

Situation of Labor Quality in Industrial Parks in Dong Nai Province in the Context of Green Growth

Ngo Thi Hong Giang¹

¹*Faculty of Economics and Law, University of Finance – Marketing
No. 778 Nguyen Kiem St., Phu Nhuan District, Ho Chi Minh City, Vietnam*

Abstract: The quality of labor in an enterprise reflects the ability to perform work and the degree to which it meets job requirements. Green growth is one of the paths towards sustainable development, the development of three pillars including economic growth, environmental protection, and social justice. It has set requirements for the workforce in economic sectors in general and industrial zones in particular. The article uses descriptive statistical methods using questionnaires of workers working in industrial parks in Dong Nai province. From there, the author focuses on analyzing the situation of this workforce on working capacity including knowledge, skills, and appropriate working attitudes. On that basis, propose solutions to improve the quality of human resources to meet the requirements of green production activities, as well as green jobs created when implementing green growth strategies.

Keywords: Green growth, Labor quality, Industrial parks.

1. Introduction

Green growth is considered an inevitable trend of global economic growth, it helps prevent environmental degradation, protect ecosystems, and effectively use natural resources. The green growth strategy is a proactive sustainable growth approach that addresses growth issues right in the production process through energy saving and cleaner production. Therefore, technological innovation is an important requirement to improve energy efficiency and efficiency. However, an abundant but low-quality workforce in many cases becomes a hindrance, hindering development. Although the workforce is not omnipotent, it plays a very important role. It not only promotes technological progress but is also a factor that determines the nature of technological progress in each stage of development.

With a favorable geographical location, being the gateway to the Southeast region with a diverse transportation system including sea, air, and road connections, Dong Nai province was chosen by the Saigon government to build built the first industrial park in Vietnam (Bien Hoa Industrial Park). Today, Dong Nai province has attracted investment and built 32 industrial parks with an average occupancy rate of more than 80% of the area. Industrial zones in Dong Nai have made an important contribution to the economic growth of the province, creating many new industries and products, annually paying hundreds of millions of dollars to the state budget, and creating jobs for more than 617thousand workers (including about 6,494 foreigners)[1]. According to the management board of Dong Nai province's industrial parks, in terms of industry structure, textiles, garments and footwear are the industries that employ the most workers (54%); followed by industries such as mechanical engineering (9%); wood processing (8%); plastics and chemicals (7%); electricity, electronics (6%), etc. In terms of labor structure, workers from outside the province account for the majority (60.4%); In terms of gender structure, female workers have a higher rate (61%)[21]. Thereby, it shows that the investment structure in Dong Nai province's industrial parks is multi-industry, so the responding workforce is also diverse.

In addition, like many other industrial parks in the country, most industrial parks in Dong Nai have been deployed with centralized wastewater collection and treatment systems, contributing to reducing the risk of environmental pollution [9]. However, many studies show that most industrial zones in general in the country and in Dong Nai province still cause serious pollution in the surrounding area. Therefore, the implementation of green growth strategy in industrial zones is no longer a reference choice, but an action that needs to be carried out consistently, synchronously, and drastically. Therefore, implementing green growth in industrial zones is not only a legal requirement, but also one of the methods to help businesses expand product consumption markets. A case studies of 4 enterprises operating in industrial parks in Dong Nai province by author Nguyen Anh Tuan (2021) has shown that the lack of a high-quality of workforce has caused difficulties for implementation greening production [9]. Therefore, researching the status of labor quality in industrial parks in Dong Nai province in the context of green growth will contribute to identifying the strengths and weaknesses of human resources in industrial parks. Then, propose solutions to improve the quality of the workforce to meet the requirements of converting production towards green in industrial parks.

2. Theoretical framework

According to the World Bank [13] green growth is an effective growth model in the use of natural resources, minimizing pollution and impacts on the environment; it is a solution that can adapt flexibly to face natural hazards. It is a holistic strategy, incorporating economic structure, integrated approach, multi-sectoral approach, beyond the current economic crisis, strengthening and ensuring environmental sustainability [15]. Therefore, the success of the transition to green growth depends on the Government's governance; encouragement of social and local community participation [6]. In fact, the "low-carbon green growth" model [2], pursued by the Korean government in 2008 has brought about feasible results. Empirical research by Seulgi Yoo and Almas Heshmati [20] has shown that polluting industries have a negative impact on labor productivity and employment. Many studies have shown that there will be a redistribution of labor from non-green sectors to green sectors. Therefore, preparing the necessary skills - green skills, suitable for the economic transformation process when green jobs appear is necessary and long-term.

