

## *Blue and green infrastructure Experiences of foreign cities*

### **Berlin, a parkland city** **Natur-Park Schöneberger Südgelände**

**Berlin was reinstated as the capital of Germany on 3 October 1990, following reunification. This city of 3.4 million people is awash with vegetation, with numerous parks, forests and allotments, as well as open wild spaces in every neighbourhood. The German capital is very much a green city.**

#### **1 A reunified city**

Some 20 years after the fall of the Berlin Wall in 1989, and the subsequent collapse of the Iron Curtain, the city is a place of marked contrasts. There remain stark differences between East Berlin (population: 1.3 million) and West Berlin (population: 2.1 million), in terms of both socio-economic make-up and appearance.

Marzahn and Hellersdorf, two underprivileged neighbourhoods in East Berlin, are becoming poorer and their populations are shrinking in size.

In terms of urban planning, these neighbourhoods are characterised by functional GDR-era architecture and dilapidated housing. Berlin faces



*Illustration 1:  
Berlin, a city of  
abundant nature.*

*View of the  
renovated  
neighbourhood  
around Potsdamer  
Platz*

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Short version

particular challenges associated with this falling population. One such challenge is “urban shrinking” (*Stadtschrumpfung*), meaning that public amenities are under-used and maintenance costs are rising (household waste collection, maintenance of highways and green spaces, management of district heating, scale of the drinking water supply system, etc.).

Berlin is a city of paradoxes, with some neighbourhoods experiencing growth while others are shrinking. This urban shrinking phenomenon is an issue that architects, economists, sociologists and artists are tackling head-on.

## 2 A city state

Berlin is one of the 16 regions (Länder) of the modern Federal Republic of Germany. The Governing Mayor of Berlin is also the Minister-President of the Berlin region. In institutional terms, Berlin is a city state (Stadtstaat). As one of the country's Länder, Berlin has four elected representatives on the Federal Council (Bundesrat), which submits draft legislative proposals to the German parliament (Bundestag).

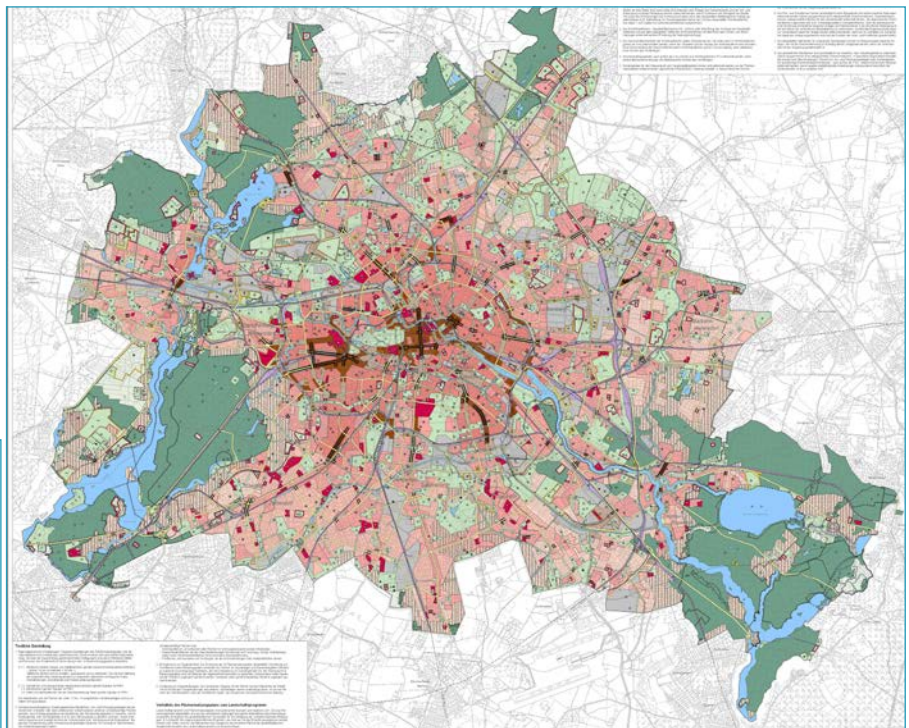
The Länder also possess legislative powers, with each responsible for its own urban planning, building and highways codes. Berlin's Chamber of Deputies has legal enforcement powers and authorises compulsory purchases on public interest grounds.

The city council has extensive administrative and legislative powers, covering education, culture, land use planning, social welfare, transport and

- Berlin: 3.416 million inhabitants in 2008
- Aire urbaine : nearly 6 million inhabitants
- Surface : 892 km<sup>2</sup>
- population size : 3,878 hab/km<sup>2</sup>
- city state (city and lander made of 12 districts)
- A Governor/Mayor
- Altitude between 30 and 115 m
- rate of urbanisation : 47 % of the territory
- green spaces : 24 % of the territory
- ontinental climate characterised by dry, cold winters and hot, stormy summers

Source : Senat of Berlin

*Illustration 3: The FNP Berlin 2012 is the city of Berlin's urban planning plan, with the forward-looking characteristics of a SCoT and the regulatory characteristics of a PLU (credit: Senate of Berlin).*



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*Illustration 2: The city of Berlin in Germany and Europe.  
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employment. It can also act as an economic operator. Like the other Länder, Berlin has its own Constitution, which is enforced by a constitutional court.

