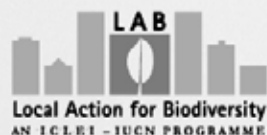


LAB-KOREA SERIES ① Ansan city



| Summary Report |

Creating a resilient city by increasing biodiversity

Ansan LAB Project 2015



Falco tinnunculus(Natural monument 323-9) at Shinhe Island, ©2009, Jung-in Choi all rights reserved

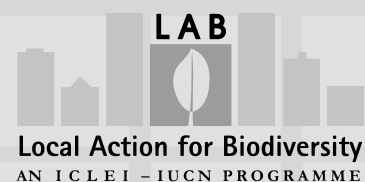


ICLEI
Local
Governments
for
Sustainability

지속가능성을 위한 세계지방정부
이클레이 한국사무소

ICLEI “Local Action for Biodiversity (LAB)” program

‘ICLEI – Local Governments for Sustainability’ is one of the world’s leading local government networks for environmental protection. It includes over 1,000 cities, towns, and metropolises of 86 countries committed to building a sustainable future.



ICLEI seeks to advance local actions aimed at sustainability. It supports local governments in using resources efficiently, in order to build low-carbon/green cities that respect and protect biodiversity, with eco-friendly and efficient infrastructure, and social equity. It also seeks to help local governments effectively respond to disasters and crises.

One of the ten core aims of ICLEI is to construct Biodiverse Cities. To advance this aim, ICLEI Cities Biodiversity Center (CBC) launched the Local Action for Biodiversity (LAB) Program in 2006. LAB Program is an action-oriented global biodiversity program and the only one with local governments as a main actor. With support from urban and biodiversity specialists, the program supports local governments in carrying out biodiversity policies and projects, building networks with other local governments and thus creating advanced biodiversity management systems.

From 2006 to 2009, 21 local governments in the world participated in the ‘pioneer projects’, which have played a significant role in making the LAB Program the success. The pioneer projects generally go through the following five steps, which are adjustable according to local conditions.

- ① Biodiversity assessment
- ② Political commitment by signing the Durban Commitment: Local Governments for Biodiversity, an international commitment to reduce biodiversity loss and improve local biodiversity management
- ③ Formulation of the Local Biodiversity Strategy and Action Plan (LBSAP)
- ④ Political approval of the LBSAP by council
- ⑤ Implementation of three biodiversity projects outlined in the LBSAP

Many of the original LAB Pioneers have signed up for the second phase of LAB, which entails a program focusing on the links between Biodiversity and Climate Change, and Biodiversity and Communication, Education and Public Awareness (CEPA). ICLEI’s CBC provides city and local governments with professional advice and a broad portfolio of supportive services such as education, promotion, and international exchange. ICLEI’s CBC also publishes materials on relevant local governments and biodiversity.

<http://cbc.iclei.org/lab-about>

ICLEI Korea Office has selected biodiversity as its strategic & political project, and launched LAB-KOREA by introducing the LAB program to fit the circumstance of Korea. The project is being promoted after the pilot operation in 2014.

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| Summary Report |

Creating a resilient city by increasing biodiversity

Ansan LAB Project 2015

1

Project summary

- 1) Background and purpose
- 2) Summary
- 3) Details of project

1 Summary

1) Background and purpose

- The Convention on Biological Diversity (CBD) and the world emphasize the importance of roles played by cities and 'Local Governments and Municipal authorities: LGMAs' on the preservation of national and global biodiversity.
 - On the written decision of the 9th Conference of Parties(COP9) for the CBD (IX/28), the role of LGMAs in supporting national performance of biodiversity has been emphasized. In the COP12 opened at Pyeongchang in 2014, a decision focusing on LGMAs was derived among 35 written decisions. In addition, 9 written decisions mentioned the performance of LGMAs.
 - After the City Biodiversity Conference was opened in Curitiba in 2007, a summit meeting of LGMAs was opened as a major co-event starting with the COP9 for the CBD (2008).
- The 17 sustainable development goals (SDGs) have selected in the United Nations Summit Conference for Development opened September 25, 2015 also include cities and biodiversity.
 - Goals 11 and 15 each contain specific objectives to create tolerant, safe, resilient and sustainable cities as well as to preserve biodiversity.
 - Substituting millennium development goals, which expire at the end of this year, sustainable development goals (SDGs) shall be promoted from 2016 to 2030 by U.N. members with political responsibility to accomplish the goals.
- Centered on the Cities Biodiversity Center (CBC), ICLEI has launched LAB in 2006.
 - As a mutual initiative on LGMAs between ICLEI and IUCN, LAB is the only international local governments partnership for local biodiversity led by LGMAs to focus on practice.
 - LAB supports the biodiversity policies and projects of LGMAs through a network among biodiversity experts and LGMAs.
- In March 2014, Korea has formed the 3rd National Biodiversity Strategies (6 strategies and 18 goals), and requests the participation and cooperation of partners including LGMAs.
 - The performance of LGMAs is important to establish and implement local biodiversity strategies and plans (LBSAP, Goal 1) and improve city biodiversity (Goal 13).
 - As of November 2015, biodiversity strategies have been established in 2 local governments (South Gyeongsang and Gangwon provinces), and are in the process of establishment in 3 local governments (North Chungcheong Province, Ulsan and Seoul). The devising of strategies is promoted mostly by metropolitan governments.
 - Through ICLEI's LAB (Local Action for Biodiversity), Gyeonggi Province set up a basic direction for its biodiversity strategies in 2014.
- Ansan has all kinds of habitats such as forests, wetlands, rivers and oceans for each type of organism, and also many protected species such as those endangered and indigenous. The city, however, also has an old national industrial complex, and the central government is leading large-

scale development projects over the long term in the area. This is feared to cause environmental pollution and threaten biodiversity.

- Nevertheless, Ansan City is promoting eco-friendly ecological policies to become "a global eco-city of the environment and culture."
 - By establishing and promoting plans such as Ansan City's Regional Environmental Plan, Basic Plan for Parks and Greens, and Local Plan for Managing Coasts and Basic Scenery Plan, the city seeks to improve the water quality of its rivers and Sihwa Lake, stimulate urban farming, create urban parks, and activate marine leisure and eco-tours.
 - Ansan is also promoting the registration of Ansan Reed Marsh, habitats of endangered birds and Daesong Complex as marsh protection area and Ramsar wetlands.
- But the organic connection among political fields and departments is still too weak to reinforce implementation for systematically and effectively conserving and managing biodiversity and eco-service, as well as to secure funds for environment.
- So Ansan is planning to reinforce its capacity to implement policies using the professionalism and network experience of ICLEI's LAB, which has been launched and operated based on global cooperation. By doing so, the city is preparing the opportunity to improve its international position as an advanced LGMA.
 - The mayor of Ansan is expressing internally and externally his will to implement the policies by introducing Ansan's policies in the summit meeting of LGMAs at the COP12 for CBD (2014). He did this by hosting an international biodiversity workshop in 2014 and making a presentation in Urban Nature 2015.
 - In Urban Nature 2015, a biodiversity forum opened as a co-event of ICLEI World Congress 2015 (Seoul) in April, the mayor of Ansan signed the Durban Commitment to announce that Ansan City will actively promote policies to increase biodiversity.
- The city planned to prepare a foundation for systematically and continuously promoting its biodiversity policies by diagnosing Ansan's biodiversity through the promotion of LAB in 2015, and seeking priority action plans for biodiversity through awareness raising workshop towards biodiversity.
- By working together with members of civic groups, Ansan Agenda21, public officials and experts in the city, Ansan planned to create an opportunity to raise understanding and motivate stakeholders to meaningfully participate so that Ansan's action plans can reflect its own needs and be implemented in accordance.