However, implementing green growth in production activities requires relying on three pillars: (1) Modern infrastructure; (2) deploying the application of science and technology to production and (3) the quality of the workforce. In particular, the quality of the labor force is the determining factor in the quality of growth. The quality of the workforce is considered through a competency-based model. This model evaluates the quality of the workforce through the ability of each employee to complete work and tasks. Considering the working capacity of employees is an important requirement in analyzing and assessing the need to improve the quality of the workforce to meet the development goals of the business in each period. In the context of implementing green growth, the capacity of workers is set with requirements for appropriate knowledge, skills, and attitudes. Specifically, workers need to have knowledge about environmental protection, skills to economically use resources, be willing to learn new things, accept technological changes, have the spirit of learning to improve qualifications, etc. Therefore, within the scope of this article's research, the author evaluates workers' capabilities through three basic factors including knowledge, skills, and attitudes.

3. Literature review

According to the Organization for Economic Cooperation and Development [18], labor resources are "the knowledge, skills, abilities and attributes latent in each individual, which contribute to economic, social and of each individual". Besides, based on endogenous economic theory, economists have argued that when new technologies are created by individuals equipped with knowledge, skills and experience; and the widespread application of such new technologies to mass production requires an investment in labor force [11]. Implementing green growth requires technological innovation, digital transformation, economical use of resources, and reduction of environmental pollution emissions, which will lead to changes in the job market. According to Alex Bowen the implementation of green growth policies will impact labor productivity and employment costs, so the author proposed the term "Green Jobs". Green jobs will be created when green growth is implemented. These are jobs in the broader sense of a set of green jobs. Therefore, the workforce will need to have knowledge and skills corresponding to those green jobs. And so, the transition to green growth and equipping the workforce with green knowledge and skills for jobs need to go hand in hand.

According to the International Labor Organization [14] green jobs are legitimate jobs that contribute to the protection or regeneration of the environment, helping to improve energy efficiency, and improve the utilization efficiency of raw materials; limit greenhouse gas emissions; minimize waste and pollution; protect and restore ecosystems; support adaptation to the effects of climate change. Thus, green jobs are diverse as they can be created in all sectors of economic activity, in urban and rural areas and in all segments of the labor force [19]. However, green jobs require a higher level of standardization in labor force such as formal education, work experience and on-the-job training [3].

In addition, the development of green jobs requires workers to have green skills. The lack of skills will create a major barrier in the transition to green economies and create green jobs [5]. The development of skills and training needs for a low-carbon economy is therefore a new research direction and policy approach to promote a greener, more sustainable future [17]. Thus, green skills are the skills necessary for workers to adapt new products, services, and production processes to cope with climate change; adapt to relevant environmental requirements and regulations, and use resources effectively, towards sustainable development. To do this, researchers say, can only be done by developing the right skills, knowledge and competencies [12].

However, there is a difference between green occupations and non-green occupations in cognitive and interpersonal skills [3]. Green occupations require higher levels of cognitive and interpersonal skills [7], [3]. Therefore, when implementing a green growth strategy, new jobs are created that require a convergence of knowledge, a combination of both traditional skills and new green skills, in which these new green skills are can be provided by on-site training programs [16].

4. Methodology and data

The article is the combined result from many different research methods, including data collection methods (document study, field survey); Data processing methods (statistical, descriptive, meta-analysis). The article uses a combination of primary data and secondary data to reflect in a comprehensive, objective, and multidimensional way the current situation of labor force in industrial zones in Dong Nai province.

Secondary data used to analyze and illustrate some contents about the current situation of labor force in industrial zones in general is collected and synthesized from reports of the General Statistics Office of Vietnam, the Ministry of Industry and Trade and on the Internet and some websites.

Primary data was collected from the actual survey method using questionnaires. The content of the survey is to find out the status of human resources in industrial parks in Dong Nai province in terms of 3 aspects including knowledge, skills, and attitudes of workers. The questions are designed in the form of declarative sentences, measured on a 5-degree Likert scale (from 1 very weak to 5 very good). The survey was designed in 2 forms including (1) online survey form & (2) paper survey. The survey period is from March to April 2023.

