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Green index of provinces and cities in the Red River Delta region

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Abstract

The Provincial Green Index aims to encourage and promote efforts of provincial governments towards private sector development in the spirit of the National Green Growth Strategy and the National Strategy to Respond to Climate Change. The provincial green index set is expected to become an effective management tool for local governments, as well as help businesses have reference information about local priorities in building a business environment associated with green growth. This is considered a solution to the problem of economic development, but still ensures environmental sustainability. The Green Index will become a useful support tool for local authorities in directing and operating activities, including identifying strengths that need to be promoted and weaknesses that need to be overcome related to the field of sustainable development and green growth. The article aims to evaluate the provincial green index of provinces in the Red River Delta region in 2022, thereby examining the causes leading to different results between provinces.

Keywords: PGI, Provincial green index, Red River Delta

1. Introduction

In recent years, the problem of environmental pollution has become increasingly urgent, requiring a gradual transition to a greener development model. Society's awareness of environmental pollution and climate change is increasingly raised. Along with pressure coming from global trends, where Vietnam has made strong commitments to reduce emissions. Therefore, VCCI has developed a provincial green index, a set of indicators to evaluate and rank localities on green business environment from the perspective of business practice: level of adaptation to climate change; level of compliance with environmental laws; Current status of environmentally friendly technology application by local businesses; The level of management and environmental behavior of businesses, the level of concern and policies to encourage environmentally friendly investment activities of local governments and many other important environmental issues. The provincial green index set is expected to become an effective management tool for local governments as well as help businesses have a reference source of information about local priorities in building a business environment associated with economic growth. This is considered a solution to the problem of economic development, but still ensures environmental sustainability.

Provincial Green Index (PGI), to encourage and promote efforts of provincial governments towards private sector development in the spirit of the National Green Growth Strategy and the National Strategy Responding to Climate Change. PGI will become a useful support tool for local governments in directing and operating activities, including identifying strengths that need to be promoted and weaknesses that need to be overcome related to the field of sustainable development and green growth. For businesses and investors, PGI will provide useful references in the local production and business process, helping them grasp the government's policies or priorities in creating a business environment. Advantages associated with green growth and sustainable development. Therefore, the goal of this article is to evaluate the provincial green index of provinces and cities in the Red River Delta region in 2022, thereby examining the causes leading to different results between provinces, and learn about policies to help provinces achieve sustainable development goals through improving the PGI index.

2. Theoretical basis

The Provincial Green Index (PGI), developed and announced by VCCI from 2023, is a set of indicators that evaluate and rank the quality of local environmental governance from the perspective of business practices such as the level of application of environmentally friendly technology by businesses, level of management and environmental behavior of businesses, level of concern and willingness to invest in environmental issues of local governments and many important environmental issues other.

The Provincial Green Index is built according to a 3-step process, including step 1 of collecting business survey data using questionnaires and data from published sources; Step 2 is to calculate the component indices and standardize the results on a 10-point scale; Step 3 is to synthesize the score for the overall PGI index from the results of the four component indexes on a 40-point scale. Each indicator of the Provincial Green Index must be calculated to ensure compatibility with the characteristics of business survey data (soft data) and statistical data from state agencies (hard data). The Provincial Green Index includes 4 component indices made up of 44 indicators measuring the quality of environmental governance in provinces and cities in the direction of linking environmental protection with economic development.

Minimizing environmental pollution and negative impacts of climate change (for businesses) to provide infrastructure and public services can be considered the most basic responsibility of provincial governments, even included in central planning. Component index 1 includes the following indicators: Overall environmental quality in the province is good or very good (% of enterprises); The environment in the province is not polluted or slightly polluted (% of businesses agree); Business activities of enterprises are not affected by the level of pollution (% of enterprises agree); Environmental pollution is common in the province (% dný); Relocating investment to localities with less natural disaster risk (% of enterprises); Natural disasters and climate change cause difficulties for business operations (% of businesses); Data from the Ministry of Natural Resources and Environment: Number of air quality monitoring stations in urban areas of type IV or higher per 10,000 urban residents.

