

NICE GREEN Nagoya

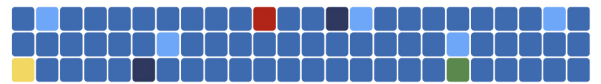
Greenification Certificate
System with financial
incentives

CLIMATEFIT International best
practice factsheet

Case ID: 05



Thomas Machiels
University of
Antwerp



Summary

The Greenification Certificate System (GCS) is a voluntary mechanism that complements the regulatory System of Greening Area instrument, both introduced in 2007-2008 in the City of Nagoya, Japan. The GCS is an incentive mechanism to encourage landowners to include more green area elements in the design of new residential and industrial developments than those legally imposed through the System of Greening Area. Landowners can receive loans with a preferential interest rate for projects that incorporate significant green elements. This system, evaluated on various criteria including green area coverage and conservation efforts, awards projects with up to three stars, directly influencing the interest rate benefits provided by participating banks. Although data was limited to determine the outcomes and current status of the program, and early limitations were identified, the case is an example of a generic, simple, and straightforward model to foster sustainable urban development while offering financial incentives for greener construction practices.

Keywords: Financial incentive, preferential interest rate, incentive mechanism, Greenification Certificates, urban development

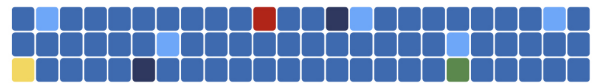
Actor(s) interviewed: /

Disclaimer: data and information found about this best practice is limited, particularly about the current status and outcomes. We included the case nonetheless because the Greenification Certificate System is a generic, simple, and straightforward incentive mechanism for property owners to include green and sustainable elements in the design of private developments.

Cover Photo: © Ian Muttoo

Further reading: [Financial Incentives for Encouraging Biodiversity in Nagoya](#)

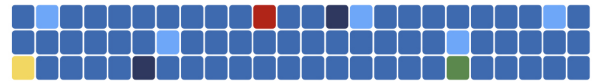
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Best practice information card

Table 1. Greenification Certificate System Nagoya. Information card

Location	Nagoya, Japan
Population size	2,331,078 (2021)
Project area size	A program that applies to the entire city: 326.45 km ²
Area type	Urban
Climate challenge	Urban heat island because of global warming
Key Community System(s)	Human health and wellbeing, critical infrastructure.
Objectives	Reduce urban heat island effect, conserve and enhance biodiversity
Climate challenge solution	Increasing green areas in new urban developments with a regulatory System of Greening Area mechanism and a voluntary Greenification Certificate System mechanism. These mechanisms encourage property owners to increase green areas in new developments through cover and maintenance of trees, the greening of roofs and walls in addition to the commitment of the owner to maintain the green space in the interests of biodiversity
Key benefits	Reduced heat island effect, enhanced biodiversity.
Implementation status	Since 2008
Investment volume (€)	NA
Key financing barriers	NA
Financial model	Greenification Certificate system is a voluntary mechanism that allows developers or landowners to receive preferential rate interests on their loan if they achieve a certain score and star rating.
Financial sources	Private: corporate/retail banks
Financial instruments	Debt: concessional loan Non-financial instruments: Incentives (preferential interest rates)



Overview and timeline

Nagoya has a population of around 2.3 million and is the third-largest economic area in Japan after Tokyo and Osaka. Most of the city area is classified as 'urban city area'. **Since the second half of the 20th century, Nagoya City has grown, leading to more development and a gradual decrease in green areas**, despite the increase in the size and number of parks at the same time. Between 1990 and 2005, around 1,600 hectares of green area were converted to other land uses, which equals about 5% of the total city area. In 2005, the share of private and public green areas in the total city area was around 25% (8,088 hectares). According to the Basic Nagoya Green Plan, a green area or green space is an area covered by trees, lawns, agricultural land, or wetland.

Nagoya was not the only city in Japan that has grown significantly at the cost of reduced green areas. **Increasing development in combination with reduced green areas and global warming has increased urban heat islands in Nagoya and other Japanese cities.** Recent academic studies have shown the impact of climate change and increased heat on Nagoya's population. Ihara et al. (2023), using data from 2012, studied sleep disturbances as a consequence of high nocturnal temperatures caused by climate change in Nagoya. They found that the impacts expressed in DALY loss were comparable to the DALY loss due to heatstroke.¹ They point out that "Legislators must recognise the critical impact of the damage caused by sleep disturbances due to high temperatures at night" as a consequence of climate change (Ihara et al., p.69). Nishimura et al. (2021) highlight a significant rise in the number of heat-related illnesses in Nagoya, correlating with higher temperatures and heat waves. This trend is consistent with global patterns of increasing morbidity and mortality due to climate change and global warming.