2) Summary

- ① Project : Creating a resilient city by increasing biodiversity
Ansan LAB Project
- ② Period : May ~ November 2015 (7 months)

③ Area : Ansan

④ Organization of LAB for Ansan

- Based on the framework of LAB program, ICLEI prepares the foundation for promoting biodiversity policies in Ansan and conducts practical activities to make biodiversity a mainstream policy.

〈Organization of Ansan LAB〉

Division	Details of promotion
Preparing foundation for promoting biodiversity policies in Ansan	<ul style="list-style-type: none"> • Research and Analysis on Ansan's biodiversity status • Applying CBI and proposing Ansan CBI • Deriving priority action plans
Conducting practical activities to make biodiversity mainstream policy	<ul style="list-style-type: none"> • Organizing and operating structure for discussing Ansan's biodiversity policies • Conducting projects to improve public recognition • Expanding accomplishments and global cooperation

	<ul style="list-style-type: none"> • UNESCO MAB Korean Committee • Korea Environment Policy Evaluation Research Institute • Department of Environment and Eco-engineering, Dongguk University • ICLEI Cities Biodiversity Center • National Nature Trust 	
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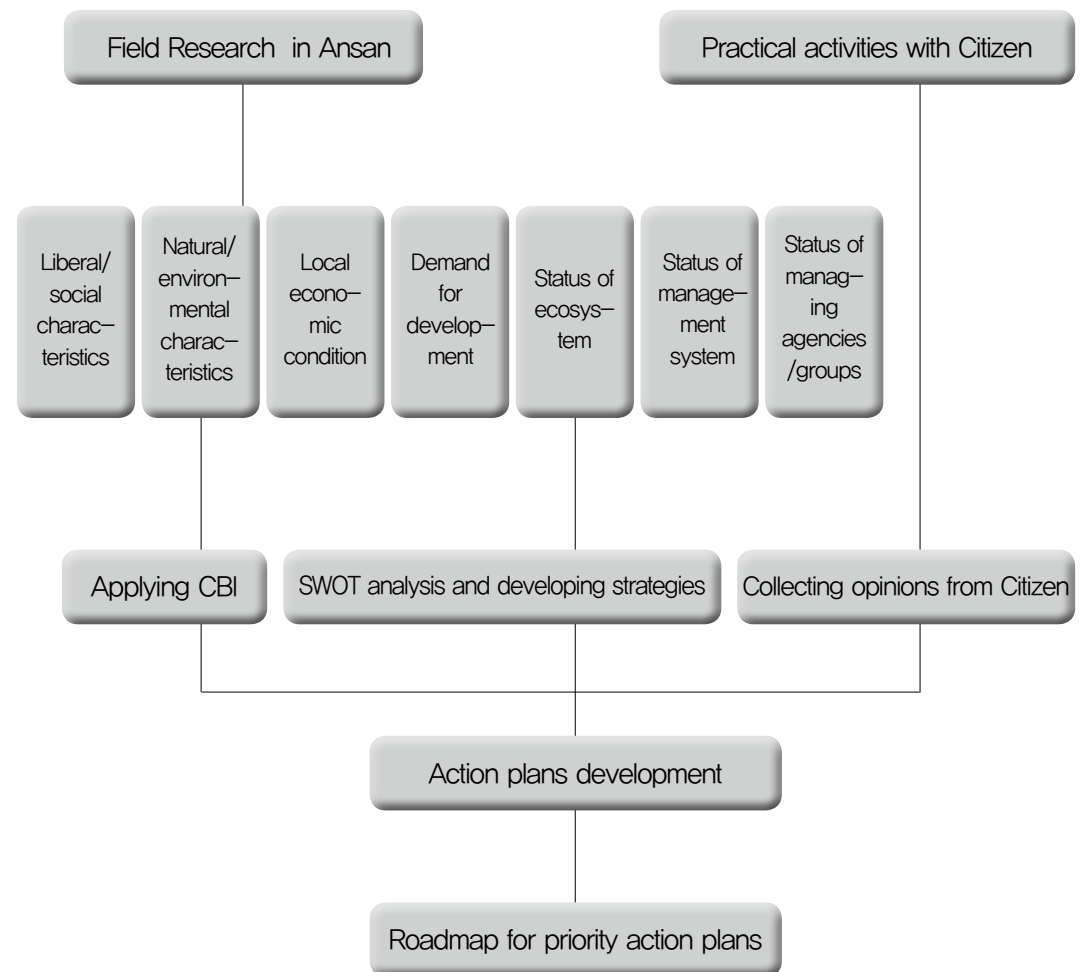
3) Details of project

- ICLEI Korea conducts the project with financial support from Ansan City. The project is being led by stakeholders such as experts and members of Ansan Evergreen Foundation.
 - ICLEI Korea works together with experts and activists to implement this project by appointing them researchers and planning and consulting members.
 - Among practical activities to make Ansan's biodiversity a mainstream policy, Ansan Evergreen Foundation co-hosted a workshop on improving recognition. Among the 3 workshops held, the 2 was hosted by the foundation, while ICLEI Korea was the co-supervisor of the workshop.
- Many Ansan-based activists and outside experts participated in promoting specific projects. The participating agencies are as follows.

〈Partner agencies of Ansan LAB〉

Implementation of project	Plan and consultation	Cooperation and participation
<ul style="list-style-type: none"> • ICLEI Korea • Marine Environment Education Center 	<ul style="list-style-type: none"> • Environmental Policy Division of Ansan City • Ansan Environment Foundation • Action Conference of Local Agenda 21 for Ansan • Sihwa Lake Saver • Ansan Green Environment Center • Ecosystem Services Partnership • Korea Institute of Ocean Science & Technology 	<ul style="list-style-type: none"> • Daebu Development Division, Daebu Ocean Tourism HQ • Residents' Association for Daebudo Eco-tourism • Daebu Guides' Society • Ansan Environment Movement Association • Ansan Local History Research Institute

- The flowchart of Ansan LAB is as follows.



