A Practical Cooperation System for the Realization of Carbon Neutrality

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Abstract: The climate crisis has emerged as a representative environmental problem that threatens the survival of mankind. In order to overcome the climate crisis, the IPCC suggested that the global average temperature increase should be suppressed within 1,5℃, and that 2050 carbon neutrality should be realized for this purpose. The international community is seeking a major transformation into a decarbonized gengje society structure, such as energy conversion and the Gennin New Deal policy. Realization of carbon neutrality can be achieved through extensive civic participation and cooperation from various social groups. In the Chungbuk region, various practical cooperation activities have been carried out to respond to the climate crisis, realize carbon neutrality, and transition to a green society. In this study, implications were derived by collecting five cases of systematic practical cooperation activities promoted in the Chungbuk region and comparing and analyzing the evaluation results. Based on this, the direction of the carbon neutral policy in Chungbuk and the establishment of a practical cooperation system for realizing carbon neutrality were proposed.

Keywords: governance; climate crisis; climate environment crisis; meta-governance; business platform; practical cooperation system; carbon establishment

1. Introduction

Now we are fighting the climate and environmental crisis that threatens the survival of mankind. In order to overcome the climate crisis, the IPCC proposed that the global average temperature increase should be suppressed within 1.5℃, and 2050 carbon neutrality should be realized for this purpose. Governments, including Korea, joined the carbon neutral ranks in 2050. The international community is seeking a major transition to a decarbonized economic and social structure by spurring energy conversion and green new deal policies.

Chungcheongbuk-do declared carbon neutrality in April 2021. The Chungbuk region has an industrial base suitable for the digital industrial revolution, such as semiconductors, batteries, solar power, IT, and BT, and has a strong civil society's active capabilities such as participation and cooperation. Civil society is spurring change by leading the Climate Crisis Emergency Action and Green Action Network. Industries are also leading ESG management and RE100. The administrative, industrial, and civil society sectors are making their own efforts, but mutual connection and cooperation are insufficient.

Making greenhouse gas emissions zero is by no means an easy task. Carbon must be removed from all sectors, including power generation, industry, architecture, transportation, agriculture and food. It is possible only when the entire way of life and socio-economic structure of citizens are changed. If this government organization has accepted the goal of carbon neutrality and established strategies and plans, it is time to create a decisive phase of green transformation through pan-citizen participation and cooperation. It is one of the most important tasks facing the state and the community.

In this study, first of all, we would like to make a theoretical consideration of the climate environment crisis and cooperative governance to overcome it. We would like to investigate and analyze the cases of green practice cooperation activities promoted in the Chungbuk region. Among them, six representative cases will be selected to examine the overview of activities and the status of implementation. In addition, the results, limitations, and implications of each practical cooperation activity will be derived through collection of opinions from related parties and comparative analysis. Based on this, I would like to propose a plan to establish a comprehensive practical cooperation system for realizing carbon neutrality in Chungcheongbuk-do.

2. Theoretical Review – Climate Crisis and Cooperative Governance

2.1. Theory of Climate and Environmental Crisis

Humans have achieved a convenient and rich modern civilization by utilizing the resources and energy provided by nature and the environment. However, excessive use of fossil fuels has created the worst environmental crisis of global warming and climate change.

In the 1970s, the Roman Club first raised concerns about global warming. In 1972, the United Nations Conference on the Human Environment adopted the Human Environment Declaration to solve environmental problems at a global level. Since then, the World Meteorological Organization (WMO) and the United Nations Environment Program (UNEP) have identified problems with the greenhouse effect caused by the increase in carbon dioxide. In 1988, the IPCC (Intergovernmental Panel on Climate Change) was established, and the seriousness of climate change was raised through several reports. In 1992, the United Nations Conference on Environmental Development signed a climate change agreement to regulate greenhouse gases. 196 countries joined the Convention on Climate Change.

In 1997, the Kyoto Protocol was adopted as an implementation plan to reduce greenhouse gas emissions. Prioritized reduction measures were agreed, focusing on developed countries (38 countries) with historical responsibility. The Kyoto Protocol went through the first commitment implementation period from 2008 to 2012, and then extended its effect until 2020. In 2015, the Paris Agreement was signed, which included the principles and directions of the launch of the new climate system. A flexible reduction plan was applied in which both developed and developing countries participate but present voluntary reduction goals (INDCs). Controversy continued over the validity of the goal of curbing the increase in the global average temperature within 2℃.

The IPCC General Assembly held in Songdo, Incheon in August 2018 adopted a special report on 1.5°C global warming. It was reported that the concentration of carbon dioxide increased by 410 ppm, and the global average temperature increased by 1.09 degrees. As a result of the simulation, it is reasonable to suppress the average temperature increase within 1.5℃, and to this end, it suggested a goal that carbon neutrality (Net Zero) should be reached by 2050. The period of 1.5°C increase was expected between 2030 and 2052. The emission gap report released by UNEP in November 2019 predicted that the global average temperature could rise 3.2°C within the 21st century, and stressed that carbon emissions should be reduced by 7.6% annually between 2020 and 2030 to achieve the 1.5°C control target.

Since 2018, the carbon neutral goal has gained momentum as the flow of climate crisis emergency actions expressed by future generations has been combined. According to a government policy briefing, 134 countries declared and supported carbon neutrality in September 2021. But the outlook remains pessimistic. The report released by the National Institute of Meteorological Sciences in May 2021 on the timing of the 1.5°C increase was 2028-2034, and the IPCC 6th Report (Working Group 1) published in August 2021-2040 was predicted earlier.

2.2. Theory of Cooperative Governance

Governance is a new paradigm of governance and is also called cooperation in that various actors participate and cooperate in governance. It refers to a changed governance method in which the government sees the people in a partnership and various social groups participate autonomously in the management of state affairs. It also refers to a method of solving problems through the participation and cooperation of various stakeholders. The government, the market, and various subjects of civil society are defined as an alternative government operating system or cooperative problem-solving method that seeks to solve common problems together by sharing experiences and knowledge and trust through participation and communication processes (Kim Byung-wan et al., 2019: 72).

Solving the increasingly chaotic and evil problems in modern society requires a convergent and integrated approach based on a serial combination strategy along with a cooperative governance method among subjects with various values and interests. It is inevitably impossible to solve complex problems with the power of any one of the government, market, and civil society, which are the three main agents of solving social problems. In particular, interest in alternative problem-solving methods that can overcome the limitations has naturally shifted to interest in the necessity and possibility of governance-type problem-solving amid the more severe recognition of inefficiency or policy failure of government bureaucracy.(Kim Byung-wan, 2021:69)

Governance has something in common as a cooperative system to pursue common interests through common efforts. At a time when the problem of climate change has an important impact on daily life, it is very important to recognize it as a problem of cooperation and to have an institutional framework to solve it. Research on how the government and civic groups can collaborate and what institutional support is needed to establish bottom-up policies can have various implications. For example, the government needs to establish a framework to form cooperative governance between governments, citizens, and companies by assisting local climate change councils (Hong Young-sik, Lee Deok-ro 2019: 39-40).

Participation, expertise, autonomy, trust between groups, information sharing, resource mobilization capabilities, and regional influence are presented as key components of governance (Kim Se-hoon, 2007: 53). Environmental governance is an application of regional governance principles and realization methods, such as participation, partnership, democracy, openness, and mutual cooperation, to environmental issues. (Ko Jae-kyung, Lee Mi-hong, 2010:152)

Jeremy Rifkin, author of the Global Green New Deal, emphasized the importance of horizontal consultative bodies (peer assembly governance). The infrastructure of the digital industrial revolution is characterized by distributed, open, transparent systems, and the most efficient and productive when it scales horizontally without vertically integrated. Peer Assembly refers to a public horizontal consultative body that will immediately participate in each stage of transition, provide feedback, and be closely related to issues discussed, and be closely involved in the preparation of proposals and initiatives integrated into the Green New Deal roadmap of their community.

Bob Jessop presented the concept of 'meta-governance'. Meta-governance, which means governance of governance, refers to the governance of network countries that coordinate the governance of individual actors in each field (Jessop 2003). It refers to governance that organizes autonomous organizations as a management plan for autonomy, diversity, and complexity, not a uniform method in managing networks. This meta-governance can be said to be a new governance style suitable for responding to the climate environment crisis, where various types of risks occur across various fields.

3. Examples and Implications of Practical Cooperation Activities in Chungbuk

3.1. A Case Study of Practical Cooperation Activities in North Chungcheongbuk-do

In the Chungbuk region, various green practice activities have been carried out to preserve the environment since the early 1990s when professional environmental groups were formed and began to be active. With the promotion of the 21st local agenda, cooperative activities for sustainable regional development continued to expand. In 2014, the Full Dream Environment Foundation was founded to pursue a green platform for a green society, and systematic green practice cooperation activities were actively carried out around this time.

