Assessment of the extension of activities for the reintroduction of Oriental white storks

The “Hyogo Toyooka Model”, which promotes local communities living in co-existence with Oriental white storks

Investigation Committee on the Reintroduction of Oriental White Storks

About this assessment project

Activities for the “Reintroduction of the Oriental white storks” , which is Japan's first case of the reintroduction of an animal that has become extinct in this country, have been developed in Toyooka City and the surrounding area (hereinafter referred to as the Toyooka region). Besides the Hyogo Prefectural University specialized institution for storks called the Hyogo Park of the Oriental White Stork that leads the activities, government actors, community residents, and companies in various fields have worked together to develop these activities, which have made it possible for over 70 Oriental white storks to inhabit the area in the wild as of 2013.

The aim of this project is to contribute to the progress of future activities including the extension of these activities to other areas. A third-party committee will consist of six government agencies that are deeply involved in these activities (Agency for Cultural Affairs, Ministry of Land, Infrastructure, Transport and Tourism, Ministry of Agriculture, Forestry and Fisheries, Ministry of the Environment, Hyogo Prefecture, and Toyooka City) and will become cooperating partners to assess the process of the progress of these activities at this time from the viewpoint of public measures and to clarify various issues.

Contents of this document

In this document, the process and mechanism used in the extension of the activities is analyzed, by reviewing past activities carried out in the Toyooka region for the creation of local communities living in co-existence with the Oriental white storks.
In addition, the progress of the activities is evaluated to clarify the current issues, and the features of the mechanism for the expansion of activities carried out in the Toyooka region have been classified, reviewed and then compiled as the “Hyogo Toyooka Model”.

Introduction

In conducting the assessment of the activities for the reintroduction of Oriental white storks, history of the activities, summary of the current status, and purposes, targets, methods, and summary of results of the assessment are given at the beginning.

1. Background and development of the activities
"The Oriental white stork, which is both an auspicious bird* and also causes harm to crops, and the Maruyama River, which causes both floods and gives natural blessings"

- In the Toyooka region, "living with nature" activities have been organized over the years which are accompanied by the fact that the region is at the mercy of harsh natural conditions such as the flooding of the Maruyama River, etc., but which is sometimes used for practical purposes (e.g. making of wicker baskets using Salix integra, a species of willow that inhabits the wetlands along the river, etc.).
- A bird called the Oriental white stork, which used to inhabit the region in large numbers, is also a symbol of this region that places importance on co-existence with nature, although there were contradictions in this relationship (Oriental white storks are considered a harmful bird because they sometimes trample on seedlings in the rice fields, as well as being an auspicious bird that at the same time is loved for its graceful appearance).
- However, during the course of modernization and the pursuit of economic growth and improvements in convenience, people and nature have become less involved with each other and the number of Oriental white storks in the Toyooka region, the last surviving storks in Japan, declined rapidly after the war. They were designated a special national treasure in 1956 and disappeared from the wild in 1971.
- In the Toyooka region, a systematic conservation movement has been implemented jointly by the public and private sectors since 1955, artificial incubation was started by Hyogo prefecture in 1965, and a research institution established in the University of Hyogo called the "Hyogo Park of the Oriental White Stork" was opened in 1999. In this way, activities for the protection, breeding, and reintroduction of Oriental white storks have been promoted for more than half a century based on the efforts of the people in local communities.
- Since 2005, the release of Oriental white storks into the wild has been implemented on a trial basis by the Hyogo Park of the Oriental White Stork. Activities for the reintroduction of Oriental white storks in the Toyooka region have developed significantly through the stages of its disappearance in the wild, protection and breeding, reintroduction, and local community involvement (along with the strengthening of these communities).
- The reintroduction of Oriental white storks is an activity that has no precedent in the world in which birds have been reintroduced once they disappeared from areas of human habitation. In order to reintroduce Oriental white storks to areas of human habitation, it was necessary for the residents of these communities to accept them, understand the importance of creating local communities where people and Oriental white storks can live together, and promote cooperative activities among the communities.

* Auspicious bird: A bird that is said to be a sign of an auspicious event

Location of Toyooka City and the surrounding area


Maruyama River and the urban area of Toyooka

2. Current status of the progress of the activities
"Success of the structural design through collaboration among scientists, governments, and the regional society"

- A major feature of activities in the Toyooka region is that collaboration among (1) the scientists concerned with Oriental white storks, (2) the local governments, and (3) the regional society (communities) became the driving force for the expansion of the activities.
- The "Governments" sincerely accepted requests from the "Scientists" concerning Oriental white storks and have developed technologies and measures that can be adopted by the "Community", by taking various situations into consideration. In addition, against the background of the regional climate (geography, history/culture, nature, disasters, human modifications, etc.), it can be considered that the "Community" understood the knowledge provided by the "Scientists" concerning Oriental white storks and developed various cultural and social activities for community revitalization.
- The progress of these activities varies depending on the field, target, and contents. They have not always progressed well; however, the progress has been steady. For example, the area of wetlands along the Maruyama River has increased (approx. 127 ha as of 2012) with a target of 154 ha, which was the size of the area of wetlands around 1930. In the field of agriculture, "Stork Friendly Farming", which is a typical form of organic farming aimed at creating an environment that Oriental white storks can safely inhabit, has been expanded to approximately 8.8% of the area of rice paddies in Toyooka City as of 2012. Moreover, Oriental white storks have become adopted into the regional society, such as by displaying their image on signs and use of the name or image as part of the name of a product or a shop.
- While these various activities have expanded, other targets that could not be achieved through the past activities and issues caused by the progress of these activities have been clarified.

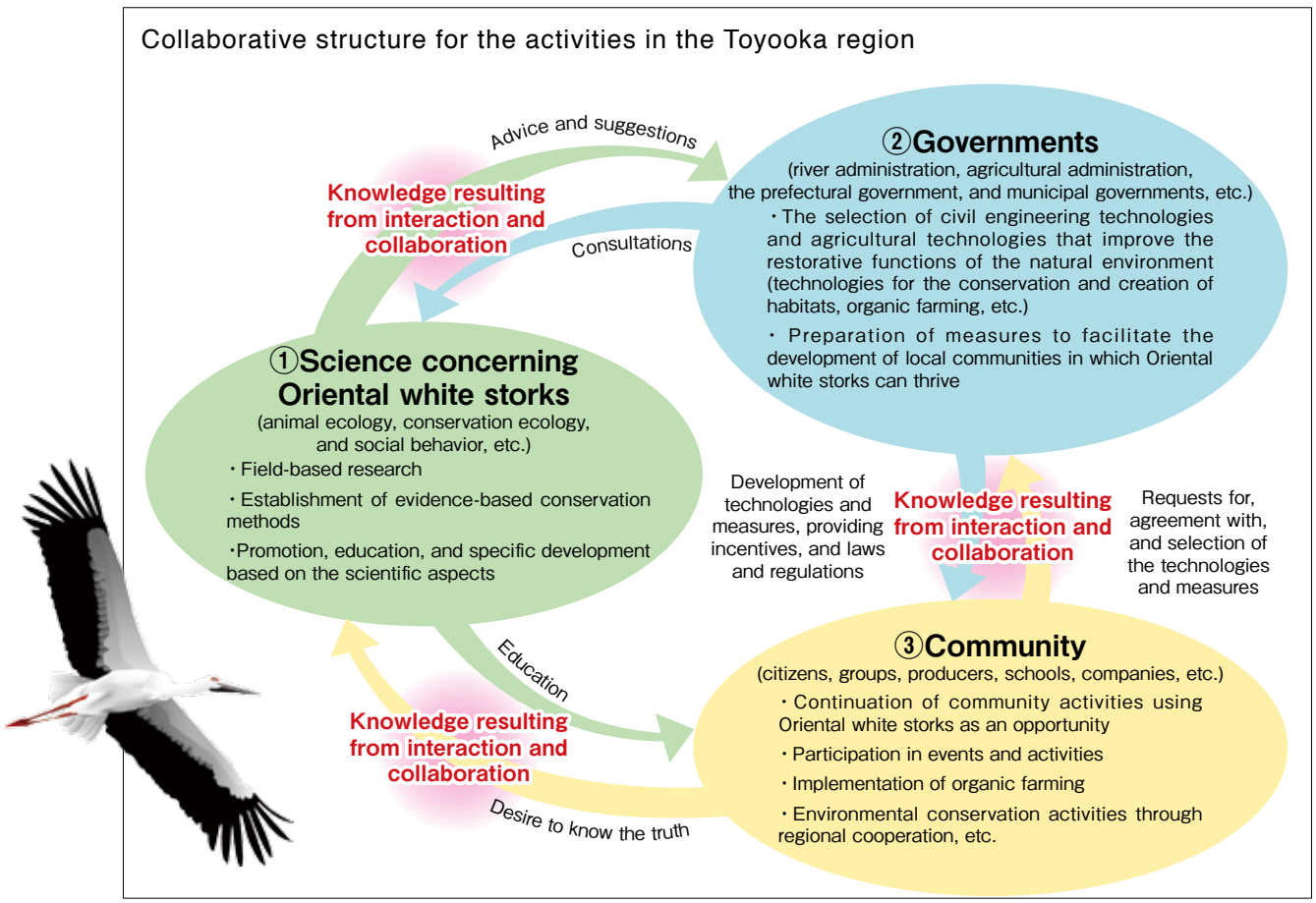


Figure: Overview image of the structure to support the development of activities for the reintroduction of Oriental white storks in the Toyooka region

3. Purpose of the assessment
"Further progress of the activities in this region and use of the activities for the promotion of similar activities in other regions"

- The purpose of this assessment is to contribute to the following activities by reviewing past activities carried out in the Toyooka region and analyzing the processes and mechanisms of how they have been expanded with the involvement of many people, with the focus on representative areas of activities for the reintroduction of Oriental white storks.

(1) Further promotion will be made for developing local communities where Oriental white storks can thrive by identifying issues from the current status of the activities and clarifying the future direction.
(2) It is expected that these activities will be used for the promotion of similar activities carried out in other regions.

- Based on the assessment, the features of the mechanisms for the expansion of activities to create local communities living in co-existence with Oriental white storks carried out in the Toyooka region through cooperation among various actors are classified and compiled as the "Hyogo Toyooka Model".

4. Scope of the assessment
"Public measures (rivers, agriculture, and community) are the target."

- In this project, the expansion and progress of public measures taken in the fields of rivers, agriculture, and community, which are the representative fields of these activities, will be assessed as the targets. Therefore, activities carried out in scientific fields will not be assessed regarding their scientific aspects.
On the other hand, since these scientific fields are the core of activities for Oriental white storks carried out in the Toyooka region, issues and directions for the "creation of local communities living in co-existence with Oriental white storks" related to scientific fields will also be classified.

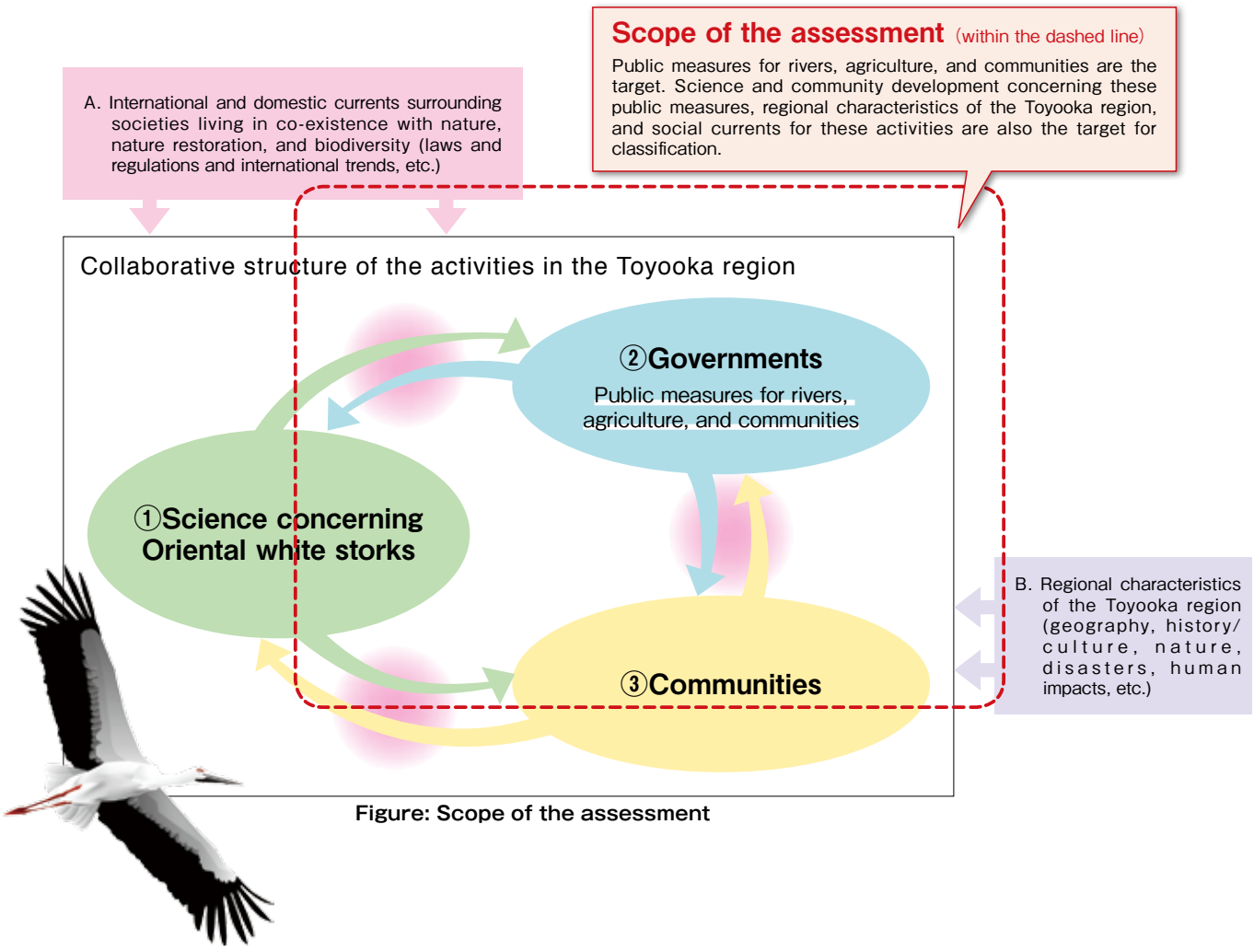


Figure: Scope of the assessment

5. Assessment method
Analysis focusing on the "cycle of sympathy for living in this region"

i) Analysis

- It can be considered that the presence of Oriental white storks as a symbol has had a huge effect on the development of activities for creating local communities living in co-existence with nature carried out in the Toyooka region. However, it is not enough to analyze the causes of such development. Therefore, we tried to perform an analysis focusing on "sympathy" as the axis of the evaluation.

- As perspectives (survival principles) by which people confirm their existence and seek a better life, it is said that they include the "love of animals and nature (Biophilia*1)" (hereinafter referred to as the "love of living creatures") and the "love of the hometown (Topophilia*2)". It is also said that people take action to seek stability if their minds are destabilized.

- For people in the Toyooka region who have lived under the imperative to prepare for "Overcoming disasters*3", a breakdown in the relationships between people and nature and the disappearance of Oriental white storks, which symbolized such a breakdown, must have caused a sense of anxiety about living in this region.
- As the background to the progress of activities for the reintroduction of Oriental white storks, it can be considered that there is a factor of ensuring stability orientation based on the "desire for a stable life" (economic stability) in addition to stability orientation based on the "love of living creatures" and "love of the hometown", and the activities have expanded through a reinforcing cycle of sympathy as a result.
- Moreover, it is considered that this cycle of sympathy has enabled people involved in the activities to rediscover a feeling of satisfaction and happiness with their lives and identification with life in Toyooka.
- Based on this, the love of living creatures, love of the hometown, and the desire for a stable life are expressed as the "survival/existence principle", and this principle is regarded as the prime indicator of the analysis.

<<Points of sympathy for seeking a better life>>

(1) Love of living creatures = Biophilia
(Love of nature symbolized by Oriental white storks)

(2) Love of the hometown = Topophilia
(Love of a place "Toyooka")

(3) Desire for a stable life

- In this project, an analysis designed for the expansion of the activities will be conducted by examining numerical determining factors in relation to the activities from the viewpoint of what a better survival/existence principle is, and conducting interviews with concerned people about the expansion of and their connection with the activities.

*1: Advocated by Edward Wilson (1929-, U.S.A., sociobiology) and others. Affinity for animals and nature
*2: A concept advocated by Yi-Fu Tuan (1930-, U.S.A., geography). Love of a place
*3: To live in a region with the help of the forces of nature in preparation for disasters

ii) Evaluation

By evaluating the progress of the activities in each representative field, the remaining current issues, additional identified issues, and the future direction (over about the next 10 years) for creating local communities living in co-existence with Oriental white storks will be determined.

In addition, based on the Aichi Biodiversity Targets (20 individual targets) (CBD-COP*10, Aichi, October 2010) which are action plans to be implemented by 2020 towards the realization of "a world living in co-existence with nature" by 2050, the future direction of the activities will be determined by evaluating the progress of public measures carried out by the government agencies related to the Toyooka region in comparison with the Aichi Biodiversity Targets, in order to promote further activities to stimulate the implementation of activities to create local communities living in co-existence with nature.

* Conference of the Parties to the Convention on Biological Diversity

Note: extracted from the website of Machida City, Tokyo

Exchange project for environmental greening between Yamamoto-cho, Watari-gun, Miyagi (an area affected by the Great East Japan Earthquake) and Machida City, Tokyo

Note: extracted from the website of Chikuma City

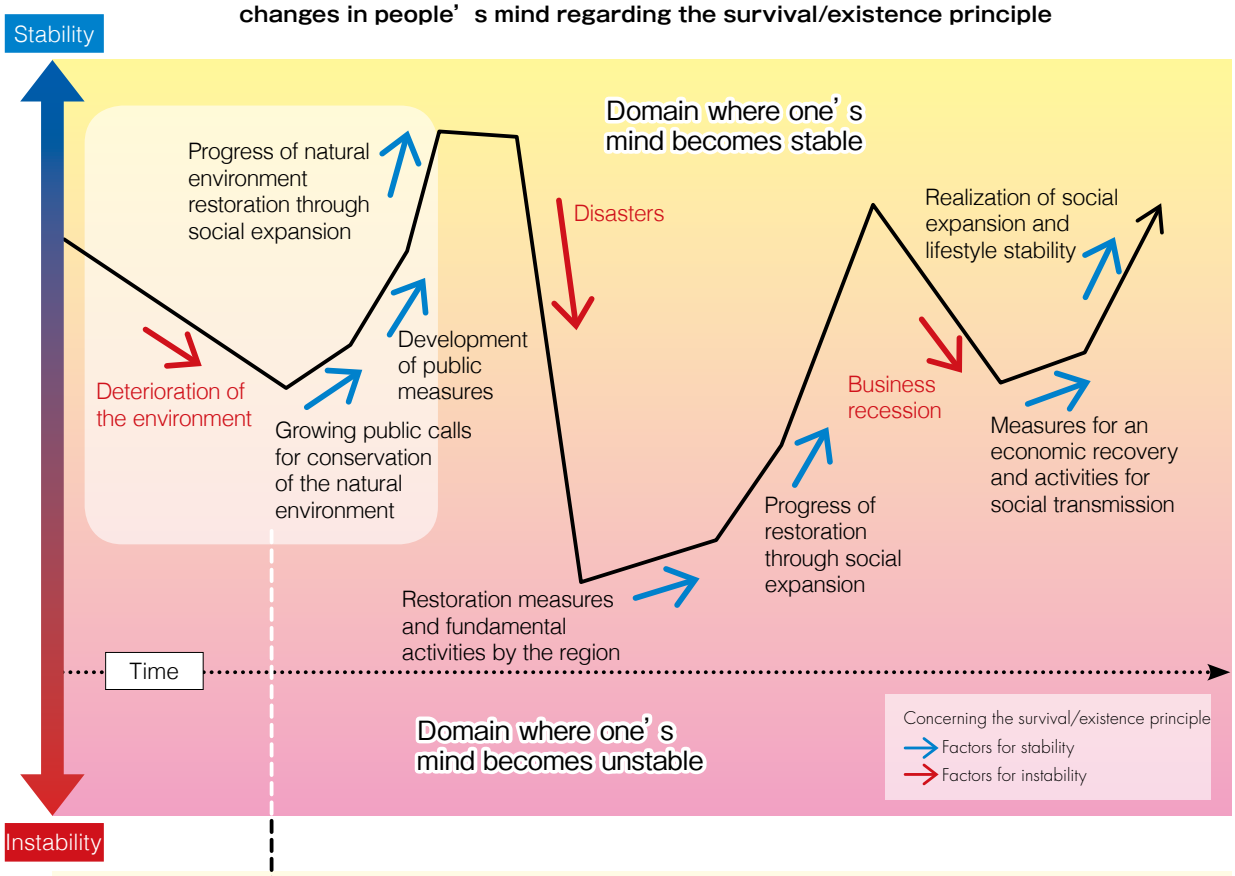
Conservation of an important cultural landscape (cultural property), and a rice terrace in Obasute, Chikuma City

Note: Provided by Toyooka City

Revitalization of the regional economy using the regional characteristics

Examples of activities for the stability of a better survival/existence principle

Figure: Image of the relationship between efforts and changes in people's mind regarding the survival/existence principle



Analysis methodology used in this project

[Analysis]

- Analyze the relationship between numerical changes and factors affecting the stability/instability of the activities.
- Analyze the structural connections among the actors from specific examples of the activities and identify other connection factors (challenges and exchanges, etc.).

Features of the requirements for the progress of activities that emerged from the analysis

→ **Hyogo Toyooka Model**

6. Outline of assessment results
Analysis focusing on the "cycle of sympathy for living in this region"

In this document, activities carried out in the Toyooka region and the expansion of these activities were classified and assessed according to the processes of the 5 chapters. An outline of each of these is given below.
In addition, based on the assessment results, "recommendations for the further development of the activities" are summarized for the Investigation Committee on the Reintroduction of Oriental White Storks (described in Chapter 6).

[Chapter 1: Background to the activities]
In addition to the regional characteristics such as the geography, history/culture, nature, disasters, industry, etc., it is considered that communities formed through a lifestyle facing the natural environment of the Toyooka region have had a great impact on the progress of the activities to create local communities living in co-existence with Oriental white storks carried out in the Toyooka region. Therefore, the background to the progress of the activities was classified.

[Chapter 2: Classification of the activity results]
The development and results of activities carried out in the representative fields (rivers, agriculture, and communities) were classified. Regarding the background of activities in each field, events that have an impact on the region (e.g. flooding of the Maruyama River, etc.), social trends for nature restoration, and the time relationship with the related laws and regulations were described.
In addition, the future direction was examined by carrying out self-inspection of the activities in each representative field by the concerned government agencies and identifying the current remaining issues and the additional issues that were revealed.

[Chapter 3: Analysis of the activities]
Key points of the expansion and connection of the activities in the representative fields were extracted by analyzing them from the viewpoint of "sympathy for the love of living creatures, love of the hometown, and the desire for a stable life". The key points could be divided into 4 processes, "awareness", "sharing of a future image", "transition to a social movement", and the "cycle of sympathy".

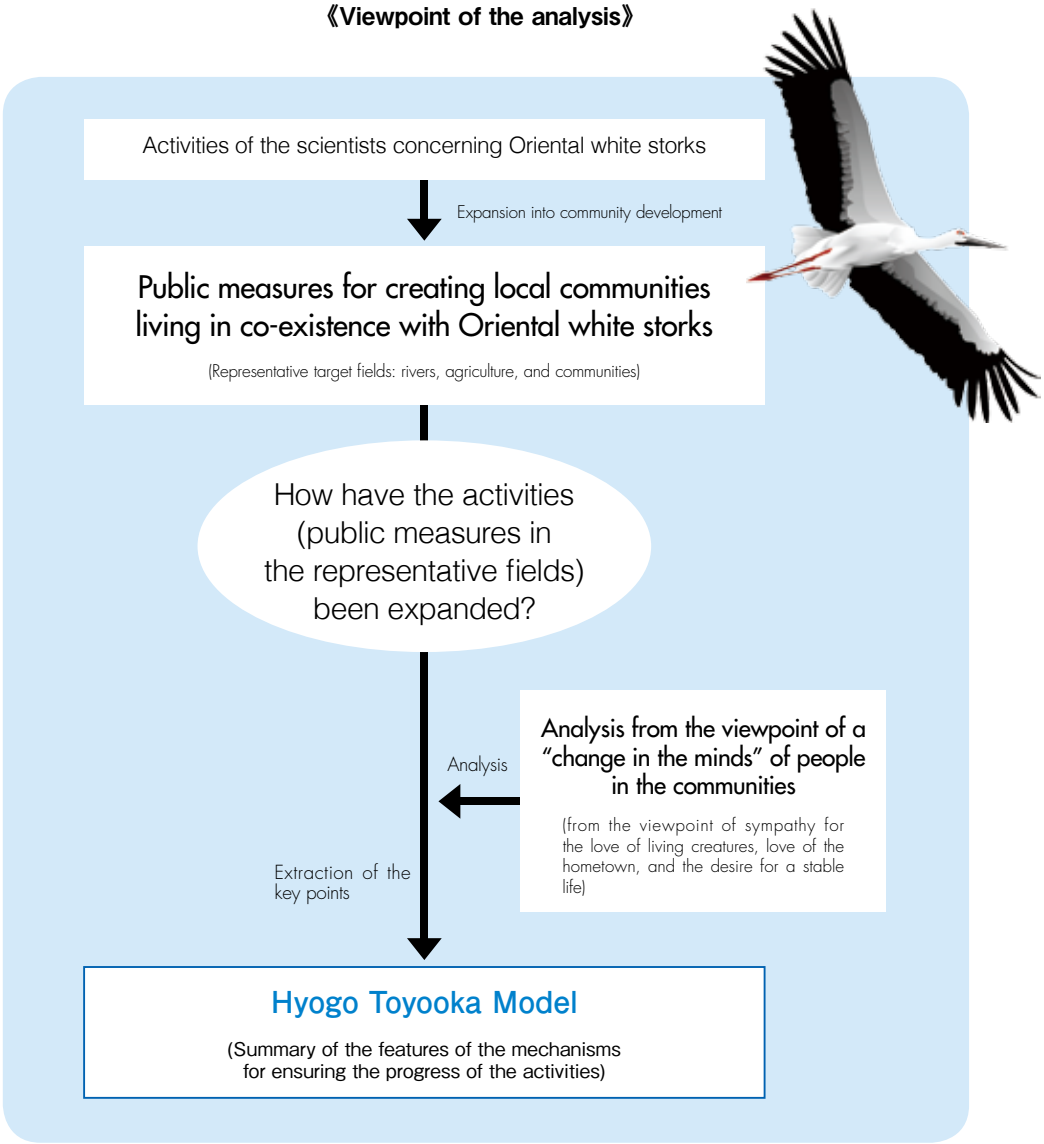
[Chapter 4: Evaluation of the progress of the activities]
In order to objectively understand the progress of public measures carried out by the government agencies related to the Toyooka region, an evaluation was implemented in comparison with the "Aichi Biodiversity Targets" adopted in the CBD-COP10. In addition, by comparing each target with the results of self-inspection by the concerned government agencies and summarizing them, the direction of future activities over the next 10 years was classified.

[Chapter 5: Summary of the Hyogo Toyooka Model]
With the expectation of it being helpful in the development of similar activities in other regions, the features of the mechanisms for the expansion of activities and the process of the development of the activities carried out in the Toyooka region have been classified and compiled as the "Hyogo Toyooka Model".

Hyogo Toyooka Model

- Definitions of the "Hyogo Toyooka Model"
  - A model for creating sustainable communities using local natural resources
  - A model that induces a "cycle of sympathy" which translates a shift in people's minds into a driving force
  - A collaborative model between "scientists", "governments", and "communities"
- "Five points of the activities" of the Hyogo Toyooka Model
- "Four processes of the development" of the Hyogo Toyooka Model

《Viewpoint of the analysis》



7. Use of the achievement summary

- The achievement summary will be continuously disseminated through public relations materials created by the cooperative actors (Agency for Cultural Affairs, Ministry of Agriculture, Forestry and Fisheries, Ministry of Land, Infrastructure, Transport and Tourism, Ministry of the Environment, Hyogo Park of the Oriental White Stork, and Toyooka City), on their websites and at conferences.
- The achievement summary is scheduled to be announced at CBD-COP12 (October 2014, Korea) as a case of activities responding to the "Aichi Biodiversity Targets".

《Reference: Aichi Biodiversity Targets and national targets towards the achievement of the Aichi Biodiversity Targets, etc.》

○Aichi Biodiversity Targets (from CBD-COP10 adoption)

Strategic Target A	Respond to the underlying reasons for the loss of biodiversity by mainstreaming biodiversity in each government and each society
Target 1	People need to recognize the values and actions in relation to biodiversity.
Target 2	Integrate the values of biodiversity into national/regional plans and into the national accounts and reporting systems where appropriate
Target 3	Abolish or reform subsidies and other incentive systems that have an adverse effect on biodiversity, and develop and apply positive incentive systems
Target 4	Implementation by all parties involved of plans for sustainable production and consumption
Strategic Target B	Reduce direct pressures on biodiversity and promote the sustainable use of biodiversity
Target 5	Reduce the loss of natural habitats such as forests by at least half and close to zero if possible, and noticeably reduce their degradation and fragmentation
Target 6	Sustainable harvesting of marine resources
Target 7	Sustainably manage agriculture, aquaculture and forestry
Target 8	Reduce pollution to harmless levels
Target 9	Regulate and eradicate invasive alien species
Target 10	Minimize the adverse effects on ecosystems that are vulnerable to climate change or acidification of the oceans, such as coral reefs
Strategic Target C	Improve the status of biodiversity by safeguarding ecosystems, species, and genetic diversity
Target 11	Conserve 17% of inland areas and 10% of ocean areas as protected areas, etc.
Target 12	Prevent the extinction or decline of threatened species
Target 13	Maintain the genetic diversity of crops and livestock animals, and minimize their loss
Strategic Target D	Enhance the benefits to all received from biodiversity and ecosystem services
Target 14	Provide, restore, and conserve the benefits of nature
Target 15	Contribute to climate change mitigation and adaptation through the restoration of at least 15% of degraded ecosystems
Target 16	Enforce and operate the Nagoya Protocol on ABS
Strategic Target E	Strengthen implementation through participatory planning, knowledge management, and capacity building
Target 17	The contracting parties shall develop and implement an effective and participatory national strategy.
Target 18	Respect and mainstream traditional knowledge
Target 19	Improve knowledge and scientific technology for biodiversity
Target 20	Noticeably increase financial resources from the current level for the effective implementation of the national strategy

○National targets towards the achievement of the Aichi Biodiversity Targets

Strategic Targets	National Targets	Key action goals		Aichi Targets
Strategic Target A Respond to the underlying causes of the loss of biodiversity	**A-1** Achieve the "mainstreaming of biodiversity across the society", etc.	A-1-1	Enhance and strengthen publicity, education, and public awareness on biodiversity	1 2 3 4
		A-1-2	Promote initiatives to visualize biodiversity services through the economic assessments of these	
		A-1-3	Promote the formulation of Regional Biodiversity Strategies and practical initiatives by local municipalities　Formulate and revise the Strategies on Regional Biodiversity by 2013	
		A-1-4	Promote the formulation of strategies and plans by the national government and local municipalities that incorporate the consideration of biodiversity, give consideration to the effects of incentives on biodiversity, and implement incentives that take biodiversity into consideration	
		A-1-5	Establish and announce policies for sustainable business activities and encourage their implementation	
Strategic Target B Advance initiatives geared towards minimizing human-induced pressures that degrade ecosystems and promote their sustainable use	**B-1** Reduce the rate of the loss of natural habitats, as well as their degradation and fragmentation	B-1-1	Establish methods and baselines for determining the rate of the loss of natural habitats and their state of degradation and fragmentation by the midterm evaluation of the Aichi Biodiversity Targets (that is scheduled to be in 2014 or early 2015)	5
		B-1-2	Carry out initiatives to reduce the degradation and fragmentation of natural habitats by 2020, etc.	
		B-1-3	Overhaul the enforcement status of the Wildlife Protection and Hunting Management Law by 2015, etc.	
		B-1-4	Promote initiatives to prevent damage to agricultural crops and measures to combat damage to forests caused by wildlife, etc.	
	B-2 Engage in agriculture, forestry, and fisheries that ensure the conservation of biodiversity in a sustainable manner	B-2-1	Promote initiatives that seek a balance between production-related activities and the conservation of biodiversity, such as the maintenance of sustainable agricultural production and the management of production bases, etc.	6 7
		B-2-2	Continuously exhibit the multifunctionality of forests, and promote monitoring surveys on forests, etc.	
		B-2-3	Promote initiatives that seek a balance between sustainable agriculture and the conservation of biodiversity, etc.	
		B-2-4	Implement initiatives to create *Satoumi* areas that are in harmony with nature	
	B-3 Improve upon the state of contamination from nitrogen, phosphorous, and other pollutants, conserve marine organisms, and increase productivity, etc.	B-3-1	Eliminate nutritive salts and organic pollutants from river basin areas while also implementing the seventh total pollutant load elimination by March 2015	8
		B-3-2	Examine environmental standardization with respect to lower levels of Dissolved Oxygen (DO) for the conservation of aquatic life and water transparency for the conservation of aquatic plants by 2014, etc.	
		B-3-3	Carry out investigations and studies aimed at establishing management policies in order to maintain habitat environments	
	B-4 Identify invasive alien species, organize information pertaining to the routes by which the species establish themselves, examine the priority for the control of these species, and systematically promote the control of their populations, based on the results of an examination of the enforcement status of the Invasive Alien Species Act	B-4-1	Create a list of invasive alien species and organize information pertaining to the routes by which the species establish themselves by 2014, etc.	9
		B-4-2	Establish the conceptual basis for the order of priorities for the control of species, promote efforts such as their systematic control, and formulate the "Action Plan to Prevent Damage from Alien Species" (tentative name) by 2014	
		B-4-3	Regulate or eradicate high priority invasive alien species, while also making progress in restoring the habitation status of rare species as well as restoring ecosystems to their original state through these activities	
	B-5 Promote initiatives towards minimizing human-induced pressures	B-5-1	Identify human-induced pressures on ecosystems that are vulnerable to climate change such as coral reefs, seagrass beds, tidal flats, islands/islets, and subalpine/alpine areas by 2013. Establish the ecologically permissible values for these human-induced pressures and institute initiatives in order to achieve these ecologically permissible values by 2015	10
Strategic Target C Improve the status of biodiversity by safeguarding ecosystems, species, and genetic diversity	**C-1** Appropriately conserve and manage 17% of inland areas and 10% of ocean areas	C-1-1	Sort out methods, baselines, and the current status in order to determine the status of conservation and management by the midterm evaluation for the Aichi Biodiversity Targets (that is scheduled to be in 2014 or early 2015)	11
		C-1-2	Examine areas to identify regions that are conducive to the conservation of biodiversity and promote their appropriate conservation and management	
		C-1-3	Examine the implementation methods for ecological networks and move forward with developing the formulation of these at various different spatial levels, etc.	
		C-1-4	Select important marine areas and examine the needs and methods for conservation by 2014	
	C-2 Prevent the extinction of species that are highly endangered and maintain the genetic diversity of crops, livestock animals, and other organisms	C-2-1	Collect knowledge concerning threatened species, and organize and periodically review the Red Lists, etc.	12 13
		C-2-2	Designate national endangered species of wild fauna and flora and promote initiatives for their conservation and propagation, etc.	
		C-2-3	Promote infrastructure development in order to prevent the extinction or decline of threatened species, etc.	
		C-2-4	Promote the return to the wild and ex-situ conservation of species such as the Japanese crested ibis and the Tsushima leopard cat, etc.	
		C-2-5	Create networks for the conservation of plant genetic resources, etc.	
Strategic Target D Enhance the benefits received from biodiversity and ecosystem services	**D-1** Strengthen the benefits received from biodiversity and ecosystem services through the conservation and restoration of ecosystems	D-1-1	Establish sustainable forest management and promote the development and conservation of diverse and healthy forests, etc.	14
		D-1-2	Conserve and use the environment in rural areas and utilize regional resources through the sustainable operation of agriculture, etc.	
		D-1-3	Promote the SATOYAMA Initiative both domestically and overseas	
		D-1-4	Designate the Sanriku Reconstruction (Fukko) National Park and promote the restoration and regeneration of forests that protect the coasts by 2013, etc.	
		D-1-5	Implement initiatives to create *Satoumi* areas while living in harmony with nature	
		D-1-6	Undertake considerations for developing new policies to make use of the arrangements for biosphere reserves (UNESCO Eco-Parks)	
	D-2 Contribute to climate change mitigation and adaptation through the restoration of at least 15% of degraded ecosystems	D-2-1	Determine the methods and baselines in order to assess the status of ecosystem conservation and restoration by the midterm evaluation of the Aichi Biodiversity Targets (that is scheduled to be in 2014 or early 2015), etc.	15
		D-2-2	Promote measures for the conservation and restoration of ecosystems, thereby contributing to climate change mitigation and adaptation	
		D-2-3	Promote forest sink measures such as by properly carrying out forest operations, establish green corridors, etc.	
	D-3 Conclude the Nagoya Protocol and implement domestic measures	D-3-1	Conclude the Nagoya Protocol as quickly as possible, and steadily put into practice the obligations in the Protocol through efforts such as promotion/education and setting up checkpoints to monitor the use of genetic resources by 2015 at the latest	16
		D-3-2	Promote support for developing countries that aim to implement the Protocol through the Global Environment Facility (GEF), the Nagoya Protocol Implementation Fund, and so on	
Strategic Target E Steadily promote policies based upon the National Biodiversity Strategy of Japan, strengthen the scientific grounds that will serve as the foundation for these, and promote capacity building in the field of biodiversity	**E-1** Promote measures based on the National Biodiversity Strategy of Japan, etc.	E-1-1	Revise the National Biodiversity Strategy of Japan over 2015 and 2016 as needed	17
		E-1-2	Contribute to the achievement of Target 17 around the world through the use of the Global Environment Facility (GEF), the Japan Biodiversity Fund, and other mechanisms	
	E-2 Respect traditional knowledge, strengthen the scientific grounds, strengthen the connections between science and policy, and efficiently mobilize the resources (funds, human resources, technologies, etc.) needed to achieve the Aichi Biodiversity Targets	E-2-1	Reevaluate the wisdom of traditional lifestyles and cultures and techniques for resource usage, pass them down to future generations and promote their use	18 19 20
		E-2-2	Enhance data on the natural environment, continuously update them, and improve the rate of dissemination of information from them, etc.	
		E-2-3	Enhance scientific knowledge related to marine life and ecosystems	
		E-2-4	Carry out comprehensive evaluations related to biodiversity and perform a midterm evaluation related to Japan's national targets	
		E-2-5	Actively take part in and contribute to the IPBES and set in place a domestic structure for this purpose	
		E-2-6	Assess the extent to which resources have been mobilized in Japan and improve the reporting system to the Secretariat of the Convention on Biological Diversity	

* The target year for the national targets of B-5, D-3, and E-1 is 2015, and for the other national targets is 2020. Regarding the target year for the key action goals, it is the same as that of the national targets if the target year is not written.

Source: A brochure entitled "Achievements of the Tenth and Eleventh meetings of the Conference of the Parties to the Convention on Biological Diversity (COP 10 and 11) and the Aichi Biodiversity Targets" issued by the Ministry of the Environment (March 2013)

Chapter 1
Background to the Activities

Chapter 1 Background to the Activities

1.1 Outline of the Toyooka region

Nucleus of the Tajima area

Toyooka City is located in the Tajima region in the northeast of Hyogo, which was established on April 1, 2005, by incorporating one city and five towns (Toyooka City, Kinosaki-cho, Takeno-cho, Hidaka-cho, Izushi-cho, and Tanto-cho). The area of the city is the largest in Hyogo. The city faces the Sea of Japan and about 80% of the city area is covered by forests. The coastal area is designated the Sanin Kaigan National Park and the mountain area is designated the Hyonosen-Ushiroyama-Nagisan Quasi-National Park. The Genbudo Cave and the Kannabe Plateau (both are designated a natural treasure) and the Hiyoriyama Coast join in the Global Geoparks Network as part of the Sanin Kaigan Geopark.

The Maruyama River flowing through the center of the Toyooka Basin has a small difference in height between the middle basin and the estuary region. Therefore, many wild birds inhabit the surrounding reed beds and riparian forests. The valley of the river consists of 3 cities (Toyooka City, Yabu City, and Asago City), which constitutes the social, economic, and cultural basis for the Tajima area.

Toyooka Basin

Sanin Kaigan Geopark

Typical Japan maritime climate

The Toyooka Basin stretching ahead to the downstream basin of the Maruyama River is a long, narrow basin about 12 km long and 3 km wide. The basin is formed by the deposition of layers of soft clay. The climate of the Toyooka Basin is a typical Japan maritime climate. The temperature rises in summer due to the foehn phenomenon, and there are many cloudy, rainy, and snowy days and few sunny days in winter due to the impact of seasonal winds. Fog rises in autumn and winter in the area along the Maruyama River which is said to be the area with the most fog in Japan. The average annual temperature and the annual precipitation in the Toyooka Basin are about 14 degrees Celsius and about 2,000 mm, respectively.

Wetlands that are well-suited as habitat for Oriental white storks to live in

Wetland environments such as tidal flats, reed beds, and fluvial lagoons are distributed throughout the downstream basin of the Maruyama River, and *Carex scabrifolia* communities (a salt marsh plant) and many aquatic insects that inhabit brackish water areas can also be seen. In addition, there used to be low and swampy rice fields (muddy fields) across the Toyooka Basin, which played a role as wetlands. There are few muddy fields now due to field improvements implemented after the war. However, muddy fields still exist in the Toshima District, Toyooka City. The farmers had much difficulty in working in these muddy fields. A part of these muddy fields where a wild Oriental white stork named "Hachigoro" (which died in February 2006) came from the Asian continent and flew down in August 2002 was developed as "Hachigoro's Toshima Wetland" (3.2 ha) by the prefecture and the city in April 2009. In "Hachigoro's Toshima Wetland", there is a brackish water wetland (0.7 ha) connecting the Sasaura Bay, the Maruyama River, and the Sea of Japan through water channels and a fresh water wetland (2.5 ha) drawing in agricultural water and spring water. Many fish move in and out using a projection-shaped gate set up in the dividing embankment that separates these wetlands.

The Tai Wetland (about 12 ha) has been converted from fallow fields and is maintained by the community residents with support from local NGOs and researchers. In addition, there is a wetland in the river bed of the Maruyama River (about 15 ha) in the Kaya District where the Ministry of Land, Infrastructure, Transport and Tourism has conducted nature restoration, which is called the Kaya Wetland.

In July 2012, the "Downstream basin of the Maruyama River and the surrounding rice fields" including the Toshima Wetland and the Tai Wetland were registered under the Ramsar Convention.

Hachigoro's Toshima Wetland

Tai Wetland

1.2 History

According to a book called "The Legend of Amenohiboko", it is said that Amenohiboko came from Shiragi in the Korean Peninsula and cut through a rocky hill in the central area of Toyooka City and diked the estuary lake to create farmlands. The area was positioned in the central part of the former Tajima no Kuni. In the Nara/Heian Period, a "Kokubunji" (the provincial temple), a "Kokubunniji" (the provincial nunnery temple), both of which were state-sponsored temples built in each province, and a "Kokufu" (provincial office) were established.

In the Muromachi Period, Konosumiyama Castle was established as the base for the Yamana clan. The castle was transferred to become Arikoyama Castle in the Sengoku Period. In the Edo Period, Izushi Castle was established in Izushi, and the camp of the Kyogoku Domain was set up in Toyooka City. Both of them prospered during this period. Toyooka Prefecture administering a part of Tajima, Tango, and Tanba was created with the abolition of feudal domains and the establishment of prefectures and the integration of prefectures in 1871, but it was annexed to Hyogo prefecture in 1876. (Parts of Tango and Tanba were annexed to Kyoto prefecture.)

1.3 Characteristics of the Maruyama River

The Maruyama River has its source in Maruyama (altitude of 640.1 m) in Ikuno-cho, Asago City, Hyogo, then flows down the Toyooka Basin, and meets the Sea of Japan through the confluence of 95 tributaries such as the Oya River, the Yagi River, the Inaba River, the Izushi River, etc. The Maruyama River is a class A river with a length of 68 km along its main channel and 1,300 km2 of basin area. The valley consists of mountains (86%) and flat lands (14%). The flat lands form a granary, including the Toyooka Basin.

The gradient of the river inclination is very gradual at 1/9,000 and the area between the mouth of the river and the meeting point of the Izushi River (about 16 km upstream from the mouth of the river) is a brackish water area, which is a mixture of fresh water and seawater. Therefore, this diverse environment provides diverse habitats for various organisms including a wide range of fish species that inhabit the freshwater, brackish water and saltwater environments.

Due to its gradual gradient, the Maruyama Valley experiences many floods. It is written in a magazine that the Oboe Embankment was established by the Izushi Domain in the period of the shogunate administration (according to the "History of the Maruyama River Water Control", etc.). The floods were caused mainly by typhoons. Major damage was caused due to the Ise Bay Typhoon in September 1959, Typhoon No.19 in September 1990, and Typhoon No.23 in October 2004, and so on. In particular, many embankments on the Maruyama River and the Izushi River collapsed due to Typhoon No.23 in 2004, which caused tremendous damage to Toyooka City, such as deaths (7 people), injuries (51 people), and flooded houses (7,944 houses).

Based on this experience, special emergency projects for the prevention of the recurrence of severe river disasters (strengthening of the embankments and improvement of the river channels, embankments, inland water, etc.) were implemented between FY2004 and FY2010 at a cost of about 65 billion yen. The projects have been continuously implemented as emergency water control measures. The improvement of a sandbank (excavation of Hinoso Island since 2001, etc.) has been implemented at the same time.

Source: "Plan for Nature Restoration of the Water System of the Maruyama River" by the Ministry of Land, Infrastructure, Transport and Tourism, Kinki Regional Development Bureau, Hyogo (November 2005)
"Plan for River Improvement of the Water System of the Maruyama River" by the Ministry of Land, Infrastructure, Transport and Tourism, Kinki Regional Development Bureau, Hyogo (March 2013)

Maruyama River

1.4 Life and industry

Life

The life of the Toyooka region is significantly affected by the Maruyama River flowing through the center of the Toyooka Basin both in a good sense and a bad sense. The Maruyama River played the role of establishing a clear border line dividing "towns" and "villages" and was the core of water transport. In addition, the brackish water region of the Maruyama River is the best place for river fishing. As a water control measure against repeated flood damage, some places on the Maruyama River have additional small embankments inside the main embankments in order to prevent overflows. Moreover, the collection of civil engineering gravel plays a role as an appropriate form of dredging.

People in the area along the Maruyama River catch river fish and make wicker baskets using *Salix integra*, a species of willow that inhabits the riverside. In the characteristic low and swampy rice fields, people produce rice by exercising various ingenious techniques to overcome the severe conditions of the natural environment. The Toyooka region has used various natural blessings to expand its industry. It can be said that people in the Toyooka region have integrated the natural environment and their lives as part of the same thing and have thus lived in harmony.

Industry

The industrial structure of Toyooka City consists of primary industry (6.1%), secondary industry (24.0%), tertiary industry (54.7%), and other industries that cannot be categorized (15.2%). The primary industry has been on a declining trend year after year (according to the census in 2010).

Agriculture

There used to be "muddy fields" (low and swampy rice fields) in the region. At the time of planting rice, people sometimes submerged themselves in the fields to the height of their waists. They have overcome this difficult situation using their knowledge and ingenuity such as making paddy field boats and wearing clogs, etc. They have created a rural culture while pursuing their livelihood under such severe conditions. After the period of rapid economic growth, the improvement of the agricultural fields was conducted to raise the efficiency of agriculture. These fields have now become dry rice fields.

Stork Friendly Rice

In Toyooka City, a brand called "Dance of the Oriental White Stork" has been established, which is certified to groups producing agricultural products using environment-friendly cultivation methods. The certified acreage under cultivation as of the end of October 2012 was 578 ha, and 50 groups, 30 items, and 3 food products were approved as coming under the brand. A method created for the restoration of the habitat for Oriental white storks is called "Stork Friendly Farming". Without depending on pesticides or chemical fertilizers, the farmers produce a safe rice called "Stork Friendly Rice" by conducting early flooding and deep water management (to fill rice fields with water one month before planting rice or to fill them with water that is deeper than usual), etc. Stork Friendly Rice was produced in about 270 ha of rice fields in 2013 and has been sold at major supermarkets across the country.

Stockbreeding

Tajima beef is the original breeding cattle for producing "Kobe beef", "Matsusaka beef", and "Omi beef" which are said to be the best brands of beef. The characteristic feature of Tajima beef is its fine marbling, which creates a good feeling on the tongue and a mild taste when heated up.

Fisheries industry

River fish is caught in the Maruyama River. Many sea fish and river fish still inhabit the Maruyama River, which has a brackish water area up to around 16 km from the mouth of the river. Wild eels and Japanese mitten crabs are also caught here. In the downstream basin, freshwater clams and orient clams were caught in the past, but due to the deposition of sediment from upstream areas, the number of clams has been declining recently. The "Tsuiyama crab" is a kind of Matsuba crab landed at the Tsuiyama Port and selected by fishermen and brokers. There are good crab fisheries off the coast of Tsuiyama. Crabs caught off the coast of Tsuiyama are among the freshest and highest quality crabs in Japan.

Tourism

As there are tourist sites including Kinosaki hot spring, which is one of the famous hot springs of Japan, Izushi castle town, which is referred to as a "little Kyoto" in Tajima, and Kannabe Plateau ski resort, which is one of the best ski resorts in western Japan, over 4 million people visit the Toyooka region every year.

Tsuiyama crab

Kinosaki hot spring

Manufacturing

Because of the characteristic waterfront environment of the Toyooka region where most of the plain areas are swampland, the region used to prosper as a producer of wicker baskets using *Salix integra*, a species of willow that inhabits the wetlands along the river. They started the production of wicker baskets in the Nara Period and this business flourished in the Edo Period. After the Taisho Period, based on their traditional technologies and distribution channels, they became producers of luggage by introducing sewing machine technologies and adopting new materials. Around 1991 when these producers were at the height of their prosperity, they had a market share of about 70%. In addition, they attracted attention as producers of Izushi ware, which has a history of over 200 years, and recently are also known as producers of solar panels.

Izushi ware

Toyooka luggage

1.5 Customs and regional characteristics

Culture of "Cannot help it"

The residents in the Toyooka region have maintained their livelihoods by dealing with the natural environment and living creatures inhabiting the region, which can be said to form the characteristic humanity of Toyooka. Wet rice fields called "muddy fields" that have high moisture content throughout the year have made agricultural work difficult, in addition to the problem of floods. Due to field improvement, the rice fields are no longer muddy fields but in the past, farmers sometimes submerged themselves in the fields to the height of their knees or waists when planting the rice. These muddy fields were called "Rice fields that kill daughters-in-law" in some areas.

In the past, Oriental white storks sweeping down onto the rice fields were considered a harmful bird because they sometimes trampled on the seedlings. (It has been confirmed that they do not trample on seedlings according to the results of investigations.) People in the Toyooka region said, "We hate Oriental white storks because they trample on seedlings in the rice fields, but we cannot help it." In the words "cannot help it", a characteristic generous lifestyle of the Toyooka region can be found, which means that they "try to recognize the existence of Oriental white storks even though they have some problems as they are part of the nature of this region."

Relationship between the residents and Oriental white storks

Oriental white storks were called "cranes" through the ages and were considered an auspicious bird. Since "Tsuruyama" in Sakurao, Izushi-cho, which is a breeding site of Oriental white storks, was designated a natural treasure in 1921, Oriental white storks were carefully protected as an auspicious bird for people in the Toyooka region. On the other hand, Oriental white storks were also considered a harmful bird because they trampled on seedlings in the rice fields. Action to get rid of the Oriental white storks is called "Tsuruboi", which means to get rid of cranes in the local dialect. "Tsuruodoshi" which means to get rid of Oriental white storks by firing blanks was also conducted.

The residents in the Toyooka region have lived well in co-existence with Oriental white storks that have these two aspects of being an auspicious bird and a harmful bird. According to a book called "Oriental white storks in Tajima" (written by Naoki Kikuchi and Hiroshi Ikeda, Tajima Cultural Association), "Co-existence is not for either Oriental white storks or humans but for both of them, which means that they are all the central characters and can coexist together. (omitted text) We find that there was a steady agricultural basis and harmony among people so as to establish a relationship of co-existence." Oriental white storks also played a role as an indicator of the "richness of agriculture."

In addition, the community residents actively cooperate with regard to the reintroduction of Oriental white storks. The residents have participated in conferences and the activities have been decided on by reflecting their opinions sufficiently without depending on the decisions from the government. Based on this, a foundation for the reintroduction of Oriental white storks that can be clearly understood by the residents was created.

Relationship of "If you do, I will do"

According to the analysis of the activities for the reintroduction of Oriental white storks by Mr. Naoki Kikuchi, who has carried out research on the relationship between Oriental white storks and local residents and used to be a researcher at the Hyogo Park of the Oriental White Stork, "The activities for the Japanese crested ibis carried out on Sado island are led by NPOs, but the activities carried out in the Toyooka region are the so-called community type. The relationship of trust among the residents in the Toyooka region is strong. For example, they call each other by their first names. They have a sense of "if you do, I will do." In addition, I think one of their characteristics is that they carry out activities without making things clear. Once a plan progresses little by little, then they work together. They do not get enthusiastic right away but take actions through the connections built up among them. In the process of carrying out these activities, the person who plays the role as the producer brings additional excitement." It can be considered that the traditional way of the formation of communities (to be described below) has an impact on their relationships.

"Temagari" (commons) in the Tai District

During the busy farming season in spring until the 1960s, the Tai District was a district operating semi-agricultural and semi-fisheries. They harvested seaweed on sunny days and worked on the farm on rainy days. During the off-season in winter, males went to work away from the district. As there were about 32 rice terraces per one-tenth of a hectare in some areas, it was difficult to introduce machinery. Therefore, until 2006 when cultivation was abandoned, rice planting and rice harvesting were jointly carried out in turns (by rotation) by the relatives in the village. This joint activity was called "Temagari". In addition, an activity called "Hiyaku" (carrying out joint activities by collecting residents in the village) was conducted. At the time of filling fallow fields with water in order to create wetlands, "Sohiyaku" (carrying out joint activities with the participation of all householders in the village) was conducted. Farm equipment was also jointly purchased, which is called "Moyako".

Since most of the rice terraces had no water channel, a system for running the water from the upper terraces to the lower terraces using the natural slopes was introduced. Therefore, the residents had to jointly maintain the water supply for the rice fields. It is said that they could harvest seaweed anywhere but decided on the places to dry the seaweed by lottery. In addition, all land in the village was substantially maintained by the village as a whole. There were rules even for privately-owned land. When someone moved to a different village, his/her land was sold to a resident of the village by auction. Therefore, most of the land in the village was owned by the residents of the village.

There is a common traditional form of connections among people in Japanese society called "Yui". "Yui" is a mutual assistance system used for labor performed in the village communities. One of the conditions for establishing the "Yui" relationship is that there is a "system of sharing and managing natural resources (commons)". Examples of the typical commons are the management of forests that are used for fuel and the management of hayfields that provided the material for making roofs. The joint activities and management carried out in the Tai District are exactly the same as "Yui". It can be said that these joint activities and the management carried out by the community residents are the factors that ensure smooth implementation of the activities for the reintroduction of Oriental white storks without people feeling any sense of resistance.

Presence of the shared forests

The Tai Wetland described previously was created by redeveloping privately-owned fallow fields as a wetland jointly by the communities and is maintained and managed by them. It is said that there was no resistance in the communities with regard to the management of these joint assets. In these communities, there were forests managed as shared assets since early times for procuring the materials necessary for their daily life. It can be said that the presence of these shared forests is the local background to smoothly realizing the joint management of the wetlands.

The last year of rice cultivation

Drying seaweed

Ward mayor's discretion

Each district in the city has a ward mayor. The ward mayors participate in conferences and community meetings held outside their ward. The community residents tend to respect the discretion of the ward mayors. As the ward mayors participating in the meetings on the projects for Oriental white storks (the release of Oriental white storks in the wild, etc.) persuaded the community residents, the projects could be implemented without problems.

Terraces made of stones on a steep mountain

Even this place became a field.

An Girls

Source: "Challenges of the Tai District, Toyooka City"

1.6 How much do you know about Oriental white storks?

The main habitats and breeding sites for wild Oriental white storks are the wetland between the Amur River basin in the east of Siberia and the north east of China. This wetland is one of the few huge wetlands in the world inhabited by red-crowned cranes in addition to Oriental white storks. The number of wild Oriental white storks is estimated at 3,000, and they are threatened with extinction. In Europe and North Africa, European white storks (a species closely related to the Oriental white stork) thrive. The number of white storks is stable, at over 850,000. People say that white storks bring babies, but this is not a tradition from Oriental white storks but from European white storks.

Oriental white storks can call when they are babies but they cannot call when they become adults. Adult Oriental white storks rattle their beaks by beating them together, which is called clattering. They communicate with each other by clattering.

The appearance of the Oriental white stork is similar to that of cranes, but it belongs in a completely different classification.

[Classification]

Order: *Ciconiiformes*
Family: *Ciconiidae*
Genus: *Ciconia*
Species: *C.boyciana*
[Scientific name] *Ciconia boyciana*
[Japanese name] Konotori
[English name] Oriental White Stork

■ Body size

◎ Total length = About 120 cm to 130 cm
◎ Leg length = About 50 cm to 60 cm
◎ Wingspan = About 200 cm to 250 cm

■ Weight

About 4 kg to 5 kg

■ Differentiation of males and females

Males and females look the same. Generally, the male is larger than the female but it is difficult to distinguish between them as there are individual differences. They are distinguished by DNA evidence after collecting their blood.

■ Number of feathers

Primary feathers: 11 Primary coverts: 11
Secondary feathers: 19 Greater coverts: 23
Tertiary feathers: 3 Lesser coverts: 4 Scapulars: 7

<What do they eat?>

The Oriental white stork is a carnivore. They live on loaches, crucian carps, frogs, small fish, insects, crayfish, etc. They can swallow even a large catfish in one go. They sometimes prey on small mammals such as mice, etc. Captive Oriental white storks eat substantial amount. They eat about 400 g to 500 g of feed per day. The natural conditions with many living creatures are necessary for Oriental white storks to live.


Crucian carp


Loach


Frog


Catfish


Snake

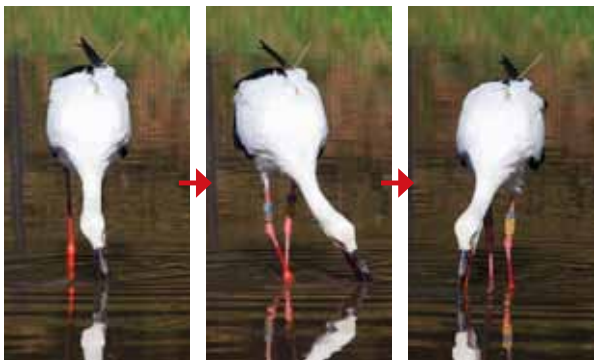
<Are they good or bad at catching their prey?>

The Oriental white stork is said to be bad at catching its prey. Some say that this is one of the reasons Oriental white storks are in danger of extinction. As the tongue of the Oriental white stork is short, they cannot bring food to the back of the throat. They eat food as if they are tossing it into the back of the throat after throwing it up in the air. They catch their prey using their long beaks in the following ways:

(1) Look at the prey directly and catch it

(2) Pick in the water with their beaks half open and catch prey when it hits their beaks

(3) Put their half-opened beaks in the water, swing them from side to side, and catch the prey when it hits their beaks


Catching of prey using method (3)


As the tongue of Oriental white storks is short, they cannot bring food to the back of the throat. They eat food by tossing it into the back of the throat after throwing it up in the air.

<Where do they build their nests?>

Oriental white storks build a large nest of about 2 m in diameter on top of a tree by gathering branches. Therefore, tough wood that can bear the weight of several Oriental white storks is necessary. Huge Japanese red pine trees were used in the past. It is said that a crane shown in an old painting called the "crane on the pine tree" might be actually an Oriental white stork. This is because cranes cannot perch on pine trees as they cannot grip branches due to their short back toes.

If there are no suitable trees, they sometimes build their nest on top of a power pole. Since there are no huge pine trees in the Toyooka region now, artificial nesting towers have been set up to enable Oriental white storks to build their nests.

<From egg laying to fledglings>

Egg laying

Oriental white storks lay one egg every other day or two days, with a total of 3 to 5 eggs around February and March. The weight of an egg is about 115 g, which is about twice the weight of a hen's egg.

Incubation

Male and female Oriental white storks take turns warming the eggs continuously. As they start warming after the last egg is laid, most of the eggs hatch on the same day.

Hatching

The eggs hatch about 31 days after they are incubated. Parent birds take turns keeping their babies in the nest, carrying food to them, etc.

Babies (15th day)

Babies request food by chirping or poking with their beaks. The parent birds carry the food after swallowing it and then regurgitate it into the nest.

Babies (First month)

Babies start practicing flapping their wings little by little. The parent birds shade the babies by spreading their wings and splash water on them to protect them.

Fledglings

It takes about 63 days from the hatching to the fledgling stage. The fledglings leave the nest and start catching their prey by themselves.

<World white storks>

The European white stork (*Ciconia ciconia*), a species of white stork quite similar to the Japanese Oriental white stork, inhabits Europe, including France, Germany, Belgium, and the Netherlands. White storks are called "Shubashiko" in Japanese because of their red beak. They are known in folklore as a bird that brings people happiness. They travel to Africa in winter and come back in Europe in spring, but the number of white storks coming back to Europe has been declining due to droughts in Africa and being targeted for hunting.

A bird that brings babies

There is a legend in central and northern Germany that the white stork is a bird that brings babies from neighboring springs or ponds. As an emissary of the goddess Holle, white storks bring the spirit of life to private houses ("Reviving Oriental white storks" written by Naoki Kikuchi). In Alsace, France, which is known as the city of white storks, it is said that babies are not brought by white storks but boys are born from cabbages and girls are born from roses (Mr. Lucien Gangloff, the Second International Convention on the Future of Oriental White Storks).

Building nests on roofs and chimneys

European white storks often build their nest on the roofs and chimneys of churches and private houses. It is said that people in the town welcomed these white storks very enthusiastically when they came back from Africa in the spring. In a book called "My Village" (published in 1913), a caricaturist Hansi of Alsace drew children singing in a circle as if making merry at a festival. When the white storks did not come back, the whole town felt much sorrow.

Orangerie zoo that leaves white storks loose

Orangerie zoo in Alsace, France, exhibits European white storks without keeping them in a cage so that their way of life can be observed. There is a wire netting with a height of about 175 cm to keep the white storks in, but it has no ceiling on the top. They breed about 46 white storks. Twenty of them have their wings clipped but the others do not. Even though they can fly anywhere, they stay in the zoo throughout the year. There are 20 nests in the zoo ("Dream of the flight of Oriental white storks" written by Muneharu Nakagai).

An ethnic village where white storks live

"Ecomusee" in Alsace is an ethnic village that collects old houses of this region. White storks build their nests on the roofs of these houses. There are too many nests to count all. A glimpse of an old village in Alsace can be caught ("Dream of the flight of Oriental white storks" written by Muneharu Nakagai).

1.7 Stories associated with Oriental white storks

A proverb "If Oriental white storks fly down a rice field, it will be sunny the following day."

According to the interviews conducted among local residents concerning Oriental white storks carried out in 2002 by Mr. Naoki Kikuchi, a researcher of the Hyogo Park of the Oriental White Stork, the following story was provided.

Oriental white storks were sensitive to the weather. When they flew down onto a rice field, we said, "It will be a sunny day". As the rice field increases its depth if it rains, they cannot fly down there. They will fly down onto the field when it is sunny the following day. Oriental white storks have the same habit as that of chickens. Chickens will stop catching food earlier than usual if it is sunny the following day, and continue catching food later if it rains the following day. Oriental white storks fly down onto rice fields on sunny days and during the period when the depth of the water in the rice fields stays the same. The reasons why Oriental white storks sometimes stay in housing areas are because these areas are safe due to the absence of dangerous water and because they cannot stay in rice fields when there is an increase in their depth due to rain.

Since early times, if someone says "Cranes return to their nest", this means it will rain. Then it actually rains. It is also said, "When cranes play in the rice field, it will sunny." Agricultural work used to be affected by the weather. As there was no weather station, farmers predicted the weather by watching the habits of birds and listening to the calls of pigeons (Source: "Report on the project for the collection and classification of historical materials on Oriental white storks" by the Hyogo Park of the Oriental White Stork in March 2003).

A song for rice planting called "Tsuru no Ko (Young cranes)" which continued to be sung before the war


コウノトリの民謡掘り起こす

お年寄りから採譜

「鶴の子」に三番創作

あす披露

Asahi Shimbun on October 20, 1995

"Tsuru no Ko (Young cranes)" is a song for rice planting which continued to be sung in the Kamiyoshi District in Toyooka City before World War II. The song was forgotten after the war, but in a survey on the folk music conducted by the prefectural board of education in 1975, Mr. Eiji Hasesaka who used to be a junior high-school teacher took the melody down in musical notation. By collecting elderly people in the Kamiyoshi Community Center to have them sing it, he took the melody of the first verse down in musical notation and took the words of the second verse down in musical notation. From the fact that the song has the characteristics of a traditional ballad in the Muromachi Period, it is considered that the song has been taken up since this period. Mr. Hasesaka wrote the lyrics of the third verse because he thought that modern people would not listen to this song if it has only old-fashioned words. This song was performed at the "Oriental white stork festival" held on October 21, 1995, at the Raikoji Temple in Chuo-cho, Toyooka City.

In addition, at Kamiyoshi elementary school, coordinated group gymnastics have been created with this folk song playing in the background.

A song for rice planting in Kamiyoshi called "Tsuru no Ko (Young cranes)"

First section of the first verse
Where do young cranes go after leaving their nest?
Mountains and mountains
Mountains and mountains
Branches of an old pine tree sparkling in the morning sun

Second section of the first verse
Rice planting girls wait for snacks.
Fishermen wait for the wind by setting up the mast.

First section of the second verse
Take an umbrella even it is sunny.
The dew of the bamboo is like rain showers.

Second section of the second verse
It is interesting that there are vehicles in the city and ships in the backwater.
Black Moyai ship in Yahata

First section of the third verse (words by Eiji Hasesaka)
When do young cranes return to their hometowns?
White wings in the Mihiraki Mountains

Second section of the third verse (words by Eiji Hasesaka)
The call of the phantom cranes becomes a song.
I go back to my hometown bathed in the warmth of the people.

The Oriental white stork is used in an elementary school song as well.

As Oriental white storks are familiar to students, they are used in an elementary school song.

School song of Hachijo Elementary School

1. The sun rising from the Tajimafuji calls us as always.
   Hang in there, Tajima's active children
   Thrive with all your might and main
   Each individual is part of young power and the sprouts of Hachijo.

2. The rich water flow of Maruyama calls me.
   Hang in there, active sweetfish going up the river
   Splashing with all your might and main
   Each individual is part of the children of Hachijo full of ambition.

3. A bell of greenery, Myoraku Temple calls everyone.
   Hang in there, fledgling Oriental white storks
   Fly actively with all your might and main
   Each individual is part of the children who are the pride of Hachijo.

The Oriental white stork is also used in the city song of Toyooka City.

1. The fog is clearing.
   Gentle stream of the Maruyama River
   Seasonal flowers on the shore
   Mountains, shadows of birds, and the color of clouds
   Surface of the river (where you can hear the sailor's song)
   (Tajima Mahoroba) (Toyooka's) Hometown

2. Morning in a mountain of greenery
   Big wings flapping in the sky
   Flying into the air
   Oriental white storks in the sky
   (Life sparkles) Live together
   (Tajima Mahoroba) (Toyooka's) Hometown

3. Rainbow bridge crossing over the city and town
   Get the flower's scent
   Get snow reports as well
   Fruits of the sea conveying the season
   (Life is beautiful) Live together
   (Tajima Mahoroba) (Toyooka's) Hometown

Repeat the words in parentheses
Instituted on March 29, 2008

Open air bath of the Kinosaki hot spring called "Ko no Yu" taught by Oriental white storks

In the period of Emperor Jomei (629-641), an Oriental white stork with an injury to its leg flew down onto a rice field and continued to stand there. A few days later, the Oriental white stork flew into the air while clattering its beak after recovering from the injury and returned to its original nest on a huge pine tree to live. When a farmer who was watching the movements of the Oriental white stork went to the rice field, the water of the rice field was boiling. The farmer quickly built a cabin and soaked away fatigue in the hot bath after finishing work in the fields. It is said that this place became the open air bath of the Kinosaki hot spring called "Ko no Yu" ("Koho Tajimako" written by Tsutomu Sakurai).

Kukuhi Shrine that enshrines the Oriental white stork

The Kukuhi Shrine located in the Shimonomiya District, Toyooka City is known as a shrine that enshrines the Oriental white stork. This district used to be called "Kukui-mura" (Kukui is an old name for the Oriental white stork.) and many Oriental white storks inhabited the area. In the Nihonshoki (Chronicles of Japan), a legend of Amanoyukawatana concerning Oriental white storks is written as follows:

When Emperor Suinin stood in front of his palace with his son, Prince Homutsuwake, in October, 7 B.C., a Kukui flew in the sky. At the same moment, the prince asked his father, "What is the name of that bird?" These were the first words uttered by the prince since he was born 30 years before. Emperor Suinin got great pleasure from this and ordered the people around him to catch the bird. When Amanoyukawatana put his hand up, the emperor said, "I will give you a reward if you catch the bird." It is written that Amanoyukawatana chased the Kukui and caught it in Izumo Province or Tajima Province (Nihonshoki, Suinin Emperor, the article in October, 7 B.C.).

For this reason, Oriental white storks that used to be called a sacred bird were taken good care of, and the Kukuhi Shrine was established.

Kukuhi Shrine

A domain lord who protected a mountain as a game reserve

In the Edo Period, the domain lord of the Izushi Domain protected the Sakurao Mountain (Tsuruyama), which was a domain-owned forest, as an area that prohibited the hunting of Oriental white storks. Unlike other regions where Oriental white storks had been declining due to hunting, Oriental white storks were carefully protected in Toyooka between the middle of the Meiji Period and the early Showa Period, such as by being designated a natural treasure, etc. ("Oriental white storks fly in the sky again" published by the Kobe Shimbun General Publishing Center)

Highly valued as an auspicious bird in the Meiji Period

At the time of the Sino-Japanese War in 1894, old cranes arrived and built their nests to raise their young. Many people visited there to observe them and considered that this event was an auspicious sign that suggested victory for Japan. Ten years later, when the Russo-Japanese War broke out, a brace of old cranes arrived and coincidentally built their nests on the same old pine tree on the top of a mountain to raise their 4 babies like an auspicious sign again. People considered that this event was an auspicious sign which suggested a major victory for Japan both on land and at sea, and actually Japan achieved a series of victories as they expected. Once news of this event spread within and outside the region, many people visited there from the Keihanshin (Kyoto, Osaka, and Kobe) area one after another (Izumo-cho History Editing Committee, 1991: 521-522).

Place names associated with Oriental white storks that remain in the Toyooka region

The ruins of the Tsuru Castle: The residence castle was occupied by the Tainosho clan, one of four generals serving the Yamana clan. According to tradition, this castle was founded by Sozen Yamana, the governor of Tajima, between 1429 and 1441. The reason why this castle was called "Tsuru Castle" is that the arrangement of the walls of the castle was similar to the shape of a crane spreading its wings.

Tazuruno District: This name is derived from the names of 3 lands consisting of this district (Tai Land, Tsurui Land, and Noda Land).

Shimotsurui (Administrative district of the Tazuruno District)

Kuchitsurui (Administrative district of the Tazuruno District)

Tsuruoka (Administrative district of the Hidaka District)

1.8 History of Oriental white storks in the Toyooka region

(1) Oriental white storks inhabited areas throughout Japan.

Oriental white storks used to be found everywhere in Japan. The Toyooka region was a convenient place for Oriental white storks since it had a swamp environment, including the Maruyama River and the Toyooka Basin to nurture riparian life. Many Oriental white storks inhabited the wet paddies called "Jiruta", earth canals supplied with water throughout the year, feeding grounds in the rivers, etc.

Izushi River of the Maruyama River water system around 1960

(2) Decline of wet paddies and the emergence of pesticides

During World War II, pine trees used by Oriental white storks for building their nests were often logged. After the war, wet paddies and swamp environments declined due to various construction projects that came with the changes in the social structure that placed importance on economic performance and efficiency. In addition, as pesticides were used during the same period, Oriental white storks finally disappeared in the wild in 1971. The Toyooka region was the last habitat in Japan.

Pesticide application under the artificial nest towers

(3) The first baby Oriental white stork was finally born 25 years later.

In 1965 before the Oriental white storks became extinct, artificial incubation was started by catching non-captive Oriental white storks. However, attempts at breeding failed consecutively. In spring in 1989, 25 years after starting artificial incubation, the first baby Oriental white stork was finally born.

The birth of babies under artificial breeding

(4) Release of Oriental white storks in the wild for the first time

The Oriental white stork is a bird that lives in areas of human habitation. In order to reintroduce the Oriental white storks, a rich environment to accept them (natural environment and cultural environment) must be restored. Through the accumulation of activities in various fields such as agriculture, education, and economy, Oriental white storks were released in the wild in 2005 for the first time as the initial stage of their reintroduction.

Release of an Oriental white stork into the wild

(5) Babies were born outdoors.

In 2007, baby Oriental white storks were born outdoors for the first time in 43 years, and they left their nest for the first time in 46 years.

(6) Opening of "Hachigoro's Toshima Wetland"

A wild Oriental white stork arrived in a wetland in the region. As it was identified on August 5, 2002, it was named after 8 and 5 in Japanese and called "Hachigoro". Unfortunately it died in 2007, but the role played by "Hachigoro" was significant for the project for the reintroduction of Oriental white storks. After improving the wetland that Hachigoro loved, the "Hachigoro's Toshima Wetland" was completed in 2009.

Hachigoro's Toshima Wetland

(7) The downstream basin of the Maruyama River and surrounding rice fields were registered under the Ramsar Convention.

The Ramsar Convention is an international treaty promoting the protection of the world's important biologically diverse wetlands and the sustainable use of the benefits of wetlands. In July 2012, "The downstream basin of the Maruyama River and surrounding rice fields" were registered under the Ramsar Convention. This should become a major driving force leading the future activities for the reintroduction of Oriental white storks that have already been carried out for over half a century.

non-captive Oriental white stork

(8) Over 70 Oriental white storks live in Japan.

With the release of Oriental white storks into the wild and their breeding in the natural environment, over 70 Oriental white storks live in Japan as of 2013. Activities for the restoration and creation of nature and culture in order to "live in co-existence with Oriental white storks" will be continuously developed.

1.9 History of environmental issues in Japan

1895 The "Game Act" was enacted for protecting wild birds and animals.
1897 The "Forest Act" was enacted for forest preservation.
1919 The "Historical Sites, Scenic Beauty and Natural Monument Preservation Law" was enacted.
1931 The "National Parks Act" was enacted for protecting and using scenic areas.
1948 The "Agricultural Chemicals Regulation Act" was enacted, which sets regulations for the standards, manufacturing, sale, and use of pesticides.
1956 Minamata disease was detected.
1967 The "Environmental Pollution Prevention Act" was promulgated, which was established based on the outbreak of four major cases of pollution diseases in Japan (Minamata disease, Niigata Minamata disease, Yokkaichi asthma, and Itai-itai disease). This act was abolished in 1993 after shifting the roles to the "Basic Environment Law."
1968 The "Air Pollution Control Act" was enacted due to an increase in sulfur oxide emissions from the use of petroleum.
1970 Fourteen bills for anti-pollution measures were enacted: "Environmental Pollution Offense Law"; "Pollution Control Public Works Cost Allocation Law"; "Act for the Prevention of Marine Pollution and Maritime Disasters"; "Water Pollution Prevention Act"; "Anti-Farm Soil Pollution Law"; and "Waste Disposal and Public Cleansing Act." The following laws and acts were revised: "Sewerage Law"; "Basic Law for Environmental Pollution Control"; "Natural Parks Act"; "Noise Regulation Act"; "Air Pollution Control Act"; "Road Traffic Act"; "Poisonous and Deleterious Substances Control Act"; and "Agricultural Chemicals Regulation Act."
1971 The Environment Agency was established.
1972 The "Nature Conservation Law" was enacted for strengthening nature conservation measures.
1992 The "Convention on Biological Diversity" aimed at biodiversity conservation, the sustainable use of its elements, and the fair allocation of interests due to the use of genetic resources, and the "Framework Convention on Climate Change" aimed at stabilizing the concentration of greenhouse gases in the atmosphere were adopted (ratified and became effective in 1993).
1993 Since the "Basic Act for Environmental Pollution Control" and the "Nature Conservation Law" could not deal with complicated and globalized environmental concerns, the "Environmental Basic Act" stipulating the basis of Japan's environmental policy was enacted.
1997 Concerning businesses that have the potential to have significant impacts on the environment such as large scale public works projects, the "Act for Assessment of Environmental Impacts" was enacted, which stipulates the procedures for environmental impact assessment. The Third Conference of the Parties to the United Nations Framework Convention on Climate Change (COP3) was held in Kyoto, and the Kyoto Protocol was adopted.
1998 The "Act on the Promotion of Global Warming Countermeasures" was enacted in order to stabilize the concentration of greenhouse gases in the atmosphere and to prevent global warming.
2000 The "Basic Act for the Promotion of a Recycling-Oriented Society," the basis of the waste and recycling policy, was enacted.
2001 After reorganizing the Environment Agency, the Ministry of the Environment was established.
2002 In order to restore the natural environment damaged in the past, the "Act for the Promotion of Nature Restoration" was enacted, which promotes nature restoration projects (conservation, restoration, and creation of the natural environment, etc.) carried out with the participation of multiple actors including governmental agencies, local residents, NPOs, and experts, etc.
2008 The "Basic Act on Biodiversity" was enacted, which is positioned as a subordinate law of the Environmental Basic Act and has a role as a superior law for individual laws concerning the conservation of biodiversity and its sustainable use.
2010 The 10th meeting of the Conference of the Parties to the Convention on Biological Diversity (CBD-COP10) was held in Nagoya. The Aichi Biodiversity Targets were adopted.

