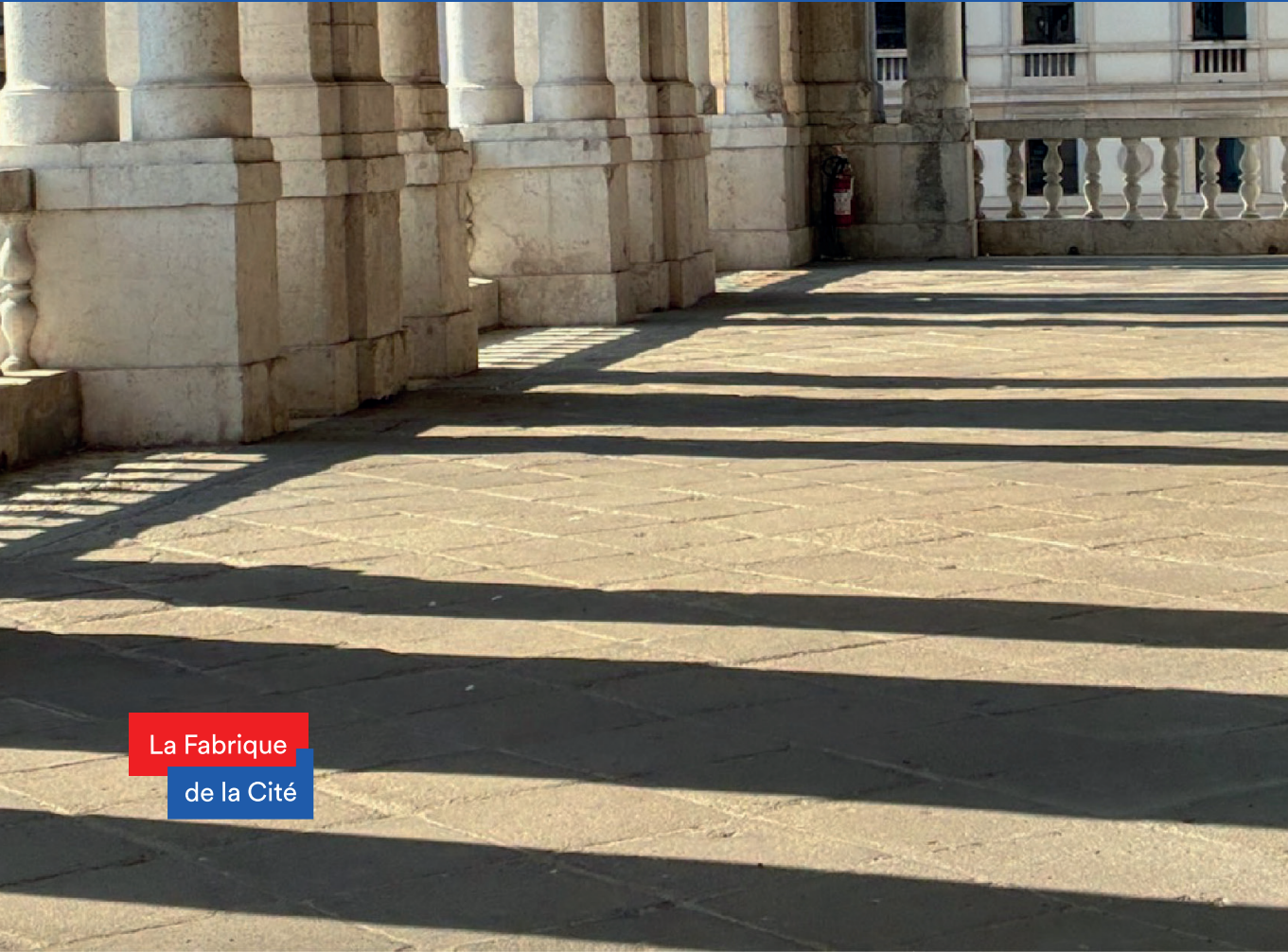


Expert viewpoint

Sharing shade in tomorrow's cities

Isabelle Baraud-Serfaty, economist and urban planner, founder of ibicity

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La Fabrique

de la Cité

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Expert viewpoint

Sharing shade in tomorrow's cities

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In hot cities, shade is a prerequisite for livability under high temperatures. While architects and urban designers have widely embraced the issue, its economic dimension is rarely discussed. Yet, shade is becoming a new scarce resource, raising the question of how it is shared and making it a political matter.

This exploratory note invites readers to anticipate how the delivery of urban services may change as global warming reshapes residents' needs in the context of constrained local finances. How should the responsibilities of the municipality, the community, and individuals evolve? This note continues a reflection that began with the politicization of snow removal in cold cities: where does the white of cities go when the snow melts?¹ Our initial hypothesis was that shade is to the sun what snow removal is to snow. Shade and snow, which conjure powerful imaginations and shape lifestyles, carry an anthropological dimension. However, just as it has always been easier to respond to cold weather than to hot weather—by lighting a fire or putting on an extra layer²—shading is more complex than clearing snow. Snow removal is a service (like park and garden maintenance or public space cleaning), whereas shade is primarily infrastructure, i.e., facilities and equipment made available for communal use. We will show that shade is becoming a new urban resource, that its provision has a cost, and that its value is rising, which may warrant engagement from municipalities.

1. Baraud-Serfaty, I. (2025). Où va le blanc des villes lorsque la neige fond ? Ibicity. <https://www.ibicity.fr/ou-va-le-blanc/>
Baraud-Serfaty, I. (2025). Dénéigement, ombre : quels services locaux dans les villes réchauffées ? Futuribles. <https://www.futuribles.com/deneigement-ombre-quels-services-locaux-dans-les-villes-rechauffees/>

2. Heschong, L. (1979). *Thermal Delight in Architecture*. MIT Press.



Figure 1: *Top: Shadow*³ in La Défense, Paris, France. *Bottom: Shade* at the Piazza Trento e Trieste market, Ferrara, Italy.

Source : ©ibicity

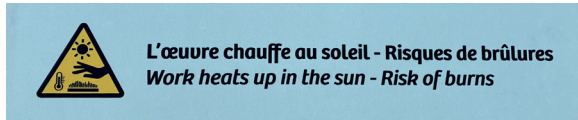
3. English uses two words to describe “ombre”: ‘shade’ refers to an area protected from the sun, while “shadow” refers to the shape cast onto a surface when a person or object stands between that surface and a light source.

Top: September 12, 2025, 9 a.m., view from an office located in the southern pillar of La Grande Arche de la Défense, Paris. The monument is often used as a source of shade, but since it is protected by copyright, we have chosen not to reproduce an image of it here.

Read Casati, R. (2003). The Shadow Club. Knopf. [

1. Shade is becoming a new urban resource

Awareness of the importance of “summer comfort” may soon give way to that of summer survival. The increasing frequency of heat spikes in heated cities makes shade an essential component of urban cooling and a prerequisite for access to public spaces.



Informative sign at the 2025 Biennale of Arts and the Ocean in Nice, France
Source : @ibicity

1.1 Heated cities are experiencing increasingly frequent heat spikes

Global warming projections indicate a +4 °C increase in France by 2100, with the 44 °C threshold potentially reached or exceeded across all regions during extreme heatwaves, local spikes approaching 48 °C, and a tenfold increase in the number of heatwave days⁴. At the 2025 Architecture and Landscape Biennale in Versailles, the exhibition “Four Degrees Celsius Between You and Me”⁵ highlights the gradual migration of climate zones from the equator toward the poles at a rate of just over one meter per hour. “What was once the climate of North Africa will become the climate of tomorrow’s Europe; North Africa’s climate will become that of Equatorial Africa. [...] The climate of Paris will resemble that of Italy’s Marche region—or even areas further south.” The exhibition invites us to draw inspiration from traditional climate solutions while adapting them to different geographical contexts.



Figure 2: Climate analogues⁶

4. Le climat futur en France : à quoi s'adapter ? Météo-France.

<https://meteofrance.com/changement-climatique/quel-climat-futur/le-climat-futur-en-france>

5. Philippe Rahm and Sana Frini were the co-curators of the third edition of the Île-de-France Architecture and Landscape Biennale.

6. Reference Warming Trajectory for Climate Adaptation (TRACC). French Ministry of Ecological Transition.

<https://www.ecologie.gouv.fr/politiques-publiques/trajectoire-rechauffement-reference-ladaptation-change-climatique-tracc>

1.2 Shade contributes to cooling cities

Cooling cities has become necessary due to their ongoing warming⁷. Strategies for cooling outdoor areas include planting trees, which function as “natural air conditioners,” removing the asphalt from the streets, applying light-colored coatings, and humidifying the air and ground with water (fountains, misting systems, etc.). Shade also plays a key role, particularly in mitigating urban heat islands, as demonstrated by the “Paris Frais”⁸ and “Toulouse + fraîche”⁹ plans. In Toulouse, the municipality has installed numerous vegetated wooden pergolas and shade sails across many neighborhoods, which are projected to reduce temperatures by up to 5°C¹⁰.

The effectiveness of shade depends on how objects casting it reflect, absorb, and transfer the various wavelengths of solar radiation as energy. It also depends on the intensity of that light, the extent of the projected shadow (a telephone pole that casts a perfect shadow on a body in no way prevents the solar heating of surrounding surfaces), and the biology of the person receiving it¹¹. The role of shade is therefore all the more important as it results from a combination of actions¹².

