Revitalizing the image of public spaces by light festival
in the city of Chandigarh

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Acknowledgements

The path to educational and intellectual fulfilment is laborious but also exciting. I feel fortunate that I had the chance to attend Master’s Programme in Architectural Lighting Design at KTH. I consider attending this Programme the most interesting and crucial experience for me so far.

The learnings from this experience were not limited to just the fascinating world of lighting, but also extended to knowing about different backgrounds and cultures brought by amazing people I met here, being open to ideas which might/might not be aligned to my thoughts, giving/receiving constructive feedbacks and being exposed to spirit of teamwork.

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To the lighting laboratory at KTH, professors, classmates and lecturers, this learning journey has been exciting. One year is too short for such an intriguing topic, ‘Light’.

I would also want to thank my friends and cousins who kept my spirits high, every time I was ridden with self doubt.

Lastly, I cannot thank my parents enough for giving me the opportunity to pursue my dreams freely and for their wholehearted support throughout. I will forever be indebted to my mother, for being my personal guide as a mother and as an architect.
Public spaces are the drawing rooms of the society, where people meet, interact and replenish their body and mind away from work and home. It is a welcoming space that caters to people of all ages, gender, caste, creed and economic status. Chandigarh, a city designed by Le Corbusier as an example of modern liberated India, embodies these ideals of public placemaking. But over the years, many cities have veered towards stretching activities into the dark hours. Most public spaces were not designed to cater to this. As a result, unused or sparingly used spaces form dead pockets in the nocturnal landscape of the city. This brings an opportunity for new and innovative lighting interventions to transform these dead spaces.

This thesis is a qualitative study in checking the feasibility of a light festival in Chandigarh as a solution to dead urban spaces. The city was analysed to identify problematic areas as potential sites for the festival. This also requires an in-depth investigation into the effects of light festivals. For this, a study has been conducted on light art installations, existing literature and case studies of light festivals under the broad categories of image regeneration, revenue generation and job generation. The deductions from these are compared with opinions of experts (lighting designers, organizers) to get a holistic view based on perceived and documented effects of light festivals. A study in trends was also conducted to gauge the general popularity of festivals as a measure of the global image of the host city. On the basis of the analysis of these results, a program framework for the prospective Chandigarh light festival is proposed.

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Introduction

This Master Thesis is aimed at finding the feasibility of a light festival in the city of Chandigarh, as a solution to dead public spaces. The aim of the light festival is also to put Chandigarh back on the global map as the foremost Indian city to organize an international light festival keeping people as the center of it all. The study will also explore the festival’s economic benefits to the city and its developmental role for the lighting industry.

Public spaces of a city are a direct reflection of the society and the ideologies of the city. They form the first impression of a city. If these spaces have an image of being comfortable, open and free, people tend to return to the place. Similarly, if these spaces are intimidating and have an image of being unsafe, people will never go back to them.

The idea or image of a city during the day, is very different from how it is perceived at night. During day, the city is perceived by the combination of light distribution and contrasts between set ups. Objects and depths are revealed by means of shadows. During the night the scenario flips completely. The city is hidden and “all orders are erased”.[1] The city transforms into a dark blank canvas, revealing by means of highlights or illuminated (Fig 1).

With this statement, we can easily consider light to be one of the most important tools in the placemaking aspect of the nocturnal landscape of a city. “Successful placemaking creates a canvas for people to explore and fill with life. Illumination acts as a backdrop for the spectrum of human activity after dark. Its immense power includes the ability to ‘effortlessly’ alter spaces; as a medium, it allows designers to play with shades, colour and intensities.”[2]

This quote by Late Dalai Lama makes me wonder if we are providing the right conditions, stimulating environs and the instances in a city that inspire us to interact outside of our homes and phones.

Chandigarh was conceptualized and used as an administrative seat for the legislative houses of the states of Punjab and Haryana in India. Its inception was the need of the hour back when the states were being partitioned off to India and Pakistan. As a city, it is designed to be functional, but so is a machine. A city also has a spirit – the “instinctive and spontaneous”[3], a spirit that needs nurturance and celebration.

It is with the aim of infusing that free moving spirit into the above mentioned dead public pockets of the ‘city beautiful’ (as it is fondly called in India) that the author wants to propose an annual/regular temporary light intervention in these ‘dead spaces’. In the process, it is only pertinent to explore the light festivals all over the world and study how they impact the image of the city, as perceived by the world and its inhabitants.

Most cities around the world are a result of urban agglomeration with planned centers and parasitic lopsided growth of suburbs. The centers have designated public spaces, while the suburbs feed off the center. The result is either overcrowded or abandoned spaces in the center and suffocating suburbs with no public spaces that led breathability to city. One must think that the same does not exist in planned cities. Having lived for a most of her life in a planned city, Chandigarh, the author can state that it is not completely true.

The first planned city of India has an image that inspires many. It was designed by eminent architect - Le Corbusier. The city was designed with a motto of “open to give and open to receive”. The public spaces of the city started out by being sparsely populated in the first 25 years of inception and hence were lifeless but with time, the spaces became infused with character, spirit and people. The next 20 years saw the public spaces functioning as the catalyst for urban interactions and living the city motto. Their current condition, however says otherwise.

“Most cities around the world are a result of urban agglomeration with planned centers and parasitic lopsided growth of suburbs. The centers have designated public spaces, while the suburbs feed off the center. The result is either overcrowded or abandoned spaces in the center and suffocating suburbs with no public spaces that led breathability to city. One must think that the same does not exist in planned cities. Having lived for a most of her life in a planned city, Chandigarh, the author can state that it is not completely true.”[2]
INTRODUCTION
Before embarking upon the investigation of the core topics, a preliminary background study has been carried out to understand the function, uses and need of public spaces in urban settings. In the course of study, the author came across the ‘PROJECT FOR PUBLIC SPACES’ where a detailed study of the factors that affect/define the success/failure of a public space has been presented. It is from this that a definition of dead spaces has been derived and presented. Also, in the process of preparing a case for organizing light festivals in Chandigarh to rejuvenate/revitalize the dead spaces of Chandigarh, it seems pertinent to understand how the short term memory of such temporal interventions repeated periodically (annually, biennially) can create a lasting impact by changing the perception of the people. It is also important to understand the role of light memory as a design tool. And, why we should have temporal interventions vis-a-vis permanent ones- that has also been touched upon briefly. Therefore, this part of the study is divided into 3 sections:

Urban planning aspects - Public space; Dead space
Socio-economic aspect - Why temporal interventions?
Cognitive aspects - Light memory; Memory formation
B.1 Urban study aspects
B.1.1 Public space

This section looks at various definitions of public spaces in an urban setting, the kind of spaces that constitute public space, the diversity of their common natural and cultural richness and a foundation of their identity, as expressed by the European Landscape Convention. The community recognizes itself in its public places and pursues the improvement of their spatial quality.

- ‘Public spaces are places publicly owned or of public use, accessible and enjoyable by all for free and without a profit motive. Each public space has its own spatial, historic, environmental, social and economic features.’ [5] It also states that:

‘Public spaces are a key element of individual and social well-being, the places of a community’s collective life, expressions of the diversity of their common natural and cultural richness and a foundation of their identity, as expressed by the European Landscape Convention. The community recognizes itself in its public places and pursues the improvement of their spatial quality.’

- ‘Public spaces consist of open environments such as streets, pavements, squares, gardens and parks and in sheltered spaces created without a profit motive and for everyone’s enjoyment.’ [6]

- ‘Our social identity is partly formed by public appearances and relationships.’ [6] What people most often value about the public realm is how we interact with each other. After evaluating thousands of public spaces around the world, Project for Public Spaces found that to be successful, they generally share the qualities in the Place Diagram (Fig. 2).

From the above definitions, it can be summarised that public spaces serve as our open air drawing rooms and should be designed and accessorised to address comfort, happiness, security, leisure and ease of movement for all sections of society—men and women, young and old, rich and poor, working and non-working. Public spaces are a vital component of a prosperous city. Well designed and managed public space is a key asset for a city’s functioning and has a positive impact on its economy, environment, safety, health, integration and connectivity. The quality of life for people in cities is directly related to the state of its public spaces. [5][1]

For this study, we take into account the key attributes shown in the innermost circle and develop our work. [16]

B.1.2 Dead space

For this study, the term ‘Dead space’ is used for a space in the public realm that does not satisfy the one or more of the four components of placemaking mentioned above.

- Accessibility and linkages: Lack of visual connect/link in a public place which is not easy to get to and get through may make it become critically ill. A dark place with not inadequate lighting during dark hours is not visible from either a distance or up close will be nocturnally dead. The edges of a space like a blocked wall or empty yard hinder visual access and garner the image of being shady and make a space dead, eventually. Visually inconveniently located transit stops also make a space dead. [5]

- Comfort and Image: Bad image and lack of comfort in a space is the key to its failure as a great public place. When a space is perceived to be unsafe, ugly, and uncomfortable, it goes out of use and becomes dead. Dark/dimly lit places with shady characters at night can give people a feeling of being unsafe. A lot of users may get deterred from visiting a place due to its inferior first impression. [16]

- Lack of visual access and connectivity: Lack of activities can lead a space to sit empty and unused. That may be a prime reason for people to stop visiting a certain place, never to return. It may also become the reason for misuse or breeding of nefarious, socially unacceptable activities, keeping people further away. A lot of spaces that are active during the day but useless at night may fall into misuse and become dead. [5]

- Sociability: A place that inspires no public participation/interactivity, which is not a place to meet a friend, where people may feel uncomfortable interacting with strangers is bound to discourage sociability and becomes dead in due course. [5]

Obviously, dead public spaces in an urban setting are a sure sign that some kind of intervention is required to reverse the phenomena. This thesis will identify spaces that exhibit symptoms of being dead during nocturnal hours in Chandigarh, India and suggest a program for organizing a light festivals in and around them.
B. Socio-economic aspects

B.2 Temporary interventions: Why not make permanent?