Chapter 2
Classification of the activity results

Chapter 2 Classification of the activity results

Regarding the representative fields (rivers, agriculture, and communities) in relation to the public measures towards the reintroduction of Oriental white storks, the results and people's awareness of major activities carried out by each actor and their ripple effects are classified, and issues identified by the classification of the activity results are described in Chapter 2.
In addition, "self-inspection" is carried out by the concerned governmental agencies in each activity field in order to examine the future direction and identify the current remaining issues and the revealed additional issues.
Moreover, through conducting interviews with the concerned persons, the thoughts and sense of values of people involved in the activities are identified and the representative episodes symbolizing the "sharing of thoughts/sense of values, and cycle of sympathy" of multiple actors engaging in the activities are introduced based on the pre-existing literature and interviews.

2.1 Classification of the activity results by representative field

- Major results and ripple effects of the representative activity fields (rivers, agriculture, and communities), and issues identified by the classification of the results

↓

- Self-inspection of the activities by the concerned governmental agencies

↓

2.2 Thoughts and sense of values of people involved in the activities - through interviews with them -

- Extraction of the thoughts and sense of values of people involved in the activities through interviews with them
- Episodes that make people appreciate the expansion of the activities

2.1 Classification of the activity results by representative field

(1) Activity results of the representative fields

- "The field of science concerning Oriental white storks" was added to the representative fields in relation to public measures ("rivers," "agriculture," and "communities"), and the themes of the activities carried out by each field were classified in chronological order in the figure on the right.

- Social awareness of the activities for the reintroduction of Oriental white storks in various periods by reference to newspaper articles is described in the upper part, and the social background of laws and regulations surrounding the activities and community events are described in the lower part.

- With a significant decline in the population of Oriental white storks, activities for the protection of Oriental white storks had already been implemented around 1900 as the activities in the "field of science concerning Oriental white storks." However, as they were in danger of extinction, thus artificial incubation was started in 1965 after catching wild Oriental white storks.

- Through the efforts of the concerned persons, artificial breeding bore fruit in 1989 after a long and hard struggle. In the 1990s when the number of captive Oriental white storks had been increasing, activities in the fields of "rivers" and "agriculture" towards ensuring the feeding grounds necessary for the reintroduction of Oriental white storks in the future, and activities in the field of "communities" towards the formation of a culture that accepts Oriental white storks were started and have expanded little by little.

- Background to the activities, history and results of the activities, people's awareness, ripple effects in the communities, and issues identified by the classification of the results are described according to the representative activity field from the following pages.

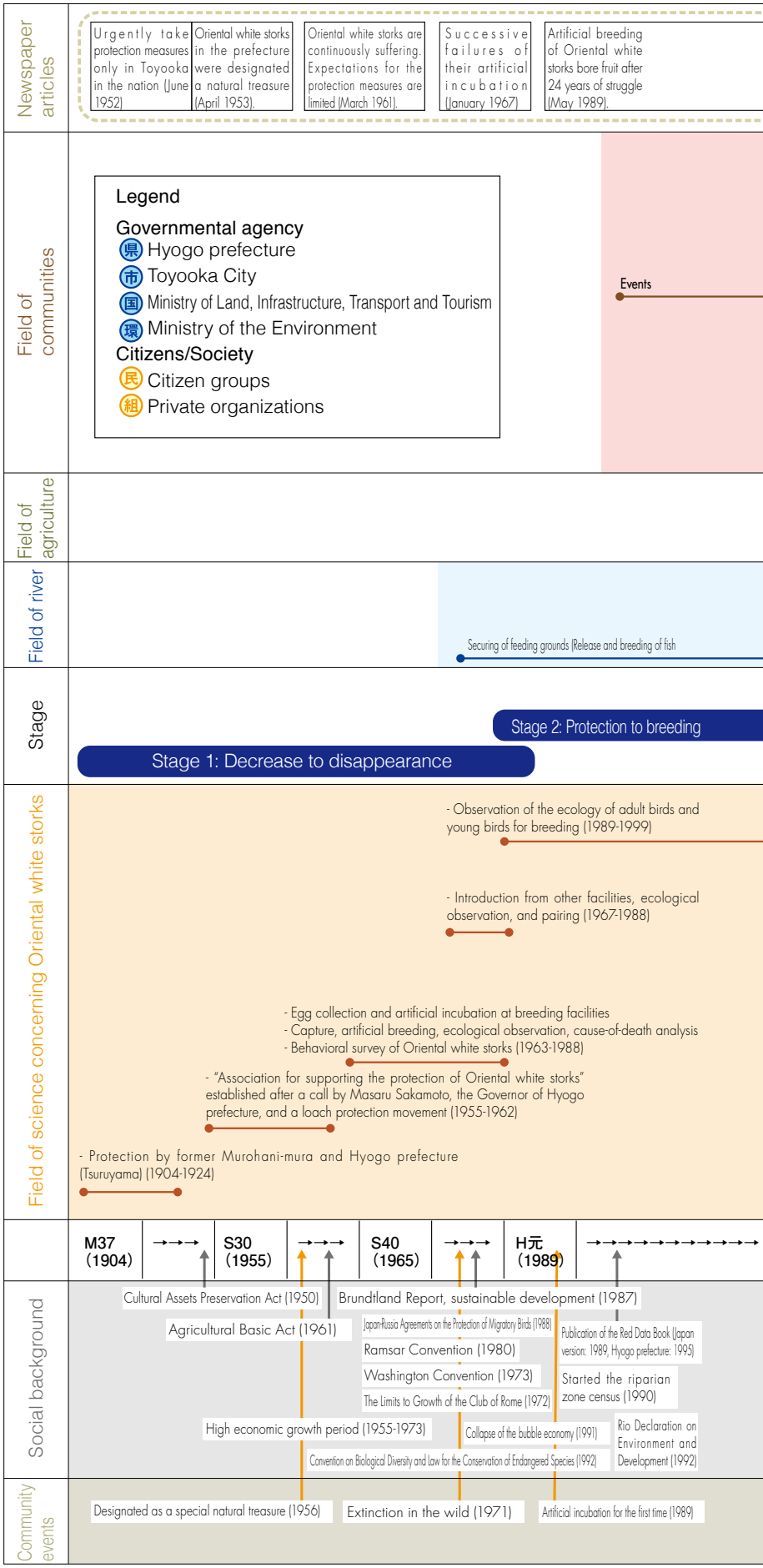


Figure 2.1-1 History of the activity themes by each actor

	Many people and families visited to see the baby Oriental white storks shown to the public (July 1990).	Baby Oriental white storks were born successively. Artificial breeding is on the way to success (April 1991).	Summit on rice and fish was planned by citizens for co-existence (July 2000).	Aiming at pesticide free farming for creating a stork friendly environment (January 2002)	Survey on the growth of loaches for the creation of feeding grounds (April 2003)	Watching the released Oriental white storks fly out of sight (September 2005)	Creation of biotopes by the residents for living in co-existence with Oriental white storks again (February 2006)	Citizens feel pride at seeing the fledging for the first time in 46 years (August 2007).	100 farmers learn about Stork Friendly Farming (February 2009).	Toyooka citizens learn about Ramsar by walking along the downstream basin of the Maruyama River (May 2011).

Improvement of the habitats (Forests: Red pine planting(県)(組) and installation of artificial nesting towers(県)(市), etc.) (2003-) Biotope creation(民) (1998-) Conservation of the Toshima Wetland and the Tai District(民) (2008-)

Environmental education (Environmental education programs by citizen groups and the provision of opportunities for experiential learning activities(県)(市)(民)) (1998-)

Environmental survey (Survey on living creatures and feeding grounds with the participation of the residents, etc.)(環)(民) (2006-2010)

(International Convention on the Future of Oriental White Storks(県)(市)) (1994, 2000, 2005, 2010) (Participation in exhibitions(県)(市) and the holding of forums(県), etc.) (2004) (Holding of symposiums(県)) (2006-2010)

Promotion for participation (Promotion of the Oriental white stork fan club project(県) and promotion of the concept of an Oriental white stork natural museum(県)) (2004-)

Promotion and education (Study session for the residents towards the registration of wetlands under the Ramsar Convention)(環)(市)(民)) (2008-2010)

Information dissemination (Activity introduction video(市), introduction map of the Maruyama River water system(組), logo(県), and books about the community culture(県)(市)) (2011-)

Promotion of interactions between urban areas and rural areas (Tourism attraction symbolized by Oriental white storks (issuance of brochures, etc.)(組) and community farms(市)) (2003-)

Rice-duck farming(県)(市) (1997-)

Organic farming(県)(市)(民) (2003-) Improvement of the structures for the production, distribution, and sale of products from "Stork Friendly Farming"(県) (2005-)

Improvement of the habitats (Fallow field biotope(民)) (1998-) (Creation of converted rice field biotopes(県)(市) and rice field fish ladders(県)(市)) (2001-) (Restoration of rice fields and wetlands(環)(民)) (2008-2010)

Excavation of Hinoso Island(国) (2001-2007)

Excavation of the Nojo District(国) (1999)

Improvement of the environment for diverse habitats (Creation of wetlands, improvement of fish ladders, improvement of the gaps in water channels, and the creation of gentle slopes along the riverside, etc.(国)(県)) (2003-)

and shellfish, capture of Japanese trout ascending the river naturally, and the extermination of alien fish species, etc.(組)) (1971-)

Establishment of a collaborative structure among the activity actors (Liaison Council on the Promotion of the Reintroduction of Oriental White Storks) (2003)

Stage 3: Towards reintroduction

Stage 4: Release to reintroduction

Stage 5: Development towards the creation of communities living in co-existence with Oriental white storks

- Tourism program, holding of environmental learning sessions and the examination of the participation of companies, and the development of a biodiversity information system (2011-)

- Tracing, classification of behavior, and feedback regarding the monitoring of the released Oriental white storks
- Experimental suspension of the feeding of non-captive Oriental white storks and its effects
- Comparison of the various methods of catching Oriental white storks and their effectiveness
- Preparation and restoration of the environment for the release of Oriental white storks in accordance with the IUCN guidelines (2011-)

- Value of feeding grounds at the sites of the reintroduction
- Ecological and behavioral survey methods for the reintroduction (2001-2006)

- Pairing with other Oriental white storks (1998-2002)

- Genetic analysis
- Risk prediction in the field of the reintroduction of Oriental white storks
- Finding out the effects of organochlorine compounds, etc. on Oriental white storks between 1955 and 1964
- Analysis for the restoration of the environment for various habitats using GIS (1999-2001)

- Ecological observation of Oriental white storks in the wild and testing of the release methods (2005-2010)

- Activity area and use of the environment of Oriental white storks that arrived in the Toyooka Basin (2002-2003)

- Landscape structure of the paddy field zone as a place for the reintroduction of Oriental white storks (2002)

- Conservation of river biomes and the creation of regional resources by determining the umbrella species to act as indicator species (2009)

- Analysis of the survival potential of the reintroduced Oriental white storks
- Genetic diversity and breeding plan for captive and non-captive Oriental white storks
- Development of a uniform management system for breeding data (2012-)

Scientific and regional issues for the establishment of an eco-museum (2004-2005)

- Investigation of the environmental history of the relationship between humans and Oriental white storks - Historical study on community development and tourism activities in the Tajima region
- Research on the creation of environmentally sound communities (2000-)

- Fundamental research and research on the establishment of regional relationships in the geopark (2010-)

H9 (1997)	H10 (1998)	H11 (1999)	H12 (2000)	H13 (2001)	H14 (2002)	H15 (2003)	H16 (2004)	H17 (2005)	H18 (2006)	H19 (2007)	H20 (2008)	H21 (2009)	H22 (2010)	H23 (2011)	H24 (2012)

Revision of the River Act (1997), holding of COP3, Kyoto Protocol (1997)

Law for Promoting the Introduction of Sustainable Agriculture (1999)

Act for Establishing a Recycling-Oriented Society (2000)

Act for the Promotion of Nature Restoration and Wildlife Protection and Hunting Law (2002)

Act on the Promotion of Environmental Conservation Activities and Environmental Education (2003)

Basic guidelines for the creation of multi-natural rivers, Act on the Promotion of Organic Agriculture (2006)

Basic Act on Biodiversity (2008)

The Second Priority Plan for Social Infrastructure Development (2009)

The Third Priority Plan for Social Infrastructure Development (2012)

Holding of CBD-COP10, adoption of the Aichi Biodiversity Targets (2010)

Environmental Basic Act (1993)

National Biodiversity Strategy (1995)

Lost Decade (1991-2001)

Lost Two Decades of economic recession (1991-2012)

Lehman shock (2008)

New National Biodiversity Strategy (2002)

The Third National Biodiversity Strategy (2007)

National Biodiversity Strategy 2010 (2010)

National Biodiversity Strategy 2012-2020 (2012)

Opening of the Hyogo Park of the Oriental White Stork (1999)

Arrival of a wild Oriental white stork called "Hachigoro" (2002)

Promotion plan for the reintroduction of Oriental white storks (2002)

Typhoon No.23 (2004)

Release of Oriental white storks into the wild (2005)

Fledging appears for the first time in 46 years (2008)

Certified as a Global Geopark (2010)

Wetlands are registered under the Ramsar Convention (2012)

Structure of the documents of each field

Background

- Classification of the background of each field concerning the reintroduction of Oriental white storks and the development of communities in relation to the reintroduction

History of the activities

- Classification of the history and results of the activities in each field in chronological order

People's awareness

- Classification of the awareness and the change in awareness of people involved in the activities in each field

Ripple effects on the communities

- Classification of the ripple effects of the activities in each field on communities (economic effects and tourism effects)

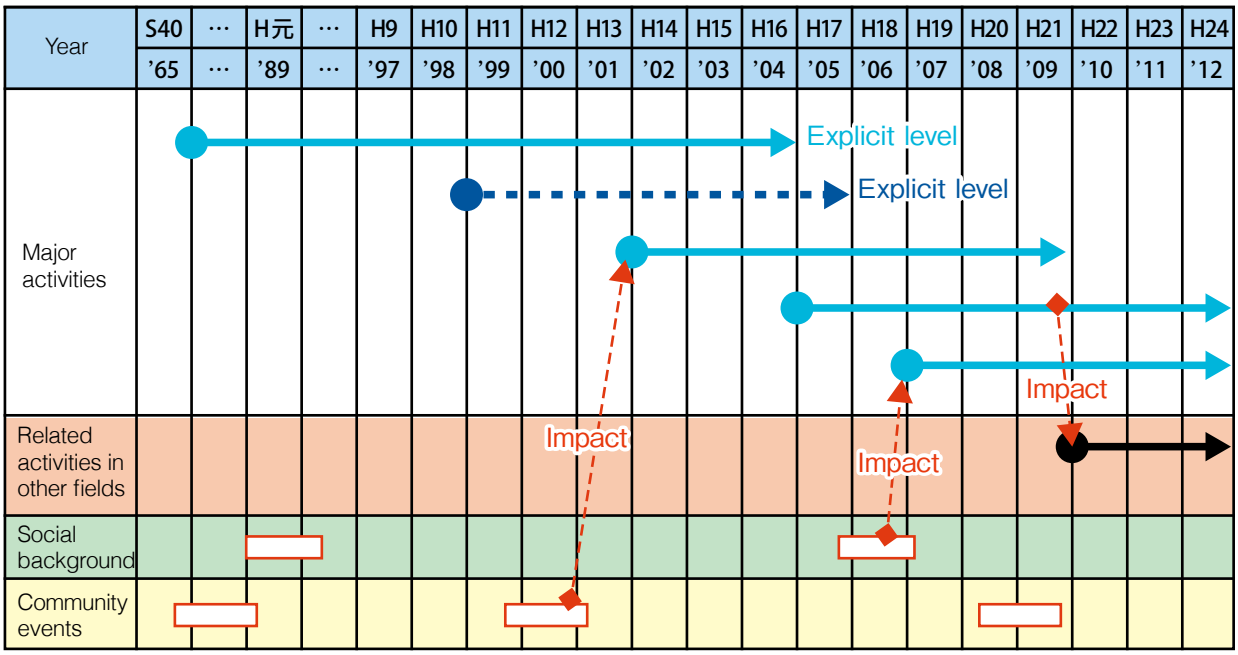
Issues

- Presentation of the issues identified by the classifications above

Chronological table

- Classification of the history of the activities in each field in a chronological table

Image of the chronological table of the activities in each field



1) Field of science concerning Oriental white storks

i) Background

Oriental white storks, which used to inhabit areas throughout Japan in the Edo Period, disappeared in the wild in 1971.

The number of Oriental white storks had been declining since the end of the Meiji Period due to overhunting. In the Tajima area in the north of Hyogo, former Murohani-mura (current Izushi-cho, Toyooka City) and Hyogo prefecture had carried out protection activities since 1904 and 20 pairs of Oriental white storks were identified in 1934. However, as a result of the loss of pine trees used by Oriental white storks for building their nests due to the logging of these trees in large numbers during World War II and the loss of migratory flight paths due to their change into battlefields, only 2 pairs were identified according to the survey in 1950. In 1955, the "Association for supporting the protection of Oriental white storks" (future Tajima Oriental White Stork Conservation Group) was established after a call by Masaru Sakamoto, the Governor of Hyogo prefecture (at that time), and full-scale activities to protect Oriental white storks were started through public and private collaboration. The number of Oriental white storks increased temporarily as a result of various activities, such as the one loach movement and the protection fund activities, etc., which identified 23 birds in 1956. However, with the modernization and greater efficiency of agriculture, some agricultural activities had negative impacts on biodiversity, such as the improper use of pesticides and fertilizers and the improvement of agricultural land and water channels placing importance on economy and efficiency, etc. As a result, wet paddies suitable as feeding grounds for Oriental white storks were lost and the amount of live prey for them declined. In addition, due to the damage caused by pesticides on the health of Oriental white storks and due to the loss of genetic diversity caused by the reduced population, the population of Oriental white storks rapidly declined and only 12 birds inhabited the area in 1964.

Landscape of Toyooka City in 1960 (Fujikogeisha Co., Ltd.)

Source: FY 2001 Directory (Hyogo Park of the Oriental White Stork)

Numerous loaches caught by elementary school/junior high school students and delivered to the Oriental white stork preservation association

Source: Asahi Shimbun (November 3, 1962)

ii) History of the activities (Table 2.1-1)

From capture and artificial incubation to artificial breeding

In 1963, Hyogo prefecture decided to start artificial incubation for the purpose of preserving the species of the Oriental white stork. In 1965, artificial incubation was started in "Oriental white stork breeding facilities" after catching a pair of Oriental white storks that had inhabited Toyooka City, and the protection and breeding project was started. However, the breeding of the pair of captured Oriental white storks did not succeed. Finally, the last wild Oriental white stork that inhabited the region was caught in 1971 and Japanese Oriental white storks became extinct in the wild, which continued the critical situation.

Examples of major research conducted since 1963 include egg collection and artificial incubation at the breeding facilities, capture, artificial breeding, ecological observation, cause-of-death analysis, and behavioral surveys of Oriental white storks, etc.

A breeding cage for a captured Oriental white stork

Source: Asahi Shimbun (February 17, 1965)

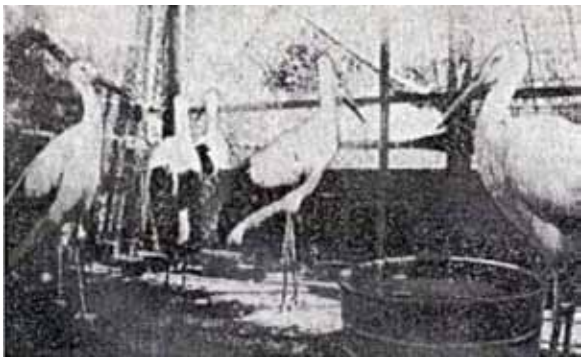
An Oriental white stork caught as the last wild Oriental white stork

Source: Asahi Shimbun (May 26, 1971)

From the success of artificial incubation to the establishment of breeding technologies

The reception of 6 young Oriental white storks provided by the Khabarovsk Krai in the former Soviet Union (currently Russia) in 1985 was a major turning point for the project for the protection and breeding of Oriental white storks. In 1989 when the young birds became old enough to breed, the project succeeded in breeding for the first time at the Oriental white stork breeding facilities, and continued to succeed every year. In 1992, the Oriental white stork breeding facilities changed its name to the Oriental white stork protection and breeding center. In addition, in the same year, the "Investigative Committee on the Reintroduction of Oriental White Storks" was established to investigate the reintroduction of Oriental white storks.

Examples of major research between 1985 and 1998 include the introduction from other facilities, ecological observations, pairing, ecological observation of the young and adult birds for breeding, etc.



Oriental white storks came from Khabarovsk.
Source: Yomiuri Shimbun (July 28, 1985)

Success of artificial breeding for the first time
Source: Kobe Shimbun (May 17, 1989)

Research towards the reintroduction of Oriental white storks led by the Hyogo Park of the Oriental White Stork

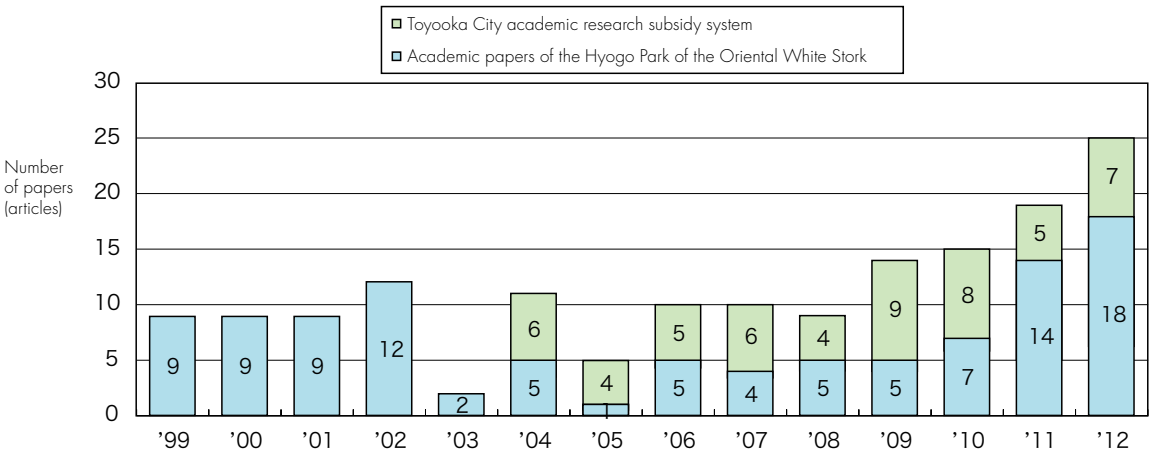
Based on the opening of a research institution established in the prefectural university called the "Hyogo Park of the Oriental White Stork" in 1999 as a base facility for the reintroduction of Oriental white storks, various research efforts and practices have been carried out towards the protection, breeding, and reintroduction of Oriental white storks.

The reintroduction of Oriental white storks is an activity to re-establish a self-sustaining population around the Toyooka Basin. This activity has the characteristic of a nature restoration project to re-create the environment for stork habitat by eliminating the causes of the decline in the population of Oriental white storks, such as the destruction or disruption of their former habitat, the decrease in the number of living prey due to the use of pesticides, and damage to their health, etc.

Based on these viewpoints, various research efforts were conducted between 1999 and 2001. Examples of major research are genetic analysis, risk prediction in the field of the reintroduction of Oriental white storks, identification of the effects of organochlorine compounds, etc. on Oriental white storks between 1955 and 1964, and analysis for the restoration of their habitat using GIS, etc. In addition, various research efforts in the field of social sciences in relation to the nature restoration project, such as the investigation of the environmental history of the relationship between human activities and Oriental white storks, historical study of community development and tourism activities in the Tajima region, and research on the creation of environmentally sound communities, etc., have also been conducted since 2000 and used for the development of the local communities.

Aerial photograph of the Hyogo Park of the Oriental White Stork
Source: FY 2001 Directory (Hyogo Park of the Oriental White Stork)

Pair of Oriental white storks and their babies in a cage
Source: FY 2000 Directory (Hyogo Park of the Oriental White Stork)



Source: Materials provided by the Hyogo Park of the Oriental White Stork and materials provided by Toyooka City

Figure 2.1-2 Number of research papers about Oriental white storks

From the launch of the nature restoration project to the release of Oriental white storks

The reintroduction of Oriental white storks is also an attempt at the "restoration of communities" including a review of people's daily life that supports the habitat of Oriental white storks and people's involvement with nature, the re-creation of the relationship between humans and nature, and a review of lifestyles through Oriental white storks, which used to be a bird of the region, etc. Based on these ideas, research has been carried out by clearly setting three agendas: "Technologies for breeding" of Oriental white storks; "Restoration of the natural environment" in which Oriental white storks can thrive; and the "Social environment" including re-creation of the relationship between people and Oriental white storks, etc. On the other hand, with the progress of various environmental improvements (improvement of rivers and fields, etc.) and the promotion of activities for the organic farming, behavioral observation of Oriental white storks could be implemented in the environment aimed at reintroducing Oriental white storks, based on the situation in which the number of captive Oriental white storks in the Hyogo Park of the Oriental White Stork exceeded 100 in 2002, and a wild Oriental white stork called "Hachigoro" arrived in the Toyooka region in August 2002. Through the development of the "Promotion plan for the reintroduction of Oriental white storks" in 2003, five Oriental white storks were released into the wild on a trial basis on September 24, 2005, and a full-scale project for the reintroduction of Oriental white storks was started.

Under this situation, various research projects were implemented between 2001 and 2006. Examples of major research are the conservation of the biodiversity of fluvial lagoons that provide the basis for the habitat of Oriental white storks, the value of feeding grounds at the sites of reintroduction, the ecological and behavioral survey methods for the reintroduction, the activity areas and environment used by Oriental white storks that arrived in the Toyooka Basin, the scientific and regional issues related to the establishment of an eco-museum, the ecological observation of Oriental white storks in the wild, and the testing of release methods, etc.

Arrival of a wild Oriental white stork called "Hachigoro" (August 2002)

Source: A magazine published on the 10th anniversary of its establishment (October 2009)

Start of the trial release of Oriental white storks (September 24, 2005 at the Hyogo Park of the Oriental White Stork)

Source: A magazine published on the 10th anniversary of its establishment (October 2009)

From breeding in the wild to co-existence with the communities

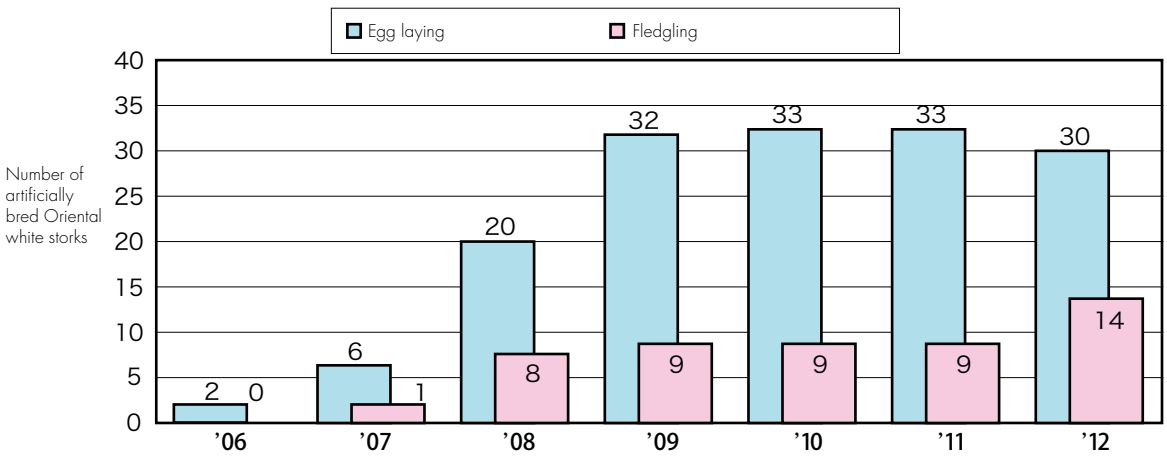
Oriental white storks released in 2005 paired up the following year and laid eggs on the outdoor artificial nesting towers for the first time in 38 years, but the eggs did not hatch. In July 2007, eggs hatched and the babies left their nest for the first time in 46 years in the wild. Since that year, babies have left their nests every year.

For the progress of the reintroduction of Oriental white storks, not only the specific areas suitable for the living requirements of Oriental white storks, but also the whole human habitation must be included in the target of environmental restoration. Therefore, the formulation of a social environment supporting the reintroduction of Oriental white storks is important. A group that played a substantial role in promoting the projects for the reintroduction of Oriental white storks is the "Liaison Council on the Promotion of the Reintroduction of Oriental White Storks". The council became a place to build a consensus to formulate various issues and projects. In addition, various attempts were made to avoid contradictions between the council and the community residents, such as the preparation of comprehensive measures that ensure consistency between the conservation of endangered species and biodiversity and the values demanded by the community residents, etc. As the extension of "Stork Friendly Farming", which is defined as a farming method to cultivate safe rice and living creatures at the same time, Toyooka City developed an "Environment-Economy Strategy" in order to realize a "Town where Oriental white storks can thrive", which is the principles provided in the promotion plan for the reintroduction of Oriental white storks, by promoting low-environmental impact and recycling-oriented local industry.

Fledging (June 2008, Yuruji artificial nesting tower)

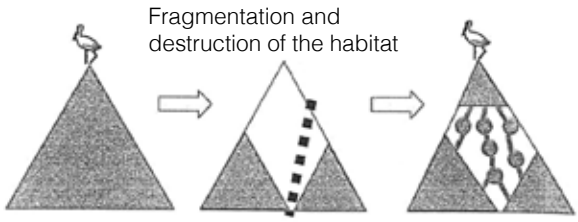
Source: A magazine published on the 10th anniversary of its establishment (October 2009)

In this way, practical research for the realization of the reintroduction of Oriental white storks carried out at the Hyogo Park of the Oriental White Stork has been progressed as a "resident-type research institution" having aspects that have an impact on decision-making about the solution to local issues. Examples of major research conducted from 2007 to the present are the conservation of river biomes (2009), the restoration of biological communities by determining the umbrella species to be used as indicator species (2009), the creation of regional resources focusing on the reintroduction of Oriental white storks (2010), basic research and research on the establishment of regional relationships in the geopark (2010), the tracing, classification of stork behavior, and feedback to monitoring of the released Oriental white storks (since 2011), the experimental suspension of the feeding of non-captive Oriental white storks and its effects (since 2011), a comparison of methods of catching Oriental white storks and their effectiveness (since 2011), the preparation and restoration of the environment for the release of Oriental white storks in accordance with IUCN guidelines (since 2011), analysis of the survival potential of the reintroduced Oriental white storks (since 2012), the maintenance of genetic diversity and breeding plan for captive and non-captive Oriental white storks (since 2012), and the development of a uniform management system for breeding data (since 2012), etc.

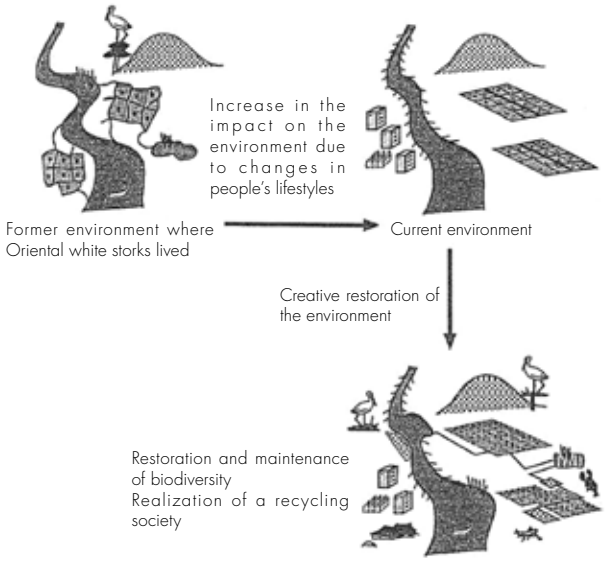


Source: Materials provided by the Hyogo Park of the Oriental White Stork

Figure 2.1-3 Number of artificially bred Oriental white storks



Conceptual diagram of the environmental restoration by determining the Oriental white stork as an umbrella species ("Restoration of the agricultural ecosystem under the slogan of the reintroduction of Oriental white storks" written by Kazuaki Naito and Hiroshi Ikeda, 2009)

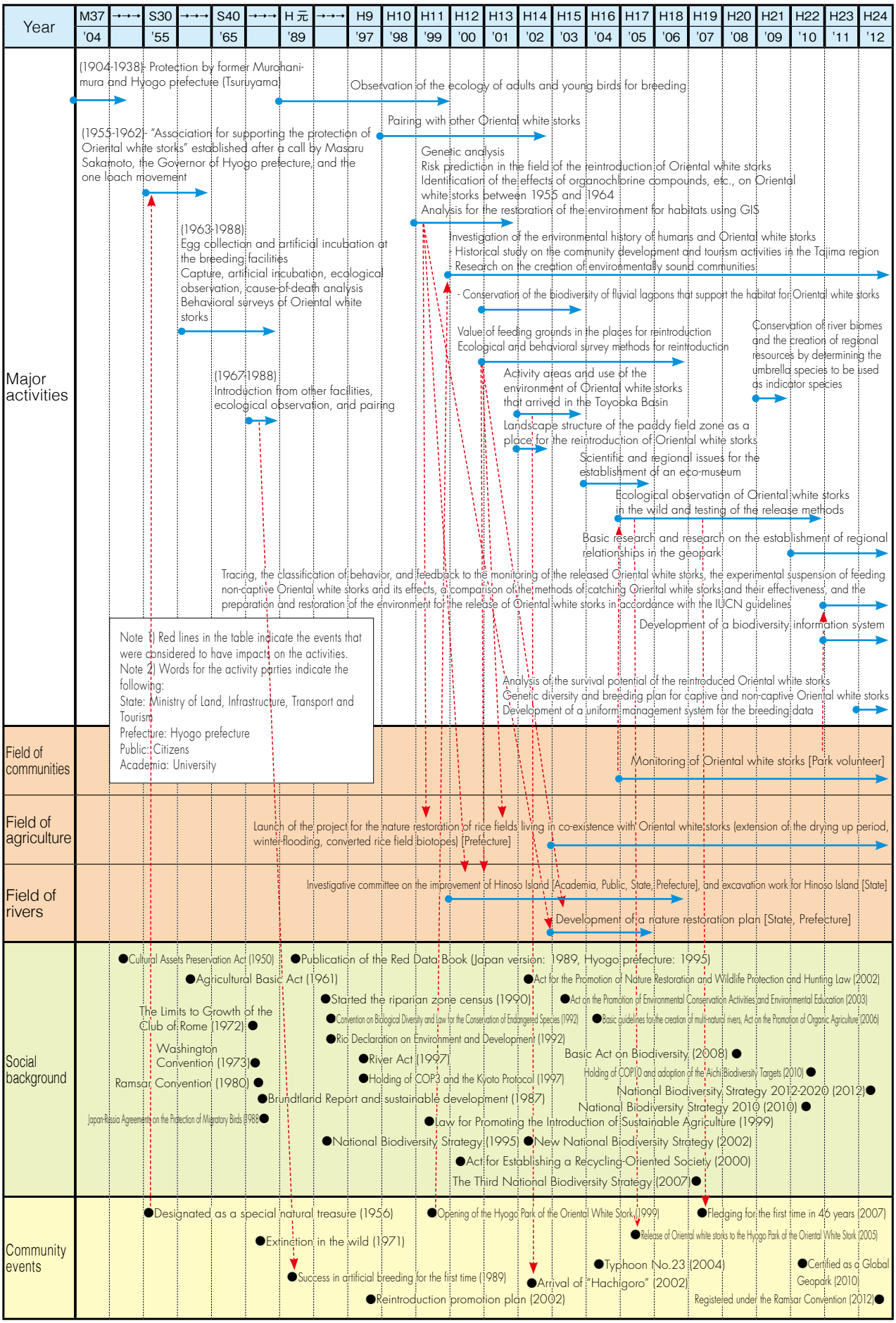


Flow diagram to determine the restoration targets by comparing the former and current environment ("Restoration of the agricultural ecosystem under the slogan of the reintroduction of Oriental white storks" written by Kazuaki Naito and Hiroshi Ikeda, 2009)

iii) Issues

- As for the offspring of the few pedigrees that inhabit the outdoors, genetic diversity is not assured. In future, the population may become extinct due to genetic deterioration if measures are taken without due consideration.
- In the past, the citizens sometimes fed non-captive Oriental white storks in good faith. In order to achieve the reintroduction of Oriental white storks, it is necessary to spread awareness that most offspring of wild animals die and appropriate selection is necessary for Oriental white storks as well.
- It is necessary to inform society of the risks of having contact with wild animals. For example, if Oriental white storks get used to humans by being fed, etc., and a child approaches them, he/she may get a poke in the eye and lose his/her sight. In addition, Oriental white storks may carry pathogens such as avian influenza, etc.
- If the population of wild Oriental white storks increases significantly in the future, friction with humans and other living creatures will grow (similar to the problem of deer and great cormorants) and Oriental white storks may come to be called "harmful birds" again.
- In order to secure enough food so that Oriental white storks can live independently and propagate, the regeneration of the freshwater fish community is essential. However, a survey on the biomass in rice fields, rivers, and water channels in the Toyooka region and investigations to develop a nature restoration plan for the reproduction of fish and for the appropriate loss and survival of fish have just started. In addition, since it is important that rivers are recognized as part of a whole valley, the dynamics of habitat and nutrient salts (inorganic salts such as nitrogen and phosphorus necessary for the growth and feeding of phytoplankton, etc.) need to be evaluated from viewpoints that exceed the administrative jurisdiction.
- In addition to individual activities including the establishment of fish ladders, etc., it is necessary to examine comprehensive measures for the achievement of a balance between agriculture and fisheries with a view to the life history of the fish in order to improve the habitats for fish.
- In order to enhance the effects of environmental education, citizen groups and the Hyogo Park of the Oriental White Stork must strategically promote such education by strengthening cooperation between them.

Table 2.1-1 Chronological table of activities related to the field of science concerning Oriental white storks



2) Field of rivers

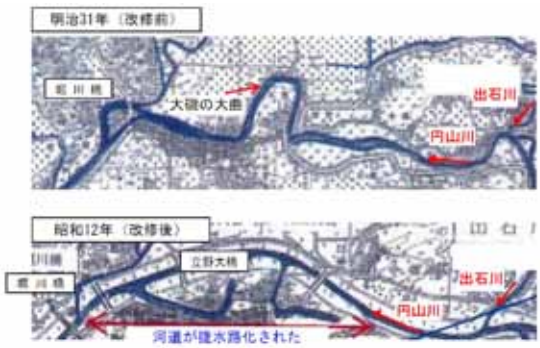
i) Background

The Maruyama River brings many blessings and also frequently causes flood damage when it rains heavily because the Toyooka Basin is an area where floods become concentrated and it is difficult for the water to flow downstream due to its geomorphology (a very gentle slope in the downstream basin). In recent years, 16,833 houses were flooded due to the Ise Bay Typhoon in 1959, and 2,508 houses were flooded due to the autumnal rain front and Typhoon No.19 in 1990. In 2004, an unprecedented flood occurred due to Typhoon No.23 which caused the collapse of embankments along the Maruyama River and the Izushi River. Seven people died, 51 people were injured, and 7,944 houses were flooded as a result (Table 2.1-2).

Therefore, in the downstream basin in which the urban district of Toyooka City is located, the state worked to change the flow channels between 1920 and 1937, which became the prototype of the current river channels. After this, many years have been spent on improving the river including levee raising, etc.

As a result, safety from floods due to water control increased, but rivers were made monotonous and the diversity of the habitat and environment for the growth of living creatures was lost.

Renovation between the Taisho Period and early Showa Period
(Short cut for a large curve of the river in Oiso)



Source: Plan for River Improvement of the Water System of the Maruyama River (March 2013)

Source: Plan for River Improvement of the Water System of the Maruyama River (March 2013)

Table 2.1-2 Causes of main floods and their damages

Date of the flood	Causes of its occurrence	Average precipitation of the basin for 2 days (mm)	Observed water level in Tachino (m)	Observed flow rate in Tachino (m^3/s)	Damage	
					Flooded houses (households)	Flooded area (ha)
September 26, 1959	Ise Bay Typhoon	253	7.42	3,043 (4,500)	16,833	16,926
September 16, 1961	Second Muroto Typhoon	184	6.86	2,624	1,933	2,303
July 12, 1972	Rainy front and Typhoon No.6	233	6.75	2,786	749	1,715
September 10, 1976	Typhoon No.17	322	6.92	2,595	2,855	2,115
October 19, 1979	Typhoon No.20	211	6.74	2,461	610	185
September 20, 1990	Typhoon No.19	364	7.13	3,064	2,212	1,923
October 20, 2004	Typhoon No.23	278	8.29	4,127 (4,900)	7,944	4,083
August 9, 2009	Typhoon No.9	188	6.21	3,090	77	346

Source: Summary of the Maruyama River Basin (March 1988, Construction Ministry River Bureau) (Flood in September 1959)
Flood report (Flood in September 1961)
Water disaster statistics (Flood in July 1972, flood in September 1976, flood in October 1979, flood in September 1990)
Survey by the Tajima Branch Office (Flood in October 2004 (as of March 2005), flood in August 2009)
* Flooded houses in 2004 include totally, half, and partially collapsed houses.
* Concerning the observed flow rate in Tachino, the values in parentheses are the flow rate after adding the estimated flow rate of the spillover from the river.

Source: Plan for River Improvement of the Water System of the Maruyama River (March 2013)

ii) History of the activities (Table 2.1-3)

Emergence of a wetland in the Nojo District

Prior to the full-scale launch of the nature restoration project by the Ministry of Land, Infrastructure, Transport and Tourism, the bank protection work was conducted on the left bank of the downstream basin of the Maruyama River (Hitoichi District), which was damaged due to the flood from the rain front in 1999. At the same time, in order to change the water flow and weaken the flow of water conflicting with the bank protection of this district at the time of a flood, the excavation work of the flood channels was conducted in the Nojo District located on the other side of the river. Due to the excavation of only those areas that are higher than the normal river level, a wetland (with a length of about 1.4 km and an area of about 5 ha) emerged. This wetland became the best feeding ground for herons. This work did not focus on the restoration of wetlands but became an event to be referred as providing a good indication of the "means to secure feeding grounds" among people engaged in activities for the reintroduction of Oriental white storks.As a result, safety from floods due to water control increased, but rivers were made monotonous and the diversity of the habitat and environment for the growth of living creatures was lost.


円山川に湿地出現

サギなどの「楽園」に

Source: Mainichi Shimbun (September 1, 2000)

Source: Materials provided by the Toyooka Rivers and National Roads Office

Conservation of half of Hinoso Island

On the other hand, large sandbanks in the downstream basin (Nakano Island and Kikuya Island) were excavated as one of the water control measures. Regarding "Hinoso Island" (with a length of about 1.4 km and an area of about 1.6 ha) located about 6 km from the river mouth, land acquisition had been implemented since FY1992 based on a plan to excavate the entire island. However, rare and precious plants and fish were identified in the surrounding area of Hinoso Island through environmental research. Moreover, with the amendment of the River Act in 1997, the improvement and conservation of the river environment were positioned as the purposes of river administration in addition to water control and water utilization. Based on these events and against the background of the increase in public awareness of the environment, an investigative committee concerning the means of excavation was established by community residents, academic experts, people engaged in fisheries, and local governments, etc. Discussions on the theme of the conflict between water control and the environment were held repeatedly in the committee from multiple viewpoints. As a result, it was decided to excavate half of the area of the island (three-fourths of the cross-sectional area) and leave the remaining areas as wetlands. The construction was implemented until 2007.

Source: History of the reintroduction of Oriental white storks (March 2012)

Source: History of the reintroduction of Oriental white storks (March 2012)

Response to full-scale activities for the reintroduction of Oriental white storks

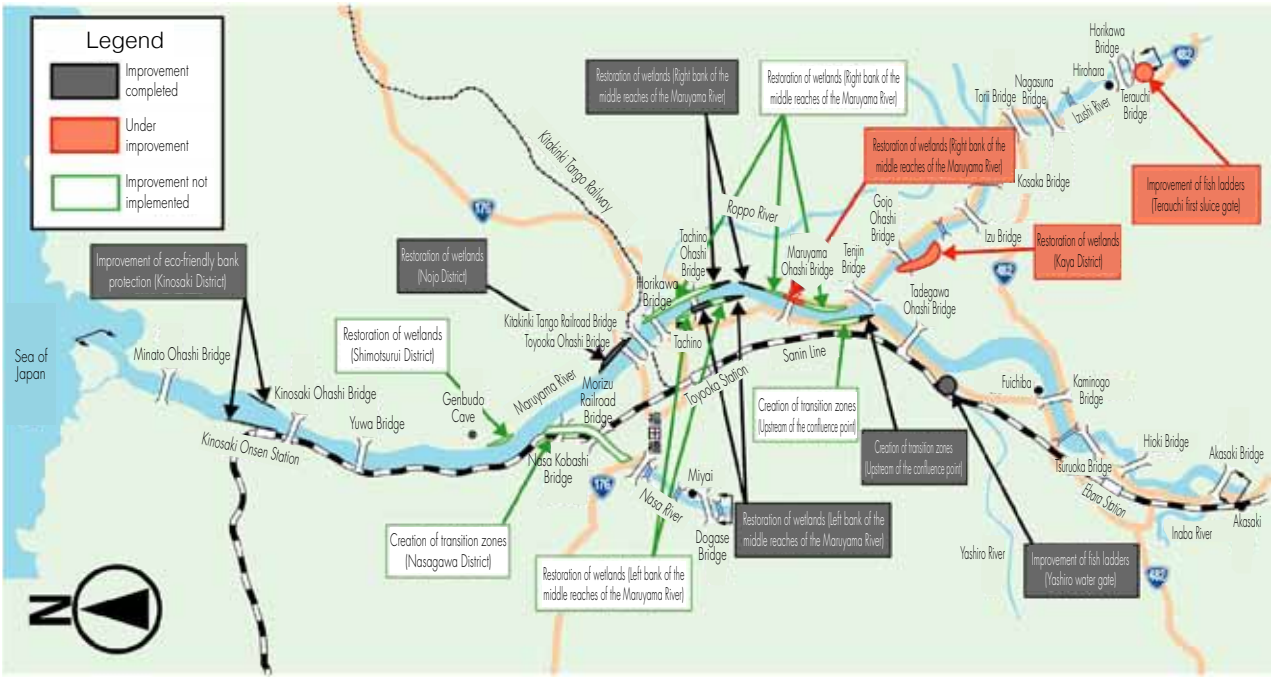
In the Toyooka region, the "Council on the Promotion of the Reintroduction of Oriental White Storks" was established in 2002 by the concerned organizations in the governmental agencies and local governments, and the "Promotion plan for the reintroduction of Oriental white storks" was developed towards the implementation of full-scale activities for the reintroduction of Oriental white storks. Around the same period, based on the enactment of the Act for the Promotion of Nature Restoration, the Ministry of Land, Infrastructure, Transport and Tourism and Hyogo prefecture started examination of a "Plan for Nature Restoration of the Water System of the Maruyama River" in order to promote the development of communities symbolized by Oriental white storks.

Flood in October 2004 (Typhoon No.23)

Source: Plan for River Improvement of the Water System of the Maruyama River (March 2013)

Damage by Typhoon No.23 and the promotion of activities for nature restoration

Soon after the events above, the Toyooka Basin suffered unprecedented damage due to the collapse of embankments caused by Typhoon No.23 in 2004. In response to this, the state adopted special emergency projects for the prevention of a recurrence of a severe river disaster and took emergency water control measures. Based on this situation, the "Plan for Nature Restoration of the Water System of the Maruyama River" was developed in 2005 by the Ministry of Land, Infrastructure, Transport and Tourism and Hyogo prefecture for the restoration of the river environment, in addition to regional activities for the reintroduction of Oriental white storks and the measures for water control of the Maruyama River. Based on this plan, nature restoration projects have been carried out (Figure 2.1-4).



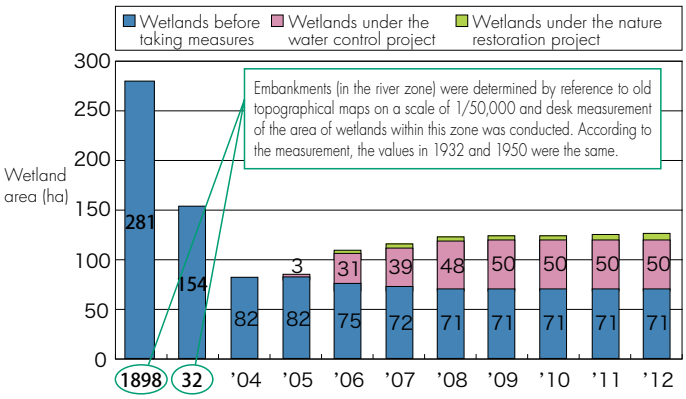
Source: Kinki Regional Development Bureau, Project Evaluation and Monitoring Committee, FY2013 The Third Environmental Improvement Project of the General Water System of the Maruyama River [Re-evaluation] (November 2013)Water System of the Maruyama River [Re-evaluation] (November 2013)| Water System of the Maruyama River [Re-evaluation] (November 2013)

Figure 2.1-4 Project for nature restoration of the Maruyama River (Sections managed by the Ministry of Land, Infrastructure, Transport and Tourism)

Four targets set in the "Plan for Nature Restoration of the Water System of the Maruyama River"

(1) Conservation, restoration, and creation of a characteristic natural environment

An assessment of the impact of the water control works was performed by monitoring the physical environment and the habitat/growth conditions of living creatures. In addition, construction for creating multiple natural habitats has been implemented, such as the reconstruction of bank protection that has enabled vegetation to grow.

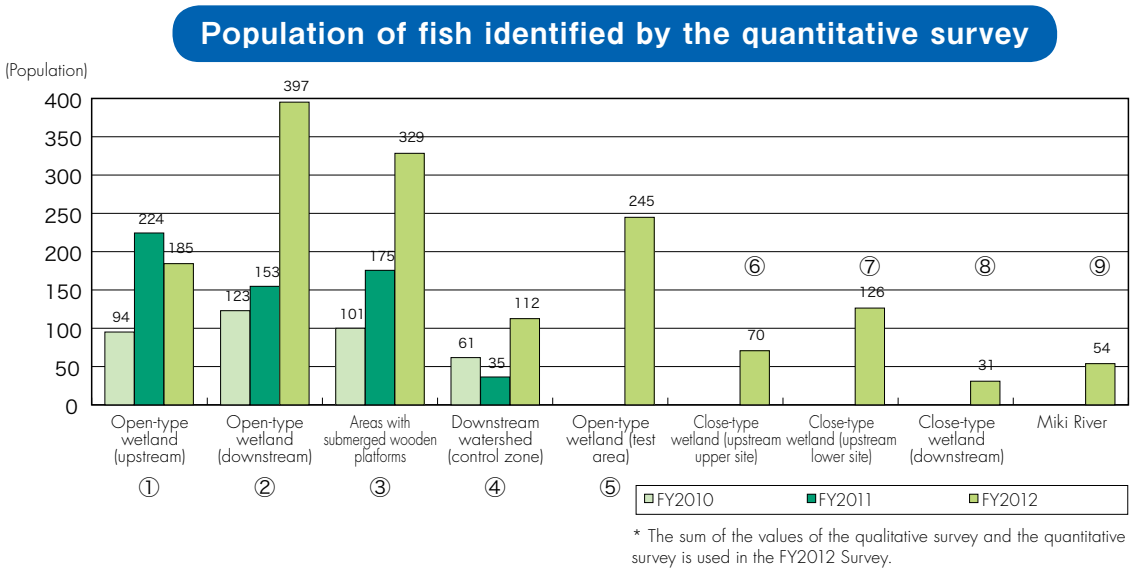


Source: Materials provided by the Toyooka Rivers and National Roads Office

Figure 2.1-5 Trends in the wetland area of the river zone of Maruyama River (Sections managed by the state)

Restoration of wetlands (Kaya District)

Source: Plan for River Improvement of the Water System of the Maruyama River (March 2013)



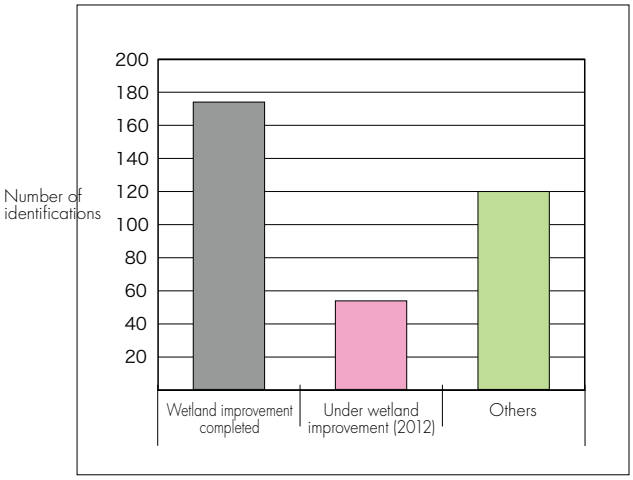
* The sum of the values of the qualitative survey and the quantitative survey is used in the FY2012 Survey.

Source: FY2012 Report of the assessment project for the nature restoration of the Maruyama River (March 2013)

Figure 2.1-6 Status of the identification of fish after wetland improvement (Kaya District)

(2) Restoration and creation of the wetland environment

The wetland environment, which decreased by half compared to the early Showa Period due to past water control measures, sediment deposition, and the creation of farm lands in the river channels, has been restored and created by excavating river edge areas and creating gentle slopes. The area of wetlands in the Maruyama River has been increasing little by little due to the restoration of a large-scale wetland in the Kaya District, etc. (Figure 2.1-5). In addition, it has been verified that areas where nature restoration was implemented have a higher population of fish than in the control zone (a neighboring area where nature restoration was not implemented). These areas have become a good habitat for fish (Figure 2.1-6). Thanks to these activities, nowadays many Oriental white storks fly down these improved wetlands on the Maruyama River (Figure 2.1-7).



Source: Kinki Regional Development Bureau, Project Evaluation and Monitoring Committee, Materials of FY2013 The Third Improvement

Figure 2.1-7 Arrival of Oriental white storks on the Maruyama River (Survey for 4 consecutive days each in autumn and winter in 2012)

Seventeen Oriental white storks arrived in area upstream of the Horikawa Bridge on the Maruyama River.

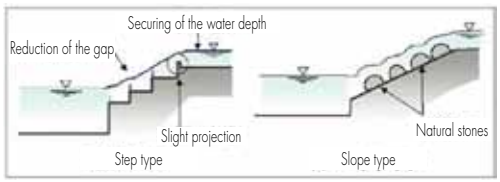
Source: Investigation of the effects of the nature restoration of the Maruyama River that supports regional revitalization (Kamiya 2011)

Re-creation of the original landscape (Newspaper article)

Source: Investigation of the effects of the nature restoration of the Maruyama River that supports regional revitalization (Kamiya 2011)

(3) Ensuring the continuity of the rivers in consideration of the ecology of amphibian species

Dams, sluice gates, and sluice pipes restricted the transfer of amphibian species between the upstream and downstream reaches of the river and along the main stream, branch streams, and water channels. In response to this, the fish ladders were improved and the structure of the connection between rivers and water channels was changed into steps or slopes in order to reduce the gap, which enabled amphibian species to transmigrate.



Ensuring the continuity of the rivers

Source: Plan for River Improvement of the Water System of the Maruyama River (March 2013)

(4) Conservation, restoration, and creation of the relationship between humans and rivers

In recent years, people have fewer opportunities to go to rivers in their daily life due to changes in their lifestyles. In response to this, the Ministry of Land, Infrastructure, Transport and Tourism and Hyogo prefecture has held lectures about the river environment and nature restoration, etc. In addition, Toyooka City has carried out "Activities to experiment with rivers" in elementary schools since 2008.

Restoration of the waterfront through collaboration with the local communities

In the surrounding area of the Tai River that flows through the Tai District facing the Sea of Japan, rice fields were abandoned for cultivation and became waste lands due to depopulation and the failure of land consolidation. The arrival of an Oriental white stork building its nest in "Hachigoro's Toshima Wetland" in 2008 provided the motivation for local and external citizen groups, Toyooka City, and experts (universities, etc.) to start working together to restore the nature of the abandoned rice fields. Hyogo prefecture agreed with this activity and has carried out activities for the creation of the feeding grounds of Oriental white storks, such as an integrated improvement of abandoned rice fields both for disaster prevention and nature restoration (creation of wetlands), which have the same function as flood control basins and sand basins at the time of flooding and become wetlands in normal times by drawing in water from the rivers.

Areas along the Izushi River, a branch stream of the Maruyama River, used to be an area that had "Tsuruyama" where people watched Oriental white storks building their nests and catching their prey in rivers and rice fields. In the Kaya District along the Izushi River, the activities for the creation of rivers have been carried out aiming to become a base habitat for Oriental white storks through collaboration among the various actors including the Ministry of Land, Infrastructure, Transport and Tourism, Hyogo prefecture, Toyooka City, community residents, NPOs, and fisheries cooperatives, etc. The Ministry of Land, Infrastructure, Transport and Tourism has carried out the restoration of wetlands, the prefecture has carried out the restoration of the riffles and the surrounding area in the Izushi River, and the city has carried out the creation of a management plan through collaboration with community residents and has held environmental study sessions through collaboration with elementary schools and NPOs. In implementing the restoration of wetlands, multiple technologies for the restoration, such as the restoration of snaking streams, the restoration of open/closed wetlands, and the use of the water of branch streams and the subsoil water of mountains, have been adopted based on the ideas of the communities. Based on the results of monitoring surveys of living creatures with the participation of community residents, the construction methods and forms of improvement have been reviewed adaptively.

iii) People's awareness

Before the excavation of "Hinoso Island", there were some objections by regional ward mayors and the fisheries cooperatives. For example, "Do you place more importance on the life of insects than the life of humans?" and "If the soil component changes due to the excavation, we will not be able to manage the fishing. Can you compensate for it?", etc. In response to this, the Ministry of Land, Infrastructure, Transport and Tourism explained patiently using the simulation results that the ecosystem would not have any impact due to the excavation and could finally obtain a consensus. However, the consensus might have been achieved thanks to the community residents' patience and the local trust in the ward mayors.

On the other hand, in recent years, the citizens' understanding of the environment has been developed through various activities, such as the monitoring surveys on fish and the environmental education conducted on "Hinoso Island" and in the Kaya District in cooperation with local elementary schools and junior high schools, etc.

Monitoring survey in cooperation with local elementary schools

Source: FY2012 Report of the assessment project for the nature restoration of the Maruyama River (March 2013)

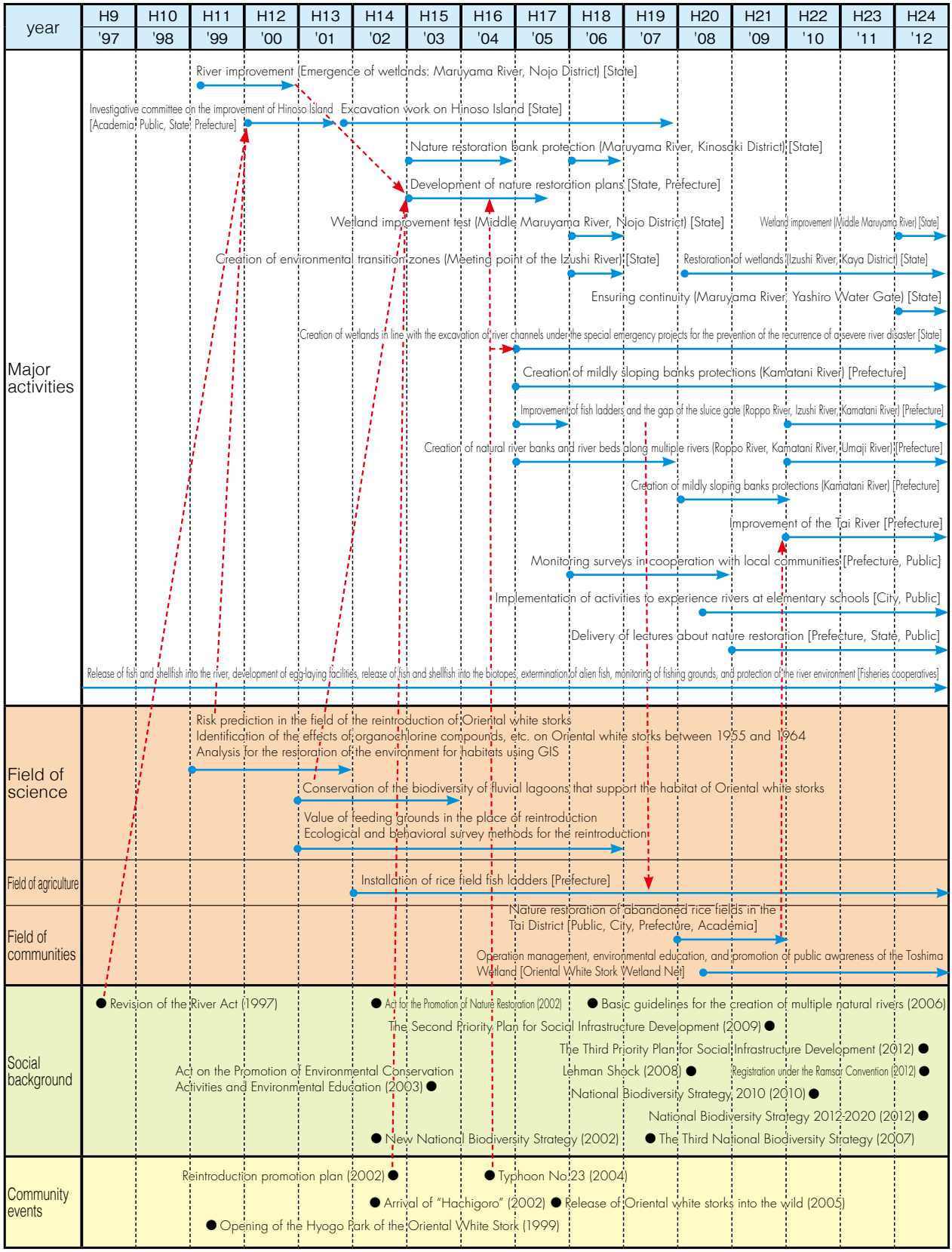
iv) Ripple effects on the communities

- In the Toyooka region, the project for the nature restoration of the Maruyama River has been implemented by the Ministry of Land, Infrastructure, Transport and Tourism and the project for the nature restoration of other rivers has been implemented by Hyogo prefecture. The costs of these projects amount to about 4.5 billion yen (as of 2019) and about 0.3 billion yen (as of 2012), respectively, with a total of 4.8 billion yen.
- It is considered that the improvement concerning the restoration of wetlands brings an economic ripple effect with a production inducement coefficient of 1.266 (Onuma and Yamamoto 2009). If this improvement is applied to the nature restoration projects, it is estimated that an economic ripple effect of about 6 billion yen is produced.
- Concerning the project for the nature restoration of the Maruyama River implemented by the Ministry of Land, Infrastructure, Transport and Tourism, it is evaluated that the Willingness to Pay (WTP) per household is about 6,700 yen a year and the economic value is about 0.4 billion yen a year according to the estimation of the advantage of the nature restoration using the Contingent Valuation Method (CVM).
- In addition, the Cost Benefit Ratio (B/C) of the project is evaluated at 2.0.

v) Issues

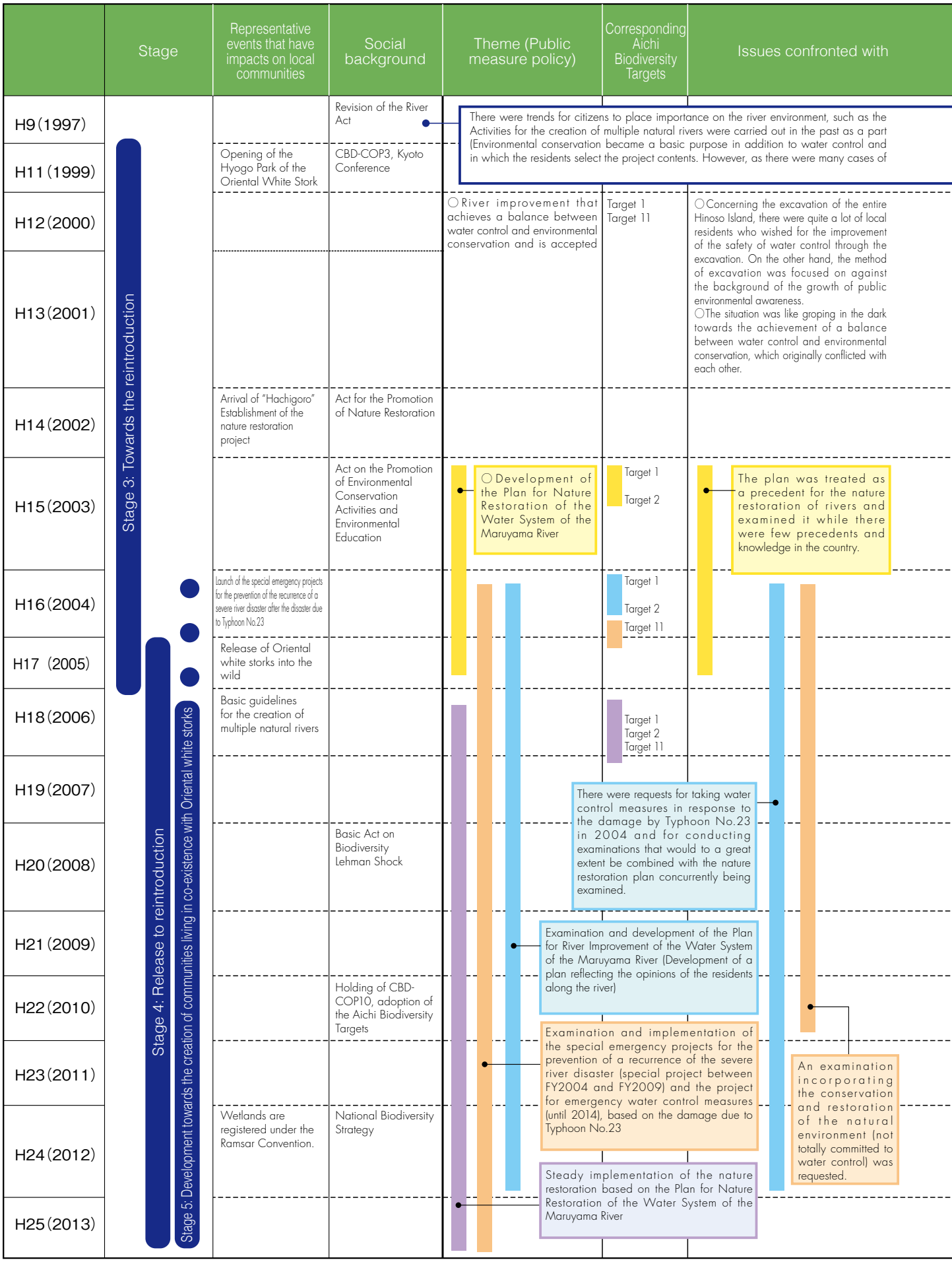
- If artificially-created wetlands are left without maintenance, they will lose their functions as wetlands (overgrowth of vegetation, etc.). Therefore, maintenance and management must be carried out on a regular basis. On the other hand, based on the financial conditions of our country, as there will be limitations on the maintenance and management of the wetlands if it is conducted by the governmental agencies alone in future, it is necessary to collaborate with the citizens and to establish a structure for continuously involving the communities in the maintenance and management.

Table 2.1-3 Chronological table of the activities related to the field of rivers



Note 1) Red lines in the table indicate the events that are considered to have had impacts on the activities.
Note 2) Words for the activity actors indicate the following:
State: Ministry of Land, Infrastructure, Transport and Tourism
Prefecture: Hyogo prefecture
City: Toyooka City
Public: Citizens
Academia: Universities
Fisheries cooperative: Fisheries cooperatives

Table 2.1-4 Summary of public measures in the field of rivers



	Specific measures		Achievements	Connections with other fields and actors	Remarks
	Implementing actors	Specific measures			
Lake Biwa Powder Soap Movement around the 1980s and opposition campaigns against the construction of a dam across the mouth of the Nagara River in the early 1990s, etc. of water control projects. However, the budget for environmental objective projects could not be allocated under the existing laws. Based on this, the River Act was revised in 1997. water utilization.) Hearings to obtain the opinions of residents are required under the revised act at the time of developing plans for river projects.→This law was accepted as a system contradictions between water control and the environment in existing river projects, it was difficult to achieve a balance between them.					
	State	○Precious animals and plants were identified on Hinoso Island by the past national investigations. ○The "Investigative Commission on the Improvement of Hinoso Island" was organized. The members were either on the side of water control or environmental conservation, such as former landowners of Hinoso Island, academic experts on living creatures and rivers, and fisheries cooperatives, etc. ○The expected changes using various excavation methods were examined specifically using 3D fluid dynamics simulations and photo montages, etc.	○Discussions about the compromise between water control and environmental conservation were held in the "Investigative Commission on the Improvement of Hinoso Island". As a result, it was tentatively determined that three-fourths of the cross-sectional area of the island would be excavated as a form that would give consideration to growth and habitat for precious animals and plants. ○The commission became one of the precedents for a method of discussion to compromise between water control and environmental conservation and to obtain the understanding of stakeholders.		
		The "Investigative Commission on the Nature Restoration Plan of the Water System of the Maruyama River" was organized, which consisted of diverse members such as academic experts on various living creatures and rivers, citizen groups as representatives of the region, elementary school teachers, PTAs, the representative ward mayor, fisheries cooperatives, and land improvement wards, etc.	Despite the tremendous damage due to Typhoon No.23 in 2004, the momentum towards the conservation, restoration, and creation of the natural environment was maintained, and the "Plan for Nature Restoration of the Water System of the Maruyama River" was developed in November 2005 through collaboration between the state and the prefecture.	- Formation of networks between rivers and rice fields through the improvement of rice field fish ladders (continuing project)	
	State and Prefecture			○Establishment of a collaborative structure between the river departments of the state and the prefecture ○Sharing of the targets with the Council on the Promotion of the Reintroduction of Oriental White Storks	Promotion plan for the reintroduction of Oriental white storks and the concept for a museum for the entire region where Oriental white storks fly
	State State and Prefecture	○Creation of wetlands in response to the excavation of river channels, construction of embankments, inland water measures, replacement of bridges, and rebuilding of dams, etc., under special emergency projects. ○Improvement of a flood control basin achieving a balance between water control and the environment (wetland improvement) (under implementation)			
	State and Prefecture	Solicited various opinions through the holding of 19 sessions of the River Basin Committee open to the public, the holding of open forums, and issuance of newsletters, etc., which were then reflected in the plan	Increase in the wetland area through wetland restoration. Oriental white storks arrived in the improved wetland and caught their prey.	○Under special emergency projects, measures to reduce the water level of floods comparable to the flood in 2004 to the HWL could be taken. ○Increase in the wetland area due to water control works. Oriental white storks arrived in the improved wetland and caught their prey.	Development of the Basic Policy for River Improvement of the Water System of the Maruyama River
		○For the implementation and evaluation of the nature restoration projects, the "Investigative Commission on the Nature Restoration Plan of the Water System of the Maruyama River" was reorganized into the "Promotion Commission on the Nature Restoration Plan of the Water System of the Maruyama River". ○The restoration of large-scale wetlands (Izushi River, Kaya District), the restoration of wetlands by excavating flood channels, the improvement of fish ladders, the reduction of the gaps in water channels, and the creation of gentle slopes along the riverside, etc., were implemented.	○Development of the "Plan for Nature Restoration of the Water System of the Maruyama River (second revision)" (December 2011)	○Conservation and management of wetlands by Toyooka City and the Council on the Conservation of the Habitat of Oriental White Storks ○Used as an environmental education field for elementary schools	Development of the grand design for the reintroduction of Oriental white storks
			○Development of the river improvement plan incorporating the nature restoration plan (February 2013)		Development of the promotion plan for the reintroduction of Oriental white storks (Second period)

3) Field of agriculture

i) Background

The Toyooka Basin used to have wet rice fields called "Jiruta" which made farm work very hard. In some areas in the Toyooka Basin, farm work was called "work that killed daughters-in-law". However, the environment of the Toyooka Basin was comfortable for Oriental white storks to live in as there were many living creatures.

Under the field improvement project launched around 1970, dry rice fields were created and work efficiency was improved. On the other hand, the continuity between rivers, water channels, and rice fields declined due to the separation of drainage, which made the environment unsuitable as a habitat and for the growth of living creatures. In addition, due to the introduction of pesticides and chemical fertilizers, the amount of yield increased and the workload decreased, but living prey for Oriental white storks such as frogs, insects, and fish disappeared.

In order to reintroduce Oriental white storks, the restoration of their feeding grounds is essential. In addition, as measures against a decline in the vitality of agriculture due to a decline in the price of agricultural products, eco-friendly farming (reduction of pesticides, etc.) has been promoted since the mid-1990s in Toyooka City and other regions in the Tajima area of Hyogo.

A wet rice fields in the Toyooka Basin called "Jiruta"

Source: Toyooka Environment-Economy Strategy (March 2006)

Pesticide application under the artificial nesting towers

Source: Toyooka Environment-Economy Strategy (March 2006)

ii) History of the activities (Table 2.1-6)

Promotion of eco-friendly farming

In order to reduce the burden on the environment and stably supply safe agricultural products to the residents in the prefecture, Hyogo prefecture established a "Certification system for organic products in Hyogo" in FY1993 ahead of other prefectures, and has promoted eco-friendly farming since FY2001 by establishing a "Certification system for Hyogo safety brand products" which certified agricultural products whose pesticide residues are not more than one-tenth of the national standards, etc. Especially in the Shounji District that was a construction site for the "Hyogo Park of the Oriental White Stork," advanced activities for the production of rice without depending on the use of pesticides have been carried out, such as the introduction of rice-duck farming since the 1990s.

In addition, in order to improve the habitat for living creatures that had deteriorated due to the creation of dry rice fields and the increase in water channels with concrete-covered beds and sides, Hyogo prefecture, Toyooka City, and the Ministry of Agriculture, Forestry and Fisheries have carried out various improvements since around 2001, such as "Rice field fish ladders" which enable fish to transfer between water channels and the rice fields, "Evacuation sites (unlined water channels, etc.)" which enable amphibian species to survive during the "Drying up" period (draining of the water from the rice fields in order to increase the vitality of the rice), and "Fish nests" which become fish habitat and breeding sites in water channels, etc.

Other than those above, various activities have been promoted, such as "Converted rice field biotopes" which change fallow fields into habitat and breeding sites for living creatures by filling the fallow fields with water throughout the year, and "Permanently-flooded rice cultivation" in which rice fields are filled with water in winter and during the period when the rice fields are normally dried up.

Rice-duck Farming

A farming method that does not use chemical fertilizers or pesticides, but uses call ducks that are allowed to run loose in the rice fields. They eat weeds and pests as feed and their excrement provides nutrients for the rice.

Source: Promotion plan for the reintroduction of Oriental white storks (March 2003)

Oriental white storks looking for food in a winter-flooded rice field

Source: Brochure on Stork Friendly Farming (Toyooka City)

Systematization of Stork Friendly Farming

Under this situation, Hyogo prefecture and the farmers in the Shounji District have worked together to establish a farming method without using or significantly reducing the use of pesticides or chemical fertilizers since around 2003 in order to cultivate living creatures to provide prey for Oriental white storks.

However, the commonsense idea at that time was to improve the efficiency of agricultural work and to increase the amount of yield per unit area by using pesticides and chemical fertilizers according to the cultivation schedule of the region. Therefore, it was difficult to gain people's understanding of activities that contradicted such an idea. In addition, technologies to control weeds without using pesticides had not been established yet.

In response to this, Hyogo prefecture made efforts to develop technologies for the "agriculture that can live with Oriental white storks" by inviting forward-thinking experts outside the prefecture, etc. Thanks to the efforts of agricultural promoters having strong beliefs, "Stork Friendly Farming" (Table 2.1-5) was systematized in 2005 after a process of trial and error. The requirements of Stork Friendly Farming are not to use chemical pesticides or to reduce chemical pesticides by 75% compared with conventional cultivation by using organic fertilizers instead, and to extend the period to fill the rice fields with water, etc. (Figure 2.1-8). Because of the extension of the flooding period, tadpoles can develop into adult frogs and dragonfly larvas can develop into adult dragonflies, which has increased the number of living creatures to provide prey for Oriental white storks and controlled harmful pests by achieving a balance of the living creatures in the rice fields.

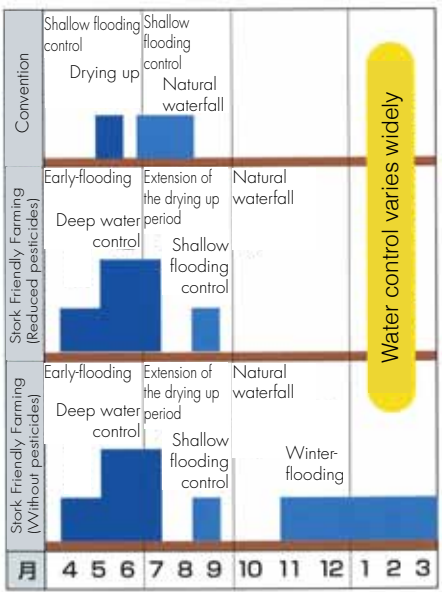
A metamorphosing rain frog

Source: Brochure on Stork Friendly Farming (Toyooka City)

Table 2.1-5 Requirements for Stork Friendly Farming

Items	Required items	Challenging items
Environment-friendliness	- Securing of the biodiversity of living creatures Identification of the metamorphosis of tadpoles before the drying up period - Reduction in synthetic chemical pesticides (1) Without using pesticides Without using pesticides during the cultivation period (2) Reduction in the use of pesticides Reduce pesticides by 75% compared with those used elsewhere in this region. When using pesticides, ordinary pesticides with class A toxicity for fish must be used. (3) Introduction of technologies to reduce pesticides Seed disinfection and ridge grass control without using synthetic chemical pesticides (hot-water disinfection, etc.) - Reduction of chemical fertilizers Without using pesticides during the cultivation period	- Identification of worm fish and the larva of midges at the time of winter-flooding and early-flooding - Identification of leaf bugs, leafhoppers, and arachnids around the rice ear emergence period - Installation of fish ladders and shelters for living creatures - Application of rice bran and waste soybean, etc.
Water control	- Early flooding - Deep water control - Extension of the drying up period	Winter-flooding
Resource circulation	- Use of compost and local organic materials	
Others	- Acquisition of any of the certifications (Organic JAS, Hyogo safety brand, Dance of the Oriental white stork, Gift of the Oriental white stork)	

Source: Brochure of Stork Friendly Farming (March 2013)



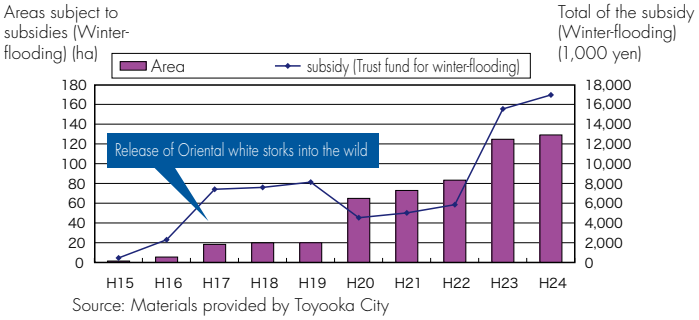
Source: Brochure on Stork Friendly Farming (March 2013)

Figure 2.1-8 Water control in Stork Friendly Farming

Promotion of Stork Friendly Farming

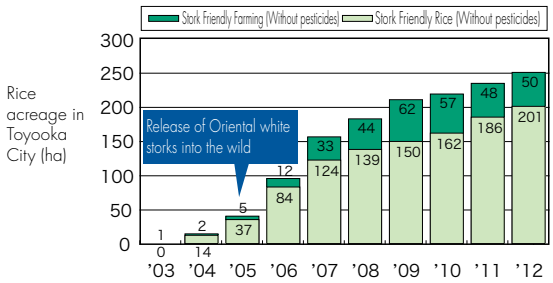
Compared with conventional cultivation, "Stork Friendly Farming" requires more labor, (weeding and water management, etc.), but has a lower yield. In response to this, the prefecture, the city, and the Ministry of Agriculture, Forestry and Fisheries have worked to expand Stork Friendly Farming to the Tajima region by establishing a subsidy system (Figure 2.1-9), holding training and forums, setting up large-scale practical demonstration districts, and creating manuals, etc.