Executive power rests with the Senate of Berlin, an eight-member body led by a Governing Mayor (Regierender Bürgermeister). The Senate of Berlin is the head body of the local government (Senatsverwaltung), which comprises around 10 ministries, each covering a specific theme. The Governing Mayor and the Senate are accountable to the Berlin Chamber of Deputies (Abgeordnetenhaus von Berlin).

The Senate of Berlin is responsible for local urban planning and has the power to issue building permits. Berlin's authorities exercise their powers within a context of decentralisation, with varying degrees of oversight, in terms of both urban development (Berlin-Brandenburg Region) and major budgetary considerations.

### 3 A city of abundant nature

With more than 6,400 hectares of public parks and gardens (26 m<sup>2</sup> per inhabitant), Berlin is on par with other European cities when it comes to green spaces. It has an abundance of trees (430,000 within the city limits), as well as vast forests on the outskirts of the city.

Within the city of Berlin, there are many infill sites, wastelands and areas of open ground – vast areas of unclaimed land that can add a touch of greenery to its neighbourhoods. Since the fall of the Berlin

Wall, many of the former industrial zones have been deserted, Tempelhof Airport has closed (2007) and its obsolete marshalling yards have been abandoned. These spaces are now ripe for conversion into green spaces. Berlin's wide avenues have made it possible to develop a dense network of cycle paths (650 km in 2010) and public transport systems using dedicated lanes (tramways).



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*Illustration 4: The Tiergarten park stands at the centre of the city of Berlin*

### 3.1 Natural spaces and farmland

Neighbourhoods such as Zehlendorf, Grunewald, Spandau and Wilmesdorf boast large open spaces, which are popular with herds of wild boar attracted by the shelter of the trees and the contents of the local bins.

Locals enjoy relaxing at the three large lakes on the outskirts of the city: Wannsee (south-west), Müggelsee (south-east) and Tegeler (north-west). These lakes act as nature reserves, popular swimming and water sports destinations, and reservoirs from which the city draws drinking water. The water component is not covered in this fact sheet. Work is currently underway on a number of nature parks on the outskirts of the city, such as Naturpark Barnim – a vast park in north-eastern Berlin covering 749 km<sup>2</sup> (including 4,000 hectares within the boundary of the city of Berlin).

### 3.2 Parks and gardens

At the centre of the city is the Tiergarten, a 210-hectare park and former 17th-century game reserve. The Tiergarten is the historic city centre, just a stone's throw from the Brandenburg Gate, the Parliament and the Chancellery.

The Tiergarten measures 3 km long and 1 km wide and is connected to two green continuities: the river Spree (running east-to-west) and the river Panke and Spandau ship canal (north-to-south). The footpaths and lakes inside the park were designed by landscape architect Peter Joseph Lenné in 1816.

Over the centuries, the park has become a central hub and meeting place, while retaining its characteristic as an oasis of nature within Berlin.

The city has numerous allotments, laid out like vast estates. These allotments (Schrebergarten) are one of the major green features of the city, with 929 separate estates (Kolonien) comprising more than 73,694 individual allotments (3,030 hectares).

These Kolonien are similar to the allotments found throughout France. Created initially to reduce food for both West Berlin and East Berlin, they played an important role during the blockade after the Second World War.

From the air, the true scale of these Kolonien becomes clear – they cover more than 10% of the city's total surface area.