The study used convenient sampling method, conducting surveys at 5/31 industrial parks in Dong Nai province that the author could access including Amata 1, Nhon Trach 1, Long Thanh, Tam Phuoc, and Long Khanh. The survey subjects were workers and employees working in enterprises in industrial zones. According to Hair et al (2009), to be able to do factor analysis, it is necessary to collect a data set with at least 5 samples on 1 observed variable. In this study, the total number of observed variables used in the analysis is 48, so the minimum sample size needed is 240. Therefore, the estimated sample size of 500 is completely appropriate. The number of samples collected was 490, of which 483 valid samples were used to synthesize and analyze data.

5. Results

Survey results on educational level showed that up to 70.9% of respondents had graduated from high school or less; 26.6% of people surveyed have a professional secondary or college degree and only 2.5% of workers have graduated from university. Meanwhile, in 2011 this rate was 83.26%; 11.11% and 5.07% [4]. Education is one of the fundamental conditions that help workers acquire specialized technical knowledge. However, in general, the educational level of workers in Dong Nai province's industrial parks has not changed significantly. This is also reasonable with the strategy of developing the number of industrial parks in recent times in Dong Nai province. Therefore, in the context of green growth, worker qualifications will be a weakness in the transition to green industry.

The results of the survey of employees in terms of professional knowledge are shown in Table 1.

Table 1: Professional knowledge of employees

Content	Medium	Standard deviation
Level of understanding of laws and regulations of the company	3.55	0.78
Professional knowledge of the work being done	3.76	0.73
Product or production knowledge of the business	3.52	0.87
Knowledge of market economy	3.08	0.99
Basic knowledge of computers	2.91	1.18
Foreign language knowledge	2.43	1.19
Understanding of the company's production process	3.47	0.88
Understanding of the company's organizational structure, operations, and development strategy	3.25	0.88

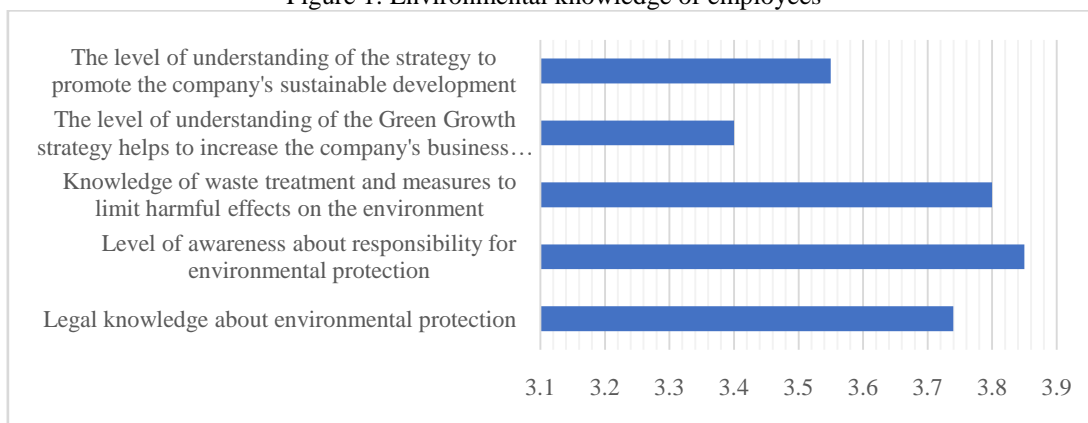
Source: Author's survey, March 2023

Table 1 shows that employees have the highest level of "Professional knowledge of the work being done" with an average score of 3.76/5.0 points; The evaluation criteria of "Legal understanding and operating regulations of the company" and "Production or production knowledge of the business" are also perceived by employees with an average score of 3.55/5.0. points and 3.52/5.0 points. This shows that workers have basic knowledge about the job and the products being produced. However, in the context of implementing green growth, by changing production processes towards cleaner, improving production technology towards advanced, modern, and resource saving. It imposes requirements on the workforce to have basic knowledge of information technology and foreign languages. The interesting survey results are that the two criteria "Basic computer knowledge" and "foreign language knowledge" are rated at the lowest score of 2.91/5.0 points and 2.34/5.0 points; The standard deviation of the two evaluation criteria is larger than 1. Thereby, there is a big difference in the workforce in terms of these two types of knowledge. Implementing green growth must rely on modern

science and technology, saving resources and reducing emissions that cause environmental pollution. Therefore, the lack of the above two knowledge in the workforce will be a weakness in the process of converting production towards greening of enterprises in industrial parks.