Ensuring compliance with minimum environmental standards measures the effectiveness of environmental regulatory monitoring and enforcement by provincial governments to minimize environmental harm caused by production activities enterprise's business. Component index 2 includes the following indicators: The province has effective solutions to prevent environmental pollution (% of businesses agree); The province quickly overcomes environmental pollution incidents (% of businesses agree); The province seriously penalizes businesses that pollute the environment (% of businesses agree); Environmental inspection creates opportunities for inspection officers to check for harassment of businesses (% of businesses); Which agencies have inspected businesses in the past year: Environmental inspection (% of businesses); Enterprises have paid unofficial fees to environmental inspectors (% of enterprises); Ministry of Natural Resources and Environment data: Percentage of urban domestic wastewater treated to meet environmental technical standards (%); Ministry of Natural Resources and Environment data: Percentage of production, business and service establishments generating

wastewater of 50 m3/day or more with wastewater treatment systems meeting environmental technical regulations (%); Ministry of Natural Resources and Environment data: Percentage of household solid waste classified at source (%); Data from the Ministry of Natural Resources and Environment: Domestic solid waste is treated to meet environmental protection requirements (%).

Promoting green practices measures the extent to which environmental goals are integrated into the broader state management responsibilities of the provincial government, specifically whether the government integrates environmental protection goals into development policy in general, in public procurement activities, and in activities to guide and disseminate legal regulations and practices to support businesses in "greening" their operating processes and production business models and corporate behavior. The third component index includes the following indicators: State agencies in the province are willing to pay higher prices when purchasing goods and services from "green" businesses (% of businesses); Enterprises are guided on environmental laws (%); Enterprises are guided on conservation and efficient use of energy (%); Enterprises are guided on the use of renewable energy (%); Enterprises receive guidance on renewable energy production (%); Enterprises are guided on minimizing plastic use (%); Enterprises are guided on investing in effective solid waste management (%); Enterprises are instructed to limit water pollution (%); Enterprises are instructed on economical use of water (%); businesses receive instructions on minimizing air pollution (%); Enterprises receive instructions on reforestation (%); Ministry of Natural Resources and Environment data: Percentage of budget expenditure for public activities of the Ministry of Natural Resources and Environment (%); Ministry of Natural Resources and Environment data: Number of civil servants and officials performing tasks of the Ministry of Natural Resources and Environment per 1 million people.

Policies and services to support businesses in environmental protection evaluates the policies and support services applied by the provincial government to promote businesses to have behaviors and decisions that create positive environmental impacts beyond minimum environmental standards according to Vietnamese laws or international standards. Component index four includes indicators: Policies to encourage and support economical and efficient use of energy; Policies to encourage and support clean energy/renewable energy; Policies to encourage and support air pollution reduction; Policies to encourage and support the reduction of water and wastewater pollution; Policies to encourage and support plastic waste reduction; Policies to encourage and support waste recycling; Policies to encourage and support increased resilience to natural disasters; Policies to encourage and support reforestation; The provincial government provides consulting services to improve environmental performance; The provincial government provides training services to improve environmental performance.

3. Green index of provinces and cities in the Red River Delta region in 2022

2022 is the first year the PGI index is included in the assessment. Figure 1 is the results of the scores and rankings of the PGI index of 11 provinces in the Red River Delta

region. Bac Ninh province has a thorough viewpoint in applying the Party's Resolutions, Directives, and State legal regulations for the development of industrial parks that must be associated with environmental protection. Always identify industrial development associated with minimizing environmental pollution as an important task and a condition to promote the province's socio-economic development in a

fast and sustainable direction. Therefore, Bac Ninh is the province with the highest PGI score (17.21 points) and ranked 1/11 provinces in the Red River Delta region. Meanwhile, Hanoi is the province with the highest PGI score (12.52 points) and ranked 11/11 provinces in the Red River Delta region.