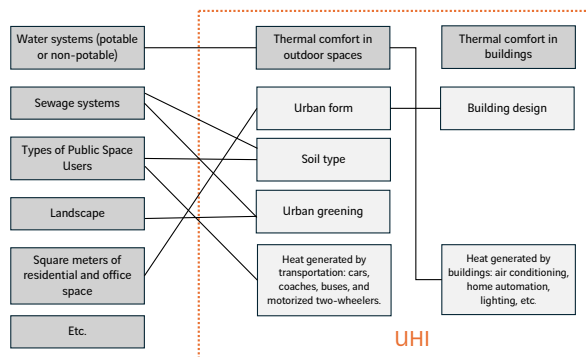


Figure 3: Integrating urban heat island (UHI) issues into the early stages of an urban project¹³.

7. Gardies, E., & Baléo, M. (2025). *Transformer l'espace public pour créer des îlots de fraîcheur urbains*. La Fabrique de la Cité. https://www.lafabriquedelacite.com/wp-content/uploads/2025/04/VF-2804_Rafraichissement-1.pdf
8. Florentin A. & Lelièvre M., *Paris à 50°C*. (2023). https://cdn.paris.fr/paris/2023/04/21/paris_a_50_c-le_rapport-1c4H.pdf
9. *Toulouse + fraîche*. (2024). Toulouse Métropole. https://cdn.plusfraichemaville.fr/Plan_d_actions_2024_2026_Toulouse_fraiche_0f75e7d48d.pdf
10. Pagès, A. (2025, août). Villes et canicule : quelles solutions pour résister aux fortes chaleurs ? *We Demain*. <https://www.wedemain.fr/maison-responsable/villes-et-canicule-queelles-solutions-pour-resister-aux-fortes-cha-leurs-1139127>. The digital platform <https://plusfraichemaville.fr/> (“My Cooler City”) was developed by the French Environment and Energy Management Agency (ADEME) to support French local governments in implementing cooling measures, including shading solutions. For each type of solution, the website specifies costs and impacts in terms of thermal comfort.
11. See Arianne Middel’s work, cited in Bloch, S. (2025). *Shade: The Promise of a Forgotten Natural Resource*. Random House. <https://sambloch.com/>
12. See the graphs on pages 178 and 180 in the catalog of the German Pavilion at the 2025 Venice Biennale.
13. ©*Atténuer les îlots de chaleur urbains*. (2020). APUR. https://www.apur.org/sites/default/files/icu_cahier5.pdf. This study was conducted by Julien Bigorgne under the supervision of Paul Baroin. The urban heat island (UHI) issue should be integrated into the earliest stages of urban project design, alongside all other aspects such as landscaping,

1.3 Shade is a prerequisite for livable public spaces in heated cities

Shade is thus increasingly considered a way to keep public spaces accessible during hot weather. This is all the more essential as public space is once again becoming a sociable place, rather than merely a circulation space designed primarily for and by cars. Public spaces “to be lived” should be lived under all weather conditions, including extreme heat.

At the 2025 Venice Architecture Biennale, Bahrain’s Pavilion, titled “Heatwave”, was awarded the Golden Lion for best national pavilion. It reconstituted a “*temporary shading pavilion*” for places where indoor shelter is not possible, such as construction sites, and envisioned this type of solution as potential “*thermal commons*” and as sociable places in outdoor spaces. In this regard, there was a time when it was shade that shaped public spaces—for instance with plane trees in the towns of southern France or Rome’s basilicas.¹⁴ “*The great attraction of Mediterranean populations to their streets and squares largely stems from their thermal qualities.*”¹⁵

Shade is therefore necessary to preserve—or even establish—the commoning of public spaces, and it allows people to move within them. Shading solutions must mitigate the impact of full daytime heat on pedestrians’ thermal comfort¹⁶. In an article with a manifesto-like title, “*Shelter from the sun is a public resource*”, Ghanaian-Scottish architect Lesley Lokko wrote that in African cities, from Kinshasa to Khartoum, “*in places where midday temperatures can rise to over 40 °C, the chance to sit—even 10 minutes—under a neem tree is more than simply welcome—it is essential.*”¹⁷

networks, traffic patterns, building square footage, etc.

14. Rahm, P. (2020). *Histoire naturelle de l'architecture*. Pavillon de l'Arsenal.

15. *Architecture et volupté thermique*, op. cit.

16. *Les solutions d'ombrage en ville*. Adaptaville
<https://www.adaptaville.fr/media/article/guide-adaptaville-ombrieres-vf.pdf>

17. Lokko, L. (2020, avril). Shady democracy : Shelter from the sun is a public resource. *The Architectural Review*.
<https://www.architectural-review.com/places/africa/shady-democracy-shelter-from-the-sun-is-a-public-resource>. Lesley Lokko was the curator of the 2023 Venice Architecture Biennale.

2. Shade is created and maintained: shade provision has a cost

The sun cannot be created, but shade can, and it involves a strong material component. Shade provision can be broken down into several stages: its creation (urban morphology and equipment), its maintenance, its information layer, and its uses.

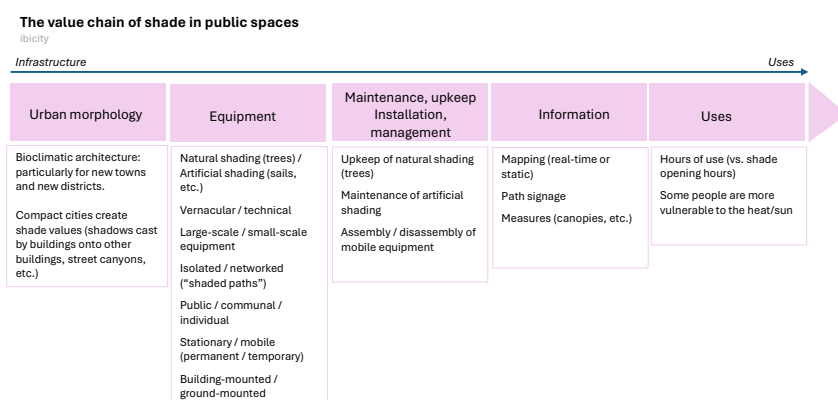


Figure 4: Value chain of shade in public spaces

Source : ©ibicity

2.1 Shade creation: urban morphology

Urban design can be "bioclimatic:" street orientation and building heights in southern cities can create shade for sidewalks, squares, and buildings. "*Vitruvius explains that Nero was mistaken to widen Rome's streets, as their dimensions had been proportioned to create shade and channel the wind in just the right balance.*"¹⁸. When streets run along a diagonal grid, all surfaces receive shade at some point during the day. And when building height exceeds street width, surfaces remain shaded for longer periods. Together, these two factors can minimize solar radiation on urban streets.

Medinas in North African towns and cities are thus designed to suit local climate conditions. For example, in Zenata, Morocco, Atelier Franck Boutté—recipient of Grand Prix de l'Urbanisme 2022, France's national urban planning award—is working on an eco-designed new town of 500,000 inhabitants whose urban layout harnesses the specificities of Morocco's climate. "*We therefore designed the overhangs to follow the sun's curve and arranged them to ensure continuous shading.*"¹⁹.

18. Mestres, J.-M. (2021, novembre). Philippe Rahm : « La forme suit le climat ». *Urbanisme*. <https://www.urbanisme.fr/invite/philippe-rahm/>

19. Saout, T. (2021, juillet). Franck Boutté : « Learning from the South ». *Urbanisme*.

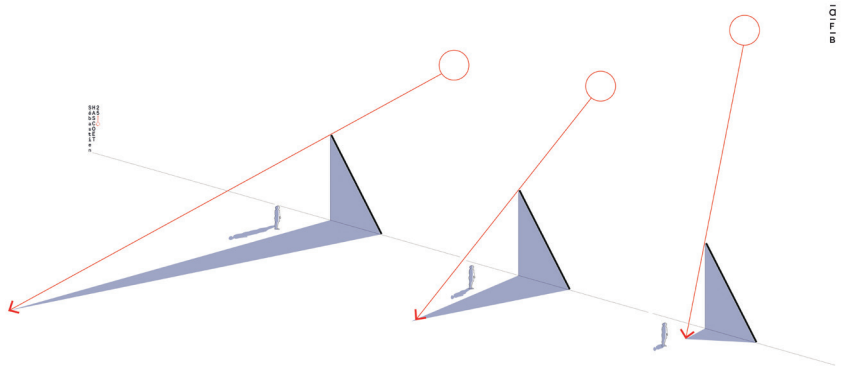


Figure 5: Shadow studies

Source : ©Sébastien Hascoet / Agence Franck Boutté

Bologna, Italy, is also shaped by shade, but in a completely different way, with 62 kilometers of covered sidewalks along buildings (portici) forming a vast labyrinth and allowing people to walk in the shade²⁰. In the 13th century, numerous students flocked from all over Europe to the University of Bologna, and the city faced a housing shortage. In response, Bolognese residents added second stories to their houses and extended them over the streets. *“Under papal rule, most Italian cities abolished the commandeering public space for private good. But perhaps in recognition of the benefits of shade, the Bolognese came to appreciate these odd projections. In 1288, the city not only legalized these ramshackle porticoes, but made them compulsory by statute. From then on, every landowner in Bologna’s busiest districts was ordered to furnish a covered public passage and maintain it for eternity at their own expense. Bologna’s porticoes became outdoor workshops where artisans, bakers, and carpenters worked in natural daylight without bearing the brunt of the sun. [...] In most cities, it would be difficult to force a developer to meaningfully shade the sidewalk without getting anything in return. But in Bologna, it has been the order for centuries. The porticoes are what one critic called the physical expression of the residents’ social solidarity, ‘altruism turned architecture.’”*²¹.