Ansan LAB Project 2015

2

Progress and results of project

- 1) Preparing basis for biodiversity policies in Ansan
 - (1) Research and analysis on biodiversity of Ansan
 - (2) Proposal to apply City Biodiversity Index (CBI) to Ansan
 - (3) Deriving Ansan's action plans via SWOT analysis and CBI
- 2) Project to make Ansan's biodiversity policies mainstream trend
 - (1) Organizing and operating structure to discuss biodiversity policies in Ansan
 - (2) Project to raise public awareness
 - (3) Dissemination of accomplishment and international cooperation
- 3) Priority action plans

3

Results of project and suggestions

2 Progress and results of project

1) Preparing basis for biodiversity policies in Ansan

(1) Research and analysis on biodiversity of Ansan

① Status of Ansan

Location and area

- Located in the southwest region of Gyeonggi Province, Ansan is surrounded by low hills. It has a coastal industrial complex near the Yellow Sea and Daebu Island with beautiful natural scenery.
- The area is 149,50km², which takes up 1.47 percent of the province).



[Location of Ansan]

※ Source: Ansan City's Regional Environmental Plan (2012)

Administrative districts

- Made of 2 gu (municipal government) and 25 administrative dong (administrative unit forming Gu)
- Sangnok-gu: 13 dong
- Danwon-gu: 12 dong



[Map of administrative district of Ansan (administrative dong unit)]

※ Source: Ansan City Hall (2014). 2020 Re-establishment of Ansan Urban Basic Plan (draft)

Population

- 762,915 (as of 2014)
- Up from 686,873 to 762,915 (about 10%) between 2004 and 2013
- Marked average increase of about 0.6% over last 5 years
- Over the past 10 years, the increase in the foreign population (about 59%) was almost 10 times greater than that of Koreans (6.5%)

Land use

- 64.8% of land (149,39km²) comprised of urban areas, 35.1% (80,92km²) non-urban areas
- Ansan is home to Banwol National Industrial Complex. The southwest region of the city is occupied by the previous Banwol complex and Sihwa National Industrial Complex, constructed on the new landfill.

Climate and climate change

- Located in the midwest region between the warm southern areas and continental northern areas, Ansan shows the characteristics of midwest coastal climate.
- Statistics on Ansan's climate shows that the annual average temperature was 12.4°C for 10 years from 2000~2010. The figure was at its lowest in 2002 at 11.7°C and highest in 2006 at 12.9°C.

Biospecies

- The result of the 3rd National Natural Environment Research by the Ministry of Environment shows that Ansan is home to 471 biospecies including 10 types of mammals, 111 kinds of birds, 6 kinds of amphibians/reptiles, 24 kinds of freshwater fish and 320 kinds of plants.¹⁾
 - According to the results of the existing research, four taxa of plants listed on Gyeonggi Province's list of protected species; one taxon of mammals listed on the endangered species Class I; 16 taxa, 20 taxa and 1 taxon of birds listed as natural monuments, endangered species and Gyeonggi Province-protected species, respectively; and 3 taxa of amphibians and reptiles on the endangered species list inhabit Ansan.
- Legally protected species
 - Most protected species in Ansan can be observed at Reed Marsh, Daesong Complex and Pung Island.
 - At Reed Marsh, 11 protected species of birds (black-faced spoonbill, hawk, sparrow hawk and eagle owl), 1 mammal (wildcat) and 2 amphibians (narrow-mouthed toad and Korean golden frog) have been found.²⁾
 - At Daesong Complex, 15 natural monuments (black-faced spoonbill, stork, whooper swan and bean goose) and 12 kinds of endangered wild birds have been found.³⁾
 - On Pung Island, 11 protected species of birds (Chinese egret, hawk and yellow bunting), 1 amphibian (Korean ratsnake) and 10 wild flowers (Pung Island windflower, adonis and liverleaf) representing the island's characteristics have been found.⁴⁾

Related legislative system

- Ansan has no ordinance in accordance with the Preservation and Utilization Act of Biological Diversity.
- 22 ordinances are on the evaluation of biodiversity and preparation of an integrated management plan. They include Ansan City Ordinance of Analyzing and Evaluating the Cause of Natural Disasters, Ansan City Basic Ordinance for Low-carbon & Green Growth, Ansan City Ordinance for Protecting Local Relics, Ansan City Ordinance for Urban Planning, Ansan City Ordinance for Scenery, Ansan City Ordinance for Urban Parks and Ansan City Ordinance for Supporting the Activation of Urban Farming.
- The 7 related plans are Ansan City's Regional Environmental Plan(2011~20), General Plan for Ansan 2020 (re-established plan), Ansan General Plan for Parks and Greens 2020, 2nd Ansan Local Plan for Managing Coasts, Ansan General Scenray Plan 2020, Ansan Comprehensive Development Plan for Tourism and Ansan Vision 2025.

Related agencies and subjects of cooperation

- The 2nd Gyeonggi Provincial Arboretum and Ansan Botanical Garden are active in protecting bio-organisms.
- As subjects of private sector cooperation, 15 environmental groups are registered and active. In education on biodiversity and monitoring bio-species, Sihwa Lake Saver, Ansan YWCA, Ansan Environment Movement Association and Ansan Urban Agriculture Solidarity are active. .
- As a project of cooperating with environmental companies, Ansan Evergreen Foundation promoted the creation of a carbon-neutral forest in 2011.

1) Source: 2014 Gyeonggi-do Environment White Book p.347

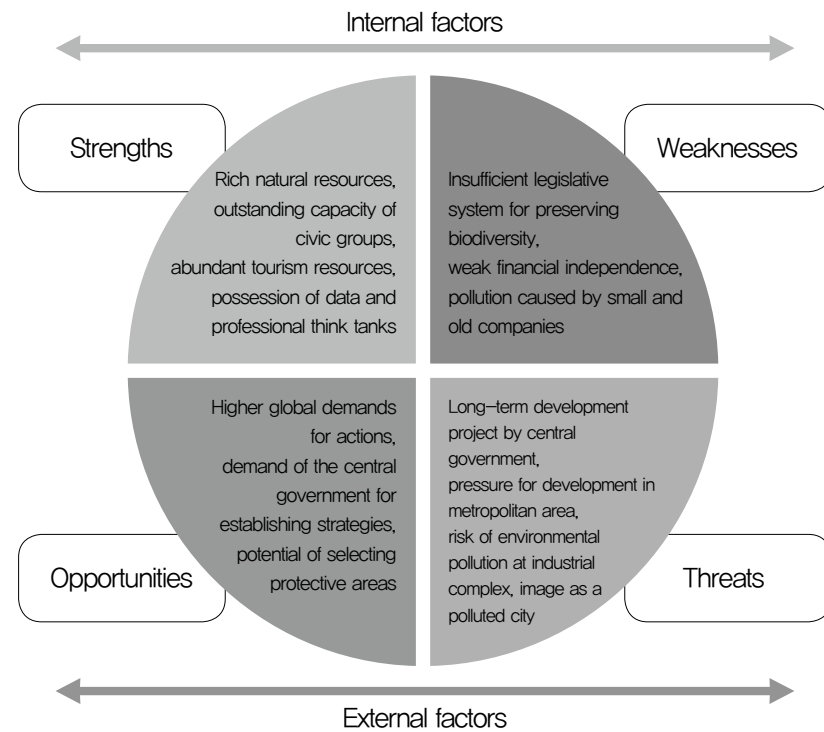
2) Source: Ansan Green Environment Center (2013), Ecological research on Ansan Reed Marsh Park

3) Source: Ansan City (2014), Research service for collecting the ecosystem and environment of Daesong Complex, Ansan City

4) Source: Ansan City (2014), 4-year Basic Plan for Municipal Operation of the 6th Government by Popular Vote (2014-2018) p.295

② SWOT analysis on Ansan's biodiversity status

The result of a SWOT analysis on Ansan's biodiversity status has showed the city has rich natural resources and outstanding capacity of civic groups. Yet the study also discovered weaknesses of an insufficient legislative system for preserving biodiversity and poor financial independence. Meanwhile, threats arise from the long-term development project by the central government, pressure for development in the metropolitan area and the risk of environmental pollution at the industrial complex. Central government's demand for establishing strategies and international demands for actions to preserve biodiversity have been analyzed as opportunities.



