

**LUCI**

for the future  
of urban lighting

**DECLARATION**

# EDITORIAL

**Lighting is unquestionably essential to the nocturnal dimension of our cities,** as a tool for mobility, economy, culture and social cohesion. Night is an asset for our cities, not a moment to fear. As a result, this has favored the creation of more and more urban lighting strategies, projects, light festivals and illuminations for the 24h city.

Today, with the climate and energy crisis, the heightened awareness of light pollution and the effect of light on biodiversity and human health, **business as usual is not an option.** We need to consider light as a precious public good, to be used with care at the right time and with the right level. We, as cities, must accompany this change towards a better harmony of light and dark.

**In this Declaration, our approach to the “Future” is dynamic.** Due to specific local configurations, each city has different immediate needs and long-term visions, each city adapts and responds to changing circumstances. In this Declaration, what we intend is to be useful for cities in the coming 3, 5 or 10 years to navigate the complex policy background in achieving the proposed goals, whilst enabling vibrant cities that are rooted in their place and serve their communities.

We, cities, can only embark on this journey if we join forces with the lighting designers and the industry, with environmentalists, human sciences specialists, etc. who can also shed light, give some depth and help solve the complex issues at hand. **There is a strong and exciting evolution of our field: we have an unprecedented opportunity to better light our cities together.**

This has led LUCI to develop this Declaration, to complement the LUCI Charter, and on the occasion of its 20<sup>th</sup> anniversary in 2022. The process brought together over 500 participants, representing cities and associated members, throughout the year in enthusiastic gatherings and meetings. Many city representatives took a direct part in writing this Declaration as well as the thematic chapters that have been co-created by LUCI Working Groups: may they be thanked and saluted for their hard work.

**I invite you, fellow politicians, civil servants, lighting professionals and of course all of us as citizens of the world to adopt this Declaration and its goals, to widely share its principles with other local authorities, to continue progressing towards a more sustainable approach of urban lighting for a better future of our cities.**

**Meri Lumela**

LUCI President, Deputy Chair  
of the City Board of Jyväskylä

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# THE DECLARATION

# QUALITY OVER QUANTITY: 7 GOALS FOR THE FUTURE OF URBAN LIGHTING

## Navigating towards the future

Cities are in a constant state of flux. Climate change dramatically alters the conditions for life in cities around the world. New patterns of work, leisure, and mobility, propelled by growing urbanisation and evolving technologies, alter the demands on public space. Biodiversity is under increasing pressure globally. Urban lighting is intimately linked to all these challenges. To ensure sustainable nightscapes, we, the cities need to adapt our urban lighting strategies.

In facing these challenges, the core values of urban lighting as laid out in the LUCI Charter remain essential: supporting inclusive and accessible public space for all citizens after dark, increasing security and comfort in public spaces, reinforcing local identity and economic development, supporting sustainable mobility, and minimising the environmental and ecological footprint of light. This Declaration states 7 goals for urban lighting in the coming years to help preserve these values in a rapidly changing context.

**“This Declaration states 7 goals for urban lighting in the coming years to help preserve these values in a rapidly changing context.”**

We recognise that each city has its own background, means, ambitions, culture, and boundaries. Intensely lit cities face the challenge to continue developing the quality of life at night while using less light. Cities still growing with light, at various stages of development, face the question how to build a quality lighting infrastructure that will lead them into a sustainable future. Despite the differences, we believe the 7 goals in this Declaration offer relevance to all cities. We invite city councils, elected officials, lighting professionals and citizens to translate the goals to their own situation, and to use them to navigate towards the future.

# 1 EMBRACING NET ZERO LIGHTING

Over 1000 cities adopted the UN Net Zero goals for greenhouse gases in 2050. The good news is that lighting can contribute to these goals if we strongly call for reduction of emissions in the production, exploitation, and maintenance process of urban lighting, on top of using renewable energy. The ongoing replacement of traditional sources with more energy-efficient LED should rapidly scale up. Replacement with LED alone is however not enough and a too narrow scope for the future of urban lighting.

To reach Net Zero lighting, we should apply design and planning approaches that enable us to achieve more with less light. Such approaches include: developing sustainable lighting master plans, preventing excessive private outdoor lighting, and using dimming strategies, such as dimming in response to traffic. Off-grid solar lighting is showing increasing potential for specific contexts and applications. And we should dare to consider removal of light in particular time periods and areas, where socially acceptable.

On another dimension, we should ask for circularity in our tenders, considering the whole lifecycle of lighting equipment. By collectively requiring Net Zero lighting products and systems, we stimulate industry and accelerate these developments. Many examples show that sustainable options, even when requiring upfront investments, are the most cost-efficient for cities in the long term.

↳ **Urban lighting timeframes span many years, so let us help achieve cities' Net Zero goals by acting today.**

# 2 MINIMISING LIGHT POLLUTION FOR ALL LIVING BEINGS

Urban lighting has many positive impacts, but also negative side effects. Light pollution is a growing issue worldwide. It impacts all light sensitive species, people and animals alike. Vital functions of many nocturnal species, like feeding, reproduction and orientation, can be disturbed by urban lighting, which may ultimately compromise biodiversity.

