pharmaceutical further explored waste reduction measures such as reducing waste at the source and recycling waste within the factory, and rationally selected and utilized raw materials, energy and other resources to reduce the generation of industrial solid waste.

- Retrofitted centrifuges to reduce waste gas emissions
- Added sludge drying equipment to lower the moisture content of sludge from 80-90% to below 30%, thus reducing the generation of sludge
- Replaced the old condensers with new energy-saving condensers to save steam and tap water
- Added a new bipolar membrane electrodialysis piperazine preparation system which produces by-product hydrochloric acid, reduces the generation of waste salt (sodium chloride), and lowers the consumption of chemical agent (sodium hydroxide) when recovering piperazine



Centrifuge







New energy-saving condenser



Bipolar membrane electrodialysis piperazine preparation system

Resource Management

Conservation and rational use of resources are essential issues for Viva Biotech in environmental protection and sustainable development. We proactively manage the use of water resources, packaging materials and other resources to optimize the green production system.

Water Resources Management

Viva Biotech realizes that water resources are essential to its production and operations, and sustainable water supply is the basic strategic requirement for its healthy development. We set water use and water saving targets to meet the potential challenges of water shortage. The Group strictly regulates the procedures for water resources management, actively explores water-saving technologies in the production process, constantly improves the water circulation system, and raises the water-saving awareness of all employees through measures such as posting water conservation signs, so as to improve the utilization rate of water resources in production and operations and avoid the waste of water.

The Group's water resources are obtained from the municipal water network, and the Group had no issue in sourcing water that is fit for purpose.

During the Reporting Period, the water use intensity of the Group was 110.20 tons per RMB million of revenue, down 55.22% compared with the previous year. Our water consumption is as follows:

Indicator	2020	2021	Unit
Use of water resources			
Water consumption	171,556.66	231,877.02	tons
Water use intensity	246.14	110.20	tons per RMB
			million of
			revenue

Packaging Materials Management

The packaging materials used for finished products by Viva Biotech mainly include cartons, paper barrels, and packaging bags. We try to reduce the use of packaging materials while ensuring that the product quality is intact.

Our consumption of packaging materials during the Reporting Period is as follows:

Indicator	2020	2021	Unit
Consumption of packaging materials			
Total consumption of packaging materials	/	129.23 ²¹	tons
Packaging material consumption intensity	/	0.06	tons per RMB
			million of
			revenue

5.3. Green Operation

Green Office

For daily office operations, the Group has issued the Proposal on Energy Conservation and Emission Reduction and the Proposal on Green Office to employees to promote a series of green office measures. We encourage employees to lead by example and jointly promote energy and resource conservation, in a drive to create a greener and more eco-friendly office environment. We also carry out environmental knowledge training and promotion via multiple channels and by various means. During the Reporting Period, we carried out waste sorting training and "waste-free city" promotion series activities to continuously improve employees' awareness and recognition of sustainable development, so as to help achieve the green, healthy and sustainable development of the Group.

Case Highlight: Langhua Pharmaceutical's "Waste-Free City" Promotion Series Activities

In order to promote the concepts and knowledge of "waste-free city" and "waste-free factory" to employees and facilitate the construction of "waste-free factory", we held promotional presentations in various departments during the Reporting Period. Meanwhile, we put up slogans and posters related to "waste-free city" in the factory, and had dedicated personnel regularly update the relevant knowledge about "waste-free city".



"Waste-free city" promotion conference





"Waste-free city" banner

Green Supply Chain

As mentioned in "2.4 Supplier Management" above, building a sustainable supply chain is the foundation for the healthy development of Viva Biotech's business. During the Reporting Period, we incorporated the concept of green supply chain management into our strategic development planning and defined the goals for green supply chain management. In addition, the Group set up a dedicated management department to promote green supply chain management, with a view to leading and driving upstream and downstream companies in the supply chain to continuously enhance resource and energy utilization efficiency, improve environmental performance, and achieve green development. Our green supply chain initiatives include:

• Green procurement

We pay attention to the environmental performance of suppliers, and requires that the products provided by suppliers should be friendly to the human body and the environment; the use of the products consumes little energy and generates little waste; and the product packaging is simple, reasonable and degradable. For suppliers of controlled chemicals, we require them to provide licenses for the production, operation or transportation of hazardous chemicals. We hope that the principle of "green procurement" can drive suppliers to continuously improve green development and build a green supply chain together with Viva Biotech.

• Green storage and transportation

We use and leverage the power of information technology to enable automation construction with an aim to achieve green logistics; and realize green storage and transportation through low-carbon transportation and storage measures such as inventory optimization, recycling and reuse of leftover raw materials and reagents, and noise pollution reduction during transportation.

Aspect	Disclosure Requirements	Content Index
A1	Emissions:	5.1. Address Climate Change5.2. Green Production
	General Disclosure	
	Information on:	
	(a) the policies; and	
	(b) compliance with relevant laws and regulations that	
	have a significant impact on the issuer relating to air and greenhouse gas emissions, discharges	
	into water and land, and generation of hazardous and	
	non-hazardous waste.	
	Note: Air emissions include NOx, SOx, and other pollutants regulated under national laws and regulations.	
	Greenhouse gases include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride.	
	Hazardous wastes are those defined by national regulations.	
KPI A1.1	The types of emissions and respective emission data.	5.1. Address Climate Change5.2. Green Production
KPI A1.2	Direct (Scope 1) and energy indirect (Scope 2) greenhouse gas emissions (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	5.1. Address Climate Change
KPI A1.3	Total hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per	5.2. Green Production
	facility).	
KPI A1.4	Total non-hazardous waste produced (in tonnes) and, where	5.2. Green Production
	appropriate, intensity (e.g. per unit of production volume, per facility).	
KPI A1.5	Description of emissions target(s) set and steps taken to achieve them.	5.1. Address Climate Change5.2. Green Production
KPI A1.6	Description of how hazardous and non-hazardous wastes are	5.2 Green Production
AFI A1.0	handled, and a description of reduction target(s) set and steps taken to achieve them.	5.2. Green Froduction