In an academic lecture by Henrik Gidlund of Trafikverket Stockholm at KTH, he talked about a park that was not being used due to the poor image it had in the local residents’ minds. The area around was well lit and likewise used. But this park did not receive visitors even after putting on general outdoor lights as the people had a negative image of the place. So, the Trafikverket came up with the solution of putting bright coloured and visually loud lights in this park to attract attention – metaphorically to scream for attention and to change the idea of the place that people had in their mind. The result was that people started visiting the park, even though it was loud and garish. Over a period of time, the park started receiving a decent number of visitors and the lighting was made more visually comfortable. It led the author to wonder if loud attention-grabbing temporal interventions could be used to activate public spaces.

Cases for temporal interventions leaving an impact on the society

These case studies are only to emphasise the relevance of temporal interventions and are not connected to light intervention.

Example 1: As reported by the website of ‘Project for Public Spaces’, ReSurfaced, a City Collaborative initiative, used a Lighter, Quicker, Cheaper approach in transforming a 16,000 square-foot vacant downtown lot into a temporary pop-up beer garden, café, and outdoor space, in Louisville in 2014. From September 19th to October 25th 2014, the lot became an all-day event site and public destination. Not only did it attract youngsters and families with local bands, DJs, poetry slams, but also businesspeople who flocked to food trucks for lunch. It had a bold impact on the people by drawing them out inspiring social interaction and cohesion.

Example 2: A project called the Tennessee Brewery Untapped, and to change the idea of the place that people had in their mind. The result was that people started visiting the park, even though it was loud and garish. Over a period of time, the park started receiving a decent number of visitors and the lighting was made more visually comfortable. It led the author to wonder if loud attention-grabbing temporal interventions could be used to activate public spaces.

B.3 Cognitive aspects

B.3.1 Light memory

As mentioned in Sherouk Badr Taha’s thesis on ‘Light memory, as a design tool’, light memory is a composition of three factors:

• Visual photographic image created by the light composition and perceived by a person
• User’s acquired conscious feeling during the experience
• Personal relation the user has to the space, which makes the memory unique to each person

Light memory is an episodic memory that only takes visual inputs into A festival may address other senses as well, but for this study we concentrate on the light memory and interactive parts of sensorial inputs.

Example 2: A project called the Tennessee Brewery Untapped, as reported on the website of ‘Project for Public Spaces’ in Memphis, aimed - 1. Create a unique destination for the city; 2. Create a point of departure for projects and conversations about revitalizing Louisville’s underused spaces. The site became a learning and collaborative hub for innovators and ‘the commercial success of ReSurfaced also demonstrated the economic potential and benefit of incrementally activating a community’s under performing spaces.’

Fig 5 Memory formation process

As per Fig 5 from Atkinson, R.C and Shiffrin, R.M, a memory is formed in the above process. The author would like to highlight the ‘rehearsal’ part of the scheme. This means that if a bold impact is repeatedly impacting the short-term memory, it translates to long term memory.
Methodology

The feasibility of a light festival for Chandigarh is tested through the following aims:

- Image regeneration
- Revenue generation
- Job generation

Out of these, image regeneration will be studied in detail keeping revenue generation and job generation as secondary investigations.

Research methods and procedures followed and applied in any research are bound to be related to its nature and type. In this case, the first and foremost requirement was of background study to arrive at answers to the following questions:

- How to define public spaces in urban settings? What are the function, uses and need of such spaces?
- What are the elements of a successful public space? What factors may contribute to their failure as great public spaces and render them ‘dead’?
- Since suggestion of light festival is being made with the aim to rejuvenate/ revitalize the ‘dead’ spaces of Chandigarh, how the short term memory of such temporal interventions repeated periodically (annually, biennially) may create a lasting impact by changing the perception of the people?
- What is the role of light memory as a design tool?

A preliminary study in this respect has already been presented.

The core issue, however, in this thesis is the study of light festivals around the world. Though this research is mainly qualitative in approach since it employs a ‘naturalistic approach based on phenomenological paradigm, which uses a variety of interpretive research methodologies, that seek to understand phenomenon in context specific settings’"[10], some aspects have been studied through descriptive research method (quantitative study).

Keeping in mind the time constraint, out of the three aspects of study of light festivals, image regeneration has been studied in detail keeping revenue generation and job generation as secondary investigations.

Research strategy

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<td>Benefits of ‘light’ in public spaces</td>
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<td>Literature review—impacts of light festivals</td>
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Fig C2 The Pool by Jen Lewin Studio

Fig 6 Methodology schematic process
Based on the background study of placemaking, site analysis was conducted. Chandigarh’s public spaces were analysed and the dead spaces have been identified as potential sites for the festival. The task is performed in view that the author has insight into the city’s public spaces by virtue of being a native resident. The selected areas have also been analyzed for lighting conditions by means of photographic evidence to find out any possible relations between the problems and the lighting conditions.

When it comes to image regeneration, the point of departure is based on light memory (ref section B.3.1) and memory formation (ref section B.3.2). A festival may address other senses as well, but for this study we concentrate on the light memory and interactive parts of sensory inputs. As shown in Fig. 5, parts of a short-term memory convert to a long-term memory when it is rehearsed. This aspect of rehearsal can be attended to by the repetitive nature of a light festival.

Hence it is hypothesized that over a period of time, light festivals have the potential to alter the long-term collective memory and association with a space, reinstating the public space with potential for multiple activities and a positive image.

To prove this hypothesis qualitatively, a literature research has been conducted.

Two phase strategy has been adopted:

First Phase:

(i) preliminary background study (excluding lighting study) -already presented

(ii) study of light and Light festivals. This was achieved through systematic online desk study of the secondary sources of information available in the form of reports by various national and international agencies, journals and peer reviewed papers published by researchers in various online journals of lighting and architecture.

Second phase: This is divided in two parts:

(i) Effort to understand the role of light festivals in image regeneration and generation of revenue and jobs, from the point of view of organizers and lighting designers. As absolute measurement of the effects of light festivals is not possible, the opinions of lighting designers, organizers of these festivals were sought regarding the global image created of the festival. They were contact for interviews and also a basic questionnaire, designed with the purpose of gathering data for the above.

(ii) The impact of light festivals on image regeneration in collective memory through analysis of interest generated by festivals over time. This is done with the tool Google trends that generates data based on search volumes over a period of time.

With the hypothesis proven and a deep understanding of the workings of light festivals around the world, a program has been designed and proposed.

All of this has been integrated and presented in the subsequent chapters as follows:

Chapter 1 presents site analysis as discussed earlier.

Chapter 2 investigates independent light art installations to study the benefits of light art in public spaces. The study is conducted on independent installations because festivals do not last long enough to map their long term effects on individual sites. The investigation is based on secondary literature sources available - Previous thesis studies and publications

Chapter 3 investigates the available secondary literature sources to study the effects of light festivals under the broad categories of image regeneration, revenue generation and job generation.

Chapter 4 investigates the workings of light festivals and the success measurements of the intended outcomes. This includes case studies of various light festivals. The case studies are based on secondary literature sources available and interviews with organizers.

Chapter 5 presents the survey results and analysis. To measure the impact of light festivals on the global image of the cities, the study was conducted at a study of the digital trends and media attention received during and after the festival, presented in this chapter. This is done using the tool Google trends with the names case study festivals as search phrases.

Chapter 6 presents the results from the previous chapters and suggests the feasibility and potential benefits to the city of Chandigarh. A design of the program for the festival has been proposed based on scenarios that best complement the need of the city
Chapter 1 | Site analysis

INTRODUCTION
This chapter will give a background for Chandigarh as a city. Based on background studies of placemaking in B.1 and B.2, this chapter discusses the factors behind unsuccessful public spaces. The factors discussed are selected with their relation to image of the space only.

The chapter will analyse Chandigarh’s public spaces and identify the most problematic areas as potential sites for the festival. This task is performed in view that the author has insight into the city’s public spaces by virtue of being a native resident.

Do the lighting conditions have any relation with the current condition of the selected sites? To answer this, the areas shall be analysed for lighting conditions.
Chandigarh - the city beautiful

The city was planned by French architect Le Corbusier as a place free from the shackles of the past (pre independence India). It is located in the picturesque foothills of Shivalik mountain ranges. It is considered the best experiment in urban planning for 20th century India.

With an area of 114sqkm and a population of 1,230,763 in 2018, it boasts of 4th highest per capita income (Rs.2,37,616=3056.26 EUR) in India. The population density is 10,796 pers/sqkm with 97.25% urban population and 86% literacy.

Climate: It has cold dry winter, hot summer and sub-tropical monsoon. Evaporation usually exceeds precipitation (910mm) and the weather is generally dry. The topography is flat with a 1% drainage gradient.

Planning: The plan of the city is "analogous to a human body with a clearly defined head (Capitol complex), the heart as the city centre (sector 17), the lungs as the open spaces and greens (Leisure valley), the intellect (the cultural and educational institutions), the circulatory system (the network of roads, the 7 Vs) and the viscera (the Industrial Area)."

Almost 33.5% of the city area is greens/open spaces for the public. It is this large percentage of the city that is considered in this study.

Le Corbusier worshipped light and that can be seen clearly throughout the city planning and the buildings.

But what happens at night?

With the growth in nocturnal economies, the public spaces of the city do not offer the same values as it does during daytime.