The systematic green practice cooperation activities are, ① Activities carried out for the purpose of decarbonizing green conversion, ② More than a few years of continuous activity, ③ Cases of activities conducted by combining more than dozens of social groups, ④ Crucially, it was limited to activities that contributed to expanding citizens' participation and practice. There are five examples: Cheongju Green Village Making Practice Cooperation Project, Green Capital Cheongju Making Practice Cooperation Activity, Miho River Water Environment Improvement, Chungcheongbuk-do Office of Education Green School Making Practice Cooperation Project, and Citizens' Power. The summary and implementation status of each activity were summarized, and evaluation results such as performance and limitations were compared and analyzed.

3.2. Case (1) Cheongju City Green Village Development Practice Cooperation Project - Green Village Protecting the Earth

1) Overview of activities

It is a support project of Cheongju City, which has been promoted from 2010 to 2023 to reduce greenhouse gases in daily life. It was organized by the Cheongju Chungbuk Environmental Movement Association in 2010, the Pool Dream Environment Foundation from 2015, and the Cheongju International Eco Complex from 2017. The project cost was supported by Cheongju City and is about 120 million won per year. It is a project that contributes to reducing greenhouse gases by reducing the use of water, electricity, and gas at the village level such as apartments. It is an annual project to find and spread excellent cases through activity presentations after signing an action agreement ceremony by conspiring with participating villages, conducting autonomous practice activities. Until the early and mid-terms, in-kind incentives were provided to villages selected as excellent activities, and since 2021, the project cost has been supported by dividing them into green seed villages, tree villages, and forest villages. Every year, 30 to 40 villages participate.

2) Promotion status

In 2010, the Environmental Policy Division of Cheongju secured 50 million won for commercial projects. It was asked to propose an appropriate citizen practice project that can be done at this cost. The Cheongju Chungbuk Environmental Movement Association held discussions on participatory green practice projects. The idea of promoting a greenhouse gas reduction contest for apartment complexes was derived. The aim is to reduce greenhouse gases at home and in life. It is to reduce the amount of water, electricity, and gas that can be measured. It is a competition-style project that awards incentives (awards) to apartment complexes that have achieved the most reduction results.

The name of the project is "Green Village Creation Project to Reduce Greenhouse Gas." The business period for the first year was three months (October-December). It was simply a pilot project. The project cost was 50 million won, and 15 apartment houses were eligible for participation. It was hosted by the Green Cheongju Council, and organized by the Cheongju Chungbuk Environmental Movement Association. The main contents consisted of participating village contest, pilot village selection and agreement, production and distribution of practice manuals, conducting greenhouse gas reduction practice activities, village tour meetings, excellent village screening and awards. Seventeen apartments participated and carried out practical activities for two months. The results were quite

amazing. Compared to the previous year, 8,410 tons of water, 7,346 KWh of electricity, and 28,752 ㎥ of gas were saved. In terms of greenhouse gases, 71.1 tons were reduced.

The project has been continuously promoted since 2011. The project cost gradually increased to 120 million won. It was possible to hire a dedicated practitioner. Participating villages have also been expanded. It has increased to 30 villages since 2012, and 40 villages participated in 2023. After the launch of the 2nd Integrated Cheongju City, rural villages were also included. The contents of the project have also diversified. It was intensified by the formation and operation of a green village promotion organization, village representatives meeting, project manager workshop, village support group operation, residents' tour education and village love room, joint practice campaign, urban and rural exchange Hanmadang and activity report contest, project evaluation and casebook production.

It was organized by the Pulgum Environment Foundation from 2015 and Cheongju International Eco Complex from 2018. Participation and cooperation agencies have also diversified. Cheongju City, the Korea Energy Corporation, and HCN Chungbuk Broadcasting were combined as sponsoring organizations. The Korea Housing Managers Association, the National Apartment Association, Cheongju YWCA, Cheongju Residents' Self-Governing Council, Cheongju Chungbuk Environment Association, Chungbuk Rural Experience and Recreation Village Council, and Chungbuk Sustainable Development Council were combined as partners. The Green Village Promotion Committee was formed, involving representatives of participating organizations, Cheongju City, the city council, specialized institutions and experts. The promotion committee took the center stage to coordinate opinions, share roles, and oversee the project.

The Green Village Project is a one-stone project for families, villages, cities, and districts. Households are reduced in maintenance costs. The Village is revitalized with autonomy and community. It plays a leading role by participating in the creation of a sustainable green city. It also contributes to curbing climate change and preserving the global environment. In 2019, a project evaluation meeting was held for the 10 years of the green village project. Positive evaluations were derived, such as substantial greenhouse gas reduction, revitalization of village communities, strengthening public-private-academic cooperation and trust, and development of comprehensive village creation. In 2018, it won the Excellence Award at the Korea Green Climate Award hosted by the National Assembly Climate Change Forum and the Low Carbon Green Award at the Environment Awards co-hosted by the Ministry of Environment and the Chosun Ilbo.

Over the past 10 years (2010-2019), it was estimated to have saved 98,189 tons of water, 3,557,375 KWh of electricity, 406,693, of cooking gas, and 9,442 Gcal of heating gas. It was analyzed that CO_2 was reduced by about 3,722.3 tons when converted to the entire period. It is equivalent to the amount absorbed by 2.6 million 30-year-old pine trees in a year. Professor Ha Min-chul of Cheongju University conducted a perception survey on residents of Green Village in 2013 and 2019. The positive evaluation increased from 58.4% to 68.0%, and the negative evaluation decreased from 6.8% to 4.2%. The response that the reliability of neighboring residents has increased from 41.6% to 74.6%. The response that the reliability of Cheongju-si has increased from 40.8% to 55.1%. It was found to have made a very positive contribution to community reinforcement and social capital accumulation.

From 2020, it has been changed to a project cost support method for each stage of participation, not a method of providing incentives (awards) to excellent villages. It is a method that deepens from seed village to tree village and from tree village to forest village. As of 2023, 40 villages are participating. Green Village has been reducing the use of resources and energy for 14 years. However, the total amount of social resources and energy of Green Village is constantly increasing.

3) Activity evaluation

As an achievement, ① As the first platform-type practical cooperation project in Cheongju, a project platform for village-level citizens was established. ② Every year, 25 to 40 villages, a total of 500 villages, participated in the project. ③ Practical results were derived for reducing greenhouse gases such as water, electricity, and gas in life. ④ As a governance organization, the Green Village Promotion Committee was formed and operated. ⑤ A working structure such as hiring full-time workers was established. ⑥ Programs such as green seed villages, tree villages, and forest villages have been continuously changed and developed. ⑦ Cheongju International Eco Complex was established as a regular business and the business was stabilized. ⑧ The business has been going on for 14 years. As a limitation, it is not possible to encourage more villages to participate due to the limitation of the project cost. ② Synergy decreased due to the suspension of linked projects such as the Green Cheongju Making Contest. The implication is that ᄉᆞᄒᆞᄋᆞᄒᆡᄂᆞᆷ the project cost needs to be expanded. ② A deeper linkage program is needed for villages that have achieved some level of activity, such as village community support projects, to participate

3.3. Case (2) Activities for practical cooperation in making green capital Cheongju6. Conclusions

1) Overview of activities

It is a practical cooperation project promoted by the Green Cheongju Council, a governance organization, from 2012 to 2019 to create a green capital that leads the sustainable green city of Cheongju and even a green city. The project cost was supported by Cheongju City and has about 50 million won per year. Cheongju Green Together World Green Together was presented as a common practice campaign. It is an annual project that discovers and awards excellent cases through activity presentations after signing an action agreement ceremony and conducting autonomous action activities. Overseas training groups were organized around officials from institutions selected as excellent activities to conduct Asian green city exploration training. Various institutions and organizations were grouped into a green Cheongju network. Initially, it started with more than 100 institutions and increased by up to 600 institutions, but it ended with a budget cut in 2019.

2) Promotion status

In 2009, local governments competitively promoted the creation of green cities in line with the Lee Myung-bak administration's low-carbon green growth policy. In March 2009, Cheongju City held the nation's first Green Growth Seminar in cooperation with environmental organizations. At this time, the environmental group made three proposals to Cheongju-si. First, Cheongju will preempt the concept of "Green Capital," a master city of green cities, secondly, hold nationwide events such as the National Forum for Green Cities, and thirdly, form a joint public, public, and academic promotion planning team, but operate democratically. Cheongju City accepted this, and cooperative activities to make Cheongju, the green capital, began in earnest.