<https://www.urbanisme.fr/invite/franck-boutte-learning-from-the-south/>

20. Voir Renzi, R. (1954). *Guida per camminare all'ombra* [Vidéo documentaire]. Bologna Today. <https://shorturl.at/pCNkP>

21. Bloch, S. (2025). *Shade: The Promise of a Forgotten Natural Resource*.



Figure 6. Left: “Mappa 62 chilometri di portici”, map of Bologna’s 62-km-long porticoes²². Right: A picture of portici

Sources: Left: ©Comune di Bologna. Right: ©ibicity

2.2 Shade creation: equipment

Should Bologna’s porticoes, which recall Singapore’s five-foot ways, be considered more equipment than an urban form? In any case, the “morphology” stage only applies to planned towns or new districts. Once a city has been built, one must work with what already exists. Features such as pergolas, jalousie windows, louvered shutters or mashrabiya demonstrate the potential of shutters to ingeniously protect home interiors from the sun, combining shade, daylight, and airflow. Tree canopies, laundry strung up between buildings, and wooden “street canopies” provide outdoor shade, along with other solutions, which will now be analyzed across six categories pertaining to how shade is shared: natural/artificial, vernacular/technical, large-scale/small-scale, independent/networked, public/communal/individual, and stationary/mobile.

22. Porticoes: A 62-km-long asset | Portici. (2024). <https://portici.comune.bologna.it/en/news/porticoes-62-km-long-asset>

Jalousies

A jalousie is a blind with adjustable slats allowing occupants to look outside and to see without being seen. It is a key element of the architectural heritage of the French city of Lyon.

"Now the shadow of the column—the column which supports the southwest corner of the roof—divides the corresponding angle of the veranda into two equal parts. This veranda is a wide, covered gallery surrounding the house on three sides. Since its width is the same for the central portion as for the sides, the line of shadow cast by the column extends precisely to the corner of the house; but it stops there, for only the veranda flagstones are reached by the sun, which is still too high in the sky. [...]"

Now the shadow of the column—the column which supports the southwest corner of the roof—lengthens across the flagstones of this central part of the veranda, in front of the house where chairs have been set out for the evening. Already the tip of the line of shadow almost touches the doorway which marks the center of the façade. Against the west gable-end of the house, the sun falls on the wood about a yard and a half above the flagstone. Through the third window, which looks out on this side, it would reach far into the bedroom if the blinds had not been lowered. [...]"

Now the shadow of the southwest column—at the corner of the veranda on the bedroom side—falls across the garden. The sun, still low in the eastern sky, rakes the valley from the side."

Robbe-Grillet, A. (1965 [1957]). *Jealousy*. English translation by R. Howard. John Calder.

NATURAL / ARTIFICIAL

Trees are one of the primary sources of shade in public spaces. When fully grown, they are particularly effective at cooling cities, as they not only block the sun but also cool the ambient air through evapotranspiration. Their impact is most striking in full sunlight: at 1 p.m. the temperature is measured to be 7 °C lower under the trees²³. However, young trees sometimes provide little shade, and planting trees may not be feasible due to underground networks. In such cases, artificial structures can be particularly effective.

23. Valeurs modélisées pour une rue classique, bordée de bâtiments et plantée d'arbres de chaque côté.

Source : Saudreau, M. (2022). *Le rafraîchissement des villes par les arbres*. INRAE Institutionnel. <https://www.inrae.fr/actualites/rafraichissement-villes-arbres>

VERNACULAR / TECHNICAL

“Vernacular”, a term often associated with “picturesque,” primarily marks adaptation to a specific place, particularly its topography, climate, and locally available materials. The widespread adoption of air conditioning from the mid-20th century onward erased the need to consider the thermal qualities of a place. However, awareness is now growing of the limitations of this “modern” solution. For while air conditioners cool indoor spaces (including cars), they not only contribute to climate warming but also fail to cool public spaces. On the contrary, they exacerbate urban heat islands by releasing hot air into the streets²⁴. This explains the relevance of “passive” solutions—which do not rely on external power sources. Often vernacular in nature, such solutions were showcased in several exhibitions at the 2025 Venice Biennale. Along the alley bordering the 300 m-long Corderie building, *Urban Heat Chronicles* presented an installation inspired by Venice’s narrow streets and their strung clotheslines. The “street skies” that



Figure 7. Left: Alley along the Corderie building during the Venice Biennale, June 5, 2025, 4:48 p.m. Center and right: Skies from mid-sized streets in a medium-sized French town (Bourges, Commerce Street on July 13, 2025, 2:31 p.m., and Moyenne street on a sunless day)

Source : ©ibicity

In contrast to vernacular approaches, some technical devices are not bound by local conditions. For example, the Australian document *Shade Design for Public Space*²⁵ presents an array of shading solutions, many of which are manufactured by industry companies. Highlighting that “*the provision of functional shade in public places holds great importance as Australians increasingly embrace broader uses of the public realm*”, it identifies four types of shade: incidental shade (shade experienced when passing underneath), destination shade (the shaded area as the focal point),

24. Marchand, L. (2025, juin). Canicule: la France est-elle absurdemment contre la clim? *Les Échos*.

<https://www.lesechos.fr/politique-societe/societe/la-france-est-elle-absurdemment-contre-la-clim-2173904>

25. *Shade design for public places*. Municipal Association of Victoria.

https://www.mav.asn.au/_data/assets/pdf_file/0018/7326/Shade-design-for-public-places.pdf

shade with a water-preserving design, and, lastly, shade sail. In France, corolla-shaped fiberglass canopies covered with climbing plants have been appearing in station forecourts. They have been developed by Urban Canopee, a company founded by graduates from the École nationale des Ponts et Chaussées engineering school graduates with the goal of deploying elevated green canopies that provide maximum shade while minimizing their ground footprint. This technical shading equipment contributes to the emergence of a new market where start-ups tackle climate change adaptation and become urban shade providers.

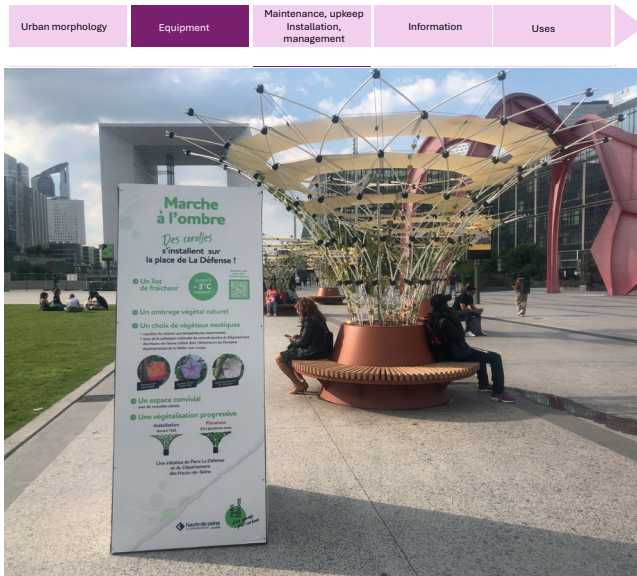


Figure 8: « Marche à l'ombre » et corolles sur la place de La Défense – 2025
Source : ©ibicity

LARGE-SCALE / SMALL-SCALE

Shade can be created on various scales, using small or large equipment—or even on the scale of Brazil (see the *Planetary Sunshade Foundation's* controversial project to launch a giant umbrella into outer space to cool the Earth²⁶). In Seville, the *Metropol Parasol* (“Mushrooms of Seville”), inaugurated in 2011, is a vast wooden structure that casts shade over the Plaza de la Encarnación. It is 150 m long, 75 m wide, 28 m high, and covers an area of more than 11,000 m². In Bordeaux, France, a monumental artwork serving as a shading structure accompanies the development of a new district on the right bank of the river. Designed by artist Leandro Erlich²⁷ for

26. *Un parasol géant dans l'espace pour refroidir la planète?* France Inter.

<https://www.radiofrance.fr/franceinter/podcasts/un-monde-nouveau/un-monde-nouveau-du-mercredi-27-decembre-2023-8355397>.

27. Creator of *Maison fond* (“Melting house”), installed in front of Paris’s Gare du Nord station—one especially loves his fake swimming pool, his climbable facades of apartment buildings or mansions, his trompe-l’œil staircases, and his mirrors that aren’t really mirrors are especially admired.

the CréAtlantique fund, *La Carte, À l'ombre de la ville* ("The Map: In the Shadow of the City") consists of fourteen 5 m-tall aluminum trees surmounted by an approximately 400 m² canopy. Conceived as an urban forest, the ensemble forms an interpretation of Bordeaux's map. Shading furniture is also appearing, such as the structures designed by AREP for station forecourts and sidewalks on nearby streets²⁸.