1.1 What makes a place successful?

From the Place Diagram (Fig 2) and the interpretation of dead spaces (B.1.2) the author have drawn out some of the most crucial aspects that have potential to be solved with public image solutions. These aspects have also been chosen with their relevance to the Chandigarh context they are:

- **Stale commerce** – Places people do not visit as the area houses specialist commerce only or the commerce has gone stale and so has the image of the place
- **No public participation/ interactivity** – Places that do not inspire groups to use the space or fail to individuals to interact or influence the space in a positive manner
- **Lack of visual connect/link** – not visible from most treaded routes at night
- **Blank walls/ dead zones around the edges of a place** – These places sometimes are completely dead or have garnered the image of being shady
- **Visually inconveniently located transit stops** – If a space is to be used, people need to see it
- **Inferior first impression** – If the place does not encourage a lot of visitors and looks ill maintained, it could give a very bad and lasting first impression, that would deter user from visiting it
- **Use of space not regular throughout the day and not out of choice** – Some spaces are not used throughout the day due to their location or the limited hour use of its adjacent buildings
- **Feeling of being unsafe** – It is equivalent to seeing a guy in a dark hoodie, smoking in a dark corner, looking at you while you pass through a street. We automatically form our first impression of the guy being dangerous and act accordingly. But it is not necessary that this guy is a goon. It is the same with places. This feeling of not being safe can also be inspired by a lack of balance in the sex ratio present at the place.
- **Not welcoming to different ages** – It is possible to invite people of all ages by creating an atmosphere/image that is perceived comfortable
- **Does not support multiple activities** – The place is too rigid in its image as a host of activities
- **Not a place to meet a friend** – We do not hang out with a friend in a dark alley, come night. We prefer lit streets that send a clear idea of their functionality and invitation to socialize
1.2 Site analysis and identification

Based on the above listed factors, areas have been highlighted on the Chandigarh urban map (Fig 12,13).
The areas that have five or more overlapping factors are chosen as potential sites for the festival as shown in Fig. 14.

Limitations
On exploring the sites shown in Fig 14 in real time, it was realised that some sites may be avoided.

- Parks - some are highly unsafe during after hours. In others, there stands a chance of disturbing the fauna of the place
- Sites that are too far from the centre for a comfortable walking distance during the prospective festival
- Very crowded places - to avoid future traffic issues around the place

A total of five sites have been selected for the first edition of the prospective festival. For later editions, when the festival grows in scale, sites that are not at a walking distance around the centre, may be included.

1.3 Light analysis of chosen sites
Based on photographic images of the final sites, a qualitative analysis of the light has been done to draw relations between the problematic situations existing in these places and lighting conditions.

Site 1: Sector 17 Underbridge

Many places in the city centre have become dead forming such pockets suffering from disinvestment and underappreciation. The place however is not completely dark. The area under the bridge (Fig 15) is lit adequately to render the feeling of safety, but it is glaring and lacks character or any glimpse of invitation. The spaces on either side of the bridge, though same in nature, are poles apart in usage. On the one side, the space is bustling with activity around a fountain and street hawkers (Fig 16) and the other side is completely abandoned during after hours (Fig 15). The existing activity of the popular side can be used to draw in people to this site during the festival. The lighting conditions are the same with green highlights in trees and diffused spots created by street lights. Therefore the difference in popularity cannot be attributed to the lighting conditions.

Site 2: Sector 17 Bank Square

From the images, the square does seem not have adequate light in the main volume where the benches. Trees block light from street lights. Only visible light is from sign boards in different colours. The light is irregular and not enough to provide clear visibility for the full expanse of the square.
The inability to see people at a comfortable distance, brings the feeling of being unsafe. The lighting from the signboards also created an inferior first impression. The lighting conditions are directly proportional to the abandonment of the square at night. This can also be confirmed by the high activity during daytime (Fig 18).

Site 3: Museum Complex, Sector 10

The quality of light is proportional to the lack of use of the space during after hours.

Site 4: Sector 24 Market

The only light sources are floodlights that provide ample light to see the expanse and the building. By virtue of visibility, the space feels safe but the light is not comfortable for anyone to linger in the space. The light is glary and hence uncomfortable at certain angles. (Fig 19)

The discomfort experienced by the lighting conditions is a major factor leading to the current condition of the space.

Site 5: Open space near foundation stone, Sector 34

The light in the market space is from the old, dull sign boards and the floodlights. The light in the main volume is adequate but glary from most parts of the open space with few trees. The signboards do not throw much light onto the street. This dull light imparts an inferior first impression. (Fig 20)

The study of Chandigarh’s public spaces revealed multiple dead spaces in the in the urban fabric, that do not live up to the expectations of public spaces. The feeling of being unsafe, lack of potential to support multiple activities for different age groups were the most common reasons for downgrading the quality of public spaces. The central sections of the city garner more attention. Therefore, the prospective sites for the festival are limited to the central locations for the first edition. Later editions could explore more sites highlighted in the analysis.

An analysis of the existing lighting conditions revealed that one or more aspects of these dead spaces could be related to inadequate or uncomfortable lighting conditions. Light has definite effects on the feeling it evokes in people. Therefore, light festival in these areas could inspire permanent lighting solutions in the future.
Chapter 2 | Benefits of Light Art in Public Spaces

INTRODUCTION

“Art doesn’t need to resolve conflict. As long as it acknowledges and addresses the conflict, it is doing its job.”

~ Cai Guo-Qiang

A light festival is essentially a compilation of light art installations. By this measure, the long-term effects of light festivals are an amplification of the effects of light art installations. But festivals do not last long enough to map their long-term effects. Therefore, this chapter analyses three independent light art installations in terms of light at night, user participation, space benefits, user benefits and impacts to draw conclusions on the benefits of light art in public spaces. Repetitive visits or experiences of these installations create long-term memories changing the image of the space. The studies are selected based on the variety of problems they solve for the public spaces. The chosen cases vary in duration of installation and context.
2.1 SILO 468, Helsinki

It is an old oil silo with 16,000 cub.m capacity. It falls in the new residential area of Kruunuvuorenhaka, Helsinki. The area will house 11,000 inhabitants from 2030. The silo is visible central Helsinki. To make a new neighbourhood, the silo’s walls have 1,280 LEDs mounted in perforation in the walls. These illuminate to ‘create fluid, natural and never repeated patterns on the silo that vary responding to parameters such as wind speed, direction, temperature, etc. thereby creating a constantly changing mural of light.’ [13]

User interaction: It does not interact with the users directly. The installation is reactive to ‘external inputs like speed, temperature, time and creates a dialogue with the environment’ [13]

Light: The walls of the silo form a constantly changing work of light art, with 1,280 LEDs flickering in reaction to the environment. The wind speed, etc. is translated into warm glowing light patterns of light. The intensity of the patterns changes with change in wind speed. At midnight, for one hour during the evening, the colour of the lights turn red, referring to the former use of the silo as an oil store, reflecting upon the history of the place.

Benefits (as reported by Light and Art in Public Spaces by LUCI Publications)
• Transforms an old abandoned built mass, giving it new identity and purpose [12]
• Creates a new landmark for the city skyline [12]
• Creates a focal point [12]
• Creates a novel civic space for the citizens of Helsinki [12]
• Winner of 12 international light art competitions and has been published in numerous professional magazines on different continents. Therefore, publicizes the city [12]
• Reinforce the night time presence of the built mass. [12]
• Changes the image of the new neighbourhood [12]
• Makes the new neighbourhood look more welcoming [12]

2.2 Amphibious Tunnel, Gothenburg

It is a light installation in a 45m long mixed-use tunnel on Karl Johan street, that provides the access pathway for pedestrian, cyclist and vehicle traffic to the culturally dynamic Klippan district of Gothenburg. ‘It was experienced as unsafe at night by people using it.’ [10] Based on the location being close to the harbor, the driving concept is the creation of water ripples on the walls to visually experience water and give a sensation of diving into a new setting.

User interaction: The installation is not designed interactive but the shadows of the people passing by form patterns and hence make the user a part of the installation

Light: The rippling water effects are cast on the walls of the tunnel and transform the place giving a sensation of being inside the water in a womb like place.

Benefits
• Cecilia Borgström-Fälth, Head of Unit at Göteborg Art felt that it left visitors feeling happier. A feeling that stems from gazing upon reflections of rippling water
• According to Light and Art in Public Spaces by LUCI Publications, the tunnel is transformed from a place of transit to a venue in itself [12]
• Requests have been made from visual and musical artists to perform in it, reports Light and Art in Public Spaces [12]
• Removes the feeling of being unsafe and unpleasant

Fig 23 Silo exterior
Fig 24 Placemaking Silo interiors
Fig 25 Amphibious tunnel
Fig 26 Amphibious tunnel
Art with a motive can be a powerful messenger of change, without being too apparent. Most art that is effective, makes us aware of the message hidden in it, in a slow revealing/realizing manner, giving us time to absorb the full impact. Light art is the same in a nocturnal time frame. With the world turning more nocturnal, light art can be the new engine for change. Light art installations are physical changes to a space, the reaction to which is change in the way people perceive that space. Designers are trained to have a fertile imagination but a common user may not be able to imagine the potential of a place or building more than what is apparent and publicized. Light art brings forth hidden aspects of this space. Users are able to see the space in new light, literally and metaphorically.

Light has always attracted man due to the curiosity it inspires. Light also makes us feel comfortable by increasing visibility and providing information. This can be seen in Amphibious tunnel. But is the playful aspect of light art that lends a unique identity to the space. People using the tunnel interact differently with the space, standing in the rippling water patterns and this action and reaction creates an atmosphere that’s unique to this tunnel, making it a ‘place’ that is defined by more than its function of a transitory space.

The comfort that comes from light also makes us feel safe by virtue of increasing visibility and by attracting more people. We feel safer in a place that has people. Eclats de verre attracted people into a neglected place that was laced with criminality. But by filling the place with light and people, even during the cold winters, the installation was able to show the positive potential future of the space and eliminate criminality from the place of the period of installation.

In a dark room, if we see a single burning candle, our attention is drawn towards it immediately and we might subconsciously start moving towards it. It becomes a beacon, a symbol for us. The same is true for Silo 468. The abandoned built mass, reused as a light art installation, acts as a beacon on the horizon of Helsinki. It acts as a symbolic icon drawing the attention to the new neighborhoods. The soft ever-changing patterns of the installation, with the curiosity, drawing people in to explore the new neighbourhood. The installation acted as successful marketing and publicity experiment.

Light art can affect change in a space that general lighting may be too timid to attempt.

It must be noted that art without intention is just a means of entertainment and revenue generation. To have an intention that truly applies to a space, a designer must study the space thoroughly. The designers should not see space as a two-dimensional picture, but as an immersive experience taking into account all the senses and user behaviors.