In addition, they held "courses for the cultivation of Stork Friendly Farming advisors" for 3 years from 2008 and provided technical training for the leaders in each farming district. As a result of these activities, the rice acreage has rapidly increased since the trial release of Oriental white storks in 2005, and has remained on an increasing trend (Figure 2.1-10).



Source: Materials provided by Toyooka City

Figure 2.1-9 Subsidy for Stork Friendly Farming (Trust fund for winter-flooding)



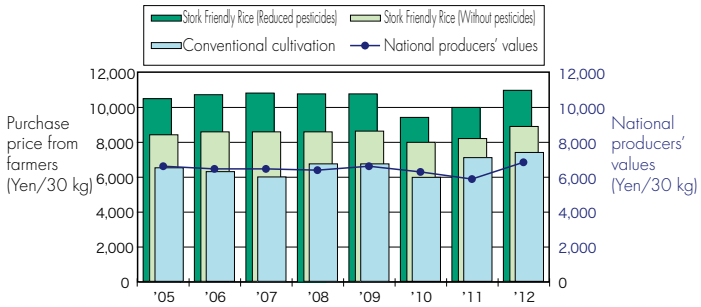
Source: Materials provided by Toyooka City

Figure 2.1-10 Trends in the rice acreage of "Stork Friendly Rice"

Increase in the consumption of Stork Friendly Farming

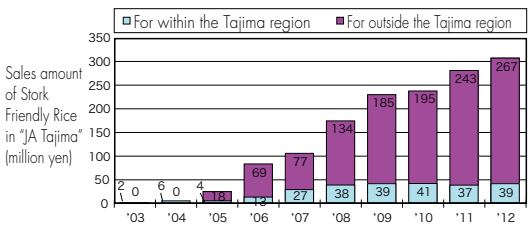
For the expansion of "Stork Friendly Farming", it is necessary to maintain the economic advantages to farmers in addition to the principle of the reintroduction of Oriental white storks. Agricultural brands have been established by Toyooka City and JA Tajima, such as "Dance of the Oriental white stork" in 2003 by adding the original requirements of Toyooka City to the "Hyogo safety brand" and a certification system for specially cultivated products called "Gift of the Oriental white stork", etc. In addition, the prefecture, the city, and JA have secured sales channels (large retailers, etc.) through various sales promotion events and have promoted interactions between consumers and farmers through surveys on living creatures in rice fields. Moreover, in order to increase consumption, "Stork Friendly Rice" has been introduced in school meals in Toyooka City since 2009 at the request of the students in the region.

Through these activities and against the background of an increase in environmental awareness, "Stork Friendly Farming" has been marketed at a higher price than rice produced under conventional farming (Figure 2.1-11) and the sales amount has been steadily increasing year by year mainly in areas outside the Tajima region (Figure 2.1-12).



Source: Materials provided by Toyooka City

Figure 2.1-11 Comparison of the purchase price of rice



Source: Materials provided by JA Tajima

Figure 2.1-12 Sales amount of "Stork Friendly Rice"

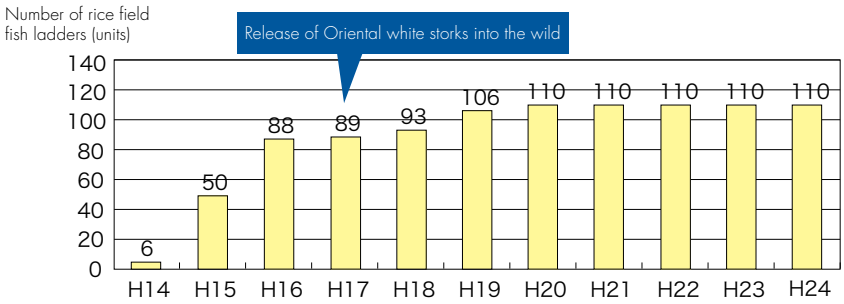
Others

The installation of "Rice field fish ladders", a challenge for "Stork Friendly Farming", has also been implemented (Figure 2.1-13). According to the results of a survey on the population of living creatures in rice fields where "Stork Friendly Farming" has been introduced compared with areas where conventional farming is conducted, it was found out that there are more living creatures inhabiting the rice fields introducing "Stork Friendly Farming" than those where conventional farming is practiced (Figure 2.1-14). In addition, in the survey on the water quality of rivers, figures for pesticide-related items have continuously achieved the environmental standards.

Moreover, "Stork Friendly Farming" has been used as a place for environmental education, such as the survey on living creatures in rice fields carried out by an NPO called Citizen's Research Institution for the Oriental White Stork and local elementary/middle school students. Activities for Stork Friendly Farming have also been expanded internationally, such as the provision of technical guidance for "Stork Friendly Farming" to China in 2010 through the prefecture and the city as a "grassroots technical exchange project" by the Japan International Cooperation Agency (JICA).

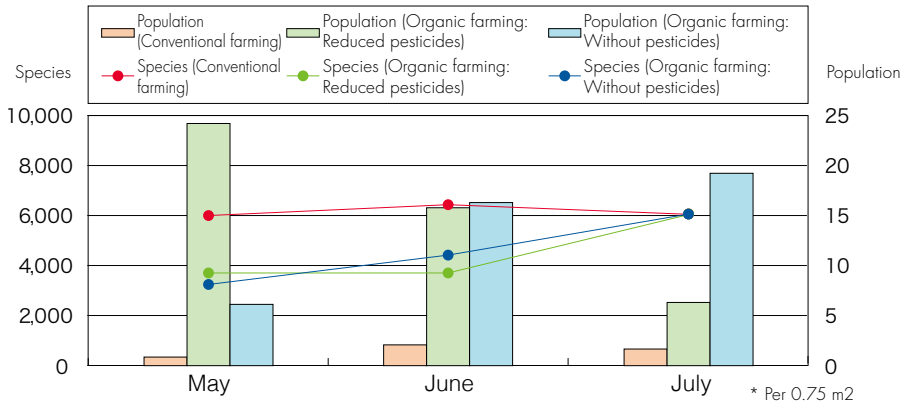
* Rice field fish ladders are fish ladders created in rice fields and water channels that enable fish to travel between them.

Source: History of the reintroduction of Oriental white storks (March 2012)



Source: Grand design for the reintroduction of Oriental white storks (August 2011) and materials provided by Toyooka City

Figure 2.1-13 Number of rice field fish ladders



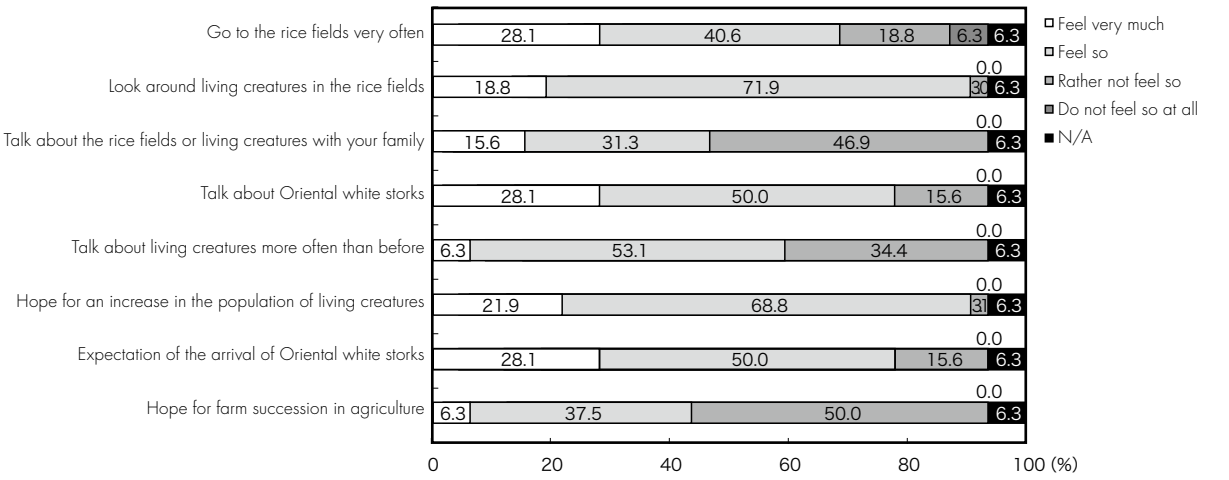
Source: Grand design for the reintroduction of Oriental white storks (August 2011) and materials provided by Toyooka City

Figure 2.1-14 Comparison of the population of living creatures between Stork Friendly Farming and conventional farming

iii) Public awareness

Stork Friendly Farming seems to be expanding smoothly, but there were still strong objections from farmers at the beginning of the activities for Stork Friendly Farming. This is because the farmers had an image of Oriental white storks as harmful birds since they sometimes trample on seedlings in the rice fields. However, as a result of the efforts of the agricultural advisors in the prefecture who eagerly visited the farmers to explain about Stork Friendly Farming, the number of farmers approving Stork Friendly Farming increased little by little (2.2. Thoughts of people involved in the activities 1), interview by Itsuki Nishimura). In addition, at the time of the arrival of a wild Oriental white stork called "Hachigoro", Hyogo prefecture, Toyooka City, and the Hyogo Park of the Oriental White Stork researched how many times storks trampled on seedlings in the rice fields. Based on the results of the research, they have informed the farmers that the current dried fields do not have major damage. As a result of these activities, the cultivation area of Stork Friendly Farming has been increasing but it can be considered that various related factors are behind this. For example, people in the Toyooka region have considered Oriental white stork as a harmful bird as well as an auspicious bird, have been living in co-existence with nature despite suffering from natural disasters such as repeated floods of the Maruyama River, etc., and basically have the desire to provide safe agricultural products to the consumers, etc.

According to the awareness survey of farmers who have actually conducted "Stork Friendly Farming", the awareness of Oriental white storks and other living creatures inhabiting rice fields has developed through Stork Friendly Farming (e.g. "Hope for an increase in the population of living creatures", "Looking around living creatures in the rice fields", "Talking about Oriental white storks", and "Expectation for the arrival of Oriental white storks") (Figure 2.1-15). Though such opportunities, purposes, and feelings for the activities are extremely varied, they appreciate "Stork Friendly Farming" on the whole.



Source: Creation of regional resources focusing on the reintroduction of Oriental white storks (Kikuchi July 2010)

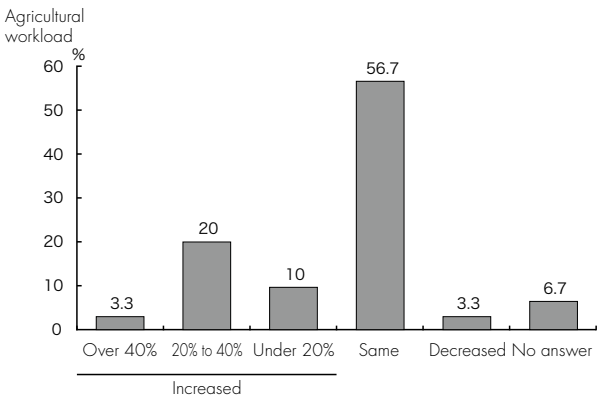
Figure 2.1-15 Feelings through conducting Stork Friendly Farming

iv) Ripple effects on local communities

Economic advantages for farmers

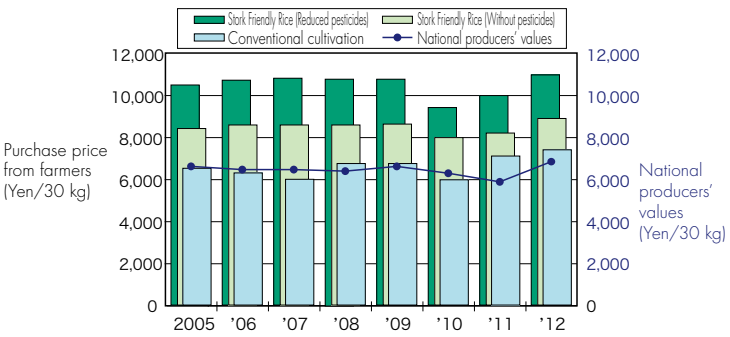
- This section evaluates Stork Friendly Farming from the economic aspects by taking Stork Friendly Rice as an example.
- Examples of previous research include the economic analysis for farmers (Onuma and Yamamoto 2009) and the examples of the analysis of the economic ripple effects on local communities (Sekiya 2009; Onuma and Yamamoto 2009; Hayashi 2010).
- As an advantage for farmers, it can be pointed out that Stork Friendly Rice can be sold at a high price since a price premium is added. Compared to the purchase price of conventional cultivated rice by the Japan Agricultural Cooperatives (7,000 yen per 30 kg), rice with reduced pesticide use is purchased for 1,000 yen to 2,000 yen extra and rice without pesticide use is purchased for 4,000 yen to 5,000 yen extra (Figure 2.1-16).
- In addition, a subsidy can be received by using the support system for environmentally sound farming provided by the Ministry of Agriculture, Forestry and Fisheries, Hyogo prefecture, and Toyooka City. For example, as for Stork Friendly Rice (without pesticides), 8,000 yen per 10 ares is provided by the eco-farmer certification and 7,000 yen per 10 ares is added to a municipal independent project by conducting winter-flooding of rice fields.
- On the other hand, as for the disadvantages, a decrease in the amount of yield due to the growth of weeds and an increase in the workload due to water management and weeding are a concern (Sekiya 2009; Hayashi 2010). However, according to the interviews with farmers, the most common answer was the "Work volume is the same as before" (over 50%), compared with the "Work volume increased" (30%) (Figure 2.1-17).
- According to the results of the estimation of the economic advantages for the cultivation of Stork Friendly Rice using the inter-annual data for the purchase price, the income has been continuously increasing by several hundred thousand yen compared to conventional cultivation based on the sales amount since 2008 (increase by 50,000 yen to 200,000 yen per hectare for rice with reduced pesticide and increase by 100,000 yen to 350,000 yen per hectare for rice without pesticides) (Figure 2.1-18). This shows that the decline in the amount of the yield due to Stork Friendly Farming is sufficiently covered by the extra price premium.
- Moreover, the income increases by 130,000 yen to 250,000 yen per hectare (rice with reduced pesticides) and 250,000 yen to 400,000 yen per hectare (rice without pesticides) when including the subsidy. Along with supplementary measures, the monetary incentive for the cultivation of Stork Friendly Rice is maintained.
- However, this estimation does not calculate the cost reduction from reducing pesticide applications, the cost increase due to the purchase of organic fertilizers, and the cost increase due to an increase in manpower requirements, etc.

Source: History of the reintroduction of Oriental white storks (March 2012)



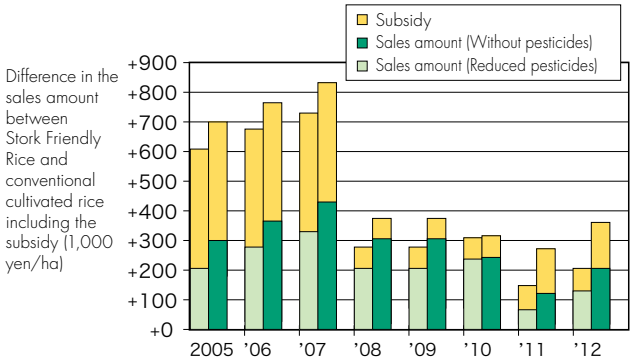
Source: Report on interviews with farmers engaged in Stork Friendly Farming (Kikuchi 2012)

Figure 2.1-17 Trends in the workload by conducting Stork Friendly Farming (questionnaire)



Source: Materials provided by Toyooka City and the Organization for Stable Supply and Securing of Rice

Figure 2.1-16 Purchase price of rice by farming method

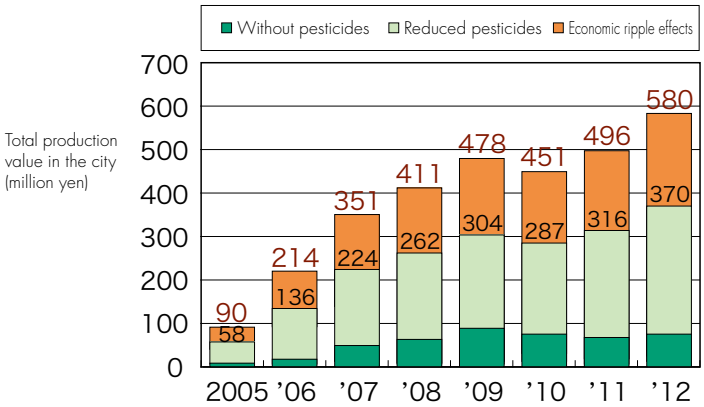


Source: Calculated based on the materials provided by Toyooka City

Figure 2.1-18 Difference in the sales amount between Stork Friendly Farming and conventional farming

Economic ripple effects

- Examples of estimations of the economic ripple effects due to the cultivation of "Stork Friendly Rice" are 220 million yen as the economic ripple effect of Stork Friendly Rice and Sake (Sekiya 2009), and 60 million yen as an increase in the production value in the conversion of about 140 ha of rice fields into rice fields for cultivating Stork Friendly Rice (Hayashi 2010). It is estimated that their production inducement coefficients are about 1.4 and 1.57 respectively, and the ripple effect on the local economy is 40% to 60%.
- According to the calculation of the total production value of Stork Friendly Rice in the city by multiplying the total rice acreage in the city by the unit price, the value increased by about 310 million yen, from 60 million yen as of 2005 to 370 million yen as of 2012. As an economic ripple effect including the production inducement, it is estimated that the value increased by about 500 million yen, from 90 million yen as of 2005 to 580 million yen as of 2012 (Figure 2.1-19).
- Based on these estimates, it is considered that the expansion of "Stork Friendly Farming" has become a measure that brings an economic effect of about 600 million yen for the municipal economy.



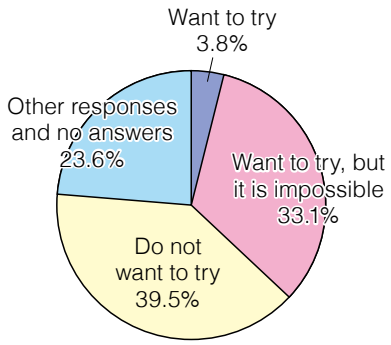
Numbers in black: Total production value of rice without pesticides and reduced pesticides
Numbers in red: Total production value of rice without pesticides and reduced pesticides including the economic ripple effects

Source: Calculated based on materials from Toyooka City

Figure 2.1-19 Production value of Stork Friendly Rice and its economic ripple effects

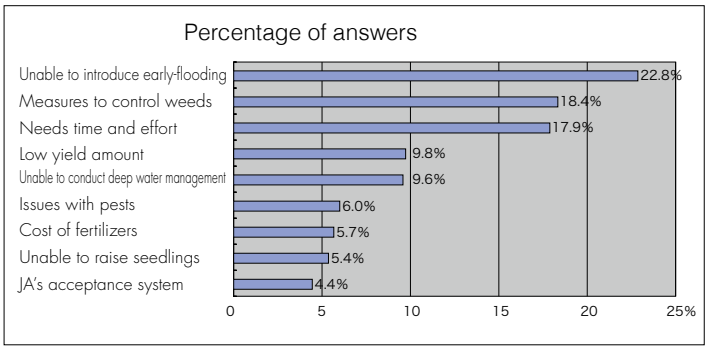
v) Issues

- It has been over 10 years since the launch of "Stork Friendly Farming" and its rate of expansion has slowed down slightly in recent years (Figure 2.1-10).
- Awareness among farmers of Stork Friendly Farming is over 70%, and one out of three farmers is positive about implementing Stork Friendly Farming (Figure 2.1-20). However, some issues have become factors that are inhibiting the expansion of Stork Friendly Farming, such as the inability to introduce early-flooding or winter-flooding because it causes trouble for the neighboring fields, it takes a lot of time and effort to take measures to control weeds, and it is not possible to conduct early water intake due to water rights issues, etc. (Figure 2.1-21).
- In addition, though on average there is an increase in income when conducting "Stork Friendly Farming", the "difference" in the incomes of the farmers may become an issue for the expansion or the continuity of Stork Friendly Farming according to the survey results (No change in income: about 30%, Income increased: about 40%, Income decreased: about 20% (Kikuchi 2012)) (Figure 2.1-22).
- With regard to the economic aspects, although the yields decrease by 10% to 20% due to the change in the farming method, a price premium is added to Stork Friendly Rice (1,000 yen to 5,000 yen extra per 30 kg). Even if the decrease in the yields is taken account of, the income increases by 150,000 yen to 300,000 yen per ha based on the calculation of the sales amount including the subsidy (Figure 2.1-18).
- However, 40% of the farmers consider that the price premium on Stork Friendly Rice is "low," which shows that the price is not recognized as a price that reflects the increase in their workload (Toyooka City 2013 Questionnaire).
- Moreover, approx. 70% of Stork Friendly Farming is conducted by full-time farmers (Figure 2.1-23). This is higher than the proportion of full-time farmers in Toyooka City (approx. 20%); in other words, the proportion of part-time farmers participating in Stork Friendly Farming is low. Therefore, promotion targeting part-time farmers is necessary for the further expansion of Stork Friendly Farming.
- Regarding the categories "without pesticides" and "reduced pesticides", the amount of cultivation with reduced pesticides has been steadily increasing. However, the amount of cultivation without pesticides has declined slightly from 62 ha at its peak to below 50 ha recently.
- It can be considered that the reason why the farmers select cultivation with reduced pesticides more than the cultivation without pesticides is that their workload does not increase much compared with the conventional cultivation (Kikuchi 2012).



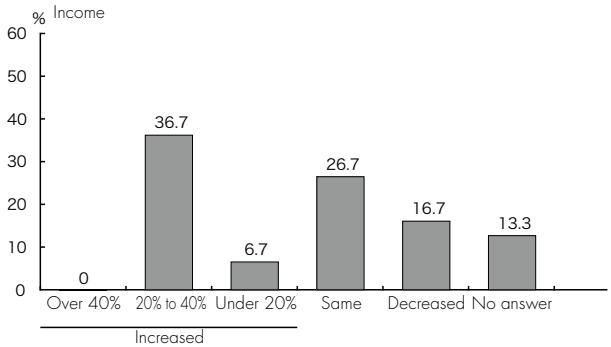
Source: Questionnaire on Stork Friendly Farming (Toyooka City, 2013)

Figure 2.1-20 Intention to conduct Stork Friendly Farming



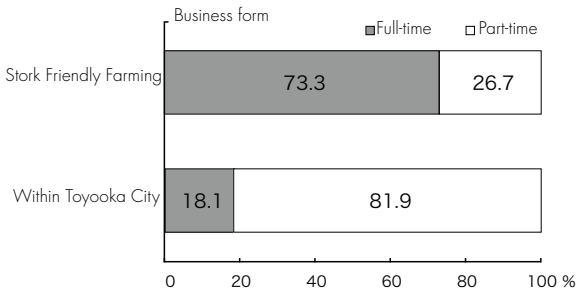
Source: Questionnaire on Stork Friendly Farming (Toyooka City, 2013)

Figure 2.1-21 Factors inhibiting the introduction of Stork Friendly Farming



Source: Report on interviews with farmers engaged in Stork Friendly Farming (Kikuchi 2012)

Figure 2.1-22 Changes in the income level due to the adoption of Stork Friendly Farming (Questionnaire)



Source: Report on interviews with farmers engaged in Stork Friendly Farming (Kikuchi 2012)

Figure 2.1-23 Proportion of farmers conducting Stork Friendly Farming according to their form of business

Table 2.1-6 Chronological table of the activities related to agriculture

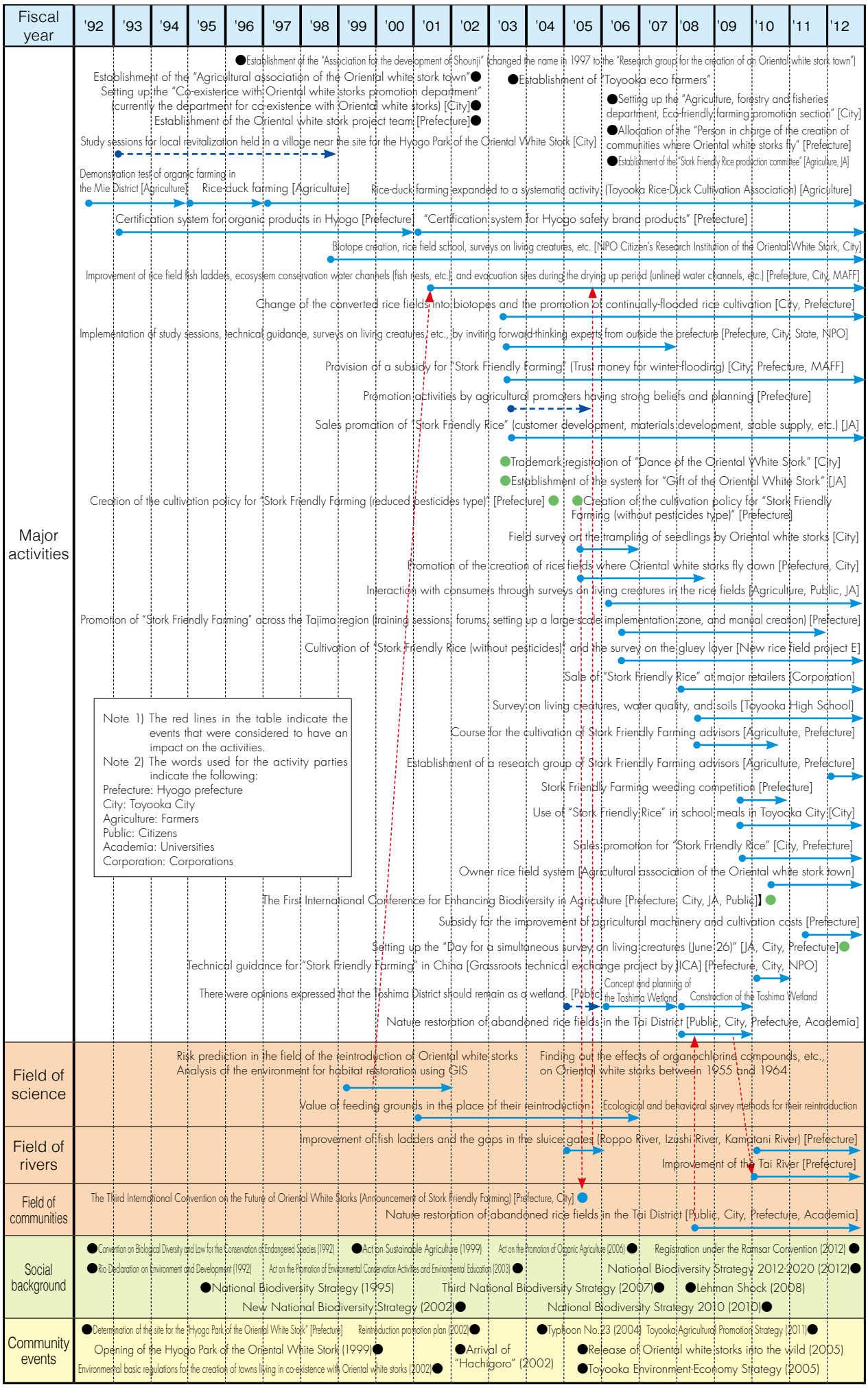


Table 2.1-7 Summary of public measures in the field of agriculture

	Stage	Representative events that have impacts on communities	Theme (Public measures policy)	Corresponding to the Aichi Biodiversity Targets	Issues communities are confronted with
1989	Stage 3: Towards the reintroduction	Success of the breeding of Oriental white storks (1989) Collapse of the bubble economy (1991) Great Hanshin-Awaji Earthquake (1995)	Promotion of the production of safety food	Target 1 Target 8	○Insufficient technical knowledge for the reduction in the use of pesticides, and changes in awareness among farmers
1999		Opening of the Hyogo Park of the Oriental White Stork			
2000					
2001					
2002 *Act for the Promotion of Nature Restoration		Arrival of "Hachigoro"	Establishment of the implementation structure of organic farming Trials of a farming method without use of pesticides or with reduction in the use of pesticides Establishment of the support project for the nature restoration of rice paddies Creation of agricultural brands contributing to the conservation of Oriental white storks	Target 1 Target 3 Target 4 Target 7 Target 8 Target 11 Target 19	○The establishment of an activity structure by each party and the formation of understanding within the organization ○Insufficient knowledge about nature restoration in rice fields
2003					
2004		Affected by Typhoon No.23	Systematization of Stork Friendly Farming Securing of sales channels	Target 1 Target 3 Target 4 Target 7 Target 8 Target 11 Target 19	○The creation of high value-added Stork Friendly Rice and the development of sales channels ○The expansion of the area of rice fields to become the feeding grounds for Oriental white storks at the time of their release
2005	Stage 4: Release to reintroduction	Release of Oriental white storks into the wild			
2006	Stage 5: Development towards the creation of communities living in co-existence with Oriental white storks		Promotion and multiple developments of Stork Friendly Farming	Target 1 Target 3 Target 4 Target 7 Target 8 Target 11 Target 19	○Strengthening of the support system in order to increase the number of farmers conducting Stork Friendly Farming and expand the area of rice fields
2007					
2008		Lehman Shock	Strengthening of the sustainability of Stork Friendly Farming	Target 1 Target 3 Target 4 Target 7 Target 8 Target 11 Target 19	○Strengthening of the production/sales structure by setting up an organization associated with an increase in the number of producers conducting Stork Friendly Farming
2009					
2010					
2011					
2012 *Wetlands are registered under the Ramsar Convention.					
2013					

	Specific measures		Achievements		Remar
	Implementing parties	Specific measures		Connections with other fields and parties	
	Prefecture Prefecture	- Development of the promotion policy for organic farming - Establishment of the certification system for organic agricultural products	- Introduction of Rice-duck farming in the Shounji District - "Toyooka Rice-Duck Cultivation Association" started rice cultivation without using pesticides.	- Establishment of the "Association for the development of the Shounji District" - Setting up biotopes in rice fields in the Shounji District with the Citizen's Research Institution of the Oriental White Stork	
	Prefecture City Prefecture,City City Prefecture City City	- Establishment of the "Oriental white stork project team" in the prefectural branch office, regional development department - Setting up the promotion department for co-existence with Oriental white storks - Launch of cultivation tests using reduced pesticides without using chemical fertilizers - Launch of study sessions for the creation of rice fields for living in co-existence with Oriental white storks (Instructor: Mr. Mitsukuni Inaba) - Development of a promotion plan for the reintroduction of Oriental white storks (First period) - Launch of the project for the nature restoration of rice fields for living in co-existence with Oriental white storks - Establishment of the Dance of the Oriental White Stork certification system by the city	- Establishment of the activity structure of the parties (Prefecture, City, and JA) - Agricultural association of the Oriental white stork town and Toyooka eco farmers started trial cultivation without using chemical synthetic pesticides and chemical fertilizers during the cultivation period. - Establishment of the brand rice system	- Formation of a network between rivers and rice fields through the improvement of rice field fish ladders	
	Prefecture,City Prefecture Prefecture,City Prefecture City	- The prefecture, the city, and the JA verified the reduced pesticides cultivation history. - Creation of the policy for reduced pesticides cultivation - Launch of a preparatory committee for the establishment of the "Stork Friendly Rice Production Committee (tentative name)" - Creation of the policy for cultivation without the use of synthetic chemical pesticides and chemical fertilizers during the cultivation period - Development of the Toyooka Environment-Economy Strategy	- Started selling at a local retailer (Toyoda) - Systematization of "Stork Friendly Farming" - Started selling at Ito Yokado (a major supermarket chain)	- Announcement of "Stork Friendly Farming" at the "International Convention on the Future of Oriental White Storks"	
	Prefecture,City Prefecture Prefecture City	- Establishment of the "Stork Friendly Rice Production Committee" - Establishment of the "Stork Friendly Farming" investigation project team in the Hyogo Prfectural Technology Center for Agriculture, Forestry and Fisheries - Launch of surveys on living creatures based on the living creature survey manual - Trademark registration of "Stork Friendly"	- Expansion of "Stork Friendly Farming" across the Tajima region under the organic farming promotion project - Release of brewer's rice called "Gohyakumangoku" and "Fukunohana" under the Stork Friendly Farming without pesticides brand - Establishment of the "Stork Soybean Association" - Launch of the expansion of the cultivation of "Stork Soybean" under the organic farming promotion project		
	Prefecture,City Prefecture City Prefecture Prefecture,City City City City	- Establishment of branch offices of the Stork Friendly Rice Production Committee (North/South branch offices) - Setting up the "Course for the cultivation of Stork Friendly Farming advisors" - Establishment of the "Promotion Council for Stork Friendly Rice" - Development of the promotion plan for the reintroduction of Oriental white storks (Second period) - Establishment of the "Stork Soybean Production Committee" - Establishment of the "Subsidy system for the Stork Friendly Farming promotion project" - Establishment of a "System for projects by the entire village to conduct Stork Friendly Farming" - Development of the Toyooka Agricultural Promotion Strategy	- Establishment of production systems by the "Stork Friendly Rice Production Committee" and the "Stork Soybean Production Committee" - Strengthening of the sales structure by the "Promotion Council for Stork Friendly Rice"		

4) Field of communities

i) Background

Oriental white storks were called "cranes" through the ages in the Tajima region and were said to be protected by Hisatoshi Sengoku, the domain lord of the Izushi Domain, between 1830 and 1843 as an "auspicious bird." Between the Edo Period and early Showa Period, when Oriental white storks built their nests, a cafe was set up in the neighborhood and many people visited there to see Oriental white storks.

On the other hand, in the days when wild Oriental white storks inhabited the area, they were considered a harmful bird because they sometimes trampled on the seedlings. Rice fields used to be called "Jiruta" where people submerged themselves in the fields to the height of their knees and sometimes up to the waist. Rice planting and weeding were very hard as there was no agricultural machinery or pesticides. As rice was an important food, to grow it without any trouble was an ardent desire of the farmers.

Thus people in the Toyooka region originally had a conflicting image of Oriental white storks as both an "auspicious bird" and a "harmful bird."

Since the birth of the first baby Oriental white stork in 1989 through artificial breeding, the breeding of captive Oriental white storks has been proceeding smoothly. The future concept with an eye to the reintroduction of Oriental white storks started to be drawn up. In order to realize their reintroduction, the cooperation of the citizens in the creation and maintenance of the environment of the feeding grounds necessary for the habitat of Oriental white storks was essential. It was also necessary to gain their understanding of requests for changes in the life of residents in the area while using a part of their local taxes.

ii) History of the activities (Table 2.1-8)

Beginning of information dissemination to the citizens

Along with the development of a base facility for the reintroduction of Oriental white storks called the "Hyogo Park of the Oriental White Stork", Toyooka City distributed a booklet compiling the history of the extinction, protection, and breeding of Oriental white storks called "Fly again, Oriental white storks: History of the Oriental white stork" to all households in the city in 1994. In addition, the prefecture and the city worked together to hold the "First International Convention on the Future of Oriental White Storks" in the same year by inviting Prince Akishino and researchers working on the protection and the reintroduction of birds overseas. At the convention, the community residents were informed about the significance of the activities for the reintroduction of Oriental white storks. These activities were also disseminated through the media to people around the country.

NPO Citizen's Research Institution of the Oriental White Stork

Subsequently, some citizen groups were established in the Toyooka region. They sometimes carried out activities ahead of the government, such as disseminating recent information on Oriental white storks, holding environmental education sessions, and creating/maintaining their habitats. In 1998, the "Citizen's Research Institution of the Oriental White Stork" was established by citizens conducting nature observation and surveys on living creatures in the Toyooka Basin as their field. They created a "Rice field school", which provides environmental education using rice fields and water channels as a place for playing and learning, conducted surveys on living creatures, and created biotopes.

Customers watching Oriental white storks at a cafe (at the end of the Meiji Period)

Source: Materials provided by Toyooka City

Farm work in a wet paddy (mid-1950s)

Source: Materials provided by Toyooka City

A booklet distributed by Toyooka City to all households in the city in 1994

International Convention on the Future of Oriental White Storks

Source: Report of the International Convention on the Future of Oriental White Storks

Rice field school (NPO Citizen's Research Institution of the Oriental White Stork)

Source: History of the reintroduction of Oriental white storks

Hyogo Park of the Oriental White Stork

(1) Oriental white stork park volunteers

Since the opening of the Hyogo Park of the Oriental White Stork in 1999, volunteers have carried out promotional and educational activities such as the improvement of environmental education programs and the holding of experiential learning activities and public forums/lectures, in addition to the preservation/genetic control of the species of the Oriental white stork and the implementation of scientific research and experimental approaches towards the reintroduction of Oriental white storks (Figure 2.1-24, Figure 2.1-25). In addition, the Hyogo Park of the Oriental White Stork started nurturing "Oriental white stork park volunteers" in 2000. This is a system in which citizens are trained to monitor the flight routes and behavior of the released Oriental white storks. The citizens are certified as Oriental white stork park volunteers after attending lectures and fulfilling the requirements (report presentation, etc.). Actual monitoring has been conducted after the release of Oriental white storks into the wild in 1995. Data obtained through the monitoring are used for understanding the environmental conditions for the habitat for Oriental white storks.

(2) Oriental white stork fan club

Hyogo prefecture has continuously carried out various promotional and educational activities including the creation/distribution of images, etc. In addition, the prefecture established the "Oriental white stork fan club" in 2004 (Figure 2.1-26) by collecting members from across the country to conduct surveys on living creatures, carry out activities for the restoration of rice fields, rivers, and Satoyama (rural natural areas), compile information on the observation of Oriental white storks, and carry out the release of juvenile fish into rivers, the planting of "Hyogo genki matsu (a kind of pine tree)" that is resistant to weevils so they can grow into nesting sites for storks, and the dissemination of information.

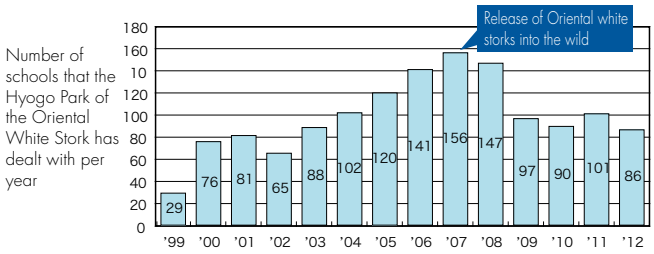
Moreover, the prefecture created a supplementary reader on "Moral education" for elementary and junior high school students in 2011 introducing the activities for the "reintroduction of Oriental white storks" and has distributed it to all children and students in the prefecture.

Toyooka City

Toyooka City established the "Toyooka Municipal Eco-Museum Center" inside the Hyogo Park of the Oriental White Stork in 2000 as a "base for an eco museum on co-existence between humans and nature" to provide environmental learning and disseminate information. In addition, the city has carried out various activities, such as environmental education through the Open University of the Environment and elementary schools, a school to experience nature called "Children's activity for the reintroduction Oriental white storks", and experiential activities through an organization extending beyond the school and the age group called the "Oriental white stork kids club", etc. (Figure 2.1-27). Concerning environmental education in elementary schools, the city created a supplementary reader for social studies introducing the activities of the "reintroduction of Oriental white storks" in 2004 and has distributed it to all schools in the city after making some revisions as needed.

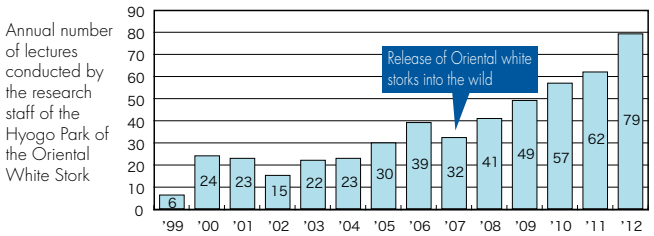
Oriental white stork park volunteers

Source: Oriental white stork park volunteer recruitment information 2006



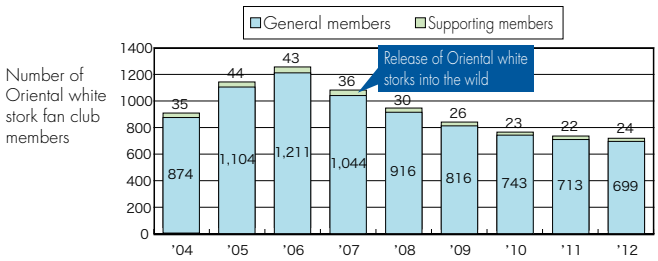
Source: A magazine published on the 10th anniversary of the establishment (October 2009) and materials provided by the Hyogo Park of the Oriental White Stork

Figure 2.1-24 Number of schools that the Hyogo Park of the Oriental White Stork has dealt with per year



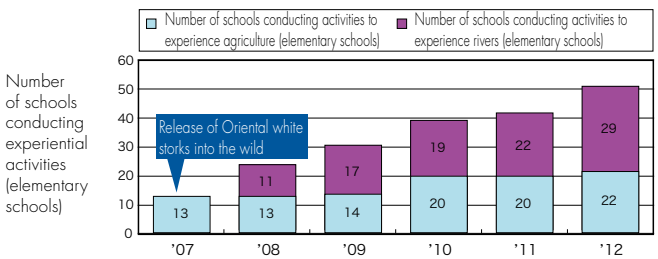
Source: A magazine published on the 10th anniversary of the establishment (October 2009) and materials provided by the Hyogo Park of the Oriental White Stork

Figure 2.1-25 Annual number of lectures conducted by the research staff of the Hyogo Park of the Oriental White Stork



Source: Materials provided by the Hyogo Park of the Oriental White Stork

Figure 2.1-26 Number of Oriental white stork fan club members



(Total number of schools: 30 as of 2012)

Source: Materials provided by Toyooka City

Figure 2.1-27 Number of schools conducting activities to experience agriculture and rivers (Toyooka City)

In addition, through collaboration with Hyogo prefecture, etc., the city held an "International Convention on the Future of Oriental White Storks" a total of four times, participated in "Expo 2005 Aichi, Japan", has held an event to publicize the attractiveness of the Toyooka region called "Toyooka Exhibition" every year in Tokyo since 2009, and has actively disseminated information through lectures by the mayor and city officials in the department for co-existence with Oriental white storks, etc., held outside the city. Moreover, the city has collaborated with other regions, such as the "Symposium for villages living in co-existence between humans and other living creatures" co-organized by Sado City, Niigata (Japanese crested ibis), Shunan City, Yamaguchi (Hooded crane), and Izumi City, Kagoshima (Hooded crane and White-naped crane), and "The most helpful school in the world" co-organized by Osaki City, Miyagi (Greater white-fronted goose) and Sado City.

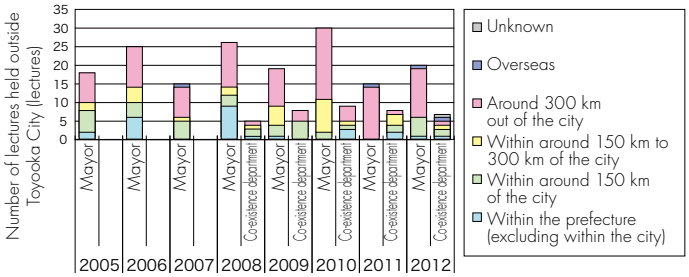
Oriental white stork wetland net

In the Toyooka region, wet paddies have been changed into dry rice fields since the 1970s. In 2004 when the construction for creating dry rice fields was finally implemented in the Toshima District where wet paddies remained, an unprecedented flood was caused by Typhoon No.23. The construction was suspended due to the flood and the wet paddies became like natural wetlands. At this time, a wild Oriental white stork called "Hachigoro" flew down to a wet paddy and continued to stay there to use it as its feeding ground. Based on this event, the citizens requested that "the wet paddies be left as wetlands." In response to this, Toyooka City purchased agricultural land from the landowners and Hyogo prefecture created a 3.2 ha (Brackish water: 0.7 ha, Fresh water: 2.5 ha) wetland called "Hachigoro's Toshima Wetland".

Around the same time, in 2007, citizens interested in the protection of Oriental white storks jointly established the "Oriental white stork wetland net" to disseminate the information on observations of Oriental white storks and to create biotopes. They were entrusted with the designated management of "Hachigoro's Toshima Wetland" by the city. For the creation of a "wetland where Oriental white storks fly down", they have conducted maintenance and management work on "Hachigoro's Toshima Wetland" with support from volunteers (Figure 2.1-29). A pair of Oriental white storks has settled on an artificial nesting tower inside the wetland, and baby Oriental white storks have continuously left their nests. The Oriental white stork wetland net has enhanced technologies for wetland management using the Toshima Wetland as their field of activities and has provided opportunities for tourism and environmental learning using this area.

Oriental white stork kids club

Source: History of the reintroduction of Oriental white storks

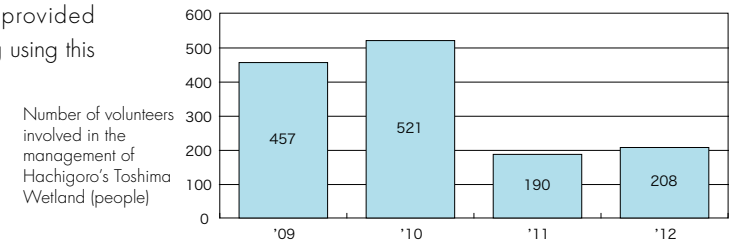


Source: Materials provided by Toyooka City

Figure 2.1-28 Number of lectures held outside Toyooka City by the mayor of Toyooka City and the department for co-existence with Oriental white storks of Toyooka City

Hachigoro's Toshima Wetland

Source: History of the reintroduction of Oriental white storks



Source: Materials provided by Toyooka City

Figure 2.1-29 Number of volunteers involved in the management of Hachigoro' s Toshima Wetland

Activities by multiple parties

<Artificial nesting towers>

The number of tall red pine trees used by Oriental white storks for building their nests dramatically decreased due to their logging in large numbers during World War II, the devastation of Satoyama forests (forests in rural natural areas) after the war, and damage by pine weevils. As it takes many years to restore the trees, activities for setting up artificial nesting towers have been carried out by various parties including Hyogo prefecture, the Oriental white stork fan club, local companies, commercial and industrial associations, and citizen groups since 2002 (Figure 2.1-30). The current nesting towers need to be relocated to other appropriate positions since the stork territories are overlapping in the central area of the Toyooka Basin.

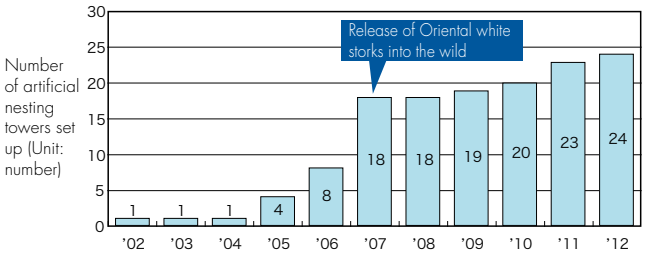
<Tai Wetland>

Due to depopulation and the impact of the rice acreage reduction policy and animal damage, all rice fields in the Tai District were abandoned. However, because an Oriental white stork building its nest in Hachigoro's Toshima Wetland arrived in the Tai District in 2008 looking for food, multiple parties have worked together to carry out activities for the conservation of wetlands.

Local residents, the Oriental white stork wetland net, and Toyooka City have improved the paddy ridges and created reservoirs. Hyogo prefecture worked on the expansion of the wetland area in normal times while maintaining its function as a flood control basin in times of flooding. The University of Tokyo and United Nations University Institute of Advanced Studies conducted an educational program called "Japan Asia SATOYAMA Educational Initiative" in the Tai District for the cultivation of global environmental leaders. Local companies provided environmental learning experiences called the "ENEOS living creature school" through collaboration with Toyooka City.

Artificial nesting tower

Source: History of the reintroduction of Oriental white storks



Source: Materials provided by Toyooka City

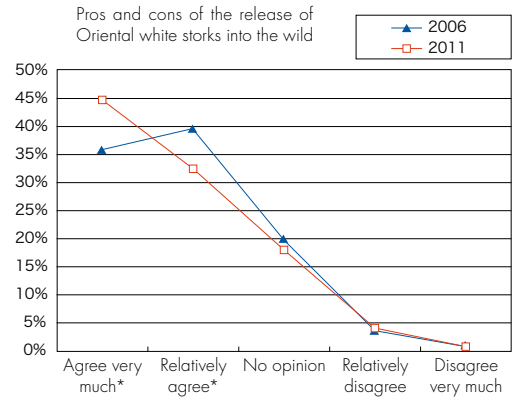
Figure 2.1-30 Number of artificial nesting towers set up

Source: History of the reintroduction of Oriental white storks

iii) People's awareness

Awareness of the residents between the 1960s and 1970s

The residents had a mixed image of Oriental white storks as a harmful bird and a favorable bird ("auspicious" or "beautiful"). Just before the extinction of Oriental white storks, a wide range of protection measures were taken by the public and private sectors in order to eradicate its image as a harmful bird. It can be considered that the consistent protection measures taken since the 19th century (probably since the Edo Period) have had a significant impact on the favorable image of Oriental white storks among the residents.



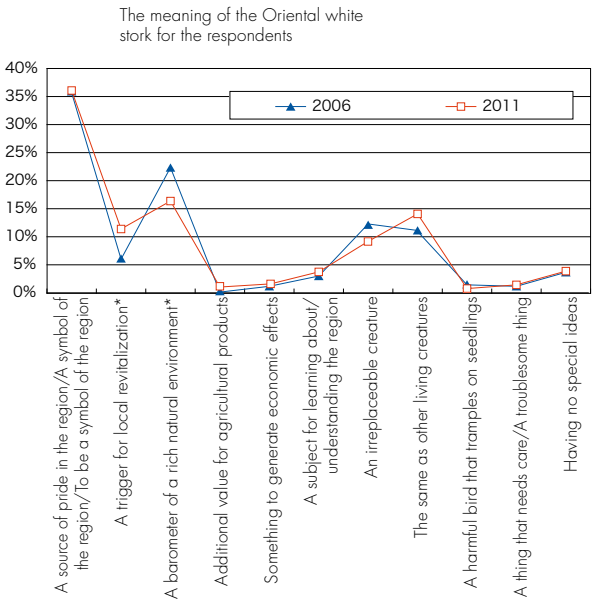
Source: "Issues related to the reintroduction project associated with the benefits and disbenefits for the region: Case of a project for the reintroduction of Oriental white storks in Toyooka City, Hyogo" (Yuko Honda)

Figure 2.1-31 Pros and cons of the release of Oriental white storks into the wild

Awareness of the residents after the release of Oriental white storks into the wild

According to questionnaire surveys of the residents in Toyooka City conducted in 2006 and 2011 after the release of Oriental white storks, about 80% of the residents answered "Agree" or "Relatively agree" both in 2006 and 2011 concerning the release of Oriental white storks (Figure 2.1-31). In addition, regarding the question "What do Oriental white storks mean to you?", the most common answer was "A source of pride in the region/A symbol of the region/To be a symbol of the region" (36% both in 2006 and 2011) followed by "A symbol or barometer of a rich natural environment". On the other hand, only about 1% of the residents answered "A harmful bird that tramples on seedlings" both in 2006 and 2011 (Figure 2.1-32). Thus, the image of the Oriental white stork as a harmful bird that the residents used to have significantly faded. Instead, awareness of the acceptance of Oriental white storks as a symbol of the region or a barometer of a rich natural environment has developed.

Compared with 2006, the response rate for "A barometer of a rich natural environment" significantly declined in 2011 and "A trigger for local revitalization" significantly increased, which indicates that the expectations of the residents regarding local revitalization are higher than before.



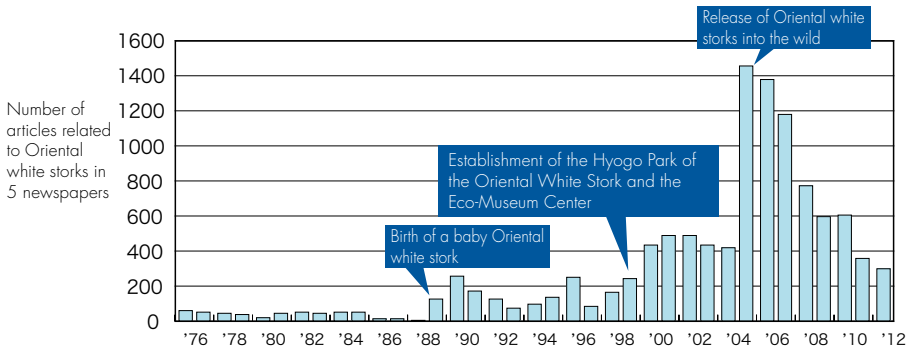
Source: "Issues related to the reintroduction project associated with the benefits and disbenefits for the region: Case of a project for the reintroduction of Oriental white storks in Toyooka City, Hyogo" (Yuko Honda)

Figure 2.1-32 Position of Oriental white storks

Appearance in newspapers and schoolbooks

It can be considered that the number of newspaper articles related to Oriental white storks reflects the degree of interest among residents of the communities. Despite the maximum efforts of the breeding staff and other concerned persons, the number of newspaper articles had been about 60 at the maximum until 1988 when artificial breeding had failed successively. However, it significantly increased to 130 in 1989 when the first baby Oriental white stork was born. After that, the number shifted to between 80 and 250 for a while but it started increasing around 1999 when the Hyogo Park of the Oriental White Stork was opened and the Eco-Museum Center was established, and then exceeded 400 a year. Moreover, the number of articles rapidly increased in 2005 when the release of Oriental white storks was conducted for the first time by the Hyogo Park of the Oriental White Stork, and the number exceeded 1,400. Since then, the number has been declining little by little, and is now about 300 a year (Figure 2.1-33).

In addition, activities for the "reintroduction of Oriental white storks" are being introduced in schoolbooks and supplementary readers. Other than those created by Hyogo prefecture and Toyooka City, which have previously been described, over 10 books were published in the past on fields such as social studies, morals, English, and home economics, etc., by multiple publishers.



Source: Based on the number of news articles related to Oriental white storks taken from 5 newspapers (Kobe Shimbun, Asahi Shimbun, Yomiuri Shimbun, Mainichi Shimbun, and Sankei Shimbun) extracted by Toyooka City

Figure 2.1-33 Number of newspaper articles

iv) Ripple effects on communities

Economy

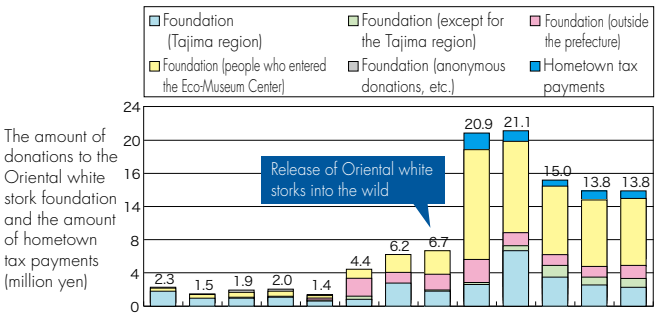
In the "Toyooka Environment-Economy Strategy" developed by Toyooka City in 2005, the "Resonance between the environment and the economy" is advocated, which means that economic effects are generated by environmental activities and the generation of economic effects activates the environmental activities. One of the examples of this resonance is "Kaneka Solartech Corporation", a manufacturer of solar cells. This corporation empathized with the activities for the reintroduction of Oriental white storks carried out in the Toyooka region and established its headquarters and factory in Toyooka City in 1999. In 2012, the corporation accepted the manufacturing and maintenance/management of panels of an electric generating facility using the renewable energy fixed purchase system called "Toyooka Eco-valley Yamanomiya Local Solar" from Toyooka City. The city allocates the profits after deducting the operating costs from the electric power sales income as financial resources for environmental measures.

At "Oriental white stork Honpo", which was established by Toyooka City in 2006 and is located in front of the Hyogo Park of the Oriental White Stork, a company set up through investments from 17 companies in the city sells local products.

In addition, in order to secure funds for the reintroduction of Oriental white storks, Toyooka City established the "Toyooka City Oriental white stork foundation" in 2000. The foundation has introduced a hometown tax payment system called the "Oriental white stork Toyooka donation" since 2008 and called for cooperation with its "Oriental white stork environmental cooperation fund" at the Eco-Museum Center (Figure 2.1-34).

Toyooka Eco-valley Yamanomiya Local Solar

Source: Website of Toyooka City



Source: Materials provided by Toyooka City

Figure 2.1-34 Amount of donations to the Oriental white stork foundation

Ripple effects on communities generated by Oriental white storks

In the Hyogo Park of the Oriental White Stork established in 1999 as a base facility for the protection/breeding study and environmental education regarding Oriental white storks, people can observe Oriental white storks up close in an outdoor open cage. In addition, the Toyooka City Eco-Museum Center where people can learn about the activities for the reintroduction of Oriental white storks and a market selling fresh agricultural products cultivated under Stork Friendly Farming are also set up inside the Hyogo Park of the Oriental White Stork, and these have become a part of the tourist excursions in Toyooka and are visited by many groups of tourists during the holidays.

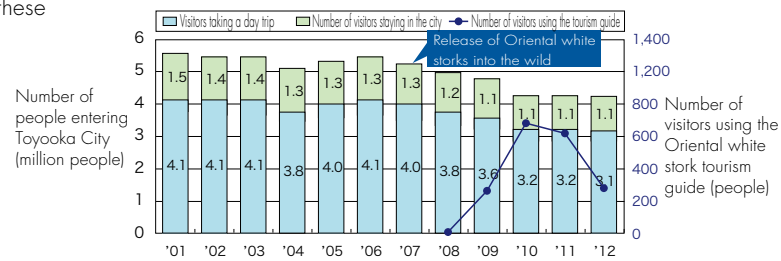
In 2005 when the first release of Oriental white storks was conducted, the city received the "JTB cultural exchange award" from a travel agency called JTB Corp. Based on this event, a travel opportunity for groups called "Toyooka, a town where people and nature live together" jointly planned by JTB, JA Tajima, Kinosaki Hot Spring Inns Association, and Toyooka City was launched. Tour participants can experience the activities related to the reintroduction of Oriental white storks such as the improvement of ridges in a wetland designed to be a feeding ground for Oriental white storks, etc. In addition, Toyooka City started the development of volunteer tour guides called "Oriental white stork tourism guide" in 2008. Students will learn about various regional resources including Oriental white storks and present these regional resources to the visitors (Figure 2.1-35).

Wetlands conservation activity as part of Oriental white stork tourism

Source: History of the reintroduction of Oriental white storks

Oriental white stork tourism guide

Source: History of the reintroduction of Oriental white storks

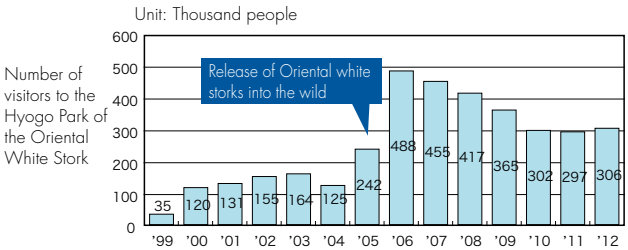


Source: Materials provided by Toyooka City and Toyooka City environmental report

Figure 2.1-35
Number of people entering Toyooka City and Number of visitors using the Oriental white stork tourism guide

Trends in the number of visitors to the Hyogo Park of the Oriental White Stork and the Eco-Museum Center, and their economic ripple effects

- The presence of Oriental white storks attracts tourists to the Toyooka region and generates economic benefits. It is estimated that the number of visitors who come to see the Oriental white storks is about 80,000 a year as of 2009, the economic benefits generated by such visitors amount to about 800 million yen a year, and the economic ripple effect is about 1 billion yen (Onuma and Yamamoto 2009).
- The number of visitors rapidly increased in 2006, the year following the first trial release of Oriental white storks, and reached about 500,000 a year. However, it has been declining since then and has remained at around 300,000 a year (Figure 2.1-36).



Source: Materials provided by the Hyogo Park of the Oriental White Stork

Figure 2.1-36 Trends in the number of visitors to the Hyogo Park of the Oriental White Stork

Analysis as of 2013

- In this analysis, the continuing ability to attract customers and the economic effects are tracked based on data from 2013 by comparing them with those in 2009.
- The proportion of visitors who came to see Oriental white storks declined by about 10% from 22% in 2009 to 13% in 2013 (Figure 2.1-37a).
- The proportion of visitors taking a day trip significantly declined from about 35% to about 23% (Figure 2.1-37b). As a result of multiplying this by the annual number of visitors, the number of visitors taking a day trip is equivalent to a decline by 50,000 people a year (Figure 2.1-38).
- The proportion of visitors staying in the city in order to see Oriental white storks has not changed much, between 5% and 7% (Figure 2.1-37c). The proportion of visitors staying in the city increased by about 10% from 46% to 57% (Figure 2.1-39), which dovetails with an increase in the number of visitors from outside the Kinki area, such as the Tokai area and Chugoku area (Figure 2.1-40).
- On the other hand, the average consumption by each visitor declined by about 5,000 yen for visitors staying in the city and about 3,000 yen for visitors taking a day trip (Figure 2.1-41).

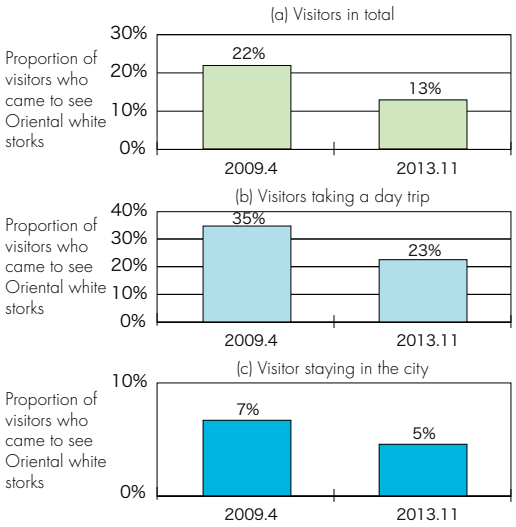


Figure 2.1-37 Proportion of visitors who came to see Oriental white storks

(Source: Onuma and Yamamoto 2009; Ministry of Land, Infrastructure, Transport and Tourism)

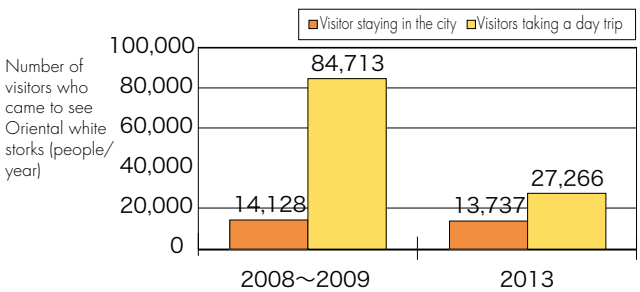


Figure 2.1-38 Number of visitors who came to see Oriental white storks

(Source: Onuma and Yamamoto 2009; Ministry of Land, Infrastructure, Transport and Tourism)

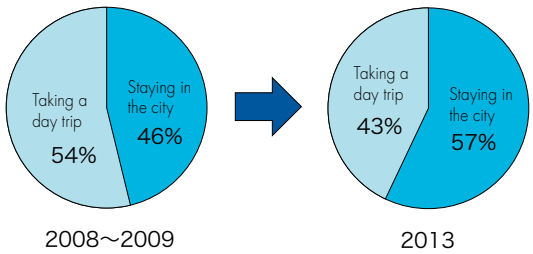


Figure 2.1-39 Proportion of visitors staying in the city out of the total number of visitors

(Source: Onuma and Yamamoto 2009; Ministry of Land, Infrastructure, Transport and Tourism)

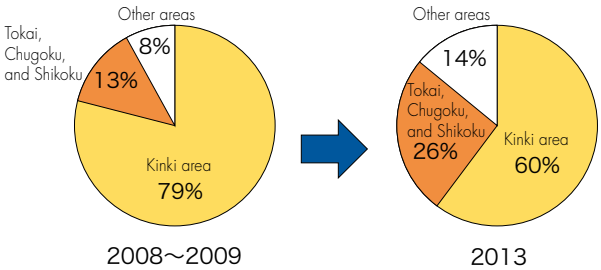
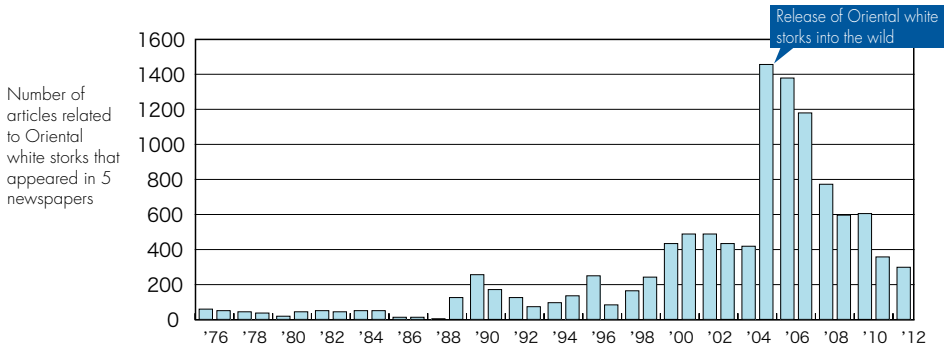


Figure 2.1-40 Proportion of visitors from different regions

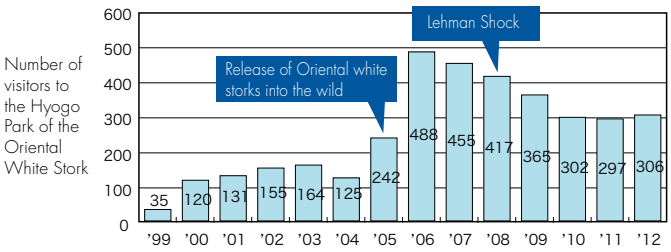
(Source: Kikuchi 2011; Ministry of Land, Infrastructure, Transport and Tourism)



Source: Based on the number of news articles related to Oriental white storks taken from 5 newspapers (Kobe Shimbun, Asahi Shimbun, Yomiuri Shimbun, Mainichi Shimbun, and Sankei Shimbun) extracted by Toyooka City

(Reshown) Figure 2.1-33 Number of newspaper articles

- Concerning the economic effect, Onuma and Yamamoto (2009) estimated that the economic ripple effect generated by visitors who came to see Oriental white storks was about 1 billion yen a year based on the number of visitors in 2007 and the questionnaire surveys conducted between 2008 and 2009.
- According to the calculation using the same method based on the number of visitors in 2012 and the questionnaire survey conducted in 2013, the economic ripple effect is estimated to be about 400 million yen as of 2013 (Figure 2.1-42).
- Comparing this figure with the estimation by Onuma and Yamamoto (2009), the economic ripple effect declined by about half.
- Major causes for the decrease are the number of visitors declined to about two-thirds and the average consumption per visitor declined by about 3,000 yen (Figure 2.1-41).
- Though the economic ripple effect declined according to the comparison, the social situation in these target years was substantially different. The estimation by Onuma and Yamamoto (2009) was based on the number of visitors in the following year of the peak year (2006) when the release of Oriental white storks was carried out in the previous year (2005). On the other hand, the estimation this time is based on the number of visitors during the economic recession due to the Lehman Shock and before/immediately after the adoption of Abenomics economic policies. Therefore, this social and economic situation might have had an impact on the decline in the average consumption per visitor.
- In conclusion, the number of visitors who came to see Oriental white storks declined compared with the peak year, but the annual number of 300,000 visitors has been maintained even under the social situation of an economic recession. According to the breakdown, positive changes have appeared, such as an increase in the number of visitors from locations further away, etc.
- Concerning the economic effect, it declined by about half compared with the year following the peak year due to a decline in the number of visitors and a decline in the average consumption per visitor. However, even during the economic recession and in the early stages of economic recovery, positive conditions are maintained. For example, there are about 300,000 visitors who come to see Oriental white storks each year and over 400 million yen in economic ripple effects is generated.



Source: Materials provided by the Hyogo Park of the Oriental White Stork

(Reshown) Figure 2.1-36 Trends in the number of visitors to the Hyogo Park of the Oriental White Stork

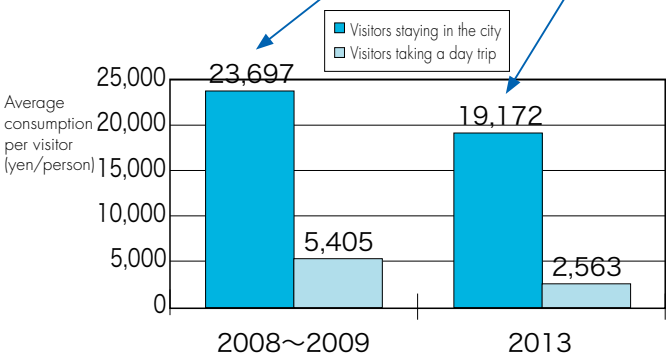


Figure 2.1-41 Average consumption per visitor by value

(Source: Onuma and Yamamoto 2009; Ministry of Land, Infrastructure, Transport and Tourism)

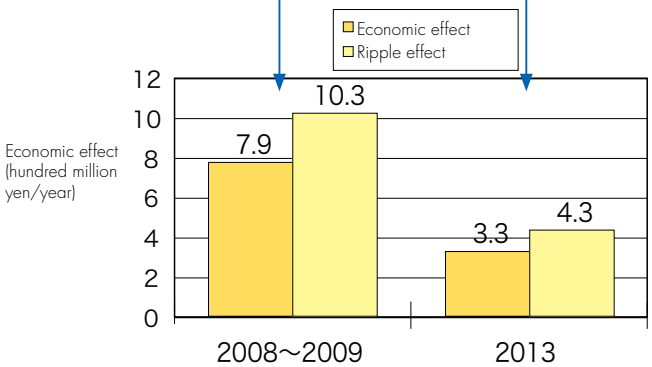


Figure 2.1-42 Economic effects generated by visitors who came to see Oriental white storks

(Source: Onuma and Yamamoto 2009; Ministry of Land, Infrastructure, Transport and Tourism)

v) Issues

- The number of visitors to the Hyogo Park of the Oriental White Stork and the Eco-Museum Center, the number of newspaper articles related to Oriental white storks, the number of members of the Oriental white stork fan club, and the amount of donations to the Oriental white stork foundation have been declining after peaking around 2005 when the release of Oriental white storks was carried out for the first time.
- However, since then, the annual number of visitors has remained at 300,000 and the proportion of visitors who came to see Oriental white storks has remained at between 5% and 7%.
- Concerning the economic effects generated by the visitors who came to see Oriental white storks, the amount of their consumption within the region has remained at over 300 million yen a year and the economic ripple effect has remained at about 400 million yen even during the economic recession.
- The event in which Oriental white storks, which had once disappeared from the sky of Japan, were returned to the sky again is worthy of public attention, and a temporary rapid increase in public attention itself is not a problem. However, in order to achieve the reintroduction of Oriental white storks, long-term understanding and cooperation of the local communities are essential. It is therefore necessary to continuously disseminate information so that the interest of local communities will not decline in the future.

Table 2.1-8 Chronological table of the activities related to communities

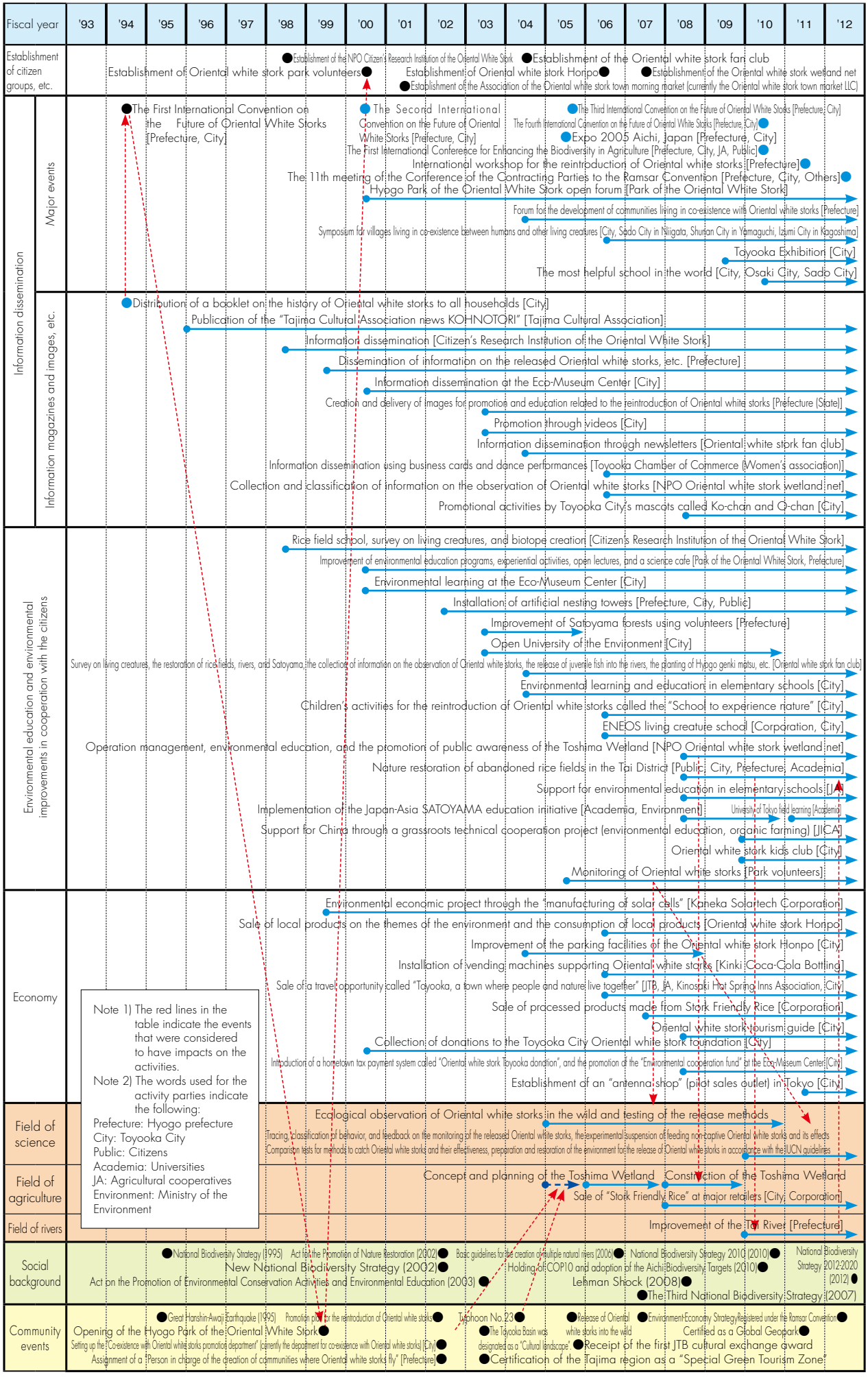


Table 2.1-9 Major information dissemination events related to Oriental white storks (forums, symposiums, presentations, etc.)