Aspect	Disclosure Requirements	Content Index
A2	Use of Resources: General Disclosure Policies on the efficient use of resources, including energy, water and other raw materials.	5.1. Address Climate Change 5.2. Green Production
	Note: Resources may be used in production, in storage, transportation, in buildings, electronic equipment, etc.	
KPI A2.1	Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (kWh in'000s) and intensity (e.g. per unit of production volume, per facility).	5.1. Address Climate Change
KPI A2.2	Water consumption in total and intensity (e.g. per unit of production volume, per facility).	5.2. Green Production
KPI A2.3	Description of energy use efficiency target(s) set and steps taken to achieve them.	5.1. Address Climate Change
KPI A2.4	Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency target(s) set and steps taken to achieve them.	5.2. Green Production
KPI A2.5	Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced.	5.2. Green Production
A3	The Environment and Natural Resources: General Disclosure Policies on minimising the issuer's significant impact on the environment and natural resources.	5.1. Address Climate Change5.2. Green Production5.3. Green Operation
KPI A3.1	Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them.	•

Aspect	Disclosure Requirements	Content Index
A4	Climate Change: General Disclosure Policies on identification and mitigation of significant climate-related issues which have impacted, and those which may impact, the issuer.	5.1. Address Climate Change
KPI A4.1	Description of the significant climate-related issues which have impacted, and those which may impact, the issuer, and the actions taken to manage them.	5.1. Address Climate Change
B1	 Employment: General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare. 	3.1. Employment3.4. Humanistic Care
KPI B1.1	Total workforce by gender, employment type (such as full-time or part-time), age group and geographical region.	3.1. Employment
KPI B1.2	Employee turnover rate by gender, age group and geographical region.	3.1. Employment
B2	 Health and Safety: General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to providing a safe working environment and protecting employees from occupational hazards. 	3.3. Safety and Health
KPI B2.1	Number and rate of work-related fatalities occurred in each of the past three years including the reporting year.	3.3. Safety and Health
KPI B2.2	Lost days due to work injury.	3.3. Safety and Health
KPI B2.3	Description of occupational health and safety measures adopted, how they are implemented and monitored.	3.3. Safety and Health

Aspect	Disclosure Requirements	Content Index
B3	Development and Training: General Disclosure Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities. Note: Training refers to vocational training. It may include internal and external courses paid by the employer.	3.2. Empowering the Company with Talents
KPI B3.1	The percentage of employees trained by gender and employee category (e.g. senior management, middle management).	3.2. Empowering the Company with Talents
KPI B3.2	The average training hours completed per employee by gender and employee category.	3.2. Empowering the Company with Talents
B4	 Labour Standards: General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to preventing child or forced labour. 	3.1. Employment
KPI B4.1	Description of measures to review employment practices to avoid child and forced labour.	3.1. Employment
KPI B4.2	Description of steps taken to eliminate such practices when discovered.	3.1. Employment
B5	Supply Chain Management: General Disclosure Policies on managing environmental and social risks of the supply chain.	2.4. Supplier Management5.3. Green Operation

Aspect	Disclosure Requirements	Content Index
KPI B5.1	Number of suppliers by geographical region.	2.4. Supplier Management
KPI B5.2	Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, how they are implemented and monitored.	2.4. Supplier Management
KPI B5.3	Description of practices used to identify environmental and social risks along the supply chain, and how they are implemented and monitored.	•••
KPI B5.4	Description of practices used to promote environmentally preferable products and services when selecting suppliers, and how they are implemented and monitored.	
B6	 Product Responsibility: Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to health and safety, advertising, labelling and privacy matters relating to products and services provided and methods of redress. 	2.3. Protection of Clients' Rights and Interests
KPI B6.1	Percentage of total products sold or shipped subject to recalls for safety and health reasons.	2.2. Quality Control
KPI B6.2	Number of products and service related complaints received and how they are dealt with.	2.2. Quality Control2.3. Protection of Clients'Rights and Interests
KPI B6.3	Description of practices relating to observing and protecting intellectual property rights.	2.1. Product R&D
KPI B6.4	Description of quality assurance process and recall procedures.	2.2. Quality Control
KPI B6.5	Description of consumer data protection and privacy policies, and how they are implemented and monitored.	2.3. Protection of Clients' Rights and Interests

Aspect	Disclosure Requirements	Content Index
B7	 Anti-corruption: General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to bribery, extortion, fraud and money laundering. 	1.4. Business Ethics and Anti-Corruption
KPI B7.1	Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period and the outcomes of the cases.	
KPI B7.2	Description of preventive measures and whistle-blowing procedures, and how they are implemented and monitored.	1.4. Business Ethics and Anti-Corruption
KPI B7.3	Description of anti-corruption training provided to directors and staff.	1.4. Business Ethics and Anti-Corruption
B8	Community Investment: Policies on community engagement to understand the needs of the communities where the issuer operates and to ensure its activities take into consideration the communities' interests.	4.3. Community Welfare4.4. Fighting COVID-19Together
KPI B8.1	Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport).	4.3. Community Welfare4.4. Fighting COVID-19Together
KPI B8.2	Resources contributed (e.g. money or time) to the focus area.	4.3. Community Welfare 4.4. Fighting COVID-19 Together