In Chapter 1, the sites identified are ridden with multitudes of problematic factors. Each site has a varying set of factors. The study of specific light art installation sites, it has been proven that light art can positively affect these problems at a site-specific scale. When designing an installation of the sites, it is of utmost importance to study and analyse the sites in further detail to address the issues that pertain each site.
Chapter 3 | Literature review - Impacts of light festivals

INTRODUCTION
This chapter will study the literature available on the impacts of light festivals. This will be divided into three parts in accordance with the aims of the proposal for light festival for Chandigarh.

The three parts are
• Image regeneration
• Job generation
• Revenue generation

The sources of this chapter are both formal (academic papers, previous thesis) and informal (architectural blogs and websites, lighting design magazines)
3.1 Image-regeneration

• IMAGE REGENERATION BY VIRTUE OF SHOWCASING THE PUBLIC SPACE: Speaking accounts of Mark Burton-Page, the general director of LUCI-Lighting Urban Community International state image (generation or regeneration) as a long-term impact of the phenomenon called light festival. He also says, "One of the global challenges is that cities are in competition with each other to attract citizens—they want more qualified workers, more universities and businesses. It's interesting to have this event where you welcome people together and see the great urban spaces in a new light."[15] LUCI is an international network of cities and lighting professionals who promote and use light as an urban and economic development tool.

• IMAGE REGENERATION BY VIRTUE OF 'LIGHT MEMORY': In the transformation of a physical building or a familiar structure, you can engender a range of emotion in people so they feel differently about the place.”[16] This change in the feeling towards an existing space, affects their personal association with the place and hence changes the way they subconsciously perceive it. The ‘light memory’ (Background B.3.1) of the installation at a particular site forms a positive layer in the ever-evolving “perceived image” of a place. The place becomes more inviting.

• IMAGE REGENERATION BY MEANS OF BRINGING IN MORE PEOPLE TOGETHER: Light festivals are catalysts for tourism. The statement can be bolstered by the increasing number of visitors that attend these festivals around the world. An example of the same can be seen in the case of people visiting the Amsterdam light festival as represented in Fig. 29.

Many cities are adopting the phenomena of light festivals as a tourism policy. In theory, the repetitive use of one policy should fail, but the site-specific nature of the implementation of this policy makes it successful in different cities, as stated in more people each year.[14] People feel invited, safe around other people. In a café, people prefer sitting facing the street with other people walking by rather than facing the building. The possibility of interacting with other people, draws people in. (32)

Fig 29 number of people visiting the Amsterdam light festival over the airs

3.2 Revenue Generation

• Paul Nulty of Nulty lighting design consultants mentions in his blog, ‘The UK night-time economy has an estimated value of £70 billion and can represent 25-50% of the hours in a day. Good lighting can therefore be a key driver in engaging enticing people and encouraging economic growth during these hours, and can even have a positive impact on anti-social behaviour.[20] Lighting festivals have become a means of promoting the night-time economy on a temporary basis – one that is family friendly. Events like these generate increased footfall as discussed in 5.1 and hence the spend. The visitors range from within and outside the catchment areas. This encourages local businesses to extend opening hours and their services. Lumiere London in 2015 reported over a million visitors in four days and the ‘Heart of London Business Alliance estimate an increased footfall of 18% year on year.’[20] The curator of Lewes Light in East Sussex, Graham Festenstein stated that it was found that 90% of attendees surveyed after the previous year’s event were definite that they would visit a local bar or establishment in their next festival. (20)

• LUCI’s The Economic and Cultural benefits of Lights Festivals (2011) compiled some interesting statistics for a number of events around the world, with ‘average daily spend attributed to visitors ranging from £29 per person per day in Glasgow, through to £116 in Gothenburg.’[20] From Sec. 5.1, it is clear that some of these festivals get close a million visitors. This translates to a very significant sum of revenue generated. In 2016, LUCI commissioned a report to study the fiscal feasibility of light festivals in several cities and it found the return on investment (ROI) to be solid. It was found that in some cities, the return on investment on $1 is as much as $3.50.
Results of the chapter

Light festivals have multifaceted results. But when analysed specifically under the categories of image regeneration, revenue generation and job generation, it was seen that the effects are more profoundly mapped for image regeneration and revenue generation. This aspect will further be tested through Case studies of light festivals in Chapter 4.

When it comes to image regeneration, the festivals target various aspects of place-making and are flexible as a problem-solving mechanism. The effects are in direct relation to the initial intention of the festival or the designer or the space. The unique ways in which light and shadow act upon a space can deepen our experience of the city by revealing spatial qualities otherwise not seen. Festivals provide the perfect platform to stage these heightened qualities.

"With light you can enable the visualization of a buried river, still present in the collective memory," as said by Roger Narboni of Concepto lighting design agency. It addresses the memory of inhabitants creating new sensations and affiliations with the space. Thus, forming new light memories. Light radiates glow and warmth, that draws people in like a bonfire. Light festivals can create public hearths in the city, that provide platforms for social interactions. This aspect of light festivals is highlighted by the vast and growing number of visitors garnered by these festivals (Fig 29). This effect is amplified as people, life - attract other people. This generates an 'atmosphere of conviviality' [18]. This provides opportunities for interaction between people. When people interact with each other in the festival, it generates talks about the festival that address the memories of the festival being formed. These discussions give new definition to the space. This reshapes the memory of that space. This changes the way people perceive the place.

Under the category of revenue generation, the research done by LUCI organization clearly shows that it is a lucrative venture, based on the estimated return on investment scale festivals can generate. This aspect can be tested in Chapter 4.

By virtue of attracting multitude of people and generating substantial revenue, it can safely be stated that light festivals are a successful tourism policy.

As seen in the excerpts in Sec. 3.3, when festivals give equal opportunities to budding designers alongside successful established designers, they act as platforms for marketing young talent. This gives a boost to these budding designers. Not to mention the valuable contacts they make for life. Light festivals may or may not create direct jobs for designers but do help as a self-marketing platform which is much needed for the under exposed young talent in the Indian lighting industry.

When it comes to direct job generation, the festivals are as effective as any other temporary annual event. They do not create a lot of new jobs, but use the existing job profiles. In a setup where availability of number of people is a problem; this may be the perfect situation. But in a place like India, that has a large population, with people in need of new job opportunities, this is not the ideal solution.
Chapter 4 | Case studies of light festivals - Success measurement

INTRODUCTION
This chapter will comprise of case studies of four light festivals. These festivals have been chosen on the basis of their initial intentions of inception, as presented in LUCI’s 2019 publication of Cities & Lighting. [21]

The case studies are split into the following sections:
- Initial objectives
- Brief history
- Workings
- Success measurement
4.1 Lights in Alingsås, Sweden

This analysis is based on the information found on the Lights in Alingsås website and a personal interview with the organisers of the event—Alingsås Energi.

Initial Objectives

- Bring new meaning to urban landscape (Fig 32, 33, 34)
- Raise awareness on the values of urban light (Fig 31)
- Change the image of the city
- Showcase local creative talent

Brief history

Lights in Alingsås started when students from Ljuscentrum at Gothenburg University visited Alingsås in 1998 to experiment with architectural lighting in public spaces. Under the direction of Torbjörn Elisson and Kai Pippo, they made the very first installations that became the source of Lights in Alingsås. In 2000, the municipality entered into an agreement with the Professional Lighting Designers Association -PLDA. It has resulted in an annual experimental workshop in public space lighting, that gives the city a lighting exhibition for the next 5 weeks after the workshop.

Workings

- The current budget for the event is approximately 470 thousand Euros.
- The event is primarily funded by Sparbanken Alingsås – the main bank of Alingsås
- The equipment for the workshop is loaned by partnering manufacturers
- A team of 6-7 designers are chosen from almost 50 applicants.
- It is made sure to have 1-2 Swedish designers
- It is attempted to have a variation in age and experience when it comes to choosing these designers
- 50 international students of architecture, design and lighting participate in the workshop. Students of the local electricity and energy program also participate alongside these students as student electricians.
- The first one week is the workshop in which the designers along with the students take up pre-identified sites across the city to design and execute a light installation that addresses the theme of that year. The installations are kept on through the next 5 weeks, open for all public to visit and experience.

Success measurement

- Lights in Alingsås today welcome more than 80,000 visitors annually, which is almost double the population of the city. It is measured via tickets for the guided tours and hotel bookings.
- The students work with national and international designers, gaining hands on knowledge and making valuable contacts. (Fig 35, 36)
- Lights in Alingsås also provide a platform to local school students to play with light by creating their own installations, raising the awareness about good lighting. Thus, involving the community from the root level. (Fig 37, 38)
- The cafés and hotels are recorded to make 1/3rd of their annual profits during these 6 weeks of the event.
- As mentioned on their website, “the inhabitants’ knowledge of light has increased with many attending the courses in lighting.” It is raising awareness about urban lighting.
- The city has permanently installed lights inspired from Lights in Alingsås. The event is slowly changing the urban landscape of the city.
- Inspired from Lights in Alingsås, the municipality has integrated lighting in the very planning stages of design. They have also developed Alingsås Lighting Guide that gives private owner insight into the municipality’s lighting program.
- Lights in Alingsås has been awarded the Great Earnings Prize in 2014 for benefitting Swedish lighting for a long time, in research, education and design. (Fig 32)
- Lighting for Alingsås finalist for the Great Tourism Prize 2009, 2011. It has attracted attention with several international awards, which to a large extent contributed to developing Swedish tourism.
- Marketers of the Year 2003 for attracting positive attention onto the city of Alingsås.
- As mentioned on their website, Lights in Alingsås received Föreningen Sveriges Stadsträdgårdsmästare’s municipality prize for the reason that, “In recent years, issues concerning security and safety in the urban environment have been increasingly noticed. With the project Lights in Alingsås, Edit Ugrai shows a feeling for how new ideas and new technology can contribute to the development of parks and public spaces.”
4.2 Light City Baltimore, USA

This analysis is based on the information found in the Economic impact report of Light City 2018 and Architectural blogs.

