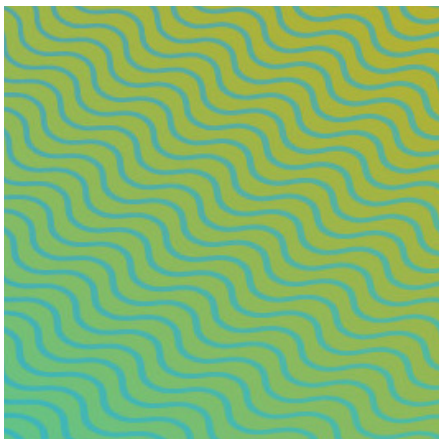


Culture and heritage for climate adaptation

Four examples from the Kingdom of the Netherlands



The discussion on the link between culture and heritage on the one hand and climate change on the other generally focuses on the threat that climate change poses to our cultural heritage as the result of floods, drought, or natural disasters. Much less debated and described is the reverse relationship, the way in which culture and heritage can be actively used as an asset for climate adaptation. Heritage is not only a victim of climate change; it is also a solution.

The discourse on the cultural dimensions of climate change is relatively new. However, a number of practical examples already exist that can provide inspiration and lessons about the great potential that historical knowledge, heritage and cultural history offer in the search for local climate solutions. In its vision on climate adaptation, the Netherlands Commission for Unesco emphasizes the importance of these 'culture-based



solutions' (please see our publication 'Changing minds, not the climate: culture-based solutions to local climate adaptation'). Climate adaptation is not just a matter of finding the best technical or management solutions; rather, it is a human and cultural process.

Presented below are four examples from the Kingdom of the Netherlands that demonstrate how this vision resonates in practice. Conversely, these 'best practices' have been a vital source of inspiration in shaping the Commission's vision, and have fuelled its conviction of the immense power of the lessons we can learn from the past – packaged as heritage, cultural historical knowledge, traditions and customs – when it comes to finding local climate solutions.



Heritage as solution in Kampen / Key words: climate adaptation, flooding, historical knowledge, local support, neighbourhood, small-scale/

Kampen Municipality, Water Board Drents Overijsselse Delta, Het Oversticht, Cultural Heritage Agency of the Netherlands ¹



In Kampen, a cultural historical analysis was carried out to tackle flooding problems in a local neighbourhood. Illustration: Het Oversticht.

The Waterkansen Kampen project in 2019 was a cooperation between the municipality of Kampen, the Netherlands Cultural Heritage Agency (CHA) and the foundation Het Oversticht. The project is an example of the active utilization of heritage in climate adaptation. Heritage was not an object that needed protection against climate change in this project. Rather, the local knowledge about heritage, for example historical water systems, was used as a catalyst for climate adaptation.



¹ Marieke van Zanten, architectural historian at Het Oversticht, provided valuable insights for the description of this example.

Problem

According to Het Oversticht, knowledge about heritage is often used in order to protect it. This knowledge can also be used to find solutions to societal problems, however. Although municipalities in the Netherlands are concerned with the protection of monuments, heritage often ends up at the bottom of the priority list of urban and regional planning: after plans have been made, checks have to be made as to whether any heritage is in the way that could obstruct them. Such a defensive approach to heritage obscures the view of the possibilities it may offer.

This was the case with the Waterkansen project in Kampen. The surroundings of the Schans Buitenwacht, a former earthen fortification known as a sconce (***schans*** in Dutch), experienced flooding regularly. The municipality worked for years on a plan to renovate the area. Especially during heavy precipitation, the streets and crawl spaces beneath the houses would be flooded. Het Oversticht proposed the idea of finding a solution that combined a technical approach with historical knowledge

of the area: the history of water management was mapped accurately and aligned with the knowledge of plumbers, hydrologists and designers. This integral approach put cultural history at the heart of a new design to prevent flooding.

Heritage as solution

The oldest known maps of the area provide evidence that human interventions were already needed to control the water in the area. At a later date, canals and ditches were filled in, and it became increasingly difficult to drain off excess water. From the twentieth century onward, this function was almost entirely taken over by the sewage system. Even though there had always been open watercourses in the area, they disappeared. Also, thanks to archaeological research, it became clear that the area known as 'Bolwerk Buitenwacht' had in fact never been a stone bulwark, but an earthen sconce.