(2) Proposal to apply City Biodiversity Index (CBI) to Ansan

- In 2008, City Biodiversity Index (CBI) was proposed to monitor and evaluate the process and implementation of preserving biodiversity and eco-services of each city.
 - Also known as the Singapore Index, the city biodiversity index has 23 indexes.
 - CBI was developed via cooperation under a global partnership among LGMAs, Singapore, partnership among think tanks, international organizations and civic society.
 - Through 3 workshops with technological experts from 2009 to 2011, the index was tested and related manuals developed.
- Rather than focusing on comparison with other cities, CBI focuses on self-evaluation. The index was simplified based on scientific basis.
 - The 23 CBI indexes available can be revised by reflecting the specific situations of each city.
 - To propose a general picture of biodiversity that can be found inside the city, development of effective indexes is crucial to reflect the elements and characteristics of biodiversity and measure the city's efforts for actions.

- To apply the Singapore Index, an international CBI, to Korea as a part of studying measures to promote biodiversity strategies, the Ministry of Environment in 2014 proposed a recommendation for a domestic index reflecting Korea's situation.
 - The standard for applying certain indexes was revised due to the ambiguity of application standards, difficulty of selecting specific areas for applications, limit on analyzing spatial maps and insufficient data.
- If the recommendation for a domestic CBI is applied intact, difficulty ensues in calculating the results of applying the major indexes to the diversity of native species and ecosystem services.
 - Since Ansan has no ecological map of the city, it is difficult to calculate the spatial area of each classification for natural areas, artificial greens and farmland.
 - The period of monitoring bio-organisms is different for each agency and time and the scope of research is different for each area, thus review is needed of the annual change in the number of native or indigenous species.
 - The method of calculating points for the indexes is difficult to quantify, and so the quantification of evaluation is difficult. This results in limits on comparing and evaluating each year.
 - Certain items are difficult to measure due to the ambiguity of scope measured by the index or inconsistent with Ansan's status.
- Due to financial conditions, the routine development of ecological maps by cities/counties instead of metropolitan units to calculate CBI has many limits.
 - Use of alternative data that are practically collectable is inevitable, as it revision of the indexes so that calculation can be made easily by LGMAs.
- To analyze change in biodiversity appropriate for the environment and eco plans of Ansan, the index shall be revised and introduced again to reflect the city's environmental characteristics.
- Therefore, the City Biodiversity Index (CBI) for the Ansan model has been proposed in this project.
 - Revision of application standards and terms is necessary to improve the use of CBI.
 - Partial revision of the standards of applying the recommended indexes and method of point calculation was made to make the analysis more convenient based on the existing biodiversity index in Ansan.
 - The definition and clarity of terms shall be improved by partially revising the name of indexes to raise understanding of managers using the indexes.
 - Measures to improve the use of CBI were sought.
 - To boost convenience in comparison with other cities and self-evaluation, the method of calculating certain points was attempted by the original CBI to the results of Ansan despite the absence of the method in the recommendation for domestic CBI.
 - Alternative indexes for those difficult to apply were sought.
 - If limits to applying the indexes existed, a method was suggested to revise the formula while keeping the characteristics of previous indexes and standards for application.
 - If the application of indexes was practically difficult by just revising the formula, alternative indexes were sought in connection with previous indexes on related legal plans routinely established.
- The number of revised indexes proposed to measure biodiversity in Ansan was 27 in 3 fields. 4 indexes were added to the previous 23.

- Indexes considering the area and environmental characteristics of Ansan were added.
 - The shift index of the number of benthic organisms was added to bio-species considering marine ecological features.
 - For the ecosystem service, major environmental issues in the quality of river and overall water at Sihwa Lake were added, as well as cultural services to reflect the city's ecological and cultural history.

〈City biodiversity index (CBI) of Ansan and standard of evaluation〉

Category	Index	Calculation of variables	Standard of evaluation	Notes
Biodiver-sity of native species	1. Ratio of natural area within city	Natural area to be calculated by forest based on big-class level of land covering degree+wetland+waters (based on big-class level) + natural grassland+natural bare land (based on middle-class level)		Alternative exploration
	2. Ecosystem connectivity	Without ecological data on Ansan, EcoBridge Achievement Rate from Basic Green Zone Plans in Ansan is suggested based on EcoBridge project in Ansan.	TBA	Alternative exploration
	3. Biodiversity of native species within city (no. of wild birds)	No. of native birds within city and green zone, natural area excluded	TBA	
	4~8: Change in no. of naturalized species	No. of living creatures within city	〈Changes based on 2 years〉 according to changes (restoration or re-introduction) from base year 0 point: 0 species 1 point: 1 species 2 points: 2 species 3 points: 3 species 4 points: more than 4 species	Partial revision: No. of fish measured based on fishery volume
	4: Vascular plants;	4. No. of plants		
	5: Wild birds;	5. No. of birds		
	6: butterflies	6. No. of butterflies		
	7~8: (Optional family at city level: amphibians, fish, sponges, arachnids or dragonflies)	7. No. of amphibians/reptiles 8. Fishery volume of fishing industry No. of increased species (that of re-introduced species through restoration + no. of re-discovered species + no. of newly appeared species) - no. of extinct creatures		
	8A. No. of benthic organisms	No. of benthic organisms from Sihwa Lake and Daebu Island	TBA	Index added for Ansan's features
	9. Ratio of protection area	Legal protection area (m ²)/city area(m ²)	TBA	
10. Rate of introduced species	No. of invasive alien creatures from list designated by Ministry of Environment			
Ecosys-tem service	11. Quantity regulation	Without ecological data on Ansan, green infrastructure index in Ansan to be suggested to solve water cycle issues by raising percolation ratio in infrastructure in Ansan.	TBA	Alternative exploration
	11A. River water quality	Environmental standard of river (grade), annual average of investigation vertex at end of Ansan, Hwajeong, Singil & Banwol streams	TBA	Index reflecting Ansan's river features