Initial Objectives

- Bringing new meaning to urban landscape
- Changing the image of the city
- Foster citizens participation and social cohesion
- Revitalize downtown Baltimore by turning around perceptions and reality of the City’s downtown area for residents

Brief history

Light City Baltimore started when a couple a creative marketing couple from Baltimore – Brooke Allen and Justin Allen, approached the Baltimore City with their vision of Light City. Their ideas and first efforts gave birth to the first edition of Light City in 2016. Baltimore Office of Promotion & The Arts – BOPA is the current organizer of the festival. The festival has many branches. The BGE light art walk is the main attraction in the Inner Harbour. The festival has also looped in the community under:

i) Brilliant Baltimore – 60+ buildings join the festival by getting their facades lit
ii) Brilliant Baltimore Community – 12 neighbourhoods light up “civic pride by lighting up their neighborhoods”.
iii) Brilliant Fringe - special events all around town
iv) Neighbourhood Lights, in which 14 communities, getting their facades lit
v) YouthLabs@LightCity – local students participate in hands on activities and workshops related to the festival, together with in house artists, develop lighting for their communities. This occur prior to the main dates.
vi) BaltiLights/Light City – local students participate in hands on activities and workshops related to the festival, with LAN speakers.
vi) BOPA employs 36 temporary employees other than their permanent staff. The execution of the main festival is dependent in the volunteer work by the community. 2018 saw 330 volunteers giving a total of 1888 volunteer hours.

Working

- It is a 8 day event in the second week of April.
- Current budget for the event is approximately $2.9 million
- Its main Sponsor is BGE – Baltimore Gas and Electric
- The festival has many branches. The BGE light art walk is the main attraction in the Inner Harbour.
- The festival has also looped in the community under:
  1. Brilliant Baltimore – 60+ buildings join the festival by getting their facades lit
  2. Brilliant Baltimore Community – 12 neighbourhoods light up “civic pride by lighting up their neighborhoods”.
  3. Winner gets cash prize
  4. Brilliant Fringe - special events all around town
  5. Neighbourhood Lights, in which 14 communities, getting their facades lit
  6. YouthLabs@LightCity – local students participate in hands on activities and workshops related to the festival, together with in house artists, develop lighting for their communities. This occur prior to the main dates.
  7. BaltiLights/Light City – local students participate in hands on activities and workshops related to the festival, with LAN speakers.
  8. BOPA employs 36 temporary employees other than their permanent staff. The execution of the main festival is dependent in the volunteer work by the community. 2018 saw 330 volunteers giving a total of 1888 volunteer hours.
  9. The daytime of the festival is filled with conferences and talks by 130+ speakers at Labs@LightCity.
  10. The festival also has a mobile app to keep visitors updated about the festival information.

Success Measurement

- In just its third year after inception, the festival ‘attracted estimated 442,500 visitors to Inner Harbor/downtown Baltimore’ (Fig 44), out of which 173,000 were city residents. 19.6% came from neighbouring areas of DC, New York, etc.
- 63% of locals said they would not have been in the area if there were no Light City festivals. 33.6% non-residents revealed they would NOT have visited Baltimore if there was no Light City” (Fig 44).

- In the Economic Impact Study and Research of Light City 2018, it is stated that:
  i) 92.5% of survey respondents either “very satisfied” or “satisfied” when it comes to overall satisfaction. (Fig 45)
  ii) “87.4% feel it changes perceptions of Baltimore” (Fig 44).
  iii) “84.8% see it as a new tradition for Baltimore.’
  iv) “87.4% feel it changes perceptions of Baltimore” (Fig 44).
  v) “53.6% non-residents revealed that the Harbor is only for tourists and you have to have a lot of money to enjoy it,” says Kathy Hornig, festivals director at the Baltimore Office of Promotion & The Arts (BOPA).
  vi) “82% of visitors felt “very safe” or “safe” while visiting Light City” (Fig 44).

- The estimated ‘government revenue impact of 2018 Light City was $1.26 million for the State of Maryland and $384,851 for the City of Baltimore.’
- The estimated ‘government revenue impact of 2018 Light City was $1.26 million for the State of Maryland and $384,851 for the City of Baltimore.’

- Light City 2018 had a ‘total economic impact on Baltimore’s business volume of $33.5 million’ (Fig 44).
- It ‘directly increased the local business volume by $19.72 million.’
- The estimated ‘government revenue impact of 2018 Light City was $1.26 million for the State of Maryland and $384,851 for the City of Baltimore.’
- The estimated ‘government revenue impact of 2018 Light City was $1.26 million for the State of Maryland and $384,851 for the City of Baltimore.’
- The estimated ‘government revenue impact of 2018 Light City was $1.26 million for the State of Maryland and $384,851 for the City of Baltimore.’
- Total economic impact of local spending with Inner Harbor/ downtown Baltimore businesses attributable to Light City is estimated at $1.89 million.’

“Image of the harbor being unsafe after dark” — 92% of survey respondents either “very satisfied” or “satisfied” with their Light City experience” (Fig 44) when it comes to overall satisfaction.

Fig 41 Neighbourhood lights entry

Fig 42 Light City

Fig 43 The Pool by Jen Lewin, courtesy the Baltimore Office of Promotion & The Arts
4.3 Urban Light celebration, Medellin, Colombia

This analysis is based on the information found in the LUCI publication The Social Dimension of Light 2011 and blogs.

Initial Objectives

- Promote a safer urban environment
- Foster citizens participation and social cohesion
- Reinforce a local tradition
- Regeneration of downtown public spaces
- Employment generation

History

In 1616, Medellin’s commercial areas were ridden with nefarious activities, making it the most violent city in the world. In 1980s, the drug traffic through the Medellin Cartel left a deep social scar. It was this image of violence and unsafety in the commercial areas, that Medellin wanted to shake off and the Urban lights that were conceived in 1967, as the Christmas lights were a way to find a solution in it.

Empresas Públicas de Medellín (EPM) became the creative team and organizer of the festival. In 1994 the celebration was extended beyond the city center to include the river corridor. In 2000 they started with 10 additional sites, increasing to 80 locations in 2010.

Working

- 6 weeks annually from November 30th
- Current budget for the event is approximately $2.9 million
- Project counts approximately 30 km² of interventions
- The festival team includes two groups of people:
  (i) Group for the construction and installation of the lighting structures, which hires single mothers and low-income family members (Fig 47 and 48);
  (ii) Group in charge of supervision and maintenance which employs many professionals of different disciplines such as graphic and industrial designers, architects, civil engineers, etc. [26]
- Involves the community in major decisions and discussions of the festival through conferences by the Mayor of Medellin [26]

Success measurement

- 4 million visitors each year
- 60% hotel occupancy [27]
- ‘Included in social planning policies as it creates new infrastructure for marginalized communities while illuminating new areas’ [24], as stated in The Social Dimensions of Light by LUCI publications
- Approximately 450 formal and informal businesses generated each year for the festival. It also generates 530 temporary jobs. [24]
- Provides seasonal employment to single mothers
- Medellín is one of the top 10 places in the world to see Christmas lights, as per 2012 National Geographic article [24]

Fig 46 Installation on the Medellin River

Fig 47, 48 Community involvement in making and installing the artwork

Fig 49 Installation drawing people in at Medellin

Fig 50 Interactive installation at Medellin - Dance floor in Parque Norte

Fig 51 Installation on the Medellin River
4.4 GLOW Eindhoven, Netherlands

(This analysis is based on the information found in the previous master thesis works and the official website of the festival)

Initial Objectives

• Change the image of the city
• Showcase local creative talent
• Encourage and promote the local lighting industry
• Raise awareness on the value of urban lighting

Brief History

Eindhoven has a history with light as the first match factory was set up in the city. The city also houses the previous headquarters of Philips. A light festival fitted right into the DNA of the city. The first edition of the festival was in 2006. In 2012, New Light (previously known as GLOW Next) was added to the scheme of the festival. It is an 8-day event with installations by 35 international and national artists. It is placed around a walking route that starts from the center of the city and ends in the industrial area of the city with New Light.

Working

• Annual event in November for 8 days
• Permanent team of 5 members to plan and organize the event
• Budget of approximately 1.6 million Euros, according to the Multiyear budget report of GLOW [29]
• The even has diversified into various branches
  (i) New Light – it is the end of the glow walking route and is held at the Strejp-S industrial area that was the former headquarters of Philips. Young designers are given a platform to explore the latest technology and to display their work alongside successful artists
  (ii) GLOW Run - a ceremonial marathon as a finishing of the festival
  (iii) Light show at Philips Stadium (Fig 53) – it occurs every night during the festival and is a paid event

Success measurement

• One of the top 5 best visited light festivals of the world
• According to the Annual report of GLOW 2017, 75% visitors said that they would visit again. The percentage of repeated visitor also increased (Fig 54)
• According to the same report, 59% visitors had “more fun than expected” or “as much fun as expected”
• The festival inspired the formation of the International lighting festival organization, that helps members from across world build the right contacts and policies for hosting light festivals.
• It has grown from 45,000 visitors during the first edition in 2006 to 750,000 visitors in the 2018 edition. This has massive ramifications in the economic gain and tourism development of the city.
• Total economic impact for the year 2018 was approximately 12.8 million [30]
• It has drawn attention to the previously industrial area of Strejp-S. The festival was organized in manner that the route includes all the main attractions in the old town but also includes this previously neglected area. The result is that this space has now become a hub for local lighting design and experimentation and is synonymous with new technologies and ideas in lighting design.
• By assigning a dedicated space for local designers to participate in the festival, it brings great opportunity for budding talent.
• Philips continues to be the festival partner, which is an indicator for the success of the festival
• The media coverage identified GLOW as a ‘premier lighting festival’, comparable even to Fele deLuimeres. [31]
• The continuous involvement of the community volunteers in the organization and smooth running of the festival indicated positive contribution to the people of Eindhoven [31]

Fig 52 number of people visiting the Amsterdam light festival over the airs
Fig 53 Light show at Philips stadium
Fig 54 Percentage of repeating visitors