### 3.3 Wastelands and wild vegetation

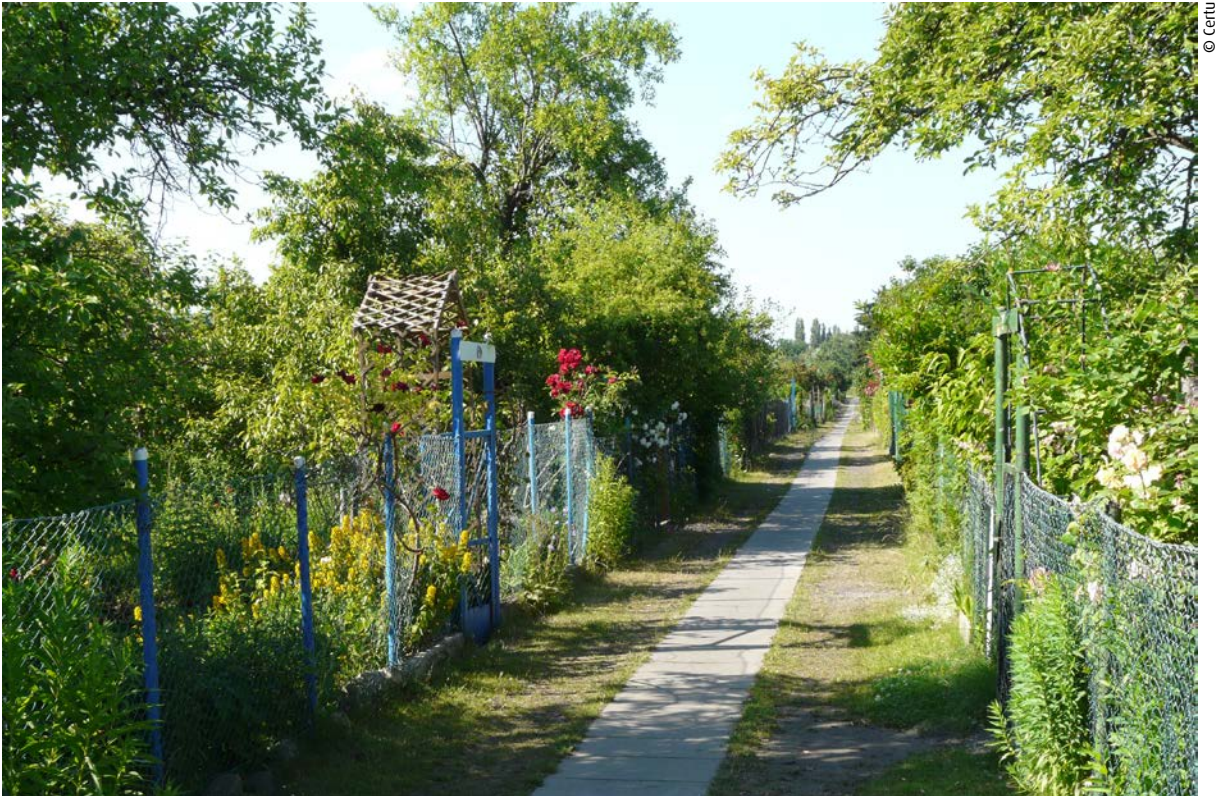
Berlin is home to an abundance of wild, free-growing and spontaneous flora. These plants occupy every single nook and cranny of the city, including its railways, industrial wastelands, roadside verges, tree pits and areas around buildings. The city's technical and maintenance departments are happy to allow these wild plants to grow, even adopting this as a landscaping principle in its own right (Mauer Park, Natur-Park Schönerberger Südgelände). These wild plants are not planted or picked. Public space upkeep and maintenance operations take this vegetation into account, and extensive management is a widely adopted principle.

The city's green spaces come in a variety of different forms, from multi-coloured fields to urban forests grown from natural seeding and spontaneous discards, which have now colonised Berlin's wastelands, protected from the chainsaw.

The city's wastelands are also extremely varied in terms of both landscaping and phytosociology. Berlin's open spaces are characterised by spontaneous growth and wild plants.

The city's deliberate decision to "allow plants to grow wherever they wish" is the subject of debate, however, as many tourists view this policy as nothing more than a negligent approach to weeding and upkeep.





*Illustration 5: The Kolonien are both allotments and attractive gardens.  
They cover 10% of the city's total surface area*

## 4 Green space planning

### 4.1 A major historical legacy

Johann Heinrich Gustav Meyer (1816-1877), the first director of Berlin's Parks and Gardens Department, created the first "popular park" (Volkspark Friedrichshain) between 1846 and 1848 as a rival to the aristocratic Tiergarten. He and his team launched the Volkspark movement – a popular park concept open to all inhabitants. The aim was not to create new ornamental parks, but rather to provide leisure and relaxation spaces for people living in Berlin's densely populated neighbourhoods.

When the city's population reached the one million mark in 1877, demand for recreational spaces was high on the political agenda. The embellishment work carried out in Paris under Baron Haussmann was well received in Berlin and the city turned its attentions to creating squares and parks.

Today, Berlin's Volksparks are public spaces with top-quality sports facilities. Most of these parks have swimming pools, paddling pools, sports pitches, a velodrome, a skate park and children's playgrounds.

The Volkspark is a sort of hybrid space, part-way between a 19th-century landscaped park and a 1960s leisure centre. The purpose of these parks is to improve the health of local residents, celebrating the benefits of outdoor physical exercise and relaxation in nature.

### 4.2 Land use planning tools in Berlin

Berlin's planning system is based on a global planning strategy. It comprises a series of forward-looking and/or operational framework documents, which are both informal and officially enforceable, standalone and complementary.

These documents are also developed at different scales (region/city/neighbourhood/plot).

#### ■ FNP Berlin

Berlin's land use planning document (Flächennutzungsplan (FNP) Berlin 1:25000 and 1:50000) is a general planning framework document based on federal legislation.



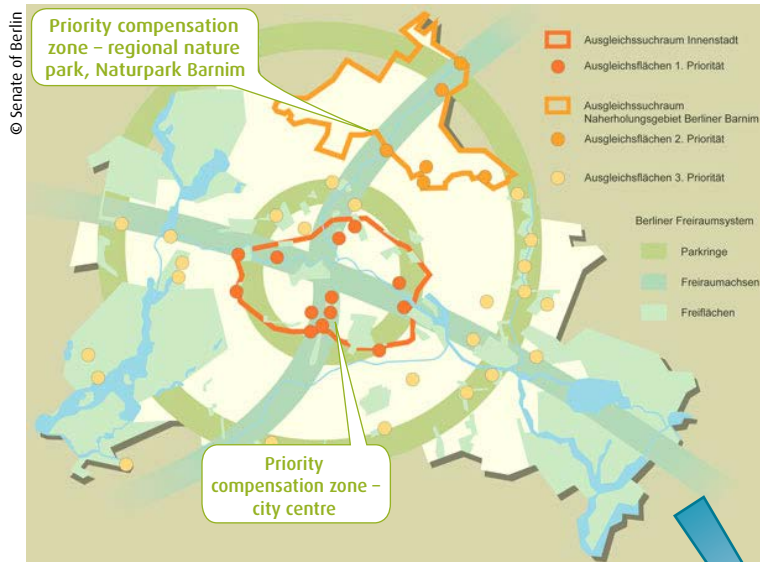


Illustration 6: Berlin's green spaces urban framework plan features a dual band of parks and a green "cross" that follows the paths of the rivers. This map also features projects connected with compensatory environmental measures, with three levels of priority

### Compensation strategy:

The landscaping programme (Landschaftsprogramm, or LaPro ) features a city-wide compensation strategy.