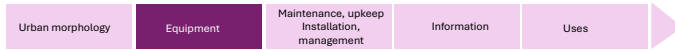


Figure 9: *La Carte, À l'ombre de la ville*, Bordeaux, le 17 septembre 2025 à 10h43



Figure 9bis : Green shade structure in Bordeaux, France
Sources : ©ibicity

28. *Guide pratique : Végétaliser les parvis de gares.* (2025). SNCF Gares & Connexions and AREP.
https://www.arep.fr/app/uploads/2025/05/250521_Vegetalisation_WEB.pdf

ISOLATED / NETWORKED

Shade can also be conceived as a network, with shaded pathways, for example. This concept of a network, of pathways, is important: if public authorities want to encourage walking in the city (to promote decarbonization and health), they need to provide walkways with shaded sidewalks or benches under trees that connect various locations in the city. For instance, the city of Paris has mapped out “cool pathways.”²⁹ Similarly, in 2025, Marseille launched the Cool Noons initiative, which experiments with “the walkability of Mediterranean cities, tests concrete solutions to adapt to the climate emergency,” and provides cool pathways in summer³⁰. Cities such as Madrid and Barcelona also implement

PUBLIC / COMMUNAL / INDIVIDUAL

Shade-protection solutions can be public, provided by local governments. In Lyon, a gigantic 6.5 m-high, 1,500 m² sail structure was tested in Bellecour Square in summer 2025. Such equipment can also be communal, provided by a group of residents. It can be individual as well—hats, caps, and sunshades have long proven effective for personal sun protection. In fact, the fashion industry is beginning to address the issue, recalling how, in winter 2022, puffer jacket manufacturers boasted that their products helped people stay warm and contributed to reduced gas consumption.

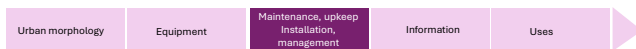


Figure 10: *Chaude Couture* (“Hot Couture”) project by Fabulism Studio at the “Four Degrees Celsius Between You and Me” exhibition³¹

Source : ©ibicity

29. APUR & Mairie de Paris. *Îlots et parcours de fraîcheur à Paris en journée* [Map].

https://www.apur.org/sites/default/files/documents/publication/cartes/ilots_parcours_fraicheur_paris_jour.pdf

30. Projet européen “Cool Noons” : pour des parcours de fraîcheur en été (August 2025). <https://www.marseille.fr/environnement/actualites/projet-europeen-cool-noons-pour-des-parcours-de-fraicheur-en-ete>

31. Fabulism Studio. (2025). *Projet Chaude Couture*. Versailles, France. <https://fabulismoffice.com/project/chaude-couture/>

In Italy, Ferrara’s market demonstrates how large-scale shading, covering the entire market square, can be achieved by combining individual shading structures mounted on each stallholder’s truck, which retract into compact boxes. The market ends with a fabulous spectacle as each stallholder folds their awning away into wavelet-like shapes, joining in a hypnotic ballet of shadows³².

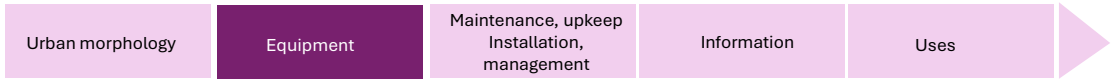


Figure 11: Marché Piazza Trento e Trieste, à Ferrare (Italie). À droite, le 8 août 2025 à 13h34.
Source : @ibicity

STATIONARY / MOBILE

While shading solutions are often stationary, many are also mobile. Before the retractable arm was invented, shade sails on shop fronts were hung or hammered onto horse hitching posts or iron railings along the sidewalk, also covering the walkway³³. In Venice, during the 2025 Biennale, the MIT Future Heritage Lab presented a pergola-shaped mobile structure alongside its *Urban Heat Chronicles* installations (mentioned above). Designed for pop-up events in public space (e.g., roundtables, dinners, small exhibitions, workshops, educational activities in school courtyards, etc.), it is mounted on wheels and can move based on the sun’s path³⁴. The pergola thus transforms through its various uses.

32. A 42-second video capturing Ferrara’s “ballet of shadows” can be viewed on the website <https://www.ibicity.fr/le-ballet-des-ombres-video/>

33. Bloch, S. (2025). *Shade : The promise of a forgotten natural resource*. Random House. (op. cit.).

34. <https://urbanheatchronicles.com/who-we-are>

2.3 Shade maintenance

While shade can be created, it also needs to be maintained. This applies to trees, green installations, and non-natural structures alike.

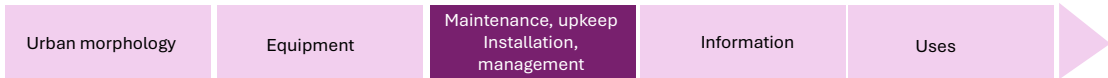


Figure 12 : . A living shading structure for bicycle parking and a green-roofed bus shelter
Source : @ibicity

The management of public spaces is undergoing a major transformation due to their greening. But vegetation is more than a mere layer of green; it also has the distinctive quality of being alive³⁵. This blurs the traditional dividing lines between those who design public spaces (e.g., planners) and those who maintain them (typically local governments). For example, planners increasingly remain involved during the initial years of a street’s maintenance, ensuring that plants are properly established. New practices in tree and tree-pit upkeep also give rise to new, more “spontaneous” urban aesthetics, sometimes challenging residents’ perceptions.

While green maintenance raises new questions, “artificial” equipment must also be maintained, including shade sails. Many companies offer maintenance services and provide extensive guidance on their websites, such as “*Store your shade sail during the winter season*” or “*Check your sail’s fixtures and anchor points, as time and weather conditions—wind, rain, snow, hail, etc.—can affect them.*” This maintenance issue may seem incidental. Yet, as shown by Jérôme Denis and David Pointille³⁶, maintenance is political. For maintaining something involves deciding what

35. Baraud-Serfaty I., (2024). De quelle couleur sera la ville verte?, *Futuribles*.
<https://www.futuribles.com/de-quelle-couleur-sera-la-ville-verte/>

36. Denis, J., & Pointille, D. (2022). *Le soin des choses*. Éditions La Découverte.

constitutes its proper condition. *“If you want the thing to be in proper condition, you maintain it in a condition that you consider suitable. And right away, a question arises: proper condition for whom?”*

2.4 The information layer of shade

Just as access to public space increasingly involves access to information about public space³⁷, access to shade requires map information tools, such as apps that indicate the most shaded pathways for walking or exercising. Information is therefore a means of adapting practices. It is intended not only for residents but also for professionals, such as photographers, or event planners: “Sun and shadow can make or break a daytime event. Too much sun exposure in the hot summer months will leave your audience breaking a sweat, and planning for enough shade might be crucial not only to keep them happy, but also to save energy expenses,” reads the Shadowmap app, which simulates shading in public spaces³⁸. Weather forecasters could also play a leading role.

The information layer also features prominently in shading-related decisions at the early stages. Shadow modeling is both complex and precise, involving a significant real-time component. Artificial intelligence (AI) is therefore increasingly used to support shade provision. For example, Qui Veut Rafrâichir Sa Ville (“Who Wants to Cool Their City”), a company that develops cooling islands through micro-projects, uses algorithmic analysis of aerial photos to identify the plots of land most suitable for establishing them.

2.5 Usages de l’ombre

Another way to shelter from the sun is to adapt practices, which may affect ways of life in newly heated cities. Sporting activities increasingly take place early in the morning or late at night, reflecting the importance of chronotopia for thinking about cities. In June 2025, schools were closed due to excessively high temperatures.

As part of the Cool Noons project mentioned earlier, in summer 2025 the city of Marseille circulated a questionnaire for residents and tourists to assess “the

37. Baraud-Serfaty I., (2024). Cartographie : Google Maps, et après?, *Futuribles*.

<https://www.futuribles.com/cartographie-google-maps-et-apres/>

38. Shadowmap Technologies GmbH, (2021). Shadowmap: Sunlight & Shadow Map [Mobile app software].]. <https://app.shadowmap.org>

Cheng, A. (2020). Shade mapping tool helps pedestrians dodge heat. Australian Government News. <https://www.governmentnews.com.au/shade-mapping-tool-helps-pedestrians-dodge-heat/>

city's attractiveness in the context of more frequent and intense heatwaves." The questions illustrate how practices contribute to shade provision. The survey first asks: *"Do you have any health condition that makes you more vulnerable to heat?"* A subsequent question is: *"To what extent are you willing to take a detour from the shortest route to the places you want to visit in order to follow a cooler pathway?"* Finally, respondents are asked to complete the following statement: *"Today, to get relief from the heat",* with one of the following five options: *"I preferred shaded areas or spent more time in cooler indoor locations"* ,or *"I sought water features like fountains"*, or *"I protected myself by drinking a lot of water"*, or *"I used fresh clothes and sun protective items (e.g., a hat or sunglasses)"* or *"The heat made me plan my visit activities so as to avoid the hottest parts of the day."*³⁹.