[Image 1123x305 to 1254x553]
[Image 1041x45 to 1264x258]
[Image 885x45 to 1027x258]
[Image 1487x45 to 1657x258]
[Image 1276x45 to 1471x258]
<table>
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<tr>
<th>LIGHTS IN ALINGSAS</th>
<th>URBAN LIGHT CELEBRATION, MEDELLIN</th>
<th>GLOW EINDHOVEN</th>
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<tr>
<td>VISITOR COUNT</td>
<td>80,000</td>
<td>750,000</td>
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<td>TYPES OF SITES CHOSEN</td>
<td>Popular places as well as dead spaces</td>
<td>City center river corridor +80 other locations spread across the city</td>
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<tr>
<td>CHANGE IN PERCEPTION</td>
<td>Some installations are made permanent. Inhabitants feel proud of their city through the highlight of their history through light art</td>
<td>Top 10 places in the world to see Christmas lights from most violent city in the world in 1616</td>
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<td>LIGHT CITY BALTIMORE</td>
<td>Centrally located tourist spots with safety concerns + residential neighbourhoods</td>
<td>City center river corridor +80 other locations spread across the city</td>
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<tr>
<td>REVENUE GENERATED-HOTELS</td>
<td>Not documented</td>
<td>Not documented</td>
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<td>REVENUE GENERATED-LOCAL BUSINESSES</td>
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<td>REVENUE GENERATED-CAFES/RESTAURANTS</td>
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<td>TOTAL REVENUE</td>
<td>442,500</td>
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<td>VISITOR/INHABITANTS REVIEWS</td>
<td>They want more such events</td>
<td>92.3% felt it added value Festival becoming the new tradition 82% satisfied visitors</td>
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<td>SUCCESSES</td>
<td>Lighting integrated in planning stages Alingsas Lighting Guide Awards in the fields of lighting, tourism, marketing</td>
<td>Included in social planning policies Only south american city to be part of the assembly of illuminated cities of the world – LUCI 530 temporary jobs ≈400 temporary businesses ≈seasonal employment to single mother</td>
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<td>JOBS CREATED</td>
<td>No new jobs, Alingsas energy personnel organise it. Provides platform for students to build contacts</td>
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<tr>
<td>YOUNG DESIGNER/STUDENT INVOLVEMENT</td>
<td>50 students work in teams lead by professional designers. Student electricians from local school gain hands on experience</td>
<td>Local students participate in workshops in YoungLab@LightCity Local artists, with 14 communities create light-art</td>
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<td>COMMUNITY INVOLVEMENT</td>
<td>Local school, professional schools participate</td>
<td>330 volunteers: 1888 volunteer hours 60+ building light up their facades in participation 12 neighbourhoods light up to compete and to show civic pride</td>
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<td>FUNDED BY BUDGET</td>
<td>Sparbanken Alingsas – the main bank of Alingsas</td>
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<td>REVENUE GENERATED-HOTELS</td>
<td>470,000 Euros</td>
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**Results of this Chapter**

**Types of Sites Chosen**
- Popular places as well as dead spaces
- Centrally located tourist spots with safety concerns + residential neighbourhoods
- Expensive tourist spots feel approachable
- Residential neighborhoods

**Change in Perception**
- Some installations are made permanent
- Inhabitants feel proud of their city through the highlight of their history through light art
- Top 10 places in the world to see Christmas lights from most violent city in the world in 1616

**Visitor/Inhabitant Reviews**
- They want more such events
- 92.3% felt it added value Festival becoming the new tradition 82% satisfied visitors
- 9% visitors had ‘more fun than expected’ or ‘as much fun as expected’

**Successes**
- Lighting integrated in planning stages
- Alingsas Lighting Guide
- Awards in the fields of lighting, tourism, marketing

**Jobs Created**
- No new jobs, Alingsas energy personnel organise it. Provides platform for students to build contacts
- 5 Permanent jobs

**Young Designer/Student Involvement**
- 50 students work in teams lead by professional designers. Student electricians from local school gain hands on experience
- Local students participate in workshops in YoungLab@LightCity
- Local artists, with 14 communities create light-art

**Community Involvement**
- Local school, professional schools participate
- 330 volunteers: 1888 volunteer hours
- 60+ building light up their facades in participation
- 12 neighbourhoods light up to compete and to show civic pride

**Fun by Budget**
- Sparbanken Alingsas – the main bank of Alingsas
- BGE – Baltimore Gas and Electric
- Empresas Públicas de Medellín (EPM)

**Revenue Generated**
- Hotels
- Local Businesses
- Cafés/Restaurants

**Total Revenue**
- 442,500 Euros

**Image + Revenue**
- Working
- Image
- Job
- Working

**Revenue Generated**
- Hotels
- Local Businesses
- Cafés/Restaurants

**Total Revenue**
- 37.9 million euros

**Image**
- working
- Image
- job
- Working

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**Results of this Chapter**

**Lights in Alingsas**

<table>
<thead>
<tr>
<th>Visitor Count</th>
<th>80,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of Sites Chosen</td>
<td>Popular places as well as dead spaces</td>
</tr>
<tr>
<td>Change in Perception</td>
<td>Some installations are made permanent. Inhabitants feel proud of their city through the highlight of their history through light art</td>
</tr>
<tr>
<td>Visitor/Inhabitants Reviews</td>
<td>They want more such events</td>
</tr>
<tr>
<td>Successes</td>
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<tr>
<td>Fun by Budget</td>
<td>Sparbanken Alingsas – the main bank of Alingsas</td>
</tr>
<tr>
<td>Revenue Generated-Hotels</td>
<td>470,000 Euros</td>
</tr>
<tr>
<td>Revenue Generated-Local Businesses</td>
<td>Not documented</td>
</tr>
<tr>
<td>Revenue Generated-Cafes/Restaurants</td>
<td>Not documented</td>
</tr>
<tr>
<td>Total Revenue</td>
<td>37.9 million euros</td>
</tr>
</tbody>
</table>

**Image + Revenue**

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Image</td>
</tr>
<tr>
<td>Job</td>
</tr>
<tr>
<td>Working</td>
</tr>
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</table>

**Revenue Generated**

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**Results of this Chapter**

**Lights in Alingsas**

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Although the all the four festivals have been organized with similar objectives, keeping image regeneration at the center of it, the organizational outcomes are quite different. By bringing forth the commonalities and comparing the differences, we can understand the success of light festivals under the wider categories of image regeneration, revenue generation and job generation.

**Success in Image regeneration**
All four festivals attract large number of visitors annually. This reflects positive image of the host cities that these festivals can project onto the world. Baltimore and Medellin, that were previously infamous for nefarious activities, have managed to turn this around by introducing the vitality into their urban spaces with these festivals. GLOW has become “premier light festival” comparable to Fete des Lumieres. Allingsas on the other hand has gained name among design students as best lighting workshop. These festivals manufactured these dazzling images of their host cities. The visitor reviews of safety felt during the festival in Baltimore and the enormous number of people visiting Medellin are clear indicator of the potential and success of light festivals as a solution to fight the feeling of being unsafe.

**Success in Job generation**
As seen in the examples of Alingsas, Medellin and Eindhoven, light festivals inspire and initiate better lighting practices and integration of lighting in urban policies, in the long term. This reflects upon informed and sustainable lighting practices, while giving a boost to the lighting industry of the host city.
Light festivals in these case studies vary in scale and format and hence the number of people required to organize them also vary a lot. Alingsas, being focused in the educational aspect of lighting, does not require any extra job posts to be formed for the organization of the festival. The work force consists of international and local students, so need for volunteering is also eliminated. On the other hand, Baltimore, Medellin and Eindhoven are large scale festivals that require people to work on the organization all year round. They create few permanent jobs and a large number of temporary jobs. Consequently, these festivals also depend heavily on volunteering for the execution and smooth running of the festivals. This instils a feeling of involvement and civic pride among the inhabitants, inspiring social cohesion. Baltimore takes a step further in the community involvement by launching new branches of the festival, in the form of neighborhood light, Brilliant Baltimore, etc. that gives a sense of ownership and resultant pride to the inhabitants. When people feel involved and proud, they become better at spreading the light and that further increases the ‘buzz’ around the festival name. When it comes more job opportunities for designers, the festivals under study, do not contribute to the volume of job opportunities, but act as platforms for building valuable contacts (Alingsas), gain more hands-on knowledge (Alingsas, Baltimore) and marketing young talent (Eindhoven Strejp-S). It is something that the nascent lighting industry in India could heavily benefit from.

**Success in Revenue generation**
The large number also has massive ramifications in revenue generation. This proves that light festivals work as successful tourism policies for their host cities, especially in time of low tourism flows. All four festivals succeed in generating revenue for local establishment that cater to food and beverage and transport. The hotels too record highly increased bookings in each festival, as per the scale of the festival. The number available on investment and revenue generated, clearly confirms LUCI’s research on return on investment of light festivals. The investment to organize a light festival is not a meager one. Alingsas is the smallest in scale among the four case studies and its organization requires 470,000EUR, which is not a small amount for an event. Changing the image of an area by providing suitable, original lighting will not solve all of the difficulties faced by its inhabitants, but it should be recognised that festival lighting possesses a certain “flexibility”. The traditional urban renewal methods adopted by cities across the world, require hefty investments that take years to show their effects. Lighting through light festivals possesses this flexibility as a solution to urban apathies. All four festivals choose a combination of sites – popular and dead spaces, for their festivals. By different means and in varying measures, these festivals revitalize the dead spaces with light art, while attracting the numbers based on the appeal of popular spaces in a new light. This is an important planning aspect to be considered when planning light festivals that have people and public spaces at the center of it.
Chapter 5 | Light psychogeography

INTRODUCTION

As absolute measurement of the effects of light festivals is not possible. Therefore, we depend on opinions of lighting designers, organizer of these festivals, through surveys conducted. 40 lighting designers were contacts, out of which 9 participated. Organising authorities of 20 light festivals were contacts, out of which 4 participated.

This does not cover the vast population visiting these festivals. It is essential to know the views of the public as well. Luckily, the internet serves as a vast record keeper now a days when everyone posts/searches online. To measure the impact of festivals on the global image of the cities they are held at, a study in digital trends and media attention received during and after a festival is conducted. This is done using Google. It shows “how frequently a given term is searched on Google relative to the site’s total search volume over a given period of time” [32].