Ecosys-tem service	11B. Water quality of Sihwa Lake	Seawater quality standard (grade), annual average of 1~6 point of Sihwa Lake from national marine environmental monitoring system	TBA	Index reflecting Sihwa Lake's features
	12. Climate regulation	Σ (area per block(m ²)*terraced tree ratio (%)/inland area within city(m ²) (sea surface excluded)	TBA	Alternative exploration
	13. Recreation	Natural area (m ²) + artificial area (m ²)/1,000 residents	0 point: <0.1ha/1,000 residents 1 point: 0.1~0.3ha/1,000 residents 2 points: 0.4~0.6ha/1,000 residents 3 points: 0.7~0.9ha/1,000 residents 4 points: >0.9ha/1,000 residents	
	14. Education service	No. of visitors from schools and youth groups making reservations to visit biodiversity venues in Ansan (prepare standard for venue selection)	TBA	Re-applicatiof international index
	14A. Cultural service	No. of storytelling development businesses based on natural resources of Ansan (yearly)	TBA	Index added to Ansan's features
Gover-nance& manage-ment	15. Budget and staff allocated for biodiversity	(Annual amount of biodiversity/city expenditures)*100 * Revised calculation: Ratio of employees in charge of biodiversity - Calculation: (no. of employees in charge of biodiversity/all staff in Ansan)*100 * No. of employees includes those at direct institutions, Ansan City Hall and business places	TBA	Applied standard and calculation revised
	16. No. of annual biodiversity projects by Ansan	No. of ongoing annual biodiversity projects of city's biodiversity plans	TBA	
	17. Policies, rules & regulations: City biodiversity strategies & action establishment	1) Formation and content of biodiversity plans in Ansan 2) No. of established biodiversity strategies in Ansan	Revised calculation method: 0 point: N/A 1 points: LBSAP not connected with NBSAP 2 points: Elements of NBSAP included with no action plan 3 points: Elements of NBSAP included with 1 to 3 action plans 4 points: Elements of NBSAP included with more than 4 action plans *NBSAP or equivalent content both available.	Index revised

Governance & management	18. No. of professional biodiversity institutions	No. of institutions with biodiversity responsibilities	1 point: 1 institution 2 points: 2 institutions 3 points: 3 institutions 4 points: > 3 institutions	Index revised
	19. No. of institutions for biodiversity in Ansan	No. of public & cooperative institutions for biodiversity in Ansan	0 point: 1 or 2 cooperative institutes 1 point: 3 cooperative institutes 2 points: 4 cooperative institutes 3 points: 5 cooperative institutes 4 points: More than 5 cooperative institutes	
	20. Evaluation of discussion & procedure of biodiversity	Discussion status of committee based on Biodiversity Ordinance in Ansan	Revised calculation method: 0 point: N/A 1 point: Official discussion procedure considered. 2 points: Official discussion procedure planned. 3 point: Official discussion procedure carried out 4 points: Official discussion procedure promoted	Index revised
	21. No. of institutions managing biodiversity activities, projects & programs	No. of city organizations, private corporations & think tanks having partnerships with Ansan on biodiversity activities	0 point: N/A 1 point: 1-6 partners 2 points: 7-12 partners 3 points: 13-19 partners 4 points: More than 20 partners	
	22. Biodiversity education in public school	Revised calculation: (no. of middle schools selecting environmental subjects in regular curriculum out of all middle schools in Ansan)*100 (Based on 2014)		
	23. Public awareness promotion activities of biodiversity	No. of yearly public awareness promotion programs for biodiversity by Ansan (prepare standards for content, no. of people in each program, duration)	0 point: No programs per year 1 point: 1-59 programs 2 points: 60-149 programs 3 points: 150-300 programs 4 points: More than 300 programs	Index revised

- Since the selection of indexes should be studied and discussed from various aspects, the indexes proposed in this project should be applied as model indexes, and the biodiversity indexes of Ansan should be developed afterwards.

(3) Devising Ansan's action plans via SWOT analysis and CBI

Based on the results of a SWOT analysis on Ansan's biodiversity status, the following tasks have been devised for the 3 major fields of the City Biodiversity Index (CBI).

		Internal factors	Strengths	Weaknesses
		External factors	<ul style="list-style-type: none"> • Various types of habitats • Abundant natural resources around coast • Outstanding capacity of civic groups • Possession of data and professional think tanks • Possession of environmental foundation 	<ul style="list-style-type: none"> • Insufficient system for preserving biodiversity • Low level of financial independence • Pollution caused by small and old companies • Severance of eco-connection paths
Opportunities (O)	<ul style="list-style-type: none"> • Higher international demand for actions to preserve biodiversity • Demand of central government to devise strategies for biodiversity • Possibility of selection as protective area 		S-O strategy	W-O strategy
			SO1. Preserving various habitats SO2. Establishing policies through public-private cooperation SO3. Reinforcing role of professional agencies and preparing measures for cooperation SO4. Improving public awareness	WO1. Preparing systems for biodiversity WO2. Selecting national protective areas WO3. Finding workplaces related to biodiversity
Threats (T)	<ul style="list-style-type: none"> • Large-scale development projects led by central government • Pressure on development inside metropolitan area • Possibility of environment pollution by national industrial complex • Negative image as polluted city 		S-T Strategy	W-T Strategy
			ST1. Assessing value of eco-service and making it mainstream policy ST2. Creating image of eco-city ST3. Stimulating eco-tourism	WT1. Restoring habitats WT2. Efforts to reduce pollution WT3. Monitoring and evaluating development plans



Preserving biodiversity resources	Restoring damaged habitats and managing them Stimulating monitoring of city's biodiversity Selecting protective areas through cooperation with private sector
Improving eco-services	Assessing value of eco-service and making it mainstream policy Creating workplaces to improve eco-service Improving public awareness of biodiversity
Setting up governance to improve biodiversity	Enacting ordinances for biodiversity and installing/operating related committees Developing and evaluating CBI for Ansan model Constructing Cities Biodiversity Center and raising expert staff

2) Project to make Ansan's biodiversity policies mainstream trend

(1) Organizing and operating structure to discuss policies for biodiversity in Ansan: Ansan LAB committee

- A planning committee was organized and operated to diagnose the status of biodiversity and discuss continuous policies to make biodiversity in Ansan a mainstream policy.
 - Centered on the subjects of activities related to biodiversity, a planning committee for Ansan's LAB project was organized. Then with the help of outside experts, the structure of discussion was substantialized through professional consulting.
 - 3 conferences were held and action committees were organized and operated for each specific content centered on the following planning members:
 - Marine Environment Education Center: President Lee Gye-suk, Jang Yu-gyeong
 - Action Conference of Local Agenda 21 for Ansan: Secretary-General Park Hee-gyeong, Chairwoman Park Seon-mi of Nature & Eco Subcommittee, Member Kim Mi-ok
 - Ansan Environment Foundation: President Shin Yoon-gwan, Chief Go Gwan of the Strategy and Planning Office, Chief Yoon Seong-wung of the Policy and Planning Team
 - Korea Institute of Ocean Science and Technology: Researcher Lee Hye-gyeong, Dr. Lee Mun-sook, Dr. Kang Seong-hyeon
 - Korea Committee of UNESCO MAB (Man and the Biosphere Program: Vice Chair Shim Suk-kyung
 - Ansan Green Environment Center: Director Oh Eun-seok
 - Environmental Policy Division, Ansan City Hall: Director Kim Nam-rim, Section Chief Cho Hyeong-seon of Nature and Ecosystem
 - Korea Environment Institute: Senior Researcher Lee Hyeon-wu
 - Department of Environment and Eco-engineering, Dongguk University professor Oh Chung-hyeon
 - Ecosystem Services Partnership: Coordinator Lee Na-mu