Viable strategies to reduce the ecological impact of light have been tried and tested: reducing the number of sources, reducing on-time, reducing intensity and tuning the spectrum. On this last point, limiting the use of blueish light, such as 'cold' white LED light, is important. Where traffic volumes are not predictable, adaptive dimming technology should be applied to provide light only when and where needed. Dimming is worthwhile in general: several examples show that people often don't notice or don't mind significant dimming. At master plan level, applying dark infrastructure is commended. A design approach should help us translate these strategies into lighting schemes that work for both people and nature.

The challenges of the future require a major change in mindset. We need to reconsider existing lighting policies, to allow more customised lighting scenarios that respond to our needs with as little light as possible. Finding new norms and standards that offer the right constraints with enough flexibility will help us change in a responsible and acceptable way.

↳ **Let us find a new harmony between light and darkness in the city!**

🔍 **Further information p. 11**

# 3 SUPPORTING HEALTH AND WELLBEING

Urban lighting has been a key enabler of public social life after dark for centuries. Providing safety and security has been essential to this. However, limiting the scope of lighting only to security can produce unwanted effects on people at other levels. Excessive, often harsh and glary lighting, motivated by the scientifically unproven assumption that more light always brings more safety, makes urban spaces less inviting, less accessible and less pleasant to use. In projects and master planning, we should find the right balance between safety and security considerations on one side and health and wellbeing - in a broad sense - on the other.

We should be open to ongoing research on the influence of light on our mental wellbeing. Let us closely follow research on the possible influence of light on sleep-wake cycles, and ensure urban lighting has minimal negative effects on our health in this respect.

We need to encourage projects and strategies where urban lighting aims to strengthen the bond between people and the places they share. By supporting safe, comfortable, and inviting environments after dark we contribute to socialising in public space, and active behaviours, such as walking, cycling and outdoor sporting. This in turn supports our health and wellbeing. For maximum benefits, light- and urban planners should collaborate more closely, and bring the night-time experience on equal footing with the day-time experience in the full urban planning process.

↳ **Let us use light as a positive driver for citizen health and wellbeing.**

🔍 **Further information p. 14**

# 4 PROGRESSING THROUGH PUBLIC PRIVATE DIALOGUE

Urban lighting is the sum of public and private lighting. We recognise that private lighting can contribute to urban nightscapes in a positive way. However, private, mainly commercial, lighting is also responsible for an important share of light pollution, for example from uncontrolled overly bright LED screen advertising. The best strategy is to prevent excessive private lighting in the first place. Using clear public design guidelines, or ordinances with maximum light levels, can prove useful as preventive measures in the planning process. Inevitably, the ethical question will emerge: Who has the right to light the city nightscape? We as cities should give precedence to light expressions that are sustainable and relevant to the community.

A second dimension of this dialogue is the need for cities to work with market parties to get the best hardware, software, and services. Industry knowledge is valuable to create efficient, sustainable, and relevant lighting and there should be more sharing of insights between cities and their partners in light. There is however air between what we as cities need and what is offered on the market. Cities are in the driver's seat and we should become more explicit in asking the tools and information we require in our tenders.

↳ **Let us take private parties on board to collectively improve urban lighting.**

## 5 REALISING THE FULL POTENTIAL OF COMMUNITY ENGAGEMENT

People make cities. Citizen participation is beneficial to the success and acceptance of public lighting projects. It helps to incorporate diversity of needs and wishes, it improves project results, it increases citizen ownership and strengthens local bonds. Community engagement is an essential part of Placemaking. Such involvement goes beyond our residents: it includes professionals active in public space as well.

We recognise this approach comes with associated challenges. But not engaging the community bears greater risk of failed projects, especially when we talk about sensitive topics like LED replacements that bring a change of lighting colour, the competing uses around public space of sleep, work and play, or the gathering of data by Smart Lighting systems.

Through community engagement, cities create a closer relation with citizens, and heighten satisfaction with public space and local services.

↳ **Let us move away from a one-size-fits all approach to urban lighting and intensify the role of citizens in shaping the future of urban lighting.**

🔍 **Further information p. 17**

## 6 HARNESSING THE TRANSFORMATIVE POWER OF LIGHT ART

Light is a powerful medium to express culture. It highlights important heritage and landmarks in the city and presents the city in a way that is meaningful to the community.

Light festivals bring art to public space in an accessible and inclusive way. They delight us and bring us together literally and figuratively. Light art can mean even more for the city. Light art festivals as well as permanent light art installations can serve as test beds for new urban concepts and allow local communities to experience new dimensions of urban space.

We are only at the beginning of exploring these modes of expression.