For this study, we will check the interest over time generated by 4 festivals, the case studies of which have been presented in Ch.4. Fete de Lumieres, being the oldest and most famous festival, is taken as a datum (reference of measure). The study will also compare the success of these festivals based on this criteria.
5.1 Survey analysis

The participating candidates have varied ethnicity and work in different parts of the world with 77% from the European Union.

**IMAGE REGENERATION**

- 56% believe that lighting interventions can change the way people perceive the place, by taking it beyond functionality and safety measures.

  - All candidates believe that temporary lighting affects the perception of the space. According to Dr. Amardeep Dugar of Light, Research and Design, India, "street that normally look dead after dark have a completely different image during festival such as Christmas, Diwali, etc." As per Diana Joels of concepDUAL, Brazil, "Temporary installations create memories. People relate to them. They might miss it if it doesn’t come when they expect it... for example when x-mas lighting was not implemented during economic crisis in certain cities in Spain and people missed them."

  - Long term effects of light festivals on perception of people has been investigated in 3 ways
    1. **Observation and vote**
       - It is found that 100% candidates are of the opinion that light festivals have long term positive effects with 15% believe that there could be negative effects as well along with positive effects.
       - As Juliette Nielsen of Beersnielson recalls, “I always remember or think about the image during the festival when I pass by a former location of the festival”, the image of a potential for the space sticks in the memory. 22% candidates highlights that to have a long term effect, the approach to the installation should be clear from the start. According to Dario Nunez Salaazar, "when the focus is more on media, mapping, etc. Then it remains only as a temporary event.”
       - Rogier Van der Heide, founder of Amsterdam Light festival, has observed that the positive effects are “Not so much on the space (they are gone after all) but merely on the reputation of a city”.
       - Contradictory to Dr. Amardeep’s view “interventions of any kind have a lasting impression on people as it helps them easily visualise how active & lively a space can become with lighting.”

  - Changes user behaviour, public perception & identity of the space
  - Shows potential of place & inspires permanent solutions
  - Functional - information provider
  - No change

**NEW COMMODITY**

- Fig 59 Recorded long term effect of lighting interventions

- All candidates believe that temporary lighting affects the perception of the space. According to Dr.Amardeep Dugar of Light, Research and Design, India, “street that normally look dead after dark have a completely different image during festival such as Christmas, Diwali, etc.” As per Diana Joels of concepDUAL, Brazil, “Temporary installations create memories.

**Long term effects of lighting interventions on choice of place to live or work**

- 46% candidates said light festivals affect the choice of place to live or work

  - Effect of light festival on choice of place to live or work

**REVENUE GENERATION**

- If the festival is designed and executed with a consumer focus, it brings more revenue.

- The most prominent aspects of the economic impacts of festivals are tourism development, more business for cafes and restaurants with Alingsas, a small town, also making 1/3 rd their annual income, This is also accompanied by more hotel bookings.

**Comparison showing the factors that first came to mind when economic impact of light festivals were considered**

**Fig 60 Recorded effect of light festivals on choice of place to live or work**

**Fig 61 Recorded prominence of various aspects of revenue generation from light festivals**

- New jobs
- Helps designers improve chances of pitching projects
- Improve urban lighting policies
- Increased business for transportation companies
- Increased hotel bookings
- Increased commerce for cafes & restaurants
- Tourism
**JOB GENERATION**

There are two kinds of job sectors that we focus on in this study. (i) Increased demand of Lighting industry professionals/designers due to the awareness raised about the profession due to the festival (ii) Technical and administrative jobs for organizing and managing the festival

- Light festivals create a buzz as they become a trend and are "more of a topic of discussion now a days", as mentioned by Mieke van der Velden of Beersnielson
- 82% candidates said that light festivals bring new job opportunities in various fields
- For lighting designers, they provide platforms to publicize their craft and give a boost to the industry by bringing the field to the forefront before the inhabitants

The responses highlighted that:

- The organisations were asked to place in order the different stages of organizing a light festival. The stages being:
  A - Site selection
  B - Format selection (digital projection, colour, monochrome, mechanism movement supported, etc.)
  C - Theme selection (one driving idea)
  D - Designer selection
  E - Budgeting
  F - Additional services to be employed (electrical technicians, programmers, sound management, workshops, etc.)

The responses highlighted that:

- It is observed that the first stage is either site selection or budget selection. After the first stage, the process is dependent on the vision and objective of the festival
- Choosing the designers
  Different festivals have different criteria depending on their objective and format. Responses include:
  (i) Availability to guide
  (ii) Competition for quality of artwork
  (iii) Mix of local and international designers
  (iv) Variation in age, experience
  (v) Preference for teaching experience when workshops are part of the format

**WORKINGS OF LIGHT FESTIVALS**

- Do light festivals raise awareness about lighting design among inhabitants?
- It is observed that the first stage is either site selection or budget selection. After the first stage, the process is dependent on the vision and objective of the festival
- Choosing the designers
  Different festivals have different criteria depending on their objective and format. Responses include:
  (i) Availability to guide
  (ii) Competition for quality of artwork
  (iii) Mix of local and international designers
  (iv) Variation in age, experience
  (v) Preference for teaching experience when workshops are part of the format
5.2 Mapping the impacts in collective digital memory

In the past few years the not only has the number of light festivals increased all around the world, but the popularity has also increased, possibly because impacts of a light festival that are beneficial to the city, its spaces and the economy, are being realised. The popularity can be judged by the Fig 67. It shows the increase in frequency of the search term ‘light festival’ from 2004 to present. This can be taken as an indicator towards the popularity and hence the success of light festivals around the world, as well as the growth in awareness about the lighting industry around the world.

Fête des Lumières

It is the oldest light festival and hence also the most well-known. The search volume in Google trends can be taken as the popularity measure of a term. Google trends also limits the time period of this measurement from 2004 to present day. Due to this and the lack of internet, the initial popularity of the Fête des Lumières at the time of inception cannot be determined. Fig clearly shows that the festival garnered steady digital attention over the year in the month of December when it is celebrated.

Lights in Alingsås

As Lights in Alingsås was incepted in 1998, Google trends is limited in measuring its search volume in its initial years. As Lights in Alingsås was incepted in 1998, Google trends is limited in measuring its search volume in its initial years. It is the oldest light festival and hence also the most well-known. The search volume in Google trends can be taken as the popularity measure of a term. Google trends also limits the time period of this measurement from 2004 to present day. Due to this and the lack of internet, the initial popularity of the Fête des Lumières at the time of inception cannot be determined. Fig clearly shows that the festival garnered steady digital attention over the year in the month of December when it is celebrated.

Fig 67 shows that the popularity of the festival is limited to the country of its origin - Sweden. The festival was incepted in the year 1967. Hence the search is limited in investigating the initial buzz created by the event. The festival was incepted in the year 1967. Hence the search is limited in investigating the initial buzz created by the event. The interest generated over time (Fig 69) suddenly increases in the past 5 years. The sudden popularity of the event may be attributed to the association between IALD and Lights in Alingsås. It could also be based on the overall popularity of light festivals as a phenomena (Fig 67).

Searches peak in the month of occurrence each year. The recurrence of peaks in the months of December when it is celebrated. The festival was incepted in the year 1967. Hence the search is limited in investigating the initial buzz created by the event. The festival was incepted in the year 1967. Hence the search is limited in investigating the initial buzz created by the event.

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The interest generated by region (Fig 74) shows a vast spread that may be attributed to various reasons, some of which maybe:

(i) by virtue of place of occurrence and adjacent countries like Mexico, USA, Brazil etc.
(ii) Same language (Spanish) speaking countries
(iii) Trade alliance and education export between Australia and Colombia share trade alliances and a large number of students. "Education is Australia’s most recognised export to Colombia (worth $430 million in 2016-17), while Australian investment in Colombia is focused in the mining sector (iii) Trade alliance and education export between Australia and Colombia share trade alliances and a large number of students. "Education is Australia’s most recognised export to Colombia (worth $430 million in 2016-17), while Australian investment in Colombia is focused in the mining sector (iii) Trade alliance and education export between Australia and Colombia share trade alliances and a large number of students. "Education is Australia’s most recognised export to Colombia (worth $430 million in 2016-17), while Australian investment in Colombia is focused in the mining sector (iii) Trade alliance and education export between Australia and Colombia share trade alliances and a large number of students. "Education is Australia’s most recognised export to Colombia (worth $430 million in 2016-17), while Australian investment in Colombia is focused in the mining sector (iii) Trade alliance and education export between Australia and Colombia share trade alliances and a large number of students. "Education is Australia’s most recognised export to Colombia (worth $430 million in 2016-17), while Australian investment in Colombia is focused in the mining sector (iii) Trade alliance and education export between Australia and Colombia share trade alliances and a large number of students. "Education is Australia’s most recognised export to Colombia (worth $430 million in 2016-17), while Australian investment in Colombia is focused in the mining sector (iii) Trade alliance and education export between Australia and Colombia share trade alliances and a large number of students. "Education is Australia’s most recognised export to Colombia (worth $430 million in 2016-17), while Australian investment in Colombia is focused in the mining sector (iii) Trade alliance and education export between Australia and Colombia share trade alliances and a large number of students. "Education is Australia’s most recognised export to Colombia (worth $430 million in 2016-17), while Australian investment in Colombia is focused in the mining sector (iii) Trade alliance and education export between Australia and Colombia share trade alliances and a large number of students. "Education is Australia’s most recognised export to Colombia (worth $430 million in 2016-17), while Australian investment in Colombia is focused in the mining sector (iii) Trade alliance and education export between Australia and Colombia share trade alliances and a large number of students. "Education is Australia’s most recognised export to Colombia (worth $430 million in 2016-17), while Australian investment in Colombia is focused in the mining sector.
GLOW Eindhoven
The festival started in 2006
• The interest generated by the festival developed over a period of 4 years from the year of inception (Fig 75)
• The graph clearly shows the consistent popularity of the festival during the months of occurrence in the past decade.
• It also shows that there is low volume search throughout the year. GLOW is one of the most successful festivals and the graph proves the same.
• The festival trends in almost half the globe, with maximum search volume in West Europe and North America. This may be attributed to the strong ties between Netherlands and USA through Philips, who is the main sponsor of GLOW. Fig 76 Trends by region for “GLOW Eindhoven”

Investigation of individual studies of these festivals, give us insight into the growth of the festival in relation to its own growth/decline over the year. It shows the individual success of the festival. But to understand the what really worked over the years, a comparative study is necessary. Fete des Lumieres is taken as the datum for the comparison.