This knowledge provided the basis for a design informed by a cultural historical model, the sponce. The design reintroduced open watercourses: at times of excess water excess, there are wadis that can be flooded in a controlled manner. Elements of the former sponce were incorporated in the design in a novel way. People in the community grew more supportive, because they were made conscious of the history of water management and the logic behind the new design, which also fits in with the landscape and contributes to the area's historical identity.

Innovation

Before the cultural historical analysis was made, there was no clear expectation as to what the concrete results might be. This was a new way of working for all of the partners involved. Having the opportunity to experiment without knowing the exact outcome is a precondition for innovation. This research project had no guarantee of providing economic returns. According to project leader Marieke van Zanten, innovation is possible when the funding provided by national, provincial and/or local authorities is not tied to expected results, but leaves room for unexpected outcomes.

Knowledge transfer

Spatial planning that places one-sided attention on technological solutions fails to recognize the human side. Designing the built environment has cultural as well as technical and economic dimensions. It is therefore important when addressing spatial planning issues to take an integrated approach, in which heritage professionals can share their knowledge with plumbers, hydrologists and designers. By working holistically, solutions can be found that respect the identity of an area. This in turn creates local support for policy measures and facilitates proper utilisation of the existing knowledge of the area.

An important lesson learnt from this example is the observation that the archives of Dutch water boards were not always freely accessible. As a result, valuable knowledge may have remained unused. Taking into consideration that the application of cultural history in urban design projects may be a new approach for many municipalities, Het Oversticht and the Cultural Heritage Agency have jointly developed **eight 'keys'**.



Further reading (in Dutch)

Historische wateranalyse, Waterkansen Kampen:

Cultuurhistorie en klimaatadaptatie opgaven, 2019. Stichting het Oversticht.

Cultuurerfgoed als katalysator bij klimaatopgaven.

Landwerk nr. 5 (2019). By Marieke van Zanten.

Cultuurhistorie bij klimaatopgaven.

H2O-Online. By Marieke van Zanten en Albert Vissinga.

Acht sleutels om cultuurhistorie toe te passen bij klimaatadaptatie.

Het Oversticht, Rijksdienst voor Cultureel Erfgoed, Drents Overijsselse Delta, Gemeente Kampen.

Heritage-inclusive design in 's-Hertogenbosch /

Key words: climate adaptation, flood prevention, military heritage, heritage-inclusive design / Municipality of 's-Hertogenbosch²



In the city of 's-Hertogenbosch, the former Sint-Jan stronghold is now used to collect excess water and prevent flooding. Photo: Henk van Zeeland.

Bolwerk Sint-Jan is the name of an information centre in a stronghold on the bank of a canal in 's-Hertogenbosch, the Sint-Janssingel. The stronghold is a reconstruction of a former structure built in 1528 that served to defend the city's entrance gates. The ruins of the old gates and the city wall, which were demolished in the eighteenth century, were recently excavated. The new design, in which the former city wall has been turned into a water defence structure, includes a restaurant and information centre on the site of the old stronghold, from which the former gate and walls can be observed.



Integration of societal challenges

The former stronghold was not restored in its authentic style. Instead, steel plates and glass were used; the steel is corroded and brown and therefore fits in with the authentic fortification adjacent to the stronghold. The city wall has been rebuilt, but its function has changed: whereas it formerly served to protect against human enemies, it now has a climate-adaptive function. The wall protects against floods, while the roof of the information centre retains rainwater. This project integrates a number of societal challenges: enhancing the visibility of local cultural history, creating recreational facilities and supporting climate adaptation. For this reason, the Bolwerk Sint Jan project (known in English as the St. John's Bulwark project) was nominated in the 'heritage innovation' category for the ILUCIDARE prize, an international heritage prize co-sponsored by two EU programmes.³

Inspiring practices

The Sint-Jan project, in which cultural history actively contributes to climate adaptation, is not the only one of its kind. A second example of a 's-Hertogenbosch project taking inspiration from history is the new function that has been allocated to the historic inundation fields of the Southern Water Lines (*Zuiderwaterlinie*). These fields, designed to be flooded

for military defence purposes, can serve a new purpose by retaining water. The fields can absorb water when there is a surplus and retain it until there is a shortage. Besides flooding problems, the municipality has to deal with heat stress during the summer months. By using old waterways, cultural history can serve contemporary climate adaptation challenges.