In addition, the results of the survey of workers on environmental knowledge shown in Figure 1 show that, “The level of awareness about responsibility for environmental protection” and “Knowledge of waste treatment and measures to limit harmful effects on the environment” was perceived with the highest average score. This shows that workers are clearly aware of their role in protecting the environment, as well as understanding the necessary measures to limit harmful impacts on the environment in their current work. Besides, the green growth strategy is a solution to improve competitiveness and resilience to external shocks [8], but the survey results are depicted in Figure 1 shows that “The level of understanding of green growth strategies help to increase the company's business performance” is perceived at the lowest level. This is understandable because most of the models and jobs to respond to climate change have been implemented over the past time, mainly in agricultural production. In industrial parks in Dong Nai province, green growth activities have been implemented in individual enterprises, mainly related to improvements within the enterprise, or for the purpose of enhancing production efficiency rather than ecological improvement, pollution control or cleaner production [9].

Figure 1: Environmental knowledge of employees



Source: Author's survey, March 2023

In addition, working skills and green skills are important criteria to measure the quality of labor force in the new context. Survey results of employees on thinking and cognitive skills; professional skills; Skills in environmental protection activities; and social skills show the results in Table 2. In general, more than 75% of workers are interested in professional skills, rated at "good" and "very good" levels such as " Skills in using machinery, equipment and security"; “Skills in using tools and means of production” with an average score of 4.0/5.0 points. Thereby, it shows that workers are equipped with basic skills, suitable for the current production process of the enterprise. However, the survey results on environmental protection skills and social skills show issues that need attention.

Table 2: Results of the Employee skills survey

Content	Medium	Standard deviation
Waste treatment skills that affect the environment	3.42	0.89
Skills to handle negative activities to the environment	2.87	0.77
Communication skills	3.84	0.87
Teamwork skill	2.92	0.88
Presentation skills	3.25	0.89
Skills to adapt to assigned work	3.39	0.71

Source: Author's survey, March 2023

Table 2 shows that “Skills to handle negative activities to the environment” are rated at a relatively low average level, 2.87/5.0 points. In addition, "Teamwork skills" are also not highly appreciated, more than 50% of respondents rated this skill as average or poor level. This is the weakness of Vietnam's workforce. In addition,

with more than 60% of workers in industrial parks immigrating from provinces and cities across the country, most of them are quite young, have low income, and live in dormitories close together. Therefore, communication skills are highly appreciated by workers at 3.84/5.0 points. This is an advantage of the workforce in Dong Nai province's industrial parks when converting production activities towards greening.

Implementing green growth is identified as an important solution to realize sustainable development. In which each individual needs to build a responsible way of life towards the community and society. Similarly, green growth also requires workers to have a responsible attitude in all activities of the production process. Survey results on employees' attitudes and responsibilities toward work are presented in Table 3.

Table 3: Survey results on employees' work responsibilities

Content	Very weak	Weak	Average	Good	Very good
Sense of responsibility for the assigned work	0.0	0.0	11.8	50.0	38.2
Degree of concern with work results	0.0	0.0	11.8	49.1	39.1
Sense of learning to improve level	0.9	0.9	17.3	41.8	39.1
Sense of compliance with production and working processes	0.0	0.0	14.5	62.7	22.7
Serious working style	0.0	0.0	8.2	58.2	33.6
Responsibility to colleagues and customers	0.0	0.0	17.3	50.9	31.8
Level of compliance with laws and regulations of the company	0.0	0.0	15.5	53.6	30.9

Source: Author's survey, March 2023

Table 3 shows that employees have a very high sense of responsibility for their work, all criteria have more than 80 percent of surveyed people rated at "good" and "very good". Especially the evaluation criteria such as "Serious working style"; "Sense of responsibility for the assigned work"; and "Degree of concern with work results". This result is consistent with the characteristics of production in industrial zones mainly in mass production, the loss of concentration at one stage will affect the next stages. This is the strength of the workforce of Dong Nai province's industrial parks in the context of implementing green growth.