France's Pavilion at the 2025 Venice Biennale, titled "Living With," can also be seen as a metaphor for these changing practices. As the pavilion building was closed for renovation and thermal adaptation work, the curators chose not to relocate the installation but to set it up beside the building, integrating it with the scaffolding and deploying branching paths that allowed visitors to walk down toward the canal through the trees—and their shade. This prefigures how, tomorrow, visitors will tour the Biennale's pavilions mostly outdoors under cooling trees, rather than along the main avenue.

39. Questionnaire Cool Noons. City of Marseille. <https://www.marseille.fr/questionnaire-cool-noons>

3. The value of shade is rising

Creation, maintenance, information, and uses—the various stages of shade provision show that it has a cost, which, against the backdrop of tightening financial constraints, contributes to its increasing scarcity. Depending on what is being shaded, the value of shade rises with each additional degree of warming.

3.1 The value of shade varies depending on location and time

“Nero’s house revolved perpetually, in imitation of the motion of the celestial bodies.” This quote from Pliny the Eldern⁴⁰ reminds us that shadows shift and must be appreciated according to the different times of day and year. “Shadow tables” in ancient times provided a rough estimate of the time, before being replaced by sundials, and later by clocks.

MOIS.	1 ^h et 11 ^h	2 ^h et 10 ^h	3 ^h et 9 ^h	4 ^h et 8 ^h	5 ^h et 7 ^h	Midi.
Janvier et Décembre..	29 ^{pieds.}	19 ^{pieds.}	17 ^{pieds.}	15 ^{pieds.}	13 ^{pieds.}	11 ^{pieds.}
Février et Novembre..	27	17	15	13	11	9
Mars et Octobre.....	25	15	13	11	9	7
Avril et Septembre....	23	13	11	9	6 7	5
Mai et Août.	21	11	9	7	5	3
Juin et Juillet.....	19	9	7	5	3	1

Figure 13: A shadow table used to enforce monastic rules, 12th century (allegedly)

Source: Pseudo-Beda, edited by Jean-Baptiste Delambre — In: Histoire de l’astronomie ancienne, I, p. 324

In urban projects, planners often collaborate with specialized consultants to conduct daylight and sunlight assessments in order to optimize building placement according to the intended outcome, such as creating more shade or, conversely, increasing solar input to heat bioclimatic buildings. The study of cast shadows may also take into account the “distant masks” of mountains. In any case, the warmer it gets, the greater the value of shade.

40. Cited in the catalog of the “Four Degrees Celsius Between You and Me” exhibition.

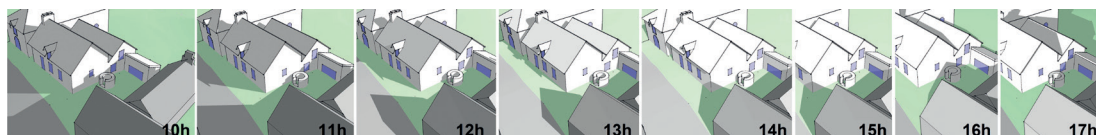


Figure 14: A sunlight study (heliodon)

Source : ©Archimède-ingénierie⁴¹

3.2 The value of shade varies depending on the body being shaded

The value of shade varies according to the sun's path as well as the characteristics of the beneficiary, whether a natural person or a legal entity. *"Expanding shade-giving infrastructure is a tool that will help cities reduce their thermal load by up to 50%. Access to shade for the vulnerable in our society – children, outdoor workers, the elderly, the homeless – is critical, quite literally the difference between life and death. Everyone needs and deserves access to shade. Shade is a civic resource, as well as an essential component of public and economic health"*, writes the Public Improvement District of San Antonio, Texas, United States⁴². In Pantin, a northeastern suburb of Paris, "Heatwave Alert Plan" posters displayed on municipal billboards encourage people aged 65 and older or with disabilities to make themselves known.

3.3 The value of shade has long been measured in certain sectors

In the agriculture sector, the value of shade has long been studied for certain crops grown in hot countries. For example, as early as 1959, an article on "the role of shade in West Africa" confirmed that *"light requirements vary according to the age of cocoa trees, as adult trees require more intense sunlight than young ones"*, and that *"in highly fertile or well-smoked soils, cocoa trees yield best without any shade. Conversely, in mediocre soils or in areas where crop management is limited to maintenance with no added fertilizer, full sunlight results in an imbalance between chlorophyll production, which reaches its maximum under these conditions, and insufficient mineral absorption, leading to the gradual decay of the plantation."* The article even provides details on how to investigate: *"Any tree that would normally provide complementary resources, food or otherwise, must be considered suspicious, as the farmer always has a favorable bias toward that species."*⁴³.

41. <https://www.archimede-ingenierie.fr/batiment-neuf/etude-densoleillement-heliodon/>

42. <https://centrosanantonio.org/shade-the-sidewalks/>. The Centro PID Management Corporation (CPM) is a nonprofit placemaking organization.

43. Lavabre, E.M. Étude sur l'ombrage du Cacaoyer. In : *Journal d'agriculture tropicale et de botanique appliquée*, vol.6, n°12, December 1959. pp. 685-690. www.persee.fr/doc/jatba_0021-7662_1959_num_6_12_2586

In France, the impact of shade on cows' heat stress is well known among milk producers. Cows are quite quickly affected by heat. They consequently produce less milk, which comes at a cost. Moreover, there are delayed impacts on cows' metabolism in the following weeks and months, with animals producing less milk than usual and developing hoof problems due to poor blood circulation⁴⁴. Providing shade, which can reduce livestock thermal load by up to 30%, is therefore essential in mitigating heat stress.



Figure 15: A cow parasol
Source : ©PLM Magazine⁴⁵

Some studies are also beginning to provide economic assessments of the health effects of heatwaves. A study conducted in 2022 by the French national public health agency, Santé publique France, estimated the health-related impacts of the 2015–2022 heatwaves to range from €22 billion to €37 billion, depending on the methodology used. The study considered the economic costs of three impacts—healthcare utilization⁴⁶, excess mortality, and loss of well-being through activity restriction⁴⁷ — as well as economic valuations of human lives.

44. Discussion with Marc Juan, editor-in-chief of Production Laitière Magazine (PLM) journal, October 14, 2025.

45. Verleur A., (2019). Vos vaches ont-elles besoin d'un parasol? PLM.

www.plm-magazine.com/actualites/vos-vaches-ont-elles-besoin-d-un-parasol

46. Adélaïde L, Chanel O, Pascal M. Health effects from heat waves in France: an economic evaluation. *Eur J Health Econ.* 2022;(23):119–131. <https://link.springer.com/article/10.1007/s10198-021-01357-2>. "The analysis included direct medical costs (outpatient clinic visits, emergency department visits, and hospitalizations), indirect costs (loss of production), and these intangible components that represent the loss of well-being and quality of life for the patient and his or her family (grief, fear, pain, lost time, etc.)."

47. "We approached loss of well-being through activity restriction associated with the red heatwave level. The triggering of the 'red' level results for example in warnings to avoid travel and physical activities, working from home, and the cancellation of various events. Moreover, from a physiological perspective, the temperatures during 'red' days are likely to lead to mild symptoms such as fatigue, cramps, decreased cognitive function in the largest part of the population."

3.4 Toward a reversal of public space value?

Cacao and milk may end up in a coffee cup. In its early 2025 report on “outdoor seating areas located in the public realm” in Paris, the French Court of Audit highlights sunshine as a factor that increases the value of outdoor seating areas: *“Substantial climate changes confer increasing attractiveness, and therefore commercial value, to outdoor seating areas located in the public realm during the summer season⁴⁸.”* It is also worth recalling that a dozen years ago on the Champs-Élysées Avenue in Paris, areas on the sunlit sidewalk (even-numbered side) had higher rental values than those in the shade (odd-numbered side), sometimes by a 2:1 ratio.

Extract from the French Court of Audit’s report on outdoor seating areas in Paris – 2025 (figure 16)

The principle that the public realm is not free of charge is well established

The possibility of using a public realm asset for private purposes beyond the right of use granted to all constitutes a dispensation (Article L. 2122-1 of the French General Code of Public Property, CG3P). Consequently, Article L. 2125-1 of the CG3P establishes the principle that any private occupancy or use of the public realm shall be subject to the payment of a fee. The law strictly regulates the situations in which exemptions may be granted, limiting them to six cases in which public interest justifies free-of-charge occupancy.

The amount of the fee shall take into account the benefits conferred on the beneficiary

The amount of the fee payable for occupying the public realm shall be freely determined by the local government’s deliberative authority. Under Article L2125-3 of the CG3P, it shall “take into account the benefits of any kind conferred on the holder of the authorization.” In the absence of detailed wording, lawmakers certainly intended to grant the public realm manager considerable latitude in this matter.

However, the manager should act with caution and comply with certain guidelines: setting too low a fee may constitute illegal aid to business real estate or a disguised subsidy. Conversely, the fee for occupying the public realm shall be lower than the commercial rental price, as the lessee is placed in a precarious, revocable situation that does not confer real rights.

The local government may use and combine different elements: occupied surface area, use, situation, business nature, and profitability of the establishment, with the fee indexed to its sales revenue.