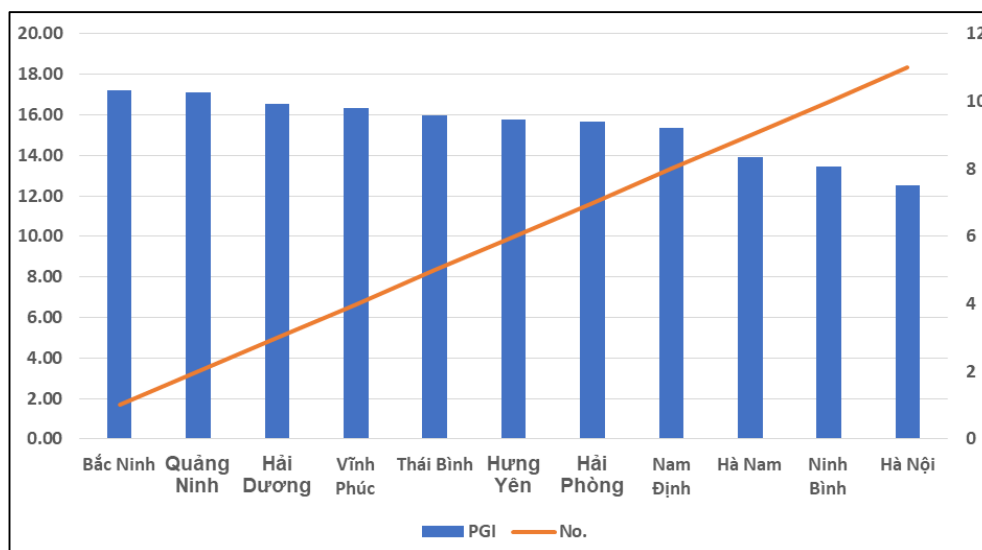


Fig 1: PGI scores and rankings of the Red River Delta provinces

In 2022, VCCI will announce the PGI Index for the first time. Among the four provinces ranked at the bottom of the table in the Red River Delta region, Hanoi reached 12.52 points, ranked 63/63 provinces and cities. PGI component indexes ranked quite low, including: "Promoting green practices" reached 3.15 points, ranked 49/63; "Reducing environmental pollution and the impact of climate change" reached 4.27 points, ranked 59/63; "Ensuring compliance with minimum environmental standards" scored 3.65 points, ranked 59/63; "Policies and services to support businesses in environmental

protection" scored 1.46 points, ranked 62/63. Ninh Binh reached 13.43 points, ranked 54/63 provinces and cities. PGI component indexes ranked quite low, including: "Promoting green practices" reached 3.42 points; "Reducing environmental pollution and the impact of climate change" reached 4.94 points; "Ensure compliance with minimum environmental standards" scored 3.60 points; "Policies and services to support businesses in environmental protection" scored 1.49 points.

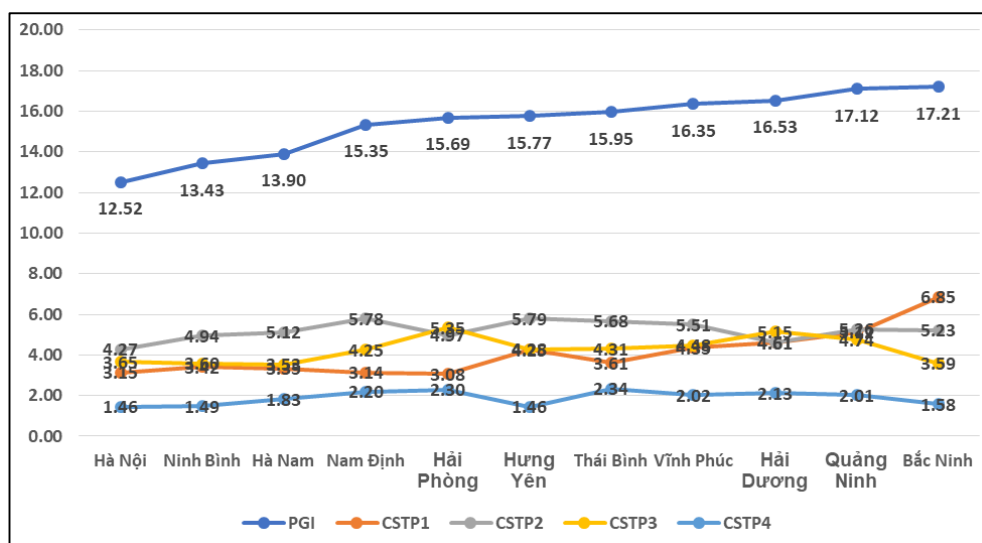


Fig 2: Provincial green index of provinces in the Red River Delta region

Ha Nam scored 13.90 points, ranked 50/63 provinces and cities. PGI component indexes ranked quite low, including: "Promoting green practices" reached 3.35 points; "Reducing

environmental pollution and the impact of climate change" scored 5.12 points; "Ensure compliance with minimum environmental standards" scored 3.53 points; "Policies and

services to support businesses in environmental protection” scored 1.83 points.

Nam Dinh achieved 15.35 points, ranked 20/63 provinces and cities. PGI component indexes, including: "Promoting green practices" reached 3.14 points; "Reducing environmental pollution and impacts of climate change" reached 5.78 points; "Ensure compliance with minimum environmental standards" scored 4.25 points; "Policies and services to support businesses in environmental protection" scored 2.0 points.

The three provinces with the highest index among the group of provinces in the Red River Delta region include Bac Ninh, Quang Ninh, and Hai Duong.

Bac Ninh achieved 17.21 points, ranked 3rd/63 provinces and cities. PGI component indexes, including: "Promoting green

practices" reached 6.85 points; "Reducing environmental pollution and the impact of climate change" scored 5.23 points; "Ensure compliance with minimum environmental standards" scored 3.59 points; "Policies and services to support businesses in environmental protection" scored 1.58 points.