↳ **With the power of creativity and imagination of the arts, let us open new avenues and make our cities progress through urban lighting.**

🔍 **Further information p. 20**

## 7 CREATING SYNERGIES BEYOND LIGHTING

Urban lighting contributes to the city in more ways than is often realised: investing in sustainable lighting helps a city reach Net Zero emissions. Urban lighting boosts the night-time economy and reinforces social cohesion and equity. Lighting infrastructure can support communication devices and sensors, and Smart Lighting is an enabler of the Smart City. Lighting can and should be a key enabler of city-wide night-time strategies, and more. Given these diverse benefits, we should strive to connect lighting much more to other urban policies. Done in the right way, new synergies can be found, also in terms of funding.

The scope of urban lighting is becoming broader and broader. Disciplines involved in sustainable urban design, such as social sciences, Information and Communication Technologies, urban planning, ecology and lighting professionals need to team up and collaborate more intensively.

↳ **Let us actively reach out to all the relevant disciplines and interconnect our local strategies to maximise lighting's versatile contribution to our cities.**

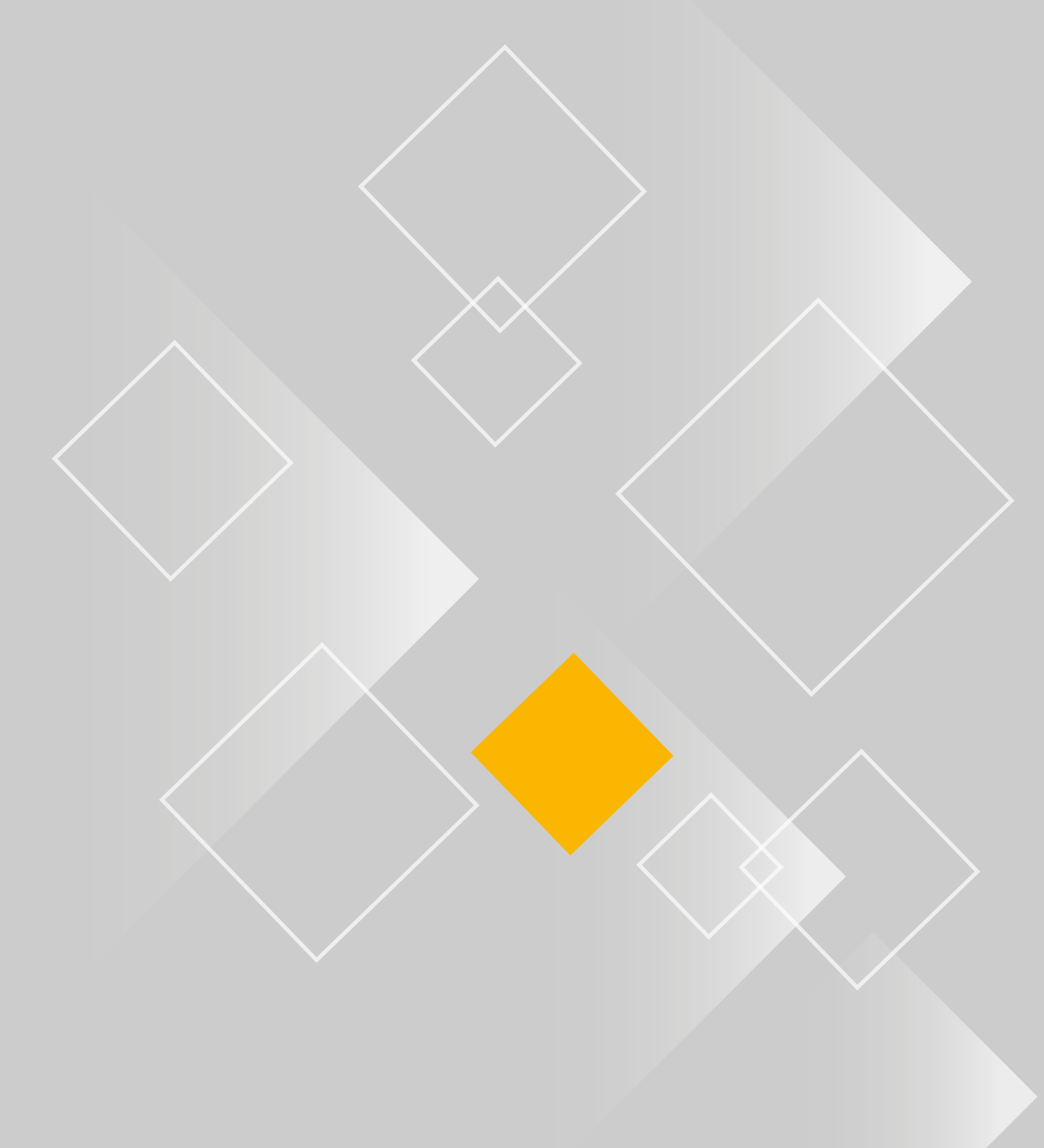
# PROACTIVE CHANGE FOR A SUSTAINABLE FUTURE

It is clear that current environmental, social and economic developments ask for a strong and unprecedented response from urban lighting. The 7 goals of this Declaration all argue for giving quality of light precedence over quantity, whenever possible. Urban lighting is about the long term and changes take time. This means we need to act now, with a strong eye on the future. Having clear perspectives on the future helps us be proactive and choose direction, instead of having to act defensively.