48. “As a result of climate change, outdoor seating areas can be used over an increasingly long period during the year.” “On average, for the reviewed period, from 2017 to 2023, the accumulated hours of sunlight in Paris between April and October—the summer outdoor seating operating period—exceeded the long-term average for the same months from 1991 to 2021 by 254.3 hours (1,525.3 hours of sunlight compared with a long-term average of 1,271 hours).” Ville de Paris—Les terrasses implantées sur le domaine public. (2024). Île-de-France Regional Audit Chamber. <https://www.ccomptes.fr/sites/default/files/2025-01/IDR2024-51.pdf>

But will this still be the case in a 50 °C Paris?⁴⁹ On the one hand, the value of sunshine will always exceed that of shade, since shade can be created, whereas sunshine cannot. On the other hand, the warmer it gets, the greater the value of shade. This holds true at the scale of a dwelling, and even more so at the scale of a sidewalk, a street, or a square. Shade has economic value and can be privatized, sold, or rented—the highest prices requested for shaded seats in Spanish arenas or for beach parasols in Italian resorts are typical examples⁵⁰.

“Did you know that restaurants with outdoor seating can increase their revenue by up to 30% during peak seasons?” boasts a U.S. shade structure manufacturer⁵¹. Tomorrow, the benefits, as cited by the French Court of Audit for setting the fee’s amount, will most likely have to integrate the availability of natural shading. Or will we see all outdoor seating areas covered, enclosed, and air-conditioned by then?



Figure 17: An enclosed outdoor seating area with two rooftop air conditioners, Ferrara, Italy, August 8, 2025, 12:53 pm.

Source : ©ibicity

49. « Paris à 50 °C », un exercice grandeur nature pour se préparer aux chaleurs extrêmes. (July 2025). City of Paris.

<https://www.paris.fr/pages/paris-50-c-un-exercice-grandeur-nature-pour-se-preparer-aux-chaleurs-extremes-24322>

50. Gabellieri, N. A place in the shade? Shaded spaces as a domain of geographical research: a literature review (1990–2024). *GeoJournal* 90, 26 (2025). <https://doi.org/10.1007/s10708-024-11278-1>

51. Shade structures that help restaurant franchises maximize space: <https://designsforshade.com/markets/restaurants/shade-structures-that-help-restaurant-franchises-maximize-space>. The website adds, “For restaurant franchises looking to maximize every square foot of their property, commercial shade solutions offer a game-changing opportunity to transform underutilized outdoor areas into profitable dining spaces.”

3.5 Shade as a social justice issue

Shade is also a matter of social justice. In Los Angeles in 2019, as authorities deployed cover to hundreds of bus stops and planted 90,000 trees, the city's mayor insisted, Shade is also a matter of social justice. In Los Angeles in 2019, as authorities deployed cover to hundreds of bus stops and planted 90,000 trees, the city's mayor insisted, "Shade is increasingly seen as a precious commodity, as the crises of climate change and inequality converge."⁵². He added, "Shade is an equity issue", aligning with some French elected officials who call for a "right to shade"⁵³, while more and more shade indices are being developed—one of the advantages of shade is that it can be easily measured.

In *Shade: The Promise of a Forgotten Natural Resource*⁵⁴, published in July 2025, American journalist Sam Bloch analyzes the paradigm shift in which shade has gone from being disregarded to being necessary. He revisits how the search for shade has historically shaped urban planning in hot cities and examines the case of Los Angeles to show how considerations of security or related to the primacy of the automobile hinder access to shade for all. He cites the example of a bench that residents had installed under a tree near a bus stop, which officials prohibited, claiming it could compromise sidewalk safety and security. Yet, when temperatures soar, the definition of public safety could include protection from the sun. "For decades, L.A. police have discouraged trees because their shade is a magnet for gathering and their umbrage interferes with surveillance. More recently, in the throes of a homeless crisis, city staff and law enforcement have removed and denuded trees to control the conditions on the street", Bloch writes.

Mike Davis⁵⁵ and, more recently, other researchers⁵⁶ have addressed the political dimension of shade, particularly in terms of social justice. After considering heat-related victims and the unequal distribution of shade trees in wealthy and poor neighborhoods of Los Angeles, Davis called for a "politics of shade," asserting that "shade has become an inalienable human right." Following in his footsteps, some researchers have advocated for the development of a theoretical approach of shade, particularly from a social perspective and taking into account its conflict dimension⁵⁷.

52. Arango, T. (2019). « Turn Off the Sunshine » : Why shade is a mark of privilege in Los Angeles. *The New York Times*. <https://www.nytimes.com/2019/12/01/us/los-angeles-shade-climate-change.html>

53. Doussot, C. (2025). Municipales à Paris : David Belliard veut un « droit à l'ombre et à la fraîcheur » pour tous. *Le Parisien*. <https://shorturl.at/nG457>

54. Bloch, S. (2025). *Shade : The promise of a forgotten natural resource*. Random House. (op. cit.).

55. Davis, M. (1997). The radical politics of shade. *Capitalism Nature Socialism*, 8(3), 35–39.

56. Wolff, J., & de Shalit, A. (2023). *City of equals*. Oxford: Oxford University Press.

https://library.oapen.org/bitstream/handle/20.500.12657/87507/9780198894742_WEB.pdf?sequence=1%20

Macktoom, S., Anwar, N. H., & Cross, J. (2023). Hot climates in urban South Asia: Negotiating the right to and the politics of shade at the everyday scale in Karachi. *Urban Studies*, 61(15), 2945–2962.

<https://doi.org/10.1177/00420980231195204>

57. 57. Gabellieri, N. (2025). A place in the shade? Shaded spaces as a domain of geographical research: a literature review (1990–2024). *GeoJournal* 90, 26.

Ghanaian-Scottish architect Lesley Lokko (mentioned earlier), who states that “shelter from the sun is a public resource”, notes that in recent years, *“accompanying the rapid and explosive urbanisation patterns across Africa, shade has increasingly become under attack. This war on shade is fuelled on the one hand by rising land values, and on the other hand, weak planning governance.”*

4. What if shade provision became a new local public service?

Shade is thus becoming a new urban resource. The risk is that it may grow increasingly scarce, because the resources required to produce and maintain it (soil and water for trees, and public finances in general) are in limited supply. At the same time, its value is rising, both economically and in terms of access to public spaces, public health, and social justice. Access to shade is increasingly an issue of social equity. Depending on the place and the level of exposure to urban overheating, shade could be to the 21st century what drinking water and clean air were to the 20th century⁵⁸.

Consequently, shouldn't shade become a local public service, one of whose three core pillars is precisely the principle of equality? Today, shade is provided sometimes on an individual basis, sometimes by the community, but without any explicitly stated shade policy. The term “local public service” is used here in a broad rather than strictly legal sense, to suggest that local governments could take on a more active role in providing it. Seven exploratory scenarios are presented, with the aim of encouraging elected officials to engage in the issue. How could a shade provision service be implemented? In the first four scenarios, responsibility for shade provision falls to local governments under different models. The next three are more “shade commons” scenarios, in which the role of local governments is less to provide shade than to manage its provision by a

Mike Davis's article highlights the relationship between the presence of shade trees and marginality in urban districts of Los Angeles, emphasizing the direct link between shade and income. This perspective has inspired numerous studies assessing the location of shade trees and, more broadly, the presence of shade in contexts of marginality or exploitation. Several studies have documented the limited access to shade resources for the most vulnerable segments of the population. The presence of shade trees or of other heat- and sun-protection solutions is often perceived as a sign of spatial inequality, even influencing real estate prices and processes of gentrification.

58. According to UCLA professor Kelly Turner, shade could represent the next long-term public health investment in the United States. What drinking water and clean air were to the 20th century, shade could be to the climate-changed 21st century. Bloch, S. (2025). Shade: The Promise of a Forgotten Natural Resource.

mix of public authorities, private operators, and individuals. These scenarios are primarily heuristic in purpose.

Figure 18. Public shade provision—A few exploratory scenarios (@ibicity)

Scenario	Analogy
Shade as a public service	
Toward public shading places?	Outdoor public equipment
Toward extended public shading?	1845 French law on sidewalk financing
Toward a public shade distribution service?	Local public service like water or household waste collection
Toward a public shade maintenance service?	Public snow removal service in French Canadian cities
An ecosystem approach to shade	
Toward shade commons?	“City-floor” approach
Valuing shade as an externality	Overperformance metrics in bioclimatic Local Urban Plans
Toward Shade as a Service	Mobility as a Service

4.1 Toward public shading places? Treating shade like outdoor public equipment

One could extend the Bahrain Pavilion’s proposal for “thermal commons” and envision local governments not only providing shade in public spaces but also developing outdoor, open-air public shading equipment.

Outdoor shading structures already exist in some locations, but this proposal would aim to further assert their status, their role as destinations, the thermal function of these new equipment-places, as well as their formal significance. An analogy can be drawn with public baths in ancient Rome, as discussed in *Thermal Delight in Architecture*. Originally, baths were a luxury only the rich could afford. Then Roman builders (that is, private operators) constructed bathhouses accessible to the public for a small fee, and some evolved into genuine, “warm” social gathering places. Later, Roman emperor Agrippa established public baths, named after him, which were to be free in perpetuity, serving as tangible evidence of the ideal that all Roman citizens were entitled to benefit from the empire’s opulence. *“In their dazzling marble grandeur [the Baths of Agrippa] were not only the splendid ‘Palace of Roman Water,’ but above all the palace of the Roman people, such*

as our democracies dream of today.”⁵⁹. So when will we see palaces of shade in French cities?