A third example concerns the old city centre. Here, rainwater and sewage water are channelled into the same drains. At times of heavy rainfall, the sewage system has a capacity shortage, leading to a situation where the sewage pollutes the surface water. The standard solution for this problem would be to create a reservoir. However, in a city full of monumental buildings under heritage protection, the use of a water basin can be very challenging. The foundations of an old bastion, Bastion Maria, were used on which to build this reservoir, an example of heritage being the solution rather than the hurdle. The reconstruction of the old bastion highlights the city's historical heritage structure. More importantly, the new basin supports the walls of the reconstructed bastion and offers a solution for peak rainfall.



² Huibert Crijns, fundraiser at the heritage department of the Municipality of Den Bosch, provided valuable insights for the description of this example.

³ These programmes are the 'Creative Europe Programme', a funding programme to promote cooperation in the cultural, creative and audio-visual sector, and Horizon 2020, the European Union's research and innovation programme.

Heritage-inclusive design

Part of the reason that heritage plays a considerable role in climate adaptation in 's-Hertogenbosch is the organisational setup of the city administration. Unlike in many other Dutch municipalities, archaeologists and cultural historians are not part of the cultural affairs department, but instead are embedded in the urban development department. As a result, heritage is not overlooked in new urban development plans. This gives planners a cultural-historical and heritage-inclusive perspective on climate adaptation. The challenge that remains is the constant diligent balancing between urban development and heritage protection. The protection of heritage can be undermined when it is put in the service of urban development.

Further reading (in Dutch)

Bolwerk Sint-Jan, een hotspot aan het water.

Zuidwaterlinie Noord-Brabant.

Reconstructie van Bastion Maria.

Erfgoed 's-Hertogenbosch.

Den Bosch heeft door jarenlange liefdevolle aandacht zijn verwaarloosde vestingwerken weer fier op de kaart gezet.

Blauwe kamer jaarboek 2016, pp. 134-141. By Mark Hendriks.

Press release:

Zes erfgoedprojecten gericht op innovatie en internationale relaties genomineerd voor de eerste editie van de speciale ILUCIDARE prijzen, 28 may 2020.

Amsterdam Wetlands: drawing inspiration from history / **Key words:**

restoring biodiversity, CO₂, sustainability, historical landscape, large-scale / Staatsbosbeheer, Natuurmonumenten, Landschap Noord-Holland, Recreatie Noord-Holland⁴



In the Amsterdam Wetlands, a sustainable future based on cultural history and heritage is being shaped. Photo: Niels Hogeweg, Landschap Noord-Holland.

Amsterdam Wetlands is a programme with a vision for the polder and marshland areas between Amsterdam and Alkmaar in the year 2050. This multi-year programme started in the summer of 2018 and was initiated by Staatsbosbeheer, Natuurmonumenten, Landschap Noord-Holland and Recreatie Noord-Holland.

⁴ Saline Verhoeven, project leader of Landscape and Cultural History at Landschap Noord-Holland, and programme manager of Amsterdam Wetlands, provided valuable insights for the description of this example.

The aim is to create a robust natural area covering 12,000 hectares of interconnected polders and marshlands. By means of peatland restoration, the programme aims to contribute to various natural and climatic challenges such as the enhancement of local biodiversity and the reduction of CO₂ emissions. The area furthermore creates new opportunities with regard to more evenly dispersing tourism and recreational use within the greater Amsterdam region. The Amsterdam Wetlands case shows the various possibilities that cultural history and heritage offer for the sustainable future of a rural region.

Societal challenges

Important triggers for setting up the Amsterdam Wetlands project were the numerous problems this rural area faced: loss of biodiversity, loss of the rural landscape's identity, challenging agricultural conditions and land subsidence, resulting in an increase of CO₂ emissions. A key aim of the project is to fight land subsidence by restoring peatlands. This provides an opportunity to store CO₂ and retain rainwater as a buffer for drought. In order to enhance the area's biodiversity, the project aims to bring back the bald eagle, the otter and the purple heron.