There are dedicated priority zones for landscaping or environmental compensatory measures, particularly where the impacts of projects cannot be compensated for locally. The Naturpark Barnim project is a prime example of a priority compensation zone.

These dedicated spaces form a cross-shaped network (following the rivers) and a dual green band, helping to maintain green and natural spaces in the city

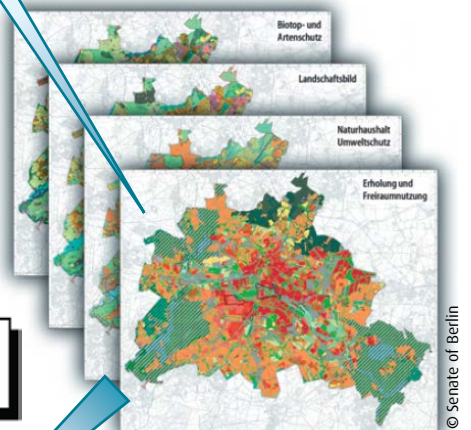


Illustration 7: The FNP Berlin is a general planning framework document

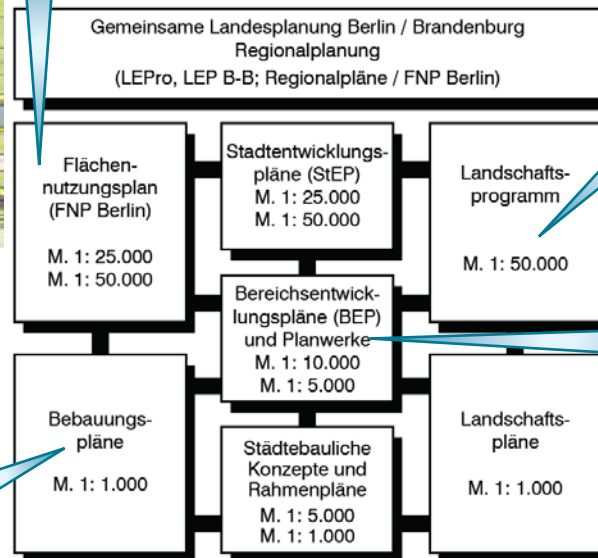


Illustration . 9: The relationship between different planning documents in Berlin



Illustration 8: The Bebauungsplan, a local version of the FNP, is an officially enforceable local development plan that determines densities and land uses per district. Excerpt of a local development plan



Illustration 11: The BEP is an intermediate document that does not cover the entire city. It is a regulatory planning tool for a specific zone, legally imposing zoning and land use requirements. Excerpt of a BEP

There are also local versions of the FNP, in the form of development plans (Bebauungspläne 1:1000) and planning guidelines.

#### ■ LaPro

The landscaping programme (Landschaftsprogramm, or LaPro) is an environmental regulation specific to Berlin that was established in the 1980s.

It is a city-wide strategic planning document that covers issues such as wildlife protection, natural conservation and landscape enhancement proposals, and compensation measures for nature and landscape impacts.

The document features programmes of action in the following areas:

- ecosystems;
- biotope and species conservation;
- landscaping;
- outdoor leisure pursuits in public spaces;
- environmental compensation.

There are also local versions of the LaPro, in the form of landscaping plans (Landschaftspläne). These are operational and regulatory documents covering neighbourhood-specific projects.

These plans feature detailed, plot-level zoning rules (densities, reserved areas for buildings and roads), based on the zoning rules of the FNP Berlin. These plans are legally binding on owners and investors. In some areas, with specific issues, they are accompanied by landscaping guides.

#### ■ STEP

Based on regulations specific to Berlin, these planning documents were established in the 2000s and cover both urban planning and landscaping:

- at the city level, with sector development documents (Stadtentwicklungspläne, or STEP 1:25000 and 1:50000). These are non-binding guides that set out development objectives, priorities and proposals in terms of services, social housing and industrial zones at the city level. These guides are used as references for development projects.
- at the level of individual districts or specific zones, with intermediate regulatory planning documents (Bereichsentwicklungspläne, or BEP und Planwerke 1:10000 and 1:5000).

These plans do not cover the entire city. These are mid-way documents between the FNP Berlin (city-wide) and the Bebauungsplan (plot-specific). The STEP is a non-formalised planning instrument that is nevertheless legally binding on the local government.

Each plan includes a set of rules, land use and development guidelines, and a series of proposals ranked in order of priority.