We as cities support and propel each other forward by sharing knowledge, experiences and ideas.

↳ **Let us use the goals in this declaration as guidance and inspiration to sustainably realise the strong potential of urban lighting for our cities and citizens worldwide!**





# THEMATIC CHAPTERS

## CHAPTER 1

# A CITIES' APPROACH TO REDUCING LIGHT POLLUTION

### Light Pollution is an urgent and growing problem

Urban lighting comes with many blessings, but a downside requiring urgent attention is light pollution. Light pollution is defined as the sum of all adverse effects of artificial light and can be broken down into four components: sky glow – the unnatural brightening of the night sky, light trespass – light entering places it is not intended to, glare – excessive brightness that is visually discomforting, and clutter – bright and confusing groups of light sources.

Light pollution has a wide range of negative effects on all kinds of living beings: people, animals and plants. For people, glare is unpleasant and decreases visibility of the surroundings. Blinding 'disability glare' can compromise traffic safety. Distraction and glare from media screens can have similar effects. Sky glow hides the stars from our view. Light trespass into people's homes can disturb sleep, which may lead to negative health and wellbeing effects.

We share our ecosystem with numerous other species, which are in most cases even more sensitive to artificial light than we are. Vital functions of animals, like feeding, reproduction and orientation are disturbed, adding up to harm of entire ecosystems, and the endangering of biodiversity.

The issue of light pollution is growing. The amount of urban lighting seen on earth increases about 2% per year. The versatility of LED and its relatively low running costs have increased commercial lighting greatly. LED-ification of street lighting is crucial in the effort to save energy. But the way it has been performed, especially in the early phases, presented disadvantages in terms of light pollution. LED generally increased the blue light component, which is considered most disruptive for animals in general and scatters the most in the atmosphere. This scatter also poses increased challenges to professional astronomers.

### What cities can do in design and planning

It is crucial that we reverse the trend of increasing light pollution. The promising fact is that light does not linger in the environment with long decay: when it is off, the pollution stops. However, the recovery may take a long time. Urban lighting plays a very important

role in urban life and cannot just all be switched off. To move forward, we need to change our approach to light and dark in the city. At the design and planning level, there are several strategies that have demonstrated their effectiveness:

- Reducing quantity of sources, reducing the on-time, focusing the light to where it is needed, reducing brightness, and tuning the spectrum (the colour components).
- Selecting luminaires with a properly tailored light distribution to avoid spill light and waste of luminous flux, by means of optics, lenses, and suitable accessories such as proper shielding.
- Designing for glare-free environments, allowing the general light level to become lower, while ensuring sufficient visibility.
- Planning for dark infrastructure in the city, i.e., connected areas without light barriers benefits local fauna, allowing it to move around more freely.
- Integrating adaptive ('smart') street lighting technologies that dim lights in relation to traffic, weather, and ambient lighting, leading to significant reductions of total light emission, without compromising safety.
- Conducting small-scale trials to identify issues, concerns and tweaks required before implementing designs at a larger scale.
- Formulating city-wide design guidelines to prevent light pollution. There are examples available in the LUCI network.
- Work on perception of darkness and its social acceptability for example by providing information to citizens about the positive sides of darkness.

The better the integration of lighting and urban design, the further these strategies can be applied while still obtaining good light for all species that inhabit the city. This requires lighting design to be involved early in the urban planning phase.

We should generally consider non-visual effects of light on the living species in the city more in our approach to urban lighting, including attention to spectral ('colour') composition and timing of light. There is also unmet potential in (smart) dimming schemes that adjust directly to local fauna, such as periodic dimming to free birds trapped by light.

The required changes in light philosophy challenge us to move away from a one-size-fits-all approach, based primarily on guidelines and norms. We need to proactively find ways to reduce light pollution while safeguarding the values that underlie our current concept of urban lighting.

## **Governance: a public and private matter**

City policies and regulations offer opportunities to reduce light pollution. Already in some cities ordinances are defining maximum lighting levels for specific types of lighting (e.g., architectural, landscape, advertising) and types of areas in the city, both for public and private lighting. Such ordinances should work preventively as much as possible. Light from private parties requires special attention in this respect. Estimations of the contribution to a city's total light pollution by private parties vary from 50% to 85%. This raises the question of who has the right to light the city? For example, is use of excessively bright advertising screens still valid in this era? Getting private parties on board to help minimise light pollution is key. Monitoring light pollution is a continuous matter that should be embedded in the city's maintenance processes.

The current national and supranational legal frameworks related to light pollution form a complex tapestry from various domains, such as environmental protection, urban planning, air protection, energy, emissions, astronomy, and light. Cities are the places where everything comes together. We should contribute our experiences and ideas from urban practice to the development of workable and effective standards and legislation at higher levels as well. National or regional legislation based on maximum rather than minimum light levels in specific urban areas will be helpful in reducing light pollution. This legislation should also consider the other species sensitive to light pollution in the city.