A promotion planning team and an organizing committee for the Green City National Forum were formed and preparations began. It was led by environmental groups and civil society and supported by Cheongju City. The "Green City National Forum" was held from October 22 to 23, 2009. The theme was "Response to climate change, green cities are the alternatives." The "Green Capital Declaration Ceremony" was held at the opening ceremony involving hundreds of experts, activists, administrators and Cheongju citizens in the urban and environmental sectors. Since then, the name of the event has been changed to "Green City National Convention," and the event has been held every two years. In addition to the forum, the Green City Creation Contest was added. By 2019, six national competitions have been held since, serving as the head of the green cities.

In 2010, Cheongju-si, the 5th popular election, set the municipal government goal as the "Green Capital of Korea." The Green Water Promotion Team was established under the direct control of the

mayor. A green Cheongju promotion planning team was also formed, involving the public, government, and academia. The basic idea of the green capital was established through autonomous workshop operation. The Cheongju Sustainable Council, an urban governance organization, and the Cheongju Making Council, which wants to live, were integrated and reorganized. In 2011, the Green Cheongju Council for Communication and Cooperation was newly launched. Through the enactment of the Framework Ordinance on Green Cities in Cheongju, institutionalization measures were also prepared. The basic plan for creating a green city was officially established. In 2011, Cheongju City was designated as the second green demonstration city in Korea. Various policy projects were promoted, including the operation of the Green Cheongju Forum, a 100-day experiment on the Musimcheon Stream riverbed, and a plan to establish a green transportation system.

Citizen practice projects have also begun in earnest. In 2012, a civic practice program for "The World Green Together with Cheongju" was presented. We started the Green City Best Practice Contest. A green Cheongju network was established in which various social groups participate. Institutions selected as best practices were provided with qualifications to participate in overseas training as incentives. Overseas research vehicles explored and benchmarked advanced cases of Asian green cities such as Kyoto, Hangzhou, and Taipei. In 2013, when local governance organizations were in a slump, Cheongju City won the Presidential Award of the Sustainable Development Awards for its "two-year experiment to switch to good governance."

In 2014, the integrated Cheongju City was launched, and practical cooperation and cooperation activities for green Cheongju creation continued. In 2015, the city vision was set as a life and culture city. In 2016, the Citizens' Committee for Life Culture City was launched, and a roundtable meeting of 500 people was held to derive policy tasks. However, after reorganization in 2018, the activities of the Green Cheongju Council began to stagnate. Due to the issue of urban park sunset system and LNG-fired power plants, Cheongju City Council, and civil society suffered extreme conflicts and pains. As the budget was cut in 2019, most practical cooperation projects, such as the Green City National Competition and the Green City Creation Contest, were also suspended.

3) Activity evaluation

As an achievement, ① A wide-scale green Cheongju network involving more than 600 institutions was established. ② As a green citizen practice plan, the 'Green Cheongju Together, Green District Together' program was presented and a comprehensive practice project platform was established. ③ Synergy increased in connection with the green village development project. ④ The maximum performance was derived with a small project cost of only 50 million won per year. ⑤ A virtuous cycle of business structure was established by providing incentives for participation in overseas training for excellent activity institutions. As a limitation, the contents of the ᄉᆞ ᄒᆞᄋᆞ ᄀᆡᆸ project were not qualitatively strengthened compared to the quantitative expansion of the project. ② The project cost was insufficient, and eventually the project cost was reduced in full. ③ As the central manpower of the project promotion changed, the continuity of the project was not secured. ④ In the second half of the year, business cooperation with local governments was not smooth, and the project was eventually terminated in 2020. The implication is that continuous cooperation and agreement between the private and administrative sectors are needed.

3.4. Case (3) Practical cooperation activities to improve the water environment of Miho River – Miho River Win-Win Cooperation Project

1) Overview of activities

It is a joint cooperation project of environmental organizations that has been promoted from 2014 to 2023 to improve the water environment of the Miho River and develop the basin community. The Pulgum Environment Foundation was the center and formed and operated a Miho River Win-Win Cooperation Promotion Team with various institutional organizations, and formed the Miho River Basin Council in 2021. Starting with the Sorocheon Stream Development Project in 2014, it is being promoted by naming the Miho River Win-Win Cooperation 2020 Project in 2016 and the Miho River Win-Win Cooperation 2030 Project in 2021. At the end of 2022, the Miho River Basin Council

formed the Miho River Participation Cooperation Forum with Chungcheongbuk-do and participated in the establishment of a basic plan for the Miho River Clear Water Project. Currently, Chungcheongbuk-do is pushing for the enactment of the Miho River Integrated Water Management Support Ordinance, and plans to implement the Miho River Clear Water Project in earnest from the second half of 2023.

2) Promotion status

The Miho River (Miho River until July 2022) was a river that was alienated from community interest. I was badly developed and the water quality was very poor. Prior to the launch of the integrated Cheongju-si, a discussion on comprehensive management plans for Mihocheon and Musimcheon was held in 2013. It served as an opportunity to set the Miho River as a major environmental agenda in the community. Since the launch of the integrated Cheongju City in 2014, practical cooperation activities have begun in earnest to improve the water environment of the Miho River. The Pulgum Environment Foundation carried out "cultivating Soro Stream together" activities as a cooperative project with industries. Sorocheon Stream is a symbolic small river that flows directly into the Miho River. Residents' river care was actively engaged in activities such as organizing, conducting cleanup activities and monitoring, creating a pop tree path, and creating a green village.

In 2015, the Pulgum Environment Foundation conducted a research project with Cheongju University on the "plan to establish an integrated management system for the Mihocheon Stream basin." It was a living lab project that experimentally established a resident-participating river management system. Three tributary rivers, Baekgokcheon Stream, Musimcheon Stream, and Jocheon Stream, were selected to form a resident river management team, and simultaneous monitoring activities were conducted. Through numerous discussion processes such as policy meetings, a model of participatory cooperative basin management called 'River Management 3.0' was derived. The activities of the Mihocheon River Management Team, which began at this time, have continued to this day.

In 2016, the civil society-level practical cooperation project was launched in earnest to improve the water environment of the Miho River and develop the basin community. It was named the Mihocheon Win-Win Cooperation 2020 Project. The intention was to make it the river where the members of the basin participate and cooperate the most by 2020. Organizations in Chungcheongbuk-do and Sejong City formed and operated the Miho River Win-Win Cooperation Promotion Planning Group together. The Mihocheon Comprehensive Exploration, "Walking on the Road of Win-Win," which is conducted by walking, began. The Mihocheon Forum was formed as a human network and water environment education was also expanded.

In May 2017, the "Michotopia Declaration of Co-prosperity" containing 10 principles and directions of watershed management was promoted. Since then, civil society has decided to change Mihocheon Stream to Mihogang River. It signed business agreements with 13 industries in Chungcheongbuk-do and began full-fledged activities to cultivate Miho River together. The "Miho River Cultivation Hanmadang" was launched to select best practices for water environment conservation activities. The Mihocheon Forum was expanded and reorganized into the Mihogang River Basin Council Promotion Committee. Local media outlets such as broadcasting and newspapers focused their attention on the Miho River, followed by planning and in-depth reporting.

In the wake of the June 13 local elections in 2018, Miho River policy proposal activities were carried out. Ten policy tasks, including support for the formation of the Miho River Basin Council, were presented. A policy map was produced after receiving answers from candidates such as the head of a local government. Agenda items related to the Miho River have emerged as key pledges of candidates for the governor of Chungcheongbuk-do and the mayor of Cheongju. In March 2019, the World Water Day ceremony was held in collaboration with the Geumgang River Basin Environment Agency. The Mihocheon Conservation Network agreement was signed, involving 39 institutions and organizations. The Geumgang River Basin Environment Agency established measures to improve the quality of water in Mihocheon Stream and formed a joint public-private-academic consultative body. In 2020, it was difficult to carry out active activities through the COVID-19 incident. Activities were continued, focusing on resident river management activities.

In October 2021, the Miho River Basin Council was officially launched. More than 200 people, including experts and activists, participated as members. It was decided to promote the Miho River

Win-Win Cooperation 2030 Project, which includes the direction of activities for the new decade. Around this time, Chungcheongbuk-do announced the Miho River project plan. Discussions on the direction of the project were actively conducted. The official business name is the Miho River Project where water is alive. It is a large-scale project that will invest a total of 650 billion won from 2022 to 2032. The plan is to restore the water quality of the Miho River to the first-class goal, secure a large amount of Miho River water, and create a hydrophilic leisure space around the Miho River. Research services were ordered to establish a basic plan.