Already in the early 2000s, national policies and strategies were starting to be put in place to counteract this and reduce or eliminate urban heat islands. In 2004, the national government published the 'Policy Framework to Reduce Urban Heat Island Effects', which included the legal instrument System of Greening Area. Following the publication of this framework, the Ministry of Land, Infrastructure, Transport, and Tourism issued building design guidelines in 2004 and 2008 to regulate ventilation, shading, ground level green area coverage, cladding materials, among others in new buildings.

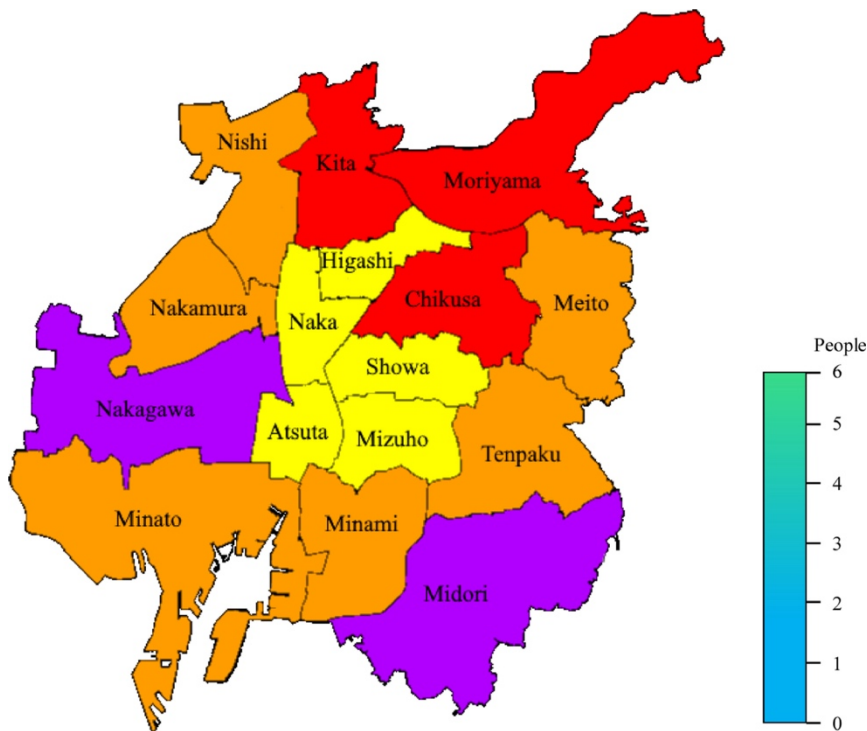
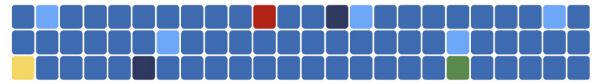


Figure 1. Coloured map of expected number of heat-related-illness patients on August 18, the day with the highest number of patients (65 people) in 2020 (Nishimura et al., 2021).

Nagoya City already had a Basic Green Plan since 2000 and an Environment Promotion Ordinance in 2004. **Nagoya City adopted the national policy framework and enacted two private property policies in its urban planning framework: one regulatory and one voluntary.** At a national level, the primary driver had been to tackle urban heat islands in cities through regulations to increase green areas. In Nagoya City, increasing green

¹ The burden of disease is calculated using the disability-adjusted life year (DALY). One DALY represents the loss of the equivalent of one year of full health.



areas was also considered a means to conserve or enhance biodiversity. **The regulatory programme is the System of Greening Area**, based on the national policy framework. It requires landowners of certain development types to have a minimum amount of landscaped green area in the project.