Another goal is to relieve the recreational pressure on the city of Amsterdam by drawing tourists and city residents alike to the 'Wetlands'. Landschap Noord-Holland, one of the participating organizations, calls the Wetlands the 'green backyard' of cities like Amsterdam and Alkmaar. Those who want to escape city life have a large-scale natural area at their disposal nearby. The landscape's cultural historical narrative is a key asset for the Wetlands' potential for tourism. For example, the ancient patterns of plots of land (*kavelpatronen*) give an image of the historical landscapes depicted in typical Dutch landscape paintings that are well known to the general public.

The programme has received support from the Erfgoed Deal (Heritage Deal). In this government programme, participating initiatives develop methods to include historical values in the designs for our future living environments. Staatsbosbeheer, the Dutch government authority for nature conservation, has already developed such a method that will be applied in Waterland-Oost, part of the greater Amsterdam Wetlands.

Criticism versus local support

After the plans had been announced, critical reactions to Amsterdam's so-called 'imperialism' were going around on social media and appearing in newspapers. Amsterdam Wetlands was compared with the appropriated 'Amsterdam

Beach' (Zandvoort) and 'Amsterdam Castle' (Muiderslot castle). It did not take long before holiday homes 'in the Wetlands' were being advertised on Airbnb. This association with the commercialization of the area was fuelled by the choice of the name 'Amsterdam Wetlands', although the name was never meant as a selling point. Instead, the term 'wetlands' was chosen because it offered an internationally-recognized definition of a highly diverse area that includes marshes, fens and peatlands. Connecting the name for the rural area to the city of Amsterdam helped create a semi-urban image.

The restoration of peatlands and the habitat of various bird species may introduce drastic changes in the landscape. The Wetlands programme therefore also received criticism from a group of farmers concerned about the area's water level.



⁵ See for example NRC Handelsblad, *Na Amsterdam Beach en Castle nu ook 'Amsterdam Wetlands'*, 6 February 2020; and *Geenstijl Provincie geeft Noord-Holland weg aan 020 Bakfiets Tuigh met bbq's en bag-in-box rosé*, 17 July 2018.

⁶ See for example *Het Parool*, *De Amsterdam Wetlands: ineens is daar 12.000 hectare groen*, 26 January 2020.



An important challenge for the project is to include stakeholders in the decision-making, by creating a shared vision to tackle the various problems in the area. By offering a cultural historical approach to the landscape and by connecting past, present and future, the initiators aim to increase local support for actions that need to be implemented.

Allowing users and stakeholders – farmers, residents and tourists – to be able to relate to and identify with the locally specific historical landscape is an important precondition for generating such local support.

Cultural historical inspiration

One of the sources of inspiration for taking a cultural historical perspective came from the Van Gogh National Park in the Province of Noord-Brabant. In March 2020, more than forty partners jointly submitted a plan to establish a National Park in the rural area between the cities of Eindhoven, Tilburg and Breda. The aim is to develop the region by integrating recreational, ecological and economic goals, based on cultural historical values. Taking this approach, the National Park seeks to demonstrate and emphasize the link between Van Gogh's paintings and the landscapes he depicted that can still be visited today.

The use of cultural symbols to stimulate creative ideas about alterations in the landscape and its cultural historical context is a source of inspiration for the initiators of the Amsterdam Wetlands. In a 2018 PhD dissertation, art historian Maartje van den Heuvel studied the rhetorical potential of art as the power of imagination to picture ecological change. Climate adaptation and the energy transition affect the dynamics between nature preservationists and farmers, residents and decision makers, and city and countryside. Raising awareness of this cultural dynamic is of great importance. Cultural history is an important asset for taking this dynamic into account and enhancing local support for policy and action.

Further reading (in Dutch)

Amsterdam Wetlands: 12.000 hectare topnatuur

Landschap Noord-Holland.

Amsterdam Wetlands: Een perspectief voor Laag-Holland in 2050.

Published by Staatsbosbeheer, Natuurmonumenten, Recreatie Noord-Holland, Landschap Noord-Holland.

Overheid en natuur zetten plan Amsterdam Wetlands door.

Nieuwe Oogst, 23 February 2020. By Bert Hartman.

Boeren in Waterland maken vuist tegen natuurplannen.

Nieuwe Oogst, 9 April 2020. By Marjolein van Woerkom.

For an example from Scotland in which challenges with regard to climate change, agriculture and recreation were jointly tackled in a peatland area, please see **Tackling climate change**, 24 June 2019.