On July 7, 2022, the Minister of Environment announced that the name of the national river section of Mihocheon Stream would be changed to Mihogang River. Subsequently, Chungcheongbuk-do announced that the name of the local river section would be changed to Miho River. In May 2017, the civil society decided to change the name of the Miho River, and the results of Chungcheongbuk-do's proposal to the government at the end of 2021 were derived. As the people of the basin wished, the Miho River era has begun. The Pool Dream Environment Foundation, which has led the Miho River practical cooperation activities, won the grand prize at the SBS Water Environment Awards at the end of 2022.

Chungcheongbuk-do, the 8th popular election launched in July 2022, emphasized the Lake Park Renaissance policy. The name of the Miho River project was changed to the Miho River Clear Water Project. The Miho River Basin Council proposed the operation of a consultation system to coordinate issues and discover policies. In October 2022, the Miho River Participation Cooperation Forum in Chungcheongbuk-do was launched and a roundtable meeting of 200 residents was held. The Miho River Forum discovered and proposed 38 policy tasks and 12 excellent ideas for provincial residents. Starting with the Vision Declaration Ceremony on July 19, 2023, Chungcheongbuk-do plans to implement the Miho River Clear Water Project with a total project cost of 1.7 trillion won over the next 10 years. Currently, the enactment of the Miho River Integrated Water Management Support Ordinance is being promoted to develop resident river management activities and establish a cooperative basin governance system.

3) Activity evaluation

As a result, ① It has been a continuous practical cooperation project led by the private sector for 10 years to improve the water environment. ② Various field-oriented practical programs were implemented, including the operation of the resident river management team, the Miho River Comprehensive Exploration, the Miho Jonggae Conservation Campaign, and the Miho Topia Declaration. ③ Miho River, which was placed in the blind spot of management and alienated from interest, was highlighted as a key issue in the community. ④ The name of the Miho River was changed to the river, and the Miho River clear water project was driven to open the Miho River era. ⑤ A practical cooperation system was established, such as the launch of the Miho River Basin Council and the Miho River Network. ⑥ Through the proposal and participation of the Miho River Participation Cooperation Forum, the Miho River Clear Water Basic Plan was established as a participatory plan. ⑦ With the enactment of the Miho River Integrated Water Management Support Ordinance, the possibility of institutional support for the establishment of a resident river management system was prepared. As a limitation, ㅈ ㅣㅈ ㅏㅊ ㅐ due to the lack of support from local governments, it was carried out as autonomous activities in the private sector, and there were many difficulties in developing activities. ② There is a narrow difference in perspective on the management of the Miho River basin, that is, a difference in the direction of improving the water environment and developing the basin. The implication is that ㅇㅡㄴ the experiment of cooperative basin management between the public and private sectors is just the beginning. ② For the substantial promotion of the Miho River Clear Water Project, it is necessary to promote resident-participating river management activities and establish cooperative basin governance involving various social groups.

3.5. Case (4) Chungcheongbuk-do Office of Education's Green School Creation Practice Cooperation Project - Green School to Save the Environment

1) Overview of activities

It is a school-centered public-private practical cooperation project hosted by the Chungcheongbuk-do Office of Education from 2017 to 2022 and organized by the Full Dream Environment Foundation to create a sustainable circular school that protects the environment. The project cost was supported by the Chungcheongbuk-do Office of Education, which started with 70 million won per year and was about 220 million won in 2022. Including the direct support fund for Green School, it is a large-scale project worth about 1.5 billion won. Eighteen types of practical activities were presented that matched three areas, including curriculum, facility space, and policy projects, and six areas, including water, air, ecology, energy, resources, and life. The comprehensive plan for green village development was established in 2027, and the practical cooperation project began with 30 schools in 2018 and expanded to 101 schools in 2022. As a promotion organization, the Green School Promotion Council, a governance system, was launched, and 11 city and county regional committees were also formed. In 2023, the project was terminated due to a sudden policy change by the Chungcheongbuk-do Office of Education.

2) Promotion status

In July 2014, Chungcheongbuk-do Superintendent of Education Kim Byung-woo, a former environmental activist, took office. Starting with the implementation of eco-friendly free meals, environmental policies such as the creation of school forests, the operation of the School Environment Education Promotion Council, the establishment of a comprehensive plan for school environment education, education training, and the creation of an environmental education experience center were promoted. In addition, practical cooperation activities for the creation of green schools proposed by environmental organizations were also in full swing.

In 2017, a comprehensive plan for green school creation was established and a foundation building project was promoted. This is because it was necessary to secure momentum and create conditions. The Pulgum Environment Foundation has been combined into a consignment agency. In fact, a promotion planning team was formed with various environmental organizations and environmental education experts to jointly perform tasks. It was to establish the concept of a green school, present a vision, and create a roadmap and promotion system for practical cooperation projects. The first stage of the practical cooperation project was set to five years (2018-2022), and annual promotion plans were prepared. A one-year project promotion process was presented that included recruiting participating schools, developing practical activities, and collecting activity results. A plan to establish a governance organization was also proposed. Twelve model schools that could be indicators of green schools were also discovered.

The concept of a green school was defined as a "sustainable ecological circulation school that protects the environment." The creation of green schools was defined as the environmental policy of the Chungcheongbuk-do Office of Education promoted with the participation of schools and the cooperation of local communities to discover, cultivate, and spread green schools. The vision of the project was set as 'realization of a school-centered environmental community'. The project aims to provide a pleasant and healthy educational environment, revitalize environmental education that learns and practices the values of the environment and life, realize a green society such as community development and global environment conservation, and sustainable schools with characteristics.

It was also important to prepare activity types and practice programs for green schools. The roles and functions of schools were divided into three categories: curriculum, facility space, and policy projects. The school's environmental conservation activities were divided into six areas: water environment conservation, air quality improvement, ecological restoration, resource circulation, energy conversion, and health and safety life. By combining sectors and fields, 18 categories of activity types were derived. Examples of practical programs were presented for each type of activity. The performance of the promotion was expressed in a diagram to analyze the achievement of each school, region, or entire Chungcheongbuk-do, and at the same time, it was possible to derive the direction of improvement.

The five-year practical cooperation project for green school creation was carried out as planned. In 2018, 30 schools participated, and the Green School Promotion Council was also launched. In 2019, 40 schools participated, and eco-friendly facilities schools were also included. The establishment of a regional cooperation system between cities and counties has also begun. In 2020, 62

schools participated and covered the school forest creation project. 75 schools participated in 2021 and 101 schools in 2022. Every year, activities such as selecting participating schools, conducting practice agreements, educational training, school support activities, autonomous practice activities, joint practice activities, holding a national environmental education forum, holding a green school yard and discovering best practices, and operating a promotion council and local committee.

The Green School Promotion Council will be attended by more than 200 members, including principals, experts in environmental education and related fields, officials from the organizers and cooperative agencies, and local members of the city and county. It is a governance body on a vast scale. It is a structure for schools, education offices, and communities to participate, support, and cooperate smoothly. Every month, the executive committee and the planning workshop are held. The overall project is inspected, consulted, and the roles are shared. The annual budget for 2022 is about KRW 220,000, with three full-time practitioners working.

From 2021, work began to create an upgraded version of the green school creation project. The school that has protected the environment through voluntary efforts was defined as green school 1.0. Green School 2.0 was defined as a school that has protected the environment in cooperation with the local community. Green School 3.0 was set as a future school that will become the center of the community and protect the environment. It was planned to involve all schools in Chungcheongbuk-do through the second phase of the Green School Practice Cooperation Project, which begins in 2023.

In July 2022, Superintendent Yoon Kun-young took office. Through interviews, the executives of the Pulkum Environment Foundation and the Green School Promotion Council discussed the continuous promotion and expansion of the Green School Project. However, at the end of 2022, unhealthy work was carried out around the political system and faced an unexpected situation. Since the Environmental Education Center in the Chungcheongbuk-do Office of Education has been opened, the government will stop entrusting the green school project to the private sector and directly manage it. However, the green school project was completely suspended, and the results of practical cooperation activities accumulated over the past six years collapsed.

3) Activity evaluation

As an achievement, ① A platform for practical cooperation projects covering the entire Chungcheongbuk-do was established in the field of environmental education. ② As school-centered practical activities, 18 types of practical activities were established and presented. ③ Cooperation between social environment education and school environment education was strengthened. ④ A governance system was established, such as the establishment of the Green School Promotion Council and the formation of 11 municipal and regional committees. ⑤ The budget and manpower were increased and expanded annually, and the size of participating schools continued to expand. ⑥ It has become an integrated environmental education policy that encompasses basic environmental education projects such as school forest creation projects. ⑦ It has become a representative environmental education policy and policy brand of the Chungcheongbuk-do Office of Education. As a limitation, the institutionalization of green school projects such as the enactment of the ㅈㅔㅈㅓㅇ Ordinance was not realized. ② After the local elections, the project was terminated without crossing the wall of replacing the head of the group. As an implication, ㄱㅗㅇㅇㅣㄱ For the continuous promotion of public service projects, institutional devices that can overcome political situations such as enacting ordinances are needed.