The voluntary programme is the Greenification Certificate System (GCS), also called **NICE GREEN Nagoya**, which complements the regulatory requirements for landowners. The GCS evaluates development projects on several criteria such as the amount of green area, the degree of existing tree retention, areal coverage by tall trees, public access from the street to green areas, the use of green walls and green roofs, and participation in voluntary management programmes. Participating projects are rewarded with a one-star, two-star, or three-star rating and certificate. **NICE GREEN is an incentive-based system**. Projects that obtain a certificate can receive an interest rate reduction on their loan from participating banks, also called a **preferential green interest**. At the time, **it was the first financial incentive of this type in Japan**. The remainder of this report focuses on the NICE GREEN Nagoya programme – the Greenification Certificates System and how project developers can obtain a preferential green interest.

Both programmes apply to mainly privately owned land in the Nagoya city centre, including residential and industrial land, and areas that are expected to become residential areas in the future, which comprises around 93% of the city. The programme applies to residential development areas of at least 300 m² (land size) and industrial developments of at least 500 m² (land size). The System of Greening Area requires that, depending on the land use type, 10%-20% of the area must become green area. Projects without greening obligations but with existing green areas can be certified as 'new constructions' and can thus participate in the NICE GREEN Nagoya programme.

Table 2. Greenification Certificate System Nagoya. Timeline with key moments

Date	Key moment
2000	Nagoya City Basic Green Plan is published.
2002	National Biodiversity Strategy and Action Plan.
2004	The National Government adopts the Urban Green Space Conservation Law, which initiates the System of Greening Area as a legal instrument. Nagoya City publishes its Green Environment Promotion Ordinance.
2007	System of Greening Area is integrated into Nagoya City's urban planning legislative framework. The complementary and voluntary program NICE GREEN Nagoya, Greenification Certificate System, is developed.
2008	Nagoya's city's urban planning laws reformations are official, the System of Greening Area is enforced, and the Greenification Certificate System starts.

Governance and key stakeholders

The organisational structure of the Greenification Certificate System includes three parties and two main phases. The first phase involves the plan prepared by the **project developer** prior to construction. The plan is evaluated by the Environmental Affairs Office of the **Nagoya City** administration and will receive a one-star, two-star, or three-star rating depending on the points achieved. A certification is then officiated and awarded by the mayor. The city is only accountable for the certifications and the allocation of stars. With the certificate, the developer (borrower) can then sign a contract with the bank (lender). The preferential green interest received has been predefined by each bank at the start of the programme. **Five regional banks** agreed to participate in the programme: Aichi Bank, Aichi Shinyoukin Bank, Chukyo Bank, Chunichi Shinkin Bank, and Nagoya Bank. After construction, an evaluation is not legally binding but is considered a moral obligation. The evaluation is performed by the city administration. Only after the post-construction evaluation can the project receive the official label or stars and use the programme's logo to publicly show its rating.

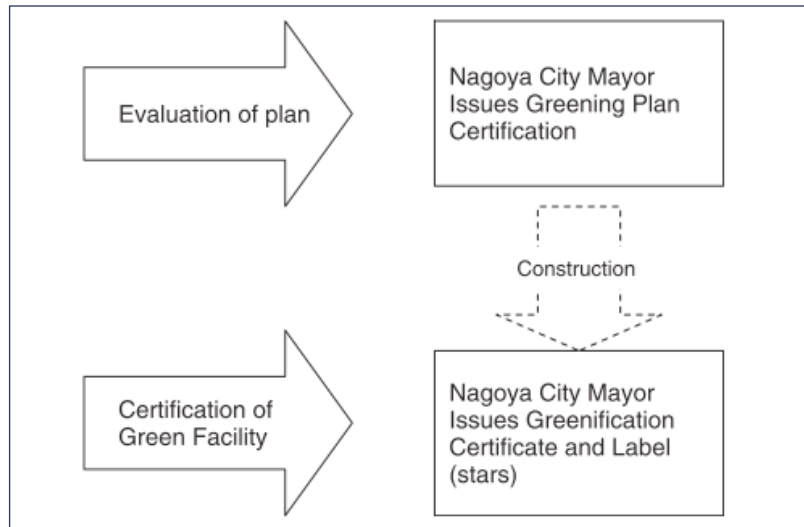


Figure 2. Overview of the Greenification Certificate system²

Table 3. Greenification Certificate System Nagoya. Key stakeholders and their responsibilities or roles

Stakeholder	Type	Role and responsibilities
Nagoya City	Public (municipality)	Responsible for evaluating the plan and issuing a Greening Plan certificate, including a score (points) and a star rating. Responsible for issuing the official label (stars) after a post-construction evaluation.
Project developer	Private	Responsible for preparing the plan and applying to the system.
Five regional banks	Private	Offer preferential green interests that have been predefined by each bank by the start of the program. The banks are motivated by social pressures to demonstrate that they are operating responsibly in the community.