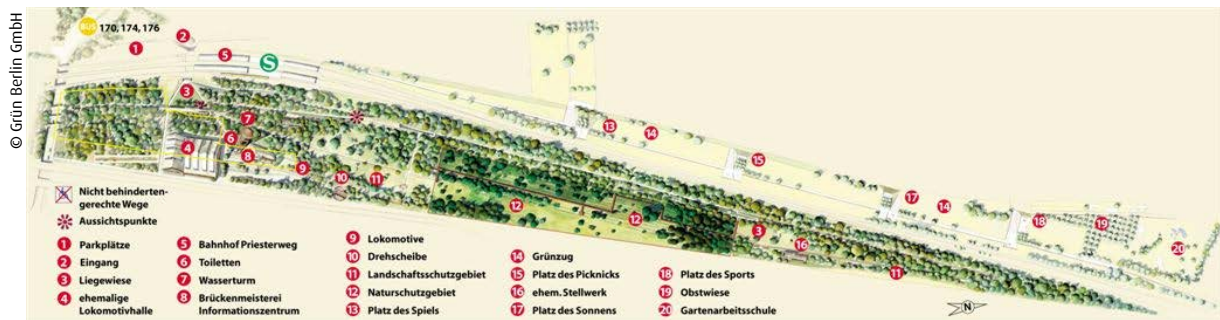
At local level, these documents are supplemented by urban planning and landscaping guides (Städtebauliche Konzepte und Rahmenpläne).

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*Illustration 12: The Volksparks are hybrid spaces part-way between 19th-century landscaped parks and 1960s leisure centres*





*Illustration 13: The park is shaped like a spindle and is surrounded entirely by railway lines. The central section of the park is strictly protected (credit: Grün Berlin GmbH).*

## 5 Natur-Park Schöneberger Südgelände

There are many areas of industrial wasteland within the Berlin conurbation. A former marshalling yard in the district of Schöneberg, in the south of the city, was abandoned in 1952. The spindle-shaped site – 18 hectares enclosed entirely between railway lines – was inaccessible for approximately 50 years. Nature gradually took over this former rail site, and spontaneous tree growth now occupies around two thirds of the site. It boasts rich and unique biotopes, created by seeds blown by the wind, scattered by trains and carried by insects.

### *Birth of the park:*

- In 1980, a group of associations was established to fight a project to rebuild a marshalling yard on this site, which had become an oasis of biodiversity.
- In 1995, Deutsche Bahn AG, which owned the land, gave this 18-hectare plot to the Senate of Berlin. The government decided to transform

the site into a public nature park, to compensate for the reconstruction of Potsdamer Platz.

- The work began in 1996, based on plans drawn up by landscape architects Plan land associés in Otcyon, with support from a foundation (Allianz Umweltstiftung).
- Natur-Park Schöneberg Südgelände opened to the public in 2000.

### *A project that reflects the location's natural history:*

Lush vegetation turned a metal-and-concrete marshalling yard into an impenetrable jungle. The railway tracks, platforms and even an abandoned locomotive disappeared beneath a forest, interspersed with wasteland clearings. The planning challenge was to open the site to the public while respecting its original ambiance. Actual work on the land was therefore kept to a minimum during creation of the park.



*Illustration 14: Priesterweg S-Bahn station is directly opposite the main entrance to Natur-Park Schöneberg Südgelände. A vast water tower marking the entrance can be seen for miles around*



Only those trees blocking the planned pedestrian routes were cut down. The majority of these routes were created by adding ballast on the former tracks. The landscape architects designed the park without any new plantations.

Spontaneous vegetation is allowed to grow freely, with minimal maintenance designed primarily to keep the routes through the park open and accessible.

The railway tracks and embankments overgrown with vegetation, the rusted lampposts and even the abandoned locomotive are examples of how the project sought to respect the site's industrial past.

### **Two ambiances:**

- The entrances (north and south) are designed for walking, with no restrictions. The pedestrian routes were created simply by adding ballast on top of the existing railway lines. The former buildings have been restored and are now used as offices, public reception and cultural events facilities (exhibitions and concerts). There is a

vast water tower marking the entrance to the park that can be seen from miles around.

- The central part of the park is a protected zone (Natura 2000), where movement is restricted and only pedestrians are allowed (no dogs).

There is an ingenious duckboard pathway suspended 50 cm above a former railway line, thereby naturally preventing pedestrians from straying off the footpaths.

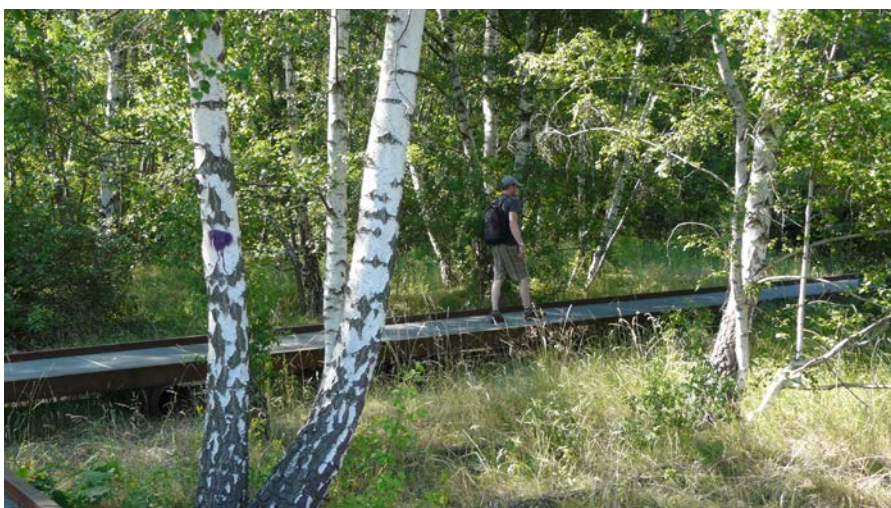
The park is managed by Grün Berlin GmbH, a Berlin regional body that maintains a number of parks and public gardens. It is managed in an extensive manner, solely for the purpose of keeping the paths accessible. The park undergoes regular scientific monitoring and domestic animals are not permitted to enter the site. Bicycles are also banned inside the park. It costs €1 to enter the park, with tickets dispensed by automatic vending machines fitted with solar panels.