Quang Ninh achieved 17.12 points, ranked 4/63 provinces and cities. PGI component indexes, including: "Promoting green practices" reached 5.12 points; "Reducing environmental pollution and the impact of climate change" scored 5.26 points; "Ensure compliance with minimum environmental standards" scored 4.74 points; "Policies and services to support businesses in environmental protection" scored 2.01 points.

Table 1: Component index 1 of PGI of provinces in the Red River Delta region

	CSTP1	CSTP1.1	CSTP1.2	CSTP1.3	CSTP1.4	CSTP1.5	CSTP1.6	CSTP1.7
Hải Phòng	3,08	36%	28%	22%	69%	0%	5%	0,00
Nam Định	3,14	43%	18%	39%	73%	1%	6%	0,00
Hà Nội	3,15	32%	30%	23%	73%	1%	3%	0,01
Hà Nam	3,35	44%	31%	36%	57%	1%	3%	0,00
Ninh Bình	3,42	47%	25%	38%	48%	0%	2%	0,00
Thái Bình	3,61	34%	18%	72%	85%	1%	2%	0,05
Hưng Yên	4,25	43%	36%	40%	70%	1%	6%	0,14
Vĩnh Phúc	4,35	51%	14%	52%	76%	0%	4%	0,16
Hải Dương	4,61	38%	34%	43%	79%	0%	4%	0,20
Quảng Ninh	5,12	75%	48%	40%	44%	0%	8%	0,20
Bắc Ninh	6,85	51%	30%	26%	67%	0%	3%	0,52

Component index 1 measures basic infrastructure and public services provided by the provincial government to minimize risks caused by natural disasters and climate change for business operations. For component index 1, Minimizing

environmental pollution and negative impacts of climate change, in 11 provinces in the Red River Delta region, Quang Ninh province has the highest score (5.12 points), Hai Phong has the lowest score (3.08 points).

Table 2: Component index 2 of PGI of provinces in the Red River Delta region

	CSTP2	CSTP 2.1	CSTP 2.2	CSTP 2.3	CSTP 2.4	CSTP 2.5	CSTP 2.6	CSTP 2.7	CSTP 2.8	CSTP 2.9	CSTP 2.10
Hải Dương	4,61	86%	82%	87%	5%	6%	3%	0%	99%	2%	32%
Nam Định	5,78	80%	80%	81%	8%	10%	4%	0%	95%	59%	100%
Ninh Bình	4,94	56%	57%	60%	4%	10%	1%	0%	100%	20%	96%
Hải Phòng	4,97	81%	81%	84%	4%	10%	2%	5%	97%	4%	69%
Hà Nam	5,12	66%	64%	68%	5%	5%	1%	6%	100%	20%	96%
Quảng Ninh	5,26	85%	84%	86%	3%	4%	1%	14%	99%	1%	93%
Vĩnh Phúc	5,51	83%	84%	87%	7%	7%	0%	20%	100%	42%	55%
Hưng Yên	5,79	75%	75%	81%	4%	5%	2%	22%	100%	65%	76%
Thái Bình	5,68	81%	81%	82%	2%	2%	2%	25%	100%	33%	96%
Hà Nội	4,27	67%	66%	70%	4%	2%	1%	31%	0%	0%	100%
Bắc Ninh	5,23	70%	67%	72%	7%	7%	2%	49%	73%	24%	70%

Component index 2 of the PGI Index measures the provincial government's efforts to promote environmental safety standards through promulgating good quality policies and regulations, and conducting inspections. Reasonable environmental investigation and serious law enforcement for violations. Among the 10 indicators of component index 2, there are 5 indicators achieving average results or better,

including: The province has effective solutions to prevent environmental pollution, the province quickly overcomes pollution incidents, The province seriously penalizes businesses that pollute the environment, Data from the Ministry of Natural Resources and Environment: Domestic solid waste is treated to meet environmental protection requirements.