Business model & financial model

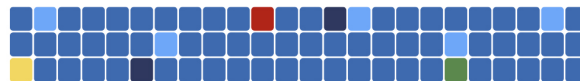
Business model

The Greenification Certificate System is a straightforward mechanism that gives a preferential interest rate to landowners whose developments are significantly green. The business model behind the mechanism is the idea that **financial incentives can promote and lead to sustainable construction practices** to mitigate the environmental impacts of developments and improve environmental quality. Sustainable construction practices include three overall types: the cover and maintenance of trees, the greening of roofs and walls, and the commitment of the owner to maintain the green space in the interests of biodiversity. In addition to receiving a preferential green interest rate on the loan, project developers who undergo post-construction evaluation are also allowed to label their development with the Greenification Certificate's logo, which could enhance the reputation and status of a development. A key feature is that regional and local banks cooperate with the scheme by offering bank loans with a lower interest rate for those proposals that are awarded two or three stars. If the evaluation of a plan achieves a total score of 80 or more, the development is awarded three stars; scores of between 50 and 80 are awarded two stars, whilst scores below 50 are awarded one star. The maximum possible score is 125 points.

The following scoring criteria are used to determine the final score and number of stars:

- Area of green environment (coverage). 2% beyond the standard area coverage is a score of 10. 5% beyond the standard is a score of 20.
- Trees (evaluation of space). Area coverage by tall trees over 25% of the entire area coverage is a score of 10 points. Area coverage by tall trees over 50% of the entire area coverage is a score of 20 points.
- Green facing streets (evaluation of openness). Green facing street is over 60% is a score of 5. Green facing street is over 80% is a score of 10.
- Conservation of existing trees. Conserving tree areas are over 30% is a score of 10.

² Kohsaka, R. (2010). Economics and the Convention on Biodiversity: Financial Incentives for Encouraging Biodiversity in Nagoya. In N. Müller, P. Werner, & J. G. Kelcey (Eds.), *Urban Biodiversity and Design* (pp. 593-607). Blackwell Publishing Ltd.



- Rooftop gardening and greening on wall over 30% is a score of 10.
- Management efforts (evaluation of commitment). Participation in voluntary program is a score of 30.



Figure 3. The Greenification Certificate System Nagoya with three star ratings³

Project developers who participate in the programme create **two key values**: reducing the heat island effect in the city and conserving or enhancing biological diversity. The **key beneficiaries** of these values are the people living or working in the development, and the surrounding community that benefits from the reduced heat island effect. From the perspective of the **participating regional banks**, there is no information about how they benefit. We assume that it has a positive impact on their reputation and exposure. This is similar to the Gothenburg Green Bonds factsheet, where investing in green bonds is positive for an investor's branding and helps attract clients.

Financial model

The Nagoya Greenification Certificate System allows project developers or landowners to get a **preferential green interest as a financial incentive** if their plans receive a two-star or three-star rating according to the aforementioned criteria. At the start of the programme, five regional and local banks participated. Each bank defined preferential interest rates at the start of the programme. Overall, two-star or three-star plans can receive a 0.1%-0.2% discount on a loan compared to usual market rates. If a project developer receives a certificate from the city after an evaluation of the plan, they can approach the bank for a loan, and the bank will lower their interest rates on the loan for the planned development. The participating banks thus carry a part of the costs of the project proposals. Table 4 gives an overview of the preferential rates offered by each participating bank as of 2010. More recent information could not be obtained.