## **The need to collaborate**

The parties directly or indirectly involved in light pollution are as varied as the topic itself: lighting designers, ecologists, urban planners, researchers, landscape designers, architects, citizens, elected officials, industry, NGOs, normative bodies and more. Tackling light pollution cannot be done by cities alone. We must be open to raise awareness of stakeholders from non-lighting domains about light pollution, to create a common ground for collaboration. And we must be open to advice, education, and guidance by specialists ourselves.

The views of the local communities, who are the primary users of public space, should be taken on board in lighting projects, to increase acceptance of less or different light. Their knowledge about usage of the space can also help improve project results. Citizen science projects, in which citizens report light pollution measurements done via mobile apps, show promising results.

We, as cities can create incentives for industry to continue offering more advanced and more economic lighting and control equipment that enable light pollution reduction. We call on academics and industry to develop practical and economical methods and measuring tools to map light pollution in its full breadth. We, as cities need to work together to exchange ideas, policies, processes, tools, best practices, and lessons learnt.

If we do not change the way we view and apply light and darkness in cities, the rapid worldwide urbanisation will lead to rapid increase of light pollution. This is a dead end. We need to look for opportunities to minimise ecological impact, while respecting the values for good urban lighting. This path will require investment, exploration, perseverance, and boldness. This is what the future asks of us.

**“If we do not change the way we view and apply light and darkness in cities, the rapid worldwide urbanisation will lead to rapid increase of light pollution. This is a dead end.”**

*Thematic Chapter 1 has been realised by the "Light Pollution Working Group", composed of LUCI member cities and associated members, led by the City of Jyväskylä.*



## CHAPTER 2

# URBAN LIGHTING FOR HAPPY AND HEALTHY CITIES AFTER DARK

For centuries, lighting has been a tool to create safer and more comfortable cities to live in. Many cities have also for decades been using light as a tool to boost night-time economy, express local identity and make places lively and appealing after dark. In recent years, sustainability ambitions and economic factors brought increasing emphasis on energy savings. At the same time, the scope for urban lighting is widening. Health and wellbeing are increasingly recognised as relevant topics. But we, as cities, currently have more questions than answers about this partly uncharted territory. How can urban lighting contribute to a healthy urban environment after dark? And how should cities adapt their urban lighting strategies?

## Enabling healthy living conditions after dark

The current body of knowledge reveals that simply adding more light, placed for example in the name of safety, is not the way forward for health and wellbeing. Too much light exposure at night disrupts our biological clock, especially when light exposure during the day is too low. The mechanism at work here is the suppression of the ‘sleep hormone’ melatonin, triggered by light exposure. Not only the light levels matter. The colour composition of light plays a role as well. Bluish light, present for example in cold white LED light, most strongly suppresses melatonin. There is growing scientific evidence on the role of disrupted circadian rhythms to affect sleep, metabolism, immune function and many aspects of behaviour and mood, while also predisposing to diseases such as cancer. Research indicates that light trespassing into people’s indoor private spaces, already poses health risks.

We, as cities, have a role to play to create safe and supportive spaces, limiting adverse effects of lighting on people. We must therefore closely follow research about the extent of urban lighting’s impact on people’s sleep-wake cycles. Besides public lighting, lighting from advertisements, indoor private lighting, and the increased exposure to screens deserve serious attention too. It is the sum of all exposure that counts.

Many of our citizens ask for less light and darker spaces to relax and sleep properly. Preventing light trespass into people’s homes is already a good place to start. We have heard citizens ask for the “right for darkness” during night walks, and this signal should be taken seriously. We, as cities, have a role to play when it comes to raising awareness about the impact of lighting on health, for example through prevention programmes and public engagement. Co-design with citizens is a fruitful way to incorporate their needs and wishes for darkness in projects.

## A social perspective

Lighting, designed and used in an appropriate way, has the potential to contribute to healthy lifestyles and positive experiences in the urban space. It can contribute to promote physical activity and encourage socialisation after dark. Cities in northern latitudes have long stressed the importance of bringing light and joy in the darkest months of the year to fight against depression symptoms.

These social and psycho-social perspectives offer important considerations in deciding whether to present seasonal lights or light festivals or not in times of energy crisis, and in discussions about the impacts of light pollution. Celebration plays an important role in our societies and contributes to mental wellbeing. Happiness and optimism are not unwelcome in our times.

## Diversity and inclusion

Urban lighting of the future should respond better to the needs of different citizen groups. Gender equality needs to be supported, and fragile groups such as for example children, the aging and people with disabilities deserve special attention. What are the needs of each group in specific urban areas? Increased citizen involvement and an inclusive approach will be instrumental in finding the answers. The resulting increased satisfaction and ownership around their neighbourhood can only add positively to the wellbeing of residents.

Tending to the various needs of citizens will likely lead to a space- and time-specific approach. The developments in Smart Lighting technology provide unprecedented flexibility and adaptability, offering solutions in front of us as opportunities to grasp.

## A sensitive approach to people and nature

As cities we need to move away from one-size-fits-all urban lighting. The need to sharply decrease energy consumption encourages us to rethink our nocturnal environment, by closely analysing the use of different spaces and adapting where the light is needed and where we can do with less or no light.