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*Illustration 15: The former railway lines are overgrown with vegetation, mainly birch and ash trees*

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*Illustration 16: In the protected area, the duckboard paths are raised above the former railway lines*



Illustration 17: The zone in which the environmental sticker system applies (in green)

### Environmental zone sticker for vehicles

As with other major cities in Germany, such as Hanover, Cologne and Stuttgart, polluting vehicles are prohibited from entering Berlin city centre.

The S-Bahn ring marks the outer boundary of an environmental zone (Umweltzone) in which only low-emission vehicles that have been awarded a green environmental zone sticker (certifying that they comply with the latest anti-pollution standards) are permitted.

This system resulted from Berlin's 2005-2010 air plan (Luftreinhalte- und Aktionsplan Berlin 2005-2010). The sticker system also applies to tourists visiting the capital in their own cars for a short period of time.

[www.stadtentwicklung.berlin.de/umwelt/luftqualitaet/umweltzone/de/gebiet.shtml](http://www.stadtentwicklung.berlin.de/umwelt/luftqualitaet/umweltzone/de/gebiet.shtml)

## 6 Ten key points

### ➔ Abundant nature in the city

Green spaces represent some 40% of Berlin's surface area – forests and woodland (43%), wastelands and open spaces (14%), allotments (11%) and urban parks (10%).

A number of rivers and ship canals pass through Berlin (180 km straight-line distance), and the city has developed around an inner green belt comprising allotments and historic parks, including the famous Tiergarten (210 hectares), and an external green belt consisting of forests and lakes. With more than 430,000 trees, Berlin can claim to be a forest city with abundant nature.

The presence of nature is the result of rigorous planning that commenced back in the 1920s (Jansen-Plan). With natural, green spaces accounting for 40% of its surface area, Berlin is one of the greenest cities in the European Union (where the average figure, across 386 cities, is 18.6%). Paris (including the Bois de Vincennes and the Bois de Boulogne) achieves a figure slightly in excess of 20%, although this falls to 11% within the city itself.

This situation is also the result of the city's history. During the Second World War, some 70% of the buildings in the city centre were destroyed by bombings. This left large areas of wasteland, which were subsequently colonised by vegetation.

Pending urban renovation or land use change projects, some of these wastelands were overgrown

with tall trees, due to a lack of regular maintenance and pruning.

### ➔ An ever-improving urban environment

After spending just a few days in the German capital, visitors are able to appreciate and experience the quality of Berlin's environment.

The city boasts excellent public transport links, a superb network of cycle paths and expansive green spaces, including the promenades along the banks of the Spree and the Havel, courtyard alleyways and flower-lined alleys among the allotments. These are some of the facets that give Berlin its exceptional quality of life. The city boasts numerous oases of greenery, parks and intimate gardens, away from the hustle and bustle of urban life and road traffic, creating quiet, peaceful ambiances.

The city's many oases of greenery create an impression of a place that is peaceful and quiet, while the city centre itself (88 km<sup>2</sup>) was officially made a green zone (Umweltzone) on 1 January 2008 – Berlin's equivalent of a Low Emission Zone. Only modern low-emission vehicles are allowed within this zone.

Local residents who want to get outdoors, engage in physical exercise or relax in peaceful surroundings do not need to head to the outskirts of the city to find natural spaces and forests.

The city itself has plenty of green, calm and peaceful spaces right next to its buildings, offering a wide range of uses and leisure activities. These include



children's playgrounds, patches of grass where people can soak up the sun, kitchen gardens, shaded cycle paths and pleasant pedestrian routes.

### ➡ Rigorous, pragmatic urban planning

Berlin's green spaces are laid out in two separate bands – an inner band and an outer band. This framework plan was adopted as the guiding principle for non-built spaces back in the 1920s, in the city's land use planning documents. Despite Berlin's chequered past as a bloody city divided by a wall and a border between two countries, this principle has gradually gained traction with the regional and local authorities over the years. The green space development plan even survived the tests of German division and reunification.

What's more, this plan is neither fixed nor obsolete. It is a living, evolving plan that reflects the latest changes to environmental legislation and regulations (territorial climate plan, biotope to surface area coefficient, rainwater management tax).

The LaPro (the equivalent of a landscaping plan and programme of action to preserve and enrich biodiversity) supplements the dual green band system under the original plan.