Table 3: Component index 3 of PGI of provinces in the Red River Delta region

	Hà Nam	Bắc Ninh	Ninh Bình	Hà Nội	Nam Định	Hưng Yên	Thái Bình	Vĩnh Phúc	Quảng Ninh	Hải Dương	Hải Phòng
CSTP3	3,53	3,59	3,60	3,65	4,25	4,28	4,31	4,48	4,74	5,15	5,35
CSTP3.1	48%	50%	48%	60%	80%	66%	79%	82%	75%	82%	77%
CSTP3.2	42%	49%	45%	56%	73%	61%	74%	77%	70%	78%	76%
CSTP3.3	36%	34%	27%	16%	71%	36%	83%	75%	43%	75%	30%

CSTP3.4	9%	13%	9%	9%	12%	11%	6%	8%	20%	12%	14%
CSTP3.5	5%	5%	6%	6%	7%	8%	5%	4%	9%	10%	10%
CSTP3.6	3%	4%	2%	4%	3%	3%	3%	3%	6%	6%	5%
CSTP3.7	9%	8%	6%	9%	10%	9%	4%	4%	17%	9%	11%
CSTP3.8	5%	6%	2%	2%	7%	3%	2%	4%	8%	7%	6%
CSTP3.9	17%	13%	10%	10%	14%	17%	10%	7%	22%	15%	31%
CSTP3.10	21%	15%	10%	14%	15%	16%	9%	10%	25%	16%	29%
CSTP3.11	20%	12%	5%	9%	14%	11%	6%	10%	19%	12%	27%
CSTP3.12	5%	2%	3%	1%	2%	3%	2%	2%	11%	4%	5%
CSTP3.13	1%	2%	2%	2%	1%	2%	1%	2%	2%	3%	4%
CSTP3.14	161,10	110,81	177,66	83,78	143,23	162,32	153,69	151,53	168,78	145,88	168,98

Component index 3 of the PGI index measures the leadership role of the provincial government in two aspects: green procurement and guidance and dissemination of environmental legal regulations related to business activities.

Among the 11 provinces in the Red River Delta, Hai Phong is the province with the highest score of component 3 (5.35 points). The lowest is Ha Nam with 3.53 points.

Table 4: Component index 4 of PGI of provinces in the Red River Delta region

	Hà Nội	Hưng Yên	Ninh Bình	Bắc Ninh	Hà Nam	Quảng Ninh	Vĩnh Phúc	Hải Dương	Nam Định	Hải Phòng	Thái Bình
CSTP4	1,46	1,46	1,49	1,58	1,83	2,01	2,02	2,13	2,20	2,30	2,34
CSTP4.1	0,66	0,66	0,60	0,69	0,71	0,95	1,95	1,44	1,68	1,36	1,44
CSTP4.2	0,17	0,07	0,13	0,16	0,23	0,32	0,36	0,43	0,29	0,74	0,18
CSTP4.3	0,38	0,32	0,24	0,32	0,71	0,67	0,43	0,84	0,49	1,11	1,15
CSTP4.4	0,23	0,34	0,27	0,40	0,59	0,60	0,33	0,61	0,54	1,07	0,48
CSTP4.5	0,20	0,32	0,21	0,27	0,50	0,59	0,20	0,52	0,43	0,73	0,31
CSTP4.6	0,12	0,13	0,06	0,20	0,25	0,24	0,20	0,43	0,12	0,36	0,11
CSTP4.7	0,07	0,04	0,06	0,12	0,16	0,27	0,17	0,34	0,16	0,12	0,09
CSTP4.8	0,05	0,02	0,09	0,05	0,11	0,33	0,13	0,22	0,12	0,06	0,09
CSTP4.9	0,25	0,30	0,34	0,36	0,37	0,60	0,67	0,52	0,92	0,63	1,23
CSTP4.10	0,11	0,10	0,11	0,11	0,26	0,24	0,21	0,29	0,25	0,29	0,24

Component index 4 evaluates the extent to which businesses can access and benefit from policies and business support programs aimed at green business and practices implemented by local governments. Thai Binh is the province with the highest PGI component 4 score, the lowest are the two provinces of Hung Yen and Hanoi.

4. Conclusion

By building and publishing the Green Index, we will encourage and encourage provinces and cities in Vietnam to pay more attention to economic development associated with environmental protection, Providing timely information to support provincial and city governments in making policies related to investment and the environment, selecting environmentally friendly investment projects; promote the building of an environmentally friendly business ecosystem; orient investors to be conscious of environmental protection; promote more green, more environmentally friendly projects. The policies needed for a locality to achieve good results in each different component index are very different. It can be seen through the PGI results that currently only a few localities have the tendency, resources or capacity preparedness to do a good job of responding to natural disasters, enforcing environmental regulations, and providing guidance to support businesses in implementing green business or provide financial resources to promote businesses to go green. In general, most provinces and cities have had certain achievements but only in one or two areas of environmental management. This means that the overall PGI results are at an average level and the final scores of the higher-ranked provinces and those of the lower-ranked provinces are not very different. Therefore, to have the most

realistic perspective, policymakers should consider PGI results according to each independent dimension instead of considering it as a composite index.

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