Organizing and operating structure to discuss policies	<ul style="list-style-type: none"> • 1st Planning Conference <ul style="list-style-type: none"> – 10:00~12:00 May 29 (Fri.), Ansan City Hall – Discussed direction of projects • 2nd Planning Conference <ul style="list-style-type: none"> – 14:00~17:00, July 16 (Thu.), Ansan Environment Foundation – Reviewed diagnosis of status and planned workshop • 3rd Planning Conference <ul style="list-style-type: none"> – 15:00~17:30, November 24 (Tue.), Ansan Environment Foundation – Discussed diagnosis of status and selected priority practical activities
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- In the 1st planning conference, planning members were organized and the scope of researching and analyzing data was set for diagnosing the biodiversity status of Ansan, Member roles were also decided.
 - Participating agencies such as the administrative body Ansan Agenda agreed to lead the collection of the city's administrative data as well as other privately led data, while Ansan Environment Foundation agreed to collect data on areas other than Gyeonggi Province.
 - Measures not only to share collected data among planning members but also to use them after the project were discussed.
 - The conference decided to open a workshop as a measure to connect and cooperate with the city government and community through the Ansan LAB Project. The in-depth workshop aims to share the details of Ansan's biodiversity status and priority plans with major members of the community, and come up with more substantial priority plans.
- At the 2nd planning conference, discussions and consultations were held on the result (draft) of researching and analyzing the biodiversity status of Ansan and diagnosing biodiversity using CBI. Major consultation opinions were as follows:
 - CBI must be considered a reliable basic framework, and the data must undergo change and adjustment to fit the characteristics of the region.
 - Through this project, the city government, researchers and people can work on creating new indexes. Among the new indexes can be those for specialized items such as Sihwa Lake and green parks.
 - The value of indexes should be used to devise plans for evaluation and judge status and trends. Indexes should be representative and simple, and reflect area characteristics and communicate with the general people. They should be utilizable, upgradable and comparable with other indexes.
 - Indexes can include common indexes and those reflecting the characteristics of Ansan.
 - Indexes may be divided into representative and supplementary.
 - Index selection must be carefully made via sufficient discussions.
- In the 3rd and final planning conference, the results of Ansan LAB Project were shared. Action plans summarized by a research team based on the proposal from the workshop were also reviewed to select priority action plans.
 - The priority action plans selected are organizing/operating committees for monitoring, improvement of awareness and biodiversity, measuring CBI and issuing reports, and promoting the construction of a Cities Biodiversity Center.
- The LAB Planning Committee organized by the project will serve as the major decision-making group to discuss and decide Ansan's biodiversity policies. The committee is expected to lead the proposed change of the city's biodiversity policies into a mainstream trend..
- When organizing additional committees as the basis organizations of the biodiversity committee derived from the action plan, participation is needed by political decision-makers and civic groups that did not participate in the project before.

(2) Project to raise public awareness

- To make biodiversity a mainstream trend, a workshop was promoted for raising public awareness on the matter.

- To continuously improve awareness, Ansan Environment Foundation selected the Open Conference as its strategic project, and planned and promoted it from the early stage of discussion.
 - Among the 3 workshops, the 1 was hosted by ICLEI while the 2 was done by Ansan Environment Foundation.
 - The workshops were held under the themes, "General Awareness of Ansan City's People on Local Biodiversity," "Daebu Island, a Key Area" and "Forest City Ansan," which is a long-term vision for sustainable development through 2030 of the 6th Ansan city government elected by popular vote.
 - Participants were divided into subgroups to discuss, present and share the results,

Project for improving public awareness	<ul style="list-style-type: none"> • 1st Open Conference (hosted by Ansan Environment Foundation) <ul style="list-style-type: none"> – 14:30~19:00, July 23 (Thu.), Guesthouse of Hanyang University ERICA Campus – Introduced status of biodiversity and Ansan CBI and collecting opinions on priority practical activities • 2nd Open Conference <ul style="list-style-type: none"> – 14:30~17:00, August 28 (Fri.), Daebu Ocean Tourism HQ – Reviewed Daebu Island as Ansan sightseeing hotspot • 3rd Open Conference (hosted by Ansan Environment Foundation) <ul style="list-style-type: none"> – 14:30, September 14 (Mon.), Guesthouse of Hanyang University ERICA Campus – Shared vision of "Forest City Ansan" and selecting priority practical activities
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- The 1st workshop focused on raising public awareness and sharing the results of projects (draft) such as analyzing the biodiversity of Ansan and strategic case studies of biodiversity in other major cities to understand public thinking about biodiversity.
 - As a result, Reed Marsh, Daebu Island and Sihwa Lake were selected major habitats, Nojeok Peak, Reed Marsh and Daebu major educational venues, and the Chinese egret and black-faced spoonbill as protected species.
 - And per the vision of biodiversity in Ansan, people imagined "Ansan, a city where biodiversity circulates," "a city with no pollution," "a community where chemical-free vegetables can be grown and enjoyed from a vegetable garden," "a city connected by eco-roads (red clay roads, bicycle paths or trails)," "a city with birds flying everywhere," "a city breathing together with the ocean – making the mudflat of Sihwa Lake like the mudflat of Walden" and "an eco-school of people."
- The 2nd workshop was held on Daebu Island, and Ansan residents who participated in the 1st conference selected the island as a major habitat and educational venue. Resident ideas were collected to select key areas of Ansan.

- The treasured habitats of Ansan selected by participants were Daesong Marsh, Sihwa Lake and Bangameori Mudflat/Seonchang Mudflat/Gubong Mudflats. Meanwhile, the treasured bio-species and bio-resources of Ansan were salt plants and birds (Chinese egret, swinhoe's snipe, oyster catcher), and the treasured educational/eco-tourism resources of Ansan were Nam4-ri and Mechuri Mudflat.
- The habitats and bio-species proposed by each subgroup (field for improving biodiversity of bio-resources) included mudflats, marsh, uca lactea, pea pebble crab and small octopus, while the proposed priority action plans included purifying the mudflats, improving public awareness, constructing infrastructure, building a resident's network and researching and analyzing bio-species. As key areas for education and eco-experiential tourism (field for sustainable development), Sihwa Lake, Eco Culture Center, Ocean Scent Theme Park, Haesol-gil, Mechuri Island, the sea route between Tan Island and Nue Island were proposed. The proposed priority action plans included using traditional fishery culture, continuous monitoring, researching and analyzing, and preparing content and infrastructure for tourism.

- The results of 3 workshops were used as basic materials to develop Ansan's priority Action Plans for Biodiversity with resident participation.
- Public participation in the process of promotion contributed to the improvement of residents' recognition toward biodiversity.