Green ways (mainly laid out in cross shape) are designed to create environmental and landscaping continuities between the city centre (inner green band) and the natural spaces and farmland on the outskirts of the city (outer green band).

### ➡ Ambitious projects, shared objectives

The federal nature conservation law, passed in 2002, requires regions and city states to assign at least 10% of their surface area to natural spaces. Berlin is well beyond this target, with natural spaces, farmland, parks, gardens, canals and lakes accounting for 40% of the city's surface area.

The exact nature of these green spaces varies significantly, from nature parks, leisure centres, allotments and private indoor green spaces, to Natura 2000 sites, protected nature reserve areas and special conservation zones. The city boasts a wealth of different green spaces, suitable for all uses.

Each green space has a unique legally protected status, based on the quality of its biotopes and the diversity of its landscapes. All of these are listed in Berlin's urban planning plan (FNP) to a high degree of accuracy.

For those areas of the city covered by the LaPro (16%), the local authority's technical departments have included binding vegetation compensation measures in development operations (highways, car parks, building surrounds) and have intro-



Illustration 18: Mauerpark

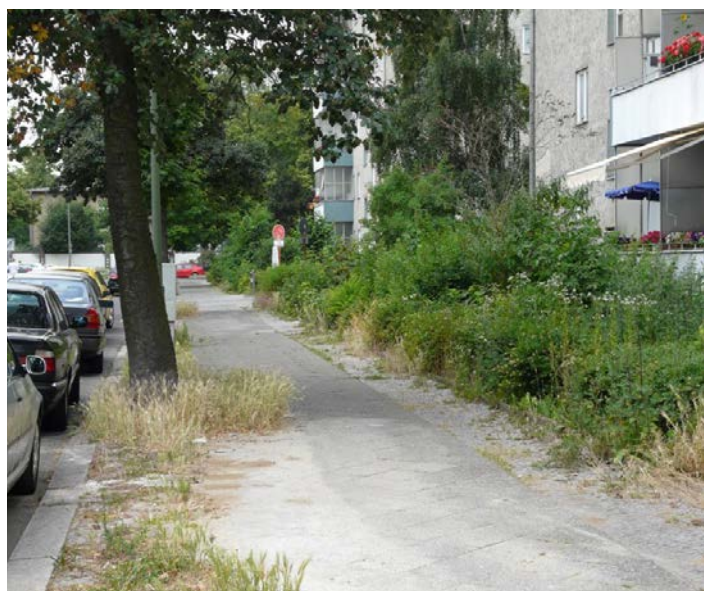


Illustration 19: Local residents tolerate light-touch management of pavements and building surrounds

duced natural spaces in property development programmes (green roofs, courtyard gardens, tree plantations, promenades and rain gardens).

They achieve this using proven fiscal measures, such as the biotope to surface area coefficient. The city has a dual system of regulatory urban planning and operational urban planning, negotiated on a case-by-case basis, with an effective public-private partnership that helps to make Berlin a greener city.

### ➡ A dedicated geographical information system for green spaces

In 2006, Berlin launched a new geographical information system (Grünflächeninformations-system, or GRIS), which it uses to list and geo-locate green spaces plot-by-plot on a digital land registry. There is also an online database of parks, gardens, cemeteries, isolated trees, roadside trees and public spaces (140 separate items).

It also lists the main facilities and amenities (fountains, benches, buildings, landscaping styles, enclosure types).

Similarly, the system can be used to carry out performance analyses and financial assessments of investment programmes and maintenance budgets for certain parks and public gardens.

The data can be accessed on the city of Berlin's website. There is an intranet site containing a photo and map library, which is extremely useful for civil servants carrying out urban studies. The geographical information system helps to boost cross-functional cooperation between departments and to coordinate actions through knowledge-sharing.

### ➡ Calm green spaces

Berlin plans to establish around 20 green ways. The certification specifications and logo are currently protected.

These green ways are included in the StEP-Plan, the LaPro and the BEPs, and are intended to strengthen ecological continuities and increase cycle path provision. They also aim to support environmentally friendly modes of transport between parks, leisure facilities, residential neighbourhoods and business districts, and to encourage local residents to engage in sport, recreation, relaxation and discovery activities.

Where possible, they also serve multimodal interchange hubs (public buildings, train stations), offices, schools and shopping centres. They are located away from busy streets and thoroughfares, following all or part of the existing road network.

Berlin's green ways are calm road lanes open to all non-motorised forms of travel, including pedestrians, cyclists, rollerbladers, people with reduced mobility and horse-riders. They are different from cycle paths because they are designed with security and accessibility in mind and are better integrated into the landscape and environment.

The development of green ways has led to heightened interest in active modes of travel among Berlin's residents. Some 32% of all journeys are now made on foot and by bicycle. Driven by environmental and public health concerns, this new trend is also linked to the growing popularity of cycling and walking as alternatives to the dominance of motorised (passive) modes of transport. Berlin's green ways follow the city's rivers, canals, railway lines and tree-lined streets.

The city council is attempting to open up new, green routes through the private land behind Berlin's buildings and offices and create alleys and passageways, capitalising on revisions to the FNP and the creation of new rights of way to develop this ambitious, conurbation-wide project.