We also need to embrace darkness to protect biodiversity. This links to our health in the long term, but also connects to our sense of wellbeing. The connection that we as humans have with nature and other species, is crucial for our mental health. Cities can reflect this and work on a sensitive approach to both people and nature.

## **Collecting evidence to strengthen policy-making**

In the coming years, we, as cities need to gain new insights from research, tracing the relations between lighting, health, wellbeing, and social economic and environmental factors. It is essential to bring together experts from different fields and sectors, such as urban lighting, urban planning, public health research, neurosciences and human sciences and more to collect evidence of the impact that lighting has on health and wellbeing.

This is already the case in the ENLIGHTENme project, financed by the European Union, and we need to enlarge this dynamic to include more cities, universities and companies, to develop peer-to-peer learning and share good practices. This would generate appropriate attention at city and national levels and attract further sources of funding for building projects at scale. The combination of practical experiences and scientific evidence will help us contribute to improve legislation, policies, standards, public procurement frameworks and guidance, from the local to the international level.

## **Moving towards joint action**

We call for a new ethical dimension to be integrated into our urban lighting policies, promoting health and wellbeing of our citizens. Let us look at this as an opportunity. The challenges of the future ask for a new balance in urban lighting: to do better with less lighting. This gives us the chance to address key concerns of our citizens: improve health and influence people's emotions and behaviours in a positive way, increase the feeling of security, increase social cohesion and participation in civic life – all the while respecting our planet.

As cities, we are best placed to build urban environments that people want to live in. Every city is unique and will have its own priorities within the search for improved health and wellbeing of its citizens. In this journey, we can make the biggest difference if we work together, always involving citizens and building partnerships with industry and research institutions.

**“We call for a new ethical dimension to be integrated into our urban lighting policies, promoting health and wellbeing of our citizens.”**

*Thematic Chapter 2 has been realised by the “Health and Urban Lighting Advisory Board”, a group of 15 cities taking part in the ENLIGHTENme Project, co-funded by the European Union H2020 programme.*



*The ENLIGHTENme project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 945238.*

## **CHAPTER 3**

# **TRANSITIONING TOWARDS A COMMUNITY-DRIVEN APPROACH**

## **Light is a social medium**

The enormous impact of modern urban lighting on social life after sundown is often taken for granted. Before widespread availability of lighting in public space, the streets were considered dangerous and off-limits for regular citizens. Public lighting has set the stage for streets as social spaces after dark, where people travel and meet safely and comfortably. Good urban lighting helps provide a sense of place, by highlighting meaningful elements, creating atmosphere, and supporting activities.

## **The need for change**

Urban lighting is in transition. The great challenges facing cities in terms of carbon neutrality, reduction of ecological impact, and rising energy costs urge us to reconsider how we should light public space. Social and economic trends in the city, such as changing work and leisure patterns, and demographic trends change the use of, and demands on, public space. At the same time, the tools for lighting are evolving. How can we give shape to urban lighting of the future in such a way that both the environment and local communities benefit?

## **Community involvement is both a need and a resource**

We strongly advocate for involving the local community in the necessary changes in urban lighting. By local community we mean citizens and private actors including, e.g., retailers, local associations, but also the professional stakeholders on the streets including law enforcement officers and social workers and others. Engaging this local community is needed for several reasons:

- A one-size-fits-all approach to meet both environmental and social goals will not deliver the best results. For example, an established, greener neighbourhood with predominantly ageing residents will give rise to different lighting needs than an area comprising of student flats. These areas will also present different opportunities and challenges for reduction of energy and ecological impacts. Customisation to the local needs and wishes will be required to a larger or smaller extent. The local community can best voice the needs and wishes related to a specific area.
- The community is also a valuable resource for the success of a project. Incorporating the insights from lived experiences improves the base for decision making. Furthermore, involving the community helps incorporate diversity in the project, embedding different backgrounds and opinions. And since community members are

not confined to the domain of lighting, they can point out cross connections with other domains of interest to the municipality.

- Involving the community has shown to increase citizen satisfaction and acceptance of the results, increasing pride, ownership, and custodianship. Next to this, the community strengthens in the process of collaborating towards a common goal.
- The governance implications should not be overlooked. Fundamental changes in urban lighting, given their social impact, should be validated by the people. Community involvement offers a concrete approach to this. As lighting becomes “smart”, with data gathering implications and adaptive light settings, this will become ever more urgent.
- Finally, it is an opportunity for cities to gain closer relations with their citizens.

## **There is a growing body of knowledge on “how to”**

Community involvement is not standard in lighting design practice, and may be seen as alien to the field. There are however numerous techniques, methods and approaches available that have proven their worth for community engagement, also in the lighting field.

Light in the night time environment needs to be experienced for a better grasp of the subject, so techniques such as Night walks and Guerrilla Lighting are commendable. For the same reason, creating temporary test set-ups for community evaluations is beneficial. Light festivals can offer a special temporary context for experiments in urban lighting, producing a large audience that can be polled. Virtual Reality is emerging as a tool to show and discuss lighting scenarios.