Year		Event	Date	Organizer	No. of participants	Outline
1994	1994	The First International Convention on the Future of Oriental White Storks	June 25, 1994 - June 26, 1994	Hyogo prefecture, Toyooka City	2,080 people in total	An international convention to collect technologies/knowledge for the realization of the plan for the project on the reintroduction of Oriental white storks and to internationally promote the project
1998	1998	The Fifth "Rivers in Hyogo Summit"	May 23, 1998 - May 24, 1998	The Fifth Rivers in Hyogo Summit Executive Committee	150 people	A committee for creating a better river environment and a new network beyond the regions and basins in the prefecture
2000	2000	The Second International Convention on the Future of Oriental White Storks	July 8, 2000 - July 9, 2000	Hyogo prefecture, Toyooka City	1,590 people in total	An international convention to collect technologies/knowledge for the realization of the plan for the project on the reintroduction of Oriental white storks and to internationally promote the project
		A musical called "When Oriental white storks fly"	February 24, 2001 - February 25, 2001	Toyooka City	1,600 people	A fanciful ecology musical in the 21st century on the theme of co-existence between humans and nature, using Oriental white storks as a symbol of this
2001	2001	Anniversary forum of the opening of the Hyogo Park of the Oriental White Stork: Oriental white storks taking off	November 4, 2001	Hyogo prefecture	350 people	A forum held to gain further understanding of the reintroduction of and the creation of the environment for Oriental white storks in commemoration of the Hyogo Park of the Oriental White Stork that was fully opened in November 1999
2002	2002	Anniversary forum of the opening of the Hyogo Park of the Oriental White Stork: Development of communities for co-existence between people and Oriental white storks	November 4, 2002	Hyogo prefecture	120 people	A forum to gain further understanding of the reintroduction of and the creation of the environment for Oriental white storks
2003	2003	The First Oriental White Stork Thanksgiving	September 27, 2003 - September 28, 2003	Executive Committee	600 people in total	An event to build momentum among citizens and citizen groups working on the development of communities symbolized by Oriental white storks in order to move on to the next step, expand the wave of exchanges, and enhance vitality through making presentations on the achievements their activities
		Anniversary forum of the opening of the Hyogo Park of the Oriental White Stork: Oriental white stork Northwest Asia international forum	November 9, 2003	Hyogo prefecture	200 people	A forum to gain further understanding of the reintroduction of and the creation of the environment for Oriental white storks
		Symposium for the creation of rice fields for living in co-existence with Oriental white storks	March 20, 2004	Toyooka City	150 people	A lecture and panel discussion about the creation of rice fields for living in co-existence with Oriental white storks
2004	2004	Forum for the restoration of the nature of the Maruyama River: Towards the reintroduction of Oriental white storks	August 8, 2004	Ministry of Land, Infrastructure, Transport and Tourism, Hyogo prefecture, Toyooka City	Approx. 400 people	A forum to think together among the lecturers and the audience about ways to conserve and restore the nature of the Maruyama River
		Anniversary forum on the opening of the Hyogo Park of the Oriental White Stork: Reintroduction of Oriental white storks and people	December 12, 2004	Hyogo prefecture	280 people	A forum to gain further understanding of the reintroduction of and the creation of the environment for Oriental white storks
		Forum for the development of communities living in co-existence with Oriental white storks	December 12, 2004	Hyogo prefecture	300 people	A community development forum to investigate advanced examples of domestic/overseas activities for the conservation and restoration of the natural environment and to gain understanding of and participation in the promotion of environmental improvements such as organic farming, restoration of natural rivers, and the improvement of Satoyama forests, etc., in the Tajima region with the participation of the residents
2005	2005	The Second Oriental White Stork Thanksgiving	February 7, 2005	Executive Committee	200 people in total	An event to build momentum among citizens and citizen groups working on the development of communities symbolized by Oriental white storks in order to move on to the next step, expand the wave of exchanges, and enhance vitality through making presentations the achievements of their activities
		The Third International Convention on the Future of Oriental White Storks	September 24, 2005 - September 25, 2005	Hyogo prefecture, Toyooka City	1,900 people in total	An international convention to collect technologies/knowledge for the realization of the plan for the project on the reintroduction of Oriental white storks and to internationally promote the project (Prince and Princess Akishino attended the convention for launching the trial release of Oriental white storks, which will be a historic step towards their reintroduction.)
		2005 World Exposition, Aichi, Japan	March 25, 2005 - September 25, 2005	Hyogo prefecture, Toyooka City	Approx. 22.05 million people (The number of visitors to the "Global House" providing an exhibition about Oriental white storks was about 1.56 million people.)	On the theme of "Natural wisdom", the activities carried out in Hyogo prefecture and Toyooka City were introduced by displaying the project for the reintroduction of Oriental white storks at a theme house called "Global House" in an international exhibition gathering 121 countries and 4 international organizations. Live broadcasts of the acclimatization training attracted attention. On the day of the release ceremony, it was broadcasted live from Toyooka City.
		Academic research presentations	December 17, 2005	Toyooka City	100 people	Presentations of research achievements by students using the subsidy system for academic research on the reintroduction of Oriental white storks (started in 2004)
2006	2006	The Third Oriental White Stork Thanksgiving	April 1, 2006 - April 2, 2006	Executive Committee	200 people in total	An event to build momentum among citizens and citizen groups working on the development of communities symbolized by Oriental white storks in order to move on to the next step, expand the wave of exchanges, and enhance vitality through making presentations on the achievements of their activities
		Community development forum of the first anniversary of the release of Oriental white storks	September 23, 2006	Hyogo prefecture	650 people	A community development forum to investigate advanced examples of domestic/overseas activities for the conservation and restoration of the natural environment and to gain understanding of and participation in the promotion of environmental improvements such as organic farming, the restoration of the natural condition of rivers, and the improvement of Satoyama forests, etc., in the Tajima region with the participation of the residents. After the forum, Oriental white storks were released into the wild.
		Academic research presentations	December 1, 2006	Toyooka City	120 people	Presentations of research achievements by students using the subsidy system for academic research on the reintroduction of Oriental white storks
		Forum for the promotion of Stork Friendly Farming	February 20, 2007	Hyogo prefecture	-	A forum to examine the significance and future perspective of "Stork Friendly Farming", share information among the producers and concerned persons, and think about Tajima's agriculture from environmental and economic perspectives
		The Fourth Oriental White Stork Thanksgiving	March 24, 2007	Executive Committee	200 people	An event to build momentum among citizens and citizen groups working on the development of communities symbolized by Oriental white storks in order to move on to the next step, expand the wave of exchanges, and enhance vitality through making presentations on the achievements of their activities
2007	2007	The Fifth Oriental White Stork Thanksgiving	July 20, 2007 and July 27, 2007	Executive Committee	200 people in total	An event to build momentum among citizens and citizen groups working on the development of communities symbolized by Oriental white storks in order to move on to the next step, expand the wave of exchanges, and enhance vitality through making presentations on the achievements of their activities
		Academic research presentations	December 15, 2007	Toyooka City	70 people	Presentations of research achievements by students using the subsidy system for academic research on the reintroduction of Oriental white storks
2008	2008	The Sixth Oriental White Stork Thanksgiving	March 8, 2008	Executive Committee	100 people	An event to build momentum among citizens and citizen groups working on the development of communities symbolized by Oriental white storks in order to move on to the next step, expand the wave of exchanges, and enhance vitality through making presentations on the achievements of their activities. Various events (presentation of films, round-table discussions, etc.) held on the theme of "To the world! To the future!" towards the creation of a town living in co-existence between humans and nature
		Commemorative event for "International biodiversity day "Musical "Phoenix"	May 22, 2008	Ministry of the Environment, Hyogo prefecture, Toyooka City	1,000 people	A musical played by a theater company called "Warabi-za" as a commemorative event for "International biodiversity day (May 22)", one of the international days advocated by the United Nations, and as part of the promotion of the activities for the reintroduction of Oriental white storks
		Academic research presentations	July 31, 2008	Toyooka City	Approx. 150 people	Presentations of research achievements by students using the subsidy system for academic research on the reintroduction of Oriental white storks
		Outdoor concert for the day commemorating the hatching of a fledging Oriental white stork	July 31, 2008	Toyooka City	300 people	An event held to celebrate the hatching of a fledging Oriental white stork in the wild in 2007 for the first time in 46 years in Japan with the keywords "Support life"
		Academic research presentations	December 6, 2008	Toyooka City	70 people	Presentations of research achievements by students using the subsidy system for academic research on the reintroduction of Oriental white storks
2009	2009	Symposium for villages living in co-existence between humans and other living creatures	January 24, 2009	Toyooka City, Sado City, Shunan City, Izumi City	150 people	A symposium held with the participation of the chief executives of four local governments (Sado City (Niigata, Japanese crested ibis), Shunan City (Yamaguchi, Hooded crane), Izumi City (Kagoshima, Hooded crane), and Toyooka City (Hyogo, Oriental white stork)) that are carrying out activities for co-existence between humans and nature by adopting a rare large bird as a symbol, together with the participation of concerned organizations and concerned persons in the national government and prefecture, in order to facilitate exchanges of information and experiences about their current status and regional activities
		Ramsar study session	February 6, 2009 - February 7, 2009	Council on the Conservation of the Habitat for Oriental White Storks	117 people	A study session for administrative officers and local residents in preparation for registration under the Ramsar Convention
		Toyooka KODOMO Ramsar Exchange	February 21, 2009 - February 22, 2009	Council on the Conservation of the Habitat for Oriental White Storks	33 people	An exchange event for the purpose of exchanging information and building a network among children participating in the "KODOMO Ramsar in Korea" conducted in line with the 10th meeting of the Conference of the Contracting Parties to the Ramsar Convention
		Workshop "Delicious relationship between soils and living creatures"	March 3, 2009	Council on the Conservation of the Habitat for Oriental White Storks	35 people	A scientific workshop to determine the relationship between soils and living creatures in relation to organic farming and the creation of wetlands
		Academic research presentations and discussions	July 31, 2009	Toyooka City	60 people	Presentations of research achievements by students using the subsidy system for academic research on the reintroduction of Oriental white storks
		Toyooka Exhibition [Tokyo]	November 10, 2009	Toyooka City	103 people	An event to introduce the activities and attractiveness of the Toyooka region, which was held in Tokyo by inviting persons from TV stations, newspaper/magazine companies, advertising agencies, department stores, travel agencies, etc.
2010	2010	Learning and review session on the reintroduction of Oriental white storks called "Think about migrants and residents"	January 9, 2010	Council on the Conservation of the Habitat for Oriental White Storks	40 people	A learning and review session to review and to discuss the future direction of the "reintroduction of Oriental white storks," which was held 5 years after the first release of Oriental white storks into the wild
		Citizens' forum "What are the negative impacts of alien species?"	February 28, 2010	Council on the Conservation of the Habitat for Oriental White Storks	50 people	A citizens' forum to develop an understanding and awareness of alien species that have become an immediate problem in the Toyooka region in recent years, and to use the results to promote activities for the conservation of biodiversity carried out in the Toyooka region
		Open workshop "Enjoy eating rice of the Oriental white stork." [Tokyo]	March 15, 2010	Toyooka City	59 people	An event to introduce foods using "Stork Friendly Rice" held in Tokyo by inviting journalists on the theme of "Health through eating, and making a contribution through eating"
		Biodiversity seminar "Conservation and project activities on the biodiversity of living creatures"	April 2010 - August 2010	Toyooka City	380 people	A seminar to explore further possibilities for the "Resonance between the environment and the economy", which was held as an environmental economic sectional meeting of the "Fourth International Convention on the Future of Oriental White Storks"
		Wetland network training "Wetland story at night"	May 21, 2010	Council on the Conservation of the Habitat for Oriental White Storks	40 people	A training session to develop a "Wetland network" through sharing management technologies/manpower, etc. and information exchanges among groups and individuals engaged in the management of wetlands and biotopes in Toyooka City
		Science Council of Japan Open Symposium "Dialogue between science and society regarding biodiversity"	May 22, 2010	Science Council of Japan, Toyooka City	168 people	A symposium to inform people about the current status of "Integrative biology", which has biodiversity as its research subject, and to suggest a new model for the forum in order to overcome the crisis of biodiversity and ensure social sustainability
		The First International Conference for Enhancing Biodiversity in Agriculture	July 2, 2010 - July 4, 2010	Hyogo prefecture, Toyooka City, JA Tajima, private organizations	411 people	An international conference led by Japan, Korea, and China to determine the agricultural technologies required to restore the natural cyclical functions and the direction for community activities and that places importance on the biodiversity of living creatures for the promotion and expansion of organic farming in the climate of East Asia
		Toyooka Exhibition 2010 [Tokyo]	July 7, 2010	Toyooka City	199 people	An event to introduce advanced activities for the realization of an eco city by adopting Oriental white storks as a symbol and promoting activities for community creation based on the unique nature, history, traditions, and culture of the region
		Biodiversity seminar (basic course targeting local residents)	July 28, 2010	Toyooka City	100 people	A seminar for local residents held as an associated event of the "International biodiversity year" (2010) established by the United Nations
		The most helpful school in the world [Tokyo]	August 9, 2010	Toyooka City, Osaki City, Sado City	287 people	An event for children to think about the "Future of rice fields" and "Our future" held at the University of Tokyo and organized by Osaki City (a town supporting the White-fronted goose), Sado City (a town supporting the Japanese crested ibis), and Toyooka City (a town supporting the Oriental white stork)
		A citizens' conference to expand the habitat for Oriental white storks	October 29, 2010	Council on the Conservation of the Habitat for Oriental White Storks	83 people	A conference held with the participation of citizens from various cities engaged in activities to accept Oriental white storks to discuss current issues and future perspectives in order to expand the habitat for Oriental white storks across the country
		Fourth International Convention on the Future of Oriental White Storks	October 30, 2010 - October 31, 2010	Hyogo prefecture, Toyooka City	2,950 people in total	An international convention to collect technologies/knowledge for the realization of the plan for the project on the reintroduction of Oriental white storks and to internationally promote the project
		Academic research presentations	December 4, 2010	Toyooka City	60 people	Presentations of research achievements by students using the subsidy system for academic research on the reintroduction of Oriental white storks
2011	2011	Wetland management study session "Wetland story at night"	May 30, 2011	Council on the Conservation of the Habitat for Oriental White Storks	40 people	A training session to develop a "Wetland network" through sharing management technologies/manpower, etc., and information exchanges among groups and individuals engaged in the management of wetlands and biotopes in Toyooka City
		International workshop for the reintroduction of Oriental white storks	May 27, 2011	Hyogo prefecture	Approx. 110 people	A workshop held by inviting domestic and overseas researchers on rare birds and compiling the research results and activity status in order to contribute to the development of academic guidelines for the reintroduction of Oriental white storks and to communicate the importance of environmental improvements necessary for the protection of rare birds, based on the progress of activities for the reintroduction of Oriental white storks from the stage of their trial release to the stage of full-scale reintroduction
		Symposium: Disseminate information on the secrets and techniques of community creation across the world	May 28, 2011	Hyogo prefecture	Approx. 230 people	A symposium held by inviting domestic and overseas researchers on rare birds and compiling the research results and activity status in order to contribute to the development of academic guidelines for the reintroduction of Oriental white storks and to communicate the importance of the environmental improvements necessary for the protection of rare birds, based on the progress of the activities for the reintroduction of Oriental white storks from the stage of their trial release to the stage of full-scale reintroduction
		Toyooka Exhibition 2011 [Tokyo]	July 7, 2011	Toyooka City	259 people	An event to introduce advanced activities for the realization of an eco city by adopting Oriental white storks as a symbol and promoting activities for community creation based on the unique nature, history, traditions, and culture of the region
		The most helpful school in the world [Tokyo]	August 9, 2010	Toyooka City, Osaki City, Sado City	200 people	An event for children to think about the "Future of rice fields" and "Our future" held at the University of Tokyo and organized by Osaki City (a town supporting the White-fronted goose), Sado City (a town supporting the Japanese crested ibis), and Toyooka City (a town supporting the Oriental white stork)
		Conference to understand the situation of Oriental white storks around the country	November 22, 2011	Council on the Conservation of the Habitat for Oriental White Storks	50 people	A conference held by inviting the research director of the Hyogo Park of the Oriental White Stork to learn about the "Grand design for the reintroduction of Oriental white storks" and the current situation in the Toyooka region, and to share experience of the situation of Oriental white storks and related activities in other regions
		Academic research presentations	December 10, 2011	Toyooka City	45 people	Presentations of research achievements by students using the subsidy system for academic research on the reintroduction of Oriental white storks
		Environmental learning class "Oriental white storks come to your town"	February 28, 2012	Council on the Conservation of the Habitat for Oriental White Storks	100 people	An environmental learning class held by a children's author writing a story about people continuously making efforts to protect and live with Oriental white storks called "Oriental white storks come to your town" and a picture-card show for infants called "Flying flying Oriental white storks", etc.
		Study session for "Oriental white stork marriage counseling"	March 20, 2012	Council on the Conservation of the Habitat for Oriental White Storks	25 people	A study session held by inviting researchers to ensure the genetic diversity of non-captive Oriental white storks
		Open forum by the Hyogo Park of the Oriental White Stork "Creation of communities based on Oriental white storks and Geoparks"	October 22, 2011	Hyogo prefecture	Approx. 70 people	An open forum held to gain further understanding of the project and creation of the environment for the reintroduction of Oriental white storks that has made progress from the stage of trial release to the stage of full-scale reintroduction
2012	2012	The 11th meeting of the Conference of the Contracting Parties to the Ramsar Convention [Romania]	July 6, 2012 - July 13, 2012	Attendees (Ramsar Convention Office, Japanese delegations, concerned governments, concerned persons from domestic NGOs, and overseas delegations)	-	A meeting of the contracting parties to the Ramsar Convention. The "downstream basin of the Maruyama River and the surrounding rice fields" supporting the habitat of Oriental white storks was certified as a registered wetland.
		Ramsar seminar	July 24, 2012	Toyooka City	70 people	A Ramsar week project to commemorate the registration. A seminar to consider the registration and the future of the Toyooka region
		Toyooka Exhibition 2012 [Tokyo]	July 25, 2012	Toyooka City	177 people	An event to introduce advanced activities for the realization of an eco city by adopting Oriental white storks as a symbol and promoting activities for community creation based on the unique nature, history, traditions, and culture of the region
		Musical commemorating the Ramsar registration called "Omoide poroporo"	July 28, 2012	Toyooka City, JA Tajima	700 people	A musical held as a Ramsar week project to reconfirm our love for the earth
		NHK environmental campaign	July 29, 2012	NHK Kobe, Toyooka City	220 people	A show held as a Ramsar week project to enjoy rediscovering hometowns through quizzes made up by children about their local nature
		The most helpful school in the world [Tokyo]	August 9, 2012	Toyooka City, Osaki City, Sado City	200 people	An event for children to think about the "Future of rice fields" and "Our future" held at the University of Tokyo and organized by Osaki City (a town supporting the White-fronted goose), Sado City (a town supporting the Japanese crested ibis), and Toyooka City (a town supporting the Oriental white stork)
		Forum on the development of communities living in co-existence with Oriental white storks	October 19, 2012 - October 20, 2012	Hyogo prefecture, Hyogo Park of the Oriental White Stork	Approx. 230 people	A forum to gain further understanding of the reintroduction of Oriental white storks and the creation of communities living in co-existence between humans and nature held in commemoration of the issuance of the Hometown Hyogo 1,000 and 500 yen silver memorial coins (coins issued in commemoration of the 60th anniversary of the enforcement of the Local Autonomy Act) using an image of the Oriental white stork

Table 2.1-10 Summary of public measures in communities

	Stage	Representative events that have impacts on the communities	Theme (Public measures policy)	Corresponding to the Aichi Biodiversity Targets	Issues communities are confronted with
1971	Stage 3: Towards the reintroduction	Disappearance in the wild (1971) Decline in the number of employees (since 1980)	○Protect Oriental white storks	Target 1	- Deterioration of the environment of the habitat for Oriental white storks
1989	Stage 2: Protection to breeding	Success of the breeding of Oriental white storks (1989) Collapse of the bubble economy (1991) Great Hanshin-Awaji Earthquake (1995)	○Increased interest in Oriental white storks (information dissemination)	Target 1 Target 19	- Increase the knowledge and interest of as many citizens as possible about Oriental white storks
1999					
2000			○Creation of the environment for the acceptance of Oriental white storks	Target 1 Target 19	- It is necessary for citizens to create an environment for the acceptance of Oriental white storks when working towards their release.
2001					
2002 * Act for the Promotion of Nature Restoration		Arrival of "Hachigoro"			
2003					
2004		Affected by Typhoon No.23			
2005	Stage 4: Release to reintroduction	Release of Oriental white storks into the wild			
2006 * Wetlands are registered under the Ramsar Convention.* Wetlands are registered under the Ramsar Convention.	Stage 5: Development towards the creation of communities living in co-existence with Oriental white storks		○Promote the Environment-Economy Strategy	Target 1 Target 4 Target 19	- Continuously create an environment in which Oriental white storks can thrive
2007					
2008		Lehman Shock			
2009					
2010					
2011					
2012 * Wetlands are registered under the Ramsar Convention.					
2013					

	Specific measures		Achievements		Remarks
	Implementing parties	Specific measures		Connections with other fields and parties	
	Agency for Cultural Affairs Agency for Cultural Affairs Prefecture	- Change of a designated area in order to protect a cultural property (natural treasure) - Promoted to a special national treasure - Establishment of the Committee on measures for Oriental white storks	- The prefectural governor visited Toyooka and appealed to the citizens concerning the necessity of the protection of Oriental white storks. - Implementation of the activities for the protection of Oriental white storks		
	Prefecture Prefecture Prefecture Prefecture Prefecture • City	- Establishment of the committee on the conservation of endangered species - Establishment of the investigative committee on the future concept for Oriental white storks - Hyogo prefecture opened the "Hyogo Park of the Oriental White Stork" with the research department of the prefectural university. - Promotion committee for the reintroduction of Oriental white storks - Implementation of the "International Convention on the Future of Oriental White Storks" and "distribution of a booklet on the history of Oriental white storks to all households"	- Information dissemination through various media - Implementation of environmental surveys and environmental learning by citizens such as the "Rice field school"	- Installation of biotopes in rice fields in the Shounji District with the Citizen's Research Institution of the Oriental White Stork	
	City Prefecture • City Prefecture • City Prefecture	- Establishment of a participatory promotion and educational facility available for exhibitions, research, and visitors called the "Eco-Museum Center" within the Hyogo Park of the Oriental White Stork - Implementation of the "International Convention on the Future of Oriental White Storks" and creation/promotion of "images to increase public awareness of the reintroduction of Oriental white storks" - Establishment of the department for co-existence with Oriental white storks in Toyooka City (under the direct control of the mayor), assignment of a person in charge of Oriental white storks in the Prefectural Branch Office (a person in charge of the creation of communities where Oriental white storks fly) - Establishment of the "Oriental white stork project team" connecting the prefecture, the city, and the Hyogo Park of the Oriental White Stork	- Expansion of the involvement of companies through promotions both in Japan and overseas	- Launch and expansion of "Stork Friendly Rice" - Recovery of the involvement of humans in rivers through the improvement of the river environment	
	City Prefecture City State City City	- Promotion of the Toyooka Environment-Economy Strategy - Children in Hyogo receive basic education on Oriental white storks (inserted in textbooks). - Living creatures inhabit the neighboring areas like the "Rice field school", etc.Creation of sites for the growth of Oriental white storks - Implementation of monitoring in cooperation with local elementary schools and junior high schools on Hinoso Island and in the Kaya District - Promotion of the installation of biotopes in each school district - Launch of small nature restoration support projects	- Economic effects were visible by taking tourism and environmental measures using Oriental white storks in cooperation with companies.	- Further expansion of the sales of "Stork Friendly Rice" - Increase in the number of places for environmental education due to the restoration of biotopes in neighboring rice fields and rivers, etc.	

5) Other fields

i) Satoyama forests

a) Background

In the Toyooka region, Satoyama was used as a forest for the supply of firewood and the fallen leaves were used for compost. Therefore, there were many red pine trees that prefer a sunny and nutritionally-poor location. Oriental white storks built their nests and bred on these large red pine trees using their handsome foliage.

However, many of these red pine trees were logged during World War II for the purpose of extracting resin from their roots. Subsequently, due to the fossil fuel revolution and the introduction of chemical fertilizers, etc., Satoyama forests were not maintained and the environment changed into one that was unsuitable for the growth of pine trees. In addition, in some areas, the number of pine trees decreased dramatically or most of pine trees were lost due to insect damage from pine weevils.

Building a nest on a pine tree (around 1960)

Source: Website of Toyooka City

Activities to experience the improvement of the red pine tree forests

Source: Living creature news No.60 by the Hyogo Park of the Oriental White Stork (December 5, 2002)

b) History of the activities (Table 2.1-11)

In order to restore red pine tree forests necessary for Oriental white storks to build their nests, Hyogo prefecture and the Hyogo Park of the Oriental White Stork have carried out various activities since 2000 called "Activities to experience the improvement of red pine tree forests", such as improvement cutting and the surface furrowing of the forests in cooperation with the citizens and the planting of a variety of red pine called "Hyogo genki matsu" that is resistant to weevils. Children's volunteer groups called "Oriental white stork saver kids" and "Oriental white stork park volunteers" have participated in these activities.

Other than the setting up of walkways to be used for the improvement work in the red pine tree forests since 2003, Toyooka City has taken measures to control the weevils, and has planted red pine seedlings and held pruning training as part of the nurturing of "Forest volunteers". In addition, the city has worked on the "Toyooka City biomass town scheme" which makes effective use of the wood materials generated by the forest thinning activities for the protection of Satoyama and uses these materials to produce biomass energy. Since 2007, the city has introduced "Pellet stoves" using pellets made from the wood materials from tree thinnings as a fuel. A total of 320 pellet-fired heating stoves have been set up in public facilities, etc., as of 2012 (Figure 2.1-43).

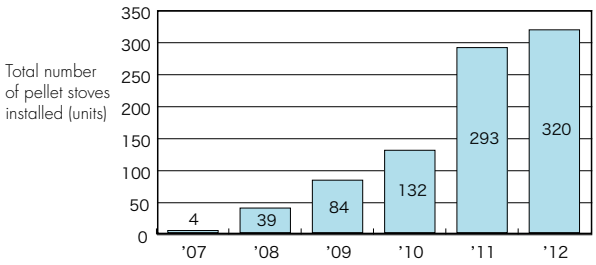
Moreover, the "Oriental white stork fan club" that was established in 2004 has also planted "Hyogo genki matsu" as an activity for the restoration of Satoyama.

On the other hand, as it takes many years to restore red pine trees, artificial nesting towers have been installed by Hyogo prefecture, corporations, and citizen groups, etc., for the Oriental white storks to establish their nests.

Pellet stove

Source: Website of Toyooka City

Pellet



Source: Materials provided by Toyooka City

Figure 2.1-43 Total number of pellet stoves installed

ii) Landscape

a) Background

In reintroducing the Oriental white storks, there was concern that power lines would become an obstacle for Oriental white storks.

b) History of the activities

In order to prevent Oriental white storks from being caught on electric wires and to improve the rural landscape, Hyogo prefecture and Toyooka City put the power lines underground from the poles that stood along the approach way to the Hyogo Park of the Oriental White Stork in 1999 when the Hyogo Park of the Oriental White Stork was opened, with support from an electric power company. In addition, other power lines were buried when carrying out roadside greening, and decorative power poles (made of imitation wood) were located around the Hyogo Park of the Oriental White Stork between 2004 and 2005.

Besides the above, Hyogo prefecture and the Ministry of Land, Infrastructure, Transport and Tourism have carried out various activities such as the installation of markers with an illustration of an Oriental white stork on national roads, etc.

Around the Hyogo Park of the Oriental White Stork (before laying power lines underground)

Around the Hyogo Park of the Oriental White Stork (after laying power lines underground)

Source: Materials provided by Toyooka City

Table 2.1-11 Chronological table of activities related to other fields

Fiscal year	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12
Activities for Satoyama forests																		
Landscape																		
Field of science																		
Field of communities																		
Social background																		
Community events																		

Activities for Satoyama forests:
- Activities to experience the improvement of red pine tree forests [Prefecture, Park of the Oriental White Stork, Public]
- Improvement of walkways in the forests, including pine forests [City, Public]
- Planting of Hyogo genki matsu pine trees, etc. [Oriental white stork fan club]
- Project for the promotion of the restoration of trees used by Oriental white storks to build their nests [Prefecture, Forestry groups]
- Introduction of pellet stoves [City]
- Installation of artificial nesting towers [Prefecture, City, Public]

Landscape:
- Buried power poles standing on the approach way to the Hyogo Park of the Oriental White Stork [Prefecture, Kansai Electric Power Co., Inc.]
- Buried power lines installed around the Hyogo Park of the Oriental White Stork, road greening, and the creation of decorative power poles [Prefecture, City, Kansai Electric Power Co., Inc.]
- Full of flowers model project [Prefecture]
- Installation of markers with an illustration of an Oriental white stork [Prefecture, MLIT]

Field of science:
- Risk prediction in the field of the reintroduction of Oriental white storks (started in 1999)
- Landscape structure of the paddy field zone as a place for the reintroduction of Oriental white storks (started in 2002)

Field of communities:
- Establishment of the Oriental white stork park volunteers
- Establishment of the Oriental white stork saver kids
- Establishment of the Oriental white stork fan club

Social background:
- Creation of new forests in Hyogo (First period measures) (started in 2002)
- Creation of new forests in Hyogo (Second period measures) (started in 2012)
- National Biodiversity Strategy (1995)
- Act on the Promotion of Nature Restoration (2002)
- New National Biodiversity Strategy (2002)
- Holding of COP10 and adoption of the Aichi Biodiversity Targets (2010)
- Enactment of the Landscape Law (2003)
- National Biodiversity Strategy 2012 - 2020 (2012)
- Act on the Promotion of Environmental Conservation Activities and Environmental Education (2003)
- The Third National Biodiversity Strategy (2007)

Community events:
- Great Hanshin-Awaji Earthquake (1995)
- Opening of the Hyogo Park of the Oriental White Stork
- Promotion plan for the reintroduction of Oriental white storks
- Typhoon No. 23
- Environment-Economy Strategy
- Registered under the Ramsar Convention
- Arrival of "Hachigoro"
- Release of Oriental white storks into the wild
- Setting up the "Co-existence with Oriental white storks promotion department" (currently the department for co-existence with Oriental white storks) [City]
- The Toyooka Basin was designated a "Cultural landscape" [Agency for Cultural Affairs]
- Certified as a Global Geopark
- Allocation of the "Person in charge of the creation of communities where Oriental white storks fly" [Prefecture]
- Development of the Toyooka landscape plan [City]
- Certification of the Tajima region "Special Green Tourism Zone"

(2) Self-inspection of the activities by the concerned government agencies

Based on the classification of the activities of public measures for the reintroduction of Oriental white storks, the concerned governmental parties related to the fields of rivers, agriculture, and communities identified the current remaining issues, revealed additional issues, and looked at the future direction as part of the self-inspection of the activities.

[Field of rivers] (Parties to implement the self-inspection: Ministry of Land, Infrastructure, Transport and Tourism, Ministry of the Environment, Hyogo prefecture, and Toyooka City)

[Current remaining issues or revealed additional issues]

In the field of rivers, we have struggled to achieve a balance between the flood disaster measures and the conservation of the environment since the revision of the River Act, but activities related to Oriental white storks are only described.

(1) Issues concerning the generation of a temporary trade-off between the "Smooth implementation of disaster restoration projects" and the "Conservation of the natural environment"

- With the experience of Hinoso Island and the acquisition of knowledge from scientists, a balance between water control and environmental conservation can be achieved in the Maruyama River by creating wetlands. However, for example, the surrounding area of the river will become a temporary place for construction-generated soil if a disaster restoration project is developed within a limited period. As a result, this will cause a trade-off with an impact on the natural environment (temporary reduction in the wetland environment, etc.).

(2) Issues concerning appropriate understanding of the awareness of the social appraisal value for the environment

- In improving rivers, a method that will not be an optimum solution for the environment (sheet pile bank protection, etc.) must be selected sometimes due to the restrictions on the site conditions of landside areas, etc.
- However, as the selection of the balance between the environment and social capital goods has been changing with the times, a method that properly reflects the appraisal values of the times and society must be selected.

(3) Issues concerning the establishment of a sustainable management method

- Created wetland environments need maintenance and management by people. Therefore, the establishment of a sustainable management method through collaboration with local communities is necessary.

[Future direction]

A. Reduction of the impacts on the natural environment including wetland improvement work and temporary work [Corresponding to the issues (1)]

- A method having little impact on the habitat of Oriental white storks will be selected as far as possible in reference to the results of research on the environmental impact and through collaboration with the field of science. After consultations with experts regarding the matters to be considered, projects will be implemented by taking into consideration the habitats of Oriental white storks.

B. Proper reflection of the social appraisal values for the environment [Corresponding to the issues (2)]

- The values of the environment have the aspect that they are to be determined in the human society.

Based on the revision of the River Act, river projects have been implemented by incorporating the opinions of experts in the fields of science and communities, and reflecting the appraisal values of the times and society in relation to the environment.

Opportunities (committees, etc.) to solicit opinions from experts and communities will be set up in order to continuously and appropriately accept the social appraisal values even if a trade-off is generated.

C. Securing and improvement of the value of wetlands achieving sustainable management [Corresponding to the issues (3)]

- For the continuous management of wetlands in cooperation with local communities, a structure that enables these communities to enjoy the advantages that come from continuously maintaining the wetlands will be established by enhancing the value of the wetlands themselves.

Examples of the establishment of the value of wetlands are that a wetland to be managed becomes a tourism resource and generates an economic effect, or the wetland has a higher value than other wetlands from the environmental and biological aspects through support from and cooperation with the field of science, etc. (Besides Oriental white storks, rare animals can be observed, etc.)

In addition, along with the items above, guidelines for the establishment of a maintenance/management structure and the content/work methods of the maintenance/management will be created.

[Field of agriculture] (Parties to implement the self-inspection: Ministry of Agriculture, Forestry and Fisheries, Ministry of the Environment, Hyogo prefecture, and Toyooka City)

[Current remaining issues or revealed additional issues]

▼Issues concerning the expansion of Stork Friendly Farming

(1) Issues concerning the farming method

- The existing image that Stork Friendly Farming needs time and effort prevents farmers from introducing Stork Friendly Farming and the expansion of farming methods without the use of pesticides.

(2) Issues concerning the securing of water for farming

- There are many areas that cannot take water in winter or early before rice planting due to the issue of the water rights (approval for water supplies).

(3) Issues concerning impacts on the surrounding rice fields

- Since winter/early-flooded rice fields may cause trouble for neighboring fields, many farmers cannot conduct Stork Friendly Farming based only on their individual desire to do so.
- In order to create a network of environments as habitats for Oriental white storks and increase production efficiency, it is necessary to promote the activities carried out by each village or water system.

(4) Issues concerning the delivery system

- As JA has no drying facilities (country elevators) for Stork Friendly Rice, small farmers without their own drying facilities cannot conduct Stork Friendly Farming.

(5) Issues concerning nurturing the next generation of farmers

- In order to continuously promote Stork Friendly Farming, both the nurturing of young farmers involved in wet-rice farming and the promotion of leaders for Stork Friendly Farming are necessary.

(6) Issues concerning collaboration with other parties

- To ensure a stable income for farmers, further enhancement of the brand of Stork Friendly Rice is necessary.
- In association with the promotion plan for the reintroduction of Oriental white storks, the establishment of a structure that enables the concerned organizations to expand Stork Friendly Farming is necessary.
- Obtaining the further understanding of consumers (citizens of the city) and creating a structure to increase supporters are necessary.

▼Issues concerning the general agricultural administration

(7) Issues concerning the general agricultural administration

- The increase in the amount of abandoned cultivated lands and the revision/abolition of prime agricultural land are continuing.
- The continuation (securing of land and farm successors) of paddy agriculture supporting the reintroduction of Oriental white storks is necessary.

[Future direction]

A. Development of the conditions for the expansion of Stork Friendly Farming

[Corresponding to the issues (1)]

- Continuously implementing activities for stable crop yields, such as labor saving for the control of weeds (Specific examples: experimental studies on the "rice cultivation of grown seedlings" resistant to disease and weeds, the research and development of a mechanical weeder, and the collection, analysis, and evaluation of data on agricultural practices, etc.).

[Corresponding to the issues (2)]

- Promotion of the securing of water from neighboring rivers to be made available for winter/early-flooded rice fields (Specific examples: the development of facilities to use the stagnant water in rivers (Roppo District) and the examination of experimental/trial activities for environmental irrigation).

[Corresponding to the issues (3)]

- Supporting the activities carried out by village/water system including corporations and agricultural organizations (Specific examples: the provision of subsidies for the cultivation costs and support for promotion activities by agricultural production corporations and agricultural organizations introducing Stork Friendly Farming, the holding of seminars for the promotion of Stork Friendly Farming and consultations for villages, etc., at the agricultural improvement and promotion center, etc., and the promotion of activities carried out through collaboration among neighboring producers including large-scale farmers, corporations, and agricultural associations).
- Supporting the improvement of facilities for the greater efficiency of agriculture managed by villages (Specific examples: the provision of subsidies for the cost of shared machinery and facility improvements to agricultural production corporations and agricultural organizations working on the expansion of Stork Friendly Farming).

[Corresponding to the issues (4)]

- Securing the base facilities so that farmers can ship unhulled rice (Specific examples: support for the introduction of country elevators in JA and adjustment for the acceptance of small shipments using country elevators).

[Corresponding to the issues (5)]

- Nurturing of young farmers and promotion of leaders for Stork Friendly Farming (Specific examples: holding of lectures on the succession process in agriculture targeting young farmers in the agricultural improvement and promotion center, the training of next-generation farmers in organic farming through guidance in setting up demonstration fields, and the cultivation of promotion leaders by organizing a Stork Friendly Farming advisory research group (30 members) and supporting its activities; management of a farming school for the training of young new farmers in organic farming in Toyooka City).

[Corresponding to the issues (6)]

- Increasing the brand power of Stork Friendly Rice through sales promotion, interaction among consumers, and its promotion within and outside the prefecture (Specific examples: support for JA's sales promotion and activities for interaction among consumers by strengthening collaboration among the concerned organizations, and promotion across the country at the FY2014 "Dream of Tajima 2014: Meeting and Inspiring").

B. The conservation of agricultural lands and the nurturing of farm successors [Corresponding to the issues (7)]

- Conserve prime agricultural land
- Revitalize regional agriculture by expanding Stork Friendly Farming and other forms of high-value added agriculture

[Field of communities] (Parties to implement the self-inspection: Agency for Cultural Affairs, Ministry of the Environment, Hyogo prefecture, and Toyooka City)

[Current remaining issues or revealed additional issues]

(1) Issues concerning activities that prevent the loss of interest among the citizens

- There have been few nationwide articles about Oriental white storks since the release of Oriental white storks into the wild in 2006. Therefore, the interest of citizens in Oriental white storks has been declining. The reintroduction of Oriental white storks has become recognized as an "ordinary event" in the city.
- Information has not been provided actively to the citizens. Activities for the reintroduction of Oriental white storks have not been sufficiently incorporated into the lives and culture of the citizens.
- The activities for the reintroduction of Oriental white storks have been progressing but a limited number of groups and residents carry out them.

(2) Issues concerning the expansion of activities for the creation of an environment where Oriental white storks can thrive

- As the number of citizens groups participating/carrying out the activities for the conservation of the natural environment has not increased, the concerned persons remain the same. Activity targets in the field of the citizens are not clear.

(3) Issues concerning the enhancement of the level of awareness among the citizens

- The citizens have recognized the city (Toyooka) as "a city where Oriental white storks live," but they have not recognized themselves as "citizens living in co-existence with Oriental white storks." (The degree of maturation of communities (including local governments) accepting Oriental white storks)
- It is necessary to deepen the relationship between the lives of the citizens and the creation of a new environment and to promote the internalization of this relationship into daily life.
- It is necessary to increase people's attachment not only to Oriental white storks but also to our own communities that support Oriental white storks.

(4) Issues concerning collaboration with other parties

- What roles can be played by Toyooka City as a leading region, with the expansion of the reintroduction of Oriental white storks to other regions?
- Review and share the thoughts of persons involved in Oriental white storks (the determination and the structure to protect "a town living in co-existence with Oriental white storks"). (The philosophy of the way of life or the culture is called into question.)

(5) Issues concerning a trade-off with the human society

- Though activities for nature restoration (wetland creation, etc.) have been implemented, the unrestricted development of agriculture land (urbanization and housing land development, etc.) has also continued.
- Guidelines and rules for environment-friendliness are not clear even in public works implemented by the city.

[Future direction]

A. Development of a sense of considering Oriental white storks as regional property [Corresponding to the issues (1) and (3)]

- Develop a sense of considering the reintroduction of Oriental white storks as a form of pride in ourselves by regarding it as an activity that people are proud of in the world and as a regional property
- Disseminate the meaning of the activities for the reintroduction of Oriental white storks to the citizens once again using examples of the expansion of activities to other regions

B. Discovery of local human resources and the nurturing of successor leaders and researchers, etc. [Corresponding to the issues (1) and (2)]

- Promote the cultivation of next-generation human resources including community-based researchers, etc. (Specific example: establishment of the University of Hyogo Graduate School of Regional Resource Management, etc.)
- Pass on the value and meaning created by cultural assets in the region to the next generation and cultivate human resources to transmit the attractiveness of the region (Specific example: the science cafe called "Tsurumi Cafe", etc.).
- Deepen awareness and understanding of the communities and foster the responsibilities and roles fulfilled by humans and the ability to voluntarily take action towards environmental conservation (Specific examples: Super Science High School project and comprehensive learning, etc.)
- Promote environmental education using regional resources (human resources and facilities, etc.), based on the regional characteristics. Develop measures not only for elementary school students, but also for high school students, university students, and the young members of the society (Specific example: environmental learning practice classes (for teachers and staff in elementary/junior high schools), etc.)

C. Participation of multiple parties [Corresponding to the issues (3) and (4)]

- Continue to manage a platform to maintain collaboration (Specific example: Liaison Council on the Promotion of the Reintroduction of Oriental White Storks)
- Continue to make efforts to inform as many people as possible about the "Story" of the reintroduction of Oriental white storks over half a century. Concerning Oriental white storks born in Toyooka and flying across the country, collect witness accounts as well as promote the activities for their reintroduction in line with their arrival
- Try to involve a wide range of parties (the city residents, consumers, and corporations, etc.) in the activities

D. Connections between the economy, environmental creation, and community activities [Corresponding to the issues (3)]

- Cultivate primary industries and strengthen the conservation of communities supporting such cultivation
- Examine and actively develop measures to connect environmental creation with community activities

E. Expansion of collaboration between science and communities [Corresponding to the issues (4)]

- Together with the state and local governments (Toyooka City, etc.), Hyogo prefecture (Hyogo Park of the Oriental White Stork) will play a role as a leading area based on their past experience of collaboration, and work on the expansion of collaboration through information provision to local governments and groups across the country.
- The local governments will also try to develop a network so as to transmit their experiences as a "Town living in co-existence with Oriental white storks".
- Citizens related to the reintroduction of Oriental white storks will also try to develop a network among them.

F. Examination of the "Toyooka rule" [Corresponding to the issues (5)]

- Formulate specific standards for an "Eco-friendly town" that is characteristic of Toyooka, and examine the comprehensive measures (including land usage) for the conservation of "inherited goods" such as agricultural land and landscapes

[Field of science concerning Oriental white storks]

In this project, activities carried out in scientific fields were not assessed from their scientific aspects. On the other hand, since these scientific fields are the core of activities for the reintroduction of Oriental white storks carried out in the Toyooka region, issues and directions pertaining to the "creation of local communities living in co-existence with Oriental white storks" in the science concerning Oriental white storks were identified.

[Current remaining issues or revealed additional issues]

(1) Issues of people living close to wild animals

- It is necessary to inform society of the risks of having close contact with wild animals. For example, if Oriental white storks get used to humans by being fed, etc., and if children approach them, they may get a poke in the eye and lose their sight. In addition, Oriental white storks may carry pathogens such as avian influenza, etc.

(2) Relationship between the living environment of humans and Oriental white storks at the time of an increase in the population of Oriental white storks

- If the population of wild Oriental white storks increases significantly in the future, friction between humans and other living creatures will grow (like the problem of deer and great cormorants) and Oriental white storks may be called a "harmful bird" again.

(3) Education on the meaning of "reintroduction" among the citizens from the scientific standpoint

- In the past, the citizens sometimes fed non-captive Oriental white storks in good faith. In order to achieve the reintroduction of Oriental white storks, it is necessary to spread awareness that most of the offspring of wild animals will die and appropriate selection is necessary for Oriental white storks as well.

(4) Creation of an indicator model of the environmental infrastructure for habitats of Oriental white storks

- In order to secure enough food so that Oriental white storks can live independently and propagate, the regeneration of the freshwater fish community is essential. However, surveys on the biomass in rice fields, rivers, and water channels in Toyooka and investigations to develop the nature restoration plan necessary for the reproduction of fish and for appropriate loss and survival of fish have just started. In addition, since it is important that rivers are considered in terms of the whole valley and river basin, the dynamics of habitats and nutrient salts need to be evaluated from a viewpoint that exceeds their administrative jurisdiction.
- In order to improve the habitats of fish, it is necessary to examine not only individual activities (installation of fish ladders, etc.), but also comprehensive measures to achieve a balance between agriculture and fisheries taking into account the life cycle of the fish.

(5) Responsibilities as a region launching the reintroduction of Oriental white storks

As Oriental white storks are a wild animal, they fly across the country from the Toyooka region. As an implementing party for the reintroduction of Oriental white storks, the Toyooka region must continuously deal with scientific issues and issues arising from the relationship with the human society described above, with consciousness and responsibility.

(6) (Reference: Issues concerning the science of other Oriental white storks: Response to genetic diversity)

- As the offspring of one of the few pedigrees inhabits the outdoors, the genetic diversity is not assured. In the future, the population may become extinct due to genetic deterioration if measures are taken without due consideration.

[Future direction]

A. Collaboration among the parties for promotion and education [Corresponding to the issues (1), (2), and (3)]

- In order to enable citizens to properly understand the issues concerning co-existence with Oriental white storks, develop collaboration with Toyooka City in charge of information dissemination to the citizens by mutually making up for gaps in any areas of specialty.
- In order to further increase the effects of environmental education, citizens groups and the Hyogo Park of the Oriental White Stork will deepen collaboration and strategically promote such education.

B. Collaboration among the parties for the creation of the environmental infrastructure for the habitats of Oriental white storks [Corresponding to the issues (4)]

- In order to create an indicator model of the habitats of Oriental white storks, develop collaboration with the state and prefectural administrations with jurisdiction over rivers, agriculture, forestry and fisheries, as well as collaboration with the citizens' administration.

C. Response to the responsibility as a region launching the reintroduction of Oriental white storks [Corresponding to the issues (5)]

- As a research institution to lead the reintroduction of Oriental white storks both in Japan and overseas, conduct further research as well as enhance information networks and promote information dissemination.

2.2. Thoughts of the people involved in the activities

(1) Discovery of a sense of values through interviews

Interviews were conducted with people involved in the activities for the reintroduction of Oriental white storks for the purpose of finding out their thoughts and sense of values towards Oriental white storks and the home town shared by the residents in the Toyooka region, through the subjectively-based stories.

1) Interview

Interviews were conducted with the people listed below:

Items	Perspectives of the interviews	Name
Overall image of the activities for the conservation of Oriental white storks	Conducted interviews concerning the overall image and the turning point of the activities	Mr. Kojiro Matsushima (Director emeritus of the Toyooka Municipal Eco-Museum Center and a former member of the breeding staff of the "Tajima Oriental White Stork Conservation Group")
Overall		Mr. Yasuo Ezaki (Professor at the University of Hyogo and the Research Director of the Hyogo Park of the Oriental White Stork)
		Mr. Setsuo Satake (Representative of the Oriental White Stork Wetland Net and the former manager of the Department for Co-existence with Oriental White Storks, Toyooka City)
		Mr. Muneharu Nakagai (Mayor of Toyooka City)
		Mr. Hitoshi Miyagaki (Department for Co-existence with Oriental White Storks, Division of Co-existence with Oriental White Storks, Toyooka City)
Rivers	Conducted interviews concerning the changes in the improvement of the Maruyama River and the relationship between the improvements and Oriental white storks	Mr. Yuichiro Fujita (Fellow and professor emeritus at Gifu University)
Agriculture	Conducted interviews concerning the changes in the agricultural policy for the expansion of Stork Friendly Farming and the relationship between the agricultural policy and Oriental white storks	Mr. Shigeru Yasuda (Professor emeritus at Kobe University)
		Mr. Etsuyoshi Nawate (Agricultural Association of the Oriental White Stork Town)
		Ms. Itsuki Nishimura (Leader of the Organic Farming Promotion Section, Agricultural Improvement Department, Agriculture, Forestry and Fisheries Bureau, Agricultural Administration Environment Division, Hyogo prefecture)
		Mr. Kazunori Hotta (Rice Department, Direct Sales Division, JA Tajima)
Development in the communities	Conducted interviews concerning the measures and the development of the activities for promotion and education related to Oriental white storks	Mr. Naoki Kikuchi (Associate professor at the Research Institute for Humanity and Nature and a former researcher of the Hyogo Park of the Oriental White Stork)
		Mr. Nobuyuki Onishi (Executive director of the Hyogo Tourism Association)
		Mr. Hisashi Ueda (Representative director of the NPO Citizen's Research Institution for the Oriental White Stork)
		Mr. Susumu Yamamoto (Deputy representative of the NPO Oriental White Stork Toyooka Life Network and the former principal of Nitta Elementary School)

2) Summary of the interviews

Keywords representing the thoughts and sense of values shared in the region were extracted from the interviews with the persons concerned, which were then summarized.

Mr. Kojiro Matsushima

Director emeritus of the Toyooka Municipal Eco-Museum Center and a former member of the breeding staff of the "Tajima Oriental White Stork Conservation Group"

24 years since starting artificial incubation
I cannot forget the day when we succeeded in hatching for the first time.

In 1964, Hyogo prefecture and Toyooka City started the construction of breeding facilities for Oriental white storks and started the capture of wild Oriental white storks at the same time. At that time, I was a manufacturer of luggage besides engaging in agriculture as my family business. I started to help with the capture of Oriental white storks as a volunteer staff. We succeeded in the capture for the first time in February 1965. After the capture, city employees and volunteer staff bred Oriental white storks in rotation. It was very hard for us as we had to take care of them around-the-clock. However, we made efforts to take care of them once we had decided to breed them. They laid eggs at the end of March, which brought all the staff great pleasure. However, we failed to hatch all the eggs. In May 1965, I was told, "You are the only person to be a breeding staff member." Then I started to work on artificial incubation as the only staff of the Oriental White Stork Conservation Group. The Oriental White Stork Conservation Group is a protection group consisting of Toyooka City, Hyogo prefecture, neighboring local governments, schools, various groups, and private corporations, etc.

After that, I had a very busy life to take training at Oji Zoo in Kobe and a zoo in Tokyo to learn breeding methods, and to prepare for the next capture, etc. We repeatedly caught Oriental white storks but all of them died in spite of our efforts. In 1970, Oriental white storks finally disappeared in the wild. Around the same time, six Oriental white storks were presented to us from Russia and in 1989 we finally succeeded in artificial breeding for the first time in 24 years after starting artificial incubation. Since then, we have continuously succeeded in hatching every year. I cannot forget the emotion at the time of the release of Oriental white storks into the wild for the first time.

Before we succeeded in artificial incubation, there were many internal and external pressures, and artificial incubation was sometimes taken up as an issue at the prefectural assembly. However, despite being under such a situation, we concentrated only on breeding of the Oriental white storks and consistently looked for effective breeding methods. I think these brought us to the current success. I also think effective breeding was achieved thanks to the cooperation of domestic and overseas researchers and zoos in addition to the support of Hyogo prefecture and the Agency for Cultural Affairs. When the Great Hanshin-Awaji Earthquake occurred, I could not think about the activities for Oriental white storks. However, I continued to carry out the activities as something that I could rely on for the restoration of Hyogo, which led to the success of artificial breeding.

Mr. Yasuo Ezaki

Professor at the University of Hyogo and the Research Director of the Hyogo Park of the Oriental White Stork

It is important to increase the number of fish to provide prey for the Oriental white storks.

Before I started work at the Hyogo Park of the Oriental White Stork in 2010, I was a member of the conference for the protection and breeding of Oriental white storks of the Hyogo Prefectural Board of Education. At that time, I was in a position to approve plans developed by the staff of the Hyogo Park of the Oriental White Stork. I think that about a half of the original plans were achieved. One of the issues is that too many Oriental white storks are propagated from a limited pedigree, which has already caused difficulties. Mr. Yamagishi, the curator, and I have carried out activities for the reintroduction of Oriental white storks while preventing the risk of devastation of the population.

To create "a society where Oriental white storks can thrive", biodiversity must be restored. However, before this, the resources (i.e. food) that the Oriental white storks eat are necessary. Although there were various conditions, it was also a problem that the release of Oriental white storks was started before confirming whether there were sufficient resources (i.e. food). It was necessary to investigate the amount of fish and the location of rice fields, rivers, and water channels in Toyooka where the fish lived, before the implementation of the release of Oriental white storks into the wild. There are many people who think that Oriental white storks can thrive if the rice fields are somehow improved. However, actually, Oriental white storks cannot grow only by eating tadpoles and frogs but require a lot of fish in their habitat. In order to ensure an abundant fish population, the creation of an environment where the fish can thrive (an environment fulfilling their life cycle requirements) is necessary. All of these items must be completed in order to create "a society where Oriental white storks can thrive". Of course, people can also eat freshwater fish. Therefore, at the same time, the restoration of the fish populations is important to improve the current situation in which food self-sufficiency has been declining. I think that it is necessary to restore inland water fisheries and improve the environment for achieving a balance with agriculture.

It is also necessary to create a model water system using biotopes, etc., such as the water system used in the song called "The Small Stream in the Spring". The restoration of fish populations will provide not only an enough prey for Oriental white storks, but also become a subject of environmental education for children. Water channels in the rice fields were used in "The Small Stream in the Spring", but rice fields offer a very good environment for the hatching of fish eggs and the growth of juvenile fish. In Toyooka, many fish ladders have been set up. However, it is not sufficient to only create fish ladders since all the fish will be eaten by herons while they ascend the fish ladders before they can be eaten by Oriental white storks, since herons are good at catching their prey. Places for egg-laying, and the growth of fish, and the area enable them to escape from predators are necessary. In other words, a viewpoint from the ecology of the animals is essential (an appropriate number of fish will be eaten and the remaining fish will survive).

Mr. Setsuo Satake

Representative of the Oriental White Stork Wetland Net and the former manager of the Department for Co-existence with Oriental White Storks, Toyooka City

Decrease in the interest of the citizens is a problem. Far from real reintroduction

Since I was designated the cultural assistant director of the social education department of the Toyooka Municipal Board of Education in 1990, I have been involved with Oriental white storks. From then, I have actually been immersed in the reintroduction of Oriental white storks. The year 1990 was the second year of the success of breeding captive Oriental white storks. As the number of Oriental white storks was considered to increase in the future, it was necessary to establish additional facilities. Therefore, we started to develop a plan for the second facilities for the protection and breeding of Oriental white storks. As a result, these facilities became the Hyogo Park of the Oriental White Stork. However, as this plan was a bold plan, the Prefectural Board of Education had difficulties with it. Therefore, we started creating a concept after consulting with Mr. Muneo Nakagai, the prefectural assembly chairman at that time, and submitted a request to the governor of the prefecture in 2002.

I was so impressed to be able to film the hatching during artificial incubation. The scene of the chicks trying to emerge from the eggs was also emotional. When I shown children this video, they watched it with clenched fists. I think they empathized with life.

At the time of purchasing the land for the Hyogo Park of the Oriental White Stork, I was told by an elderly person in the village, "I practice farming using pesticides now, but actually, I don't want to use them. I hope that the Hyogo Park of the Oriental White Stork will promote agriculture without the use of pesticides". At this moment, I was convinced that the concept of the Hyogo Park of the Oriental White Stork would become a success.

The arrival of "Hachigoro" had a great impact on a change in the citizens' awareness. The scene of Hachigoro flying in the sky was very impressive. A citizen told me, "Watching the flying of 'Hachigoro' is far more compelling than your logical explanation". I am extremely grateful to Hachigoro.

One of the current issues is that the acceptance structure is not sufficient to handle a rapid increase in the number of Oriental white storks. As of 2013, the area of rice fields cultivated without the use of pesticides was only 2% of the whole area of rice fields, and the number of people engaged in it and the area for biotopes were very limited. However, as most young birds stay in Toyooka, the population of Oriental white storks has become imbalanced within a small area. They compete for territories or pair with close relatives, etc. In order to solve this issue, I think, the creation of an environment for their habitats is necessary on a national level. For achieving this, I think it is necessary for the citizens of Toyooka City, as the originator of the activities for Oriental white storks, to recognize this issue as their personal issue. The citizens were very impressed by the arrival of Hachigoro, but the presence of Oriental white storks has become familiar now. I think that an atmosphere that is like the reintroduction of Oriental white storks has already succeeded, and this may be a problem even though full-scale reintroduction has not been achieved yet.

Mr. Muneharu Nakagai

Mayor of Toyooka City

In order to make many fellow sympathizers and cycles of sympathy as possible, I tried to continue to throw balls that they can catch (achievable objectives).

We established the department for co-existence with Oriental white storks in order to separate it from the municipal board of education. Oriental white storks are a cultural property designated as a natural treasure, and the activities for the reintroduction of Oriental white storks were controlled by the board of education in the past. However, the "Creation of a town where Oriental white storks can also thrive" was considered a comprehensive community creation including rivers, education, agriculture, and economy. Therefore, the department was established in the planning division, which brought about success. In addition, by organizing this department close to the mayor, the department became a measure that symbolized the town. By adding the word "also" to the slogan, the "Creation of a town where Oriental white storks can thrive", we could receive empathy from the city officials. Some city officials used to say, "Why do we have to deal with Oriental white storks?", but they realized that the activities are not only for Oriental white storks, but also for themselves.

The arrival of "Hachigoro" in 2002 was just a gift from God. Since the prefecture and the city had already launched the creation of biotope rice fields, it was a miraculous and surprising event that Hachigoro flew down onto one of these biotope rice fields. At that moment, I was convinced that the activities we had carried out were right.

In order to include as many fellow sympathizers as possible, we kept trying to throw balls that they could catch and to carry out the activities step by step. We did not make a proposal to the prefecture on the "reintroduction of Oriental white storks" straight away, but made a proposal to consult with experts about the future direction since the number of captive Oriental white storks had been steadily increasing. As a result, the prefecture approved this proposal.

Many citizens resisted the reintroduction of Oriental white storks. There were criticisms like, "Can we make a living by improving the environment?" or "Will you release harmful birds into the wild?", etc. Since around 2004 when the Environment-Economy Strategy was established, we have gained the understanding of the citizens and found the appropriate direction for organic farming. At present, pesticide-free rice called "Stork Friendly Rice" is selling so well that farmers cannot keep up with production to meet the demand. In Okinawa, a supermarket called "Sanei" created a TV commercial for "Stork Friendly Rice" and sells it with enthusiasm. In addition, a manufacturer of solar cells called "Kaneka" established their factories in Toyooka because Toyooka is a city of the Oriental white stork. These are also the effects of the reintroduction of Oriental white storks.

Mr. Hitoshi Miyagaki

Department for co-existence with Oriental white storks, Division of co-existence with Oriental white storks, Toyooka City

Motivation will increase by carrying out unprecedented activities.

The department for co-existence with Oriental white storks (former Co-existence with Oriental white storks promotion department) of Toyooka City was established in 2002 in order to promote the creation of a town symbolized by Oriental white storks. Before the establishment of the department, I belonged to the lifelong learning department of the board of education. At that time, since the "Eco-Museum Center" was under construction, I have frequently been involved in Oriental white storks since then. In order to promote the "Plan for a museum for the entire region", the department for co-existence with Oriental white storks started to carry out activities for the reintroduction of Oriental white storks after designating four model districts. We had a plan to expand the activities by creating a successful example.

I think the biggest turning point was the arrival of "Hachigoro" in 2002, which enabled the citizens to clearly understand our tasks. We became familiar with Oriental white storks after watching an actual Oriental white stork in the wild. It can be said that we could identify the activities to be carried out next thanks to this event. There were some turning points in that year, such as the number of captive Oriental white storks exceeded 100, the target number for their release, etc.

As the size of the budget of Toyooka City is small, it is important to establish national and prefectural projects. In addition, as all these projects are newly implemented, the key is to prepare a project plan to persuade the insiders of Toyooka City. Conversely, I think that convincing materials can be found in the new projects. For example, the prefecture covered half the costs of the creation of biotopes subject to the use of fallow fields as biotopes for the feeding grounds of Oriental white storks. Since "Hachigoro" happened to fly down on one of these biotopes, a clear evaluation could be made. Although some people may consider that it is difficult to consult with the government due to its high threshold, the department for co-existence with Oriental white storks in Toyooka City has the attitude of accepting any consultations. This is because clues for things that we have to do are sometimes hidden in stories provided by the residents. During these consultations, our tasks will change accordingly. Things do not always go smoothly, but I think it is important to make efforts while being consciousness of problems at all times.

Mr. Yuichiro Fujita

Fellow and Professor Emeritus at Gifu University

The excavation plan for Hinoso Island towards the achievement of a balance between water control and environmental functions

I have been involved with the Maruyama River as a river counselor since the mid-1980s. I have a memory that the river counselor system was advocated by Hideo Yoshikawa, a river engineering professor. At that time, academics of the same age took jobs as river counselors for various rivers. As the flow of the downstream basin of the Maruyama River was gentle, significant flood damage often occurred. Sometimes the basin became an isolated island due to the submerged roads. In 1978, Kikuya Island and Nakanoshima Island were excavated. Concerning Hinoso Island, a large sandbank and a cultivated area, the excavation of the entire land and the change in the position of the left bank (extend it forward) were planned and the purchase of the land was started. On Hinoso Island, rare wildlife, such as Penthorum chinensis, Branched Bur-reed, Wetland wolf spider, and Mortonagrion hirosei, had bred and inhabited the area, and there were egg-laying grounds of the Japanese icefish near the island. Therefore, a method to excavate the island while leaving the existing nature had to be examined. Based on this, the "Investigative committee on the improvement of Hinoso Island" was established with the participation of not only local governments and academics, but also persons engaged in the fisheries industry, citizen groups, and former land owners, etc. I also participated in it.

Wetlands in rivers have attracted attention as a feeding ground for the Oriental white storks to be released. A common recognition among the members of the committee was to find a method that gives consideration to the ecosystem by placing Oriental white storks at the top of the food chain and does not have an impact on the water control functions. The opinion of the former land owners was that they wanted the entire island to be excavated since they sold the agricultural land based on the original plan, and to ensure that the area did not suffer flooding any more. Towards the conservation of nature that can maintain the habitat of Oriental white storks, it is necessary to look at both the rivers and the Toyooka Basin from the viewpoint of the linear flow and the surface. Since the island has agricultural land and a mountainside, the issue was how to conserve rare animals and plants based on the ecological aspects of each function. As a result of repeated examinations with consideration for the creation of multiple rivers developed across the country, it was agreed that half of the island (e.g. three-fourth of the volume) would be excavated. Although this was not enough, both the securing of the cross-sectional area of the river for water control and the conservation of wetlands for living creatures could be achieved.

I look back and think that it was a major result to obtain consensus in the discussions among the multiple participants in the process. Therefore, I have a considerable emotional attitude concerning water control work against the flood damage in 2004 that has been implemented in the downstream districts where the residents agreed to the conservation of wetlands. In addition, I think it is also important to enhance the functions of the created wetlands. There is a risk of losing the richness of the nature and making it monotonous (due to restrictions on the water depth, etc.) if Oriental white storks are only focused on. Moreover, the excavation may increase the risk of destroying rare animals and plants in the case of flooding. Therefore, measures that would avoid the loss of these animals and plants (leave the plant roots, etc.) need to be considered.

Mr. Shigeru Yasuda

Professor Emeritus at Kobe University

I wished to expand organic farming not only to Toyooka City, but also to the entire Tajima region and Hyogo prefecture!

Since I was designated as the chairman of the "Liaison Council on the Promotion of the Reintroduction of Oriental White Storks", I have officially been involved in the reintroduction of Oriental white storks. When I worked at the Faculty of Agriculture of Kobe University, I started studying organic farming to ensure the safety of food based on an incident concerning pesticide contamination of breast milk. Since then, I have talked to farmers in Toyooka about organic farming. In addition, I have made suggestions for methods of selling agricultural products at farm stands in order to continue and establish organic farming.

There was a plan to release Oriental white storks into the wild if the number of Oriental white storks artificially bred in cages exceeded 100. On August 6, 2003, on a day close to the day of the release, the "Liaison Council on the Promotion of the Reintroduction of Oriental White Storks" was established. The council was a large council of which 27 groups became members, including the state, the prefecture, the cities and towns in Tajima, the agricultural committee, the Tajima agricultural cooperative, the Maruyama River fisheries cooperative, the commerce and industry association, persons engaged in schools, and citizen groups. I think I was designated as the chairman for the reason that I helped promote activities for the protection of Oriental white storks in the biology club at Toyooka High School.

Critical opinions were given by the attendees at the first council, such as, "Is there anything that we can cooperate on?", "Will you release Oriental white storks into a created river where fish cannot live?", "How do you think about establishing feeding grounds?", etc. There was no atmosphere of cooperation for the reintroduction of Oriental white storks. However, as a result of persistent appeals, the members gradually came to feel like making the reintroduction of Oriental white storks a success, and the first council finished with a lot of applause. I was impressed by a wild Oriental white stork ("Hachigoro") calmly flying near the window of the conference room during the council meeting, which was like wishing a bright future for the council. This changed the atmosphere of the council significantly. Now the council is regularly held twice a year to report on the annual results and future issues of the activities carried out by the groups that the members belong to. The groups actively bring energy to the consensus creation for the promotion of the reintroduction of Oriental white storks.

Finally, Oriental white storks will face an era with a population of over 100 birds. The Toyooka Basin is too small to provide a living space for these Oriental white storks, thus I think that it is necessary for them to inhabit the entire Tajima region in the coming years and the entire Hyogo prefecture in the future to create an environment and communities where Oriental white storks can live and breed. Toward the creation of such an environment and communities, the expansion of the techniques for organic farming is required. It is expected that the role of the council will also expand.

Mr. Etsuyoshi Nawate

Agricultural association of the Oriental white stork town

Enable the Oriental white storks to determine whether the whole activity is good or bad

Along with the establishment of the "Hyogo Park of the Oriental White Stork" in our Shounji District, we established the "Association for the development of Shounji" in order to think about how to live in co-existence with Oriental white storks in preparation for their reintroduction. At the same time, we decided to try to introduce a safe and secure agricultural system without using pesticides and chemical fertilizers.

We did not originally have a dislike to Oriental white storks like we do to crows and black kites, but Oriental white storks were acknowledged as a kind of special bird. In 1997, we introduced the cultivation of rice without the use of pesticides by applying a method called rice-duck farming, and in 2002 we established an association conducting agriculture without the use of pesticides or with a reduction in the use of pesticides called the "Agricultural association of the Oriental white stork town". Behind its establishment, there was the idea that we did not want to degrade the environment of our region any more since the number of farmers in the region has been declining.

To tell the truth, we wanted to expand pesticide-free production. However, it was difficult to start pesticide-free production since much time and effort were necessary. Therefore, we encouraged the farmers in the region to work together to carry out activities to reduce pesticides little by little. If we do not use any pesticides, the yield decreases. The focal point was to put up with the reduction in the amount of the yield. Since the year following the establishment of the agricultural association, we have introduced winter-flooded rice fields for the growth of living creatures at the request of the city administration. In maintaining winter-flooded rice fields, there were some concerns related to field management, such as the collapse of paddy ridges, etc. However, we agreed to introduce winter-flooded rice fields to control weeds and to produce safe agricultural products under pesticide-free production.

Based on the completion of the cultivation structure for "Stork Friendly Farming" in 2005 and the increase in the cultivated acreage and the sales of products under Stork Friendly Farming over the years, we requested JA to establish a "Stork Friendly Rice Production Committee". I served as the first chairman. After we introduced Stork Friendly Farming at the "International Convention on the Future of Oriental White Storks", we received an avalanche of offers for interviews and visits, which numbered over 50 a year.

Currently, the total agricultural area in the whole of Toyooka is about 3,000 ha and the area under Stork Friendly Farming is about 270 ha, which is still below 10% of the total area. I think Stork Friendly Rice production has still plenty of room for expansion. This is because, in the future, it is necessary to shift from the production of commercial rice to the production of rice that consumers want to purchase for individual use. There are many people who want to become involved in the production because of the price advantage. My theory is to "enable living creatures to determine whether the rice field is good or bad, enable consumers to determine whether the rice is good or bad, and enable Oriental white storks to determine whether the whole activity is good or bad".

Ms. Itsuki Nishimura

Leader of the Organic Farming Promotion Section, Agricultural Improvement Department, Agriculture, Forestry and Fisheries Bureau, Agricultural Administration Environment Division, Hyogo prefecture

A cause was helped to find a way out of a difficulty.

In 2002, the Oriental white stork project team was established in the regional promotion department of the Tajima Branch Office of Hyogo prefecture for the release of Oriental white storks into the wild, and I became a member of the project. At that time, not only the interest of local residents, but also the interest of other concerned organizations in relation to the reintroduction of Oriental white storks was low. Therefore, we could not obtain their understanding for the promotion of organic farming for Oriental white storks. However, based on my experience in my former post to lead the "Oya Highland Organic Vegetable Production Committee" for the Emperor's Cup, I had a firm conviction that agriculture can be promoted by conducting organic farming and had an idea to link the project for the reintroduction of Oriental white storks to agricultural promotion. However, in promoting organic farming, there were still opinions from the agriculture, forestry and fisheries department of the city and JA that worried about the possibilities and the future of organic farming even though they agreed with the general theory.

Under the situation in which consensus formation with farmers and concerned organizations had not been established and a support system had not yet been developed, it was decided to conduct the trial release of Oriental white storks into the wild in 2005 by the Council on the Promotion of the Reintroduction of Oriental White Storks held in 2003. Generally, when spreading agricultural techniques, technical demonstrations are performed in a test laboratory before introducing them to agricultural sites. However, as we considered that it was necessary to secure the feeding grounds for Oriental white storks before their release, we started to establish and spread techniques in agricultural sites by calling on farmers to cooperate. However, in the first year of organic farming (hereinafter referred to as "organic rice cultivation"), we failed to produce rice as the weeds grew all over the rice fields. On my days off, I and my son (a junior high school student at that time) removed the weeds. There were accusing voices from concerned persons criticising our failure, but we received support from the farmers. The farmers told me, "We will make efforts so that you are not accused", which made our solidarity stronger. In addition, as a result of our steady efforts, the number of people understanding and cooperating with our activities has been gradually increasing.

In order to establish the ecosystem, acquire techniques, and succeed in organic rice cultivation, the farmers needed to spend time and effort and maintain their belief in the system. I myself learned that people are not motivated only by the ambitions of others, but are motivated by data that have been consistently collected. In addition, if techniques are established, farmers will not be rewarded without substantial sales of "Stork Friendly Rice" (hereinafter referred to as "Friendly Rice"). At the early stage, we developed sales channels by ourselves, introduced them to JA, and carried out promotional activities among consumers beyond the area of our activities. We carried out tasks based on the idea that each member should work beyond their responsibility and take over tasks so that other organizations undertake the role of dealing with them after getting in the right direction.

I think the main factors in these activities were that there was a "cause" to inherit the environment where Oriental white storks can thrive to be part of the next generation in "producing", "purchasing" and "supporting" Stork Friendly Rice, and to ensure the support of people who understood it.

Mr. Kazunori Hotta

Rice department, Direct sales division, JA Tajima

Pesticide-free products did not always sell well. We should sell Stork Friendly Rice based on a mission for Toyooka.

I have sold Stork Friendly Rice at JA since FY2003, two years before the release of Oriental white storks into the wild. For the continuation of Stork Friendly Farming, collaboration among the governments, farmers, and JA is essential. Since JA did not have the function of selling rice by themselves at that time, some people worried that pesticide-free rice could not be sold. Though I had just entered JA after graduating from university at that time, I thought that the contribution young employees could make to the farmers was in sales. In addition, as Stork Friendly Rice was rice that I wanted to sell, I put great efforts into the sales activities. It is said that changes in agriculture change the landscape. I thought I wanted to change the landscape of the region where I grew up.

It was difficult to set the price for Stork Friendly Rice. Though there was no social trend that safe and secure rice can be sold at a high price, compensation for the time and effort to grow it was necessary in order to continue Stork Friendly Farming. Therefore, at first, we set 2,980 yen per 5 kg as the price for Stork Friendly Rice in consideration of the farmers' intentions.

In the first year, the total production amount of 5 farmers was 6 tons. Under a situation in which the relationship between the rice and the Oriental white storks could not be understood well, we sold Stork Friendly Rice at a roadside station. Since the production amount was small, the Stork Friendly Rice that was initially produced was sold out. In the second year, a local supermarket called Toyoda started to sell Stork Friendly Rice. In the third year, various rice shops and Ito Yokado started to sell it.

Some farmers think that safe and secure rice produced in order to protect Oriental white storks should sell well. However, from the viewpoint of consumer needs, there are not many requests to produce rice to protect Oriental white storks. I think that Stork Friendly Rice was not produced based on consumer needs but was produced because Stork Friendly Rice was important for the future direction of Toyooka. Therefore, it is important to create consumer demand. We have continuously worked on sales activities so that consumers can understand the merits of Stork Friendly Rice.

In order to protect the future of Satochi and Satoyama, Stork Friendly Rice should be produced and evaluated properly. I would like to continuously make efforts to achieve this.

Mr. Naoki Kikuchi

Associate professor at the Research Institute for Humanity and Nature and a former researcher of the Hyogo Park of the Oriental White Stork

The relationship between local residents and Oriental white storks was identified by conducting interviews with 414 people.

I have conducted research at the Hyogo Park of the Oriental White Stork regarding the relationship between people and Oriental white storks and the creation of communities focusing on the reintroduction of Oriental white storks. I conducted interviews with 414 elderly people living in Toyooka between January 2002 and June 2002. According to the interviews, it was found out that the image of Oriental white storks has two aspects, as a harmful bird that tramples on rice fields and as an auspicious bird. Elderly people called Oriental white stork as crane. This is similar to the natural environment in Toyooka having wetlands with two conflicting faces, to become a rich water place for Oriental white storks and to cause floods in the case of heavy rain. In addition, there are rural areas on the right bank and urban areas on the left bank of the Maruyama River. The degree of interest was different depending on the area they lived. People living in the urban areas were not much interested in Oriental white storks. The attitude of Toyooka to the protection of wild birds is the so-called community type. Compared with the activities carried out on Sado island (e.g. a conservation area for the Japanese crested ibis) led by NPOs, the activities carried out in Toyooka are based on a strong relationship of trust among the residents, such as a sense of "if you do, I will do." One of the significant features of the residents in Toyooka is that they call each other by their first names. I think it is difficult for other regions to imitate this.

I think it is very important to connect the environment with the economy. In 2008 and 2009, we conducted a questionnaire survey of visitors to the Hyogo Park of the Oriental White Stork. The number of visitors during the peak period was 500,000 and the economic effect was 1 billion yen. The visitors were from high-income groups and had a high level of satisfaction with the park. Most of them repeatedly visited the park but took a day trip as they lived within the Kansai area. Unfortunately, they did not spend much money. I think that the economic effect will increase if the attractiveness of Toyooka other than Oriental white storks is promoted.

After the release of Oriental white storks into the wild, people's opinions changed. This caused differences of opinion. For example, some people wanted to use Oriental white storks from an economic perspective and some people purely wanted to protect Oriental white storks, etc. In response to this, the "Tsurumi Cafe" is held once a month to hear various opinions. Currently (as of March 2014), the Tsurumi Cafe has been held 65 times. I think a relationship of trust between the citizens and the researchers has been built through this.

Mr. Nobuyuki Onishi

Executive Director of the Hyogo Tourism Association

The keys to the success were that the plan could be implemented through an exchange of opinions at the conference, and the integrated project budget could be requested from the field.

I worked at the Tajima Branch Office of Hyogo prefecture located in Toyooka City for 6 years from April 2000. For the first 2 years, I created the "Tajima regional vision" as comprehensive guidelines for the creation of the prefectural land for the 21st century. For the next 4 years, I was in charge of the creation and implementation of the "Promotion plan for the reintroduction of Oriental white storks" as "a counselor in charge of the creation of communities where Oriental white storks fly". In order to promote this plan, we created the "Council on the Promotion of the Reintroduction of Oriental White Storks" consisting of the prefecture, the city, and the towns. After that, the council changed into the "Liaison Council on the Promotion of the Reintroduction of Oriental White Storks" with the participation of citizen groups.

In order to implement the plan for the reintroduction of Oriental white storks, not only the planning of the release of Oriental white storks, but also the improvement and restoration of nature in the fields, Satoyama, and rivers was very important. This involved securing feeding grounds and places for building nests from the position of the Oriental white storks and the creation of safe and secure communities from the positon of humans. Since the consensus of the citizens was necessary to achieve this plan, we got many people to cooperate with us. However, I think that the motivation of the people towards the "release of Oriental white storks" was very low except for the staff of the Hyogo Park of the Oriental White Stork and some concerned persons in the prefecture and the city. In addition, it was difficult to gain the understanding of the citizens as well as the employees of the prefecture and the city concerning the project for the reintroduction of Oriental white storks.

One more important point was that the integrated budget request could be made to the prefecture because of the new system created by Mr. Ido, the prefectural governor. In the past, when a prefectural branch office made a budget request to the prefecture, we had to request to the agricultural and forestry department of the prefecture and the planning department of the prefecture, depending on the budget. Then an assessment of the budget was made separately. However, it was decided that the budgets for the Oriental white stork projects could be directly requested to the financial bureau after they were integrated by the prefectural branch office. Besides, it was fortunate that the restoration of the environment and nature was included in the national policy for river improvement, in addition to water control and water utilization. In response to the flooding of the Maruyama River in the year prior to the launch of the release of Oriental white storks into the wild, the river had to be drastically dredged through improvement work. However, awareness to protect the river beds had been increasing. In general, it is difficult to gain understanding for this type of project even if we conducted individual negotiations, but we could gain approval for this plan. I think this was happened by the creation and solidarity of the liaison council.

Now I am wondering if there is a "beautiful misunderstanding". Although the number of farmers conducting organic farming has been increasing, it is still below 10% of all the farmers. It is necessary to constantly question whether the environment is suitable for Oriental white storks to live in or not.

Mr. Hisashi Ueda

Representative Director of the NPO Citizen's Research Institution for the Oriental White Stork

Children's awareness of environmental protection will be developed through playing in nature.

In the past, I taught biology in a high school. I had been interested in local nature since I was a high school student. I had focused on issues of the logging of beech trees and forest roads in the mountains in Tajima. I remember that I saw Oriental white storks when I was an elementary school student. Though the reintroduction of Oriental white storks has been featured since around 1992, I wondered whether nature can be protected by the activities for Oriental white storks. However, with the acceleration of depopulation, the protection of nature cannot progress well if we just call for it. There were various groups in the "Liaison council for the nature of Tajima" that I belonged to. I started thinking about the protection of local nature while thinking about the creation of the communities where I live. The protection of the local nature of Toyooka cannot be achieved without Oriental white storks.

In 1998, I established the Citizen's Research Institution for the Oriental White Stork with the participation of residents. The initial trigger for its establishment was that I served as an instructor at a public lecture called the "Course for the entire region" held in my town. The planner of this course was Mr. Setsuo Satake, a former employee of Toyooka City. I think one of the advantages of Toyooka City is that they had ideas beyond the framework of a local government.

I thought that water control had been prioritized in response to the damage due to Typhoon No.23 in 2004. However, the idea of achieving a balance between the environment and water control was maintained since the awareness of nature restoration had been increasing.

In addition to the research on living creatures in the Toyooka Basin, the researchers of the Citizen's Research Institution started an activity called a "Rice field school" in 2002 which targeting children. In the Rice field school, children look for living creatures in rivers and rice fields and play in the mountains, etc. The school is held in the morning every third Sunday. Even if it rains or is a sports day on that day, the school opens. In addition, an activity held at various sites upon request called "Delivery rice field school" is popular as well. In the rice field school trip, various things can be found in familiar places. When we found tadpoles, we talked to each other about the fact that they would become feed for Oriental white storks, etc.

Though there are various forms of environmental education advocated, I think that the experience of playing in nature connects these actions to the protection of nature in the future.

Mr. Susumu Yamamoto

Deputy Representative of the NPO Oriental White Stork Toyooka Life Network and the former principal of Nitta Elementary School

Environmental learning enabled us to get close to Oriental white storks.