(3) Dissemination of accomplishments and international cooperation

- In Urban Nature 2015 (April, Seoul), the mayor of Ansan has signed the Durban Commitment to announce to the world that his city will strive to improve biodiversity along with 45 LGMAs around the world that also signed (as of April 2015).
- In the roundtable of high-level officials in Urban Nature 2015," the mayor of Ansan also discussed biodiversity policies with mayors and council members from around the world as a mayor leading the promotion of policies for biodiversity and water management.
- Ansan's plans and details for promoting biodiversity policies were introduced to the world.

※ "Durban Commitment: Local governments for Biodiversity" allows a LGMA to take part in a LAB program and promise internationally to conduct sustainable management of biodiversity. Since the mayors of cities participating in leading LAB projects first signed the commitment in 2008, cities including Ansan signed it at the ICLEI World Conference in April 2015. (The 5 Korean cities that signed the commitment were Seoul (2008), Ansan, Suwon, Gimpo and Inje.)



※ Urban Nature Forum is an international forum under the theme "Urban Biodiversity". It was first hosted by ICLEI Cities Biodiversity Center (CBC: Cities Biodiversity Center) at ICLEI World Conference held in Capetown, South Africa, in 2006. The forum continued to open at world conferences in 2009 (Edmonton, Canada) and 2012 (Belo Horizonte, Brazil). The forum is developing into the leading place for global discussion of biodiversity.

- Also in the 2015 Biodiversity Gangwon Forum opened to review the results of the summit of LGMA opened in the COP12 for the CBD and prepare for the next COP (Mexico 2016), the mayor of Ansan explained his city's efforts to promote policies for making biodiversity a mainstream trend in Ansan.
- The reliability of the results was increased through international consultations on the project details mostly provided by ICLEI Cities Biodiversity Center.
- Also through brochures summarizing the projects, Ansan is striving to share and expand its efforts with member LGMAs around the world.

3) Priority action plans

- Considering Ansan's biodiversity action plans as determined by the residents through 3 open conferences based on a SWOT analysis of Ansan's biodiversity status and results diagnosed by the use of CBI, specific strategies are proposed in accordance with the 3 major fields of CBI: 'Preserving biodiversity'; 'Improving eco-service'; and 'Forming governance to improve biodiversity.'
- On the preservation of biodiversity, monitoring of urban biodiversity shall be promoted while urgently selecting protective areas based on the cooperation with the private sector. Restoration and management of damaged habitats are also necessary.
- For improving eco-services, eco-tourism jointly developed with the community shall be pursued while supporting the creation of eco-service workplaces for youths, just like the case of urban agriculture in Montreal. Development of a storytelling method for biodiversity is also necessary.
- For forming biodiversity governance, biodiversity ordinances shall be enacted while establishing biodiversity committees and developing and evaluating a CBI fitting the area's characteristics. Also important is to set up exclusive organizations such as biodiversity centers to foster professional staff.

〈Strategies for each field〉

Field	Strategic goals
Preserving biodiversity	Restoring and managing damaged habitats Stimulating monitoring of urban biodiversity Selecting protective areas based on cooperation with private sector
Improving eco-service	Assessing value of eco-service and making it mainstream trend Creating workplaces to improve eco-service Improving public awareness of biodiversity
Forming governance to improve biodiversity	Enacting biodiversity ordinances and installing/operating related committees Developing and evaluating Ansan CBI Constructing Cities Biodiversity Center together with residents

(1) List of action plans

Field	Action plan	Managing department and agency
Preserving biodiversity	1-1. Managing and restoring habitats	Environment Department, City Department
	1-2. Connecting severed ecosystem	Greenery Department
	1-3. Selecting protective areas based on cooperation between public and private sectors	Environment Department, Fishery Department
	1-4. Preparing measures to improve biodiversity on Pung Island	Environment Department, Green Energy Department, Fishery Department
	1-5. Sihwa Lake Trust Movement	Committees/Ansan Environment Foundation
	1-6. Researching and analyzing bio-resources	Environment Department, Greenery Department, Fishery Department
	1-7. Citizen Monitoring	Environment Department, Greenery Department, Fishery Department
	1-8. Establishing DB for biospecies monitoring and developing homepage	Environment Department
Improving eco-service	2-1. Preparing measures to evaluate PES and make it mainstream trend	Environment Department, Greenery Department, Fishery Department
	2-2. Developing eco-tourism together with community	Tourism Division
	2-3. Creating urban agriculture work places for youths	Agricultural Technology Center
	2-4. Training urban forests managers and operation	Greenery Department
	2-5. Developing storytelling methods for biodiversity	All departments
	2-6. Making PR materials	All departments
	2-7. Projects for improving awareness toward biodiversity	Environment Department
Forming governance to improve biodiversity	3-1. Organizing biodiversity committees	Environment Department
	3-2. Reporting sessions for residents on biodiversity	Committees/Environment Department
	3-3. Enacting ordinances	Committees
	3-4. Measuring CBI and issuing reports	Committees/Environment Department
	3-5. Conducting promotions and pursuing international cooperation	Committees/Environment Department
	3-6. Promoting construction of Cities Biodiversity Center	Committees/Environment Department

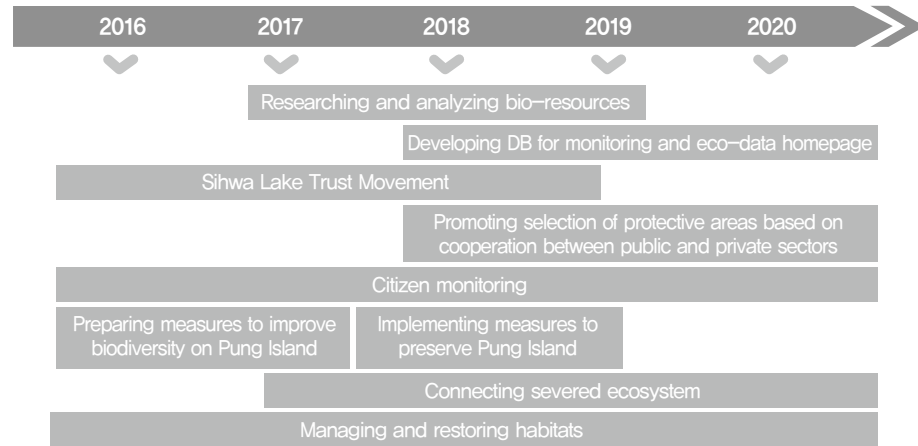
(2) Roadmap for each field

① Preservation of biodiversity

- Action plans for preservation of biodiversity include managing and restoring habitats, connecting the severed ecosystem, selecting protective areas based on cooperation between the public and private sectors (reviewing agreements for preservation), preparing and implementing measures to improve biodiversity on Pung Island, launching the Sihwa Lake Trust Movement, regularly researching and analyzing bio-resources, promoting resident monitoring, establishing a database for bio-monitoring, and setting up and running a homepage.
- Actions plans for preservation of biodiversity are mostly long term in scope and require continuous implementation.