3.6. Case (5) Practical cooperation activities to reduce garbage by the power of citizens

1) Overview of activities

It is a practical cooperation project carried out by the Cheongju New Recycling Civic Center and the civil society in Cheongju from 2020 to 2023 to overcome the climate crisis and garbage crisis with citizens' power. The project cost is about 20 to 30 million won of the consignment operation cost of

the Cheongju New Recycling Civic Center. Starting with a 100-day experiment in 2020, it has expanded and developed into a 100-day garbage reduction practice in 2021, a garbage reduction civic practice group, and a garbage reduction green practice network in 2022. 157 organizations are participating in the garbage reduction green practice network, and as a joint practice campaign, Cheongju Five (5C) was recently held for clear and clean Cheongju. The platform-type practice business system was completed through annual processes such as practice agreements, simultaneous garbage picking, practice agreements, autonomous practice activities, joint practice campaigns, environmental Hanmadang, resource circulation Hanmadang, and activity case presentation competitions. Recently, it has been seeking ways to expand to practical cooperation projects with the public and the government.

2) Promotion status

In 2018, the National Resource Circulation Basic Plan was established for the first time. Nevertheless, as exports of recycled waste to China were suspended, they faced a garbage crisis. Millions of tons of garbage were accumulated in 235 locations nationwide in 2019. We tried to find a market for recycled waste in Southeast Asia, including the Philippines and Malaysia, but failed. Delivery volume and food delivery increased rapidly due to the COVID-19 incident in 2020. As a result, the amount of recycled waste generated increased by about 20%. However, the crisis of the garbage crisis intensified due to the falling unit price of recycled waste and the loss of sales channels.

Cheongju-si and Chungcheongbuk-do have household waste problems. The amount of occurrence is about 30% higher than the national average. In addition, conflicts and disputes related to private waste facilities such as incinerators in Buk-myeon, Cheongju-si are intensifying. Cheongju City entrusts household waste disposal to waste disposal companies, one of the pillars of conflict, at a cost of 5 to 7 billion won every year. It's a vicious cycle. In November 2019, the Cheongju New Recycling Civic Center was opened. In parallel with the opening ceremony, Cheongju City declared itself as a zero-trash city. In December, the Cheongju Citizens' Great Debate (round table meeting of 600 people) was held to reduce fine dust, and reducing waste such as disposable supplements was selected as the top civic practice task to reduce fine dust.

At the end of 2020, the Cheongju New Recycling Citizens' Center began to reduce waste with the power of citizens. A 100-day experiment was conducted to reduce waste. 120 households conducted a living lab for 100 days, and 21.5% of household waste reduction performance rules were derived. In the first half of 2021, a 100-day practice of reducing waste was carried out. Twelve practical promotional campaigns, including courage and courage, were conducted to spread the awareness of resource circulation around. In September 2021, a thousand civil warriors (Tsujulcheon Division) were recruited to reduce waste and an ice pack performance was carried out. 1,058 citizens signed up, and 3,500 ice packs were collected with 850 citizens' participation. Garbage out large writing performance was developed. Since then, he has run a group of used angels and continued to carry out a practice campaign. In April 2022, a simultaneous collection of "garbage picking for the Earth" was conducted. 72 institutional organizations participated and practiced picking at 54 locations. A sense of solidarity was confirmed through real-time online connection.

It was judged that more citizens needed to practice and cooperate with more institutions and organizations to overcome the climate crisis, realize resource circulation and carbon neutrality, and transition to a green society. In June 2022, the "Waste Reduction Green Action Network" was launched as a joint cooperation system for extensive citizen participation and practice. 124 institutional organizations participated in the pan-citizen green practice movement. On September 6, 2022, on Resource Circulation Day, a garbage reduction activity case presentation contest and a resource circulation yard were held. It is for sharing activity cases and discovering best practices. A forum was also held to explore the direction of waste reduction practice activities.

In 2023, picking up for Earth was promoted simultaneously at 77 locations. The number of participating organizations in the Green Practice Network has increased to 157. Currently, with Cheongju City, it is considering expanding it to a green practice cooperation project to realize carbon neutrality. The Cheongju New Recycling Civic Center is preparing to establish a Cheongju-type meta-governance system in connection with the Cheongju International Eco Complex, the Cheongju Sustainable Development Council, and the Cheongju Carbon Neutral Support Center.

3) Activity evaluation

As an achievement, ① Very timely civic practice activities were carried out in response to the crisis of the garbage crisis during the COVID-19 period. ② Starting autonomously from the bottom, basic engines were secured and civic practice projects were gradually expanded. ③ More than 1,000 citizens' practice groups were recruited and a green practice network was established in which 157 institutional organizations participated. ④ Cheongju City's central practice cooperation system and practice business platform are being rebuilt through a green practice network to reduce waste. ⑤ A clear and clean Cheongju making campaign (Cheongju Five) was proposed and a consensus was formed. ⑥ It formed the driving force of the Cheongju-type carbon-neutral pan-citizen action movement. As a limitation, there was a limit to the promotion of the project due to the limited budget and authority of the Cheongju New Recycling Citizens's Center. The implications are ① If administrative support is combined with private-led autonomous activities, it can be expanded and developed into a very active practical cooperation project. ② Beyond reducing waste, it is necessary to deepen carbon-neutral practical cooperation activities that include reducing fine dust and greenhouse gases.

4. Deriving Implications for Green Practice Cooperation Activities

The implications of the five systematic green practice cooperation activities discussed above are as follows. ① Environmental problems are expressed in the form of conflict and cooperation, and the area of cooperation is continuously expanding. ② The Chungbuk region is an area with a lot of experience and capabilities of participation and cooperation. ③ The effectiveness of governance of participation and cooperation in solving environmental problems has been proven. It is efficient to solve difficult and difficult problems through participation and cooperation, and it is necessary to change the trend rather than preventing each pending issue. ④ Overcoming the climate crisis, realizing carbon neutrality, and transition to a green society are impossible without participation and cooperation.

In addition, the directions and principles for establishing a practical cooperation system for realizing carbon neutrality are as follows. ① Social consensus (promise) on practical cooperation activities to realize carbon neutrality is needed. ② Practical activities for realizing carbon neutrality should be carried out in a governance manner. ③ It is necessary to establish a meta-governance system as a practical cooperation system for realizing carbon neutrality. ④ Meta governance should cover policy councils and action networks involving various units. ⑤ It is necessary to establish policy councils and action networks by sector, case, and region. ⑥ Platform-type practice projects should be promoted for citizen participation and practice to realize carbon neutrality. ⑦ Joint action plans and common processes should be presented. ⑧ A wide range of participation, such as villages, schools, and civic groups, and voluntary activities tailored to the conditions and characteristics should be encouraged. ⑨ Citizens and various social groups should be involved in the decision-making process. ⑩ Carbon-neutral governance is efficiently led by civil society and supported by the administrative sector. ⑪ Basic manpower and budget must be secured. ⑫ Sector-specific practical activities and comprehensive practical activities should be organically linked. ⑬ It is necessary to establish a virtuous cycle of business structure that can amplify activity by providing appropriate incentives. ⑭ Even if the head of the organization is replaced, the sustainability of the project should be secured, and institutionalization measures should be prepared for this. ⑮ It is necessary to respect differences in perspectives and start between groups and maintain comprehensive cooperation.

5. A Study on the Establishment of Carbon Neutral Practice Cooperation System in Chungbuk

5.1. Review Background

Although the Chungbuk provincial government was very diligent in the past period, it showed many limitations in terms of the environment. It was focused on economic growth, such as achieving a 4% economy. In 2016, the Chungcheongbuk-do Environmental Forest Bureau was established, and efforts were made to strengthen the foundation for eco-friendly industries such as solar and battery. In 2020, the Chungbuk-type New Deal project was quickly promoted, and results such as the designation of the Chungbuk Energy Industry Convergence Complex (Jincheon Eumseong Innovation City) were achieved.

Local elections were held in June 2022. North Chungcheong Province has elected a new governor for the first time in 12 years. Governor Kim Young-hwan of the 8th popular election highlighted the Lake Park Renaissance policy as a representative pledge. It emphasized a shift in ideas on regional development. The idea of using the natural environment and cultural heritage as the basis for regional development is positive. Nevertheless, there are also concerns that it could encourage reckless deregulation and development projects.