I was the principal of Nitta Elementary School in Toyooka City between FY2006 and FY2008. As Nitta Elementary School is surrounded by rice fields, rice cultivation was taught in the classes for a long time. At the time of the second release of Oriental white storks, the students participated in it. Based on this event, there were increased opinions at school that "a farming method enabling co-existence between living creatures and humans should be passed on to the children." Therefore, we changed the farming method from conventional farming to Stork Friendly Farming operating winter-flooded rice fields. This was a live form of environmental education started by the school. At the same time, this can be considered an activity in which the students recognized that the success of the reintroduction of Oriental white storks meant protecting their own lives. By actually watching Oriental white storks, Oriental white storks became a symbol of this activity.

Due to Typhoon No.23 in 2004, damage including inundation above and below the floor level of the school and the houses of many students occurred. Since many people helped us at that time, we held a Thanksgiving festival one year after the typhoon to thank them. An activity that the students started at that time is called "Project E". The reason why they started the activity was because the prevention of floods and the protection of environment could be considered the same. The "E" of Project E was taken from the initial characters of the 4 words symbolizing the activity, such as E for ecology, etc. The members of Project E put great efforts into the creation of fish ladders in rice fields, research on living creatures in these fields, and the implementation of organic farming called Stork Friendly Farming without using pesticides. In addition, for the expansion of the sales of Stork Friendly Rice, they actively carried out various activities such as direct negotiations with the mayor, etc. The members were mainly sixth-grade students. They had carried out the activities after going to junior high school.

In October 2007, we held a symposium called the "Future plan for the environment of Nitta 2007" together with local residents including the association of ward mayors and the agricultural association in addition to the students. This symposium became a great opportunity to think about the environment and disaster prevention including the methods for managing rice fields and producing food learned from the Oriental white storks. It can be said that the keys to the success of the activities of Project E were that the students creatively worked on the activities taking the initiative and having pride at all times and adults related to the activities respected and firmly supported them.

We had the idea of making efforts for environmental education at all times throughout the entire school, but there were many issues related to continuing it within school education because the teachers were very busy, the school staff were transferred, and the curriculum was revised, etc. However, thanks to the cooperation of the mayor and staff in the department for co-existence with Oriental white storks, we could manage to continue it.

(2) Examples of connections between the activities (episodes)

The representative episodes symbolizing the "sharing of thoughts and sense of values, and the cycle of sympathy" of multiple parties engaged in the activities for the reintroduction of Oriental white storks will be introduced based on the pre-existing literature and interviews.

"Nitta Project E" voluntarily promoted by the students

Directly negotiated with the mayor to use Stork Friendly Rice in school meals

Toyooka Municipal Nitta Elementary School is surrounded by an environment having beautiful rural scenery. In November 2006, the school organized "Nitta Project E", an activity carried out by students on a voluntary basis for environmental protection. The trigger for this activity was an event that occurred in September 2004. The details are as follows: There was a poplar tree, a symbol of the school, in the playground of the school. Due to a strong wind, the tree fell down and its thick trunks were taken off by a landscaping firm. The rest of the tree was washed away due to the huge Typhoon No.23 in October 2004. After the floodwaters receded, the tree stood in a rice field very far from the school as if it had grown up there. In spring, the tree was removed and preserved by the landscaping firm as it interfered with rice planting. Then, surprisingly, sprouts appeared from the trunks of the tree and fresh green leaves grew. In October, the students cut the young twigs and planted them in the ground with the support of the landscaping firm and the PTA.

The students of Nitta Elementary School were impressed by the life force of the poplar tree that strongly tried to survive despite being fallen and affected by flood damage. They also vowed that they would not yield to natural disasters. In order not to forget this prospect, sixth-grade students left a picture book about this story drawn by them called "Pulapon". In addition, based on the release of Oriental white storks into the wild in September 2005, the students' awareness of the protection of nature increased more and the Project E was established by fifth-grade students and sixth-grade students.

The members of Project E learned about the natural environment little by little with support from their teachers and advice from Ms. Itsuki Nishimura, an agricultural promoter. With their very high abilities to absorb knowledge, they expanded their fields of activity. At first, they planned to create fish ladders in a winter-flooded rice field (filled with water even in winter) near their school. They decided to create fish ladders by themselves because it costs a lot to order it from a professional. They learned how to create fish ladders at a land improvement office and got materials from a forest cooperative. They also learned that the number of living creatures (rice fish, crucian carp, catfish, etc.) increased and a structure for a rich nature could be established by creating fish ladders. In addition, they tried to produce "Stork Friendly Rice". They implemented pesticide-free production using the methods of winter-flooded rice fields, hot-water disinfection of unhulled rice, and weed

control using rice bran, etc. They harvested the rice and sold it by themselves under the name of "Nitta Project E Cultivated Rice".
In order to produce a lot of pesticide-free cultivated rice, the sale of a large quantity of rice is important. Therefore, they visited convenience stores near the school and asked them to use Stork Friendly Rice in rice balls to be sold there. Moreover, they visited the Toyooka City Hall and directly negotiated with the mayor to use Stork Friendly Rice in school meals. The mayor promptly approved it, and it was decided to provide Stork Friendly Rice in school meals three days every two weeks from October 2007. In the same year, they organized a symposium called the "Future plan for the environment of Nitta 2007" together with the association of ward mayors, the community center, and other groups in the region. At the symposium, the "Nitta environmental declaration" to restrict signs and reduce waste was adopted.
In addition, interactions with children in Sado having a common idea from the aspect of the reintroduction were started. In July 2008, the members of Nitta Project E visited Sado and in August 2008, children in Sado visited the Toyooka region to conduct a survey of living creatures with the members of Nitta Project E.

The students' positive activities had an impact on all the citizens.

Nitta Elementary School supported these activities in all its aspects. At first, the motivations among the students who participated and did not participate in Nitta Project E were different. However, the awareness and the knowledge of the environment and Oriental white storks gradually increased and spread to the entire school.
The students said, "People have a close relationship with the natural environment and living creatures inhabiting such a natural environment. Through these activities, we felt that we must maintain this relationship". The activities of the students of Nitta Project E had a great impact on the PTA, the communities, and all the citizens and enhanced the people's awareness of environmental protection. Changes in the students' awareness changed the adults' awareness.
The students participating in Nitta Project E continued to positively carry out and support the activities after graduation from elementary school. In these activities, the students seemed to find out interests different from the classes in school. A student who was the leader of the activities at that time became a college student and says, "I would like to learn environment and to work internationally in the future".

Setting up of a place for interaction between citizens and researchers called “Tsurumi Cafe”

Share the same issue between researchers and citizens and seek a better solution

Based on the success of the release of Oriental white storks into the wild, the citizens in Toyooka City became interested in Oriental white storks from various perspectives. In addition, the way of interactions with and the feelings towards Oriental white storks changed depending on the person, which caused differences of opinion. For example, some people expected economic effects (wanted to earn money through Oriental white storks), and some people purely wanted to protect Oriental white storks, etc. Moreover, an issue in terms of research was that there was no common recognition. For example, “I don’t understand what the researchers of the Hyogo Park of the Oriental White Stork do,” and “I have no idea what the citizens think about Oriental white storks”, etc.
In response to this, a place for interaction between the citizens and the researchers called “Tsurumi Cafe” started to be held once a month at “Nagomi Chaya” located in a shopping street in Toyooka City, led by Mr. Naoki Kikuchi, a former researcher at the Hyogo Park of the Oriental White Stork. At the Tsurumi Cafe, the participants freely talk about Oriental white storks, science, and the Tajima region among each other while having coffee, tea, and local snacks. Generally, discussions about reports from the researchers are held between the citizens and the researchers. The Tsurumi Cafe has been held 65 times so far (as of March 2014) and has become an event that enhances the citizens’ awareness of “a town where Oriental white storks can thrive” and the citizens’ understanding of the reintroduction of Oriental white storks and organic farming.

“Tsurumi Cafe”

■ Contents of “Tsurumi Cafe”

	Contents	Topic provider	Title (at that time)
1st time	The breeding of and new knowledge on released Oriental white storks	Yoshito Osako	Chief researcher of the Hyogo Park of the Oriental White Stork/Associate professor at the University of Hyogo
2nd time	See Tajima from the eyes of Japanese crested ibises	Naoki Kikuchi	Researcher of the Hyogo Park of the Oriental White Stork and Instructor at the University of Hyogo
3rd time	The reintroduction of Oriental white storks and people in Tajima	Hiroshi Ikeda	Research director of the Hyogo Park of the Oriental White Stork and Professor at the University of Hyogo
4th time	The world of birds that you don’t know	Yoko Mitsuhashi	Veterinarian at the Hyogo Park of the Oriental White Stork
5th time	The ripple effect of infection from avian flu on swans	Nobuo Koizumi	Chief researcher of the National Agriculture and Food Research Organization
6th time	The breeding of Oriental white storks	Minoru Sato	Chief of the breeding staff of the Hyogo Park of the Oriental White Stork
7th time	Past and future of the reintroduction of Oriental white storks	Naoki Kikuchi	Researcher of the Hyogo Park of the Oriental White Stork and Instructor at the University of Hyogo
8th time	Do Oriental white storks have individuality?	Takuyoshi Yoshizawa	Breeding staff of the Hyogo Park of the Oriental White Stork
9th time	Report of the survey on living creatures in the Toyooka Basin	Kazuaki Naito	Researcher of the Hyogo Park of the Oriental White Stork and Instructor at the University of Hyogo
10th time	Oriental white storks in the past	Kojiro Matsushim	Director of the Toyooka Municipal Eco-Museum Center
11th time	This year’s breeding watched by a member of the breeding staff	Minoru Sato	Chief of the breeding staff of the Hyogo Park of the Oriental White Stork
12th time	Breeding behavior of released Oriental white storks	Ryo Maeda	Graduate Student at the University of Hyogo
13th time	Are a foster parent and a birth parent different? A paternal analysis of Oriental white storks that left their nests in the wild	Kazuaki Naito	Researcher of the Hyogo Park of the Oriental White Stork
14th time	Stork Friendly Farming	Etsuyoshi Nawate	Chairman of the Stork Friendly Rice Production Committee
15th time	Oriental white stork journalism declaration	Satoshi Matsuda	Yomiuri Shimbun Toyooka branch
16th time	Consider the agricultural lands in the Tai District as a commons	Hiroe Ishihara	Graduate Student at the University of Cambridge
17th time	Our reintroduction	None	Discussion among the participants
18th time	Think about the future of agriculture in Toyooka	Rumi Nakagaw	Graduate Student at Kyoto University
19th time	Toyooka looked at by an employee in Yokohama: One-year report on western information	Ai Ito	Department for co-existence with Oriental white storks, Toyooka City
20th time	A member of the breeding staff observes this year’s breeding	Minoru Sato	Chief of the breeding staff of the Hyogo Park of the Oriental White Stork
21st time	Public participation in the reintroduction of Oriental white storks	Yoshio Miyamura Naoki Kikuchi	Citizen of Toyooka City Researcher of the Hyogo Park of the Oriental White Stork and Instructor at the University of Hyogo
22nd time	A job as a specialist on the creation of environmental communities	Mika Endo	Department for co-existence with Oriental white storks, Toyooka City
23rd time	Mobile discussion room around Sado to talk about the Japanese crested ibis	Mitsuyo Toyoda	Instructor at the University of Hyogo
24th time	Unknown behavior of Oriental white storks	Yoshito Osako	Chief researcher of the Hyogo Park of the Oriental White Stork
25th time	Think about Oriental white storks from the viewpoint of fireworks	None	Discussion among the participants
26th time	Things we found out from the monitoring of the released Oriental white storks	Kazuaki Naito	Researcher of the Hyogo Park of the Oriental White Stork
27th time	Ties in the Tai District	Hiroe Ishihara	Graduate Student at the University of Cambridge
28th time	“Izushi Tsuruyama” which used to attract attention from around the world	Hideo Nakamura	Citizen of Toyooka City
29th time	The trivial science of Oriental white storks	Yoko Mitsuhashi	Veterinarian at the Hyogo Park of the Oriental White Stork
30th time	The ecology of Oriental white stork watchers	Naoki Kikuchi	Researcher of the Hyogo Park of the Oriental White Stork and Instructor at the University of Hyogo
31st time	The earth supporting Oriental white storks	Noritaka Matsubara	Researcher of the Hyogo Park of the Oriental White Stork
32nd time	Story about the nests of Oriental white storks	Takuyoshi Yoshizawa	Breeding staff of the Hyogo Park of the Oriental White Stork
33rd time	Walk around Tsuruyama	Hideo Nakamura	
34th time	This year’s breeding observed by the breeding staff	Minoru Sato	Chief of the breeding staff of the Hyogo Park of the Oriental White Stork
35th time	The task of agriculture that fosters Oriental white storks	Kenji Negishi	Toyooka Eco Farmers
36th time		Tetsu Sato	Professor at Nagano University
37th time	Is the key a moderate outlook?: Territories and places to build nests of the Oriental white storks	Kazuaki Naito	Researcher of the Hyogo Park of the Oriental White Stork
38th time	Seasonal change of clothing of the Oriental white storks	Takuyoshi Yoshizawa	Breeding staff of the Hyogo Park of the Oriental White Stork
39th time	Various activities related to Oriental white storks in Toyooka City	Atsushi Ueda	Department for co-existence with Oriental white storks, Toyooka City
40th time	Report on information on Oriental white storks in Seiyo City	Naoki Kikuchi	Researcher of the Hyogo Park of the Oriental White Stork
41st time	Teach Oriental white storks	Yoshihiro Kato	Supervisor of the Hyogo Park of the Oriental White Stork
42nd time	Small nature restoration (classroom learning)	Naoki Kikuchi	Researcher of the Hyogo Park of the Oriental White Stork
43rd time	Small nature restoration (practical learning)	An Girls	
44th time	This year’s breeding observed by a breeding staff member	Minoru Sato	Chief of the breeding staff of the Hyogo Park of the Oriental White Stork
45th time	Fish using the spaces between stones	Shiro Sagawa	Chief researcher of the Hyogo Park of the Oriental White Stork
46th time	Stork Friendly Farmers (interim report)	Naoki Kikuchi	Researcher of the Hyogo Park of the Oriental White Stork
47th time	Think about Ramsar registration	Naruhiko Sakamoto	Department for co-existence with Oriental white storks, Toyooka City
48th time	Will new genetic analysis of Oriental white storks be helpful for the control of their population?	Kazuaki Naito	Researcher of the Hyogo Park of the Oriental White Stork
49th time	Review of the release of Oriental white storks into the wild conducted for the first time in two years	Naoki Kikuchi	Researcher of the Hyogo Park of the Oriental White Stork
50th time	Various situations in Far East Russia: about Oriental white storks and their meals	Yoko Mitsuhashi	Veterinarian at the Hyogo Park of the Oriental White Stork
51st time	Changes in social behavior to form a pair	Takuyoshi Yoshizawa	Breeding staff of the Hyogo Park of the Oriental White Stork
52nd time	What do Oriental white storks caring for chicks like? - Diet of the Fukuda family -	Shiro Sagawa	Chief researcher of the Hyogo Park of the Oriental White Stork
53rd time	How to enjoy the Sanin Kaigan Geopark	Noritaka Matsubara	Researcher of the Hyogo Park of the Oriental White Stork
54th time	Oriental white stork round-table talk	Naoki Kikuchi	Research Institute for Humanity and Nature
55th time	Plants inhabiting areas in Toyooka: focusing on endangered species	Sadayoshi Sugamura	Citizen’s Research Institution of the Oriental White Stork
56th time	Take pictures of wild birds in Tajima	Makoto Takahashi	Citizen’s Research Institution of the Oriental White Stork
57th time	Roles of zoos and aquariums in the conservation of wild animals	Kazutoshi Takami	Osaka City Tennoji Zoo and Botanical Park Office
58th time	Protect and use various Satoyama by adopting various methods	Katsunobu Shirakawa	Plateau’s Natural Museum
59th time	“100-year promise” (the current status of the restoration of Oriental white storks in Korea)	Park Hyun Sook	Institute of Biological Research on Korean Oriental white storks, Korea National University of Education
60th time	This year’s breeding observed by a breeding staff member	Minoru Sato	Chief of the breeding staff of the Hyogo Park of the Oriental White Stork
61st time	The utility of bird leg rings: Natural history and science of birds	Yasuo Ezaki	Director of ecological research on rural zones of the Hyogo Park of the Oriental White Stork
62nd time	Story about Oriental white storks and gizzards	Yoko Mitsuhashi	Veterinarian at the Hyogo Park of the Oriental White Stork
63rd time	Position on environmental learning based on Oriental white storks in the curriculum of elementary schools	Hiroharu Yoshida	Teacher at Yabu Municipal Iza Elementary School
64th time	Difference between farming methods and the plants in rice paddies	Kazuaki Naito	Chief researcher of the Hyogo Park of the Oriental White Stork
65th time	Analysis and the characteristics of the long-distance migration of Oriental white storks	Yoshito Osako	Research director of the Hyogo Park of the Oriental White Stork

(As of March 2014)

Chapter 3
Analysis of the activities

Chapter 3 Analysis of the activities

3.1. Methods and targets of the analysis

The activities for the reintroduction of Oriental white storks carried out in the Toyooka region have shown remarkable progress throughout the country. However, on the other hand, various issues have been revealed as described in the previous chapter.

In order to identify the factors contributing to the progress of these activities and to compile them as the "Hyogo Toyooka Model", the mechanism of the expansion of and the connections between the activities will be clarified by analyzing their processes based on the survival and existence principle that was considered to be the foundation of the cycle of sympathy generated in this region.

- The representative fields (i.e. rivers, agriculture, and communities) of public measures for the reintroduction of Oriental white storks are the target of the analysis.
- The key points of the "expansion" of measures will be identified by collecting representative indicators and records of activities in the three fields.
- The key points of the "connections" among the parties related to the activities will be identified from specific examples in the three fields.
- Based on these key point that are to be reflected in public measures, the "Hyogo Toyooka Model" will be identified.

Chapter 2 Classification of the activity results

Chapter 3 Analysis of the activities

3.2. Background to the activities (Issues in each field, people's attitudes, and the social direction)

- The background to the implementation of the activities in each field will be classified from the viewpoints of the issues in each field, "people's attitudes related to the survival and existence principle", and the social direction as a result of such issues and attitudes.

3.3. Analysis of the expansion viewed from the representative indicators, and analysis of the connections viewed from specific examples

- The key points will be identified based on an analysis of the expansion of measures viewed from the representative indicators in each field, and an analysis of the connections among the parties viewed from specific examples.

Analysis of the expansion of measures viewed from the representative indicators

Representative indicators in each field
[Rivers] Size of the wetland area of the Maruyama River
[Agriculture] Rice acreage under Stork Friendly Farming
[Communities] Level of recognition of the development of local communities living in co-existence with Oriental white storks

Key points of the expansion of measures

Expansion of measures viewed from multiple indicators except for the representative indicators

Analysis of the connections among the parties viewed from specific examples

Specific examples in each field
[Rivers] Wetland improvements achieving a balance between water control and environmental conservation and ecological network formation
[Agriculture] Activities for the establishment of Stork Friendly Farming
[Communities] Nature restoration in the Tai District

Key points of the connections among the parties

Confirmation of the results of the analysis viewed from the results of interviews with concerned persons

3.4. Summary of the analysis of the activities

- Points that are to be reflected in the public measures in the "Hyogo Toyooka Model" will be analyzed and examined by integrating the key points identified by the analyses of the fields.

Classification of the key points of the expansion of measures and the connections among the parties

Classification of the process of the expansion of the cycle of sympathy

Extraction of the points of public measures in the "Hyogo Toyooka Model"

3.5 [Reference] Analysis of the expansion to other regions

3.6 [Reference] Comparison of activities between Toyooka and other regions

Chapter 4 Evaluation of the progress of the activities

Chapter 5 Summary of the Hyogo Toyooka Model

3.2. Background to the activities (Issues in each field, people's attitudes, and the social direction)

The background to the implementation of the activities in each field will be classified from the viewpoints of the issues in each field, "people's attitudes related to the survival and existence principle", and the social direction as a result of such issues and attitudes.

(1) Field of rivers

	Issues		Measures and activities		Social direction
		People's attitudes related to the survival/existence principle*1		Factors that had an impact on people's attitudes	
National trends	- Public objections to the river projects that give priority to water control, such as opposition campaigns against the construction of a dam across the mouth of the Nagara River, etc.	- The conflict between a sense of crisis regarding the destruction of the original landscape of the region and safety and convenience from the viewpoints of the natural environment and landscape	- Thorough disclosure of information - Set up a place where multiple parties can exchange opinions (Round table)	–	- Revision of the River Act (Improvement and conservation of the river environment became a basic purpose in addition to water control and water utilization.)
Activities in the Toyooka region	- Opinions about the impact on the environment due to the excavation of Hinoso Island (Objections by communities to the river projects that give priority to water control) - A trend towards environment-friendliness concerning river improvements	- The conflict between a sense of crisis regarding the destruction of the original landscape of the region and safety and convenience from the viewpoints of the natural environment and landscape	- Set up a place where multiple parties can exchange opinions (Investigative committee on the improvement of Hinoso Island) - Examine and visualize the changes, impacts, and effects of different excavation methods using various technologies	- The emergence of wetlands due to the implementation of unrelated improvements to the rivers (Maruyama River, Nojo District)	- Identify the effectiveness of holding discussions with the participation of multiple parties as a process to examine river projects - Identify the effectiveness of wetland improvement techniques as a means to achieve a balance between water control and environmental conservation → Suggest the future direction of river projects in the Maruyama River
	- Achieving a balance between the reintroduction of Oriental white storks and the improvement of the safety of water control	- Reaffirmation of the importance of water control due to suffering the tremendous damage from Typhoon No.23 but plan to promote the reintroduction of Oriental white storks (Water control and the environment are nearly equal in status to wetland improvement.)	- Confirm the intentions of the communities and reflect these in the plan Understood various opinions through the river basin committee meeting that was held 19 times for the public (a conference with the participation of multiple parties) and through open forums	- Arrival of "Hachigoro" - Direction of community creation (Promotion plan for the reintroduction of Oriental white storks) - Typhoon No.23 - Release of Oriental white storks into the wild - Registration of wetlands under the Ramsar Convention	- Integrate the nature restoration plan into the river improvement plan, which is an integration plan - Promotion of the improvement of wetlands under the water control projects (including the special emergency project for the prevention of the recurrence of severe river disasters*2) and the nature restoration projects

*1 People's attitudes related to the survival and existence principle: see the interviews with people involved in the activities (described in Chapter 2) and the pre-existing literature and materials (extracted from Appendix 4)

*2 Special emergency projects for the prevention of the recurrence of severe river disasters: One of the "Expenses for the promotion of disaster prevention measures and other emergency projects". The "Expenses for the promotion of disaster prevention measures and other emergency projects" are expenses to be used in areas suffering a disaster caused by a natural phenomenon or areas having a serious incident related to public transportation that has a social impact, for the purpose of preventing a recurrence of disasters and incidents and contributing to the safety and security of the residents, etc. The "special emergency project for the prevention of a recurrence of severe river disasters" (abbreviation: flood emergency project) is one of the projects in the field of rivers.

(2) Agricultare Field

	Issues		Measures and activities		Social direction
		People's attitudes related to the survival/existence principle*1		Factors that had an impact on people's attitudes	
National trends	- Decline in the food self-sufficiency ratio - Aging of the farmers and a decline in the area of agricultural land - Decline in the vitality of rural areas	- Want to secure safe and secure food - Want a society where agriculture can be continuously managed	- Clarification of fundamental principles concerning the measures for food, agriculture, and rural areas and the restructuring of these measures - Evaluation of the roles of agriculture and rural areas such as the conservation of the national land and environment	- Agreement on agriculture in the GATT Uruguay Round	- Enactment of the Food, Agriculture and Rural Areas Basic Act (1999)
Activities in the Toyooka region	- Securing of rice fields as feeding grounds for the release of Oriental white storks into the wild - Degradation of the land due to the expansion of abandoned cultivated land	- Want Oriental white storks to come back to the region, but have a sense of resistance to introducing a farming method without the use of pesticides or with a reduction in the use of pesticides - Desire to maintain rice Fields in order to protect the local landscape, but have no successors	- Technological development and the systematization of Stork Friendly Farming - Holding of lectures by inviting experts on organic farming - Holding of briefing sessions in each area about Stork Friendly Farming	- Arrival of "Hachigoro" - Release of Oriental white storks into the wild	- Development of the understanding of the farmers regarding the expansion of Stork Friendly Farming
	- In order to support the expansion and continuation of Stork Friendly Farming, the activation of the local economy is become necessary. - In order to make the activities sustainable, the cultivation of human resources and the activation of the local economy are become necessary.	- Desire to introduce Stork Friendly Farming but the farmer's workload is too much - Desire to connect environmental conservation activities with economic effects	- Establishment of a certification system for a brand called "Dance of the Oriental white stork" - Trademark registration of "Stork Friendly" - Establishment of the "Stork Friendly Rice Production Committee"	- Release of Oriental white storks into the wild	- Development of the Environment-Economy Strategy for harmony between the environment and the economy

(3) Field of communities

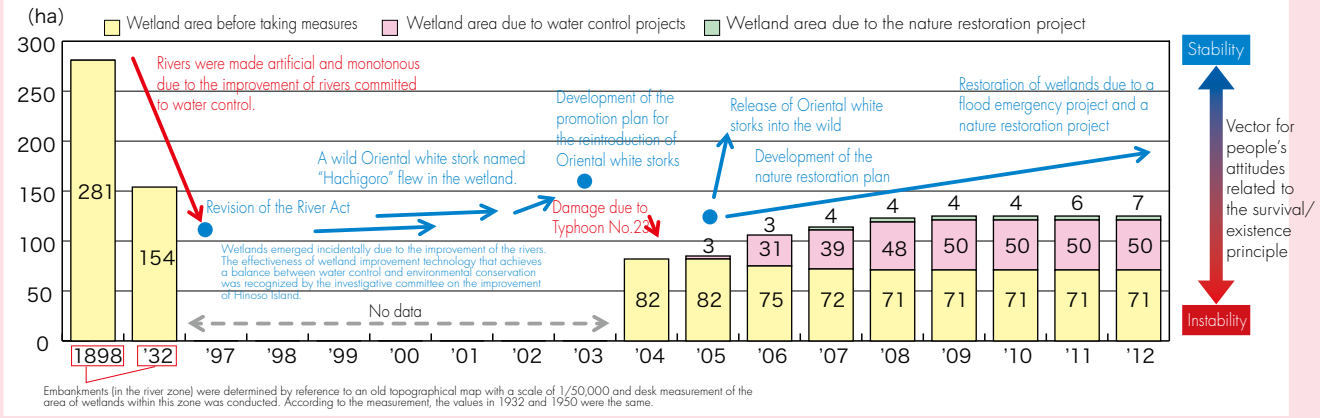
	Issues		Measures and activities		Social direction
		People's attitudes related to the survival/existence principle*1		Factors that had an impact on people's attitudes	
National trends	- Review and rebuilding of the relationship between humans and the natural environment	- A sense of crisis regarding the decline in biodiversity due to development	- Disclosure of information on the environment - Participation of multiple parties in the environmental conservation activities and human resources cultivation for such activities	- Developments during the bubble economy	- Enactment of laws and regulations concerning environmental conservation (Environmental Basic Act, Act for the Promotion of Nature Restoration, and Act on the Promotion of Environmental Education, etc.)
Activities in the Toyooka region	- Improvement of the environment where Oriental white storks can live - Raising citizens' awareness for the acceptance of Oriental white storks	- Desire to get back to daily life in which Oriental white storks lived - Desire to protect the current environment and pass it on to children	- Information sharing to citizens (distribution of a booklet about the history of Oriental white storks, etc.) - Information gathering from outside the region (International Convention on the Future of Oriental White Storks, etc.) - Involvement of citizens with Oriental white storks (information from observations, etc.)	- Release of Oriental white storks into the wild - Arrival of "Hachigoro" - Registration of wetlands under the Ramsar Convention	- Development of activities by citizens towards the realization of the creation of an environment where Oriental white storks can thrive - Collaboration with multiple parties
	- In order to ensure that the activities are sustainable, the cultivation of human resources and the activation of the local economy are essential.	- Concerns about children and the young generation who do not know Oriental white storks or feel familiarity with Oriental white storks - Desire to continue to live in Toyooka - Desire to connect the environmental conservation activities with economic effects	- Organizing of environmental learning opportunities such as the rice field school and Oriental white stork KIDS club, etc. - Implementation of Green Tourism - Towards the realization of the Toyooka Eco-valley	- Release of Oriental white storks into the wild	- Promotion of the Environment-Economy Strategy towards harmony between the environment and the economy

3.3. Analysis of the expansion viewed from the representative indicators, and analysis of the connections viewed from specific examples

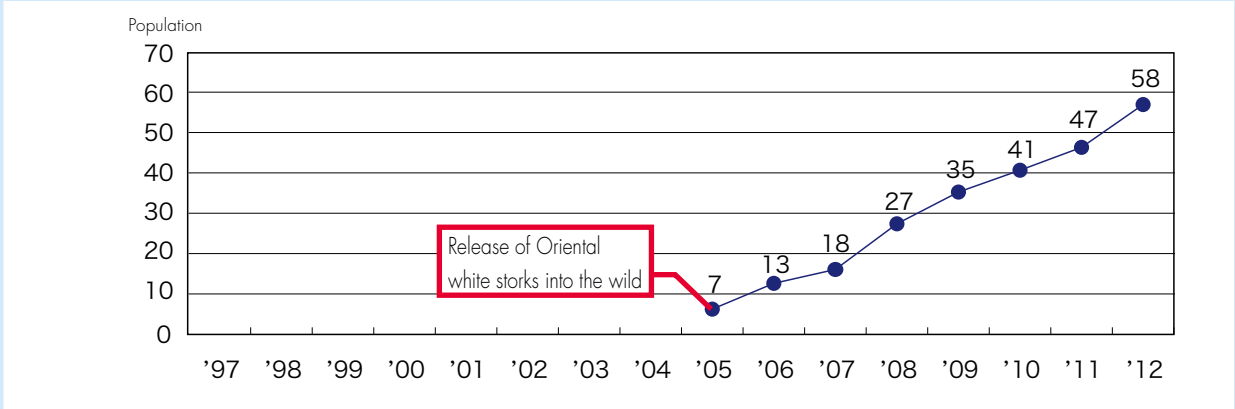
(1) Activities in relation to rivers

1) Analysis of the expansion of measures viewed from a representative indicator (size of the wetland area of the Maruyama River)

Change in the wetland area of the river zone (nationalized territory) of the Maruyama River

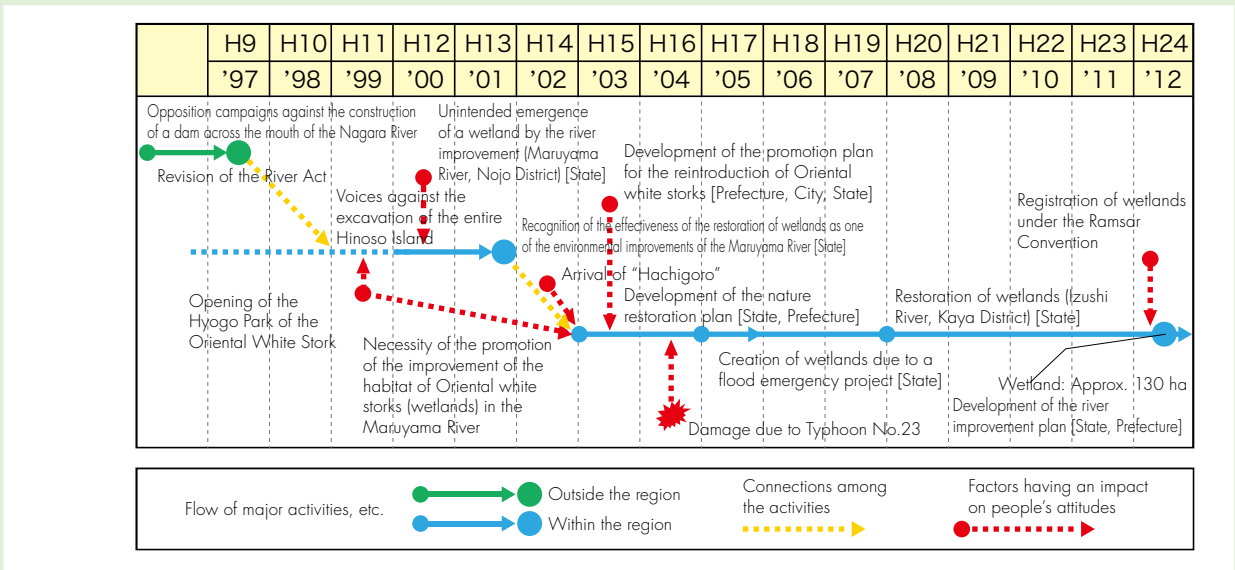


Source: Materials provided by the Toyooka Rivers and National Roads Office of the Ministry of Land, Infrastructure, Transport and Tourism



Source: Materials provided by the Hyogo Park of the Oriental White Stork

* The truly wild Oriental white storks (named "Hachigoro" and "Ehime") are not included.



[Change in the size of the wetland area in the river zone (nationalized territory) of the Maruyama River]

- The wetland area was reduced to 82 ha by 2004 compared with 281 ha in 1898 and 154 ha in 1932 (the population of Oriental white storks in the Toyooka region in 1930 was 100, which is regarded as the peak) and again in 1950. The wetland area has increased through wetland improvements due to the water control projects implemented since 2005 and reached 127 ha by 2012 combined with improvements made through nature restoration projects.

[Consideration of the factors causing the change in the wetland area of the river zone (nationalized territory meaning state-owned land) of the Maruyama River]

- As areas along the Maruyama River suffered from repeated flood damage, river improvements gave priority to water control, such as the use of concrete bank protection. Due to these improvements, the size of the wetland area of the Maruyama River decreased by half from 154 ha in 1932 to 82 ha in 2004.
- On the other hand, the current trend emphasizing the river environment has been strengthened nationwide by citizens since around 1975. Since 1989, public objections to existing river projects that gave priority to water control and water utilization, such as opposition campaigns against the construction of a dam across the mouth of the Nagara River, etc., have reached a peak. Based on this, the River Act was revised in 1997. (Environmental conservation became a basic purpose in addition to water control and water utilization.) Hearings to obtain the opinions of residents are required under the revised act at the time of developing plans for river projects. However, as there are many cases of contradictions between water control and environmental conservation in the existing river projects (construction of dams, etc.), it was difficult to achieve a balance between them in most rivers.
- The river controller (the state) planned to acquire Hinoso Island (a sandbank) in order to excavate the entire island to improve the safety of water control in the Maruyama River that the community residents had asked for. However, with the current trend emphasizing the river environment, the method of excavation became a point of dispute as rare and precious organisms were identified one after another on Hinoso Island and in the surrounding area. Then the river controller (the state) organized an "Investigative Commission on the Improvement of Hinoso Island" consisting of multiple parties including community residents who are the former landowners of Hinoso Island, citizen's groups, academic experts, and fisheries cooperatives, etc., to examine the changes, impacts, and effects of the various excavation methods using landscape simulations and 3D fluid dynamics simulations.
- Since a wetland emerged unexpectedly in the Nogami District in the Maruyama River due to a river improvement project carried out separately (see p.46), it was suggested that a balance between water control and environmental conservation can be achieved depending on the excavation method. In the investigative commission, an examination was started focusing on this viewpoint and the effectiveness of wetland improvement techniques as a way of achieving a balance between water control and environmental conservation has been recognized.
- On the other hand, the Act for the Promotion of Nature Restoration was enacted in 2002. In addition, with the recognition of the value and the importance of wetlands by the government and community residents due to the coming of a wild Oriental white stork named "Hachigoro" to the wetland, the "Promotion Plan for the Reintroduction of Oriental White Storks" aiming at reintroducing Oriental white storks was developed in March 2003 by Hyogo prefecture, and the Liaison Council on the Promotion of the Reintroduction of Oriental White Storks was organized with the participation of multiple parties. In this plan, promotion for the improvement of the rivers such as the regeneration of wetlands, etc., was determined in the field of rivers. The river controllers (the state and the prefecture) have worked together to develop a plan for restoration of the natural water systems of the Maruyama River since 2003.
- During the implementation of activities by multiple parties towards the objective of the release of Oriental white storks into the wild in 2005, the Toyooka region suffered unprecedented damage due to Typhoon No.23 in October 2004.
- As Typhoon No.23 created a massive flood causing tremendous damage to community residents, opinions were voiced that the improvement of rivers should give priority to water control. However, the citizens took the reintroduction of Oriental white storks as a symbol of disaster restoration, and continued to conclude that they wanted to "conserve the environment and landscape of the Maruyama River" and to "promote the reintroduction of Oriental white storks". As a result, the Plan for Nature Restoration of the Water System of the Maruyama River was developed in November 2005 through the establishment of a cooperative structure between the national government and the prefecture and with the participation of multiple parties, including citizens and academic experts.
- In addition, in the special emergency project for countermeasures against serious disasters involving rivers implemented in association with the damage caused by Typhoon No.23, improvement of the river was actively carried out using various methods including wetland improvements, etc. As a result, the size of the wetland area of the Maruyama River increased to 127 ha by 2012.
- Because of the activities carried out in the Toyooka region for the reintroduction of Oriental white storks that had become extinct in the wild, Oriental white storks became a symbol of the viewpoint of the community residents (love of the hometown and love of living creatures) which enabled the parties to share a common future image that they wanted to create and restore the area where "Oriental white storks can live". It can be considered that this image became a strong driving force in combination with the organization of the Liaison Council on the Promotion of the Reintroduction of Oriental White Storks.
- With the recognition of the value of the region, the restoration of wetlands along rivers was carried out through acceptance of the opinions of the community residents.

[Key points of the expansion of measures]

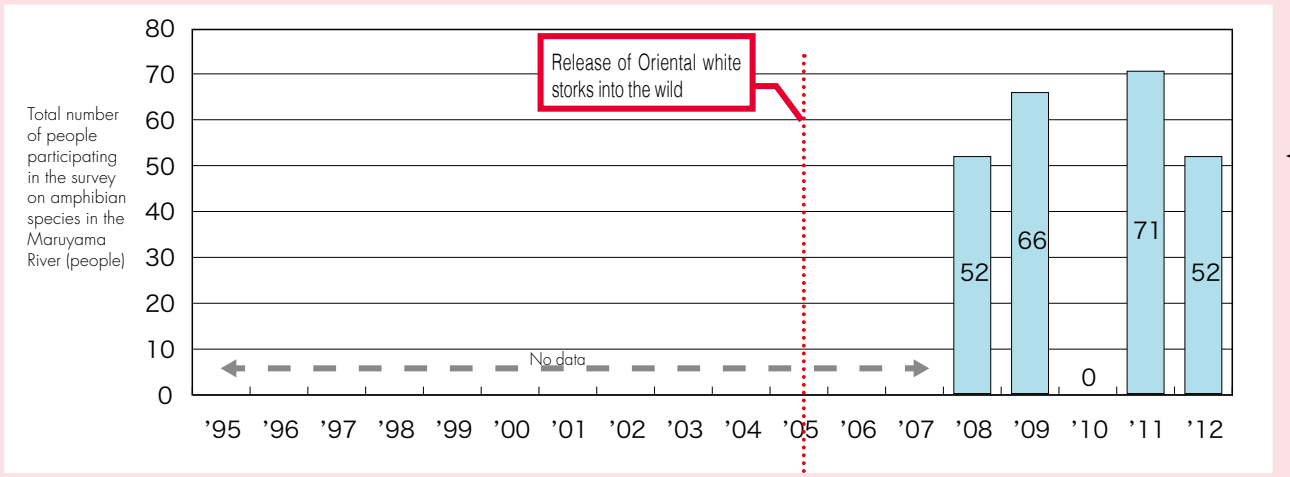
● Developed against the background of nationwide trends including the revision of the River Act, etc.
- The River Act was revised based on the nationwide trend placing importance on the river environment, and the river environment was focused on in the Toyooka region as well.
● Even disasters were used as an opportunity.
- The restoration of wetlands was promoted under the special emergency project for the prevention of the recurrence of severe river disasters in association with the damage caused by Typhoon No.23 in 2004.
● Sharing of the purpose with the parties (clear symbols and principles, and the existence of a common future vision)
- Because of the clear symbol and principles that Oriental white storks, which used to commonly inhabit the Toyooka region, will be reintroduced and the existence of a common future vision, the purpose could be shared among the parties. Based on this, the thoughts of the concerned organizations and citizens did not change despite suffering from tremendous damage due to Typhoon No.23 in 2004. As a result, the improvement of wetlands was implemented.
● Establishment of wetland improvement techniques as a means of achieving a balance between water control and environmental conservation
- Although technical issues (the improvement of the quality of wetlands) remain, it can be considered that the tentative establishment of wetland improvement techniques as a means to achieve a balance between water control and environmental conservation made a significant contribution to the lack of any change in the attitudes of the concerned organizations and citizens described above.
● Collaborative structure design for activities and examinations (development of plans with the participation of multiple parties)
- It can be considered that the sharing of the purpose with the parties and the creation of the common recognition of the effectiveness of the wetland improvement techniques, as described above, were based on the proper establishment of collaborative structures for activities and investigations, such as the investigative committee and the promotion council with the participation of multiple parties, which became strong driving force as a result.

Status of the survey on amphibian species (Izushi River on September 24, 2012)

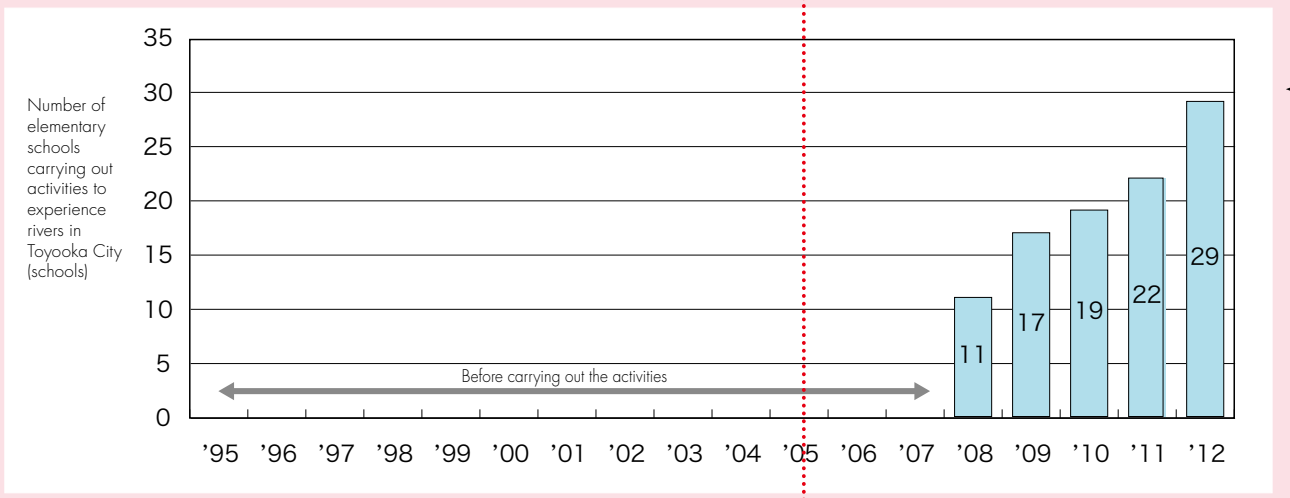
Source: "FY2012 Report of the assessment project for nature restoration of the Maruyama River" (March 2013 by the Japan River Front Research Center)

2) Analysis of the expansion of measures viewed from multiple indicators except for the representative indicators

Expansion of the activities viewed from multiple indicators

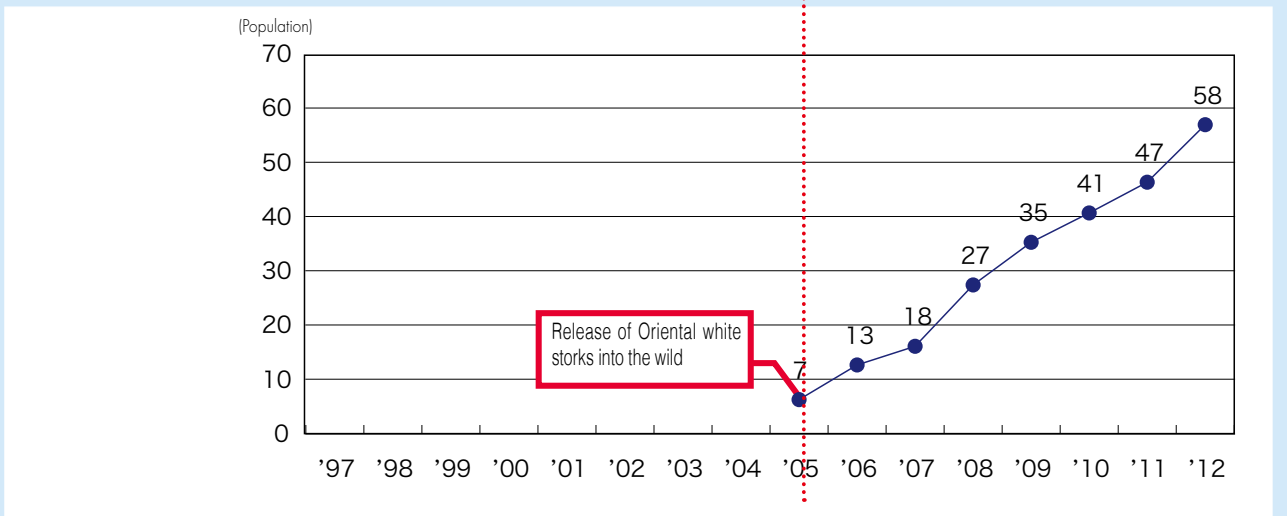


Source: Website of the Ministry of Land, Infrastructure, Transport and Tourism, Kinki Technical Office



Source: Materials provided by Toyooka City

Population of wild Oriental white storks



Source: Materials provided by the Hyogo Park of the Oriental White Stork

* The truly wild Oriental white storks (named "Hachigoro" and "Ehime") are not included.

The total annual number of people participating in the survey on amphibian species in the Maruyama River increased from 52 in 2008 to 71 in 2011 but decreased to 52 in 2012.

The number of elementary schools in Toyooka City carrying out activities to experience rivers was 19 as of 2010. However, combined with the "Environmental experience project to realize hometowns" launched by Hyogo Prefectural Board of Education since FY2009, the number of the schools increased to 29 as of 2012, which is the total number of elementary schools in Toyooka City.

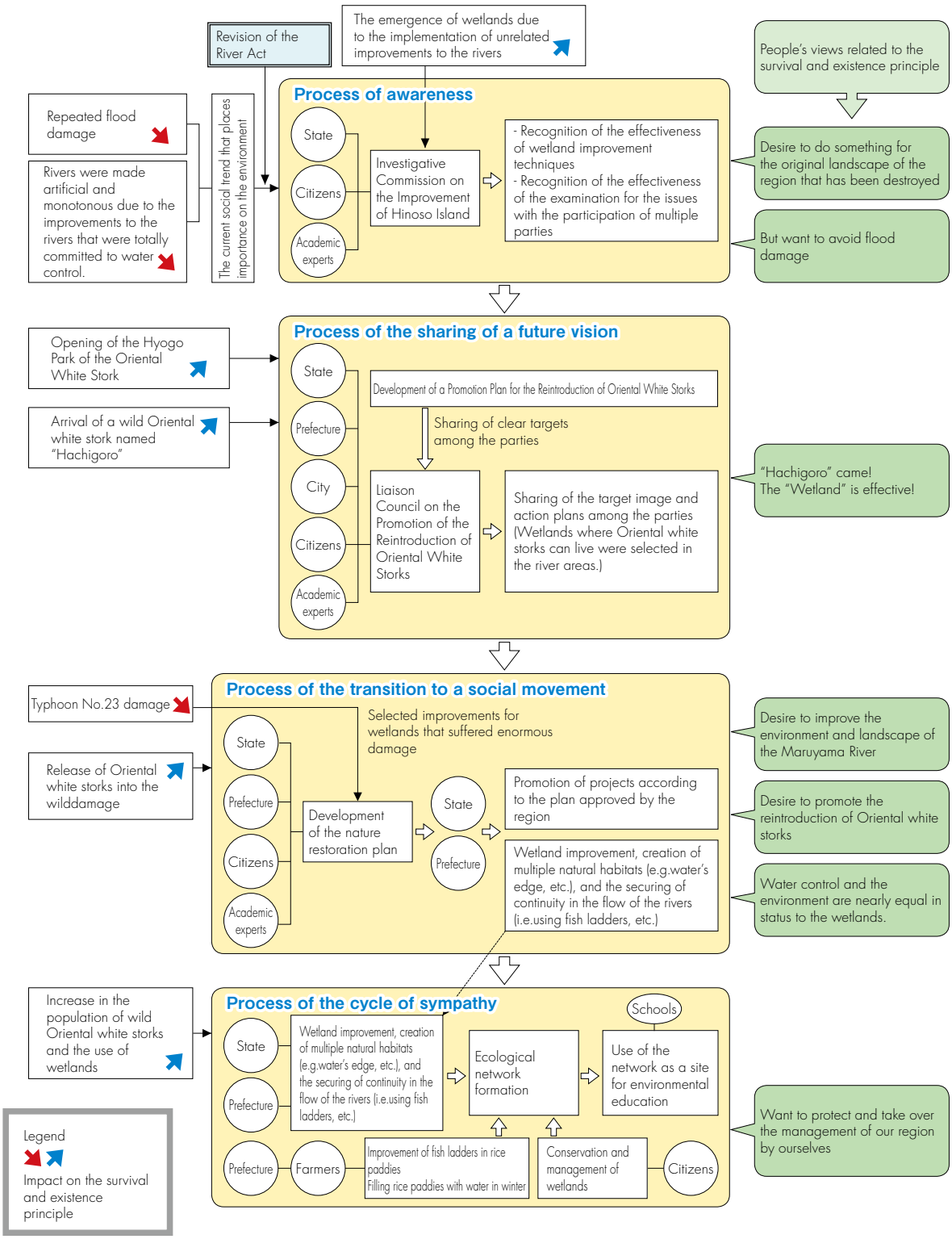
[Consideration of the expansion of measures]

- The wetland area has rapidly increased since 2006 under the special emergency project for the prevention of the recurrence of severe river disasters and the nature restoration project.
- Based on the fact that statistics on the total annual number of people participating in the survey on amphibian species in the Maruyama River and the number of elementary schools in Toyooka City carrying out activities to experience rivers started to be compiled after 2008, a direct causal relationship with the increase in the wetland area described above is unknown.
- However, the number of elementary schools carrying out activities to experience rivers significantly increased to 29 as of 2012, which is the total number of elementary schools in Toyooka City. This can be interpreted as an increase in recognition of the value of wetlands in the field of education, which can be considered as an increase in the indirect effect of the improvement of wetlands.
- On the other hand, there is concern that the citizens' interests in Oriental white storks may decline. In addition, there is a possibility of an adverse effect because the reintroduction of Oriental white storks has become an "ordinary event." Therefore, it can be considered that the measures to prevent any reduction in the citizens' awareness are become necessary, such as measures to increase the motivation of citizens to participate in civic activities, etc.

3) Analysis of the connections among parties viewed from a specific example (achieving a balance between water control and environmental conservation)

Specific example: Connections among parties shown in the "wetland improvement to achieve a balance between water control and environmental conservation, and the formation of ecological networks"

- Through the discussions held by the Investigative Commission on the Improvement of Hinoso Island, the effectiveness of wetland restoration by cutting down the flood channel and improving the flood control basin are applied to achieve a balance with environmental conservation and to lower the river level in event of a flood, which were recognized by the community residents as well. Despite the tremendous damage caused by Typhoon No.23, a nature restoration plan was developed that reflected the citizens' views, reformed wetlands became part of the formation of an ecological network which are used as sites for environmental education.



Confirmation of the results of the analysis viewed from the results of interviews with concerned persons

- Through the examination of Hinoso Island, the securing of the cross-sectional area of a river* for water control and the creation of wetlands for Oriental white storks could be achieved at the same time (Mr. Fujita).
- One significant result was that we could obtain consensus among multiple members in the examination of Hinoso Island (Mr. Fujita).
- I thought that improvements prioritizing water control were carried out due to damage by Typhoon No.23. However, the idea of achieving a balance between the environment and water control was maintained since the awareness of nature restoration had increased.

* An area of water in the cross-sectional area of a water channel perpendicular to the flow of a river. This is an important factor to determine the discharge capacity of a river in case of a flood. To secure this area is one of the important rolls of the river control administration.

[Key points of the connections among the parties]

● **Common recognition of the effectiveness in wetland improvement techniques, and recognition of effectiveness in examination with the participation of multiple parties**

Because of the unexpected emergence of a wetland due to a river improvement project that carried out separately, the effectiveness of wetland improvement as a means to achieve a balance between water control and environmental conservation was recognized. Through the examination in the investigative committee for the improvement of Hinoso Island with the participation of multiple parties, the common recognition of the effectiveness in wetland improvement techniques was established. At the same time, the effectiveness of an examination method with the participation of multiple parties was also recognized.

● **Arrival of "Hachigoro" in the wetland**

Based on an event that a wild Oriental white stork called "Hachigoro" arrived in an improved wetland, confidence of the concerned persons in the effectiveness of wetland improvement techniques was developed.

● **Sharing of the future vision among the concerned parties**

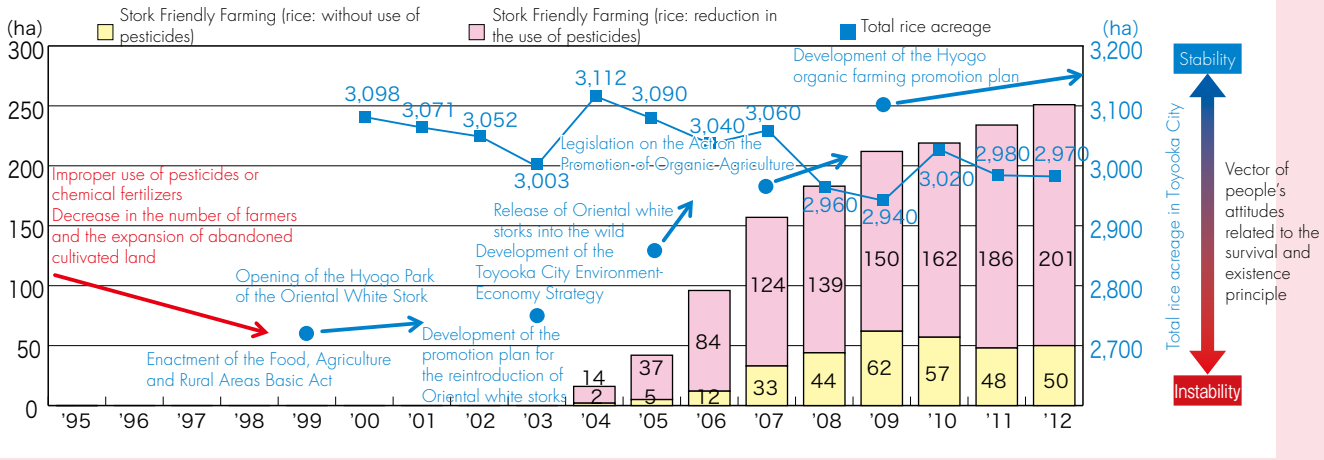
Based on the sharing of the future vision and the action plan among the parties in the Liaison Council on the Promotion of the Reintroduction of Oriental White Storks, the roles of the parties in the field of rivers were clarified and the wetland improvement was consistently implemented.

(2) Activities in relation to agriculture field.

1) Analysis of the expansion of measures viewed from a representative indicator (e.g.rice acreage of Stork Friendly Farming)

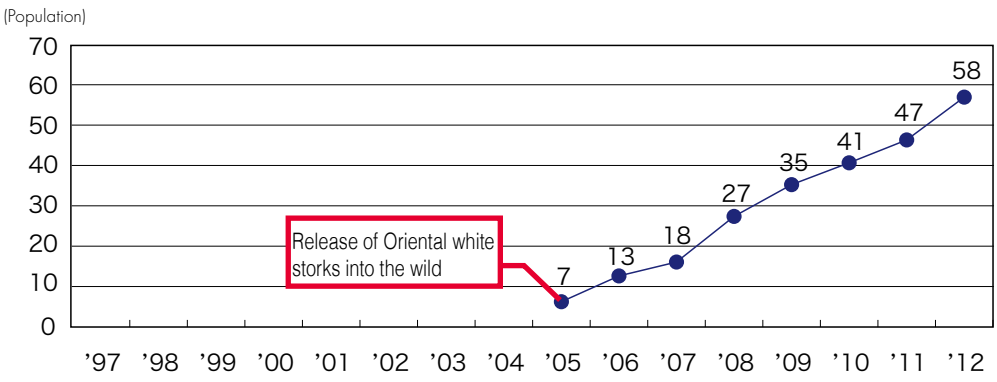
Change in the rice acreage of Stork Friendly Farming

Rice acreage of Stork Friendly Farming



Source: Materials provided by Toyooka City

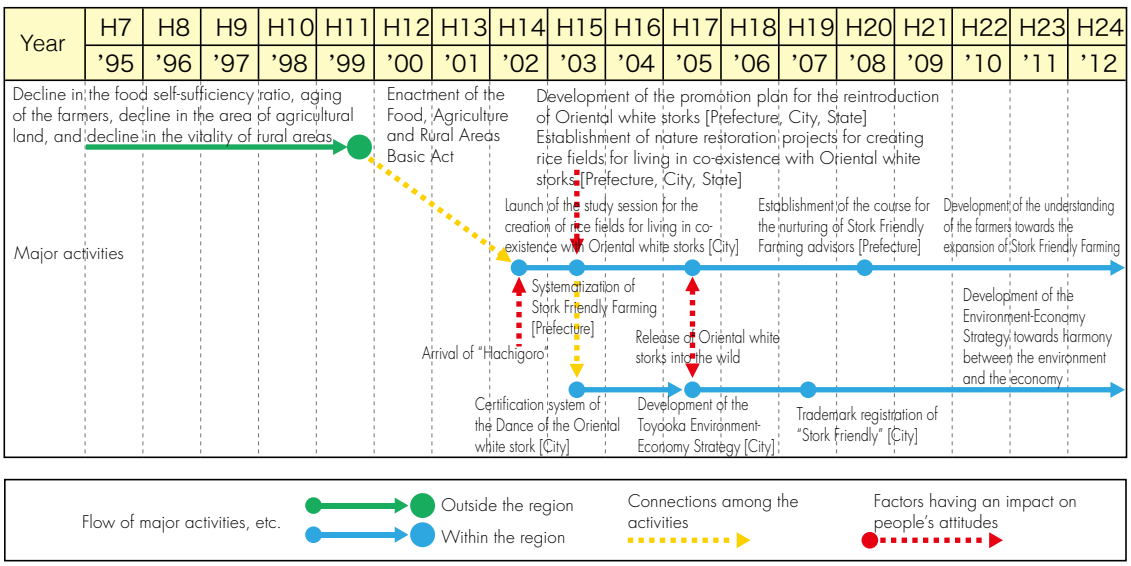
Population of wild Oriental white storks



Source: Materials provided by the Hyogo Park of the Oriental White Stork

* The truly wild Oriental white storks (named "Hachigoro" and "Ehime") are not included.

Expansion of the activities shown in the results of public measures (Field of agriculture)



[Trends in the rice acreage of Stork Friendly Farming]

- The rice acreage of Stork Friendly Farming has increased rapidly since the release of Oriental white storks into the wild, which has now reached approximately 250 ha in Toyooka City (approximately 340 ha in the Tajima area).
- The rice acreage of Stork Friendly Farming has became an increasing trend since 2004, but the rate of expansion has been slow since 2009.
- The rice acreage of pesticide-free production has declined slightly after peaking at 62 ha in 2009 and was 50 ha in 2012.

[Consideration of the factors for the change in the rice acreage of Stork Friendly Farming]

- In the 1960s, when Oriental white storks had become extinct in the wild, infrastructure development was carried out for reformation into dry rice fields and the efficiency of the production was promoted using pesticides and chemical fertilizers in order to increase the rice harvest, which against the background of the enactment of the Agricultural Basic Act in 1961 and the institutionalization of the agricultural field improvement projects in 1963. On the other hand, some agricultural activities had negative impacts on biodiversity during this period, such as due to the improper use of pesticides and fertilizers and the changing of agricultural land and water channels for the priority on economy and efficiency.
- From the viewpoint of rice distribution, production adjustment had been officially implemented since FY1971 in response to the trend towards excess demand for rice due to bumper crops since 1967. Under this situation, a system for voluntarily marketed rice using the advantages of private distribution was set up in 1969 against the background of the trend towards an increase in high-quality rice associated with the improvement of people's dietary life.
- After 1961, when the Agricultural Basic Act was enacted, despite the rapid growth of the economy, the area of agricultural land, the number of people engaged in agriculture, and the food self-sufficiency ratio steadily declined across the country. In 1999, the Food, Agriculture and Rural Areas Basic Act was enacted for the purpose of thoroughly reviewing and restructuring agricultural measures.
- One of the characteristics of the Food, Agriculture and Rural Areas Basic Act enacted in 1999 when the Hyogo Park of the Oriental White Stork opened is that conservation of the natural environment became of the multiple functions of agriculture.
- Before the enactment of the Food, Agriculture and Rural Areas Basic Act, Hyogo prefecture developed promotion measures for organic farming in 1992. In addition, in Toyooka City, rice-duck farming was introduced in the Shounji District during the same period towards the opening of the Hyogo Park of the Oriental White Stork. The relationship between agriculture and the environment started to draw public attention in this period.
- From the consumers' viewpoint, with the increase in demand for food safety and security, the prefecture started a certification system for organic products in 1993, and the state started a national certification system for organic agriculture (Organic JAS) in 2001.
- In addition, because of the agreement on agriculture in the GATT Uruguay Round in 1993 and the substantial relaxation of rice distribution regulations by the Act on the Stabilization of Supply, Demand and Prices of Staple Food in 1995, it can be considered that the importance of the production of agricultural products with high market competitiveness started to be recognized in this period due to the large scale production of homogeneous agricultural products.
- Based on the above events as the social background, the promotion of organic farming and creation of rice fields with rich ecosystems was included in the promotion plan for the reintroduction of Oriental white storks developed in 2003. Subsidies (provided by the city and the prefecture) started to be given to nature restoration projects for creating rice fields for living in co-existence with Oriental white storks (i.e. rice-crop diversion biotopes, winter-flooded rice fields, and the extension of temporarily drying up rice fields during summer).
- Stork Friendly Farming has been expanded thanks to the attention from the general public regarding the release of Oriental white storks into the wild in 2005, the increase in environmental awareness in agriculture, and the consumers' demand for food safety and security. However, behind the expansion, there have been various efforts made through collaboration between the prefecture, the city, and JA Tajima for the development of the understanding between farmers, such as the systematization of Stork Friendly Farming, the holding of lectures by inviting experts on organic farming, and explanatory meetings about Stork Friendly Farming in each region, etc.
- Moreover, it was confirmed that Oriental white storks have a minimal impact on agriculture (e.g.trampling on seedlings in the rice fields, etc.) through a survey implemented in association with the arrival of a wild Oriental white stork named "Hachigoro" in 2002, which became an opportunity to weaken bad image held by the farmers that Oriental white storks are harmful to agriculture.
- From the economic aspect, the rice acreage of Stork Friendly Farming has increased rapidly, as the certification system for a brand called "Dance of the storks" was established by the city in 2003 and the promotion of organic farming to achieve a balance between biodiversity and an increase in farmers' profits was included in the Toyooka City Environment-Economy Strategy developed in 2005.

[Key points of the expansion of measures]

● Consensus on the sense of direction between the reintroduction of Oriental white storks and the social trends to ensure food safety and security

- For the reintroduction of Oriental white storks, a cultivation method without the use of pesticides or with reduced use of pesticides were necessary in order to increase the number of living creatures in rice paddies to provide feeding grounds. Behind the expansion of Stork Friendly Farming, there was an increase in the public concern for food safety and security since the late 1990s and a consensus on the sense of direction of improvements of Hyogo prefectural certification system and the national certification system for organic agriculture.

● **Systemati**zation, technical guidance, and public awareness of Stork Friendly Farming by the local gover**nments**

- It was considered that there were some difficulties when farmers introduced a cultivation method without the use of pesticides or with reduced use of pesticides, such as the time and effort required for weeding, the risk of a reduction in the crop yields, and the lack of ideas on how to apply such methods, etc. Based on this, the Toyooka Agricultural Improvement and Promotion Center and other concerned organizations promoted the systematization of "Stork Friendly Farming" and provided technical guidance and education to farmers in order to facilitate the understanding of the environment of rice fields where living creatures can thrive, to facilitate the development of rice cultivation techniques, and to reduce the difficulties in introducing Stork Friendly Farming. Against the background of these activities and by giving social recognition to the release of Oriental white storks as an opportunity, Stork Friendly Farming has expanded. In addition, by directly watching Oriental white storks catching prey in the rice fields, the interest of farmers and consumers in Stork Friendly Farming has been increasing.

● Emergence of awareness of a proactive relationship among the farmers because an Oriental white stork flew down onto a rice paddy

- Farmers used to have an image of Oriental white storks as a harmful bird that tramples on seedlings in the rice fields. However, it has been confirmed that they do not trample on seedlings and there are no impacts on the crop yield according to the result of an investigation conducted by taking the incidental arrival of Hachigoro in 2002 as an opportunity to study this issue. This result triggered an improvement in the image of Oriental white storks that the farmers had.
- As shown in some cases where the activities for the establishment of Stork Friendly Farming have expanded in rice fields, where Oriental white storks flew down since the release of Oriental white storks into the wild in 2005. The presence of Oriental white storks has an impact on the emergence of awareness of a proactive relationship among the farmers.

● Establishment of a relationship of mutual trust between the local governments and the community residents by cooperatively and continuously holding briefing sessions about Stork Friendly Farming

- The section of City Office for co-existence with Oriental white storks, the Toyooka agricultural improvement and promotion center, and the farmers in the region who have already conducted Stork Friendly Farming became lecturers and jointly held briefing sessions about Stork Friendly Farming for the community residents. The explanations by the local governments, and explanations by the farmers who have already carried out Stork Friendly Farming had gained gaining the understanding of the participants and empathy for the meaning of the activities.

● Creation of a support system for the conservation of the biodiversity of rice paddies (Nature restoration project for creating rice paddies for living in co-existence with Oriental white storks)

- Based on the establishment of rice cultivation techniques for the restoration and creation of rich rice fields where Oriental white storks can thrive and the growth of living creatures in 2003, the "nature restoration project for creating rice fields for living in co-existence with Oriental white storks" was launched for the purpose to promote local Stork Friendly Farming. There are two categories for the subsidy, e.g. biotope type and winter-flooded rice field type. The subsidy contributes to an increase in the motivation and a reduction in the resistance of farmers at the time of creating biotopes using reformation of rice fields and introducing Stork Friendly Farming. (This project was implemented equally by both the prefecture and the city at first but has become a municipal project now.)

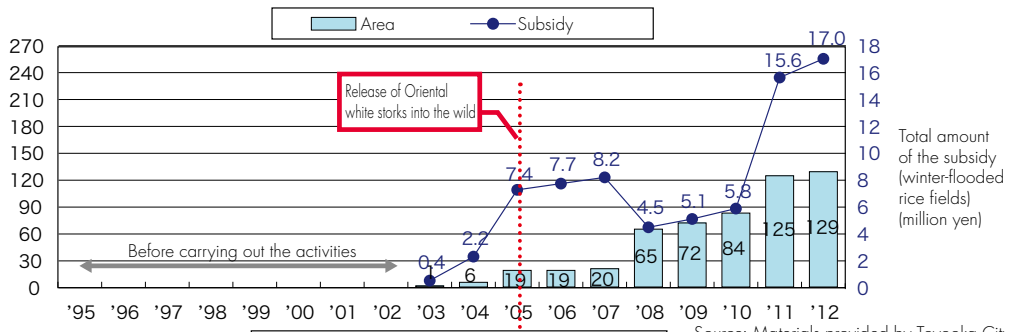
● Exercise of the synergistic effects between environmental conservation and economic activities by creating agricultural brands

- Since Stork Friendly Farming needs more time and efforts compared with conventional farming, it is difficult to continue Stork Friendly Farming if the farmers cannot obtain an economic advantage. Based on this, Toyooka City established a certification system called "Dance of the Oriental white stork" in 2003 and JA Tajima used the name "Stork Friendly Rice" for rice cultivated under Stork Friendly Farming in order to create an agricultural brand for the crops produced under organic farming. With the increase in social attention to Oriental white storks after the release of Oriental white storks into the wild, rice cultivated under Stork Friendly Farming has been maintained as high-value added rice. This ensures advantages to farmers in introducing Stork Friendly Farming.

2) Analysis of the expansion of measures viewed from multiple indicators except for the representative indicators

Expansion of the activities viewed from multiple indicators

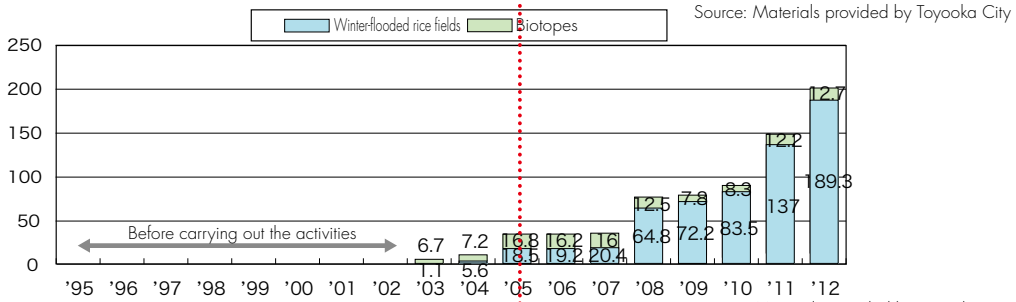
Area subject to the subsidy for Stork Friendly Farming (winter-flooded rice fields) in Toyooka City (ha)



Total amount of the subsidy (winter-flooded rice fields) (million yen)

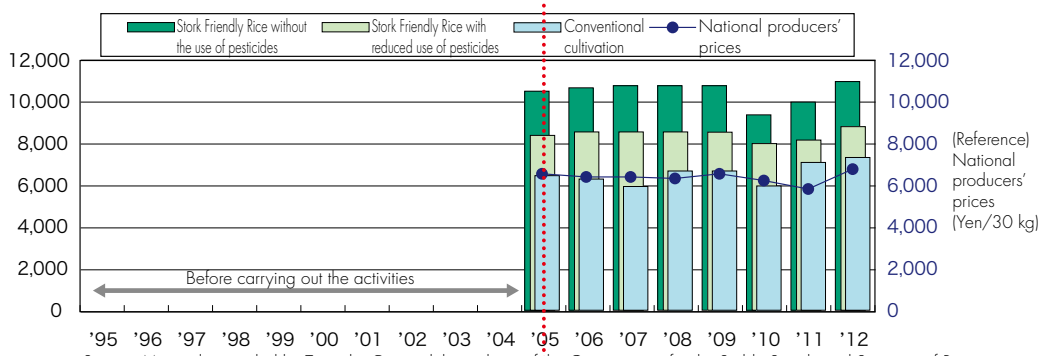
Source: Materials provided by Toyooka City

Area of biotopes and winter-flooded rice fields in Toyooka City (ha)



Source: Materials provided by Toyooka City

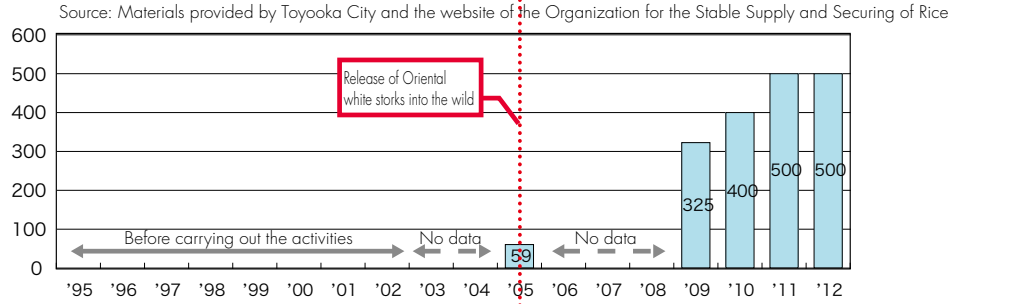
Purchase price of JA Tajima (Yen/30 kg)



(Reference) National producers' prices (Yen/30 kg)

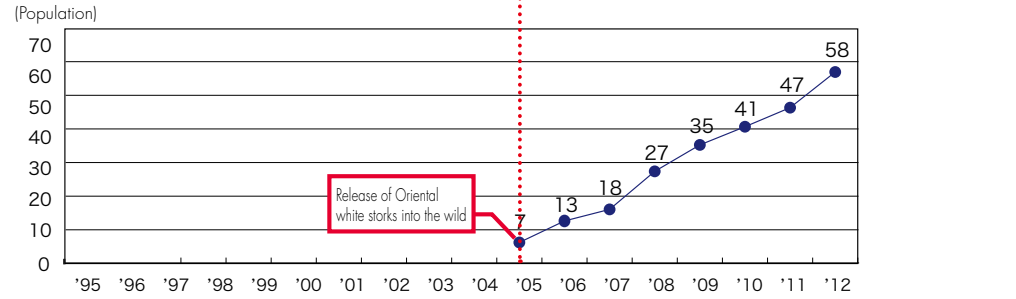
Source: Materials provided by Toyooka City and the website of the Organization for the Stable Supply and Securing of Rice

Number of shops selling Stork Friendly Rice across the country (shops)



Source: Materials provided by Toyooka City

Population of wild Oriental white storks



Source: Materials provided by the Hyogo Park of the Oriental White Stork

* The truly wild Oriental white storks (named "Hachigoro" and "Ehime") are not included.

- Since the development of the promotion plan for the reintroduction of Oriental white storks in 2003, the area subject to the subsidy for Stork Friendly Farming (winter-flooded rice fields) has became an increasing trend.
- The area rapidly increased in 2008 and 2011.
- Despite an increase in the area subject to the subsidy, the total amount of the subsidy decreased in 2008 due to a reduction in the unit value of the subsidy. However, it significantly increased in 2011 because of an increase in the unit value of the subsidy for pesticide-free production.

- Since the development of the promotion plan for the reintroduction of Oriental white storks in 2003, the area of winter wet rice fields has been steadily increasing.
- On the other hand, the biotopes areas has been declining to 12.7 ha as of 2012 from 16.8 ha as of 2005 at its peak.

- Between 2005 (when the sales were launched) and 2012, Stork Friendly Rice without the use of pesticides and with reduced use of pesticides had higher prices than rice produced under conventional farming and maintained premium price.

- The number of shops selling Stork Friendly Rice increased by over 5 times to 325 shops as of 2009 compared with that in 2005 (59 shops) when the first survey was conducted. It has been steadily increasing,then, reached 500 shops in 2011.

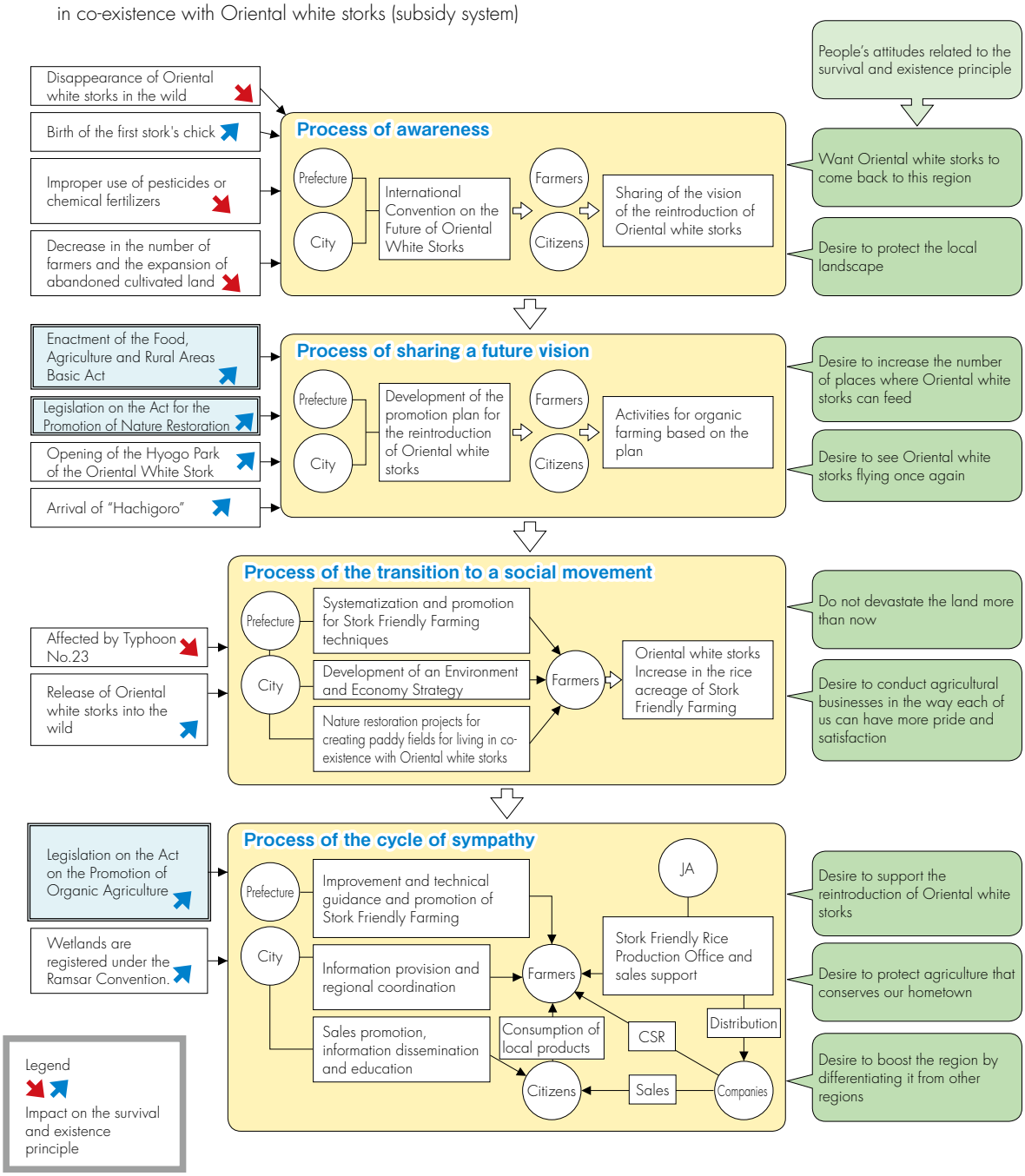
[Consideration of the expansion of measures]

- With an increase in the rice acreage of Stork Friendly Farming, subsidies for winter wet rice fields, the extension of the temporarily drying up of rice paddies during summer, and biotope creation have also increased, which show the utilization of the nature restoration project for creating rice fields in Toyooka City.
- Winter- wet rice fields, which are important to secure feeding grounds of Oriental white storks, have become a requirement for Stork Friendly Farming. The number of winter wet rice fields have been increasing with the expansion of the activities for the establishment of Stork Friendly Farming, which can be recognized as a performance indicator of the activities.
- The purchase price of Stork Friendly Rice can be considered as an indicator for farmers whether Stork Friendly Farming is easy to introduce or not. If a certain premium price can be continuously maintained, the price will become material for a systematic examination by farmers at the deciding time on the introduction or continuation of these activities. In other words, the price can be regarded as one of the present performance indicators for Stork Friendly Farming.
- The number of shops selling Stork Friendly Rice has became an increasing trend with the expansion of Stork Friendly Farming. However, it is not always linked to the expansion of Stork Friendly Farming, such as a reduction in sales due to a decrease in the number of large retailers, etc.
- In order to identify a performance indicator of the activities for the establishment of Stork Friendly Farming, the sales amount and the expansion of areas dealing with Stork Friendly Rice need to be investigated as well.