As mentioned above, the green growth model helps the economy achieve economic prosperity; environmentally sustainable and socially equitable. Therefore, it requires workers to be conscious of environmental protection. Table 4 shows the survey results on workers' environmental and social awareness.

Table 4: Environmental and social awareness of workers

Content	Very weak	Weak	Average	Good	Very good
Sense of fighting against acts that damage the environment	0.0	2.7	47.5	30.6	19.1
Sense of participating in promoting activities for the environment	0.9	2.7	46.0	26.7	23.6
Level of concern for environmental protection	0.0	1.8	34.5	41.8	21.8
Sense of social responsibility	0.0	0.0	38.2	43.6	18.2
The level of concern about saving raw materials in production	0.0	1.8	39.1	34.5	24.5
The level of willingness to participate in the process of improving technology and techniques towards environmental friendliness	0.0	0.0	36.4	40.0	23.6
Level of willingness to join businesses in implementing Green Growth commitments	0.0	0.9	32.7	46.4	20.0
The level of willingness to accept the transformation and rearrangement of work for the company's sustainable development strategy	0.0	1.8	29.1	44.5	24.5

Source: Author's survey, March 2023

Table 4 shows that workers in industrial parks in Dong Nai province have a high level of concern for the environment and environmental protection issues. They are willing to participate in the process of improving technology and techniques and accompanying businesses to implement green growth strategies towards sustainable development. However, "Sense of fighting against acts that damage the environment" and "Sense of participating in promoting activities for the environment" were confirmed at a rather high level of "Average" and even "Weak". This shows that employees do not really have the determination and enthusiasm for environmental issues. In addition, it is also possible to understand the hesitation of workers in their opinion about actions to fight against acts that damage the environment. Because the analysis of the above survey results has shown that workers lack the knowledge and skills to detect actions that damage the environment. Therefore, for employees to promote the sense of responsibility, as well as the motivation and ability to act to protect the environment; actively participate in green growth in production. Therefore, improving knowledge, green skills, as well as responsibility of employees is an urgent job to meet the requirements of green jobs.

6. Conclusions and policy implications

In the context of implementing the green growth strategy, the key point is to exploit and use natural resources and energy economically and effectively, reduce negative impacts on the environment, and reduce greenhouse gas emissions by how to invest in advanced science and technology. However, to do that, the content of the Prime Minister's national green growth strategy also points out the requirements for the workforce to meet the transformation requirements. Therefore, based on the characteristics of current human resources in Dong Nai province's industrial parks, the main issues that need to be raised are as follows.

The main characteristic of the workforce in industrial park enterprises in Dong Nai province today is the young workforce. Therefore, in the context of implementing green growth to take advantage of the "youth" of the workforce to improve labor productivity and increase competitiveness for businesses, the Dong Nai provincial government needs to build, organizes training activities oriented towards the field of green jobs in each new industry to be created. Green job orientations need to be researched, piloted, and implemented in detail and specifically, focusing on key areas, in accordance with local socio-economic development strategies and world trends. Besides, to improve the quality of the workforce to meet current needs, while preparing human resources to lead a green future. Dong Nai province needs to organize training decentralization by taking advantage of geographical advantages (adjacent to the largest training center in the country, Ho Chi Minh City), and local business links with foreign training facilities. Maximize the advanced technological resources of foreign-invested enterprises in on-site training activities to improve workers' qualifications in applying new environmentally friendly technology.

Green growth is a path to help avoid consequences after the period of economic development that must focus on solving environmental consequences. However, depending on the characteristics of different fields and industries of the locality, implementing green growth will create green jobs in the corresponding fields and industries. Therefore, equipping working employees with specific green knowledge and skills will, on the one hand, help businesses easily implement activities to transform production activities towards greening. On the other hand, it helps employees realize their role in the sustainable development of the business, as well as have a resolute attitude in ecological environmental protection activities. In addition, training and developing general knowledge about green technology, clean production, renewable energy, and economical and efficient use of energy for workers is something that needs to be done through training at specialized facilities. Therefore, local governments in general and Dong Nai province in particular need to research and develop development policies and improve general green knowledge and skills for workers. Because according to Gary Becker [10], specific knowledge and skills are associated with the work of a specific business and those skills cannot be transferred to another company, while general knowledge and skills are helps people apply many different jobs. On that basis, develop policies to support businesses in organizing training courses at their units to raise awareness and specific skills for workers.