Environmental groups and civil society in the Chungbuk region strengthened the solidarity cooperation system by launching the Chungbuk Green Conversion Forum. It is responding by proposing 10 major policy tasks for green transformation in Chungbuk. Recently, Chungcheongbuk-do has expressed its willingness to actively talk and communicate with environmental organizations. Considering the urgency of responding to the climate crisis and changing green, there is no room. Civil society is striving to continue to expand participation and cooperation, while playing the role of criticism and checks and persuasion and traction at the same time. One of the symbolic proposals is the establishment of a practical cooperation system for realizing carbon neutrality.

5.2. An Analysis of Carbon Neutral Policy Conditions in North Chungcheong Province

Regarding the carbon neutral policy, the strengths and weaknesses of the Chungbuk region, and the opportunity and threat factors surrounding the Chungbuk region were summarized, and the promotion strategy was derived through SWOT analysis. First of all, it is necessary to aim for a green capital (Subeomdo, Subeom City) that leads carbon-neutral policies by taking advantage of the development of green conversion-related industries and the strength of having companies and facilities. Second, based on the active activities of civil society and the capabilities of provincial residents, carbon neutral promotion strategies (participatory planning, cooperative policy implementation) should be established and a meta-governance system for practical cooperation should be established. Third, it is necessary to develop a new metropolitan area cooperation system such as Chungbuk, Sejong-Daejeon-Chungnam, and seek ways to promote green mega cities in the Chungcheong region to realize carbon neutrality. Finally, it is necessary to reconsider the development strategy of development growth stocks and promote sustainable development strategies using the natural environment and cultural heritage. Carbon-neutral policies and projects that meet the needs and characteristics of Chungbuk should be discovered and promoted.

1) Strength

The strengths of the Chungbuk region are as follows. First, green conversion (carbon neutral, green new deal)-related industries have developed, and a number of related companies and facilities have moved in. IT (Ochang Science Complex), BT (Osong Life Science Complex), and Solar Industry Special Zone (Solar Valley) are located, and Smart Zero Energy City R&D Target Site and Energy Industry Convergence Complex have been designated. It is planning to create a hydrogen energy cluster. It recently attracted a radiation accelerator. LG Chem declared RE100, and SK Hynix signed an agreement with Apple for a "Clean Energy Program for Partners." Second, the active activities of civil society organizations and the ability to participate in provincial residents are mature. It has led the balanced national development and decentralization movement, and is very active in environmental movements and sustainable development governance activities. Third, it has the beautiful natural environment and cultural heritage of Cheongpung Myeongwol. The lines of Baekdudaegan Mountain Range and Hannam Geumbukjeongmaek Mountain Range and the streams of the Han River and Namhangang River combine to create a beautiful landscape, and the natural ecosystem is good. It has numerous cultural heritages such as Jikjisimcheyojeol, and eco-

friendly agriculture has also been developed. Fourth, it is located in the center of the country and is an important transportation hub in all directions. Osong Junction Station on the high-speed railway and Cheongju International Airport are located. The Gyeongbu and Jungbu Expressways pass through, and the connection of the Daejeon-Sejong-Cheongju-Cheongju Airport wide-area railway is recently being promoted.

2) Weakness

The weaknesses of Chungbuk are as follows. First, it is a small economy of less than 4%. The real GRDP is 7.4% of the land area, 3.1% of the national population, and 3.7% of the country in 2020. This is an increase from 3.04% in 2010. Second, energy independence is low. The final energy consumption is 3.0% compared to the country, 4.9% compared to the country, and 5.21% of the country's electricity independence is the lowest. The primary energy production is 2% (83% of renewable energy) compared to the country, and the level of renewable energy is 4%. Third, the lowest fertility rate is promoting an aging society. In 2019, Chungbuk's fertility rate was 0.92, the lowest since 1970. The number of births decreased by 11.8% (down 7.4% nationwide) from the previous year and ranked first in the decline rate. The aging population is rapidly accelerating. Fourth, bureaucratic administrative operations of local governments continued for a long time. Most of the heads of local governments, such as the governor of Chungcheongbuk-do and the mayor of Cheongju, were bureaucratic.

3) Opportunity

The opportunity factors of Chungbuk are as follows. First, domestic and international trends are rapidly progressing to overcome the climate crisis and transform green. It has declared carbon neutrality in 2050 and is seeking a transition to a decarbonized economic and social structure. Second, there is a great social atmosphere for the completion of the new metropolitan area. Sejong Special Self-Governing City, an administrative-centered complex city, was established in 2012, and additional relocation of the National Assembly, Cheong Wa Dae, and government ministries is under consideration. The trend of creating mega-city (special autonomous community) in the Chungcheong region is forming. Third, there is an increasing demand for decentralization and balanced development. Conditions for change are being formed due to the digital industrial revolution that promotes decentralization and dispersion. The need for decentralization is gaining justification as an alternative to overcrowding in the Seoul metropolitan area. Fourth, with the launch of the 8th popular election in Chungcheongbuk-do, local power has been reorganized, and the demand for change and innovation in the community is increasing.

4) Threat

The threat factors of Chungbuk are as follows. First, the social division has shrunk a lot since the COVID-19 infection. Chungbuk is an important transportation hub such as KTX Junction Station and Cheongju International Airport and is exposed to the risk of infection as a connection area between the metropolitan area and Yeongnam region. Second, it is facing a crisis of local extinction due to the concentration of the population in the metropolitan area. In November 2019, it increased to 50% of the population in the metropolitan area, and various military areas in Chungcheongbuk-do are in a rainy season. Third, there is a concern that green conversion policies such as carbon neutrality will shrink due to the change of state power. The retreat of the denuclearization policy, restoration of the nature of the four major rivers, and civil society consignment projects are retreating. Fourth, the threat of international peace caused by war is growing and the situation around the Korean Peninsula is unstable.

5) SWOT analysis

Strength	Weakness
- Development of industries related to green transformation and occupancy of enterprises and facilities - Active activities of civil society, participation and cooperation capabilities of Do residents - Beautiful Natural Environment and Cultural Heritage in Cheongpung Myeongwol - The center of the country, the center of transportation	- Smaller economies with less than 4% GRDP - Low energy (power) independence - Lowest birth rate, promoting an aging society - Administrative management centered on local government officials
Opportunity	**Threat**
- Domestic and international trends for green transformation (carbon neutral) - the social atmosphere of the completion of the new metropolitan area - Increasing Demand for Decentralization and Balanced Development - The 8th popular election was launched, the demand for change and innovation	- Risk of spreading COVID-19 infection - the concentration of the population in the metropolitan area and the crisis of local extinction - Concerns over the contraction of carbon neutrality policies due to regime change - the threat of peace on the Korean Peninsula caused by war

⇩

Direction of propulsion
1. Development of industries related to green transformation and utilization of strengths of companies and facilities ⇨ Towards a green capital that leads carbon-neutral policies 2. Establishing a meta-governance system for active activities in civil society and implementing carbon-neutral promotion strategies (participatory planning, cooperative policy implementation) of provincial residents' capabilities 3. New metropolitan area cooperation system such as Chungcheongbuk-do (Cheongju), Sejong-Daejeon-Chungnam, etc. ⇨ Seeking a plan to promote Green Mega City in Chungcheong-do for carbon neutrality 4. Reconsidering development strategies of development growth stocks and promoting sustainable development strategies using the natural environment and cultural heritage ⇨ Discover and promote carbon-neutral policies and projects suitable for Chungbuk's needs and characteristics

1) The Direction of Carbon-Neutral Policy in Chungbuk

The direction of carbon neutrality policy should first establish clear directions and goals. It proposes a green capital (Subumdo Island) that leads the green transformation of Korea. Second, it is necessary to establish a comprehensive plan for participatory carbon neutrality. Third, policies should be promoted cooperatively through the establishment of governance. Fourth, it is necessary to establish a carbon-neutral business platform and launch a green practice movement for all citizens.