3) Analysis of the connections among the parties viewed from a specific example (Stork Friendly Farming)

Specific example: Connections among the parties shown in "Stork Friendly Farming"

- Stork Friendly Farming has been promoted through collaboration between the prefecture, the city, and JA. The prefecture has systematized and popularized techniques, the city has provided information to the farmers by holding study sessions and taken on a coordinating role in the region, and JA Tajima has provided support for the organization and sales.
- The city and the prefecture have worked together to carry out nature restoration projects in paddy fields for living in co-existence with Oriental white storks (subsidy system)



Confirmation of the analysis results viewed from the results of interviews with concerned persons

- Oriental white stork is a familiar bird. I did not think of it as an extraordinarily important bird but it acknowledged as a kind of special bird. (Mr. Nawate)
- There was a view that we did not want to degrade our region any more since the number of farmers in the region has been declining. (Mr. Nawate)
- Changes in agriculture will change the landscape. (Mr. Hotta)
- Shift from the production of saleable rice to the production of saleable that consumers want to purchase (Mr. Nawate)
- Pesticide-free products are not always popular. It is important to create consumer demand. (Mr. Hotta)
- In the future, not only the Toyooka region, but also the entire Hyogo prefecture must create an environment where Oriental white storks can thrive. (Mr. Hotta)

[Key points of the connections among the parties]

● **Awareness of the relationship between the disappearance of Oriental white storks and agriculture based on scientific analysis**

- It is considered that one of the factors in the disappearance of Oriental white storks was pesticide poisoning. An accumulation of highly concentrated noxious substances in Oriental white storks, which are in a high position on the food chain, is considered as the cause of their disappearance. At that time, a newspaper article also reported that the cause of the disappearance of Oriental white storks was mercury poisoning from autopsy result on an Oriental white stork. The citizens including farmers understood that the disappearance of Oriental white storks was not unrelated to agriculture, which then became a factor in creating a common recognition among the parties.

● **Cycle of sympathy for the future goals of conservation and restoration of the habitat of Oriental white storks and conservation of the local landscape**

- Since the conservation and restoration of the environment of rice fields to develop feeding grounds for Oriental white storks where living creatures can thrive is linked to the conservation of the local landscape that used to have rice fields, It was naturally accepted by people to have a sense of crisis against the expansion of abandoned cultivated land. As a result, the cycle of sympathy of local people created connections among the parties.

● **Promotion of these activities against the background of the regional characteristics, such as connections among the communities, in an integrated manner**

- The local governments hold study sessions about the activities for the establishment of Stork Friendly Farming in the villages in order to support the activities carried out by the agricultural organizations, etc., in the villages. In contrast with the background of the regional characteristics and the established relationship of trust, the increase in the rice acreage of Stork Friendly Farming has been promoted for paddy fields in the villages in an integrated manner.

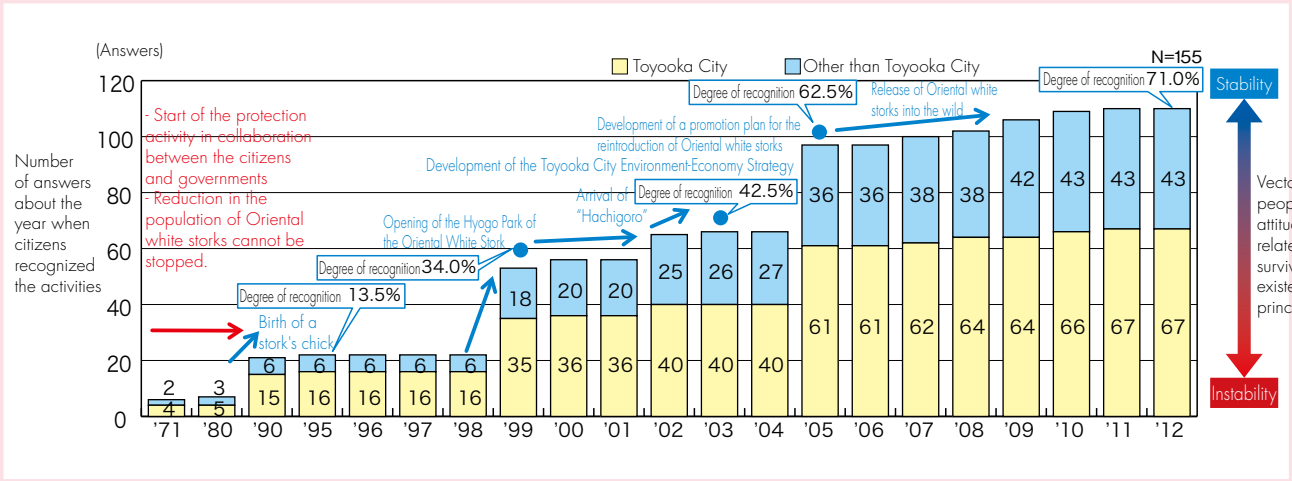
● **Involvement of multiple parties such as farmers, governments, companies, and citizens engaged in production, sales, and consumption**

- Concerning "production", the local governments (the prefecture and the city) have developed techniques and carried out the promotion of Stork Friendly Farming, and have supported the farmers. Concerning "sales", Toyooka City and JA Tajima have developed consumer demand by disseminating information through the creation of agricultural brands, promotion activities, and holding of events, etc. Corporations have sold the products, and the citizens who empathize with the reintroduction of Oriental white storks have "consumed" the products. In this way, connections have been created by the involvement of multiple parties.

(3) Activities in relation to communities

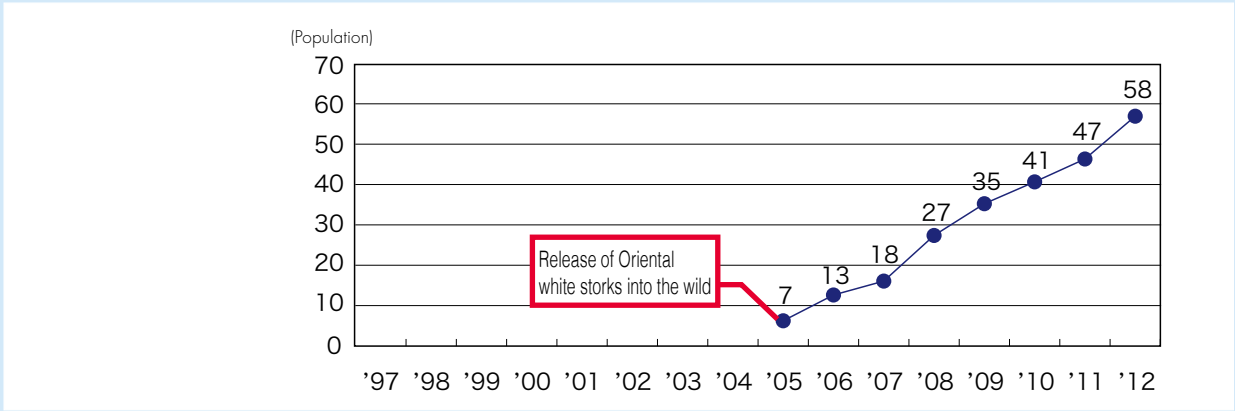
1) Analysis of the expansion of measures viewed from a representative indicator (Recognition of the creation of local communities living in co-existence with Oriental white storks)

Recognition of the creation of local communities living in co-existence with Oriental white storks



Source: Results of the online survey

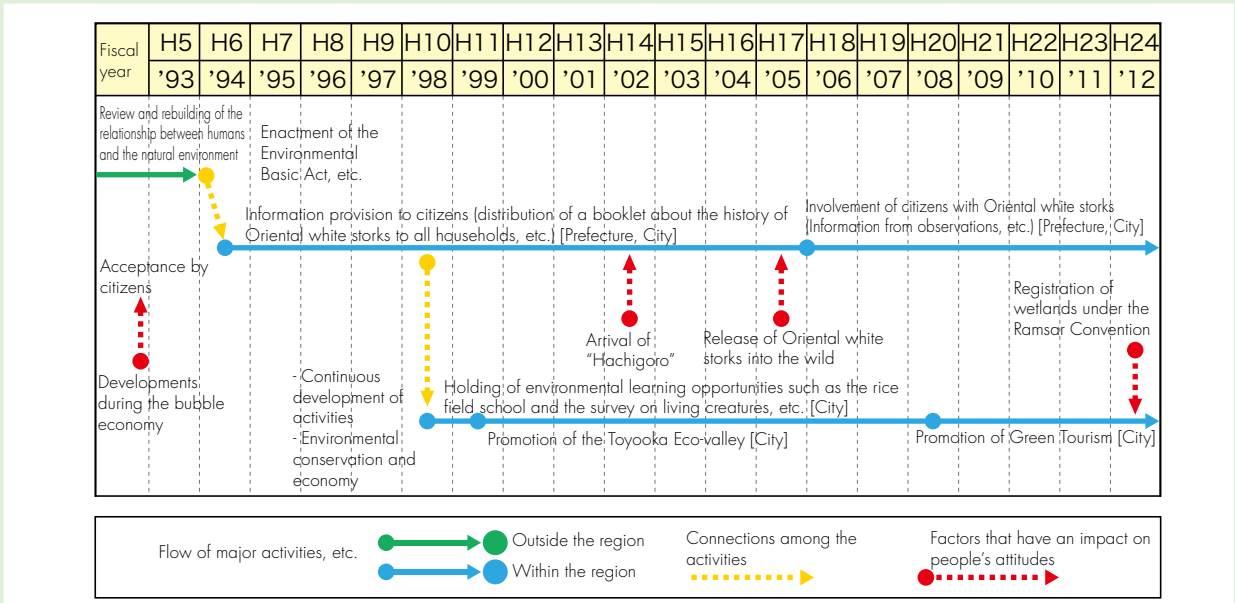
Population of wild Oriental white storks



Source: Materials provided by the Hyogo Park of the Oriental White Stork

* The truly wild Oriental white storks (named "Hachigoro" and "Ehime") are not included.

Expansion of the activities shown in the results of public measures (Field of communities)



[Period when the activity to create local communities living in co-existence with Oriental white storks was acknowledged by citizens]

- An online survey* about the "period when the activity to create local communities living in co-existence with Oriental white storks was acknowledged by the public citizens" was conducted among citizens in Toyooka City and the Tajima region in order to identify the degree of extension and recognition of the measures taken.
- Though the collaborative activity to protect Oriental white storks was started in 1955 by citizens and governments, the visibility of the activity was not so well promoted for a certain period. However, the visibility increased to 13.5% in 1989 when the first Oriental white stork's chick was born.
- Moreover, the visibility increased more in 1999 when the Hyogo Park of the Oriental White Stork opened (13.5%→34.0%) and in 2005 when Oriental white storks were released into the wild by the Hyogo Park of the Oriental White Stork (42.5%→62.5%).
- Subsequently, the visibility slightly increased and was recognized as being over 70.0% in 2012.

[Situation of the use of Oriental white storks for PR]

- In the living environment, there are many means of using the image of Oriental white storks such as in public projects and transportation networks in the Toyooka region. This shows that Oriental white storks have penetrated into the citizens' life (see p.136).

[Consideration of the factors regarding the period when the activity to create local communities living in co-existence with Oriental white storks was acknowledged by citizens]

- Activities for the protection of Oriental white storks were started in 1955 in cooperation between the citizens and local governments, The Oriental white stork was designated as a special national treasure in 1956. However, since the population of Oriental white storks had decreased steadily, artificial incubation was started in 1965. The number of newspaper reports in 1988, the last year of the period during which artificial breeding had continuously failed, was about 60, but it increased significantly to 130 in 1989 when the first stork's chick was born, which raised the visibility of the "creation of local communities living in co-existence with Oriental white storks".
- The recognition of Oriental white storks by the citizens has expanded more due to the opening of the Hyogo Park of the Oriental White Stork in 1999, which has attracted many visitors. In addition, teachers and staff of the prefectural university of the Hyogo Park of the Oriental White Stork gave lectures and accepted school visits. With the nurturing of "Oriental white stork park volunteers", which started in 2000 in the Hyogo Park of the Oriental White Stork, the activities by the citizens in relation to Oriental white storks were started.
- People were thrilled and took great pleasure in watching the Oriental white storks flying into the wild when they were released in 2005. It can be considered that sympathy for "creating local communities where Oriental white storks can thrive" was expanded among multiple parties (citizens, companies, and other universities in Japan, etc.). This pleasure can be considered as the driving force (i.e. awareness and challenging, etc.) for the citizens to find a balance between "nature restoration" for the creation of local communities where Oriental white storks can thrive and the value of the "regeneration of community living" that returned along with the Oriental white storks.
- Activities for environmental education have been actively implemented before the release of Oriental white storks. Even after the release, the prefecture and the city consistently disseminated information on various occasions for the acceptance of Oriental white storks, such as citizen education, human resources development, interaction with community residents and companies, and international conventions (Conference of the Parties to the Convention on Biological Diversity (CBD-COP10)), etc.

* Online questionnaire survey
- An online survey is a questionnaire survey using the Internet.
- Target: Tajima region (Toyooka City, Asago City, Yabu City, Kami-cho, Shinonsen-cho)
- Question: When do you think that these activities were recognized by the citizens?

[Key points of the expansion of measures]

● Education to obtain communities understanding for the reintroduction of Oriental white storks

- Along with the development of the Hyogo Park of the Oriental White Stork, Hyogo prefecture and Toyooka City actively carried out activities for information dissemination including the distribution of a booklet compiling the history of the disappearance, protection, and breeding of Oriental white storks to all households in the city, etc. In addition, they made efforts to disseminate information throughout the country through media such as the International Convention on the Future of Oriental White Storks in order to promote the attractions of the Toyooka region, a region living in co-existence with Oriental white storks, both within and outside the city, and to enhance awareness among the citizens as acceptors of Oriental white storks.
- At the time of the release of Oriental white storks into the wild in 2005, the citizens watched the reintroduced Oriental white storks in reality, which increased the degree of recognition of the project and enhanced the momentum to accept the reintroduction of Oriental white storks.

● Presence and public awareness of a community-based research institution called "Hyogo Park of the Oriental White Stork" located in the prefectural university

- The Hyogo Park of the Oriental White Stork has conducted research and practices for the protection, breeding, and reintroduction of Oriental white storks. In addition, they have conducted investigations of the environmental history of humans and Oriental white storks, historical studies on community development and tourism in the Tajima region, and research on the creation of environmental conservation communities, etc. The results of this research have been reflected in the creation of communities. Moreover, the "Tsurumi Cafe (science cafe)" has been held for the promotion of public awareness.

● Consensus formation among multiple parties in the Liaison Council on the Promotion of the Reintroduction of Oriental White Storks

- In 2002, "Hachigoro", which played a role as inspiration source for the reintroduction of Oriental white storks, flew down onto a paddy field. The arrival of "Hachigoro" became an event to facilitate consensus among multiple parties.
- Through the establishment of the "Liaison Council on the Promotion of the Reintroduction of Oriental White Storks" and holding of the International Convention on the Future of Oriental White Storks, multiple parties gathered, shared their future vision, and made the transition into a social movement. The local governments accepted the wishes of the citizens to get Oriental white storks to return to the area and developed positive measures.

● Cultivation of the next generation of leaders in charge of the creation of local communities where Oriental white storks can thrive

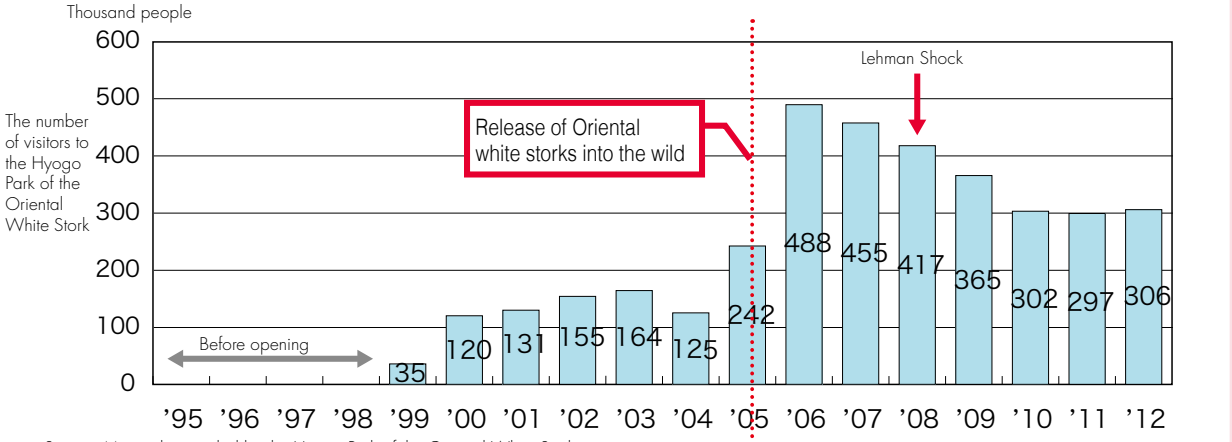
- Toyooka City established the "Eco-Museum Center" inside the Hyogo Park of the Oriental White Stork and made it available to the public and tourists as "a base facility eco-museum to think about co-existence between humans and nature". In addition, they have developed various measures for development of the next-generation human resource who support communities living in co-existence with Oriental white storks, such as environmental education at Open University of the Environment and in elementary schools, and projects to experience nature called "Children's activity for the reintroduction of Oriental white storks" and the "Oriental white stork kids club", etc.

● Connections between activities (economy) and environmental creation

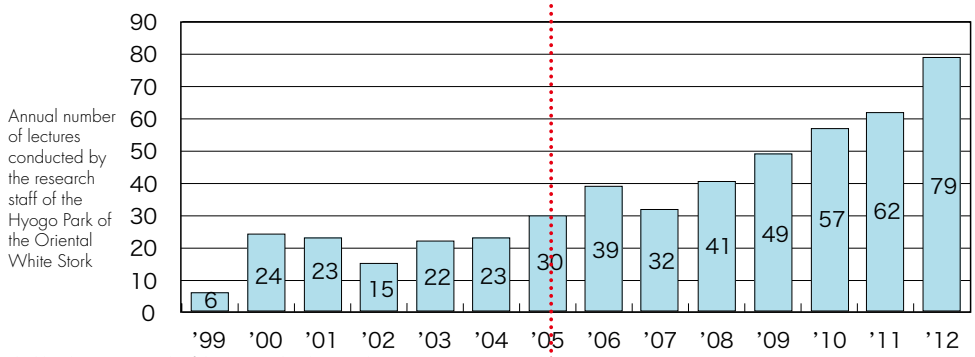
- In the "Toyooka Environment-Economy Strategy" developed in 2005 by Toyooka City, the "harmony between the environment and the economy" is advocated, and the creation of the tourism industry using Oriental white storks is promoted. According to research conducted in 2009, about one billion yen was generated to provide an economic ripple effect from visitors to the Hyogo Park of the Oriental White Stork.

2) Analysis of the expansion of measures viewed from multiple indicators except for the representative indicators

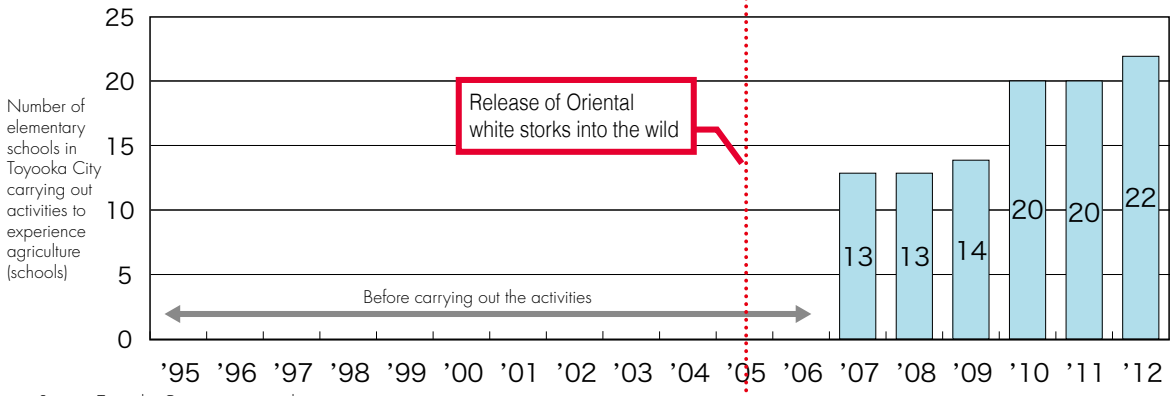
Expansion of the activities viewed from multiple indicators



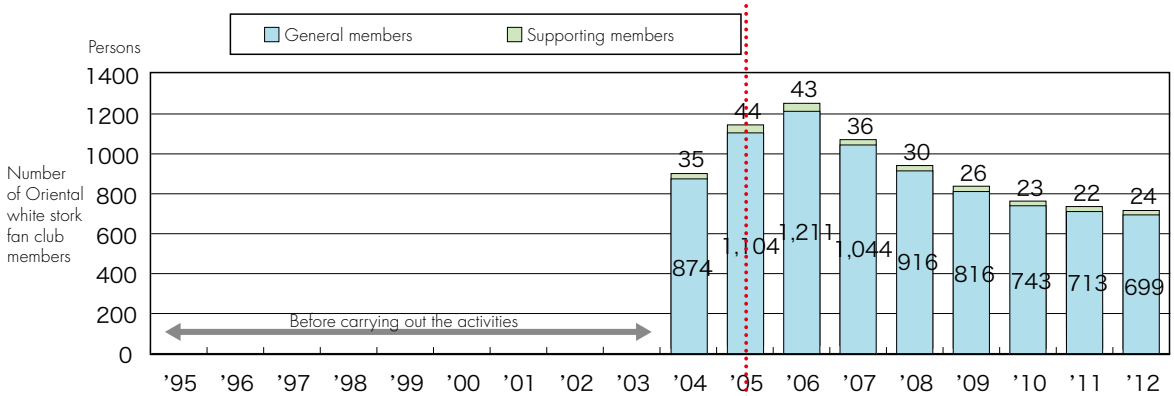
Source: Materials provided by the Hyogo Park of the Oriental White Stork



Source: Materials provided by the Hyogo Park of the Oriental White Stork



Source: Toyooka City environmental report



Source: Materials provided by the Tajima Branch Office of Hyogo prefecture

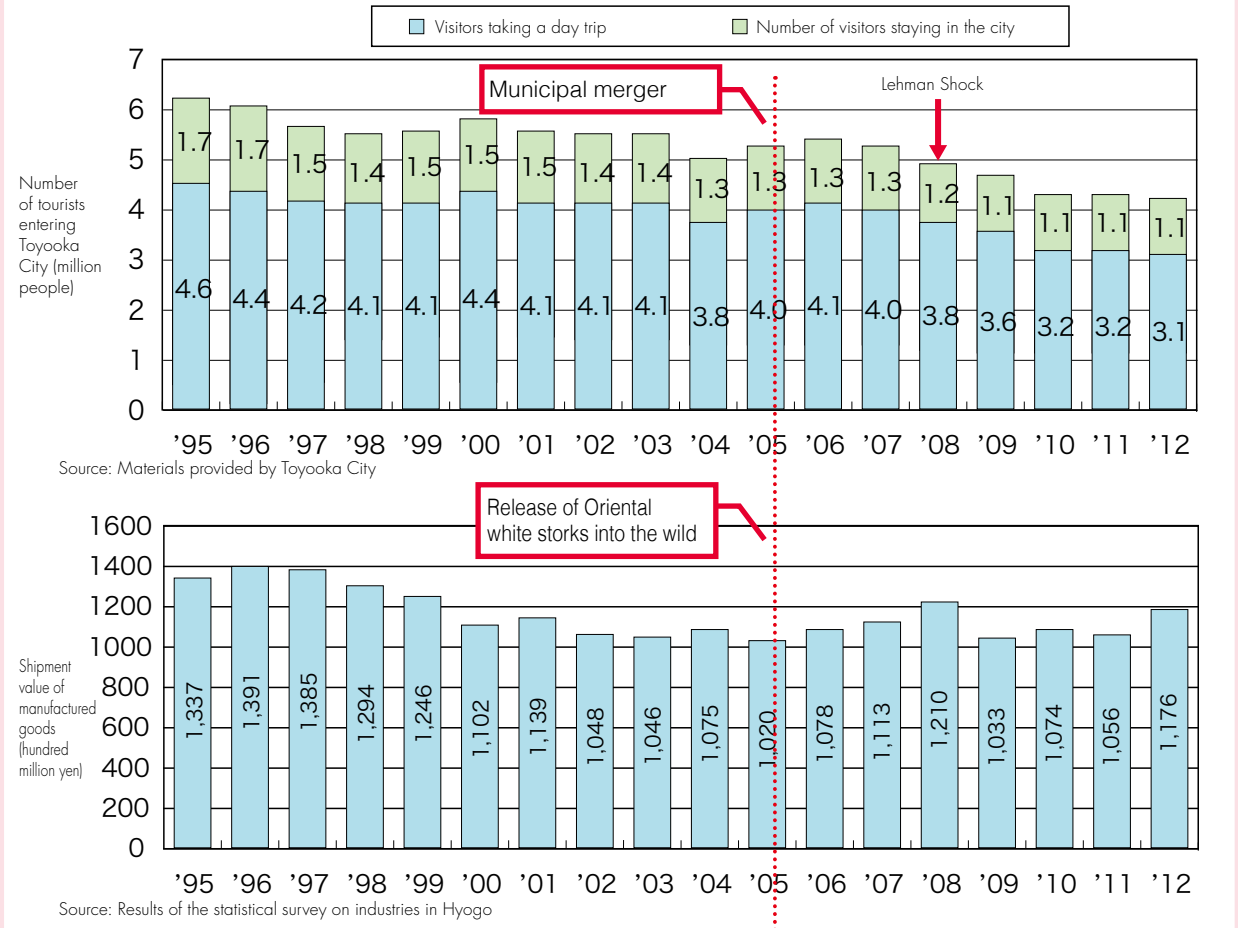
- The number of visitors to the Hyogo Park of the Oriental White Stork rapidly increased in 2006, the year following the first trial release of Oriental white storks into the wild, and reached about 500,000 a year.
- Since the Lehman Shock in 2008, the number of visitors has been declining slightly but has stayed at around 300,000 a year.

- The Hyogo Park of the Oriental White Stork has carried out promotion and education activities through public forums and public lectures, etc. The number of forums and lectures have been gradually increasing and reached 79 times a year as of 2012.

- Since the release of Oriental white storks into the wild, the number of elementary schools carrying out activities to experience agriculture has been increasing.
- It can be considered that support from corporations and local governments, and places to make presentations of agricultural activities of schools are factors for the increase in the number of schools carrying out such activities.

- In 2004, the prefecture established the "Oriental white stork fan club" by collecting members from across the country to provide support for the conservation and restoration of the natural environment.
- Since the release of Oriental white storks into the wild, the number of the members of "Oriental white stork fan club" had gradually increased and reached 1,211 as of 2006 at its peak. After that, the number of the members declined to about 700 but has remained flat, which shows that a fixed number of fans has been established.

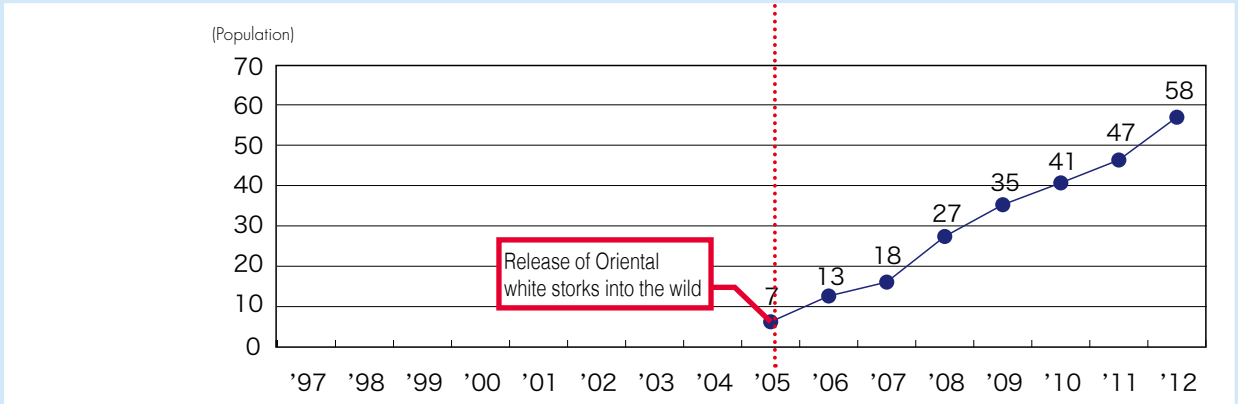
Expansion of the activities viewed from multiple indicators



Source: Materials provided by Toyooka City

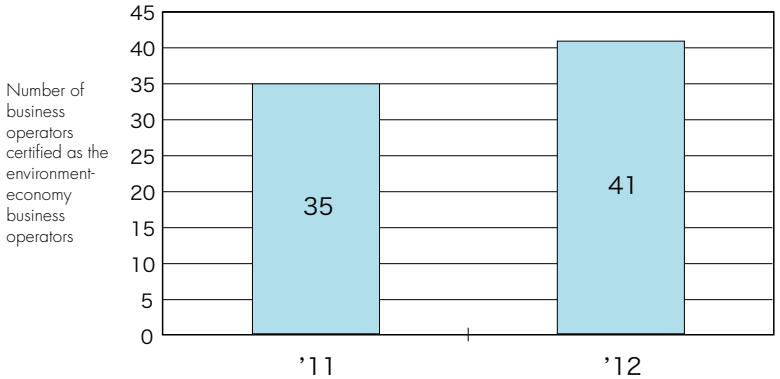
Source: Results of the statistical survey on industries in Hyogo

Population of wild Oriental white storks



Source: Materials provided by the Hyogo Park of the Oriental White Stork

* The truly wild Oriental white storks (named "Hachigoro" and "Ehime") are not included.



Source: Materials provided by Toyooka City

- In 1999, the Hyogo Park of the Oriental White Stork was opened. In 2000, the Toyooka Municipal Eco-Museum Center and a market selling fresh agricultural products cultivated by Stork Friendly Farming were set up inside the Hyogo Park of the Oriental White Stork.
- Based on the certifications of the Tajima region as a special green tourism zone in 2003 and the Sanin Kaigan Geopark in 2010, many tourists visited the region.

- The shipment value of manufactured goods in Toyooka City increased in 2008 but generally continues to be flat.
- Towards harmony between the environment and the economy, Toyooka City certifies business operators to implement environment-economy projects. The number of certified corporations has been increasing and was 41 as of 2012.

Products dealt with by corporations certified under the environment-economy certified business

[Consideration of the expansion of measures]

- After the success of the breeding of Oriental white storks and being aware of the reintroduction of Oriental white storks, the residents in the Toyooka region found out that the environment where they lived in was different from that in the past. Combined with the social trends, such as the development of the National Biodiversity Strategy in 1995, awareness of the natural environment has increased.

- With the opening of the Hyogo Park of the Oriental White Stork in 1999, activities for information dissemination both within and outside Toyooka City, environmental education, and the environment-economy projects were started.

- As a result, over 400 articles related to Oriental white storks appeared in newspapers that year, and the number of visitors to the Hyogo Park of the Oriental White Stork gradually increased.

- Subsequently, as the release of Oriental white storks into the wild became nationwide news and attracted a considerable public attention, the numbers of visitors to the Hyogo Park of the Oriental White Stork and the members of the Oriental white stork fan club increased.

- The numbers of visitors to the Hyogo Park of the Oriental White Stork, the members of the Oriental white stork fan club, and visitors entering Toyooka City from other cities have been declining after peaking in the year following the release of Oriental white storks into the wild. However, the number of activities for environmental education (e.g. education in schools and the rice field school, etc.) has been increasing because of the participation of multiple parties (i.e. schools, corporations, etc.) and the setting up of places available for the presentation of the activities, etc. In addition, the Hyogo Park of the Oriental White Stork held 79 lectures in 2012 to report on the research results to the communities. Although the number of lectures has been increasing, the number of participants in the lectures has not increased.

- The number of corporations certified under the environment and economy projects has been increasing. Corporations working on the prevention of regional warming, the reduction of waste, and the conservation of the forest environment, etc. have been certified.

- The Toyooka Environment-Economy Incubation Partnership (a joint support organization for business start-ups) was established in January 2013 by Toyooka City to support environment-economy projects through collaboration with financial institutions and commerce and industry groups in the city, etc.

[Reference] The Toyooka region where the tourism industry has been prospering for a long time

○ The presence of nationwide well-known tourist sites

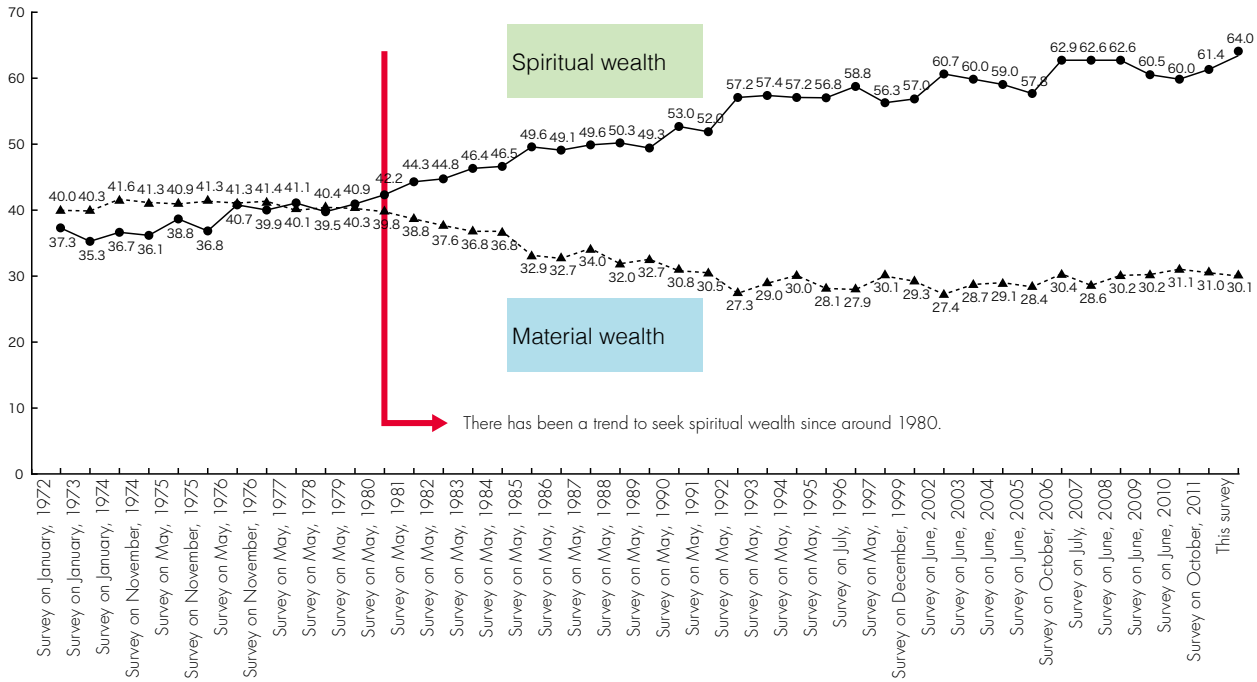
- As there are many tourist sites including Kinosaki hot spring, which is one of the famous hot springs of Japan, Kannabe ski resort, which is one of the best ski resorts in western Japan, and Izushi castle town, which is referred to as "little Kyoto" in Tajima, many tourists visit the Toyooka region.

○ Japan's first eco-tour called the "Sightseeing train to watch the nesting cranes"

- Many people visited a cafe called "Tsurumi Chaya" to watch Oriental white storks building their nests. In addition, a sightseeing train called the "Sightseeing train to watch the nesting cranes" was operated, which can be considered Japan's first eco-tour. People in the Toyooka region have linked Oriental white storks with sightseeing since early times.

A poster for the sightseeing train

[Reference] Spiritual wealth from a "public opinion survey on people' s living" by the Cabinet Office

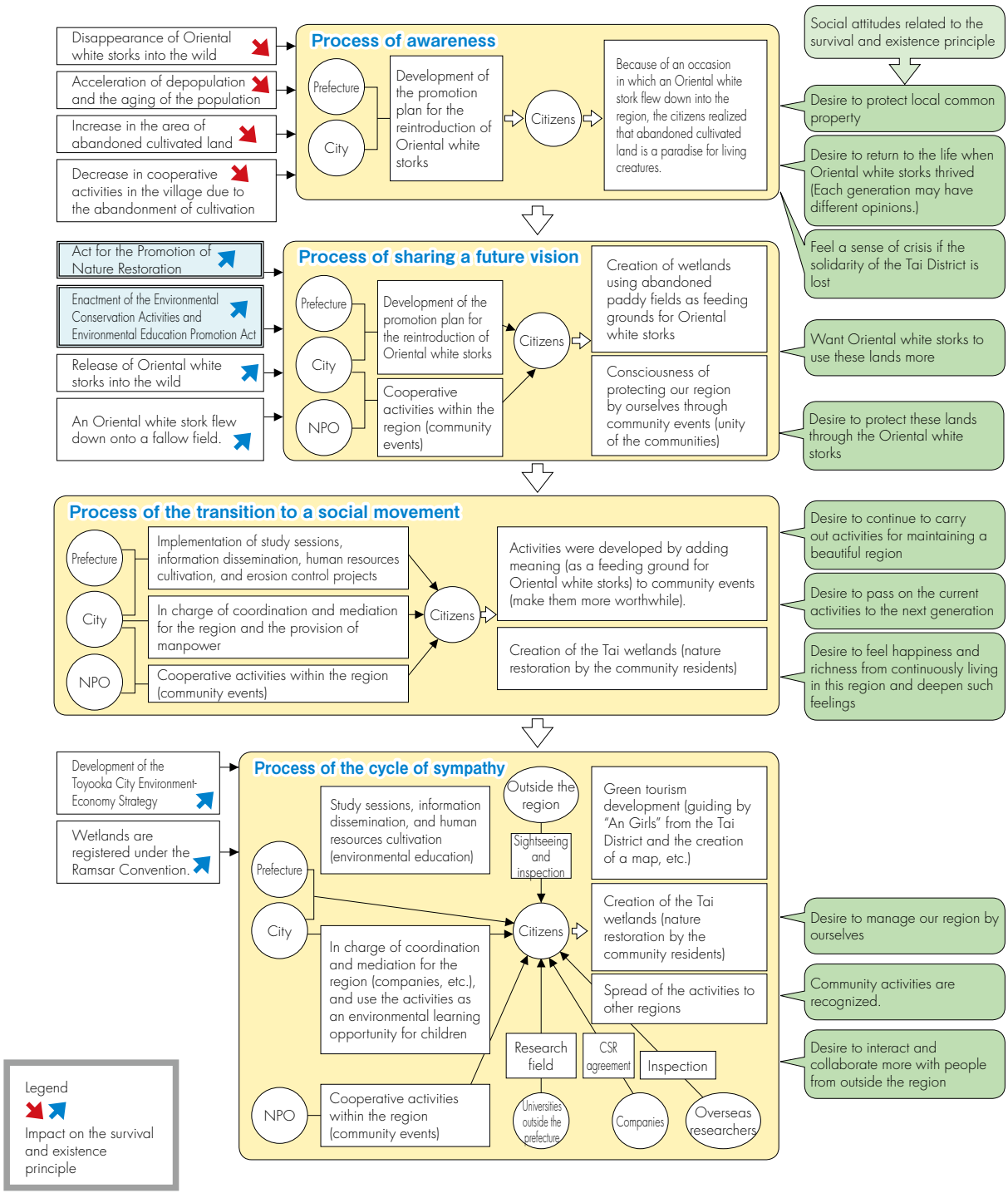


(Note)
Spiritual wealth → "I want to place more importance on spiritual wealth and having a comfortable life in the future, as we enjoy the benefits of material wealth to some extent."
Material wealth → "I want to place more importance on enriching our lives in terms of the material aspects."

3) Analysis of the connections among the parties viewed from a specific example (Nature restoration in the Tai District)

Specific example: Connections among the parties revealed in the "nature restoration in the Tai District"

- Because of an occasion in which an Oriental white stork that bred in the Toshima wetland close to the Tai District flew down onto an abandoned rice paddy in the Tai District to use it as its feeding ground, the citizens became aware of the value of creating local communities where Oriental white storks can thrive and recognized that even abandoned cultivated land can be used.
- The activities for the conservation of biodiversity have been started in the Tai District through cooperation among the communities, NPOs, and the local governments. These activities have expanded outside the prefecture, such as in collaboration with universities and with visitors from overseas through information dissemination, etc.
- In contrast to revitalization activities using traditional arts or specialty products implemented throughout the country, citizens have promoted revitalization activities through the conservation of the local nature. It can be said that the citizens in the Tai District were determined to deepen the richness of this area because they feel that it is worth it for them to live in this area continuously.



Confirmation of the analysis result viewed from the results of interviews with concerned persons

- The arrival of "Hachigoro" enabled our tasks to be clearly understood by the citizens. By watching an actual Oriental white stork, we could determined the activity that needed to be carried out next. (Mr. Miyagaki)
- I started thinking about the protection of local nature while thinking about the creation of communities where I lived. (Mr. Ueda)
- Experience of playing in nature in the past leads to actions to protect nature in the future. (Mr. Ueda)
- It can be said that the keys to the success of the activities of the Project E (see p.98) were that the students creatively worked on the activities having initiatives and pride at all times and adults related to the activities respected and firmly supported them. (Mr. Yamamoto)

[Key points of the connections among the parties]

● Value of the region realized by the occasion of the arrival of an Oriental white stork

- By watching the arrival of an Oriental white stork, an "auspicious bird," in the region, the property (value) of the region was realized. For example, the residents wondered if there are any good features in the region and any food for Oriental white storks in the rice fields, etc. This led to the sharing of and empathy for a future vision to protect such property and the development of connections among the parties involved.

● Involvement of multiple parties such as NPOs, universities, and companies in community activities

- A new utility value for abandoned rice fields was generated by creating an environment where Oriental white storks can thrive in these abandoned rice fields. As a result, connections among multiple parties including NPOs, local governments, and universities, etc., were developed through the involvement of such parties in community events. The involvement of multiple parties leads to a purpose for living among the local residents.

● The local governments are in charge of mediation and coordination to connect multiple parties within the region.

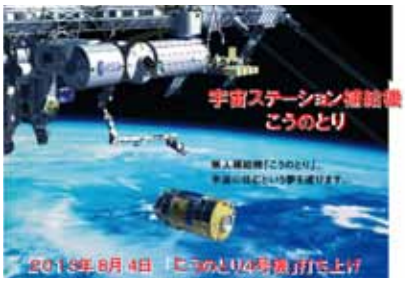
- The local governments played a leading role in carrying out various activities, such as the establishment of the "Liaison Council on the Promotion of the Reintroduction of Oriental White Storks" which became a major driving force in promoting projects for the reintroduction of Oriental white storks, and for the mediation and adjustment between communities, universities and corporations supporting the community activities.

● Obtain the sympathy of multiple parties and their cycle of sympathy by promoting the story about the reintroduction of Oriental white storks

- The history of the activities for the reintroduction of Oriental white storks is a property of the Toyooka region to be proud of in the world. Through the active promotion of the story of the reintroduction of Oriental white storks by holding lectures by the mayor of Toyooka City, etc., people's sympathy could be obtained. People having sympathy for the reintroduction of Oriental white storks took action to contribute to the activities carried out in the Toyooka region, and the actions of various parties connected to the cycle of sympathy of other parties.

○ Examples of expansion in relation to the field of communities

■ Examples of applications in transportation networks



Painting of an airplane and the name of an airport

Oriental White Stork Express (Since March 2011)

Painting of a public car (eco-car)

Painting of a highway bus operating between Osaka and Kinosaki

Painting of city circular buses

■ Examples of applications in the construction industry

Illustrations on the road surface in a business area

Illustrations on the body of a heavy machine

A signboard to explain the construction contents

Makeshift guardrails for construction

Illustrations on the wall of a concrete factory

Pictures on a company brochure

■ Examples of applications in private shops, etc.

A vending machine supporting Oriental white storks

Illustrations and displays in private shops

Signs in shopping streets

A sign of a company

Wooden votive tablets of a shrine

A sign for an FM radio station

A sign of a shop

An illustration on a shutter

Signs of shops

A sign of a bank

A sign on a shopping street

A sign of a shop

Displays of products

3.4. Summary of the activing analysis

(1) Classification of the key points of the expansion of measures and the connections among the parties

The key points of the expansion of measures and the connections among the parties that have been identified by the analyses of each field are described below.

Field of rivers	[Key points of the expansion of measures] Rivers (1): Developed against the background of nationwide trends including the revision of the River Act, etc. Rivers (2): Even disasters were used as an opportunity. Rivers (3): Sharing of the purpose with the parties (e.g. clear symbols and principles, and the existence of a common future vision) Rivers (4): Establishment of wetland improvement technique as a means to achieve a balance between water control and environmental conservation Rivers (5): Collaborative structure design for activities and examinations (development of plans with the participation of multiple parties)
	[Key points of the connections among the parties] Rivers (6): Common recognition of the effectiveness of the wetland improvement techniques and the examinations with of multiple parties participation Rivers (7): Arrival of "Hachigoro" in the wetland Rivers (8): Sharing of the future vision among the concerned parties

Agriculture Field	[Key points of the expansion of measures] Agriculture (1): Consensus on the sense of direction between the reintroduction of Oriental white storks and the social trends for ensuring food safety and security Agriculture (2): Systematization, technical guidance, and public awareness of Stork Friendly Farming by the local governments Agriculture (3): Emergence of the awareness of a proactive relationship among the farmers after an Oriental white stork flew down onto a rice paddy Agriculture (4): Establishment of mutual relationship of trust between the local governments and the community residents by cooperatively and continuously holding briefing sessions about Stork Friendly Farming Agriculture (5): Creation of a support system for the conservation of the biodiversity of paddy fields (e.g. nature restoration project for creating paddy fields for living in co-existence with Oriental white storks) Agriculture (6): Exercise of the synergistic effects between environmental conservation and economic activities by creating agricultural brands
	[Key points of the connections among the parties] Agriculture (7): Awareness of the relationship between the disappearance of Oriental white storks and agriculture based on scientific analysis Agriculture (8): Cycle of sympathy for the future goals of conservation and restoration of the habitat of Oriental white storks and conservation of the local landscape Agriculture (9): Promotion of activities against the background of the regional characteristics, such as the connections among the communities, in an integrated manner Agriculture (10): Involvement of multiple parties such as farmers, governments, companies, and citizens engaged in production, sales, and consumption

Field of communities	[Key points of the expansion of measures] Communities (1): Education to obtain the communities understanding for the reintroduction of Oriental white storks Communities (2): Presence and public awareness of a community-based research institution called "Hyogo Park of the Oriental White Stork" located in the prefectural university Communities (3): Consensus formation among multiple parties in the Liaison Council on the Promotion of the Reintroduction of Oriental White Storks Communities (4): Cultivation of next-generation leaders in charge of the creation of local communities where Oriental white storks can thrive Communities (5): Connections between activities (e.g. economy) and environmental creation
	[Key points of the connections among the parties] Communities (6): Value of the region realized by the occasion of the arrival of an Oriental white stork Communities (7): Involvement of multiple parties such as NPOs, universities, and companies in community activities Communities (8): The local governments are in charge of mediation and coordination to connect multiple parties within the region. Communities (9): Obtain the sympathy of multiple parties and their cycle of sympathy by promoting the story about the reintroduction of Oriental white storks

(2) Extraction of the key points of the public measures in the "Hyogo Toyooka Model"

Based on the key points of the expansion of measures and the connections among the parties in each field in relation to the reintroduction of Oriental white storks, five points to be reflected in the "Hyogo Toyooka Model" are extracted below.

Key points of the expansion of measures and the connections among parties in each field	Points to be reflected in the "Hyogo Toyooka Model"
Rivers (1): Developed against the background of nationwide trends including the revision of the River Act, etc. Agriculture (1): Consensus on the sense of direction between the reintroduction of Oriental white storks and the social trend to ensure food safety and security Agriculture (8): Cycle of sympathy for the future goals of conservation and restoration of the habitat of Oriental white storks and conservation of the local landscape	(1) Acceptance, active use and development of social currents - Various laws and regulations were established in response to the concerns of the citizens for environmental deterioration under rapid economic growth. - Since people in the Toyooka region were quick to feel the changes in the world and the environment where they lived, and the movements of the government, they started to develop activities integrating Oriental white storks used to inhabit the region as a symbol.
Rivers (5): Collaborative structure design for activities and examinations (i.e. plan development with the participation of multiple parties) Rivers (6): Common recognition of the effectiveness of the wetland improvement techniques, and recognition of the effectiveness of the examination with the participation of multiple parties Agriculture (2): Systematization, technical guidance, and public awareness of Stork Friendly Farming by the local governments Agriculture (10): Involvement of multiple parties such as farmers, governments, companies, and citizens engaged in production, sales, and consumption Communities (2): Presence and public awareness of a community-based research institution called "Hyogo Park of the Oriental White Stork" located in the prefectural university Communities (7): Involvement of multiple parties such as NPOs, universities, and companies in the community activities Communities (8): The local governments are in charge of mediation and coordination to connect multiple parties within the region.	(2) Design of the structure through collaboration among scientists, government agencies, and the communities - The involvement of various parties was necessary to promote the "creation of local communities where Oriental white storks can thrive". - A collaborative structure design was implemented so as to ensure that the involvement of the parties became the driving force of the activities.
Rivers (1)-(8): The analysis results of the connections among the parties shown in the "wetland improvement to achieve a balance between water control and environmental conservation and the formation of ecological networks" Agriculture (1)-(10): The analysis results of the connections among the parties shown in "Stork Friendly Farming" Communities (1)-(9): The analysis results of the connections among the parties shown in the "nature restoration in the Tai District"	(3) Design of the process (* The process extracted from the specific examples is provided on the next page.) - From the viewpoint of how people react, initiate a movement, and find sympathy, strategically-sustainable activities were established and developed.
Rivers (2): Even disasters were used as an opportunity. Rivers (7): Arrival of "Hachigoro" in the wetland Agriculture (3): Emergence of the awareness of a proactive relationship among the farmers because an Oriental white stork flew down onto a rice paddy Communities (6): Value of the region realized by the occasion of the arrival of an Oriental white stork	(4) Use of accidental natural phenomena after their transition to promotion factors - Movements towards the achievement of the goals were taken, by connecting incidental natural phenomena, such as the coming of "Hachigoro" and the damage due to Typhoon No.23, etc., and using them as turning points for creating better communities and sympathy for positive feelings (pleasure and surprise),
Rivers (2): Even disasters were used as an opportunity. Agriculture (9): Promotion of activities against the regional characteristics, such as the connections among the communities, in an integrated manner Communities (6): Value of the region realized by the occasion of the arrival of an Oriental white stork	(5) Understanding of the regional traditional community - While trying not to create discrepancies, the activities were carried out with the understanding of the forces of nature and the connections among spirit of traditional communities of that have maintained their lives using the blessings of nature.

(3) Classification of the process of the expansion of the cycle of sympathy

From the key points of the expansion of measures and the connections among the parties in each field, each phase of the expansion of the cycle of sympathy was classified into 4 processes regarding "(3) Design of the process" extracted on the previous page as one of the five points to be reflected in the "Hyogo Toyooka Model".

Key points of the expansion of measures and the connections among parties in each field	Process	Summary of the key points of the expansion and connections
Rivers (1): Developed against the background of nationwide trends including the revision of the River Act, etc. Agriculture (1): Consensus on the sense of direction between the reintroduction of Oriental white storks and the social trend to ensure food safety and security Agriculture (7): Awareness of the relationship between the disappearance of Oriental white storks in the wild and agriculture based on scientific analysis Communities (2): Presence and public awareness of a community-based research institution called "Hyogo Park of the Oriental White Stork" located in the prefectural university	Awareness	- Transition of the social currents to regional issues - Awareness of a crisis of changes in the regional environment according to scientific theory and analysis by a community-based research institution established in the prefectural university - Value of the region gained through the activities for the reintroduction of Oriental white storks
Rivers (3): Sharing of the purpose with the parties (e.g. clear symbols and principles, and the presence of a common future vision) Rivers (6): Common recognition of the effectiveness of the wetland improvement techniques and the examination with of multiple participation Rivers (7): Arrival of "Hachigoro" in the wetland Rivers (8): Sharing of the future vision among the concerned parties Agriculture (3): Emergence of the awareness of a proactive relationship among the farmers after an Oriental white stork flew down onto a rice paddy Agriculture (8): Cycle of sympathy for the future goals of conservation and restoration of the habitat of Oriental white storks and the local landscape Communities (1): Education to obtain the communities understanding for the reintroduction of Oriental white storks Communities (3): Consensus formation between multiple parties in the Liaison Council on the Promotion of the Reintroduction of Oriental White Storks	Sharing of a future vision	- Sharing of the future vision among multiple parties by setting goals using a symbol (i.e. the Oriental white stork), which is a species representing the richness of the regional biodiversity
Rivers (2): Even disasters were used as an opportunity. Rivers (4): Establishment of wetland improvement techniques as a means to achieve a balance between water control and environmental conservation Rivers (5): Collaborative structure design for activities and examinations (i.e. plan development with the participation of multiple parties) Agriculture (2): Systematization, technical guidance, and public awareness of Stork Friendly Farming by the local governments Agriculture (4): Establishment of a relationship of trust between the local governments and the community residents by cooperatively and continuously holding briefing sessions about Stork Friendly Farming Agriculture (5): Creation of a support system for the conservation of the biodiversity of rice paddies (e.g. nature restoration project for creating rice paddies for living in co-existence with Oriental white storks) Agriculture (9): Promotion of the activities against the regional characteristics, such as the connections among the communities, in an integrated manner Communities (4): Cultivation of next-generation leaders in charge of the creation of local communities where Oriental white storks can thrive Communities (7): Involvement of multiple parties such as NPOs, universities, and companies in the community activities Communities (8): The local governments are in charge of mediation and coordination to connect multiple parties within the region. Agriculture (6): Exercise of the synergistic effects between environmental conservation and economic activities by creating agricultural brands Agriculture (10): Involvement of multiple parties such as farmers, governments, companies, and citizens engaged in production, sales, and consumption	Transition to a social movement	- Development and exploration of the techniques for biodiversity conservation (e.g. wetland improvement and Stork Friendly Farming) - Implementation of community-based promotion and education and technical guidance - Development of a collaborative structure among multiple parties (citizens, farmers, research institutions, governments, companies, etc.) - Cultivation of next-generation leaders for community creation
Communities (5): Connections between activities (e.g. economy) and environmental creation Communities (6): Value of the region realized by the occasion of the arrival of an Oriental white stork Communities (9): Obtain the sympathy of multiple parties and their cycle of sympathy by promoting the story about the reintroduction of Oriental white storks	Cycle of sympathy	- Exercise of the synergistic effects between biodiversity conservation and community creation by creating regional brands - Promotion of the story about biodiversity conservation (reintroduction of Oriental white storks)

3.5. [Reference] Analysis of the expansion to other regions

Concerning the expansion of the activities for the reintroduction of Oriental white storks to other regions, analyses were carried out in each field by selecting items as indicators.

(1) Analysis of the expansion to other regions in the field of rivers

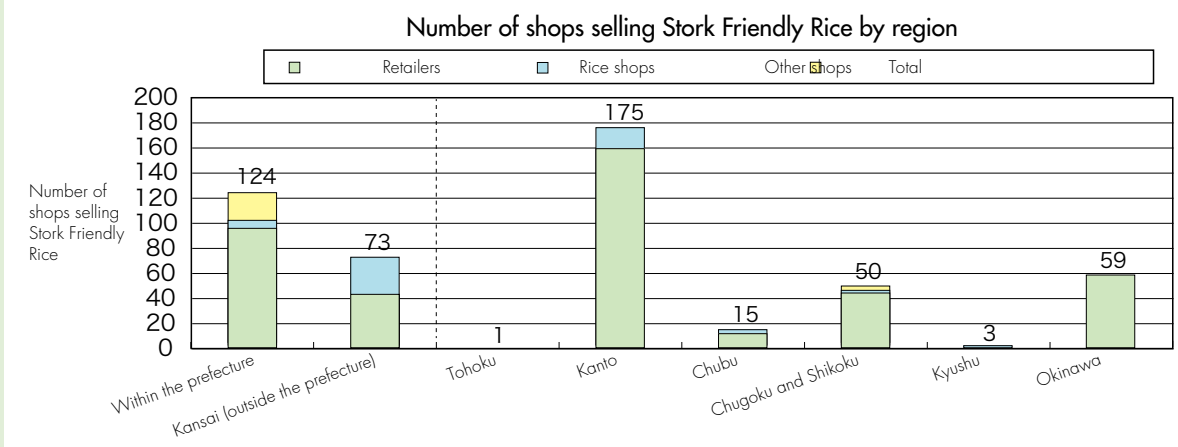
- In the Toyooka region, the Liaison Council on the Promotion of the Reintroduction of Oriental White Storks* was established in 2003. In other regions in Japan, examples of the establishment of councils, etc., involving multiple parties aimed at building ecosystem networks have been increasing.

Examples of the establishment of councils, etc., involving multiple parties (local governments, etc.) aimed at building ecosystem networks have been increasing nationwide.
Tohoku: Preparation Committee of the "Support Group for 200 km for the Travel of Salmon in the Kitakami River" (Held in March 2014)
Kanto: Council for the Promotion of the Kanto Ecological Network (Established in February 2014)
Chubu: Preparation Committee of the Council for the Promotion of Ecosystem Networks in the Kisosansen Basin (FY2013)
Kinki: (Maruyama River) Liaison Council on the Promotion of the Reintroduction of Oriental White Storks (Established in 2003)
(Kuzuryu River) Council for Environmental Conservation of the River Basin (Established in September 2011)
Chugoku: (Hii River) Social gathering for the creation of communities for living in co-existence with large waterfowl by building ecosystem networks (Held in March 2014)
Shikoku: Group for the Creation of a Town of Cranes in Shimanto (Established in March 2006)
Hokkaido, Hokuriku, and Kyushu areas have also carried out activities for the establishment of councils, etc.
Other than those above, based on the establishment of the Act for the Promotion of Nature Restoration in 2002, various councils have been established in accordance with this act.

* Though the Liaison Council on the Promotion of the Reintroduction of Oriental White Storks was not established for the purpose of building ecosystem networks, it was put on the list above as the building of ecosystem networks is included in its activity contents.

(2) Analysis of the expansion to other regions in the field of agriculture

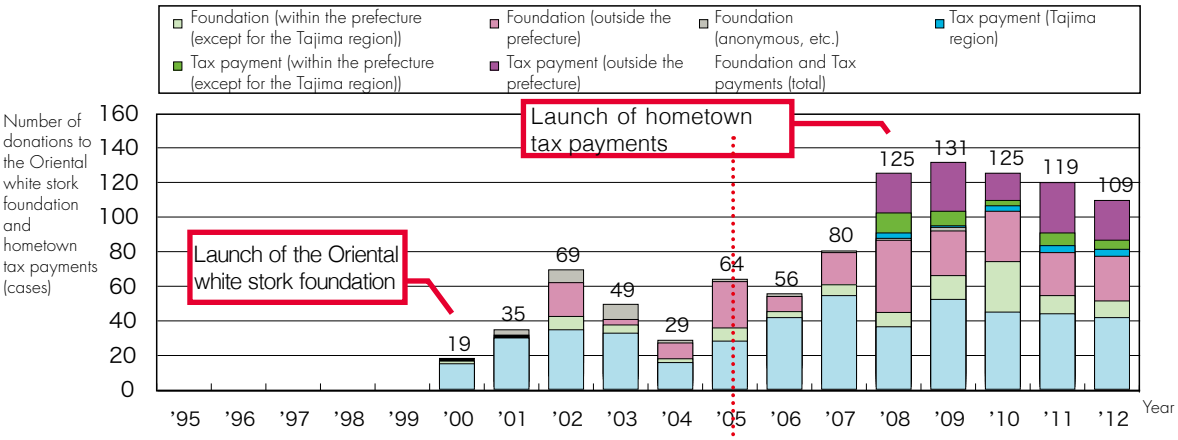
- The number of retailers including mass retailers outside the prefecture selling Stork Friendly Rice has been increasing.
- Especially in Kanto, as a result of the continuous sales of Stork Friendly Rice targeting large consuming areas through collaboration between the public and private sectors, large retailers with many branch shops started selling Stork Friendly Rice. The total number of shops selling Stork Friendly Rice increased to 175.
- There are retailers actively selling Stork Friendly Rice in Okinawa.
- On the other hand, as there are few shops selling Stork Friendly Rice in Tohoku and Kyushu, sales promotion is necessary in the future.



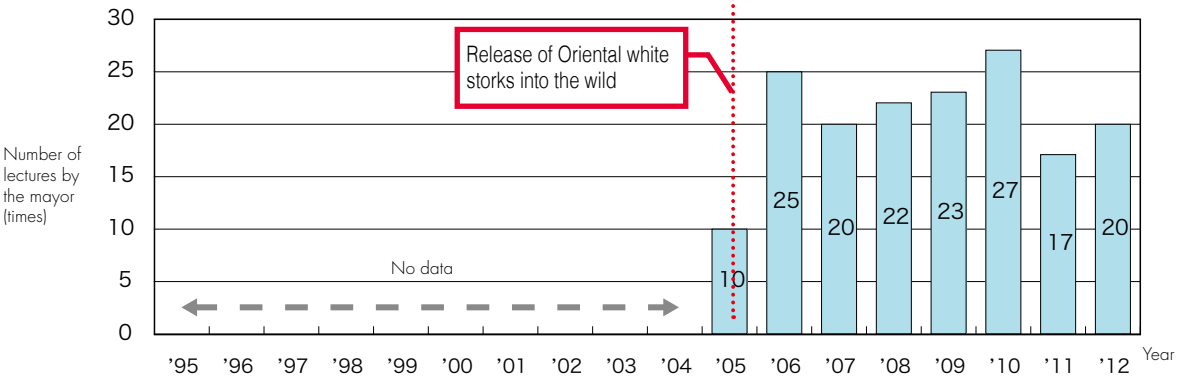
Source: Materials provided by Toyooka City

(3) Analysis of the expansion to other regions in the field of communities

- After the opening of the Toyooka Municipal Eco-Museum Center, the Oriental white stork foundation and hometown tax payment were launched. The number of donations and payments have been gradually increasing. The number of lectures by the mayor of Toyooka City held outside the city has been about 20 times a year since the release of Oriental white storks into the wild, and the lectures have been held across the country to report on the activities in Toyooka City. It can be said that these activities carried out outside the region are a factor in the increase in the rate of donations for the foundation and payments of hometown taxes from other prefectures.
- Report of the activities for the creation of communities using Oriental white storks as a symbol leads to people's sympathy for the activities and actions to contribute to Toyooka.



Source: Materials provided by Toyooka City



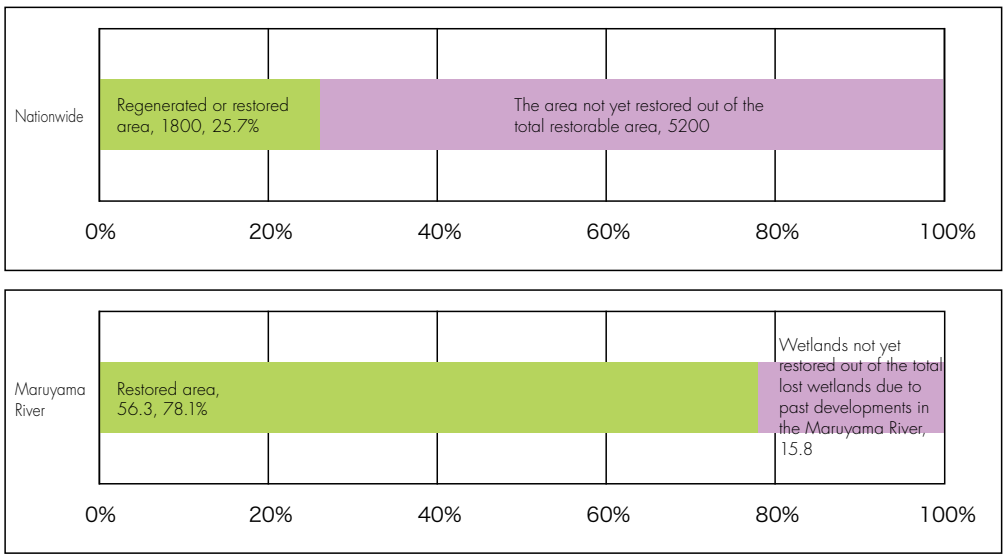
Source: Materials provided by Toyooka City

3.6. [Reference] Comparison of activities between the Toyooka region and other regions

Find out activity points in the Toyooka region through a comparison of the activities in each field between the Toyooka region and other regions.

(1) Comparison of activities in the field of rivers between the Toyooka region and other regions

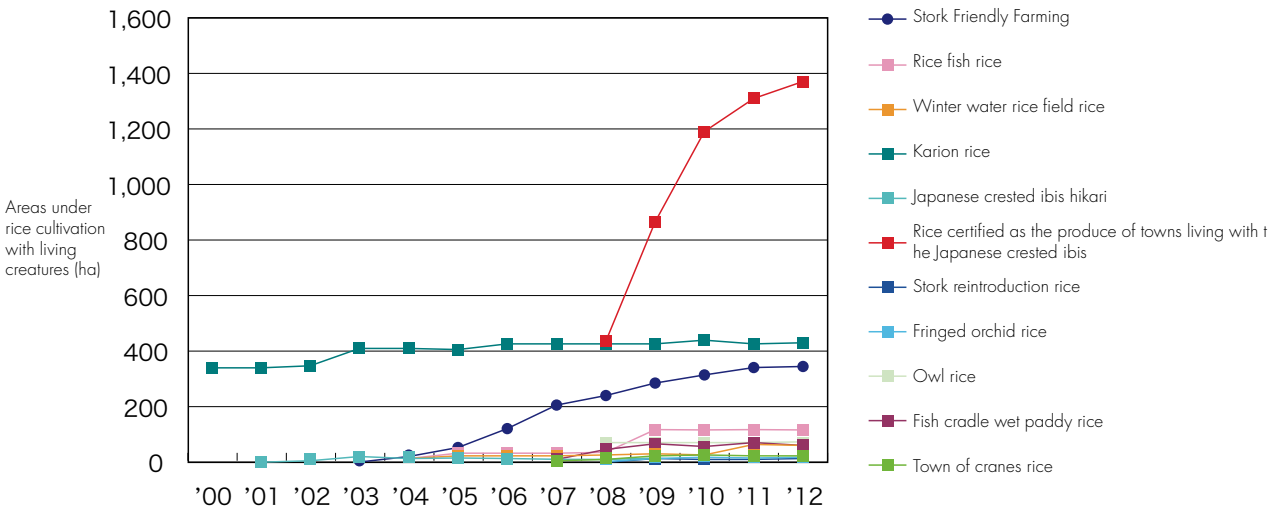
- Regarding wetlands and tidal flats in Japan, which are favorable natural environments that have been lost due to the past developments, the area (the proportion of the area) regenerated or restored through the implementation of nature restoration projects is about 1,800 ha (25.7%) as of the end of FY2011, out of a total restorable area of about 7,000 ha (source: The second social capital improvement priority plan).
- The wetland improvements in the Maruyama River have been implemented with a target of 154 ha which is the area in 1932 (the same figure as in 1950). The wetland area in the Maruyama River lost due to past developments is 72.1 ha (based on the calculation subtracting 81.9 ha (the area before the restoration after the flood in 2004) from 154 ha (the area in 1932 and 1950)), and the wetland area as of 2012 is 127 ha. The restored area is 56.3 ha, which means that about 78% of the wetland area has been restored of the lost wetland area of 72.1 ha.



Numbers in the figures indicate the area (ha).

(2) Comparison of activities in the field of agriculture between the Toyooka region and other regions

- Among rice cultivated in Japan with living creatures, the size of rice acreage under "Stork Friendly Farming" is ranked third after "Rice certified as the creation of towns living with the Japanese crested ibis" and "Karion rice" in Sado City.
- Regarding rice cultivated in two or more municipalities, there exist only "Karion rice" and "Fish cradle wet paddy rice" besides "Stork Friendly Farming". One of the characteristics of "Stork Friendly Farming" is that the activities have been expanded through organized collaboration among the producers, local governments, and JA, etc.
- Among rice paddies with living creatures, which require pesticide-free production for the certification, "Stork Friendly Farming" has the largest acreage under pesticide-free cultivation, ahead of other regions.
- In addition, regarding rice with reduced use of pesticides, "Stork Friendly Farming" requires a 75% reduction compared with conventional farming while most other regions require a 50% reduction. Stork Friendly Farming sets a stricter requirement than other regions.



* Regarding "Winter water rice field rice", the area under cultivation of "Winter water rice field rice" in the Shinpo District (part of the wetlands under the Ramsar Convention) is provided.
Source: Interviews with the implementing parties or concerned governments for each product

Areas under rice cultivation with living creatures (as of 2012)

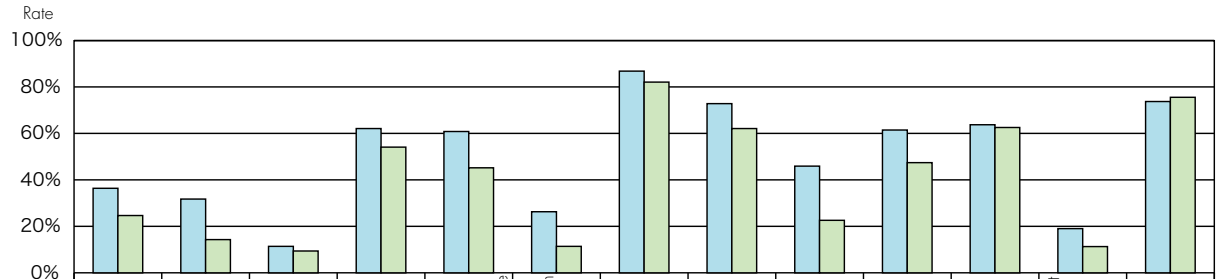
Name	Implementing municipalities	Areas under rice cultivation with living creatures (ha)			Areas under wetrice cultivation in the implementing municipalities (ha) (2)	(1)/(2) (%)
		With reduced use of pesticides	Without the use of pesticides	Total (1)		
Stork Friendly Farming	Tajima region (Toyooka City, Yabu City, Asago City, Shinonsen-cho)	272.7	65.6	338.3	5,297	6.39%
Rice fish rice	Shonai-cho, Yamagata	110.0	-	110.0	4,220	2.61%
Winter water rice field rice	Osaki City, Miyagi	-	55.4	55.4	10,900	0.51%
Karion rice	Osaki City and Kami-cho, Miyagi	375.0	50.0	425.0	14,320	2.97%
Japanese crested ibis hikari	Niibo, Sado City, Niigata, etc.	-	8.6	8.6	5,940	0.14%
Rice certified as the produce of towns living with the Japanese crested ibis	Sado City, Niigata	1,351.0	16.1	1,367.1	5,940	23.02%
Stork reintroduction rice	Echizen City, Fukui	-	11.2	11.2	2,540	0.44%
Fringed orchid rice	Echizen City, Fukui	12.3	-	12.3	2,540	0.48%
Owl rice	Utsunomiya City, Tochigi	64.0	-	64.0	6,780	0.94%
Fish cradle wet paddy rice	Shiga: Otsu City, Kusatsu City, Moriyama City, Yasu City, Omihachiman City, Higashiomi City, Hikone City, Maibara City, Nagahama City, Takashima City	57.0	-	57.0	25,368	0.22%
Town of cranes rice	Shunan City, Yamaguchi	15.1	1.4	16.6	1,380	1.20%

* Regarding "Winter water rice field rice", the area under cultivation of "Winter water rice field rice" in the Shinpo District (part of the wetlands under the Ramsar Convention) is provided.
Source: Interviews with the implementing parties or concerned governments for each product

(3) Comparison of activities in the field of communities between the Toyooka region and other regions

- Hyogo prefecture has implemented an awareness survey of the prefectural residents on "Richness indicators of Hyogo" by conducting a survey on a subjective "sense of richness" of the prefectural residents, in order to achieve a wider understanding of various issues and the lives of communities.
- The targets of this survey were 5,000 males and females over the age of 20 living in Hyogo.
- By extracting the items related to "Environment", "Industry", and "Attachment to the region" from "Richness indicators of Hyogo", a comparison between the Tajima region and Hyogo prefecture was made. In general, the Tajima region exceeds the average for Hyogo prefecture.
- In particular, the rate for "Participation in community events", "Occasions to come into contact with living creatures", "Participation in activities for the conservation of the environment", and "Noticed an increase in tourists", etc., exceeded the rate for the prefecture. It is considered that the residents of the region realize the effects of learning opportunities and tourism activities carried out in Toyooka (rice field school, etc.).

FY2013 Indicator of the richnes of Hyogo (Comparison between Hyogo prefecture and the Tajima region)



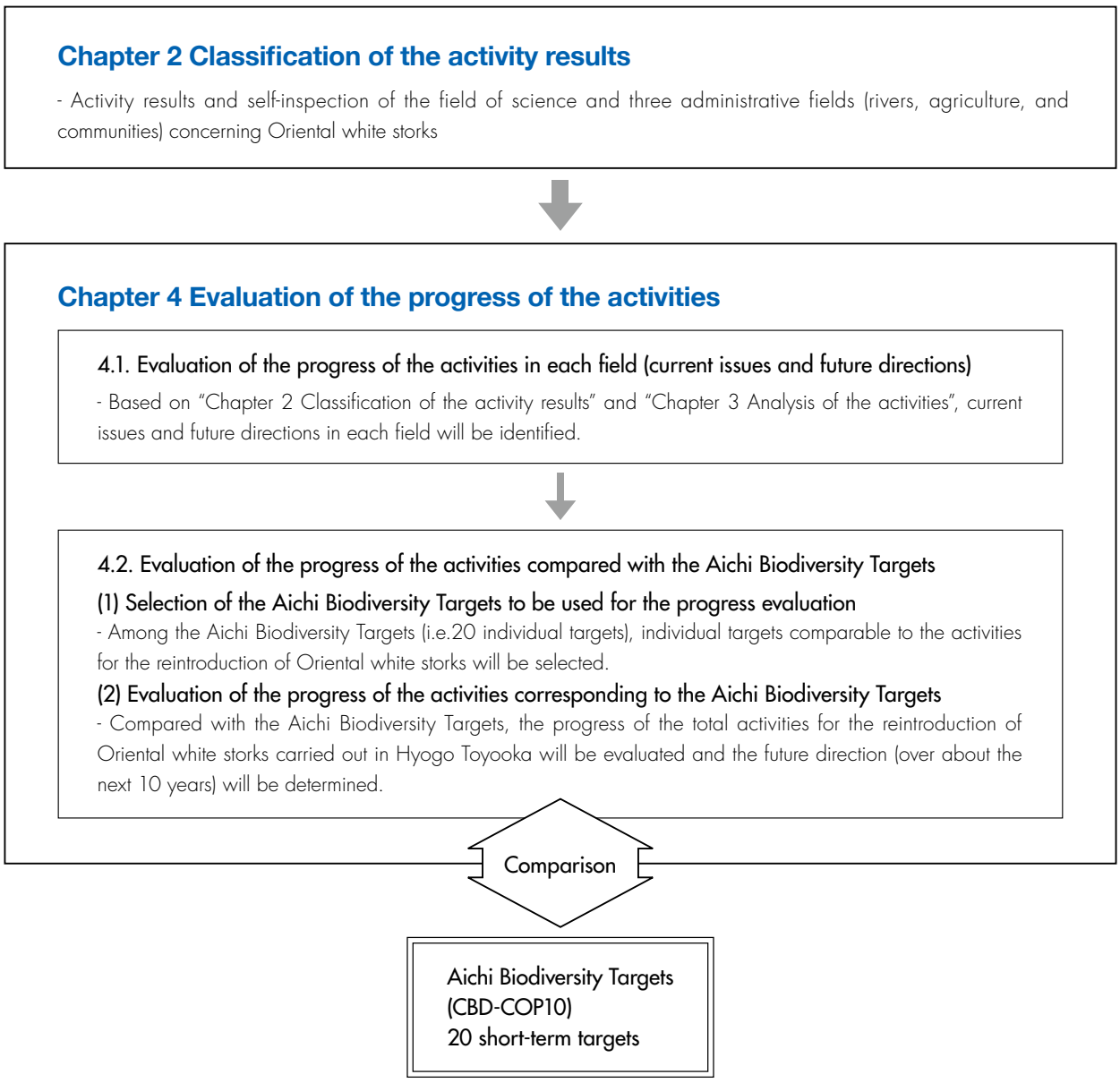
	The proportion of people who think that education to develop spiritual richness is provided in the region where they live	The proportion of people who think that the number of visitors (tourists, etc.) has been increasing in the region where they live	The proportion of people who feel that the agriculture, forestry and fisheries industry have been revitalized in the region where they live	The proportion of people who think that the natural environment is protected in the region where they live	The proportion of people who think that there are occasions to come into contact with living creatures (animals and plants) in the region where they live	The proportion of people who participate in activities for the protection of the natural environment, such as forests, rivers, and the sea, etc.	The proportion of people who think that agricultural and marine products produced or caught in their region or the prefecture are safe	The proportion of people who are interested in the region where they live	The proportion of people who participate in activities for the improvement and revitalization of the region where they live	The proportion of people who think that there are "treasures" (landscape, products, culture, etc.) that they are proud of in the region where they live	The proportion of people who feel pride in or attachment to the region where they live	The proportion of people who think that interactions with other regions within and outside the prefecture are being promoted in the region where they live	The proportion of people who desire to continue to live in the region where they live
Tajima region	36.4%	31.7%	11.1%	61.8%	61.0%	26.1%	87.2%	73.5%	45.3%	61.3%	64.3%	18.8%	73.8%
Hyogo prefecture	24.4%	13.9%	9.3%	53.9%	44.6%	10.4%	82.4%	62.3%	22.1%	47.5%	62.4%	11.3%	76.0%

Source: Website of Hyogo prefecture

Chapter 4
Evaluation of the progress of the activities

Chapter 4 Evaluation of the progress of the activities

In Chapter 4, the future direction (over about the next 10 years) of the activities for the reintroduction of Oriental white storks will be determined by evaluating the current status of the activities and comparing the progress of the past activities with the Aichi Biodiversity Targets.
Since the Aichi Biodiversity Targets include national targets and targets for various domains, individual targets comparable to the activities for the reintroduction of Oriental white storks will be selected. Then public measures corresponding to the promotion of such individual targets will be listed to identify the progress of the measures and the future direction.