Engagement techniques such as the Place Standard Tool help qualify and quantify spatial issues and opportunities with citizens. Forming a light committee of citizens that regularly speaks out on urban lighting matters offers a structural approach. This allows knowledge build-up in the community, and keeps people connected throughout changes in contexts and systems. For all these techniques, involving the right professionals to facilitate these processes is beneficial to the results.

New kinds of citizen science projects, supported by mobile apps, provide data that is otherwise practically unattainable for municipalities and harness potential for more widespread adoption.

There is much more to say about how to involve the community, but the main message is that a significant body of knowledge, best practices and data is available that cities can benefit from.

## **A community-driven approach needs to be embedded in the city’s way of working**

A community-driven approach should not be confined to an isolated project, but there are challenges to overcome before it can be embedded structurally in the city’s way of working.

We need to keep conveying the value of the community-driven approach to decision makers and other stakeholders in the city. It starts with raising awareness of the social implications of urban lighting, and the benefits of community engagement in public projects. There is a growing body of literature about both topics. Successful projects based on this philosophy are also numerous, so we should gather these to form an evidence base to the benefits of the approach. Together with researchers, we can take on the challenges to quantify the benefits of community involvement and the costs of not doing so.

Connecting to city-wide strategies, such as a night time strategy, enables synergy in terms of planning and budget. Given that urban lighting has a huge impact on accessibility after sundown, inclusiveness and identity, lighting should be given a seat at the table earlier in the urban planning process so that it can be integrated more profoundly and effectively in social urban design.

Citizen engagement can be embedded in tenders, which integrates it formally in the bidding and realisation process of market parties.

## **We need to reach beyond our boundaries**

Moving forward with a community-driven approach requires us to reach beyond our discipline. The input of other professionals, such as social workers, urban planners, and process facilitators greatly increases the chances for success of a community engagement project that nurtures 24h liveable places.

We as cities should reach beyond our limits to exchange ideas and collaboratively learn how to give shape to the social aspects of future urban lighting. Environmental and social developments urge urban lighting to change. Let us shape a future of light that is both environmentally and socially sustainable.

**“Environmental and social developments compel urban lighting to change. Let us shape a future of light that is both environmentally and socially sustainable.”**

*Thematic Chapter 3 has been realised by the “Placemaking with people and light Working Group”, composed of LUCI member cities, led by the City of Glasgow.*

## CHAPTER 4

# THE FUTURE OF LIGHT FESTIVALS

Light festivals deserve special attention in envisioning the future of urban lighting, given their growing proliferation, event-like nature, and the contrast they provide with everyday urban lighting. Individual light art pieces, with their specific qualities, intentions, and effects, take centre stage. But light festivals should also be regarded as wholes that are more than the sum of their parts. How could, or even should, light festivals adapt to a changing context and why? In this chapter, we paint a vision, but do not prescribe a complete and detailed blueprint for each festival to adopt. Given different circumstances, local configurations, means, audiences and so on, each festival is invited to translate this vision into strategies that work for their own situation.

## A changing context

On the backdrop of climate change, urbanisation, the strains of urban lighting on ecology, all urban lighting-related activity should (re)consider the question 'why light?'. This is a moral and political question that weighs social advantages with ecological implications. This is also true for light festivals, and the energy crisis has intensified political discussions around light festivals. What could be relevant roles for light art festivals in a changing context, locally, regionally, and internationally? And how should light festivals adapt to have the most positive impact, with the least negative side effects?

## Core values

Envisioning how to adapt to the future requires first to acknowledge the core values that should be upheld. First and foremost, light festivals bring art and culture to people in public space, in an accessible way. This high accessibility of art on the streets is of great importance, since it allows people who normally would not be able to enjoy art, to experience it and encounter different ideas, perspectives, and cultures. Guarding accessibility for inclusive public spaces, regardless of gender, age, origin, ethnicity, disability, sexual orientation, class, and religion, remains important in the future.

Light festivals activate public space, and bring people together for a positive, collective experience. Light festivals also allow people to experience the city. For cities,

it is an occasion to offer a positive gesture to inhabitants, welcome visitors, and develop their image. Local economies benefit from the bustling activation of public space.

## A sustainable and educational light festival

It is imperative to reduce the environmental impact of all operating and production aspects as far as possible given the goals of a light festival. This text focuses on light festival specific aspects and approaches, notwithstanding that general measures such as use of renewable energy and sustainable materials are no less relevant. We envision a new balance between light and darkness at festivals to reduce light pollution, energy use and carbon footprint. We should be more open to darkness that forms the backdrop and prerequisite of light. Experience of light is relative: a darker surrounding enables us to create experiences of similar intensity with less light. Although this sounds straightforward, it is difficult to accomplish, since the parties to involve in dimming lights in the city are numerous. This is another good reason to root the festival deeply in the local community. A pioneering festival demonstrates that this can result in net zero extra energy use.