① Clear Direction and Goal: Promoting Korea's Green Capital (Subeom Island, Subeom City)

- Chungbuk-type Carbon Neutrality: Declaring and Promoting Green Transition System (Chungbuk-do) Leading Carbon Neutrality

- Decarbonization target setting: Setting a step-by-step carbon reduction target to overcome climate (2025→2030→2050)

- Establishment of participatory plans: Establishment of participatory visions and strategies through diversification of discussion subjects, bottom-up discussions, and social consensus

- Promotion of cooperative policies: projects tailored to the needs and characteristics of the region, and implemented by community members (institutional organizations) together

- Pan-Do residents' action movement: Do residents themselves carry out various action activities for the conversion of decarbonization green

② Participatory Planning: Comprehensive Plan for Carbon Neutrality in Chungbuk

- Establishment of a comprehensive plan for the promotion of regional carbon-neutral policies: Vision, strategy, tasks, etc

- Setting Clear Carbon Reduction Goals: Transition to a Decarbonized Economic Society, 2025→2030→2050 Carbon Neutral

- A bottom-up plan based on civic participation: The subject of discussion is diversified and the structure of the bottom-up discussion

- Flexible Planning for Social Agreements: A One-Year Regional Carbon Neutral Roadmap Confirms (Supplementary)

- Two-track operation such as research service organization + consultation organization (governance)

- 1st stage (pre) principles, directions, and ideas are derived → 2nd stage (main plan) consultation to establish a full-fledged plan → 3rd stage (follow-up) concrete implementation plan

③ Promotion of Cooperative Policies: Establishment of Carbon-Neutral Governance in Chungbuk-type

- Not a centralized way, but a regionally driven way

- Projects tailored to the needs and characteristics of the region, projects promoted together by local members

- Horizontal consultative body (expert policy council + extensive practice network)

- Carbon Neutral Policy Council: Policy consultative bodies, experts by field, representatives by group, etc

- Carbon-neutral practice network: Establishment of networks by practice cooperation organization, region, sector, and case, participation in 1,000 to 2,000 communities, meetings, clubs, villages, schools, churches, organizations, industries, institutions, etc

- 1,000 discussion rooms, 1,000 ideas, 1,000 action plans, etc

④ Pan-Domin Action Movement: Establishing a carbon-neutral platform and launching a pan-Domin Action Movement (Citizens)

- Building a carbon neutral platform; a space where various activity cases are aggregated, communicated, and collaborated (website or application)

- Pan-Citizen Action Movement: Encouraging voluntary practice activities of various groups and realizing a decarbonized green transformation in living, working, and learning centers

- Promotion of platform-type action movement leading projects: methods of discovering, collecting, and spreading good activity cases, selecting and supporting best practices and institutions

2) A Plan to Establish a Practical Cooperation System for the Participation and Cooperation of Do residents

As a way to establish a practical cooperation system, it proposes the formation of a Chungbuk Provincial Council as meta-governance that combines 1,000 to 2,000 institutions and organizations. Large and small social groups, such as clubs, schools, villages, churches, community gatherings, civic groups, vocational organizations, and specialized institutions, are all targets and subjects. There is a need for a platform that participates together through regional, sector, and case-specific networks to communicate and cooperate, and spread practices for carbon neutrality. The Chungbuk Provincial Council (meta governance, horizontal council) model for carbon neutrality is as follows.

○ Action Cooperation System Overview

① Title	Chungbuk Provincial Council for Carbon Neutrality (meta governance, horizontal council) ※ Carbon Neutral: Green Transition, De-Carbon Green Transition Can Be Replaced ※ Peer Assembly: Horizontal consultative body ※ Meta-Governance: Governance of Governance
② Status	Pan-Provincial Participatory Cooperation Organization for Decarbonization Green Transformation (Horizontal Consultative Body)
③ Role	Collection and coordination of opinions by region, sector, and case in the process of decarbonization green transformation Derive regional carbon neutral ideas, engage in policy consultation and implementation The development and spread of a pan-provincial practice campaign for the conversion of decarbonized green (reducing greenhouse gas, etc.) Expansion of exchanges and cooperation for sustainable regional development and community reinforcement
④ Participating Unit	2,000 large and small institutions and organizations (1,000 Cheongju, 1,000 Cheongju, etc.) Meetings, clubs, villages, schools, religions, organizations, industrial enterprises, institutions, etc

⑤ Period	Five years (2023-2025) Preparation Phase 2023 - Establishment of infrastructure and pilot projects Implementation Phase 2024–2026 – Participation proposals, project promotion, phased expansion in the first to third years Expansion Phase 2027 - Assessment and follow-up planning
⑥ Cost required	Around KRW 500 million to KRW 1 billion per year (Chungcheongbuk-do Environmental Conservation Fund, etc.)
⑦ Operating system	Carbon Neutral Promotion Planning Group (or Steering Committee) + Policy Council + Action Network - Network by region (11 cities and counties in North Chungcheong Province) - Sector networks (industry, civil society, villages...) - Case-specific networks (energy conversion, resource circulation, air quality improvement, water environment conservation, ecological restoration...)
⑧ Major Activities	○ Establishment and Operation of the Chungbuk Provincial Council for Carbon Neutrality - Organizing councils, establishing networks (by region, sector, case) ○ Implementation and spread of pan-citizens' action movement for the transition to decarbonized green - Reducing greenhouse gases, reducing fine dust, reducing waste, etc ○ Cultivating carbon neutral leaders and conducting public relations education activities ○ Discovery and diffusion of carbon neutral best practices - launching ceremony (practice agreement), Hanmadang (activity report), etc ○ Policy cooperation activities such as carbon neutral policy monitoring - Derive and monitor policy tasks (ideas) ○ Construction and operation of a carbon-neutral platform in Chungcheongbuk-do (website, application, etc ○ Promotion of carbon neutrality practice initiatives (platform type) by year
⑨ Process	Annual implementation procedures (January to December of each year) Conclusion of an action agreement → Implementation of action activities → Sharing of activity results → Organization and evaluation

○ Process throughout the year: Implementation procedures (January to December every year) / Conclusion of practice agreements → Implementation of practice activities → Sharing of activity results → Organization and evaluation

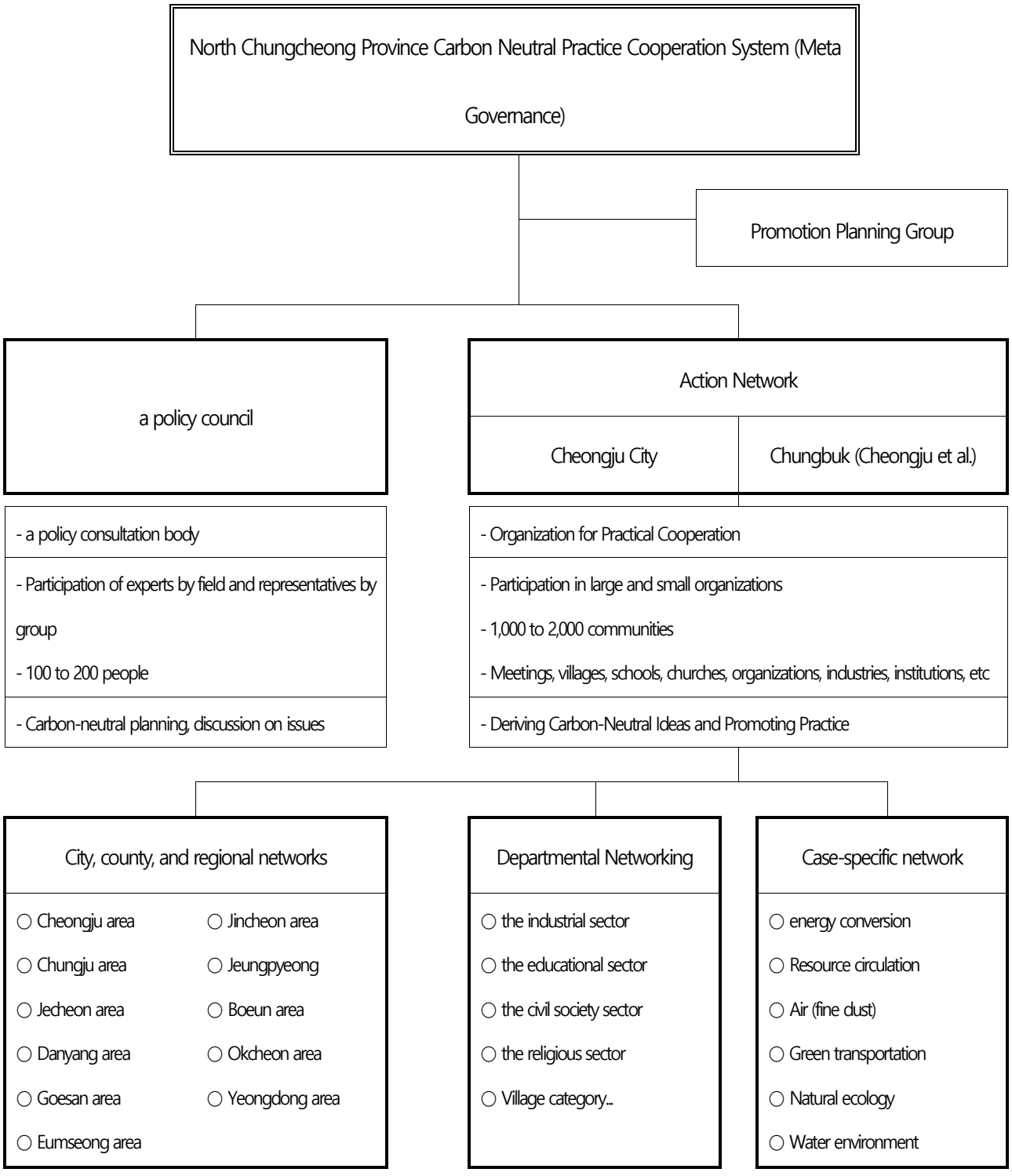
Convention stage	Practical Activity Stage	Cooperative activity stage	Organizing step
~ 3.	4. ~ 8.	8. ~ 10	11. ~ 12
- Business plan/proposal -Application for participation received - Business briefing session will be held	- Conclusion of a practice agreement - Briefing/Workshop - Training/Consulting - Joint practice activities	- Linked cooperation activities - Activity case presentation contest - Selection of best practices	- Organize activity results - Production of white paper for activities - Business evaluation/next plan