### ➡ Generous, natural vegetation

Berlin is notable for its abundant wild flora, which occupies every corner of non-sealed surfaces, such as soft roadside verges, pavement cracks, tree pits and residential building surrounds.

The local residents are accepting and tolerant of wild vegetation in the city centre. Unlike French cities, where green spaces are carefully planned and maintained in historic neighbourhoods, Berlin has deliberately chosen to "allow plants to grow wherever they wish". This includes the Tiergarten, three quarters of which is covered with irregular mature plantations and impenetrable thickets.

The introduction of light-touch management, at the behest of the powerful socio-professional organisation of the parks and gardens directors in the 1980s, seems to have been widely accepted by local residents, who are used to living alongside urban wastelands and overgrown abandoned sites. Natur-Park Schöneberger Südgelände shows that it is possible to design and maintain extremely popular public parks in a way that prioritises their natural vocation.

Public funding allocation to green space maintenance has been slashed in a bid to reduce the city's debt, while the corresponding tasks have been simplified by abandoning the use of plant treatment products, extending the periods between mowing, dramatically reducing sprinkling, removing almost



all non-buried planters and selecting hardy plant species that can withstand even the toughest tests.

As a result, the majority of the city's green spaces have a wild appearance and, in summer, the grass grows extremely thick. Yet Berlin's residents do not appear bothered. The unsealing of urban land in an effort to increase rainwater infiltration per plot is producing remarkable landscaping effects.

### ➡ Green spaces for climate purposes

StEP-Plan, LaPro and Agenda 21 all share similar environmental objectives. Since the 1990s, the city has recognised the beneficial role that water

and vegetation play in reducing urban heat zones. Green spaces are seen as natural air-conditioning units, with no polluting effects or greenhouse gas emissions.

With judiciously designed vegetation, green spaces can help to cool the air via evapotranspiration and the shade of the trees, which creates convection currents.

The closure of Tempelhof airport in 2008 freed up 386 hectares of land. This location was earmarked as a pollution-reducing site of strategic importance in the territorial climate plan. An international competition was launched to bring this ambitious climate compensation project to life, with entrants asked to design an urban park covering the entire site. Scottish landscape architect team Gross Max and British architects Sutherland Hussey Architects won the competition in April 2011.

### ➡ Biodiversity as a backdrop

In the 1990s, West Berlin carried out a biodiversity mapping study, focusing on valuable habitats for animal and plant species.

Berlin now has a plant and wildlife inventory that is regularly supplemented with academic and association research findings on natural sites and remarkable biotopes (marshes, peat bogs, unique plant formations, caves).

Biotopes identified in valuable biodiversity habitats were included in the LaPro in 1994, with a view to preserving ecological continuities (biodiversity reservoirs) and ensuring that these areas could continue to evolve in light of their critical mass and urban trajectory.

The emphasis is on an environment/habitat strategy rather than a species-specific strategy, with particular focus on priority biotopes (watermeadows and riparian woodlands, lake shores, fallow land and open meadows, cemeteries, allotments and industrial wastelands). Berlin's residents are fully involved in this biodiversity strengthening policy, tending to tree pits and watering urban trees during dry spells.

ill. (credit: Certu).

### ➡ Consultation: an ongoing concern

Berlin City Council has established local consultation as one of the cornerstones of its long-term development. The Berlin neighbourhood governance act, passed in 2005, strengthened the rights and duties of citizens in terms of participation and consultation.



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*Illustration 20: A rain garden in the centre of Potsdamer Platz*

The Senate, as the leading body on public policy development and coordination, is responsible for informing the population about important plans and projects (particularly during the initial design phase) and for providing information about the financial situation of the local neighbourhood. Citizen consultation is also compulsory during the project examination phase.

The fact that major projects (such as Berlin's courtyard gardens, the 20 green ways and requalification of Tempelhof into an urban park) are included in the city's Agenda 21 is the result of citizen initiatives. The courtyard garden project, for example, involves the planting of greenery within blocks and the creation of neighbourhood gardens. Residents have a say on the overall layout of these courtyard gardens, the choice of plants, the construction of pergolas to mask bin stores, the installation of playgrounds and bicycle parking spaces, and the unsealing of co-ownership apartment building land to improve rainwater infiltration per plot.

This "grey out, green in" policy, funded by the Senate, has led to around 100 projects in the Pankow borough and the construction of greenhouses in Friedrichshain-Kreuzberg.

This process of social dialogue means that sustainability principles are filtering into the day-to-day activities of stakeholders, businesses, organisations and citizens. These projects may be used as examples of best practice, for subsequent transfer to other municipalities.

## 7 Conclusion

The city of Berlin is profoundly affected by its history. Yet this once-bloody place has rebuilt itself, and has allowed plants and nature to flourish in the city.

The presence of wastelands has undoubtedly affected locals' views of spontaneous vegetation in their city. Indeed, Berlin's residents are happy to tolerate wild vegetation in public spaces, including cemeteries.

Berlin City Council has developed a range of scalable planning tools. The LaPro, with its emphasis

on landscaping, has led to the creation of a system of natural spaces, biotopes, parks and gardens, forming a double green band connected by a green cross.

An attentive approach to history and geography and sensitivity to the landscape have largely dictated the form and development of Berlin.



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