4.2 Toward the widespread adoption of public street shading? Funding shade like sidewalks

The transformation of café and restaurant outdoor seating areas over just a few years in France is striking. Immediately after the first COVID-19 lockdown in 2020, cafés and restaurants were authorized to extend their outdoor areas onto sidewalks and parking lanes, and their numbers increased rapidly. At the time, these areas allowed people to remain in the open air and helped limit the spread of the virus. Once the pandemic subsided, their numbers continued to grow on and along sidewalks, as people sought outdoor, sunlit environments. Already, at certain times of the day in summer, they allow us to enjoy shaded outdoor spaces. Tomorrow, they will no doubt provide shade to café customers, but they could also serve more broadly as street shading solutions, particularly for areas frequented by pedestrians, who remain stifled by the heat despite their caps—the sidewalks. Coupled with the example of Bologna’s porticoes, this transformation invites an analogy between street shading and the generalization of sidewalks in Paris in the mid-19th century. Sidewalks began to appear as early as 1781. They were initially funded by street residents and most often discontinuous, since each resident funded their own section. However, sidewalk development soon became essential, particularly in response to the dirtiness and congestion of streets. This led to the passage of a law in June 1845 “pertaining to the distribution of sidewalk construction costs.” Where sidewalks were recognized as being of public interest by the city administration, the law allowed for equal shared funding: half covered by the municipality and half by residents. Subsequently, Baron Haussmann, who became Paris’s prefect eight years later, took pride in having promoted the development of sidewalks by reducing the share paid by residents from half to one third⁶⁰.

The debates surrounding the 1845 law thus raised the question of whether sidewalks should be considered primarily as an individual amenity, to be funded by each resident, or as a public-interest infrastructure, to be funded by the municipality. A similar question may arise regarding shading facilities, particularly shaded outdoor seating areas or awnings located on sidewalks along building facades: should each piece of shade be funded individually or collectively? Today, seating areas on or along sidewalks are funded by restaurant owners. Yet one could imagine them being supported by the local government, combining interest for continuous—rather than discontinuous—shading along pedestrian pathways (thereby limiting urban heat islands) with aesthetic considerations.

59. J. Carcopino, cited in Heschong, L. (1979). *Thermal Delight in Architecture*

60. Baraud-Serfaty, I. (2023). *Trottoirs! Une approche économique, historique et flâneuse*. Éditions Apogée. (Reissue in 2026)

Terraces along the Champs-Élysées constitute an early expression of this approach, with harmonized designs, here at the scale of a collective of business owners. Outdoor seating areas and awnings could be mobile and retractable. They could be funded through a higher occupancy fee, reflecting the greater value of shade.

4.3 Toward a public shade distribution service? Treating shade like water or waste collection

Although water is available in nature, there are costs associated with the services needed to harness it, including pumping it from its natural environment, making it safe to drink, and delivering it to the tap. Similarly, shade entails production and management costs, as seen with the different stages of its provision. It is then tempting to imagine, by analogy, what a public service of shade distribution might be. For water distribution has not always been a public service. In 1778, the Perrier[MG20.1][IB20.2][MG21.1] brothers, who were granted letters patent by King Louis XVI to distribute drinking water in Paris, “had to develop machines to lift water from the Seine and install distribution pipes beneath the streets, along with utility holes. From these points, the wealthiest households equipped with an in-house reservoir were supplied by water carriers. For lower-income households, the installation of public distribution fountains was planned. The system was still a long way from universal service.”⁶¹ The era was that of a “*pre-hygienist context in which the issue of water supply had not yet become a political matter of primary concern to the local community as a whole,*” and “*public authorities viewed the establishment of these companies favorably. [...] They were often willing to grant them special arrangements so that they could carry out their operations, expecting them to improve the amount of water available to residents in cities where conditions were unsatisfactory, but without considering this a matter of urgency or absolute necessity. Admittedly, more water was needed; nevertheless, it was not a priority. This probably explains why these private water companies were able to establish relationships with cities and set up operations there so easily, often under terms disadvantageous to the municipalities, which attached little importance to the matter—there were few subscribers, alternative supply methods were widely used, and the network was still far from indispensable for providing residents with water.*”⁶² Then, from the 1830s onward, water became a key issue for many towns and cities, driven by urbanization, industrialization, and the rise of hygienist ideas following the 1832 cholera epidemic. More and more municipalities came to regard water networks as essential infrastructure and decided to resume direct management of their water services.

Similarly, some municipalities could establish shade distribution as a public service, operated either directly through a public company or through a

61. Lorrain, D. (2005). Les pilotes invisibles de l'action publique. In: Gouverner par les instruments (163–197). Presses de Sciences Po. <https://doi.org/10.3917/scpo.lasco.2005.01.0163>

62. Defeuilleux, C. (2017). *L'entrepreneur et le prince : La création du service public de l'eau*. Presses de Sciences Po.

delegation contract, with infrastructure consisting not of buried pipes but of the various shading equipment mentioned above and their associated maintenance services. With regard to how this service would be funded, a more fitting analogy might be drawn with waste collection services. Indeed, in France, public water supply and sanitation services are now administratively classified as “Industrial and Commercial Public Services” (SPICs) and must therefore be funded primarily through fees paid by service users. By contrast, waste collection services can be funded either by users, when financed through the Household Waste Collection Fee (REOM), or by tax revenues or subsidies, when financed through the Household Waste Collection Tax (TEOM). In the former case, the fee is proportionate to the service provided, rather than to the taxpayers’ means, as in the latter.

4.4 Toward a public shade maintenance service? Treating shade like snow removal

Another scenario consists in an analogy not with water supply or household waste collection but with snow removal as practiced in Montreal. A public service of shade maintenance would then concern not the “infrastructure” element but only the “maintenance” one, including maintenance of shade trees, shading sails, and other equipment.

Snow removal in Montreal is an essential service whose provision conditions have changed over time. In the 19th century, responsibility for snow removal lay with residents (as is still the case in many other cities). It was only from 1905 onward that the municipality decided to take charge of it. Montreal’s specificity in terms of snow removal stems from the fact that its downtown area is particularly dense, that, as a result, there is little room for snow storage, and that temperatures are too cold to let snow melt naturally. Snow is therefore transported to landfill sites outside the city. However, climate warming is now causing freeze-thaw cycles, which make snow removal from sidewalks considerably more costly, while municipal finances are already under severe strain. In this context, in February 2024—during Quebec’s second warmest winter since temperature records began—snow became a political issue: if snow cannot be cleared simultaneously from all sidewalks, bikeways, and roadways, or if those should maybe not be cleared/maintained every day, it is because such operations are costly and impose trade-offs. “Snow removal” can be replaced with “maintenance.” What should be the “value proposition” or the ends of a [maintenance] policy? Who does it primarily target? How is it implemented? With which stakeholders? At what costs and with what resources? A simple observation of sidewalks in Montreal and, for example, sidewalks in New York City highlights the distinction between those [maintained] by the local government and those maintained by residents. In Montreal, [maintenance], which is the municipality’s responsibility, is relatively uniform, whereas in New York, where it falls to

residents, the section of sidewalk in front of one house is [maintained] differently from the adjacent section.

Similarly, one could imagine a future shade maintenance service that would vary between municipal responsibility and individual responsibility, depending on the city and, within each city, on the streets considered.

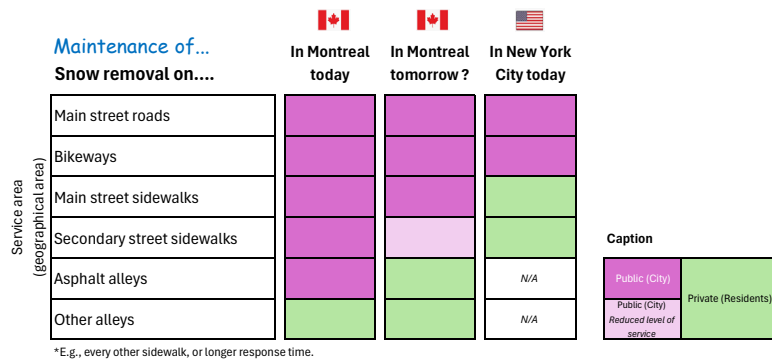


Figure 19 – Comparison of sidewalk snow removal (maintenance)

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The diagram shows that today, snow removal in Montreal is carried out by the municipality, except on a few alleys. In New York City, snow is cleared from sidewalks by residents. Tomorrow, in Montreal, snow removal on all alleys may be left to residents, while the municipality would continue clearing snow from sidewalks on secondary streets, albeit at a reduced level of service (e.g., only every other sidewalk or with longer response times).

4.5 Toward an ecosystem approach to shade

The following three scenarios are even more exploratory than the previous ones. They are outlined briefly.