Table 4. Participating banks in the Greenification Certificate System and their preferential interest rates⁴

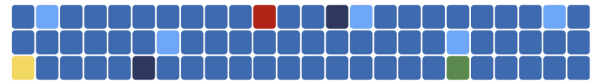
Bank	Star rating	Preferential interest rates
The Aichi Bank, Ltd.	TBD	TBD
The Chukyo Bank, Ltd.	Two Three	0.1% below the usual interest rate 0.2% below the usual interest rate
The Bank of Nagoya, Ltd.	Three	(During the period of the fixed interest rate) the interest rate -1.5% ~1.7% (After the expiration of the fixed interest rate) the interest rate - 1.2% ~1.25%
Aichi Shinkin Bank	Two Three	0.05% below the usual interest rate 0.1% below the usual interest rate
Chunichi Shinkin Bank	Two Three	0.05% below the usual interest rate 0.1% below the usual interest rate

Enabling conditions

A key condition for this system to work is **participation from banks**. Regional and local banks are assumed to have the motivation to participate because of social pressures to demonstrate that they are sharing responsibility to make the living environment more adaptive to future climate change. This may explain why only regional and local banks are participating. They may feel pressure to demonstrate that they want to contribute to a sustainable community.

³ City of Nagoya. (nd). *NICE GREEN Nagoya* (in Japanese). Last consulted on 12 March [URL](#)

⁴ Kohsaka, R. (2010). Economics and the Convention on Biodiversity: Financial Incentives for Encouraging Biodiversity in Nagoya. In N. Müller, P. Werner, & J. G. Kelcey (Eds.), *Urban Biodiversity and Design* (pp. 593-607). Blackwell Publishing Ltd.



Although information is limited, we can assume that there are other conditions. First, it is expected that **collaboration with private landowners** will be critical to convince them of the importance of urban biodiversity protection, restoration, and urban greening. Second, **city staff and expertise** are required to develop and operate the programme, including the evaluation of plans. Third, both the regulatory and the voluntary programmes required changes to the **legal framework** at both national and local levels. The national level implemented the System of Greening Area as a legal instrument, which was adopted by the city of Nagoya. The city then further complemented this regulatory framework with the voluntary framework of the GCS.

Outcomes

We did not manage to obtain detailed information about the outcomes and status of the system. It seems the Greenification Certificate System is still operational as the web page on the city website is active and up to date. This does not allow us to draw conclusions about the efficiency, effectiveness, and impact of the system. The latest information available is from 2010 when the system was operational for less than two years. At that time, the system remained experimental and there had only been a few applications. It was believed that global financial conditions following the 2008 crisis were not helpful for the success of the system in the early years. Nevertheless, it is believed that the system has potential given the geographic size of Nagoya.

Lessons learned

Successes and limitations

It was not possible to determine the success factors of the Greenification Certificate system due to a lack of data. There are some explanations available for the limited number of applications as of 2010, which are considered as **limitations** (Koshaka, 2010):

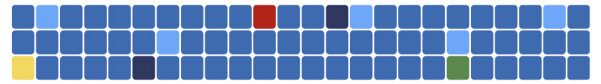
- The limited number of applications in as of 2010 were believed to be the consequence of a lack of outreach activities (i.e. awareness raising, communication material and advertisement), and a need for greater clarity and more information for landowners and developers. The system is difficult to understand from legal texts alone.
- There is also unclarity about whether the additional costs of design improvements for green areas exceed the savings from preferential interest rates.
- The regulatory System of Greening Area, to which the Greenification Certificate system is a complement, outlines very detailed procedures to calculate the green elements of a proposal. This rigidity ignores contextual differences between districts.
- Only local and regional banks participated at the start, and the largest bank in the region did not participate. Nationwide banks have more financial reserves but find it technically difficult to join the scheme at local levels only.
- The City's responsibilities are limited to the evaluation of an application, but the City has no influence on the contract being signed between a borrower and a bank. The star rating is a guiding indicator for banks but does not legally bind them to provide a loan following the evaluation.

Transferability conditions and potential

Despite the lack of data about the current status and outcomes, and the limitations at the start of the Greenification Certification System, the model is a **straightforward and simple incentive mechanism** for property owners to include green and sustainable elements in the design of new developments. The system is general and could be applied anywhere. The purposes, criteria, and conditions can be tailored to local contexts. The main condition is the participation of banks, which has, at least in Europe, become more feasible in recent years because of initiatives such as the EU Taxonomy that have incentivised banks to consider ESG criteria in their financial activities.

Related factsheets

There are no factsheets with a similar financial model. There are other factsheets that address the urban heat island challenge in dense areas through green blue infrastructures, including the Hampton Environmental Impact Bond (ID 08) and the Paris Climate Bond (ID 09).



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