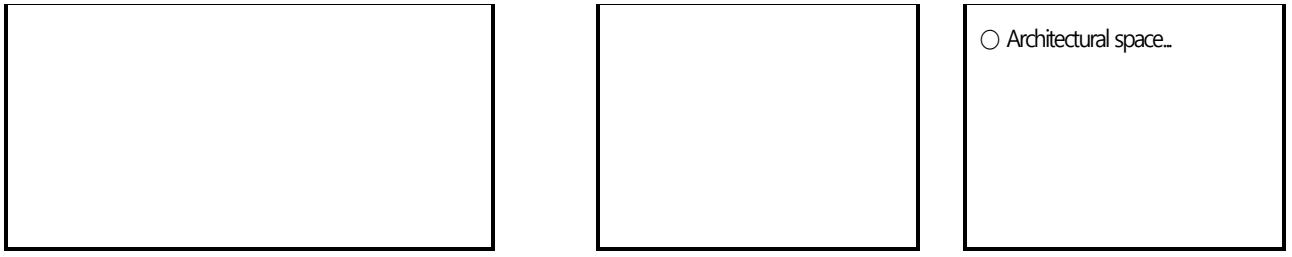
○ Step-by-step implementation plan: Annual implementation tasks from 2022 to 2026

Sortation	Year	Major task	Note
Preparation stage	2023	- Establishment of promotion planning team and implementation plan - Organization of municipal and provincial organizations (councils) - Implementation of a pilot projects	20-30 public-private industrial students Chungbuk Province, Three City Councils Collection of activity cases
The stage of promotion	2024	- Recruitment and Convention of Primary Participating Organizations - Announcement of the results of the platform project for the first year - Organization of county units (councils) - Establishment of regional networks and promotion of leading projects - Establishing a carbon neutral vision and strategy (complementation)	Goals of 500 Organizations Convention-Practice-Presentation-Selection Eight Military Councils Network by 11 cities and counties Public debate and deliberation system
	2025	- Recruitment and Convention of Secondary Participating Organizations - Promotion of Platform Business and Announcement of Results for the Second Year - Establishment of network by sector and promotion of leading industries - Evaluation and supplementation of carbon neutral transition process - City-county carbon neutrality vision and strategy (complementation)	Goals of 1000 Organizations Convention-Practice-Presentation-Selection Networking by 10 disciplines Public debate and deliberation system
	2026	- Recruitment and Convention of 3rd Participating Organizations - Promotion of Platform Business and Announcement of Results for the 3rd Year - Establishment of case-by-case network and promotion of leading projects - Evaluation and supplementation of carbon neutral transition process - Evaluation and supplementation of carbon neutrality implementation process by	Goals of 1500 Organizations Convention-Practice-Presentation-Selection 10 case-specific networks Preparation for Phase 2 Project

		city and county - First stage project evaluation and establishment of follow-up business plan	

○ Organizational system:





6. Conclusion

This study is aimed at preparing a plan to establish a practical cooperation system in Chungcheongbuk-do to realize carbon neutrality. To this end, a theoretical consideration was made on the climate environment crisis and cooperative governance to overcome it. Among the green practice cooperation activities promoted in the Chungbuk region, five cases of systematic activities were selected and the contents were examined. The results, limitations, and implications for each practical cooperation activity were derived through collection of opinions from related parties and comparative analysis. Five examples of activities are Cheongju City's Green Village Making Practice Cooperation Project, Green Capital Cheongju Making Practice Cooperation Activity, Miho River Water Environment Improvement Practice Cooperation Project, Chungcheongbuk-do Office of Education's Green School Making Practice Cooperation Project, and Citizens' Power.

The directions and principles for establishing a practical cooperation system for realizing carbon neutrality are as follows. ① Social consensus (promise) on practical cooperation activities to realize carbon neutrality is needed. ② Practical activities for realizing carbon neutrality should be carried out in a governance manner. ③ It is necessary to establish a meta-governance system as a practical cooperation system for realizing carbon neutrality. ④ Meta governance should cover policy councils and action networks involving various units. ⑤ It is necessary to establish policy councils and action networks by sector, case, and region. ⑥ Platform-type practice projects should be promoted for citizen participation and practice to realize carbon neutrality. ⑦ Joint action plans and common processes should be presented. ⑧ A wide range of participation, such as villages, schools, and civic groups, and voluntary activities tailored to the conditions and characteristics should be encouraged. ⑨ Citizens and various social groups should be involved in the decision-making process. ⑩ Carbon-neutral governance is efficiently led by civil society and supported by the administrative sector. ⑪ Basic manpower and budget must be secured. ⑫ Sector-specific practical activities and comprehensive practical activities should be organically linked. ⑬ It is necessary to establish a virtuous cycle of business structure that can amplify activity by providing appropriate incentives. ⑭ Even if the head of the organization is replaced, the sustainability of the project should be secured, and institutionalization measures should be prepared for this. ⑮ It is necessary to respect differences in perspectives and start between groups and maintain comprehensive cooperation.

Regarding the carbon neutral policy, the strengths and weaknesses of the Chungbuk region, and the opportunity and threat factors surrounding the Chungbuk region were summarized, and implications for the direction of implementation were derived through SWOT analysis. First of all, it is necessary to aim for a green capital that leads the carbon-neutral policy by taking advantage of the development of green conversion-related industries and the strength of having companies and facilities. Second, based on the active activities of civil society and the capabilities of provincial residents, carbon neutral promotion strategies (participatory planning, cooperative policy implementation) should be established and a meta-governance system for practical cooperation should be established. Third, it is necessary to develop a new metropolitan area cooperation system such as Chungbuk (Cheongju), Sejong-Daejeon-Chungnam, and seek ways to promote green mega cities in the Chungcheong region to realize carbon neutrality. Finally, it is necessary to reconsider the development strategy of development growth stocks and promote sustainable development strategies

using the natural environment and cultural heritage. Carbon-neutral policies and projects that meet the needs and characteristics of Chungbuk should be discovered and promoted.

In this study, the direction of promoting the carbon neutral policy in Chungcheongbuk-do and the plan to establish a practical cooperation system were finally presented. The direction of carbon neutrality policy should first establish clear directions and goals. It proposes a green capital (Subumdo Island) that leads the green transformation of Korea. Second, it is necessary to establish a comprehensive plan for participatory carbon neutrality. Third, policies should be promoted cooperatively through the establishment of governance. Fourth, it is necessary to establish a carbon-neutral business platform and launch a green practice movement for all citizens. As a way to establish a practical cooperation system, the formation of the Chungbuk Provincial Council was proposed as a meta-governance that combines 1,000 to 2,000 institutions and organizations. Large and small social groups, such as clubs, schools, villages, churches, community gatherings, civic groups, vocational organizations, and specialized institutions, are all targets and subjects. It is necessary to establish a business platform that participates together through regional, sector, and case-specific networks to communicate and cooperate, and spread practices for carbon neutrality.

This study is the result of comparison and analysis of five cases promoted in Chungbuk among numerous cases of practical cooperation activities. There may be limitations in research results due to the lack of use of research research techniques such as surveys, statistical analysis, and in-depth interviews. However, it was intended to supplement objectivity by reflecting the practical experience and consultation results of environmental movement and governance activities. Despite these limitations and limitations, it is meaningful in that it presented a specific plan to establish meta-governance to realize carbon neutrality. In the future, it is necessary to progress detailed research and discussion to establish a practical cooperation system by region, sector, and case. It will also be a meaningful study to explore ways to establish a meta-governance system at the national level through research on cases of practical cooperation activities promoted at the national level.

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