- As the plans for this field are fundamental to develop the basic strength of biodiversity in Ansan, they shall be fully implemented in a stable manner.
- To systematically carry out the bio-resource analysis, setup of a resident-monitoring database and setup of a homepage, elaborate design of the project is needed to raise efficiency.

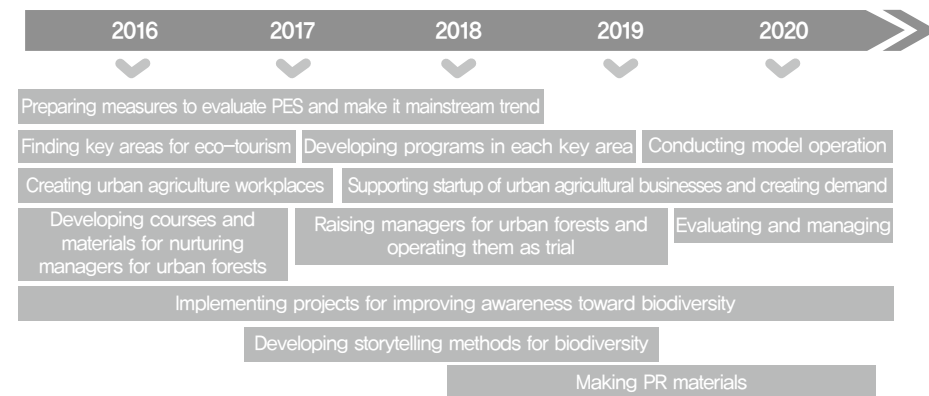
► Preservation of biodiversity



② Improving eco-service

- Action plans for improving eco-service include preparing measures to evaluate PES and make it a mainstream trend, jointly developing eco-tourism with the community, creating urban agriculture workplaces for youths, training managers for urban forests and operating the latter, developing storytelling methods for biodiversity, making PR materials and implementing projects for improving awareness toward biodiversity (Bioblitz).
- As the plans for this field are participated in and operated by many divisions and organizations, a measure shall be prepared to make communication and cooperation among subjects smooth.
- When plans with various aspects are implemented, intermediate assessment is necessary so that the original purpose of "improving eco-service" is not lost over time. The results of such assessment shall also be reflected for circulatory management.

► Improving eco-service

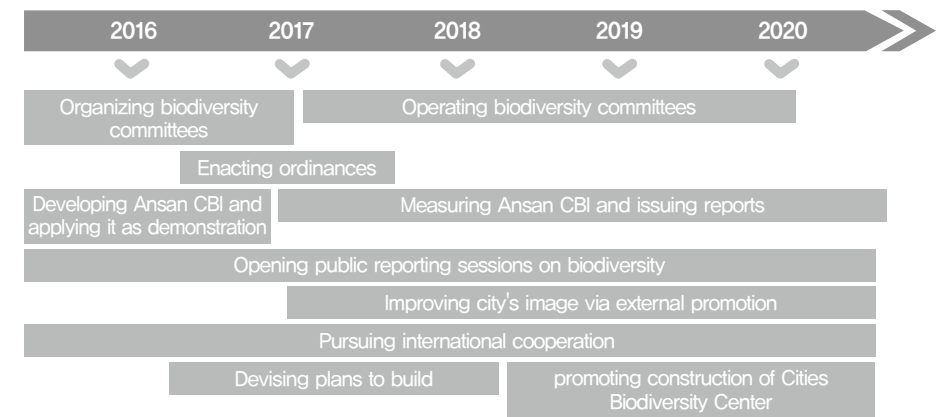


- To do this, the assessment of PES (payments for ecosystem service) and the operation of projects to make PES a mainstream policy shall be conducted with urgency.
- Developing storytelling methods for biodiversity, making PR materials and implementing projects for raising awareness of biodiversity can be used for the homepage.

③ Setup of governance to improve biodiversity

- Action plans for setup of governance to improve biodiversity include organizing biodiversity committees, opening reporting sessions for the public on biodiversity, enacting ordinances, measuring CBI and issuing reports, conducting promotions and pursuing international cooperation, and promoting the construction of Cities Biodiversity Center.
- As the plans for this field are the basis of all other plans and can be the means of evaluation and monitoring, initial preparation and structural contents are crucial.
- As the plans for this field are connected to each other, considerations shall be made on the time for starting each project, connection among projects and proper allocation of time.
- Action plans for the setup of governance to improve biodiversity include basic and essential projects; this procedure should be run to serve as the means for creating mainstream biodiversity policies and raising public awareness of biodiversity.
- Participation of a variety of parties such as expert and specialized agencies, civic groups, businesses, residents, youths and offices of education as well as the city government are required in governance to improve biodiversity.

► Setup of governance to improve biodiversity



(3) Priority action plans

- Among the 21 action plans in the 3 fields, 6 priority action plans were prepared by the research team after reflecting resident opinions.
 - Preparing measures to improve biodiversity on Pung Island
 - Researching and analyzing bio-resources
 - Creating urban agriculture workplaces for youths
 - Promoting construction of Cities Biodiversity Center
 - Measuring CBI and issuing reports
 - Enacting biodiversity ordinances and operating biodiversity committees

3 Results of project and suggestions

- The 3-year process of ICLEI LAB is divided into the 5 stages of evaluating biodiversity, signing the Durban Commitment, establishing and approving LBSAP, and implementing 3 practical activities. ICLEI Korea, however, introduced ICLEI LAB after revising it to fit the characteristics of each region and launched a model project in 2014. This year, Ansan has promoted the project for the first time in Korea.
 - In 2014, the pilot LAB projects of Gyeonggi Province were promoted by evaluating biodiversity, suggesting the basic direction of local biodiversity strategy and implementing 2 model practical activities. One of the model practical activities was "Marsh Protection Area Created Together with Citizens" promoted for Sihwa Lake.
 - This year, Ansan has put forth efforts to continue the project by leading practical activities such as Bioblitz, which was promoted last year by Gyeonggi Province as a LAB project.
- For the first time among municipal governments, Ansan City independently has promoted LAB projects to prepare an opportunity to implement biodiversity policies more systematically.
- Ansan's LAB project has improved the public awareness toward biodiversity and has been promoted based on civic participation. For example, the priority action plans were finalized after the opinions of residents have been collected.
- Prospects are bright as community members who will make biodiversity policies of Ansan a mainstream trend actively participated in overall projects.
- The accomplishments of Ansan's LAB projects will serve as a model for other LGMAs trying to promote biodiversity policies.
- The following is suggested as post-projects for Ansan's LAB projects:
 - Active implementation of priority action plans: Preparing measures to improve biodiversity in Pungdo Island, researching and analyzing bio-resources, creating work places for youths related to urban agriculture, promoting the construction of Cities Biodiversity Center, measuring CBI and issuing reports, enacting ordinances related to biodiversity, and operating biodiversity committees.
 - Organizing and operating Ansan Biodiversity Committee (tentative name), which was proposed as a priority action plan, to prepare a continuous system of promoting policies
 - Building an integrated management system by developing Ansan CBI and evaluating it