4.1. Evaluation of the progress of the activities in each field (current issues and future directions)

Based on "Chapter 2 Classification of the activity results" and "Chapter 3 Analysis of the activities", current issues and future directions in each field will be identified.

(1) Field of rivers

Field of rivers		
Evaluation of the progress of the activities shown in the representative indicators	Current remaining issues or revealed additional issues (P82)	Future direction (P83)
- Concerning the area for the restoration of wetlands, an area of 55.2 ha (127 ha combined with the remaining wetland area) was improved (as of the end of FY2012), compared with the target area of 72.1 ha (154 ha combined with the remaining wetland area).	(1) Issues concerning the generation of a temporary trade-off between the "Smooth implementation of disaster restoration projects" and the "Conservation of the natural environment" - A balance between water control and environmental conservation can be achieved by creating wetlands. However, for example, the surrounding area of the river will become a temporary place for construction-generated soil if a disaster restoration project is developed within a limited period. As a result, a trade-off having an impact on the natural environment (temporary reduction in the wetland environment, etc.) will be occured. (2) Issues concerning an appropriate understanding of the awareness of the social appraisal value for the environment - As a balance in the selection between the environment and social capital goods has been changing with the times, a method of properly reflecting the appraisal values of the times and society must be selected. (3) Issues concerning the establishment of a sustainable management method - The created wetland environments require maintenance and management by people. Therefore, the establishment of a sustainable management method through collaboration with communities is necessary.	A1 Reduction of impacts on the natural environment including wetland improvement work and temporary work A2 Proper reflection of the social appraisal values for the environment A3 Securing and improving the value of wetlands to achieve sustainable management

(2) Agriculture Field

Agriculture Field		
Evaluation of the progress of the activities shown in the representative indicators	Current remaining issues or revealed additional issues (P84)	Future direction (P85)
- Concerning the target rate for rice acreage under Toyooka-type organic farming*, 33.5% was achieved (as of FY2013) compared with 51% (FY2022 target). * With a reduction in the use of chemical pesticides and chemical fertilizers by 50% compared with conventional farming	▼ Issues concerning the expansion of Stork Friendly Farming (1) Issues concerning the farming method - The existing view is that Stork Friendly Farming requires time and effort and this prevents farmers from introducing Stork Friendly Farming and the expansion of farming methods without using pesticides. (2) Issues concerning the securing of water for farming - There are many areas that cannot extract water in winter or early before rice planting due to issues of water rights (approval for the supply of water). (3) Issues concerning impacts on the surrounding rice fields - Since winter-flooding and early-flooding may cause problems for neighboring fields, many farmers cannot conduct Stork Friendly Farming based on their own individual decision. - In order to create a network of the habitats for Oriental white storks and increase the production efficiency, it is necessary to promote these activities to be carried out by each village or water system. (4) Issues concerning the delivery system - As JA Tajima has no drying adjustment facilities (country rice storage elevators) for Stork Friendly Rice, small farmers without drying adjustment facilities cannot introduce Stork Friendly Farming. (5) Issues concerning the cultivation of the next generation of farmers - In order to continuously promote Stork Friendly Farming, the cultivation of young farmers to continue wet-rice farming and the cultivation of leaders to promote Stork Friendly Farming are become necessary. (6) Issues concerning collaboration with other parties - To ensure a stable income for the farmers, further enhancement of the Stork Friendly Rice brand is become necessary. - Establishment of a structure that enables the concerned organizations to expand Stork Friendly Farming is necessary in association with the promotion plan for the reintroduction of Oriental white storks. - Obtaining the further understanding of consumers (citizens of the city) and creating a structure to increase the number of supporters are necessary. A structure to expand Stork Friendly Farming is required. ▼General agricultural administration (7) Issues concerning the general agricultural administration - The increase in the area of abandoned cultivated land and the revision or abolition of prime agricultural land are continuing. - The continuation (securing of lands and successors) of the paddy agriculture supporting the reintroduction of Oriental white storks is necessary.	B1 Continuation of activities to stable crop yields B2 Promotion of securing water for winter-flooded rice fields and early-flooded rice fields B3-1 Support for activities carried out by village and water systems including corporations and agricultural organizations B3-2 Support for the improvement of facilities to improve efficiency of agriculture managed by villages B4 Securing of base facilities so that farmers can ship unhulled rice B5 Identification and cultivation of the next generation of human resources and leaders B6 Enhancement of the power of the Stork Friendly Rice brand through promotion activities within and outside the prefecture B7-1 Conservation of prime agricultural land B7-2 Revitalization of regional agriculture by expanding high-value added agriculture

(3) Field of communities

Field of communities		
Evaluation of the progress of the activities shown in the representative indicators	Current remaining issues or revealed additional issues (P86)	Future direction (P87)
- The proportion of citizens who consider the creation of communities for living in co-existence with Oriental white storks that has been recognized by the general public was increased from 13.5% (before the opening of the Hyogo Park of the Oriental White Stork) to 34% (in 1999 when the Hyogo Park of the Oriental White Stork was opened) and to 62.5% (in 2005 when Oriental white storks were released into the wild). The proportion as of 2012 was 71%.	(1) Issues concerning the activities to prevent a reduction in interest among the citizens - There have been few nationwide articles about Oriental white storks since the release of Oriental white storks into the wild in 2006, and the interest of the citizens has waned. The presence of non-captive Oriental white storks has been recognized as "normal" in the city. - Information has not been provided actively to the citizens. Activities for the reintroduction of Oriental white storks have not been sufficiently incorporated into the lives and culture of the citizens. - The activities for the reintroduction of Oriental white storks have been progressing but only by limited number of groups and residents. (2) Issues concerning the expansion of activities for the creation of an environment where Oriental white storks can thrive - As the number of citizen groups participating in or organizing activities for the conservation of natural environment has not increased, the concerned persons remain the same. Activity targets in the field of citizen participation are not clear. (3) Issues concerning the enhancement of the level of awareness among the citizens - The citizens have recognized "Toyooka as a city where Oriental white storks live," but they have not recognized themselves as "citizens living in co-existence with Oriental white storks" (the degree of maturation of communities includes local governments) accepting Oriental white storks. - It is necessary to deepen the relationship between the lives of the citizens and the creation of the environment and to promote their integration as part of daily life. - It is necessary to increase their attachment not only to Oriental white storks, but also to their own communities that support Oriental white storks. (4) Issues concerning collaboration with other parties - With the expansion of the reintroduction of Oriental white storks to other regions, what role can be played by Toyooka City as a leading region? - Review and share the thoughts of persons (an attitude and a structure to protect a "town living in co-existence with Oriental white storks") involved in the activities for Oriental white storks. (A philosophy by which our way of life or culture is called into question.) (5) Issues concerning trade-offs with the human society - Although activities for nature restoration (wetland creation, etc.) have been implemented, the development of agriculture land (e.g.urbanization, housing land development, etc.) has also been implemented without any restrictions. - Guidelines and rules for environment-friendliness are not clear even in public works implemented by the city.	C1 Development of the sense that Oriental white storks are considered as a regional asset C2 Identification of local human resources and the cultivation of successor leaders and researchers, etc. C3 Participation of multiple parties C4 Connection between economy, environment creation, and community activities C5 Expansion of collaboration between science and communities C6 Examination of the "Toyooka rules"

4.2. Evaluation of the progress of the activities compared with the Aichi Biodiversity Targets

(1) Selection of the Aichi Biodiversity Targets to be used for the progress evaluation

1) Projects for the reintroduction of Oriental white storks and the Aichi Biodiversity Targets

- Projects for the reintroduction of Oriental white storks in the Toyooka region are activities for creating communities for living in co-existence with nature focusing on the conservation of the species of the Oriental white stork.
- On the other hand, the loss of biodiversity has been continuing all over the world. It has been pointed out that there is a risk of an irreversible event if the current situation continues and the limit for the self-recovery of ecosystems is exceeded.
- Therefore, 20 short-term targets called the "Aichi Biodiversity Targets" were adopted at the 10th meeting of the Conference of the Contracting Parties to the Convention on Biological Diversity (CBD-COP10 in 2010) in order to implement new strategy plan and urgent and effective actions by 2020 or 2015 towards the realization of "a world living in co-existence with nature".
- Projects for the reintroduction of Oriental white storks in the Toyooka region are exactly those community activities that have the same targets as CBD-COP10. In order to stimulate the implementation of activities to create local communities living in co-existence with nature, the future direction will be determined by identifying the progress of activities in comparison with the Aichi Biodiversity Targets (i.e. 20 individual targets).

2) Selection of the Aichi Biodiversity Targets for comparison

- Since the Aichi Biodiversity Targets call for their incorporation into the domestic measures and biodiversity strategies of the contracting parties, the targets to be nationally achieved and targets for a wide range of domains (e.g. agriculture, forestry and fisheries, marine and native peoples, etc.) are included in the individual targets.
- Therefore, before the evaluation of the progress of the activities in the Toyooka region, individual targets related to the target domains of the projects for the reintroduction of Oriental white storks will be selected. In other words, among 20 individual targets of the Aichi Biodiversity Targets, national targets and individual targets for different domains from the projects for the reintroduction of Oriental white storks will be excluded (e.g. coral reefs, native peoples).
- Based on these ideas, 15 targets (i.e. Targets 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 17, and 19) are selected as individual targets that are considered to be related to the projects for the reintroduction of Oriental white storks.

■ Table 4.2 1 Aichi Biodiversity Targets in relation to the projects for the reintroduction of Oriental white storks

Aichi Biodiversity Targets		Relationship	Reasons
Strategic Target A	Respond to the underlying reasons for the loss of biodiversity by mainstreaming biodiversity in each government and each society		
Target 1	People need to recognize the values and actions in relation to biodiversity	○	Applicable in terms of the promotion of educational activities and the creation of communities for living in co-existence with Oriental white storks
Target 2	Integrate the values of biodiversity into national and regional plans and into the national accounts where reporting systems are incorporated	○	Applicable in terms of the development of strategies and plans (Toyooka regional biodiversity strategy, etc.)
Target 3	Abolish or reform subsidies and other incentive systems that have an adverse effect on biodiversity, and develop and apply positive incentive systems	○	Applicable in terms of the implementation of incentive measures (i.e. provision of subsidies, etc.) for nature restoration
Target 4	Implementation by all parties involved of plans for sustainable production and consumption	○	Applicable in terms of the promotion of plans/activities by concerned persons (e.g. local governments, agricultural groups, etc.)
Strategic Target B	Reduce direct pressures on biodiversity and promote the sustainable use of biodiversity		
Target 5	Reduce the loss of natural habitats such as forests by at least half and close to zero if possible, and noticeably reduce their degradation and fragmentation	○	Applicable in terms of the promotion of the improvement of Satoyama forests, etc.
Target 6	Sustainable harvesting of marine resources	○	Applicable in terms of the promotion of measures for the revitalization of the fisheries industry
Target 7	Sustainably manage agriculture, aquaculture and forestry	○	Applicable in terms of the promotion of Stork Friendly Farming
Target 8	Reduce pollution to harmless levels	○	Applicable in terms of the promotion of cultivation without the use of pesticides or with a reduction in the use of pesticides
Target 9	Regulate and eradicate invasive alien species	○	Applicable in terms of the promotion of nature restoration projects
Target 10	Minimize the adverse effects on ecosystems that are vulnerable to climate change or acidification of the oceans, such as coral reefs	—	Out of the scope of the investigation because this target is about coral reefs
Strategic Target C	Improve the status of biodiversity by safeguarding ecosystems, species, and genetic diversity		
Target 11	Conserve 17% of inland areas and 10% of ocean areas as protected areas, etc.	○	Applicable in terms of the promotion of the registration of wetlands under the Ramsar Convention, etc.
Target 12	Prevent the extinction or decline of threatened species	○	Applicable in terms of the promotion of the protection, breeding, and reintroduction of Oriental white storks
Target 13	Maintain the genetic diversity of crops and livestock animals, and minimize their loss	○	Applicable in terms of the promotion of the protection, breeding, and reintroduction of Oriental white storks for maintaining their genetic diversity
Strategic Target D	Enhance the benefits to all received from biodiversity and ecosystem services		
Target 14	Provide, restore, and conserve the benefits of nature	○	Applicable in terms of the promotion of the registration of wetlands under the Ramsar Convention, etc.
Target 15	Contribute to climate change mitigation and adaptation through the restoration of at least 15% of degraded ecosystems	—	Out of the scope of the investigation because this target is about climate change
Target 16	Enforce and operate the Nagoya Protocol on Access to genetic resources and benefit-sharing (ABS)	—	Out of the scope of the investigation because this target is a national target concerning access to the acquisition of genetic resources
Strategic Target D	Strengthen implementation through participatory planning, knowledge management, and capacity building		
Target 17	The contracting parties shall develop and implement an effective and participatory national strategy.	○	Applicable in terms of the development of biodiversity strategies (which are developed in Toyooka as well) although this is a target for the national strategy
Target 18	Respect and mainstream traditional knowledge	—	Out of the scope of the investigation because this target is about native peoples and ethnic minorities
Target 19	Improve knowledge and scientific technology for biodiversity	○	Applicable in terms of the promotion of the science and research concerning Oriental white storks
Target 20	Noticeably increase financial resources from the current level for the effective implementation of the national strategy	—	Out of the scope of the investigation because this target is a national target concerning fund mobilization

(2) Evaluation of the progress of activities corresponding to the Aichi Biodiversity Targets

1) Evaluation method of the progress of the activities

- In comparing with the Aichi Biodiversity Targets, the evaluation of the progress of public measures corresponding to the individual targets will be made by identifying the status of the introduction and implementation of the public measures and the expansion of their contents.
- Specifically, public measures in the Toyooka region corresponding to the Aichi Biodiversity Targets will be identified. Then, the evaluation of the progress and the future direction (over about the next 10 years) of the public measures in the Toyooka region corresponding to the principles/action guidelines of the Aichi Biodiversity Targets will be classified by comparing the classification of the activity results, ripple effects, and future issues based on the current self-inspection of the activities (described in Chapter 2) with the evaluation axes of the Aichi Biodiversity Targets and then summarizing them.

■ **Table 4.2 2 Activities carried out in Toyooka and the evaluation of the progress of the activities compared with the Aichi Biodiversity Targets**

Aichi Biodiversity Targets				Activities carried out in Toyooka for creating a society	
Strategic target		20 individual targets		Major plans in Toyooka	Major public measures in Toyooka
A	Respond to the underlying reasons for the loss of biodiversity by mainstreaming biodiversity in each government and each society	Target 1	People need to recognize the values and actions in relation to biodiversity.	- Promotion plan for the reintroduction of Oriental white storks [Prefecture, City, State] - Toyooka regional biodiversity strategy [City]	- Establishment of the Hyogo Park of the Oriental White Stork [Prefecture] - International Convention on the Future of Oriental White Storks [Prefecture, City] - Creation and delivery of images for the promotion and education of the reintroduction of Oriental white storks [Prefecture] - Information dissemination by the Eco-Museum Center and Open University of the Environment [City] - Appearance in schoolbooks and supplementary readers, forum for the development of communities living in co-existence with Oriental white storks, open lectures, Science Cafe, interactions with consumers through surveys on living creatures in rice fields, and experiential activities [Prefecture, City, Hyogo Park of the Oriental White Stork] - Environmental learning/education at elementary schools and the Eco-Museum Center, Children's activity for the reintroduction of Oriental white storks called the "School to experience nature", Oriental white stork KIDS club, Oriental white stork tourism [City]
		Target 2	Integrate the values of biodiversity into national and regional plans and into the national accounts where reporting systems are incorporated	- Promotion plan for the reintroduction of Oriental white storks [Prefecture] - Biodiversity Hyogo strategy [Prefecture] - Toyooka environmental basic regulations [City] - Toyooka environmental basic plan [City] - Toyooka environment-economy strategy [City] - Plan for nature restoration of the water system of the Maruyama River [State, Prefecture] - Toyooka regional biodiversity strategy [City]	- Development of the promotion plan for the reintroduction of Oriental white storks [Prefecture] - Establishment of the Hyogo Park of the Oriental White Stork, allocation of the person in charge of the Hyogo Park of the Oriental White Stork in the Prefectural Branch Office [Prefecture], establishment of the department for co-existence with Oriental white storks [City] - Development of the Toyooka environmental basic plan and Toyooka environment-economy strategy [City] - Development of the plan for nature restoration of the water system of the Maruyama River [State, Prefecture]
		Target 3	Abolish or reform subsidies and other incentive systems that have an adverse effect on biodiversity, and develop and apply positive incentive systems	- Promotion plan for the reintroduction of Oriental white storks [Prefecture] - Promotion plan for "Stork Friendly Farming" [City] - Regulations for the Oriental white stork foundation [City] - "Oriental white stork Toyooka donation" system [City]	- Project for nature restoration in rice fields for living in co-existence with Oriental white storks [City, Prefecture] - Installation of rice field fish ladders [Prefecture] - Subsidy system for the support of small-scale nature restoration [City]
		Target 4	Implementation by all parties involved of plans for sustainable production and consumption	- Promotion plan for the reintroduction of Oriental white storks [Prefecture] - Toyooka environmental basic regulations [City] - Toyooka environmental basic plan [City] - Toyooka environment-economy strategy [City]	- Project for nature restoration in rice fields for living in co-existence with Oriental white storks [City, Prefecture]

where Oriental white storks can thrive (public measures)		
	Progress status and evaluation (Figures as of FY 2012 unless otherwise stated)	Future direction
	■ Progress status Total number of schools carrying out activities to experience agriculture/rivers: 51, Number of Oriental white stork fan club members: Approx. 700, Number of the Toshima wetland volunteers: Approx. 200, Number of visitors to the Hyogo Park of the Oriental White Stork: Approx. 300,000, Amount of donations to the Oriental white stork foundation: Approx. 13 million yen, Number of newspaper articles: Approx. 300, etc. ■ Progress evaluation The proportion of citizens who consider that the creation of communities for living in co-existence with Oriental white storks has been recognized by the general public was 71% (as of 2012).	C1 Development of the sense that Oriental white storks are considered as a regional asset C2 Participation of multiple parties C3 Promotion of activities in Toyooka within and outside the region C4 Identification of local human resources and the cultivation of successor leaders and researchers, etc. C5 Connection between the economy, environmental creation, and community activities C6 Collaboration with other parties centered on Toyooka
	■ Progress status Already developed a promotion plan for the reintroduction of Oriental white storks [Prefecture] and the Toyooka regional biodiversity strategy [City], etc. ■ Progress evaluation Measures listed on the left were implemented as necessary.	A2 Proper reflection of the social appraisal values for the environment B5 Security of agricultural land due to the land utilization plan
	■ Progress status Total number of rice field fish ladders set up: 110, Areas subject to the subsidy for Stork Friendly Farming: Approx. 130 ha, Rice acreage under special cultivation including Stork Friendly Rice: 953 ha (as of 2013), etc. ■ Progress evaluation Concerning the target rate of rice acreage under Toyooka-type organic farming, 33.5% was achieved (as of FY2013) compared with 51% (FY2022 target).easures listed on the left were implemented as necessary.	B1 Improvement of base facilities for the expansion of Stork Friendly Farming B2 Development of the conditions for the expansion of Stork Friendly Farming
	■ Progress status Rice acreage under special cultivation including Stork Friendly Rice: 953 ha (as of 2013), etc. ■ Progress evaluation Concerning the target rate of rice acreage under Toyooka-type organic farming, 33.5% was achieved (as of FY2013) compared with 51% (FY2022 target).	B1 Improvement of base facilities for the expansion of Stork Friendly Farming B2 Development of the conditions for the expansion of Stork Friendly Farming B3 Securing and cultivation of multiple human resources B4 Identification and cultivation of the next generation of human resources B5 Security of agricultural land due to the land utilization plan B6 Enhancement of the power of the Stork Friendly Rice brand through collaboration among the concerned organizations

Aichi Biodiversity Targets				Activities carried out in Toyooka for creating a society	
Strategic target		20 individual targets		Major plans in Toyooka	Major public measures in Toyooka
B	Reduce direct pressures on biodiversity and promote the sustainable use of biodiversity	Target 5	Reduce the loss of natural habitats such as forests by at least half and close to zero if possible, and noticeably reduce their degradation and fragmentation	- Promotion plan for the reintroduction of Oriental white storks [Prefecture] - Tajima regional agriculture, forestry and fisheries vision 2020 [Prefecture] - Toyooka environment-economy strategy [City] - Toyooka City biomass town scheme [City]	- Improvement of Satoyama forests using volunteers and the Project for the promotion of the restoration of pine trees used by Oriental white storks to build their nests [Prefecture] - Planting of Hyogo genki matsu pine trees (until 2012) [Hyogo Park of the Oriental White Stork] - Improvement of forests including pine forests and the Introduction of wood pellet stoves for heating in public facilities [City]
		Target 6	Sustainable harvesting of marine resources		- Project for the promotion of inland water fisheries [City]
		Target 7	Sustainably manage agriculture, aquaculture and forestry	- Toyooka City agricultural promotion strategy [City] - Hyogo organic farming promotion plan [Prefecture] - Tajima regional agriculture, forestry and fisheries vision 2020 [Prefecture]	- Project for nature restoration in rice fields for living in co-existence with Oriental white storks and Promotion activities for the sales of products from Stork Friendly Farming [City, Prefecture] - Certification system for organic products in Hyogo, Certification system for Hyogo safety brand products, Systematization of "Stork Friendly Farming", and Course for the cultivation of Stork Friendly Farming advisors [Prefecture] - Certification system for agricultural products of the "Dance of the Oriental white stork" and the use of Stork Friendly Rice in school meals [City]
		Target 8	Reduce pollution to harmless levels	- The same as those of Target 7	- The same as those of Target 7
		Target 9	Regulate and eradicate invasive alien species	- Plan for nature restoration of the water system of the Maruyama River [State, Prefecture] - Plan for river improvement of the water system of the Maruyama River [State]	- Improvement of wetlands (Middle reaches of the Maruyama River), Restoration of wetlands (Izushi River, Kaya District), and the Generation of a wetland in line with the excavation of river channels under the flood emergency project [State]
		Target 10	Minimize the adverse effects on ecosystems that are vulnerable to climate change or acidification of the oceans, such as coral reefs	—	—
C	Improve the status of biodiversity by safeguarding ecosystems, species, and genetic diversity	Target 11	Conserve 17% of inland areas and 10% of ocean areas as protected areas, etc.	- Promotion plan for the reintroduction of Oriental white storks [Prefecture] - Grand design for the reintroduction of Oriental white storks [Prefecture] - Plan for nature restoration of the water system of the Maruyama River [State, Prefecture] - Plan for river improvement of the water system of the Maruyama River [State]	In addition to Targets 5, 7, and 9, - Registration of wetlands under the Ramsar Convention [City, Prefecture, State] - Excavation of Hinoso Island, nature restoration bank protection (Maruyama River, Kinosaki District), creation of environmental transition zones (meeting point of the Izushi River), and ensuring the continuity of river flows (Maruyama River, Yashiro Water Gate) [State] - Improvement of fish ladders and the gaps in sluice gates (Roppo River, Izushi River, Kamatani River), creation of multiple natural river banks and river beds (Roppo River, Kamatani River, Umaji River), and creation of mildly sloping bank protection (Kamatani River) [Prefecture] - Improvement of the Tai River [Prefecture], nature restoration of abandoned rice fields in the Tai District [City, Prefecture] and improvement of the Toshima Wetland [City]

where Oriental white storks can thrive (public measures)	
Progress status and evaluation (Figures as of FY 2012 unless otherwise stated)	Future direction
■ Progress status Number of wood pellet heating stoves introduced in public facilities in the city is 320 ■ Progress evaluation Measures listed on the left were implemented as necessary.	C2 Participation of multiple parties C4 Identification of local human resources and the cultivation of successor leaders and researchers, etc. C5 Connection between the economy, environment creation, and community activities C6 Collaboration with other parties centered on Toyooka
■ Progress status Release of Japanese trout and landlocked salmon into rivers, etc. ■ Progress evaluation Measures listed on the left were implemented as necessary.	C2 Participation of multiple parties C4 Identification of local human resources and the cultivation of successor leaders and researchers, etc. C5 Connection between the economy, environment creation, and community activities C6 Collaboration with other parties centered on Toyooka
■ Progress status Total number of rice field fish ladders set up is 110, areas subject to the subsidy for Stork Friendly Farming is approx. 130 ha, rice acreage under special cultivation including Stork Friendly Rice is 953 ha (as of 2013), etc. ■ Progress evaluation Concerning the target rate of rice acreage under Toyooka-type organic farming, 33.5% was achieved (as of FY2013) compared with 51% (FY2022 target).	B1 Improvement of base facilities for the expansion of Stork Friendly Farming B2 Development of the conditions for the expansion of Stork Friendly Farming B3 Securing and cultivation of multiple human resources B4 Identification and cultivation of the next generation of human resources B5 Security of agricultural land due to the land utilization plan B6 Enhancement of the power of the Stork Friendly Rice brand through collaboration among the concerned organizations C1 Development of the sense that Oriental white storks are considered as a regional asset C2 Participation of multiple parties C3 Promotion of the activities in Toyooka within and outside the region C4 Identification of local human resources and the cultivation of successor leaders and researchers, etc. C5 Connection between the economy, environment creation, and community activities C6 Collaboration with other parties centered on Toyooka
■ Progress status In the last 20 years, water quality concerning pesticides, etc., has met the environmental standard. ■ Progress evaluation Concerning the target rate of rice acreage under Toyooka-type organic farming, 33.5% was achieved (as of FY2013) compared with 51% (FY2022 target).	B1 Improvement of base facilities for the expansion of Stork Friendly Farming B2 Development of the conditions for the expansion of Stork Friendly Farming
■ Progress status Total number of rice field fish ladders set up is 110 ■ Progress evaluation Concerning the restoration area of wetlands, an area of 55.2 ha (72%) has been improved compared with the target area of 72.1 ha.	A1 Reduction of impacts on the natural environment including wetland improvement work and temporary work A3 Securing and improvement of the value of wetlands achieving sustainable management C1 Development of the sense that Oriental white storks are considered as a regional asset C2 Participation of multiple parties C4 Identification of local human resources and the cultivation of successor leaders and researchers, etc. C5 Connection between the economy, environment creation, and community activities C6 Collaboration with other parties centered on Toyooka
—	—
■ Progress status Total number of rice field fish ladders set up is 110 ■ Progress evaluation Concerning the restoration area of wetlands, an area of 55.2 ha (72%) has been improved compared with the target area of 72.1 ha.	A1 Reduction of impacts on the natural environment including wetland improvement work and temporary work A2 Proper reflection of the social appraisal values for the environment A3 Securing and improvement of the value of wetlands achieving sustainable management B1 Improvement of base facilities for the expansion of Stork Friendly Farming B2 Development of the conditions for the expansion of Stork Friendly Farming B3 Securing and cultivation of multiple human resources B4 Identification and cultivation of the next generation of human resources B5 Security of agricultural land due to the land utilization plan B6 Enhancement of the power of the Stork Friendly Rice brand through collaboration among the concerned organizations C1 Development of the sense that Oriental white storks are considered as a regional asset C2 Participation of multiple parties C3 Promotion of the activities in Toyooka within and outside the region C4 Identification of local human resources and the cultivation of successor leaders and researchers, etc. C5 Connection between the economy, environment creation, and community activities C6 Collaboration with other parties centered on Toyooka

Aichi Biodiversity Targets				Activities carried out in Toyooka for creating a society	
Strategic target		20 individual targets		Major plans in Toyooka	Major public measures in Toyooka
C	Reduce direct pressures on biodiversity and promote the sustainable use of biodiversity	Target 12	Prevent the extinction or decline of threatened species	- Promotion plan for the reintroduction of Oriental white storks [Prefecture] - Grand design for the reintroduction of Oriental white storks [Prefecture] - Plan for nature restoration of the water system in the Maruyama River [State, Prefecture] - Plan for river improvement of the water system in the Maruyama River [State]	(Carrying out activities led by the "Science concerning Oriental white storks" in addition to Target 11)
		Target 13	Maintain the genetic diversity of crops and livestock animals, and minimize their loss	- Promotion plan for the reintroduction of Oriental white storks [Prefecture] - Grand design for the reintroduction of Oriental white storks [Prefecture]	(Carrying out activities led by the "Science concerning Oriental white storks" in addition to Target 11)
D	Enhance the benefits to all that are provided by biodiversity and ecosystem services	Target 14	Provide, restore, and conserve the benefits of nature	- The same as those of Target 11	- The same as those of Target 11
		Target 15	Contribute to climate change mitigation and adaptation through the restoration of at least 15% of degraded ecosystems	—	—
		Target 16	Enforce and operate the Nagoya Protocol on ABS	—	—
E	Strengthen implementation through participatory planning, knowledge management, and capacity building	Target 17	The contracting parties shall develop and implement an effective and participatory national strategy.	- The same as those of Target 2	- The same as those of Target 2
		Target 18	Respect and mainstream traditional knowledge	—	—
		Target 19	Improve knowledge and scientific technology for biodiversity	- Promotion plan for the reintroduction of Oriental white storks [Prefecture] - Grand design for the reintroduction of Oriental white storks [Prefecture] - Subsidy system for academic research on the reintroduction of Oriental white storks [City]	(Carrying out activities led by the "Science concerning Oriental white storks" in addition to various measures described above)
		Target 20	Noticeably increase financial resources from the current level for the effective implementation of the national strategy	—	—

where Oriental white storks can thrive (public measures)	
Progress status and evaluation (Figures as of FY 2012 unless otherwise stated)	Future direction
■ Progress status Number of artificial nesting towers set up is 24, Number of research papers is 25, Number of Oriental white storks that left their nests is 14, etc. ■ Progress evaluation Research/Promotion of the "science concerning Oriental white storks" led by the Hyogo Park of the Oriental White Stork	- The same as those of Target 11
- The same as those of Target 12	- The same as those of Target 11
■ Progress status Total number of rice field fish ladders set up is 110 ■ Progress evaluation Concerning the restoration area of wetlands, the area of 55.2 ha (72%) was improved compared with the target area of 72.1 ha.	- The same as those of Target 11
—	—
—	—
■ Progress status Already developed a promotion plan for the reintroduction of Oriental white storks [Prefecture] and the Toyooka regional biodiversity strategy [City] ■ Progress evaluation Measures listed on the left were implemented as necessary.	A2 Proper reflection of the social appraisal values for the environment B5 Security of agricultural lands due to the land utilization plan
—	—
■ Progress status Number of research papers is 25, number of schools that the Hyogo Park of the Oriental White Stork dealt with per year is approx. 90, annual number of lectures conducted by the research staff of the Hyogo Park of the Oriental White Stork is 79, etc. ■ Progress evaluation Research/Promotion of the "science concerning Oriental white storks" led by the Hyogo Park of the Oriental White Stork	C4 Identification of local human resources and the cultivation of successor leaders and researchers, etc.
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Chapter 5
Summary of the Hyogo Toyooka Model

Chapter 5 Summary of the Hyogo Toyooka Model

In Chapter 5, the key points of "the expansion of measures and the connections among the parties" classified in Chapter 3 were compiled as the "Hyogo Toyooka Model" so that they can be reflected in domestic and overseas activities for the creation of sustainable communities focusing on the conservation of biodiversity. In compiling the Hyogo Toyooka Model, the "points of the activities" and the "process of the development of the activities" were described in order to gain a further understanding of the past activities carried out in the Toyooka region and with the expectation that this would be a reference for the development of the similar activities carried out in other regions.

In addition, the targets of the activities for the reintroduction of Oriental white storks in the Toyooka region have not been achieved completely at the present moment. They are in the process of completion with some issues to be resolved. In the following Chapter 6, "Recommendations for further progress in the activities" by the Investigation Committee on the Reintroduction of Oriental White Storks are summarized, which classify issues and considerations at the current phase for the further development of the activities for the reintroduction of Oriental white storks carried out in the Toyooka region and for the expansion of the activities to other regions.

Chapter 2 Classification of the activity results

Chapter 3 Analysis of the activities

- The key points of the "expansion of measures and the connections among the parties" related to the activities were summarized by classifying such expansion and connections in three fields (i.e. rivers, agriculture, and communities).

Chapter 4 Evaluation of the progress of the activities

- Evaluation of the progress of the activities in each field (e.g. current issues and future directions)
- Compare the activities in the Toyooka region with the Aichi Biodiversity Targets in order to evaluate them from an objective perspective

Chapter 5 Summary of the Hyogo Toyooka Model

- With an expectation that the activities will be a reference of the development of similar activities carried out in other regions, the features of the mechanisms for the expansion of activities carried out in the Toyooka region and the process of the development are classified and compiled as the "Hyogo Toyooka Model".

Hyogo Toyooka Model

- Definitions of the "Hyogo Toyooka Model"
  - A model for creating sustainable communities using local natural resources
  - A model inducing a "cycle of sympathy" that translates the shift in people's attitudes into a driving force
  - A collaborative model between "science", "governments", and "communities"
- "Five points of the activities" of the Hyogo Toyooka Model
- "Four processes of the development" of the Hyogo Toyooka Model

Chapter 6 Recommendations for further progress in the activities

- Recommendations by the Investigation Committee on the Reintroduction of Oriental White Storks are summarized, which classify issues and considerations at the current phase for further development of the activities for the reintroduction of Oriental white storks carried out in the Toyooka region and for the expansion of the activities to other regions.

5.1. "Hyogo Toyooka Model"

Based on the assessment in the preceding chapters, and by classifying the features of the mechanisms for the expansion of the activities in the Toyooka region and compiling such features, the "Hyogo Toyooka Model" can be summarized as follows:

[About activities carried out in the Toyooka region]

The Oriental white stork, the symbol of the activities, is a special national treasure and a cultural property. Through the process of the activities for the reintroduction of Oriental white storks, people in the Toyooka region feel that living creatures are inseparable from the regional culture.

Against the background of international and nationwide trends towards reaffirming the importance of co-existence with nature, people in the Toyooka region have aimed to create sustainable communities symbolized by a special bird for the region i.e. the Oriental white stork, by achieving a balance between the conservation of biodiversity and the regeneration and revitalization of the communities.

The characteristics of the activities in the Toyooka region are to promote these activities on the basis of science by setting up a community-based research institution in the prefectural university for the reintroduction of Oriental white storks, to organize a structure that can assess the data obtained through the investigative research, and to design a system that does not depend on unilateral policy development by the government, but on mutual coordination among scientists, governments, and communities based on the keyword of "sympathy" through the recognition that the driving force for the development of communities is the local community itself.

In addition, activities in the Toyooka region are carried out based on developed preparations and the determination of the community residents to "continue to live in this region". The citizens in the Toyooka region have even used disasters as an opportunity to create better communities, and have dealt with repeated flooding of the Maruyama River with the spirit of "overcoming disasters". At the same time, the citizens have come to appreciate the richness of the region through co-existence with nature that is symbolized by the reintroduction of Oriental white storks, and consider it as a source of pride for the region. Sympathy for these activities has spread to companies and industries within and outside the Toyooka region, and they have become involved in the activities to achieve the means to contribute to regional economic sustainability, including agriculture.

This could not have been achieved if the citizens had not changed their concept of values regarding the richness of the region from a "simple quantitative expansion" to a "qualitative expansion", which can be said to be the means for achieving the transition from a "growth strategy" to a "maturation strategy" as a form of survival strategy for local cities. In Japan, which is now facing the rapid depopulation of its society, this may be one of the goals that local cities should aim for.

Therefore, the Hyogo Toyooka Model can be described as:

- **A model for creating sustainable communities by using local natural resources**

A model for creating communities that use Oriental white storks as a symbol and position co-existence with nature in their policies, in order to attain both a "comfortable life" and "spiritual richness" with sustainability and economic vitality through regional nature and culture, based on the preparation and determination to "live in our hometown"

- **A model that induces the "cycle of sympathy", which converts people's attitudes into a driving force**

A model that promotes the cycle which has created good synergy with the inclusion of public measures through accidental and inevitable disrupting factors that act as catalysts and has expanded activities by inducing the cycle of sympathy based on the axes of "sympathy for life" (Biophilia) and "love of the hometown" (Topophilia) that are present in people's minds

- **A collaborative model between "science", "governments", and "communities"**

A collaborative model formed by multiple parties to realize the vision of the residents by playing their individual roles under the governmental target of the "development of communities" based on the science concerning Oriental white storks, and by linking the "regeneration of the population of Oriental white storks" with the "restoration of the region"

5.2. Points of the activities

In Chapter 3, the points of the activities to be reflected in the "Hyogo Toyooka Model" were classified by extracting key points regarding the "expansion" of measures and the "connections" among the concerned parties, targeting the representative fields (rivers, agriculture, and communities) of public measures in relation to the reintroduction of Oriental white storks (p.139).

Activities for the reintroduction of Oriental white storks in the Toyooka region have been expanded mainly by the "design of the structure through collaboration between scientists, governments, and the communities" and the "design of the process." Behind the expansion, it can be said that the "acceptance, active use and development of social trends" such as the revision of laws and regulations and the "use of accidental natural phenomena after their transition to promotion factors", such as damage to food crops due to Typhoon No.23 and the arrival of Hachigoro, are the characteristics. In addition, "understanding the regional traditional communities" was important in the process of accepting the activities for the reintroduction of Oriental white storks by the communities and formulating the connections among the parties.

Points of the activities for the reintroduction of Oriental white storks carried out in the Toyooka region are separated into the following 5 categories, and their relationship can be classified as in the figure on the right.

Five points of the activities for the reintroduction of Oriental white storks carried out in the Toyooka region

(1) Acceptance, active use and development of social trends

- Various laws and regulations were established in response to the concerns of citizens about environmental deterioration in the period of rapid economic growth.
- Since people in the Toyooka region were valued the trends in the world, the changes in the environment where they lived, and the movements of the national government, they started to develop activities using Oriental white storks, which used to inhabit the region, as a symbol of their vision.

(2) Design of a structure through collaboration between scientists, government agencies, and the communities

- The involvement of various parties was necessary to promote the "creation of local communities where Oriental white storks can thrive."
- A collaborative structure design was implemented so as to ensure that the involvement of various parties became a driving force for the activities.

(3) Design of the process

- From the viewpoint of how people come to a certain realization, translate the process into a social movement, and express sympathy, then it strategically-sustainable activities can be established and developed.

(4) Use of accidental natural phenomena after their transition to promotion factors

- Movements towards the achievement of the targets were led by connecting incidental natural phenomena, such as the arrival of "Hachigoro" and the damage due to Typhoon No.23, etc., as a turning point for creating better communities and sympathy for positive feelings (pleasure and surprise).

(5) Understanding the regional traditional communities

- While making sure not to create discrepancies, activities were carried out by understanding the natural forces and connections of the traditional communities of villages that have maintained their lives both by using the blessings of nature and feeling its disruptive forces.

Relationship diagram of the five activity points

[Background] Domestic and international movements concerning biodiversity and nature restoration (Rio Declaration, revision of the River Act, the agreement on agriculture in the Uruguay Round, etc.)

(1) Acceptance, active use and development of social trends

(2) Design of the structure through collaboration between scientists, government agencies, and the communities

(3) Design of the process

Four processes (see the next page)

Processes	Key points of the connections and their expansion
Awareness	- Transition of social currents into regional issues - Awareness of the critical changes in the regional environment through scientific theory and analysis by a community-based research institution established in the prefectural university - Values of the region pursued through the activities for the reintroduction of Oriental white storks
Sharing of a future image	- Sharing of a future image with multiple parties by setting the goal of using a single species (Oriental white stork) as a symbol representing the richness of the regional biodiversity
Transition to a social movement	- Development and exploration of the technologies for biodiversity conservation - Implementation of community-based promotion and education and technical guidance - Development of a collaborative structure among multiple parties - Cultivation of the next generation of leaders for community creation
Cycle of sympathy	- Exercise of the synergistic effects operating between biodiversity conservation and community development by creating regional brands - Promotion of the story about biodiversity conservation

Inspirational events in the communities (the arrival of Hachigoro, Typhoon No.23, etc.)

(4) Use of accidental natural phenomena after their transition to promotion factors

(5) Understanding the regional traditional communities

- Characteristics of a region that has embraced "living with nature" (e.g. the natural environment, history of overcoming disasters, and regional customs)
- The last area where Oriental white storks lived

5.3. Process and mechanism of development

Regarding the "design of the process", which is one of the five points of the activities for the reintroduction of Oriental white storks carried out in the Toyooka region, the phases of the process in which a cycle of sympathy expanded were classified into four categories from the key points of the expansion of measures and the connections among the parties in each field (i.e. rivers, agriculture, and communities) (p.140).

[Awareness]

As the first phase, the phase of the "awareness" concerning the situation of the region is important. In the activities carried out in the Toyooka region, a community-based research institution called the "Hyogo Park of the Oriental White Stork" located in the prefectural university played a particularly significant role.

[Sharing of a future image]

In launching the activities for the reintroduction of Oriental white storks, the phase was shifted to the "sharing of a future image." The involvement of multiple parties was achieved by setting the goal of using Oriental white storks as a symbol of a productive hometown.

[Transition to a social movement]

In order to create conditions in which multiple parties can be involved in the reintroduction of Oriental white storks, the phase of the "transition to a social movement" is necessary. The improvement of wetlands and the development of the techniques and their promotion and education for Stork Friendly Farming were implemented. In this phase, a collaborative structure among multiple parties (i.e. citizens, farmers, research institutions, government agencies, and companies) was established.

[Cycle of sympathy]

In order to expand the activities for the reintroduction of Oriental white storks and to create sustainable communities, a "cycle of sympathy is necessary. The exercise of synergistic effects between the conservation of biodiversity and community creation was aimed at by creating agricultural brands using Stork Friendly Farming, and the promotion of the story about the reintroduction of Oriental white storks was conducted both within and outside the region.

Based on this, the mechanism including the relationship between the "process" of the activities for the reintroduction of Oriental white storks in the Toyooka region and the developed "strategy" is shown in the "chart of the process of activity development" (pp.168-169).

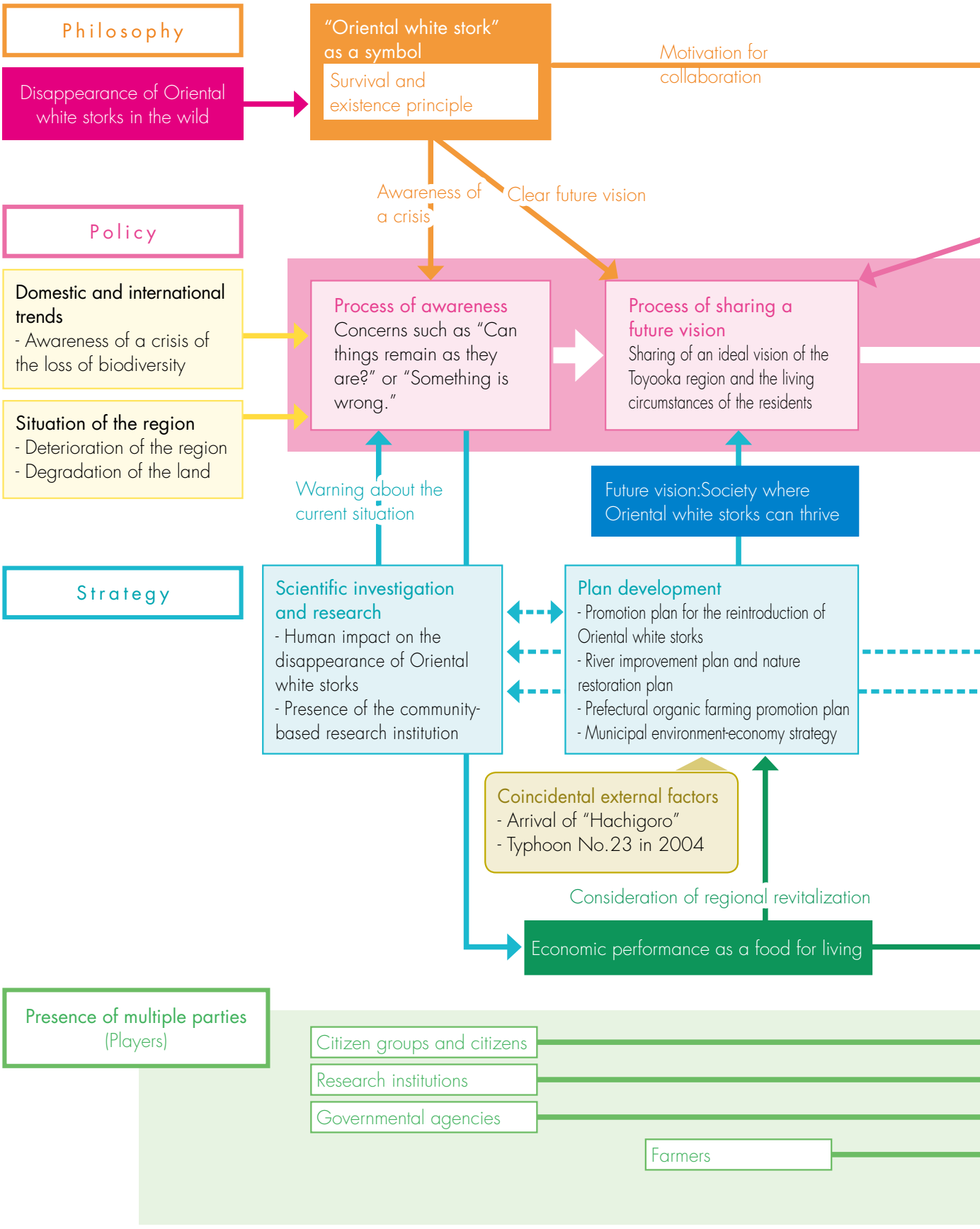
Table Four processes of the development of the activities

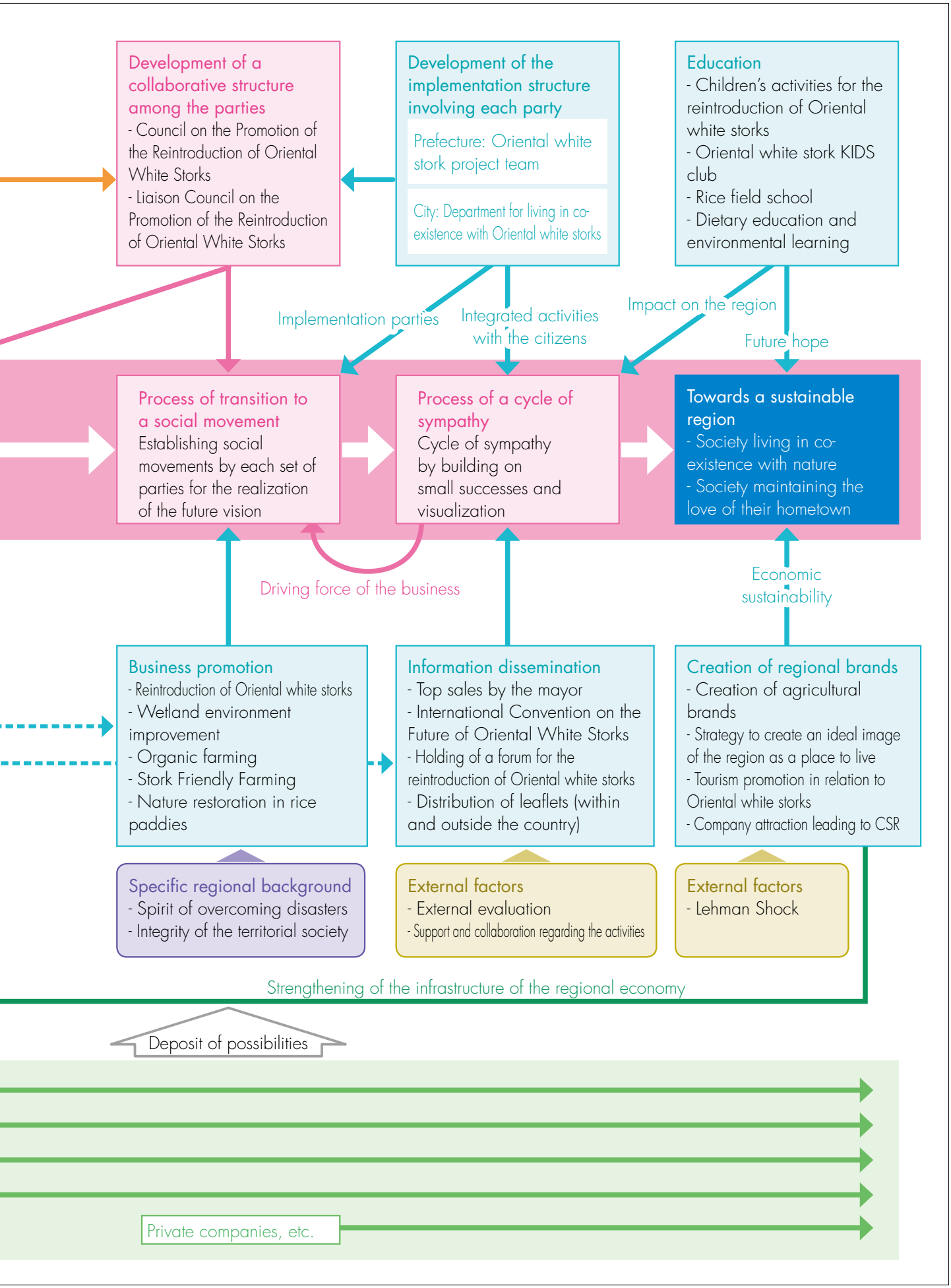
Four processes	Summary of the key points of the expansion and connections	Key points of the expansion and connections identified in each field
Awareness	- Trend in the social currents towards regional issues - Awareness of a crisis of changes in the regional environment according to scientific theory and analysis by a community-based research institution established in the prefectural university - Value of the region realized through the activities for the reintroduction of Oriental white storks	Rivers: Developed against the background of nationwide trends including the revision of the River Act, etc. Agriculture: Consensus on the sense of direction between the reintroduction of Oriental white storks and the social trend towards ensuring the safety and security of food Agriculture: Awareness of the relationship between the disappearance of Oriental white storks in the wild and agriculture based on a scientific analysis Communities: Presence and public awareness of a community-based research institution called "Hyogo Park of the Oriental White Stork" located in the prefectural university
Sharing of a future vision	- Sharing of the future image among multiple parties by setting goals using a symbol (the Oriental white stork), which is a species representing the richness of the regional biodiversity	Rivers: Sharing of the purpose with the parties (i.e. clear symbols and principles, and the presence of a common future vision) Rivers: Common recognition of the effectiveness of wetland improvement techniques, and the examination with the participation of multiple parties Rivers: Arrival of "Hachigoro" in the wetland Rivers: Sharing of the future vision among the concerned parties Agriculture: Emergence of the awareness of a proactive relationship among the farmers after an Oriental white stork flew down onto a rice paddy Agriculture: Cycle of sympathy for the future goals of conservation and restoration of the habitat of Oriental white storks and the conservation of the local landscape Communities: Education to obtain the understanding of the communities for the reintroduction of Oriental white storks Communities: Consensus formation between multiple parties in the Liaison Council on the Promotion of the Reintroduction of Oriental White Storks
Transition to a social movement	- Development and exploration of the techniques for biodiversity conservation (wetland improvements and Stork Friendly Farming) - Implementation of community-based promotion and education and technical guidance - Development of a collaborative structure among multiple parties (e.g. citizens, farmers, research institutions, governments, companies, etc.) - Cultivation of the next generation of leaders for community creation	Rivers: Even disasters were used as an opportunity. Rivers: Establishment of wetland improvement techniques as a means to achieve a balance between water control and environmental conservation Rivers: Collaborative structure design for activities and investigations (e.g. plan development with the participation of multiple parties) Agriculture: Systematization, technical guidance, and public awareness of Stork Friendly Farming by the local governments Agriculture: Establishment of a relationship of trust between the local governments and the community residents by cooperatively and continuously holding briefing sessions about Stork Friendly Farming Agriculture: Creation of a support system for the conservation of the biodiversity of rice fields (e.g. nature restoration project for creating rice fields for living in co-existence with Oriental white storks) Agriculture: Promotion of the activities against the background of the regional characteristics, such as the connections among the communities, in an integrated manner Communities: Cultivation of the next generation of leaders in charge of the creation of local communities where Oriental white storks can thrive Communities: Involvement of multiple parties such as NPOs, universities, and companies in the community activities Communities: The local governments are in charge of mediation and coordination to connect multiple parties within the region.
Cycle of sympathy	- Exercise of the synergistic effects between biodiversity conservation and community development by creating regional brands - Promotion of the story about biodiversity conservation (i.e. reintroduction of Oriental white storks)	Agriculture: Exercise of the synergistic effects between environmental conservation and economic activities by creating agricultural brands Agriculture: Involvement of multiple parties such as farmers, governments, companies, and citizens engaged in production, sales, and consumption Communities: Connections between activities (i.e. economy) and environmental creation Communities: Value of the region realized due to the arrival of an Oriental white stork Communities: Obtain the sympathy of multiple parties and their cycle of sympathy by promoting the story about the reintroduction of Oriental white storks

* extracted from Page 140 in Chapter 3

Chart of the process of the development of the activities

The chart below illustrates the process and mechanisms of the involvement of multiple parties and the expansion of the activities.




Development of a collaborative structure among the parties
- Council on the Promotion of the Reintroduction of Oriental White Storks
- Liaison Council on the Promotion of the Reintroduction of Oriental White Storks
Development of the implementation structure involving each party
Prefecture: Oriental white stork project team
City: Department for living in co-existence with Oriental white storks
Education
- Children's activities for the reintroduction of Oriental white storks
- Oriental white stork KIDS club
- Rice field school
- Dietary education and environmental learning
Implementation parties
Integrated activities with the citizens
Impact on the region
Future hope
Process of transition to a social movement
Establishing social movements by each set of parties for the realization of the future vision
Process of a cycle of sympathy
Cycle of sympathy by building on small successes and visualization
Towards a sustainable region
- Society living in co-existence with nature
- Society maintaining the love of their hometown
Driving force of the business
Economic sustainability
Business promotion
- Reintroduction of Oriental white storks
- Wetland environment improvement
- Organic farming
- Stork Friendly Farming
- Nature restoration in rice paddies
Information dissemination
- Top sales by the mayor
- International Convention on the Future of Oriental White Storks
- Holding of a forum for the reintroduction of Oriental white storks
- Distribution of leaflets (within and outside the country)
Creation of regional brands
- Creation of agricultural brands
- Strategy to create an ideal image of the region as a place to live
- Tourism promotion in relation to Oriental white storks
- Company attraction leading to CSR
Specific regional background
- Spirit of overcoming disasters
- Integrity of the territorial society
External factors
- External evaluation
- Support and collaboration regarding the activities
External factors
- Lehman Shock
Strengthening of the infrastructure of the regional economy
Deposit of possibilities
Private companies, etc.

Chapter 6
Recommendations for making further progress in relation to the activities

Chapter 6 Recommendations for making further progress in relation to the activities

The targets of the activities for the reintroduction of Oriental white storks in the Toyooka region have not been achieved completely at the present moment. They are in the process of completion with some issues to be resolved.
In Chapter 6, "Recommendations for making further progress in relation to the activities", which classify issues and considerations at the current phase in developing the activities for the reintroduction of Oriental white storks carried out in the Toyooka region and promoting the conservation of biodiversity in the future through cooperation between the Toyooka region and other regions, are summarized for the Investigation Committee on the Reintroduction of Oriental White Storks.

6.1. Overview of the past activities in the Toyooka region

As one of significant results of the activities carried out in the Toyooka region, "design of the collaborative structure for the activities and the examination" in the early stage can be described. In creating local communities where Oriental white storks, a bird endemic to the region, can live with community residents, the assumptions about issues to be expected and the actors and departments/agencies of the governments to address such issues were examined. Then the Liaison Council for the Promotion of the Reintroduction of Oriental White Storks was organized by gathering such actors and departments/agencies of the governments together in order to share the target image and clarify their roles.
According to the analysis of the activities, though it may not have been intended originally, the activities can be separated into four main processes: (1) Process of awareness; (2) Process of sharing a future image; (3) Process of the transition to a social movement; and (4) Process of the cycle of sympathy. These four processes are closely related to the shift in the "mind" of community residents in relation to the survival/existence principle, the love of the hometown and hope for the future felt by the residents who have made preparations and shown the determination to continue to live in the region have become the driving force. The activities in each process are linked to the cycle of sympathy resulting from the coincidence of natural phenomena and strategic approaches to such a "mind" or "attitude" through public measures using such phenomena as the momentum for these activities.
It can be considered that the activities carried out in the Toyooka region have been expanded and developed into the participation of and collaboration among multiple actors through these four processes with the feeling of the love of their hometown and hope for the future as the driving force. In addition to the design of the collaborative structure of the activities and the examination, this design process will be especially helpful when starting any new activities in other regions.

Even after suffering tremendous damage due to the Great Hanshin-Awaji Earthquake in January 1995, Hyogo prefecture continued the project to establish the Hyogo Park of the Oriental White Stork, which became an important base for the reintroduction of Oriental white storks. In addition, even after suffering tremendous damage due to Typhoon No.23 in 2004 (flooding of the Maruyama River), the region selected a method for the improvement of wetlands that achieves a balance between water control and environmental conservation by not focusing only on water control. The Ministry of Land, Infrastructure, Transport and Tourism strongly promoted the improvement of wetlands by taking this damage as an opportunity.
Behind them, there was the strong will of the concerned committee members in the region, and there were also the regional characteristics of having a culture and history of co-existence reflecting the harsh natural phenomena and environment. People having made the preparations and with the determination to continue to live in the region with the Oriental white stork, which share the future image and the pride of the region, aims for the "creation of an environment in which Oriental white storks can thrive." The committee members in the region continue to make efforts towards achieving such a future image. This can be considered as a reference for a survival strategy of local communities, since the deterioration in local cities is being taken up as a current issue around Japan.
In Japan, the concentration of the population in large urban areas has accelerated due to the declining birth rate and the aging of the population. In this situation, local cities are passing through the transition stage from a strategy of growth through social capital improvements to a maturation strategy based on natural capital. They have to select a "Gray infrastructure" or a "Green infrastructure." However, if the maturation strategy is selected, the process will not be easy. Considerable human effort and funds will be necessary. The most important condition is the preparation and the determination to continue to live in the area as an individual and a community. People's feeling of love for their hometown, pride in their hometown, and sharing of a hopeful future image are the steps toward the maturation of such communities. It can be considered that this selection process will create new forms of happiness, which will make local cities survive in the face of the depopulating society. This will furthermore be linked to the development of Japan in the future.

6.2. Issues and points to be noted in proceeding with future activities

[Viewpoint (1)] Impact on human society

…Activity fields: Science and communities

Due to the start of the reintroduction of Oriental white storks and the increase in the population of non-captive Oriental white storks, there may be an impact resulting from the close distance between wild animals and human living areas/society.

For example, in addition to actual cases such as traffic accidents and coming into contact with animal protection nets, there are risks of the spread of intermediate disease organisms such as bird flu or inflicting harm on people directly. Moreover, there is concern that Oriental white storks will become a common bird and be buried in people's memories due to the increase in non-captive Oriental white storks, and the continuous improvement and maintenance of the natural environment and social environment that Oriental white storks can thrive in may be neglected.

In order to address this, it is necessary to share issues through cooperation among the concerned actors including those in the field of science (prefectural university and research institution) and local governments, and to disseminate appropriate information in the communities.

[Viewpoint (2)] Impact and responsibility for the migration of Oriental white storks outside the Toyooka region

… Activity fields: Science and communities

As Oriental white storks fly outside the Toyooka region (within and outside the country), it is necessary to disseminate and collect information both within and outside the country on the ecology of Oriental white storks and issues described in viewpoint (1), etc., as part of the position on the reintroduction of wild organisms that have disappeared (reintroduction in accordance with the IUCN guidelines).

Moreover, as the present Oriental white storks in Japan are descended from a limited pedigree, it is necessary to prevent genetic deterioration due to crossing with other Oriental white storks flying over from the continent, and to understand the situation of these Oriental white storks.

As a pioneer that has responsibility for their reintroduction, the research institution specializing in the reintroduction of Oriental white storks should play the central role in addressing these issues by establishing a nationwide network of research institutions and related actors throughout the country regarding monitoring, the prediction of impacts, information dissemination, and the examination of countermeasures, etc.

[Viewpoint (3)] Trade-off*[1] between the conservation/creation of a habitat for Oriental white storks and short-term profits, convenience, and development in human society

… Activity fields: Rivers, agriculture, and communities

*Trade-off: a relationship in which one loses something when one gains something

In proceeding with the creation of a society living in co-existence with Oriental white storks, there is the possibility of a trade-off between conservation and creation of the habitat for Oriental white storks and social capital goods.

For example, in the field of rivers, although a balance between water control and environmental conservation can be achieved by the creation of wetlands, the surrounding area of the rivers may become a temporary place for construction-generated soil if a disaster restoration project is developed within a limited period. As a result, a trade-off having an impact on the natural environment (a temporary reduction in wetlands, etc.) will be exist.

In addition, in the field of agriculture, there is a possibility that damage to agricultural products will increase due to an increase in wild animals including Oriental white storks more than is currently expected.

Moreover, in the field of communities, in the case of the implementation of the improvement/development of the social infrastructure, there will be a trade-off with the conservation of the habitat for Oriental white storks using plain areas (conversion of rice fields, etc.).

Measures, plans, and rules that simulate such trade-offs must be prepared.

[Example] Field of rivers

A method having little impact on the habitat of Oriental white storks will be selected using the results of research on the environmental impact and through collaboration with scientists. After consultations with experts, projects will be implemented by taking into consideration the habitat.

[Example] Field of agriculture

To provide scientific evidence at the time of holding discussions, it is desirable that investigations and research on the qualitative evaluation of wetlands as feeding sites and the current evaluation and the improvement of the environmental capacity of the Toyooka region be conducted.

[Example] Field of communities

Regarding the trade-off with social capital goods, rules for planning and coordination including the prevention of urban sprawl (disorderly expansion of urban areas) and restrictions on the conversion of farmland will be prepared by predicting events that will occur in the future.

[Viewpoint (4)] The understanding and misunderstandings of citizens who have observed the current situation of the progress of the development of communities through the activities for the reintroduction of Oriental white storks

… Activity field: Communities

There is a risk of giving the impression to people within and outside the Toyooka region that the reintroduction is easy or the communities will become activated by the reintroduction of Oriental white storks if they have little recognition of the efforts of the original predecessors and the background to and issues regarding the necessity of the reintroduction, and look only at the positive side of the development of communities through these activities for the reintroduction of Oriental white storks.

Originally, the reintroduction of Oriental white storks is an activity that was carried out for the realization of a "society living in co-existence with nature." Therefore, it is necessary to disseminate and inform people of the fact that this activity has required an enormous amount of money, labor, and time.

[Viewpoint (5)] Adjustment to the existing system for the development of the activities

… Activity field: Agriculture and communities

In order to operate eco-friendly farming and use abandoned cultivated land, the water rights need to be acquired. Since this may result in the emergence of new interests, it is necessary to make careful adjustments with the concerned organizations.

Similarly, regarding the improvement of wetlands using abandoned rice fields, issues of property rights and land utilization plans are expected to arise. It is necessary to make careful adjustments with regard to property rights and the existing systems/plans.

[Viewpoint (6)] Continuous collection of index data for the evaluation of the activities

… Activity field: Agriculture and communities

Based on the PDCA cycle*, it is necessary to continuously classify and evaluate the implementation status and project effects in order to introduce new measures and improvement measures.

In the field of agriculture, since the rate of expansion of rice fields acreage of Stork Friendly Farming has slowed recently, numerical data for the amount of crop yields and the production costs by farmer and by district are necessary in order to perform a factor analysis.

In the field of communities, indices concerning the awareness and actions of the citizens and dynamic data on tourists are necessary as a means of comprehensive evaluation.

However, under current conditions, the amount of index data that can be used to evaluate the measures and has been measured over time is insufficient. Especially in the field of communities, additional measurement and collection need to be implemented.

For example, in the field of communities, the evaluation of the activities by the citizens (almost equal to the degree of recognition or satisfaction), changes in the environmental trends, the effects of environmental education, the purpose of visits by tourists, and the amount of consumption within the city need to be measured and collected. In the field of agriculture, numerical data by farmer and by district concerning the amount of crop yields, the motivation for the activities, and the production costs, etc., also need to be measured and collected.

* PDCA cycle: A management method that continuously improves the process by repeatedly conducting actions consisting of 4 phases (Plan → Do → Check → Act)

[Viewpoint (7)] Nationwide brand competition

… Activity fields: Agriculture and communities

With the expansion of the activities for the reintroduction of Oriental white storks across the country, it is assumed that the brand value of Stork Friendly Rice and other agricultural products may decline relatively. The development of agricultural brands not only by Stork Friendly Farming, but also by farming methods co-existing with the natural environment has been implemented nationwide. Therefore, it is predicted that brand competition in this field will increase. It is necessary to develop a strategy for the expansion of demand while maintaining the quality and the brands, so as not to reduce the impact of all brands due to excessive competition.

6.3. Towards nationwide development in the future

< Roles of the actors in relation to the Toyooka region with growing expectations>

Oriental white storks from the Toyooka region flew over 200 municipalities in Japan, and they flew to Korea in March 2014. In addition, activities in Noda City, Chiba and Echizen City, Fukui have rapidly shifted from captive breeding to the release of Oriental white storks. The expected roles of the committee members in relation to the Toyooka region that have implemented activities for the reintroduction of Oriental white storks ahead of the country have become greater.

The roles of Hyogo prefecture and the University of Hyogo that have research institutions, including the Hyogo Park of the Oriental White Stork, and have led investigations and research, and Toyooka City that has supported the reintroduction of Oriental white storks in the region and has developed it as a symbol of community development, are especially important.

< Need for a national network and the role of being the front runner>

Expectations for the Hyogo Park of the Oriental White Stork are to classify the results of the release of Oriental white storks and its process and to create a manual as a reference for other areas. Consultations from an ecological viewpoint are also expected.

In the field of science concerning Oriental white storks, the "Inter-institutional Panel on Population Management of the Oriental White Stork" (IPPM-OWS) was established in December 2013 by domestic organizations engaged in the breeding of Oriental white storks for mutual collaboration.

The expected roles of Hyogo prefecture and Toyooka City, as the front runners among governments to promote the reintroduction of Oriental white storks, are to create a network of local municipalities that will conduct activities for the reintroduction of Oriental white storks (e.g. Japan Municipal Network for the Promotion of the Reintroduction of Oriental White Storks (tentative name)) and to play a central role as an organizer in collaboration with IPPM. Sharing of the issues and know-how of the committee members and departments/agencies of the governments by using such a network and contributing to the development and the deepening of nationwide activities are also expected.

On the other hand, with the expansion of activities across the country, there could be concern that the originality and leadership of the activities in the Toyooka region may become overlooked. As a region with a history in relation to Oriental white storks, the committee members in relation to the Toyooka region must continue to carry out activities towards higher goals and make efforts to remain the leading communities involved.

< Maintenance of biodiversity through the maturation of the regional communities>

Activities for the reintroduction of Oriental white storks can be considered as of both the "SATOYAMA initiative type" that maintains biodiversity by means of people's involvement and of the "Living model of biodiversity" that is linked to the creation of communities and their way of living.

To ensure that the Oriental white stork, a bird of the region, continues to inhabit the region will form the basis of the sustainability of the communities, including the people and other living organisms. This is not viewed only from the perspective of the conservation of special national treasures or endangered species, but also indicates the way forward for communities and the way of living for Japan in the future, as well as the means for individual involvement in community creation in every community.

< Necessity of continuous collaboration among the concerned ministries and agencies>

The current situation has been achieved thanks to the continuous support of the Agency for Cultural Affairs since 1963 and support from other concerned ministries and agencies for Hyogo Prefecture in conducting activities for the conservation of a special national treasure, Oriental white storks. However, reintroduced Oriental white storks do not stay in specific areas but fly from place to place both within and outside the country. Therefore, the creation of a national network of activities as well as continuous collaboration among the concerned ministries and agencies (Agency for Cultural Affairs, Ministry of Agriculture, Forestry and Fisheries, Ministry of Land, Infrastructure, Transport and Tourism, and Ministry of the Environment) and their support are essential.

Appendices

Contents of the Appendices

◆Appendix 1: Glossary

[Social background]

(In the order of the Japanese syllabary)

["A" column]	
The lost decade 1991 – 2001	This indicates the period of economic stagnation from the early 1990s to the early 2000s after the end of a period of stable economic growth. The long-standing recession had a great impact on the local economy such as the aggravation of underemployment.
The lost two decades 1991 – 2012	As the economic stagnation did not begin to improve after the collapse of the bubble economy, the lost decade and the economy after the 2000s including the period of Japanese economic expansion from February 2002 to October 2007, which is called Izanami-keiki, came to be called the "lost two decades." The long-standing recession, which caused a deflation trend, has a substantial impact on local economies.
["Ka" column]	
Revision of the River Act 1997	The River Act was enacted in 1964. Based on the growing public interest in the environment, the necessity of river improvement in accordance with the actual state of local communities, the situation of frequent water shortages, and other aspects, this revision placed environmental improvement and conservation as the central purpose of the River Act. It aimed not only executing a drastic review of the planning system, but also taking measures to facilitate the smooth use of water supplies at times of abnormal water shortages. The revision realized the river projects for the purpose of the conservation of the natural environment and led to the subsequent enactment of the Act for the Promotion of Nature Restoration.
National censuses for river basins 1990 –	Started in 1990, the Ministry of Land, Infrastructure, Transport and Tourism conducted biological and environmental surveys of rivers and dams throughout Japan and publishes these in the form of a database. It serves as basic data for the changes in the Oriental white storks population and the biomes related to the environment for the habitats of the Oriental white storks in the Maruyama River system.
Environmental Basic Act 1993	As there are limitations to correspond measures under the Environmental Pollution Prevention Act and the Nature Conservation Law, this law was enacted as a basic law to provide a new framework for environmental policies. It mentions (1) enjoyment and inheritance of environmental benefits, (2) establishment of a sustainable society with low environmental impact, and (3) the active promotion of global environmental conservation through international cooperation. This law clarified the policy framework for water and soil pollution related to the disappearance of Oriental white storks.
Rio Declaration on Environment and Development 1992	This is a declaration adopted at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil. In addition to "Agenda 21," the "Statement of Forest Principles," "United Nations Framework Convention on Climate Change," and "Convention on Biological Diversity" were globally adopted.
Act on the Promotion of Environmental Conservation Activities and Environmental Education 2003	"Law for Enhancing Motivation on Environmental Conservation and the Promotion of Environmental Education," which was amended to the "Act on Enhancing Motivation for Environmental Conservation and Promoting Environmental Education" (amended as the "Environmental Education Law") in 2012. This law stipulates the human resources and basic development policies as well as the measures for promoting environmental education in various places such as schools, local communities, and workplaces.
Rapid economic growth 1955 – 1973	This means the period when Japan's economy grew dramatically after World War II. Although the national income and the people's daily life improved, the excessive development and agricultural modernization became part of the cause of the decrease and disappearance of Oriental white storks.
Implementation of UNFCCC-COP3, Kyoto Protocol 1997	The 3rd Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC-COP3) was held in Kyoto. The Kyoto Protocol is related to the framework convention on climate change and its formal name is the "Kyoto Protocol to the United Nations Framework Convention on Climate Change." It became the beginning for a wider awareness of the enterprises to take initiatives regarding environmental problems.
Implementation of CBD-COP10, and Adoption of the Aichi Biodiversity Targets 2010	CBD-COP10 means the 10th Conference of the Parties to the Convention on Biological Diversity was held in Nagoya. The Aichi Biodiversity Targets adopted in this conference aim at achieving a world in which humans and nature co-exist by 2050. The strategic targets specified in the Aichi Biodiversity Targets can serve as indicators for the nature restoration projects in local communities and the same can be applied in the projects for the reintroduction of Oriental white storks.

[“Sa” column]	
Act for the Promotion of Nature Restoration 2002	To restore the rich natural environment that was degraded in the past, this law aims at promoting nature restoration projects such as natural environmental conservation, restoration, and creation through the participation of multiple parties including administrative organizations, local community residents, NPOs, and experts. Given the circumstances of the force of law, projects for the reintroduction of Oriental white storks have been advanced.
Law for Promoting the Introduction of Sustainable Agriculture 1999	The formal name is the “Law for the Promotion of the Introduction of Advanced Sustainable Farming Systems.” It aims at maintaining sustainable agricultural production in harmony with the environment, through taking measures to promote an “advanced sustainable farming system” in which soil quality management is achieved by applying composted manure and a reduction in the amount of both chemical fertilizers and pesticides, and these are integrally implemented. For the projects for the reintroduction of Oriental white storks and Stork Friendly Farming, the reduction of the amount of chemical fertilizers and pesticides in rice paddies and the like are an important factore.
Priority Plan for Social Infrastructure Development 2003 The 2nd Priority Plan for Social Infrastructure Development 2009 The 3rd Priority Plan for Social Infrastructure Development 2012	Based on the Priority Plan Act for Social Infrastructure Development (2003), this plan was formulated in order to advance the social infrastructure projects intensively, effectively, and efficiently. The targets were roads, traffic safety facilities, railways, airports, harbors, beacons, parks and green spaces, sewerage, rivers, erosion control works, landslides, steep sloping land, the seashore, and office work or projects to be implemented integrally with these projects in order to increase the effects. From the 2nd plan (2009), the plans stipulated that river creation work would be promoted integrally with the conservation and restoration of a good natural environment and community development in keeping with the diversity of rivers such as their nature, history, and culture at the time of river improvements. Based on these plans, the projects for river creation, which are aimed at the co-existence of the people pursuing the reintroduction of Oriental white storks with nature, have been progressed.
Law for the Conservation of Endangered Species (LCES) 1992	“Law for the Conservation of Endangered Species of Wild Fauna and Flora.” This is an expansion of the “Law for the Prohibition on the Acquisition and Transfer of Endangered Species of Wild Fauna and Flora,” which was enacted at the time of the Washington Convention (Convention on International Trade in Endangered Species of Wild Fauna and Flora). Oriental white storks became a subject of protection under this law in 1993.
Act for Establishing a Recycling-Oriented Society 2000	This law serves to establish the basic principles for promoting a Sound Material-Cycle Society in Japan. Since this basis for waste recycling policies has been established, it has influenced corporate activities and the economy.
Basic Act on Food, Agriculture and Rural Areas 1999	Securing stable food supplies, fulfillment of multifunctionality (conservation of water resources, natural environment conservation, formation of good landscapes, and other aspects), sustainable agricultural development, and the development of rural areas were reviewed as the basic principles. Natural environmental conservation was placed as part of the multifunctionality of agriculture.
Convention on Biological Diversity 1992	“Convention on Biological Diversity.” This is an international convention addressing all aspects of biological diversity according to “ecosystems,” “species,” and “genetic resources.” It aims at the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from genetic resources. It indicated that the conservation of biological diversity is inevitable for social and economic development.
Basic Act on Biodiversity 2008	This is the basic act that stipulates the basis for biodiversity policies in Japan. It obligated the formulation of a “National Biodiversity Strategy of Japan” by the national government and defined the obligations of local governments to make efforts to formulate regional biodiversity strategies.
National Biodiversity Strategy of Japan 1995 New National Biodiversity Strategy of Japan 2002 3rd National Biodiversity Strategy of Japan 2007 National Biodiversity Strategy of Japan 2010 2010 National Biodiversity Strategy of Japan 2012 – 2020 2012	These are the national basic plans related to biodiversity conservation and its sustainable use based on the Convention on Biological Diversity and the Basic Act on Biodiversity. The 2012 plan established the “5 Basic Strategies,” including (1) raising public awareness of biodiversity, (2) reviewing and reestablishing the relationships between humans and nature in local communities, (3) securing the connections among forests, villages, rivers, and the sea, (4) acting with a global-scale vision, and (5) strengthening the scientific knowledge base for the development of political measures.

[“Ta” column]	
Basic Guidlines for the Creation of Multi-natural Rivers 2006	This policy verified the actual status of the creation of multiple natural habitat type rivers that the Ministry of Land, Infrastructure, Transport and Tourism started in 1990, and established the guidelines for the future direction of creating multiple natural habitat type rivers based on the new knowledge. The directions of the initiatives include (1) creating rivers with consideration of the forces of nature throughout the entire river system, (2) not only conserving and creating the living, growing, and breeding environment for creatures, but also creating rivers that provide links to the life, history, and culture of the community, (3) taking into consideration the entire river management such as the investigation, planning, designing, execution of construction works and their maintenance. Based on these guidelines, the planning and designing of river creation, which aims at co-existence between the people pursuing the reintroduction of Oriental white storks and nature, have been progressing.
Wildlife Protection and Hunting Law 2002	“Wildlife Protection and Proper Hunting Act.” This is a complete revision of the former “Wildlife Protection and Hunting Law” with the addition of ensuring biodiversity. Oriental white storks are specified as a non-game bird in this law.
[“Na” column]	
Japan – Russia Agreements on the Protection of Migratory Birds 1988	This is a bilateral convention between Japan and Russia for the purpose of protecting migratory birds, birds in danger of extinction, and their environment (the former Japan – the USSR Migratory Bird Convention, 1973). In 1985, 6 young Oriental white storks were given by Khabarovsk, Russia and a breeding farm in Toyooka City started to raise them, which led to the birth of chicks later.
Agricultural Basic Act 1961	Based on the socio-economic trends and outlook in those days, this law was enacted to clarify the path on which Japan’s agriculture was to advance. In 1999, it was repealed due to the enactment of the Basic Law on Food, Agriculture and Rural Areas.
[“Ha” column]	
Bubble economy 1985 – 1990	This means the increase in the asset value and economic prosperity that occurred in Japan and the accompanying social phenomenon. It was also the beginning of economic globalization. It had a significant impact on the local economies as the lost decade and the lost two decades after the collapse of the bubble.
Collapse of the bubble economy 1991	This indicates the recession period of the bubble economy, depression, and the like. → bubble economy
Brundtland Report, sustainable development 1987	This is a report of the “World Commission on Environment and Development,” which was established by the United Nations according to Japan’s proposal. “Sustainable development” is the central idea and it was widely recognized later. “Sustainable development” is currently widely recognized throughout the world as a basic common principle in environmental conservation.
Cultural Assets Preservation Act 1950	This is a law that aims at the protection and utilization of cultural properties and cultural improvement for the citizens. In 1956, Oriental white storks were designated as a special natural treasure of Japan.
[“Ya” column]	
Act on the Promotion of Organic Agriculture 2006	“Act on the Promotion of Organic Agriculture.” This is a law that aims at promoting agricultural production methods to reduce the environmental load. The approach to the organic agriculture based on the use of no chemical fertilizers or pesticides, nor the use of genetic recombination techniques is the basis of the projects for the reintroduction of Oriental white storks and Stork Friendly Farming.