To improve the level of understanding of green growth for business performance of enterprises, in addition to policies from the central government such as green taxes, green credit for green training facilities, green career certificates, etc. Localities in general and Dong Nai province in particular need to enhance their coordination role, based on the local characteristics of flexibility and creativity in green training activities. Organize promotional activities and promote community programs on environmental protection to gradually nurture people's emotions and promote awareness of environmental issues. In addition, with the unique characteristics of production activities in industrial zones, Dong Nai province needs to organize thematic activities, research, and pilot training and fostering skills for workers. Select and build green human resource training practice centers in successful model industrial parks. On that basis, develop a training plan and link orders with human resource training facilities for green industries.

In addition, local authorities need to strengthen propaganda and dissemination of the benefits of green growth for the living environment, as well as economic efficiency, improving the competitiveness of businesses. This will contribute to creating motivation for learning and promoting the behavior of improving the qualifications of workers to meet the requirements of transforming production activities of enterprises. Besides, promoting green activities for the environment through competitions such as "Innovation Festival" and "Creative Ideas Festival" will contribute to promoting initiatives and creative ideas, bringing production efficiency.

7. References

- [1] Authority, Dong Nai Industrial Zones (2022), *Report on labor use situation in the first 6 months of 2022*, Dong Nai Province.
- [2] Co-operation, Organisation for Economic and ., Development (2012), *Green growth and developing countries: A summary for policy makers*, Editor^Editors, OECD Paris.
- [3] Consoli, Davide, et al. (2016), "Do green jobs differ from non-green jobs in terms of skills and human capital?", *Research Policy*. 45(5), pp. 1046-1060.
- [4] Hoang, Canh Chi (2013), *Developing industrial workforce in Dong Nai province until 2020*, Graduate Academy of Social Sciences, Ha Noi city.
- [5] ILO, CEDEFOP (2011), "Skills for green jobs: a global view", *ILO, Geneva*.
- [6] Kedaitiene, Angele (2018), "The Green Economic Growth: Contemporary challenges", *Public Administration (16484541)*. 1(55).
- [7] Martinez-Fernandez, C, Ranieri, A, and Sharpe, SA (2013), "Greener skills and jobs for a low-carbon future".
- [8] Prime Minister (2021), Approval for National Green Growth Strategy for 2021-2030 period, with a Vision by 2050, Editor^Editors, Ha Noi.
- [9] Tuan, Nguyen Anh (2021), *Factors affecting green growth activities of businesses in industrial parks in Dong Nai province*, University of Economics and Law, HCM city.
- [10] Becker, Gary S (2009), *Human capital: A theoretical and empirical analysis, with special reference to education*, University of Chicago press.
- [11] Boztosun, Derviş, Aksoylu, Semra, and Ulucak, Zübeyde Şentürk (2016), "The role of human capital in economic growth", *Economics World*. 4(3), pp. 101-110.
- [12] CEDEFOP (2012), "Green Skills and Environmental Awareness in Vocational Education and Training Synthesis Report".
- [13] Fay, Marianne (2012), *Inclusive green growth: the pathway to sustainable development*, World Bank Publications.
- [14] ILO (2016), *Green Jobs progress report 2014-2015*, Geneva.
- [15] OECD (2009), Declaration on Green Growth, Editor^Editors, OECD Paris.
- [16] OECD (2010), Greening Jobs and Skills: Labour Market Implications of Addressing Climate Change, Editor^Editors, OECD Paris.
- [17] OECD and Training, European Centre for the Development of Vocational (2014), *Greener Skills and Jobs*.
- [18] Publishing, OECD. (2001), *Measuring productivity-OECD Manual: Measurement of Aggregate and Industry-Level Productivity Growth*, Organisation for Economic Co-operation and Development.
- [19] Sinha, Anushree, et al. (2018), *Assessment and Model of Green Jobs Potential in India*, International Labour Organization (ILO) New Delhi.
- [20] Yoo, Seulgi and Heshmati, Almas (2019), "The Effects of Environmental Regulations on the Manufacturing Industry's Performance: A Comparison of Green and Non-Green Sectors in Korea", *Energies*. 12(12), p. 2296.
- [21] Authority, Dong Nai Industrial Zones (2019), *Report on investment in construction and infrastructure development of Dong Nai industrial zones*, People's Committee of Dong Nai province.