Press release' :

Brabantse aanpak leidt tot Van Gogh Nationaal Park,
30 maart 2020.

Cultural knowledge systems in Bonaire / **Key words:** : intangible heritage, cultural knowledge systems, resilience, food security, water storage, education / Archivo Boneiru⁷



Documenting and safeguarding local knowledge: Mrs. Minhela Dolores Helmeijer-Marsera featured in the Fuhikubo video-documentary. Photo: Fuhikubo Foundation.

As a result of climate change, natural disasters such as hurricanes and extreme weather conditions pose significant challenges to the Dutch Caribbean municipalities; the islands of Bonaire, Sint Eustatius and Saba. Bonaire, part of the Leeward Antilles, is less impacted by hurricanes than Sint Eustatius and Saba, locally considered to be part of the Windward Islands. However, Bonaire is exposed to other climate challenges, such as floods and drought. Cultural knowledge systems can play a vital role in its adaptation to constantly changing climatic conditions.

⁷ Bòi Antoin, journalist, author and initiator of Archivo Boneiru, and Liliane de Geus, leader of the Unesco working group Bonaire and culture expert, provided valuable insights for the description of this example.

An archive of knowledge and experience

It is important to note that climate adaptation is a process that has been going on since time immemorial. Cultures and communities have always had to adapt to local conditions and climatic changes. The experience that has been built throughout these years has become anchored in cultural heritage.

Safeguarding heritage and raising awareness about the power of heritage is therefore a vital and necessary ingredient for tackling climate adaptation. In Bonaire, Plataforma Kultural and Fuhndashon Historiko Kultural Boneriano (FUHIKUBO) are working together towards this goal. The latter is guided by the National Archive of the Netherlands and is supported by the Regional Archive of Dordrecht and the Netherlands Institute for Sound and Vision. The archive materials are managed and made accessible by Archivo Boneiru, an initiative of journalist Bòi Antoin.

Water management and food security

Water management and food security are two key challenges related to climate adaptation in Bonaire. The local and traditional knowledge that is stored in the collection of Archivo Boneiru can fulfil an important role in addressing these issues.

The increased frequency of natural disasters demonstrates very clearly that food security and self-reliance are of vital importance for Bonaire. While sufficient knowledge about securing supplies of food and water on the island was formerly available, a large part of this knowledge has become underutilized or even unused. One example is the use of cisterns, open basins, for storing fresh water for the supply of drinking water. The use of cisterns was discouraged because the open water attracted mosquitoes that carried yellow fever. Now, the use of cisterns has largely disappeared from the collective customs on the island.

Whereas Bonaire used to be self-sufficient in terms of food supply, today the majority of food products are imported. In 2015, less than one percent of the population worked in agriculture, animal husbandry or fisheries. The dry climate makes it difficult to grow crops. Moreover, brackish water and roaming goats cause damage to the crops.

As a result of climate change, Bonaire will increasingly be faced with natural disasters such as hurricanes. The island's heavy reliance on imported food products makes it vulnerable during crisis situations. Younger generations often lack a knowledge of traditional water management and agricultural techniques, and often lack an interest in acquiring this knowledge. Age-



old customs may therefore be forgotten. In 2015, a programme for sustainable agriculture and rural development, funded by the Ministry of Economic Affairs, was initiated to apply this traditional knowledge to increase the island's self-sufficiency, and therefore resilience.

Dams

In Bonaire, the drainage of rainwater, especially during peak rainfall, has traditionally taken place through the use of reservoirs that temporarily store water. These man-made reservoirs are often created by constructing dams in river beds that are dry for a large part of the season. The river beds (called 'rooien') store surplus water during peak rainfall. The construction of dams is a tradition on the island and prevents rainwater from running directly into the ocean.

In new urban housing construction projects, the existence of nearby dams is often overlooked, obstructing their function of retaining water. Especially development projects for tourism, such as the construction of hotels in fragile coastal areas, are undermining the existing dams, causing contaminated rainwater to run into the ocean directly. This threatens coral reefs and furthermore causes erosion.