[“Ra” column]	
Ramsar Convention 1980	This is an international convention on wetland conservation and was enacted for the purpose of protecting the wetland ecosystems that have water birds at the top of their food chain. The “lower reaches and the surrounding rice paddies of the Maruyama River” in Toyooka City were registered under this convention in 2012.
Lehman Shock 2008	This was an incident in which Lehman Brothers Holdings, a financial services and investment bank in the USA, went bankrupt, which became a significant trigger for the global financial crisis (global simultaneous recession). The global economic slowdown resulted in the Japanese economic recession.
Red Data Book Japanese version: 1989 Hyogo Prefecture: 1995 Red List 4th Japanese version: 2012 – 2013 Hyogo Prefecture: 2010 – 2013	These are lists of wildlife species whose continued existence is threatened. In Japan, organizations such as the Ministry of the Environment and local municipalities prepare these lists for Japan. Oriental white storks are designated as category “Endangered IA” in the Japanese version and as rank A in the Hyogo prefectural version.
Club of Rome: “The Limits to Growth” 1972	The Club of Rome, a private think-tank, warned that “If the present growth trends in world population, pollution, and other aspects continue unchanged, the limits to growth on this planet will be reached sometime within the next one hundred years.” In the later half of the high-growth period of the Japanese economy, while pollution and nature destruction became evident, it was an opportunity to start to review the way the society should be run.
[“Wa” column]	
Washington Convention 1973	“Convention on International Trade in Endangered Species of Wild Fauna and Flora.” Oriental white storks come under Appendix I of this convention and require international protection.

[Activities]

(In the order of the Japanese syllabary)

["A" column]	
Rice-duck farming	This means an organic agricultural method of rice farming by releasing Aigamo-ducks, a crossbreed between domestic and wild ducks, in the rice paddies after rice-planting and letting them eat the weeds and harmful insects. This means that chemical pesticides do not have to be used. It is also a useful means of supplying oxygen into the rice paddies as the ducks stir the water and mud as they feed. There are some issues such as the disposal of adult birds and the cost of raising them.
Umbrella species	These are the consumers at the top of their food chain, the ecosystem pyramidal structure in the region. The term derives from the fact that the protection of umbrella species leads to protect the fauna and flora in the lower ranks of the ecosystem pyramid and the wide area of biodiversity and ecosystem as if an umbrella is being opened.
Nutrient salts	Inorganic salts such as nitrogen and phosphorus, which are required for the growth and breeding of plants (including phytoplankton).
Eco museum	This is an outdoor museum with the aim of contributing to the development of the concerned local communities through historical research on the development processes of the nature, culture, and social environment as well as the life of people that compose a certain cultural region; and conserves, fosters, and exhibits this heritage. The origin is the ecomusee in France in the 1960s.
ENEOS living creature school (ENEOS Waku-waku Creatures School)	This is a 2-day and 1-night program for elementary school students and their parents to enjoy learning the systems of wetlands and biodiversity from the scientific perspective in the Tai Wetland. From 2006, Toyooka City hosts it once in every year with the support of JX Nippon Oil & Energy Corporation (Kyushu Oil Co., Ltd. in those days).
["Ka" column] 1/2	
Organic farming	For the reintroduction of Oriental white storks, rice cultivation methods that do not use pesticides extensively were required since their food source, such as loaches and pond snails, needs to be inhabiting the fields of rice and other crops at all times. Arising from this, this agricultural production method was invented, in which soil-making using organic soil conditioners and other matter and the reduction in use of chemically synthesized fertilizers and pesticides are implemented in an integrated way. Hyogo Prefecture formulated the "Hyogo Prefecture Plan for Promoting Organic Farming" in April 2009.
Green tourism	This is an initiative to spread a new lifestyle of interaction between cities and rural areas, with mutual sharing of the local attractions, and activation of the comings and goings of "people, goods, and information." It is also a broader concept that includes settlement and semi-settlement in rural areas.
Oriental White Stork KIDS Club	This is an off-campus club activity for the children of Toyooka City to learn about Oriental white storks and nature, in which they engage in surveys on creatures and conservation works in biotopes and wetlands within the city. The children learn about Oriental white storks through play, learning, and enjoyment. They can think about "what they can do" through studying the activities for their reintroduction, and the nature, culture, and the initiatives of the local people that support these activities, which is started in 2010.
NPO Oriental White Stork Wetland Net (NPO-Shicchi-Net)	This is an incorporated nonprofit organization that aims at contributing to the creation of a society living in co-existence with nature through implementing the conservation, restoration, and creation of wetlands where Oriental white storks forage in order to ensure their reintroduction. It was established in September 2007 and its office is located in Toyooka City. This area has been designated as administrator of the "Hachigoro's Toshima Wetland" since FY2011.
NPO Citizen's Research Institution of the Oriental White Stork (NPO Konotori-Shimin-Kenkyujo)	This is an incorporated nonprofit organization that conducts surveys on flora and fauna and general nature observation, with Oriental white storks as its symbol. Being based in the Toyooka Municipal Eco-Museum Center, it carries out various activities in which adults and children can participate, including the "Rice Paddy Field School" held every month and the "Surveys on Creatures in the Toyooka Basin." The organization was founded in May 1998.
Tourism guides for Oriental white storks	Toyooka City presented Oriental white stork tourism in its environment-economy strategy (March 2005) as a unique form of tourism that only Toyooka can provide, based on Oriental white storks as the symbol. An initiative to organize volunteer guides that was taken by the trainees who completed the training course for Oriental white stork tourism started from 2008.
Hyogo Park of the Oriental White Stork	Hyogo Park of the Oriental White Stork is a research facility established in 1999 for the purpose of providing the environment for living in co-existence with Oriental white storks and operating as a learning center from the viewpoint that the environment for living in co-existence with Oriental white storks is a rich environment that is also safe and secure for humans. Some of staff members are also researchers at the Institute of Natural and Environmental Sciences of the University of Hyogo.
Dance of the Oriental White Stork	Toyooka City accredits the entities that produce the safe and reliable agricultural products and processed goods through the introduction of environment-friendly cultivation techniques as production entities of agricultural products called "Dance of the Oriental White Stork." The agricultural products produced by the accredited entities are shipped with an accreditation logo. This scheme is started in FY2009.

[“Ka” column] 2/2	
Oriental white stork park volunteers	These are volunteers that the Hyogo Park of the Oriental White Stork recruits for the purpose of learning about Oriental white storks and nature and conducting monitoring surveys on Oriental white storks that are to be released into the wild. They are required to complete a training course for Oriental white stork park volunteers. This scheme started in 2001.
Oriental white stork fan club	This is a citizens’ group supporting the reintroduction of Oriental white storks. The secretariat is located in the Bureau for the Residents of the Tajima Province, Hyogo Prefecture. It was founded in 2004. The major activities include surveys on the flora and fauna and the gathering and provision of information from the direct observation of Oriental white storks as well as the natural environmental conservation and restoration such as the restoration of abandoned rice fields, transformation of rice paddies into biotopes, the installation of fish ladders between rice paddies, and the development of artificial nesting towers.
Toyooka Municipal Eco-Museum Center	Toyooka Municipal Eco-Museum Center introduces the nature, culture, and industries of the Toyooka Basin as well as Oriental white storks, as the base for the creation of local communities living in co-existence with nature (the core of the eco museum). It opened in 2000.
Association for Supporting the Protection of Oriental White Storks	Association for Supporting the Protection of Oriental White Storks → Tajima Oriental White Stork Conservation Group
Toyooka Municipal Regional Exchange Center - Oriental White Stork Honpo (head shop)	This is a facility of Toyooka City that opened next to the Hyogo Park of the Oriental White Stork in March 2007. This fascility provides a café space and tourist information as well as sells special products packed with goods related to Oriental white storks and selected local items.
International Convention on the Future of Oriental White Storks	This is a symposium that is co-hosted by Hyogo Prefecture and Toyooka City for the purpose of globally presenting projects for the reintroduction of Oriental white storks and accumulating technologies and knowledge to achieve these projects. The first conference was held in 1994, the second was in 2000, and the third was in 2005.
Plan for the reintroduction of Oriental white storks	This is a plan for the purpose of creating an environment that Oriental white storks can inhabit by comprehensively promoting nature restoration in the Toyooka region and through placing Oriental white storks as a symbol of living in co-existence with nature. It aims at creating new local communities through the participation and cooperation of multiple parties. It was formulated in March 2003 by the Council on the Promotion of the Reintroduction of Oriental White Storks whose chairperson is the chief of the Bureau for the Residents of the Tajima Province, Hyogo Prefecture.
Liaison Council on the Promotion of the Reintroduction of Oriental White Storks	This liaison council was established in July 2003 aiming at the achievement of the “Plan for the reintroduction of Oriental white storks” (March 2003). It is composed of residents, relevant entities, academics, and governments. Multiple parties attempt consultations and collaboration and aim at the reintroduction of Oriental white storks through advancing the creation of local communities living in co-existence with nature.
Major Strategy for the Reintroduction of Children	This is a Toyooka City’s program for the purpose of fostering a sense of morals and justice, expansive ideas, the value of life, and “feelings of love towards the hometown Toyooka” among children by reintroducing them to the wild and enabling them to have many experiences of nature. The main Kids Wild (a nature experience classroom) activity provides a “children’s course” and a “parent and child course,” and the “children’s course” consists of three courses according to the activity content. It started in 2006.
[“Sa” column]	
Geoparks	Geoparks refer to the parks located in nature where the heritage of the earth’s activities can be seen. They have been promoted throughout the world through the Global Geoparks Network, which was established with the support of UNESCO in 2004. In Japan, 6 areas are accredited as Global Geoparks, which are Toya Caldera and Usu Volcano, Itoigawa, Unzen Volcanic Area, San’in Kaigan, Muroto, and the Oki Islands.
Muddy Rice fields	These are wet rice field without any difference in the level between the waterways. Although agricultural work in the mud is difficult, they used to be the wet zones where creatures such as fish could come and go between the waterways and rice paddies. Before the improvement of cultivated land, these muddy rice field extended throughout the entire Maruyama River basin.
Artificial nesting towers	These are the towers established for Oriental white storks to build their nests. They have been built not only in Toyooka City, but also in Seiyo City, Ehime Prefecture and in Miyoshi City, Hiroshima Prefecture. The majority are installed as nesting platforms made of steel at the top of reinforced concrete poles.
Fish ladders between rice fields	These ladders form a route (through steps, etc.) between waterways and rice fields in order for fish to go upstream. The rivers, waterways, and rice fields used to be connected to each other and rice field were the places for fish breeding and the feeding grounds for Oriental white storks that eat the fish. However, as the mechanization of agricultural work reformed the rice fields into well-drained rice field, the water supply and drainage started to be performed by pumps, which resulted in cutting off the natural water flow connection between the rivers and the rice fields. Fish ladders to/from rice field were developed to recover the former connection of the water flow between the rivers and the rice fields.

[“Ta” column]	
Tai Wetland	The Tai District, located northeast of Toyooka City,is a village that was formed on the seashore facing the Sea of Japan and the Tai River basin. Rice fields covering approximately 12 ha along the valleys became abandoned rice fields due to the rice acreage reduction policies, damage by animals, such as deer and a lack of farm successors to continue cultivation. However, Oriental white storks, which breed near the Toshima Wetland, started to fly down onto these feeding grounds from 2008 , then, local communities, NPOs, and local governments jointly launched activities to conserve the biodiversity of these fields.
Typhoon No.23	On October 20, 2004, a typhoon caused enormous damage such as high waves, heavy rain, landslides, and floods over a wide area. The building damage in the current Toyooka City extended to the complete destruction of 333 houses, substantial destruction of 1,082 houses, half destruction of 2,651 houses, partial destruction of 292 houses, inundation above the ground floor level of 545 houses, and inundation below the ground floor level of 3,326 houses, which accounted for approximately half of the damage within Hyogo Prefecture. The human casualties included 7 dead: 6 due to floods and 1 due to landslides.
Tajima Oriental White Stork Conservation Group	In 1955, the Governor of Hyogo Prefecture, Masaru Sakamoto, received a notification from Dr. Yoshimaro Yamashina, the founder of the Yamashina Institute for Ornithology. It said that “the Oriental white storks inhabiting Hyogo Prefecture are extremely rare and precious, and we have to somehow extend a protecting hand to them.” As a result, the “Association for Supporting the Protection of Oriental White Storks” was established. Three years later, it was renamed the “Tajima Oriental White Stork Conservation Group” ,and protection activities, including the construction of artificial nesting towers and other activities, were widely developed over 26 years. The association was transferred to Toyooka City in 1981, and its activities have been succeeded by the Oriental White Stork and Human Co-existence Department of Toyooka City Office, Hyogo Park of the Oriental White Stork, and Center for the Oriental White Stork Protection and Propagation.
Rice Field School (Tanbo-no-Gakko)	This is the general term for environmental education that utilizes rice fields, waterways, irrigation ponds, Satoyama (village-vicinity mountains) and other features that have been formed through the long history of agriculture in the region and which now provide places for playing and learning. In FY1998, based on the investigations conducted jointly by the National Land Agency, the Ministry of Education, and the Ministry of Agriculture, Forestry and Fisheries of those days, a study group was established by academics from various fields and proposed the establishment of the “Rice Field School,” which involves environmental education through the active utilization of rice fields.
Toshima Wetland	This wetland is located on the right bank of the Maruyama River and embraces an area of 3.8 ha consist of mixture of fresh water from the Maruyama River, brackish water from the Sea of Japan, and spring water from mountains. Since a male wild Oriental white stork (Hachigoro) came flying down to this area in 2002, Toyooka City has advanced its improvement as part of projects for the reintroduction of Oriental white storks and it was completed as the “Hachigoro’s Toshima Wetland” in April 2009. It is utilized as a base for environmental education and tourism as well as the habitat for wild birds, including Oriental white storks.
One Loach Campaign	This is a part of the protection activities initiated by the “Association for Supporting the Protection of Oriental White Storks” and was established in 1955. To solve the shortage of food for the Oriental white storks, it called for people to bring loaches from throughout the prefecture to feed the storks.
Toyooka Exhibition	This is an event to share the activities for achieving an environmental city using the symbol of Oriental white storks and community development based on its unique nature, history, traditions, and culture. It aims at raising the visibility of the city through the dissemination of Toyooka’s challenges via talks and projected images. Since 2009, it has been held once a year mainly in the capital region.
Toyooka City Environment-Economy Strategy	The initiatines to improve the environment which have an economic effect. The generation of the economic effect activates initiatives to improve the environment. Aiming at this multiplier effect, this strategy was formulated in March 2005 in order to increase the systems and projects within the city, in which the environment and economy are linked to each other.
Toyooka City Oriental White Stork Fund	→ Previous Hometown area Tax Payment System called “Contributions to Toyooka Oriental White Storks”
[“Na” column]	
Japan – Asia SATOYAMA Education Initiative	This is a part of a project for developing higher education programs under the Environmental Leadership Initiatives for Asian Sustainability led by the Ministry of the Environment. It aims not only to deepen understanding the use of traditional regional resourced and its management systems, as typified by Satoyama, but also to foster international environmental leaders who are capable of finding out for themselves the means to reorganize and restore the common Asian view of nature in contemporary society through field practice and international exchange, then, sharing then sharing them as the recycling and co-existence-oriented social model (SATOYAMA Model) with Asia and the world. In order to achieve the above, this initiative has established three education bases, namely, an academic base (University of Tokyo), an international base (United Nations University Institute of Advanced Studies), and a field base (Toyooka City, Hyogo Prefecture), and provides curricula that enhance the educational synergistic effects through organic collaboration among these bases since FY2008.

[“Ha” column]	
Hachigoro	On August 5, 2002, a male wild Oriental white stork came flying down to the Toshima Wetland, which used to be wet rice fields, and was named “Hachigoro” after the confirmed date on which it flew down. Since then, the stork has continued to inhabit Toyooka City for nearly 5 years and became popular among local residents and fans. On February 27, 2007, his death was confirmed in a mountain forest of Kongo-ji Temple in Toyooka City. Hachigoro enabled us to actually witness and confirm many facts such as the normal behavior patterns of wild Oriental white storks. it was determined to use his name as the name of the conserved Toshima Wetland, not only to commemorate his deeds but also ensure that the memory of his popularity among citizens does not fade.
Hyogo Safety Brand Certification System for Agricultural Products	In this system, the prefecture examines and certifies production groups that have developed a self-inspection system for residual agricultural chemicals and other aspects and are able to publish the production information regarding their agricultural products that introduce this production system based on soil creation and with reduced use of the chemically synthesized fertilizers and pesticides (Hyogo Safety Brand Agricultural Production System). It started in December 2001. The agricultural products produced by the certified production groups are marketed “Hyogo Safety Brands” with certification labels.
Previous Hometown area Tax Payment “Contributions to Toyooka Oriental White Storks” System	Hometown area Tax Payment” is a system in which individuals that are former residents of Toyooka can receive a certain deduction from their income and resident taxes when they make contributions to their hometown (which they would like to support). Toyooka City calls this system “Contributions to Toyooka Oriental White Storks”. The contributions are deposited in the “Toyooka City Oriental White Stork Fund” for the “Creation of Communities Living in Co-existence with Nature Project” with the focus on the reintroduction of Oriental white storks.
Release of Oriental white storks into the wild	This means to release the birds caught or raised by humans and free them from human Control to wild area. On September 24, 2005, five Oriental white storks were released into the sky in an Oriental white stork releasing ceremony held in the Hyogo Park of the Oriental White Stork. Their release into the sky of Tajima was the first time for wild storks to revive in the more than 30 years since the last wild Oriental white stork in Japan disappeared in 1971. Currently, the Hyogo Park of the Oriental White Stork is releasing birds into the wild by the following four methods after habituation training to accustom the Oriental white storks to the outside environment: 1) simultaneously releasing multiple individuals from an appropriate place into the wild; 2) raising and breeding pairs, which were made incapable of flying, at the bird releasing base and then liberating the young birds when they left the nests; 3) raising males and females at the bird releasing base and liberating them when they recognize the base; and 4) raising multiple females, which were made incapable of flying, at the bird releasing base and releasing multiple males capable of flying around the females for breeding.
Cultivated land improvement projects	These projects are to improve the environmental conditions in farm villages through increasing to increase labor productivity by implementation of readjustment of farm blocks, the development of irrigation and drainage channels, improvement of the soil strata, development of farm roads, and collectivization of cultivated land. These projects are implemented as public works by the Ministry of Agriculture, Forestry and Fisheries and the prefectures government.
[“Wa” column]	
Wand	This refers to “inlet,” “river pool,” and “abyss,” or the landform that becomes like a pond surrounded by spur dikes although it connects to the mainstream of the river (for example, the wand of the Yodo River). It serves as a place for a variety of vegetation to reproduce as well as providing stable habitats for aquatic species such as fish.

◆ Appendix 2: Chronological table

Year	Number of Oriental white storks		Events related to Oriental white storks	Relevant events
	Wild	Breeding		
Edo period	—		● Oriental white storks could be seen throughout most of Japan. - In Toyooka City, some records remain from the middle to the end of the Edo period.	- 1685: Issuance of the "Edict against Cruelty to All Living Things"
Meiji period	—		● Excessive hunting - From 1868 to 1891 there was no action from national government to protect wildlife, then many birds and wild animals became endangered.	
1892	2		● Enactment of the "Game Law" - Some birds and wild animals were protected by the Game Law, but Oriental white storks and Japanese crested ibises did not become the subject of protection as they were considered harmful birds that disrupt agriculture.	
1894	2		- Oriental white storks appeared again and a pair built a nest in Mt. Tsuruyama (currently Sakurao, Izushi Town, Toyooka City).	
1904	8		● Auspicious bird boom - The Oriental white storks that built a nest on Mt. Tsuruyama hatched four young birds. In conjunction with the victory in the Russo-Japanese War, an "auspicious bird" boom occurred as breeding was considered as an auspicious sign. - Local people opened teahouses for those who came to see the Oriental white storks and developed activities to attract tourists. (The teahouses continued until the beginning of World War II.) ● Protection administration - Old Murouemura protected Mt. Tsuruyama and Hyogo Prefecture designated the area of 18 ha around Mt. Tsuruyama as an area where hunting is prohibited.	- Sino-Japanese War started.
1907	10		- A pair of Oriental white storks built a nest and bred also in old Nasa village in this year.	- A typhoon brought flood damage to approximately 5,000 houses in Toyooka City.
1908	10		● Revision of the "Game Law" - "Scarcity" was added to the basis for the protection of birds and wild animals for the first time, and Oriental white storks, Japanese crested ibises, and spoonbills were additionally designated as protected birds. However, it was already too late since most of these birds had disappeared from all areas in Japan.	
1919	30			- Enactment of the "Historical Sites, Scenic Beauty and Natural Monument Preservation Law"
1920	—			- Large-scale of improvement work started in the Maruyama River (1937).
1921	—		● Designation of a "Historical Site, Scenic Beauty and Natural Monument" - "Mt. Tsuruyama" in Izushi-sakurao as a breeding place for Oriental white storks, ,a breeding place of oriental white storks.was designated as a natural monument.	
1923	—			- Great Kanto Earthquake
1934	41		● The peak period for the Tajima Oriental white storks - The habitats for Oriental white storks expanded around the Toyooka Basin from Wadayama, Asago City to Kumihama-cho, Kyotango City, Kyoto Prefecture (15 km × 30 km) at the time.	
1939	—		● Cutting of trees used for building nests - As a large quantity of pine trees were cut down for wood to be supplied to the battlefields, Oriental white storks lost the sites to build their nests,then their population drastically decreased. The fact that their flyways on the Asian continent became battlefields also greatly affected them.	- World War II started.
1945	—			- World War II ended.
1950	—		- Pairs of Oriental white storks built their nests in Kodani, Toyooka City and Asama, Yoka Town (currently Yabu City) ● Enactment of the "Law for the Protection of Cultural Properties" - Oriental white storks were designated as a subject of protection by the Law for the Protection of Cultural Properties.	- Toyooka City was established through the consolidation of Toyooka Town, Nitta Village, Nakasuji Village, and Gonosho Village. ● Agricultural Land Reform
1951	—		- According to the transfer of the habitats of Oriental white storks, the natural monument designation was changed from "Mt. Tsuruyama" to "Isa Village, Yabu County (currently Yabu City)."	
1952	—		- The designation of "Isa Village, Yabu County" was changed from a natural monument to a special natural monument.	
1953	—		● Protection of a "species" is designed - According to the migration of Oriental white storks, the natural monument designation was changed from "habitat" to "species."	
1955	—		● Start of organizational conservation activities - The "Supporters' Association for the Oriental White Stork Protection" was formed through public and private cooperation, and the conservation activities in the public and private cooperation are started. This organization was renamed as the "Tajima Oriental White Stork Conservation Association" (hereinafter referred to as "the Conservation Association") in 1958.	
1956	23		- The designation of "Oriental white storks" was changed from a natural monument to a special natural monument.	
1959	22		- Since then, the Conservation Association has developed various activities such as the "Leaving Oriental White Storks Alone Campaign," the installation of artificial nesting towers (Yuruji District, Toyooka City), the preparation of artificial feeding grounds, and the release of small fish.	- The Isewan (Ise Bay) Typhoon brought flood damage to 16,800 houses in the city.
1960	18			● Toward the society with a focus on economic growth - The Ikeda Cabinet announced an "Income-Doubling Plan" in the "high economic growth period" between the 1950s and 1970s, which achieved phenomenal economic growth and the lifestyles were greatly changed. The migration of the population from rural areas to the cities, the change in the structure of farm villages, and air and water pollution in cities became a social problem.

Year	Number of Oriental white storks		Events related to Oriental white storks	Relevant events
	Wild	Breeding		
1961	15			The 2nd Muroto Typhoon brought flood damage to 1,933 houses in Toyooka City. ● Toward modern and efficient agriculture - Based on the socio-economic trends and outlook in those days, the "Agricultural Basic Law" was enacted to clarify the path for Japan's agriculture to develop. Agricultural methods using chemical fertilizers and pesticides, and large machinery rapidly spread.
1962	15		- The Conservation Association spread the "One Loach Campaign." - Hyogo Prefecture was appointed as the management organization of the "special natural monument Oriental white storks."	- Rachel Carson published "Silent Spring." She warned about soil pollution due to chemicals.
1963	14		- The Conservation Association started the "Love Fund-raising Campaign" for its activity expenses. - Hyogo Prefecture decided to launch the artificial breeding of Oriental white storks.	
1965	11	2	● Start of the artificial breeding of Oriental white storks - An Oriental white stork breeding farm was constructed in Nojo, Toyooka City (currently the Center for the Oriental White Stork Protection and Propagation attached to the Hyogo Park of the Oriental White Stork (hereinafter referred to as the "breeding farm")). A pair of wild Oriental white storks (2 individuals) was caught, then artificial breeding is started. - Oriental white storks were chosen as the prefectural bird of Hyogo. - The Council for the Oriental White Stork Breeding Measures of the Ministry of Education confirmed that all of the wild Oriental white storks would be protected by artificial breeding.	- The food self-sufficiency rate (on a calorie basis) became 73%. - Typhoon No.23 brought flood damage to 1,933 houses in the city. - The projects for agricultural structural reform started in the city (i.e. the land base improvement in the Akaishi and Tsuchibuchi Districts).
1966	7	1	- Professor Muto, Tokyo University of Education, published that the cause of death for the Oriental white storks that died in the Toyooka Basin was from mercurial pesticides.	- The Maruyama River was promoted to a first-grade river. - The basic plan for the implementation of improvement work for the Maruyama River, which started from 1956, was determined.
1967	6	4	- Two pairs of wild Oriental white storks were caught in the city. - The First Conference on Oriental White Stork Protection and Propagation was held.	- The "Environmental Pollution Prevention Act" was enacted.
1968	5	4		- Projects for improving the cultivated land and purchasing combine harvesters are started in the northern part of Nakasuji in the city.
1969	3	6	- A pair of wild Oriental white storks were caught in the city.	
1971	1	4	● Wild oriental white storks disappeared Japan. - The last Oriental white stork, which was injured and weakened, was protected in the city but died, thus, Oriental white storks disappeared from the natural environment in Japan. - An Oriental white stork protected in Takefu City, Fukui Prefecture, was transferred to the breeding farm. - An Oriental white stork was protected in Tokunoshima Town, Amami County, Kagoshima Prefecture. (It was transferred to the breeding farm the next year.)	- Adoption of the "Ramsar Convention" - The Environment Agency was established. ● A great change in the agricultural administration – acreage reduction policies - The acreage reduction policies started in order to solve the excess supply of rice.
1972	0	5		- The Club of Rome published "The Limits to Growth." - "Declaration on the Human Environment" at the United Nations Conference on the Human Environment (Stockholm) - Establishment of the United Nations Environment Programme (UNEP) - Adoption of the "Convention Concerning the Protection of the World Cultural and Natural Heritage" at the 17th UNESCO General Assembly - Establishment of the Hokkeji-Manzai Preservation Society in the city
1976	0	5		- Typhoon No.17 brought flood damage to 3,022 houses in the city.
1979	0	5		- Typhoon No.20 brought flood damage to 1,016 houses in the city.
1983	0	6		- Establishment of Asahi-Nouji Ltd. (an agricultural Cooperative)
1985	0	7	● Introduction of Oriental white storks from Russia - Six young Oriental white storks were given by the Khabarovsk region, part of the former Soviet Union, and started to be raised at the breeding farm. (Since then, the Khabarovsk region presented young birds in 1999, 2003, and 2004.)	- The food self-sufficiency rate (on a calorie basis) became 53%. - Nakatani Agricultural Cooperative, which adopted one farming form in one community, was established in the city.
1986	0	10	- The last Oriental white stork living in the Toyooka Basin died in the breeding farm, which meant the extinction of Oriental white storks in Japan.	
1989	0	11	● Success in artificial breeding - The artificial breeding of Oriental white storks succeeded for the first time (2 individuals were raised). Since then, young birds have been born every year.	- The Japanese version of the Red Data Book (the first edition) was published.
1990	0	15		- Collapse of the bubble economy - Flood damage to 2,508 houses in the city due to Typhoon No.19 - Opening of the Miyazu Line of Kitakinki Tango Railway
1991	0	20	- Two individuals for breeding were lent by the Tama Zoological Park in Tokyo. (Since then, there have been frequent exchanges between the populations in domestic zoos. The details are omitted.)	
1992	0	26	● Plans for the reintroduction of Oriental white storks started. - The investigation committee for the future plans of Oriental white storks (hereinafter referred to as the "committee") was established in order to determine the future direction of the Oriental white storks under breeding.	- Adoption of the "Rio Declaration on Environment and Development" and the "Convention on Biological Diversity" at the United Nations Conference on Environment and Development (Rio de Janeiro) - Enactment of the "Law for the Conservation of Endangered Species" - Wicker trunks were designated as a traditional craftwork. - Opening of Tajima Airport (currently Konotori Tajima Airport)

Year	Number of Oriental white storks		Events related to Oriental white storks	Relevant events
	Wild	Breeding		
1993	0	30	- The committee confirmed the direction for reintroducing the Oriental white storks under breeding. In the mid-term report, the places for reintroduction bases were decided to be constructed in the Shounji, Kawai, and Yuruji Districts in Toyooka City.	- Establishment of the EU - Establishment of the UN Commission on Sustainable Development - Enactment of the "Environmental Basic Law"
1994	0	40	- The committee formulated the basic concept for the reintroduction of Oriental white storks. - The third generation under artificial breeding (F2) was born and hope for stable breeding could be seen. - The First International Convention on the Future of Oriental White Storks was held on the theme of "Why is the re-introduction project for Oriental White Storks necessary?".	- Formulation of the "Framework Convention on Climate Change" - Establishment of the Tajima Musical Study Group
1995	0	43	- The prefecture formulated the basic plan for the Hyogo Park of the Oriental White Stork (tentative name).	- Formulation of the "National Biodiversity Strategy of Japan" - Great Hanshin-Awaji Earthquake Disaster - The food self-sufficiency rate (on a calorie basis) became 43%.
1996	0	44		- ISO14001 came into effect.
1997	0	47	- Start of the construction work for the Hyogo Park of the Oriental White Stork - Start of dispersed breeding at the Hyogo Park of the Oriental White Stork - Establishment of the Toyooka Rice-duck Farming Study Group, which formed pesticide-free rice farming started systematically around the Hyogo Park of the Oriental White Stork.	- The Kyoto Conference on Climate Change (COP3) was held, which adopted The "Kyoto Protocol" . The numerical targets for carbon dioxide emissions reduction were set by country. - Revision of the River Act (Environmental conservation was added to the objectives.) - The construction of "Aity," a redevelopment building in front of the station, was completed.
1998	0	54	- The Citizen's Research Institution for the Oriental White Stork (which became an incorporated nonprofit organization in 2004) was established. Since then, it has carried out various activities such as conducting surveys on creatures in the Toyooka Basin and holding the "Rice Field School."	- Enactment of the "Home Appliances Recycling Law" - The "Kayo Morning Market" opened as the first morning market in Toyooka.
1999	10	66	● The base for the conservation and reintroduction of endangered species was established. - The Hyogo Park of the Oriental White Stork opened. - The utility poles on the access roads to the Hyogo Park of the Oriental White Stork were buried under the ground.	- Enactment of the "Basic Act on Food, Agriculture and Rural Areas" - The "Oriental White Stork Homeland Morning Market (currently Oriental White Stork Homeland Direct Sales Store)" started in front of the Hyogo Park of the Oriental White Stork.
2000	10	73	● An education facility as place to learn for citizens was established. - The Toyooka Municipal Eco-Museum Center was opened in the Hyogo Park of the Oriental White Stork. - The Toyooka City Oriental White Stork Fund was established. - The Second International Convention on the Future of Oriental White Storks was held on the theme of "Reconsidering the re-introduction policy from various perspectives."	- Enactment of the "Basic Act for Establishing a Sound Material-Cycle Society" - Enactment of the "Construction Material Recycling Law" - Enactment of the "Food Waste Recycling Law" - A part of the floodplains of the Maruyama River was restored to form wetlands (transformation to biotopes). - Establishment of the "Users Group of the Oriental White Stork Homeland Morning Market (currently Oriental White Stork Homeland Direct Sales Store LLC.)"
2001	30	82	- Biotope rice paddies started utilizing the crop rotation fields. - Launch of the Oriental white stork park volunteers	- Establishment of the Ministry of the Environment
2002	1 wild	101	● Preparation of the posts for personnel in charge of administration, and the systematic planning and coordination of policies - The "Promotion Division of Oriental White Stork and Human Co-existence (currently the Division of Oriental White Storks and Human Co-existence)" was established in the Planning Department of the municipal government. - The "Adviser in Charge of Community Development with Soaring Oriental White Storks" was established in the Planning and Coordination Department, the Bureau for the Residents of the Tajima Province, Hyogo Prefecture. - The population of the Oriental white storks under breeding exceeded 100. - The installation of fish ladders connecting rice paddies to waterways was started.. - The "Promotion Plan for the Reintroduction of Oriental White Storks" was formulated. - The "Concept and Plan for the Museum of Whole Communities with Soaring Oriental White Storks" was formulated. ● A wild Oriental white stork came flying down. - A wild Oriental white stork (Hachigoro) came flying down in August.	- Approval of the "Law for the Promotion of Nature Restoration" - Conclusion of the "New National Biodiversity Strategy of Japan" - Enactment of the "End-of-Life Vehicle Recycling Law" - The food self-sufficiency rate (on a calorie basis) became 40%. - The "Toyooka City Comprehensive Plan" was formulated, in which the city vision was determined as "Toyooka, a homeland full of smiles where Oriental white storks grandly soar." Based on this, the "Environmental Basic Ordinance for Creating Communities Living in Co-existence with Oriental White Storks" and the "Toyooka City Basic Environment Plan" were formulated. - Establishment of the Committee on the Formulation of Nature Restoration Plans (of the country and the prefecture) for the Maruyama River System - Establishment of the "Oriental White Stork Homeland Farming Cooperative" - Establishment of the "Kodani District Farming Cooperative" - Start of the eco-farmer certification system
2003	1 wild	105	● The horizontal collaboration started to expand. - Establishment of the Liaison Council on the Promotion of the Reintroduction of Oriental White Storks - Establishment of the Investigative Commission on the Reintroduction Techniques and Measures for Oriental White Storks - The number of the visitors to the Toyooka Municipal Eco-Museum Center reached 500,000 people in October. - The creation of biotopes utilizing the rotation fields has spread among the multiple agricultural associations and cooperatives in the city. - Trademark registration of the "Dance of the Oriental White Stork," a brand for safe and reliable agricultural products - The creation of rice fields living in co-existence with Oriental white storks started (restoration of a rich natural environment of the rural districts, transformation of rotation fields to biotopes, postponement of mid-season drainage, and flooding farming in winter). - The training on habituation to the wild started towards the experimental release of Oriental white storks into the wild. - An Oriental white stork was caught in Aichi Prefecture and transferred to the Hyogo Park of the Oriental White Stork. - The Agency for Cultural Affairs accredited the Toyooka Basin as a "Cultural Landscape."	- Enactment of the "Law for Enhancing Motivation on Environmental Conservation and Promoting Environmental Education" - Enactment of the "Law Concerning the Conservation and Sustainable Use of Biological Diversity through Regulations on the Use of Living Modified Organisms" - Formulation of the "Fundamental Plan for Establishing a Sound Material-Cycle Society" - Revision of the "Food Control Law" - The Tajima region was accredited as a green tourism special zone, and community farms and farm inn's opened. - The First Annual Oriental White Storks Thanksgiving Day was held. (Since then, it was held every year up to the third time.) - Elementary schools in the city were designated as model schools for environmental education. - Charging for garbage collection was started. - Formulation of the "Toyooka City Environmental Action Plan"
2004	1 wild	113	- The reintroduction of Oriental white storks was advertised at the pre-events of Aichi Expo. - The "Oriental White Stork Fan Club," which supports the reintroduction of Oriental white storks on a nationwide scale, was established. - The utility poles along the prefectural roads around the Hyogo Park of the Oriental White Stork were buried under the ground or decorated beautifully. - Two Oriental white storks were handed over to the Research Center for Oriental White Stork Rehabilitation, Korea National University of Education. (Since then, it was also done in 2007.) - The training on habituation towards reintroduction (flying and feeding) was conducted. - An Oriental white stork was protected in Niigata Prefecture and transferred to the Hyogo Park of the Oriental White Stork.	- Enforcement of the "Landscape Act" - The last Japanese crested ibis (which was born in Japan) named "Kin" died. - Avian influenza became a problem. - The whole area of the lower reaches of the Maruyama River was designated as a hunting prohibited area. - Excavation work started in Hinoso Island. - Typhoon No.23 brought flood damage to 7,944 houses in the city. - "Toyooka Kaban" (luggage made in the city) was selected for the "Japan Brand Development Assistance Program." - Formulation of the "Toyooka City Environment-Economy Strategy" - The "Subsidy System for Encouraging Academic Research on the Reintroduction of Oriental White Storks" was started, which supports students who conduct research activities in the city.
2005	1 wild 7 released	111	● The experimental release of Oriental white storks into the wild was started.. - The experimental release of the Oriental white storks under breeding was started in September. - The 3rd International Convention on the Future of Oriental White Storks was held on the theme of "Making a sustainable society possible." - "Stork Friendly Farming" spread to all areas.	- New Toyooka City was established through the consolidation of 1 city and 5 towns in April. - "Kaban Street" was opened in the urban area.

The above refers to the "Challenges of Toyooka," a document of the 3rd International Convention on the Future of Oriental White Storks (September 2005).

Year	Number of Oriental white storks		Events related to Oriental white storks		Relevant events	
	Wild	Breeding				
2005	1 wild and 7 released	111			March	- The projects for the "Reintroduction of Oriental White Storks" were exhibited at the Aichi Expo (Nagoya City, Aichi Prefecture).
					April	- New "Toyooka City" was established.
			June	- The Oriental white stork with a broken bill named "Takefu" died.		
			September	- The experimental release of Oriental white storks under artificial breeding was strated. Simultaneous release of 5 individuals from Shounji Phased release of 2 individuals from Nojo	September	- The 3rd International Convention on the Future of Oriental White Storks was held on the theme of "Making a sustainable society possible."
2006	1 wild and 13 released	107	April	● Egg-laying in the wild (which did not hatch) - Two of the individuals became a pair among the simultaneously released storks and laid eggs (which did not result in hatching at the Yuruji artificial nesting tower).	April	- The "Oriental White Stork and Human Co-existence Department" was established in the city office. - Establishment of the Oriental White Stork Environment-Economy Consortium
			May	- Eggs were laid by a pair at the phased release base in Shounji. Two young birds eventually flew off. - The phased release from the Nojo base was discontinued. - A wild Oriental white stork (Ehime) came flying from Ehime Prefecture.	May	- The "Nature Experience School" opened as part of a Major Strategy for the Reintroduction of Storks for Children.
					June	- The number of visitors to the Eco-Museum Center reached 1 million people.
			July	- Experimental release of storks into the wild Phased release of 2 individuals from Shounji		
			September	- Experimental release of storks into the wild Simultaneous release of 3 individuals from the floodplains of the Maruyama River Phased release of 4 individuals from Kodani		
					November	- The Toyooka City Environment Council submitted a report on the "Draft of the Toyooka City Environmental Basic Ordinance for the Creation of Communities Living in Co-existence with Oriental White Storks."
			February	- One individual, which was released in FY2005, died. - "Hachigoro," a wild Oriental white stork, died.		- Five districts in the city were designated as "Rice Paddies with Oriental White Storks Flying down for Feeding."
					March	- The Municipal Regional Exchange Center "Oriental White Stork Honpo" was opened. - Announcement of the biomass town concept paper - Formulation of the Toyooka City comprehensive plan - Formulation of the basic concept and plan for improving "(tentative name) Hachigoro's Toshima Wetland"
2007	1 wild and 18 released	99	April	- Two individuals that were simultaneously released in FY2006 became a pair and laid eggs (which did not result in hatching in the Akaishi artificial nesting tower).		
					May	- Nine districts in the city were designated as "Rice fields with Oriental White Storks Flying down for Feeding."
					June	- The mayor gave a lecture at a Japan-Europe joint workshop and symposium (Germany).
			July	● Young birds were born in the wild area and flew from their nest (for the first time in 46 years in Japan). - A young bird of a pair that were released in FY2006 flew from the nest. (From the Yuruji artificial nesting tower. It hatched on May 20 and flew from the nest on July 31.)	July	- An environment-economy-based seminar (Citizens' Environment University) - Completion of the excavation in Hinoso Island (the sandbank in the Maruyama River)
			September	- Experimental stork release into the wild Simultaneous release of 3 individuals from Sasaura Phased release of 2 individuals from Yamamoto		
			October	- Four individuals were handed over to the Research Center for Oriental White Stork Rehabilitation, Korea National University of Education	October	- A Japan-Europe joint workshop and symposium was held in Toyooka. ● Change in school lunches - Stork Friendly Rice was used three times every two months in school lunches at elementary and junior high schools in the city.
					November	- Biodiesel fuel (BDF) was used for the school lunch delivery cars.
			February	- One individual that was released was taken back in.		
					March	● The birthday of the first young bird after the reintroduction was designated as a memorial day in the city. - Toyooka City's "Day of Co-existence with Creatures" (May 20) was established.
2008	1 wild and 27 released	100	May	- Eggs were laid by a pair from the phased release base in Miki. Later, 2 young birds flew off.	May	- Introduction of the Hometown Tax Payment System called "Contributions to Toyooka Oriental White Storks", a scheme in which former residents of Toyooka can designate part of the resident tax where they now live to be returned back to their hometown of Toyooka for various purposes. - Tourism guides for Oriental white storks were established. - A movement developed to create wetlands in fallow fields in Tai. - A district in the city was designated as "Rice fields with Oriental White Storks Flying down for Feeding."
			June	● Effective breeding in the wild - Eight young birds from 5 pairs that were released simultaneously or in phases flew off (until July).	June	- Establishment of the Council for the Conservation of Oriental White Stork Habitats
			July	- Experimental stork release into the wild Phased release of 2 individuals from Miki	July	- Toyooka City's mascots were born: "Ko-chan," an Oriental white stork, and "O-chan," a Japanese giant salamander. - The number of visitors to the Eco-Museum Center reached 2 million people.
					September	● The reintroduction of the Japanese crested ibis was started. - The mayor participated in the commemorative ceremony of the release of Japanese crested ibises into the wild (Sado City, Niigata Prefecture).
					October	- Participation in the 10th Meeting of the Conference of the Contracting Parties to the Ramsar Convention (Korea)
			January	- One individual, which flew from the nest as a result of breeding in the wild by released Oriental white storks, died.		
					February	- The Toyooka KODOMO (Children) Ramsar Exchange Event was held.

Year	Number of Oriental white storks		Events related to Oriental white storks		Relevant events	
	Wild	Breeding				
2009	1 wild 35 released	98	April	- One individual, which flew from the nest as a result of breeding in the wild by released Oriental white storks, died.	April	- Tenth anniversary of the grand opening of the Hyogo Park of the Oriental White Stork - Cooked rice was introduced to the daily school lunch program and Stork Friendly Rice was used once a week. ● The base facilities for outdoor Oriental white storks were established. - Opening of Hachigoro's Toshima Wetland (Toshima, Kinosaki Town)
			May	- Nine young birds from 4 pairs among the simultaneously and phases release and wild populations flew from their nests (up to August).	May	● The full use of the contributions called the "Oriental White Stork Fund" is started. - The biotopes, utilizing the Oriental White Stork Fund, were established by each primary school district in collaboration with the elementary school classes.
					June	- Four districts (one of which was located in the city) were designated as "Rice Paddies with Oriental White Storks Flying down for Feeding."
					September	- The practice of the Japan – Asia SATOYAMA Education Initiative (a collaborative project between the University of Tokyo, the United Nations University Institute of Advanced Studies, and Toyooka City)
			October	- Experimental stork release into the wild Phased release of 2 individuals from Karakawa		
					November	- Formulation of the Toyooka City Economic Growth Strategy
			December	- One individual, which was released in FY2009, died. - One individual, which flew from the nest as a result of breeding in the wild by released Oriental white storks, died.		
			February	- One individual that was released was taken back in.		
2010	1 wild 41 released	98	April	- A wild stork came flying down to Echizen City, Fukui Prefecture (which stayed for 107 consecutive days from April 1). - Eggs were laid by a pair at the phased release base in Yamamoto. Later, 2 young birds flew away.	April	- The 10th anniversary of the grand opening of the Eco-Museum Center - Completion of the Toyooka City Eco House ● A specialist in the "Creation of Environmental Communities" (in charge of biodiversity conservation) was assigned in Toyooka City.
					May	- Implementation of the "International Day for Biological Diversity" related projects (until October)
			June	- Nine young birds from 5 pairs among the simultaneously or phases releases and wild individuals flew from their nests up to August. (The first young bird was born between a released individual and a wild one. The prospects for improved genetic diversity could be observed.)		
			July	- Experimental stork release into the wild Phased release of 2 individuals from Yamamoto	July	- Three districts (one of which was located in the city) were designated as "Rice Paddies with Oriental White Storks Flying down for Feeding."
					August	- Visit to China with the support of JICA's Grassroots Technical Cooperation (environmental education and organic farming)
			September	- Two individuals, which flew from the nest as a result of breeding in the wild by the released Oriental white storks, died. - One individual from a phases release in FY2010 died.	September	● Full-scale efforts towards registration under the Ramsar Conservation on Wetlands - The "lower reaches of the Maruyama River and the surrounding rice fields" were selected as a potential domestic site for proposed listing under the Ramsar Convention (September 30).
					October	- San'in Kaigan Geopark was designated as a Global Geopark. - Participation in the 10th Meeting of the Conference of the Parties to the Convention on Biological Diversity (CBD/COP10) (Nagoya City, Aichi Prefecture) - The 4th International Convention on the Future of Oriental White Storks was held on the theme of "Re-embedding our livelihood into ecological systems through stork conservation." - The "Citizens' Conference on Expanding the Habitats for Oriental White Storks throughout Japan" and the "Relevant Municipalities Conference" were held.
			December	- Full-scale countermeasures against highly pathogenic avian influenza - In response to the detection of highly pathogenic avian influenza virus in dead wild birds in Yonago City, Tottori Prefecture and Takaoka City, Toyama Prefecture, the exhibition of 12 Oriental white storks was temporarily suspended at the Hyogo Park of the Oriental White Stork (they were taken in from December 25 to January 2).	December	- The first establishment of the Toyooka City Headquarters for Highly Pathogenic Avian Influenza Control
			January	- In response to the detection of highly pathogenic avian influenza virus from the dead wild birds in Zuga Pond, Itami City, Hyogo Prefecture, the exhibition of 12 Oriental white storks was temporarily suspended again at the Hyogo Park of the Oriental White Stork (they were taken in from January 27 to March 22).		
			February	- A stork released scimultaneously in FY2007 died.	February	- Hyogo Prefecture launched the "Conference on Measures for the Reintroduction of Oriental White Storks."
			March	- A stork released in FY2006 died.	March	● Great East Japan Earthquake (March 11)

The above refers to the "Challenges of Toyooka," a document for the 4th International Convention on the Future of Oriental White Storks (September 2005).

Year	Number of Oriental white storks		Events related to Oriental white storks		Relevant events	
	Wild	Breeding				
2011	1 wild 47 released	95	April	- An individual, which flew from the nest as a result of breeding in the wild by a released Oriental white stork, died.	April	- Stork Friendly Rice was used twice a week in school lunches. - Establishment of the "Eco-valley Promotion Office" in the City Policy Coordination Department
					May	- The number of visitors to the Eco-Museum Center reached 3 million people.
			June	- Nine young birds from 5 pairs among the simultaneous or phased release and the wild population flew from their nests (until September from the Yuruji Nesting Tower. September 24 was the slowest record).		
					August	● Formulation of the medium- and long-term plan for the reintroduction of Oriental white storks - The Hyogo Prefectural Board of Education and the Hyogo Park of the Oriental White Stork announced the "Grand Design for the Reintroduction of Oriental White Storks." - Hyogo Prefecture established the "Committee on Formulating the Promotion Plan (2nd term) for the Reintroduction of Oriental White Storks."
			September	- A stork released in a phased release in FY2006 died.		
					November	- Toyooka City established the "Investigative Commission on the Regional Biodiversity Strategy."
			December	● Start of the movement towards the creation of breeding populations outside Hyogo Prefecture - A pair (2 individuals) was transferred to Echizen City, Fukui Prefecture (December 10).		
			January	- The long-distance migration of 4 individuals was confirmed in areas other than the Toyooka Basin (Wakasa Town, Mikatakaminaka County, Fukui Prefecture; Kurashiki City (and Soja City), Okayama Prefecture; Seiyo City, Ehime Prefecture; and Minami-satsuma City, Kagoshima Prefecture). Direct observation data from January 1 – 31.		
					March	- Formulation of the "Promotion Plan for the Reintroduction of Oriental White Storks (2nd term)"
2012	1 wild 58 released	91	April	- A stork bred in the wild died. - A stork bred in the protection and breeding center died.		
			May	- Yong birds of a pair of Oriental white storks, both of which flew from the nest into the wild (3rd generation of outdoor breeding), were confirmed for the first time in Japan.		
			June	- An individual, which flew from the nesting in the base in Yamamoto, Hidaka Town, Toyooka City but got injured and was then captured for breeding purposes, died.	June	- Establishment of the "Ordinance for Creating the Communities Filled with Sympathy for Life"
					July	- The "level stream of the Maruyama River and the surrounding rice fields" were registered as a wetlands site under the Ramsar Conservation on Wetlands.
					August	- Formulation of the "Toyooka City Landscape Plan"
			October	- The "Oriental White Stork Reintroduction Zone," which was not normally open to the public, was specially opened only for 2 days. - Four Oriental white storks (2 pairs) were presented to Khabarovsk, Russia.		
			November	- A stork born in an artificial nesting tower in FY2009 died.		
			December	- An individual, which the Hyogo Park of the Oriental White Stork was given by the Tokyo Tama Zoological Park and released in the wild in FY2012, died.	December	- Completion of the "Toyooka Eco-valley and the Yamamiya Local Solar (1st term project)"
			February	- Establishment of the temporary artificial nesting tower in the Hyogo Park of the Oriental White Stork - The laid eggs (2 eggs) of the wild Oriental white storks were confirmed at the artificial nesting tower in the Nojo District.		
					March	- Formulation of the "Toyooka City Agriculture Promotion Strategy"
2013	Unidentified	Unidentified	April	- Breeding between the released population and the wild one coming from the continent was confirmed (at the Hyogo Park of the Oriental White Stork).		
			October	- The "Oriental White Stork Reintroduction Zone," which was not normslly open to the public, was specially opened only for 2 days.		

◆Appendix 3: List of project costs

Party	Project name	Project overview	Project cost (million yen)									
			2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Agency for Cultural Affairs	Natural Monument Restoration Project for the Special Natural Monument – Oriental White Storks	To attempt restoration through the propagation of a special natural monument - Oriental white storks - and make conservation and restoration absolutely sure by feeding, disease and pest control, biological research, and other aspects.	64	60	68	64	81	57	56	56	56	54
	Conservation and restoration projects for registered monuments such as the special natural monument – Oriental white storks	Repair of the Center for Oriental White Stork Protection and Propagation	0	35	0	18	0	0	0	0	0	0
Ministry of Land, Infrastructure, Transport and Tourism	Environment Improvement Project for the Comprehensive Water System of the Maruyama River	Restoration of the wetland environments and continuous river flow that were lost in the past - Restoration of wetlands (Kayo District of the Izushi River, the middle reaches of the Hon River of the Maruyama River, Shimo-tsurui District, and the Nasa River) - Elimination of the gaps between existing buildings (Yashiro sluice gate and the 1st Terauchi sluiceway) - Improvement of environmental revetments (Kinosaki District)	250	610	70	431	110	253	370	212	301	294
	Special emergency project for the measures for serious river disasters (equivalent in value to nature restoration)	- Restoration of wetlands through the excavation of intermediate water channels	0	3,400 (Total between 2004 and 2010)							0	0
Ministry of Agriculture, Forestry and Fisheries	Subsidies for the maintenance and management payment of agricultural land and water	Activities for the daily management of agricultural land and waterways, conservation of ecosystems such as Oriental white storks, and conservation of water quality were carried out in the 2,840 ha land under the agricultural use agreement.	0	0	0	0	119	119	118	118	118	85
	Base establishment project for the management of water body development Roppo District	Although no work related to the reintroduction of Oriental white storks has been done in this project, the fish ladders were constructed later under other prefectural individual projects for the purpose of ensuring the continuity of water flow between the rice paddies and drainage channels.	0	0	0	0	0	0	0	0	0	0
	Base establishment project for the management of water body development Akaishi District	Fish ladders to ensure the continuity of water flow between rice firlds and drainage channels were constructed under the base establishment project for the management of water body development.	130	97	0	0	0	0	0	0	0	0
	Base establishment project for the management of water body development Nakagawa District	Fish ladders to ensure the continuity of water flow between rice paddies and drainage channels were constructed under the base establishment project for the management of water body development.	48	19	0	0	0	0	0	0	0	0
	Direct payment system for intermediate and mountainous areas	Subsidies were granted to farmers who committed to continuing agriculture for more than 5 years in areas with disadvantages for agricultural production, including intermediate and mountainous areas (FY2012: 32 villages, 194 ha).	9	9	38	37	38	38	36	40	40	40
	Subsidies for direct payments to environment-conserving agriculture (for Hyogo Prefecture)	In combination with the initiatives of farmers to reduce chemical fertilizers and synthetic chemical pesticides in principle by more than 50%, farming activities with a significant contribution to global warming prevention were supported.	0	0	0	0	0	0	0	0	27	55
Ministry of the Environment	Project for Supporting the Reintroduction of Oriental White Storks	To promote the conservation and restoration of the low level stream of the Maruyama River, this project intends not only to promote opportunities for environmental conservation through conducting resident participation-based surveys on wildlife, holding symposia, and other matters, but also to improve the environment of their breeding grounds through conducting surveys on the environment of the breeding grounds and the state of their use by Oriental white storks.	0	0	0	3	3	3	3	2	0	0
	Project for Supporting the Promotion of Biological Diversity Conservation *Subsidies for the Toyooka Conservation Measures Projects for Oriental White Stork Habitats. The project costs were for expenses covered by the Ministry of the Environment.	To promote the reintroduction of Oriental white storks, the project aims for dissemination and education through implementing the study meetings by residents towards the application for registration under the list of wetlands of international importance under the Ramsar Conservation on Wetlands as well as to carry out restoration activities and studies on the wetland environment appropriate for breeding grounds through the improvement of abandoned rice fields.	0	0	0	0	0	5	4	6	0	0
	Project for Supporting the Promotion of Biological Diversity Conservation through *Subsidies for the Toyooka Model Projects for Promoting the Biological Diversity and Ecosystem Service Conservation. The project costs were covered by the Ministry of the Environment.	Aiming at establishing biological diversity conservation activities in the sustainable region in order to realize the conservation of wetlands and their sensible use for the conservation of Oriental white stork habitats, this project intends to contribute to the formation of Oriental white stork populations through establishing a "biological diversity information system" based on the accumulated data from the previous activities as well as reviewing improvements for tourism programs, the implementation of environmental education programs, and the promotion of participation by enterprises.	0	0	0	0	0	0	0	0	6	7
Bureau for the Residents of the Tajima Province [Toyooka Land Improvement Center]	Base establishment project for the management body development	- Construction of waterways and fish ladders between the rice paddies	22	14	0	0	0	0	0	0	0	0
	Projects for Promoting Community Environmental Conservation and Creation Activities	- Construction of waterway facilities to conserve ecosystems - Construction of fish ladders for water flow between rice paddies	1	1	0	0	0	0	0	0	0	0
	Experimental Project for Supporting the Improvement of the Habitation Bases for the Reintroduction of Oriental White Storks	- Construction of fish ladders for water flow between rice paddies - Ascent surveys	2	3	0	0	0	0	0	0	0	0
	Experimental Restoration Measures Project for the Breeding Grounds of Oriental White Storks	- Construction of fish ladders for water flow between rice paddies - Surveys on the ascent and passage of aquatic wildlife living in the surrounding waterways	2	2	0	0	0	0	0	0	0	0
	Survey Project for Measures for the Breeding Grounds of Oriental White Storks	- Surveys on wildlife and surveys on the ascent and passage of aquatic wildlife	0	0	5	0	0	0	0	0	0	0
	Project for Creating Safe and Secure Places for Wildlife	- Installation of fish shelters and egg-laying sites in rice paddies	0	3	0	0	0	0	0	0	0	0
	Project for Ecosystem-conserving Drainage Channels	- Installation of fish shelters and egg-laying sites in waterways	0	0	2	0	0	0	0	0	0	0
	Project for the Environmental Improvement of the Basis for Releasing Oriental White Storks	- Construction of small-scale fish ladders and nesting sites - Installation of fish shelters	31	24	0	1	1	0	0	0	0	0
	Verification Project for the Fish Biotope Model	- Construction of fish ladders for water flow between rice paddies - Strengthening of the ridges between rice fields and other matters	0	0	0	0	3	0	0	0	0	0
	Project for the Nature Restoration of Rice Paddies Living in Co-existence with Oriental White Storks		2	4	8	8	8	0	0	0	0	0
	Takuni Project for Supporting Natural Environmental Conservation and Restoration	- Ecosystem surveys - Implementation of workshops, symposia, and other events	5	8	8	2	2	0	0	0	0	0
Bureau for the Residents of the Tajima Province [Toyooka Agricultural, Forestry, and Fisheries Promotion Office]	Project for Establishing the Evaluation Committee on the "Rice fields with Oriental White Storks Flying down for Feeding"	- Certifying and supporting the rice field with the environment where Oriental white storks fly down	0	0	0	0	0	0	0	0	0	0
	Promotion Project for Creating Rice fields with Oriental White Storks Flying down for Feeding	- Certifying "Rice fields with Oriental White Storks Flying down for Feeding"	0	0	0	1	1	2	0	0	0	0
	Creation of biotopes for living in co-existence with Oriental white storks	- Construction of biotopes transformed from rotation fields	0	0	0	0	0	1	1	0	0	0
	Project for Holding Adviser Training Courses for Stork Friendly Farming	- Training of advisors for Stork Friendly Farming	0	0	0	0	0	0	0	0	0	0
	Comprehensive Measures Project for Disseminating Stork Friendly Farming	- Subsidizing of the improvement of agricultural machinery, cultivation expenses, and other aspects	0	0	0	0	0	0	0	0	20	15
	Improvement of the Satoyama forests through the utilization of volunteers	- Forest improvement by volunteers	0	0	0	0	0	0	0	0	0	0
	Project for Creating Forests for Satoyama Fureai (contact)	- Forest improvement by volunteers	0	0	0	4	0	0	0	0	0	0

Party	Project name	Project overview	Project cost (million yen)									
			2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Bureau for the Residents of the Tajima Province (Toyooka Agricultural Improvement and Dissemination Center)	PR Promotion Project for Safe and Reliable Agricultural Products Living with Co-existence with Oriental White Storks	・Implementation and education of the "Hyogo Safety Brand"	0	0	0	0	0	0	0	0	0	0
	Project for Developing Production Areas for the Hyogo Safety Brand Made in Tajima	- Support for Expanding the Production Areas of the Hyogo Safety Brand	0	1	1	0	0	0	0	0	0	0
	Project for Preparing a Pamphlet on Stork Friendly Farming (English Version)	- Preparation of the educational pamphlet	0	0	0	0	0	0	0	0	0	0
	Project for Loach Production Measures to Raise Oriental White Storks	- Establishment of loach fish farming technologies	0	0	0	2	0	0	0	0	0	0
	Implementation of a weeding contest for Stork Friendly Farming	- Implementation of a weeding machine contest	0	0	0	0	0	0	0	0	0	0
	Project for Developing Model Areas for Practicing Organic Farming	- Establishment of rice paddies to verify "Stork Friendly Farming"	0	0	0	3	2	2	1	1	1	0
	Raising the level of Stork Friendly Farming systems	- Establishment of pesticide-free farming techniques and other aspects	0	0	0	0	0	0	0	0	1	0
	Project for Promoting Organic Farming	- Establishment of large-scale field demonstration areas and other aspects	0	0	0	4	14	22	17	13	3	3
Bureau for the Resident of the Tajima Province (Toyooka Civil Engineering Office)	Nature restoration of the branches of the Maruyama River	- Rivers' nature diversification, wetland creation, and solution of differences in level	0	0	0	40	60	40	40	38	10	37
	"Come, Oriental White Storks; Don't Come, Landslide Disasters" Project	- Improvement of the Tai River	0	0	0	0	0	0	2	14	0	0
Bureau for the Residents of the Tajima Province (Regional Policy Office)	Project for Constructing Artificial Nesting Towers for Oriental White Stork Nestinga	- Construction of artificial nesting towers	0	0	1	2	0	1	1	1	0	1
	The Liaison Council for project management on the Promotion of the Reintroduction of Oriental White Storks	- A meeting of the Liaison Council on the Promotion of the Reintroduction of Oriental White Storks was held.	3	2	2	2	2	1	0	0	1	1
	Project for the return, Dissemination and Education of the Reintroduction of Oriental White Storks	- Booklets and pamphlets of the promotion plan for the reintroduction of Oriental white storks were printed.	1	0	0	0	1	0	0	0	0	0
	Oriental White Stork Fan Club Project	- A nationwide organization to support the reintroduction - Chairperson Hiroshi Yagyu	0	0	1	1	0	0	0	2	2	2
	Exhibition at the Aichi Expo and Shizuoka International Garden and Horticulture Exhibition	- Exhibition at the events	0	0	1	0	0	0	0	0	0	0
	PR Project for the Symposia on Oriental White Storks		0	0	0	0	1	0	0	0	0	0
	Forum on Community Creation for the 1st Anniversary of Stork Release into the Wild	- Implementation and Education Forum on the Reintroduction of Oriental White Storks	0	0	0	0	0	0	0	0	0	0
	Project for Holding a Forum on Promoting Stork Friendly Farming	- Forum on Stork Friendly Farming	0	0	0	1	0	0	0	0	0	0
	Implementation of a Forum on Creating the Local Communities Living in Co-existence with Oriental White Storks	- Dissemination and Education Forum on the Reintroduction of Oriental White Storks	0	0	0	0	0	0	1	1	0	0
	Implementation of the International Workshop on the Reintroduction of Oriental White Storks	- Dissemination and Education Forum on the Reintroduction of Oriental White Storks	0	0	0	0	0	0	0	0	1	0
	Forum on Creating the Local Communities Living with Oriental White Storks	- Dissemination and Education Forum on the Reintroduction of Oriental White Storks	0	0	0	0	0	0	0	0	0	0
	Project for Installing PR Signboards on Agriculture Living in Co-existence with Oriental White Storks	- Installation of the educational signboards	0	0	0	0	0	0	0	0	0	0
	Project for Preserving Oriental White Stork Documentary Photographs		0	0	0	0	1	0	0	0	0	0
	Dissemination and Education Project for Creating Local Communities Living in Co-existence with Oriental White Storks through Video Images	- Production and utilization of the video images of the reintroduction of Oriental white storks	0	0	4	2	0	0	0	0	0	0
	Project for Establishing a search System for the List of Videos for Dissemination and Education on the Reintroduction of Oriental White Storks	- Preparation of a video library	0	0	0	0	0	0	0	0	0	0
	PR Project for the Reintroduction of Oriental White Storks	- Operation of the video library	0	0	0	0	1	0	0	1	0	0
Bureau for the Residents of the Tajima Province (Community Promotion Section of the Headquarters)	Project for Constructing Artificial Nesting Towers for Oriental White Stork Nesting	- Construction of artificial nesting towers	0	0	0	0	4	0	0	0	0	0
	Oriental White Stork Fan Club Project	- A nationwide organization to support the reintroduction - Chairperson Hiroshi Yagyu	0	4	4	4	4	5	3	0	0	0
	PR Project for the Reintroduction of Oriental White Storks	- Preparation of booklets	0	0	0	2	0	0	0	0	0	0
	Forum on Creating Local Communities for the 1st Anniversary of Stork Release	- Dissemination and Education Forum on the Reintroduction of Oriental White Storks	0	0	0	1	0	0	0	0	0	0
	Dissemination and Education Project for Creating Local Communities Living in Co-existence with Oriental White Storks through Video Images	- Production and utilization of the video images of the reintroduction of Oriental white storks	0	0	15	20	0	0	0	0	0	0
	Project for Establishing a Search System for the List of Videos for Dissemination and Education of the Reintroduction of Oriental White Storks	- Preparation of a video library	0	0	0	4	0	0	0	0	0	0
	Promotion of the concept of the Eco Museum Center for Oriental White Storks	- Formulation of the basic concept and plan	0	0	0	5	8	3	3	2	2	2
Hyogo Park of the Oriental White Stork	Management of the Hyogo Park of the Oriental White Stork	Management of the Hyogo Park of the Oriental White Stork	166	181	165	170	165	127	132	125	112	102
Toyooka City	Project costs for promoting the reintroduction of Oriental white storks	Management costs of the Eco-Museum Center	8	7	8	12	11	10	10	10	9	10
		Project costs for the dissemination and education of the Eco-Museum Center	3	1	2	2	1	1	3	2	2	2
		Project costs for promoting the reintroduction of Oriental white storks	3	2	10	6	3	9	6	3	4	4
		Support project costs for creating the rice fields for living in co-existence with Oriental white storks	13	12	10	2	0	0	0	0	0	0
		Project costs for the nature restoration of rice fields living in co-existence with Oriental white storks	0	0	14	17	0	0	0	0	0	0
		Project costs for the compilation and exchange of knowledge on Oriental white storks	0	0	0	0	1	1	1	1	1	2
		Project costs for the conservation measures for Oriental white stork habitats	0	0	0	0	0	3	10	11	13	15
		Management costs of Hachigoro's Toshima Wetland	0	0	0	0	0	1	6	6	6	6
		Project costs for natural ecosystem conservation	0	0	0	0	0	0	0	0	0	0
		Project costs related to the Ramsar Convention	0	0	0	0	0	0	0	0	0	5
		Project costs for developing the Museum of Whole Communities	0	0	19	86	37	0	0	0	0	0
		Project costs for developing the Museum of Whole Communities (for the approved amount carried-over)	0	0	0	0	0	18	0	0	0	0
		Project costs for improving Hachigoro's Toshima Wetland	0	0	0	73	43	72	0	0	0	0
		Project costs for improving Hachigoro's Toshima Wetland (for the approved amount carried-over)	0	0	0	0	11	0	21	0	0	0
		Project costs for holding the "International Convention on the Future of Oriental White Storks"	0	0	6	0	0	0	1	6	0	0
		Project costs for exhibiting at the Aichi Expo (2005), project costs related to the International Day for Biological Diversity (2009)	0	0	6	0	0	0	0	4	0	0
		Provision of the information strategies (the National Athletic Meet, Sports and Arts in 2006)	0	0	0	0	0	0	2	0	0	0
		Project costs for formulating the Regional Biodiversity Strategy	0	0	0	0	0	0	0	0	1	2
		Other costs (personnel expenses)	0	0	0	0	0	0	2	0	0	0
	Other costs (personnel expenses)	Project costs for supporting the biological diversity conservation with a focus on wetlands	0	0	0	0	0	0	0	0	10	10
		Project costs related to the Ramsar Convention and those for attitude surveys and studies	0	0	0	0	0	0	11	4	6	0
	Costs for the agriculture, forestry and fisheries industry	Project costs for the nature restoration of rice fields living in co-existence with Oriental white storks	0	0	0	0	17	9	7	9	0	0
		Support project costs for creating the rice fields living in co-existence with Oriental white storks	0	0	0	0	3	0	0	0	0	0
		Project costs for improving the environment of feeding grounds of Oriental white storks, project costs for promoting the creation of rice fields with Oriental white storks flying down for feeding, and other matters	0	0	0	2	5	1	0	0	0	0
		International Conference on Biodiversity-friendly Agriculture	0	0	0	0	0	0	0	4	0	0

◆Appendix 4: List of references

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◆Appendix 5: A City Development with a Focus on 'Oriental White Storks', a Special Natural Treasure: Toyooka City, Hyogo Prefecture. A column (partially revised) published in "Cultural Properties Monthly" in FY2008.

A City Developing with a Focus on "Oriental White Storks," a Special Natural Treasure: Toyooka City, Hyogo Prefecture

On September 24, 2005, welcoming Prince and Princess Akishino, a stork release ceremony for "Oriental white storks," a special natural treasure, was held in Toyooka City, Hyogo Prefecture, and the first step to their reintroduction was made. Oriental white storks were prohibited to be hunted in the Edo period and inhabited throughout the areas south of the Tohoku Region. It is said that they also built nests on the pine trees in "Rikugien" in Tokyo, which is currently designated as a scenic spot. In Toyooka City, the last habitat in the wild, it is said not only that they have blended in with the life in rice fields and Satoyama, but also that even teahouses were built before the war in order to see the young birds leaving the nests.

Although Oriental white storks were designated as a special natural treasure in 1921, the wild ones disappeared in 1971 in Japan, being affected by the decrease in the number of creatures for their food due to agrochemicals and the felling of pine trees where they built nests during the war. Meanwhile, we did not just stand and watch. In 1963, a group of 11 wild individuals were caught to start the initiative for artificial breeding. However, the process was not smooth: it took 25 years until the first successful breeding in 1989 and moreover, it took another 17 years until their release into the wild. In 1999, the "Hyogo Park of the Oriental White Stork," a research facility of Oriental white storks was opened, which accelerated the initiative towards the reintroduction in collaboration between Toyooka City and Hyogo Prefecture. Since 2003, not only training on habituation to the wild started, but also multifarious initiatives in the public-private cooperation have been rapidly developed, including diffusion of pesticide-free/-reduced farming methods, development of biotope rice fields, and holding international symposia. In the summer of 2007, it was also succeeded in the fledging of the populations incubated outdoors.

In the local communities of Toyooka City, with the slogan of "communities where Oriental white storks can also live," various activities on community revitalization compatible with conservation have been carried out and achieved successes. One of them was a proposal for Oriental white stork brands, in which the rice produced by "Stork Friendly Farming" (Stork Friendly Rice) has taken a leading part. Utilizing this rice, diverse development such as Japanese sake and various processed foods has been made. In addition, the environment-economy strategy was formulated with the focus on the special natural treasure – the Oriental white storks – and the steady steps for community revitalization, in which the conservation and utilization of the natural treasure play a central role, also started.

The conservation activities of Oriental white storks are not just about the conservation of wildlife. They are also activities to restore local life itself through the creatures that have also historically been close to the lives of local people. We spent 50 years on finally making a start on returning to the wild what we have lost over the past 100 years. Along with many related people and organizations, including Hyogo Prefecture, it was important also for the Agency for Cultural Affairs to have been able to continue their long-term support since 1963.

In the Toyooka Basin where the released Oriental white storks now live, Typhoon No.23 destroyed the embankments of the Maruyama River and brought great flood damage in the autumn of 2004. The basalt of the "Genbudo Cave," a natural treasure, blockades the Maruyama River near the river mouth and forms the Toyooka Basin. As this basalt narrows the floodway of the Maruyama River, the river has frequently overflown and brought flood damage. On the other hand, this low and swampy Toyooka Basin has provided appropriate places to grow osiers, the plant material to make wicker trunks – a local industry, as well as feeding grounds and habitats for Oriental white storks. The old houses in Toyooka were built on the piled up basalt stones to save the inhabitants from flood damage. As time has passed, the wicker trunks were transformed into the luggage and bag industry, though there were no changes in the locality from which the material came, that is, the low and swampy Toyooka Basin. The conservation of "Oriental white storks," a special natural treasure and "Genbudo Cave," a natural treasure is the symbol of knowledge and wisdom to indicate the local natural and cultural features, history, and way of life, which are conveyed by the cultural properties with a focus on natural monuments.

Currently, the movement for creating local communities with Oriental white storks as the symbol has been accelerated in cities such as Noda City, Chiba Prefecture and Echizen City, Fukui Prefecture. In this movement, Toyooka City and Hyogo Prefecture are required to establish networks with these local municipalities and take a leading part together with the Hyogo Park of the Oriental White Stork, which is required to monitor the guidelines for the reintroduction and the living situation of Oriental white storks throughout Japan. The movement for conserving Oriental white storks based on the natural and cultural features and history in Toyooka has been established through the understanding and collaboration of various relevant parties. Without sharing this recognition, the movement cannot continue to be developed also in the future. It is expected that this movement will be accelerated and spread throughout Japan. (Partially revised "A City Developing with a Focus on 'Oriental White Storks,' a Special Natural Treasure – Toyooka City, Hyogo Prefecture –" which was published in "Cultural Properties Monthly" in FY2008.)

(Yuzo Katsura, Chief Cultural Property Examiner, Monuments and Sites Division, Cultural Properties Department, Agency for Cultural Affairs)

Toyooka with Oriental white storks that were revived for the first time in 50 years.(Provided by the Hyogo Park of the Oriental White Stork)

◆Appendix 6: Investigation Committee on the Reintroduction of Oriental White Storks

● Guidelines for Establishing the Committee

Guidelines for Establishing the Investigation Committee on the Reintroduction of Oriental White Storks

April 1, 2013
Secretariat of the Investigation Committee on the Reintroduction of Oriental White Storks, Toyooka City

(Objectives)
Article 1　The activities for the reintroduction of Oriental white storks, a special natural treasure which disappeared once in Japan, have been developed over more than a half-century in Toyooka City, Hyogo Prefecture and the surrounding areas and have achieved excellent outcomes. To more widely make the most of these outcomes for the developments in the restoration of endangered species and nature restoration activities throughout the country, the Investigation Committee on the Reintroduction of Oriental White Storks (hereinafter referred to as the "committee") shall be organized in order to assess the past activities and summarize them as a model.

(Areas of Responsibilities)
Article 2　The committee shall execute the following matters.
(1)　Matters related to the assessment of activities for the reintroduction of Oriental white storks.
(2)　Other necessary matters for achieving the objectives mentioned in the above article.

(Organization)
Article 3　The committee shall be composed of intellectuals, researchers, and other concerned individuals.
2　The committee shall have a chairperson and a vice-chairperson elected by its members.

(Duties of the Chairperson and Other Concerned)
Article 4　The chairperson shall represent the committee and preside over all affairs of the committee.
2　The vice-chairperson shall assist the chairperson and act on behalf in case that the chairperson is indisposed.

(Term of Service)
Article 5　The term of service of the members shall be from the day of appointment until the completion of the areas of responsibilities.

(Meetings)
Article 6　The meetings of the committee shall be called by the chairperson as necessary and be chaired by the chairperson.

(Secretariat)
Article 7　The secretariat of the committee shall be established in the Oriental White Stork and Human Co-existence Section, Oriental White Stork and Human Co-existence Department, Toyooka City.

(Expenses)
Article 8　The expenses of the committee shall be allocated from the budget of Toyooka City.

(Accounting)
Article 9　The accounting of the committee shall be performed subject to the accounting regulations and the fiscal years of Toyooka City.

(Supplementary Provision)
Article 10　Items other than those specified in these guidelines and the necessary matters for the administration of the committee shall be provided for separately by the chairperson and the secretariat.

Additional Clause
These guidelines shall come into force from April 1, 2013.

●Committee members and other concerned individuals

<<Investigation Committee on the Reintroduction of Oriental White Storks>>

Names of the committee member	Affiliation	Remarks
Shiro Wakui	Professor, Environmental and Information Studies, Tokyo City University	Chairperson
Akira Furukawa	Professor, School of Sociology, Kwansei Gakuin University	Vice-chairperson
Hisashi Nagata	Associate Professor, Center for Toki and Ecological Restoration, Center for Transdisciplinary Research, Niigata University	
Takeshi Fujie	Associate Professor, Research Center for Sustainability and Environment, Shiga University	
Yumiko Oyama	Director, Tansei Institute Co., Ltd.	

<<Collaborating Parties for the Investigation Project for the Reintroduction of Oriental White Storks>>

Classification	Section in charge
Agency for Cultural Affairs	Monuments and Sites Division of the Headquarters
Ministry of Land, Infrastructure, Transport and Tourism	River Environment Section of the Headquarters
	River Environment Section, Kinki Regional Development Bureau The First Section of Investigation, Toyooka Office of River and National Highway
Ministry of Agriculture, Forestry and Fisheries	Environmental Policy Division, Minister's Secretariat of the Headquarters
Ministry of the Environment	Wildlife Division, Nature Conservation Bureau of the Headquarters
	Wildlife Division, Kinki Regional Environmental Office
Hyogo Prefecture	Prefectural Hyogo Park of the Oriental White Stork
	Social Education Section, Board of Education Cultural Properties Section, Board of Education
	Regional Policy Office, Community Promotion Section, Bureau for the Residents of the Tajima Province
Toyooka City	Oriental White Stork and Human Co-existence Section, Oriental White Stork and Human Co-existence Department

<<Secretariat of the Collaborating Parties of the Investigation Project for the Reintroduction of Oriental White Storks>>

Toyooka City	Oriental White Stork and Human Co-existence Section, Oriental White Stork and Human Co-existence Department

● History of the committee's meetings

	Date of the meeting	Contents	Venue
First	October 4, 2013	Objectives of the assessment and the targets	Tokyo
Second	November 9, 2013	Framework for assessment	Toyooka City
Third	January 21, 2014	Draft of analyses and the self-monitoring policy	Tokyo
Fourth	March 25, 2014	Summary of materials (draft)	Tokyo
Final coordination meeting	May 12, 2014	Confirmation of the summarized outcomes	Tokyo

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