TOWARD SHADE COMMONS? TREATING SHADE WITH A CITY-FLOOR APPROACH

“City-floor” (rez-de-ville)⁶³ approaches encourage us to view the ground floors of buildings as extensions of the street, and therefore as extensions of the sidewalk, rather than as the base of the building in which they are located.

For example, in Lyon, vacant ground floors are used to accommodate bicycle shelters that would otherwise occupy sidewalks. In a similar way, shade commons could consist in providing access to shaded spaces for all, whether public or private: interiors of shops or building hallways, where people could take refuge for a cooling moment, or “shaded shelter areas,” such as museums that open during heatwaves.

63. Boudjenane, S., & Mangin, D. (2023). *Rez-de-ville : La dimension du cachée du projet urbain*. Éditions de la Villette. <https://editionsdelavillette.fr/produit/rez-de-ville/>

This “shade-floor” approach invites us to inventory and characterize the legal status of all intermediary shade places, such as café outdoor seating areas, Bologna’s porticoes, or house porches—at the 2025 Venice Biennale, the United States Pavilion, titled “American Porch of Life,” was devoted precisely to this architectural figure⁶⁴.

The search for shade blurs the traditional dividing line between inside and outside, and often, consequently, between public and private. It recalls the 1748 Nolli map, on which public spaces and building ground floors accessible to the public are depicted in the same way—at that time, indoor shaded spaces in churches and palace courtyards were considered public spaces.

TOWARD SHADING AS A SERVICE? TREATING SHADE LIKE MOBILITY AS A SERVICE

The #GourdeFriendly project, implemented in 2025 by the city of Marseille along its cooling pathways, aims to enable residents and visitors to refill their reusable bottles with drinking water for free at partner businesses, which also helps reduce plastic waste⁶⁵. The network was initially launched with 32 businesses, displayed on the mobile app and on the city’s official tourist routes. By mid-year, it included more than 50 refill spots scattered across the entire city, with the goal of reaching 100 establishments by the end of 2025.

The project, which partly adopts the “city-floor” approach mentioned above, invites us to view shade as a component of a service package for residents, which would be provided or coordinated by the municipality through an ecosystem of both public and private operators, similar, for example, to Mobility as a Service (MaaS)⁶⁶. A MaaS-like offer adopts a “user-centered” approach, starting from people’s practices and their desire to travel from point A to point B. It allows the combination of several services, including public transportation, carpooling, car sharing, cycling, private hire taxis, and route information, all under a single payment system. In the same way, one could imagine shading service packages. Shade could also be integrated into other service packages,

64. *Exhibition tour*. (2025). Porch : An Architecture Of Generosity. <https://www.porchusavenice2025.org/exhibition-tour>
L’exposition met en exergue cette citation de Rutherford Hayes, 19^{ème} président des États-Unis: « *The best part of this house is the veranda? But I would enlarge it. I want a veranda with a house attached!* ».

Dans *The Front Porch as Stage and Symbol in the Deep South* (1985), Perry, R.L. écrit : « *Le porche où on s’assoit (« sitting porch»), répandu dans les maisons du Sud, témoignait de l’influence du climat chaud et humide de la région sur la vie et les habitudes sociales pré-modernes. La technologie a-t-elle rendu la véranda anachronique au XX^{ème} siècle? Les Américains n’ont pas consciemment abandonné les vérandas dans les années 1950, mais c’est pourtant ce qui s’est passé. Au cours des trois dernières décennies, les rues ont été élargies et encombrées par des automobiles odorantes et bruyantes. Partout au pays, les habitants se sont donc réfugiés à l’intérieur pour regarder la télévision et contrôler la climatisation, et se sont réfugiés dans leur jardin pour des rencontres amicales.* ».

65. #GourdeFriendly project. Marseille Tourist Office. <https://www.marseille-tourisme.com/en/marseille-sustainable/responsible-visitors-guide/water-a-resource-to-be-saved-and-preserved/>

66. See the study conducted by ibicity, Espelia, and Partie Prenante on new urban economic models (NMEU): www.modeleseconomiquesurbains.com

such as tourism or mobility packages. This type of initiative encourages thinking in terms of ecosystems, that is, groups of heterogeneous and interdependent stakeholders that local governments can steer in various ways.

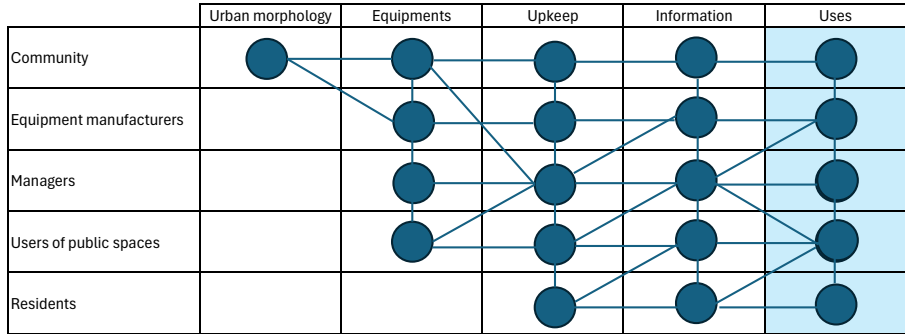


Figure 20: Shade provision as an ecosystem (block diagram)

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Although the local government is just one stakeholder among several, it has multiple levers at its disposal to steer the functioning of this system of actors in line with its own objectives.

TOWARD VALUING SHADE AS AN EXTERNALITY

Just as porticoes, canopies or awnings⁶⁷ are private sources of shade that provide a public benefit, examples of one building being shaded by another highlight the fact that shade is widely shared⁶⁸. Shade frequently functions as an externality, referring to the situation in which an economic agent's activity produces an external effect by providing a third party with a utility or benefit free of charge, or, conversely, causing harm or damage without any compensation.

67. Gaillard, C. (2025). *Qui a tué la marquise?* VVGuide. <https://vv.guide/qui-a-tue-la-marquise-28423/>

68. Additionally, all things being equal, shaded and cooled outdoor areas contribute to summer comfort in dwellings. Shade is shared—or enjoyed at the expense of one's neighbor. Until 2019, Los Angeles planners required a shadow analysis of any building that loomed five stories over the surrounding landscape, fearing the 100 ft shadows that could darken nearby gardens and sun-bathed patios. See Bloch, S. (2025). *Shade: The Promise of a Forgotten Natural Resource*.



Figure 21: Shade as an externality⁶⁹. Ferrara, Italy, August 10, 2025, 5:58 p.m.

©Designed by ibicity

One could then imagine local authorities valuing this type of externality, similar to the mechanism implemented under Paris’s bioclimatic Local Urban Plan (PLU): *“The innovative nature of the bioclimatic PLU is notably exemplified by its mechanism for valuing the positive externalities of projects. Valuation may apply to three domains (biodiversity and environment, planning, and energy efficiency and reduced consumption) and nine criteria (proportion of unbuilt/open area, proportion of plant-covered building surfaces, rainwater reuse, social mix, variety of urban functions, ground-floor vibrancy, building energy performance, summer comfort, and carbon impact reduction). Beyond the requirement to comply with the provisions of Chapters 1–7 of the regulation, granting a construction permit will require overperformance from the project under review in at least three of these criteria across two different domains.”*⁷⁰.

69. The picture also illustrates the significant role of “angle poetics” in shaping the urban layout of Ferrara’s new town during the Herculean Addition. See <https://www.ibicity.fr/les-trottoirs-de-ferrare/>

70. *Tout savoir sur le Plan Local d’Urbanisme bioclimatique de Paris (PLU)*. (2025). City of Paris. <https://www.paris.fr/pages/le-plan-local-d-urbanisme-plu-2329#focus-sur-une-innovation-les-externalites-positives>

Conclusion

Long perceived negatively—despite works such as *In Praise of Shadows* by Jun'ichirō Tanizaki and *In Praise of Darkness* by Jorge Luis Borges—shade is becoming vital in heated cities, and access to shaded public spaces is emerging as a democratic concern. With urban economy understood as the art of sharing scarce resources so as to live together in ever-greater harmony, the sharing of shade is becoming political. The issue is significant in itself, but above all it highlights the need to reflect on how the evolving provision of urban services in the context of global warming and constrained local finances.

The magic of shade: it makes dwarves look taller



08/13/2025 at 12:30 p.m

08/13/2025 at 3:30 p.m

10/13/2025 at 3:30 p.m. (simulation)

Neighboring the Villa Rotonda designed by Palladio, near Vicenza, Italy, the Villa dei Nani takes its name from the 17 dwarf statues now located on its outer wall. Legend has it that a castle once stood on this hill, where a dwarf princess lived in seclusion. She spent her childhood in an entirely tailor-made world: from furniture to objects to servants, everything was of small size, so that she would never become aware of her difference. But one day, as she leaned over the castle walls, her eyes met those of a handsome prince on horseback. They fell in love, and that very night the prince returned and climbed the outer wall to meet her. Yet when he realized how different the princess was, he screamed and took flight. Upon realizing her deformity, she resolved to kill herself, and her death caused the grief-stricken dwarves to turn to stone. At night, there is no shade.

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Isabelle Baraud-Serfaty is a member of La Fabrique de la Cité's steering committee.

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Shade is becoming a new urban resource

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