Traditional knowledge as a form of heritage

Climate adaptation needs a tailor-made approach that takes the local situation into account. Utilizing local cultural knowledge systems is of great importance in this respect. There is no blueprint for climate adaptation. In Bonaire, combined knowledge – traditional local knowledge and universal knowledge based on experience – is needed to address the constantly changing climatic conditions. It is of great importance that such knowledge be safeguarded in order to inform policymaking. The Archivo Boneiru project has taken on this challenge and has video-recorded a wide range of endangered knowledge practices on the island. Its video documentary of this intangible heritage is the first step towards a local and culturally-based approach to societal challenges such as climate adaptation.

Nevertheless, the question remains of how this knowledge can be translated into policymaking, and how it can be transferred to younger generations. Education can play a vital role in the mobilization of youths for a climate-adaptive Bonaire. The transfer of knowledge to policymakers and youths starts with a recognition of the significance of the role that intangible heritage can play in facing today's problems.



Further reading (in Dutch)

Website Archivo Boneiru

Meer tuinbouwprojecten voor Bonaire.

Bonaire Nu, 3 September 2015.

Thirsty Cities: Shared Water Heritage in the Small Island States of the Dutch Caribbean, July 2020. By Suzanne Loen.

Voedselzekerheid op Bonaire, St. Eustatius en Saba:

Aangrijpingspunten voor de beleidsinzet van het ministerie van

Economische Zaken. LEI Nota 2015-132, Wageningen University & Research Centre. By Marc-Jeroen Bogaardt, Rosemarijn de Jong and Martijn van der Heide (2015).

Watertekort op Bonaire nekt ook landbouw.

Caribisch Netwerk NTR, 23 June 2013.

Conclusions

In what ways can heritage and culture contribute to solutions for climate change? A number of opportunities can be identified in the cases presented above. First and foremost, it is evident that heritage and culture have a potential to create and strengthen *local support* for climate policy decisions and their implementation. Climate action in Kampen was supported widely by inhabitants and stakeholders as the result of needed changes being presented as part of a cultural historical narrative. In the case of the Amsterdam Wetlands, a historical approach to the design is also an important element. Changes in the living environment of human beings as a necessary response to climate change can only receive public support when they can be envisioned and imagined by the people affected by those changes in accordance with a certain way of thinking. Cultural history can be the narrative which offers that way of thinking.

Closely related to local support is the concept of *identity* – the identity of an area and its inhabitants. Identity brings together knowledge, heritage, culture and history, and reinforces a sense of ownership. Taking local identity as a basis for finding local solutions will help generate local support for policy



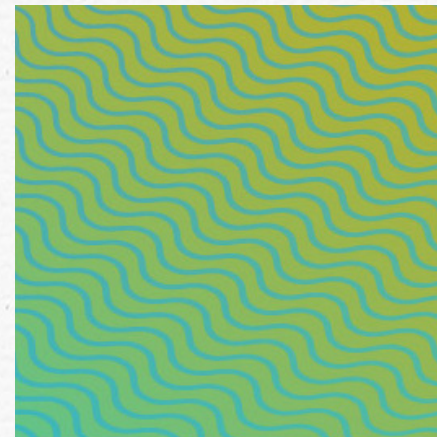
decisions. Solutions cannot simply be copied from one place to the other; each area and each community demands solutions that are suited to its own landscape and culture. Culture can contribute to the uniqueness of an area. The local traditions and customs in Bonaire with regard to water management are a good example in this respect. It is important to remain vigilant against the promotion of a singular identity: landscapes and communities have various stories to tell. The Amsterdam Wetlands project, for example, shows us that farmers and tourists have different answers to the question of what constitutes an attractive rural area.

In addition to local support and identity, heritage may also offer *innovative solutions*, which is clearly demonstrated by the example of 's-Hertogenbosch. The city's former defensive structures (such as the city walls and inundation fields) have played a renewed role in the fight against water. Innovation can take place when local heritage and cultural experts become involved in the design, and when the design is based on local specific conditions rather than a blueprint.

Through the best practices of Kampen, Amsterdam Wetlands, Bonaire and 's-Hertogenbosch, the Netherlands Commission for Unesco not only would like to share inspiring examples; it also wants to stir up a debate and draw attention to the need for heritage and culture to play a stronger role, as well as to

the closely related local and (at times) traditional forms of knowledge that can be used to approach climate adaptation and societal challenges at the local level. Such a debate may help open doors: organisations such as water boards could make their historical archives publicly accessible and municipalities could structure their organization in a way that allows culture and heritage knowledge to be applied integrally in spatial and urban development plans.

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