Light festivals should also invite and support artists to rethink the balance between light and darkness. What meaningful experiences can darkness bring, instead of thinking only in terms of light? A celebration of darkness could also help the public reflect on the role of darkness in the city and increase its acceptance. We should also rethink the nature of light artworks in relation to re-use. Travelling art pieces that are malleable to a local context could offer re-use of materials whilst still being new and relevant to different locations.

## Development of art, artists and beyond

Light festivals have grown in numbers. Existing, recurring festivals mature, and so do their audiences. This confronts festivals with the question how to keep their programming relevant and fresh. A crucial condition for this is the vitality of the field of light art. Light festivals share a responsibility with other parties, such as makers, funding bodies and city authorities, to stimulate the field and push it forward. Light artists should receive the trust and opportunity to experiment and develop. Local emerging talent needs and deserves a stage to grow. Commissioning processes should be based on respect for the artists with fair remuneration.

With the continued rise and developments of digital technologies, it is also worthwhile to explore how the digital and physical world could complement and strengthen each other, both in terms of artworks, but also in the full experience of the festival. Concurrently, the virtues of the physical meeting place as a counterbalance to screen-mediated experiences are worth exploring further.

The catalysing power of light festivals reaches beyond light art. The focused presentation of lighting in the urban context can educate people about its value for public life and increase acceptance of new forms of urban lighting. This can feed back into the city urban lighting policy. The ongoing advance of Smart Lighting is confronting cities with fundamental questions about future urban lighting, and light festivals can provide valuable input there. Light festivals can offer a testing ground, a temporary lab, for academic or other research, like social experiments, via the medium of light. These developments,



when conducted responsibly and appropriately for a festival context, strengthen the bond between the festival and society and deepen the festival's relevance.

## Identity and community

The growing number of light festivals, and light art events, also presents the challenge of how to develop a unique identity that is meaningful to the context of the festival. Rooting the festival in the local community is essential in this respect. Although good international light art will always be of value, we believe that local cultures should play an ever-greater role in shaping the identity and programming of a festival. Light festivals would do well to invest in local artists and to involve the local community in shaping – or even co-creating – the festival. International artists can be challenged to adapt their work meaningfully to a specific location or context, offering fresh perspectives on local issues. The identity of the festival will form organically based on local circumstances, the people the festival engages and the questions they are asked, and an extra layer of relevance is created for visitors.

Light as a medium and light festivals can nurture grassroots engagement of citizens. Investing in the local community grows that community and brings the contributions from that community to the festival to a higher level. It sets a positive spiral of creativity and innovation in motion and brings relevance to the festival far beyond the event days.

## Governance

The room to innovate and adapt is partly dependent on the resources and space a festival receives from local authorities. We should be more explicit about the societal value of light festivals to decision makers. Much of the value to a city is intangible, but some of it can be approximated with numbers, such as economic impacts, or net energy use. Further work on developing qualitative impact evaluation studies is needed. The relevance and positive impact of light festivals stretches beyond the festival days, and touches upon many of the core values of cities in general. This gives the opportunity to connect to overarching city policies and gain a structural role in a city strategy.

The envisioned roles, challenges and opportunities for light festivals are intricate, and are accompanied by the already significant challenge to just organise a good light festival. We should work together to help and inspire each other to continuously re-invent ourselves. Sharing experiences, available tools and lessons learnt, setting up artistic exchanges and co-creation between festivals is the way forward. Not to become similar to each other, but to be better able to develop a meaningful identity, engage the local community, act as a catalyst for the field of light art and beyond, and to move into the future as relevant and sustainable as possible.

*Thematic Chapter 4 has been realised by the "Light Festival Working Group", composed of LUCI member cities and associated members.*

# REFERENCES & FURTHER READINGS

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## Connecting cities with light

LUCI (Lighting Urban Community International) is the international network of cities on urban lighting. Created in 2002 at the initiative of the City of Lyon, today, LUCI is a non-profit organisation bringing together over 70 member towns and cities worldwide that sustainably use light as a tool for social, cultural and economic development. It also includes over 50 associated members from the lighting industry, design agencies and research institutes.

[www.luciassociation.org](http://www.luciassociation.org)

- During the year, 4 major events took place (in May, June, October and December 2022), focused on different aspects of the Future of Urban Lighting, bringing together over 500 participants.
- 12 meetings also took place to co-create and draft the Declaration: with LUCI Working Group members, mainly for the Thematic Chapters, and with the Steering Group including cities of Budapest, Eindhoven, Jyväskylä, Leipzig and Lyon.

Together with the LUCI Team, Philip Ross has been the main expert involved in the co-creation sessions, drafting and reviewing the entire Declaration.

**We would like to thank everyone involved for their contributions to discuss, draft and review this Declaration.**

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## About the LUCI Declaration

On the occasion of its 20th anniversary in 2022, and at a turning point in the field of urban lighting, LUCI set out to formulate the “LUCI Declaration for the Future of Urban Lighting”. The main objective was to develop **a collective vision on urban lighting** through a co-creation process, to inspire cities around the world.