Comparative Analysis
• Ever since 2010, GLOW has superceded all other festivals old and new including the famous Fete des Lumieres.
• The birth of Light City Baltimore has drawn some of that interest away from GLOW in USA as shown in Fig 77.
• But GLOW continues to maintain a stronghold over Canada and Australia in this race with Christmas Lights Medellin and Fete des Lumieres.
• It can be observed that GLOW and Light City Baltimore, with their new formats and great attention to the quality of art and by virtue of multi-facetted ventures have drawn away from the traditional formats of Medellin and Fete.
Results of this Chapter

Image regeneration

- As per the survey, temporary lighting forms short-term memories. When it is gone, people miss it or reminisce about it. The subconscious action of missing reinforces the image as a long-term memory, affecting the perception of the space.

- Popular opinion recorded was that light festivals have a positive effect in the long term. But the comments were somewhat divided, with the ones who are in agreement of the positive effects, answering in anticipation rather than with surety. This hints that it is difficult to map the long-term effects of light festivals. This justifies the study of independent light art installations in Chapter 2.

- It is also noted that when it comes to image regeneration, the field of view of organizers varies from that of lighting designers, as represented in Fig. 79.

- When choosing a place to live or work, we research and take into consideration various aspects like accessibility to grocery stores/eateries, transportation, first impressions, municipal upkeep, etc. Festivals can affect some of these aspects. But the opinion on the effect of light festival on this choice is heavily divided. In the percentage of people who agree to festivals having an effect on the matter, some feel that the effect is prominent when choosing between cities, while some feel that it also affects the decision when choosing a place in a city, reflecting upon the festival as a measure of social and municipal upkeep. It may be attributed to the attention-grabbing effect of light festivals.

- A majority of candidates feel that light festivals should increase the footfall at sites after dismantling as well. But when it comes to statistically proving the increase in popularity of sites after the festival by means of footfall comparison, no evidence is available. It may be a good practice to map such effects. But as this does not benefit, organizers, it may not garner financial support. Maybe lighting designers as a community can take up this initiative.

Revenue generation

- The results of the survey are concurrent with the results from Chapter 4 case studies, with tourism and increased commerce for cafes and restaurants as the chief revenue impact for light festivals.

- At the same time, the results are also concurrent with the low job generation through light festivals, talked about earlier in Chapter 4 and Chapter 3.

Job generation

- Majority of candidates recorded increased awareness towards lighting design due to light festivals. The rest has not observed the trend. It is to be noted that no response pointed towards no increase in awareness towards the profession. This is something that has also been recorded in the impacts of Lights in Alingsas, in Chapter 3.

- Light festivals do not increase jobs directly, but through increased awareness, creates an increased demand for designers. This is also seen in the observed demand in job opportunities due to light festivals in Fig 63.

- For productions on stages of light festivals, we can conclude that Festival selection may be first when the festival has been running for a few successful years or if the festival is inceptioned primarily as a tourism policy. When people are kept at the center of the intention, site selection is at the utmost importance. For a first edition festival, it may be necessary to decide other things to make a pitch to potential sponsors before deciding a budget. Theme and format selection go hand in hand and unless it forms the backbone of the festival, the format can be decided after the theme. Eg. For GLOW Eindhoven, technology forms the backbone of the festival and thus the format is decided in the first half of the process.

- Results of most likely funding sources is concurrent with Chapter 4 with Alingsas and Baltimore funded privately, Eindhoven backed by manufacturers and Medellin being funded by Municipality.

- A majority of candidates rated ‘context’ a the most important factor when deciding the format and theme for the festivals. This is also observed in the case studies - GLOW is synonymous with technology driven light art, which takes cue from Eindhoven as a technical hub.

- Also, responses on site selection factors, justify the sites chosen in Chapter 1.

Trends

- All festivals record high popularity indices during their months of occurrence. Older festivals record a drop in popularity in the past 5 years with the exception of Alingsas. Recent festivals like GLOW and Baltimore, witness record high in the same time period. It could be speculated that the drop in popularity of older festivals could be due to the inception of new festivals with new formats. These may have drawn some of the attention from the old ones. This reflects on a need to renew the formats of older festivals and new festivals to create original formats.

- Regional popularity may be owing to various factors such as migrant population, student population, trade/economic allies with other countries.

- In comparison, GLOW has maintained the largest popularity base and is the most popular festival even surpassing Fete des Lumieres.

Fig 79 Difference in field of view between organizers and lighting designers
INTRODUCTION
This chapter presents a summary of the results from the previous chapters and proposes a program for the prospective light festival in Chandigarh. The program is a framework including the:
• Components of the festival
• Stages of organization
• Selection criteria
• Planning sequence

The chapter concludes the findings of the thesis and the proposed program, with comments on the role of lighting festivals in urban renewal.
6.1 Analysis of results

- The sites are chosen based on the most problematic areas. The problems are most relevant to the Chandigarh context and at the same time have potential solutions in image regeneration, revenue generation and job generation.

- Light art can have immense impacts on the perception – image regeneration of a space. The case studies revealed that light art can address issues of safety, identity, publicity, urban monotony, etc. It has definitive place-making benefits. Since a light festival is a compilation of light art installations, these benefits, studied in Chapter 2, can be directly applied to it.

- Existing literature review, Chapter 3, revealed accounts of people experiencing or anticipating the image regeneration by lighting festivals due to various reasons, but the accounts of jobs created were few and brief. This either means that the number of jobs created are insignificant or not well documented. The research done by LUCI on the return on investment shows conclusive results regarding the lucrative nature of light festivals and justifies the phenomena as a profitable investment.

- The success measurement of case studies, in Chapter 4, studied under the wider heads of image regeneration, revenue generation and job generation, revealed commonalities in approaches that hint at the similar intentions and also revealed different viewpoints of the festivals in execution. One of the things common to all festivals was the kind of sites chosen for the festival, which was a mix of popular and dead spaces. This has a two-way effect of attracting visitors based on existing popular places and also energizing the dead spaces by creating a movement of the masses through them. The results convey massive successes in image regeneration achieved through various methods, leading the common effect of increased number of visitors pulled into their yoke. Works of these festivals revealed the importance of community involvement (as in Baltimore, Medellin and Eindhoven) and the attention to the quality of art (as in Eindhoven). Another important aspect common to two of the festivals was the act of raising awareness about light and light art through educational programs for school and colleges. Aware and inspired communities were further developed better lighting practices for the host cities and integrated lighting in the planning stages of construction. The ludic and aesthetic impact of light festivals, from Chapter 3, was also confirmed through budget and earnings analysis of case study festivals. The festivals were dependent on volunteer involvement for the execution, saving some cost and inspiring civic pride among inhabitants.

- The survey, in Chapter 5, revealed the opinions of lighting designers and organizers towards the impacts and workings of light festivals. One of the most prominent points was the importance of context was almost unanimously voted paramount. The long-term effects of light festivals were voted positive but statistical data to prove the same was not available or observed. Here we can refer to the success of case studies that integrated lighting in planning, in the formation of lighting master plans and better lighting practices, urban reuse of spaces (strēp(s) as the qualitative measure of the long-term effects of light festivals. Revenue generation was mostly noticed in tourism and increased business for cafes and restaurants. This is in concurrence with the results from Chapter 4. Job generation was not recorded as the most significant impact recorded, which is in concurrence with the results from Chapter 3 and 4. The candidates also reported an increase in awareness about the lighting industry due to the festival, which in turn slowly creates a demand for lighting designers and sets the stage for better opportunities. The responses also revealed that most festivals are funded by local municipalities (Medellin) or by local private industries (Baltimore, Alingsås) or manufacturers (Eindhoven). The deductions on responses to stages of organizing a light festival revealed that sequence of organization varies as per the host initial intentions of the host city.

- The study of case study light festivals on Google trends showed an increase in popularity of new festivals (Eindhoven, Baltimore) over the past 5 years. Consequently, it also showed a decrease in popularity of older festivals (Fete des Lumieres, Medellin). The study also showed the popularity by region. The spread of the popularity of light festivals was dependent on factors like immigrant population, student population, trade/ economic allies with other countries.
6.2 Program design for Chandigarh Light Festival

With the results from the previous chapters as a learning, a program design has been proposed to serve as guidelines for the prospective Chandigarh light festival.

COMPONENTS OF THE FESTIVAL

1. Permanent organizing team
   - Responsibilities:
     • Ensure that quality of public spaces and people are the center of the program
     • Ensure that festival activities respect the architectural heritage of the city
     • Ensure quality of artwork – via a panel of judges
     • Inform and include the community and youth representatives in the planning process and decision making
   
   2. Multi-pronged community involvement – the success of this can be seen in the popularity growth of Baltimore from Chapter 4 and 5
   
   3. Industry involvement - the success of Baltimore, GLOW and Medellin clearly show the importance of bringing the community together from decision making to volunteer work. As mentioned in Chapter 1, 86% of the Chandigarh community is literate. An educated community can take intelligent and informed decisions that benefit the society. Through this involved leadership, a sense of ownership may be inspired leading to volunteering with the execution. Women community representation is mandatory to tackle many social concerns during the festival and to bring forth more areas that require the festival intervention due to being unsafe.
   
   4. Local school involvement – through the example of Alingsas in Chapter 4, the result of instilling awareness for good lighting at the grass root level, shows the increase in the number of people interested in lighting education. Lighting in Chandigarh is inspired by a community that is conscious of light. Workshops with schools, giving children a chance to understand and play with artificial light from close proximity.
   
   5. Youth involvement – there is a high number of colleges of art and architecture in Chandigarh. A healthy competition revolving around light, with students creating light art in their colleges or neighbourhoods, is aimed at inspiring the budding designers to become more aware of better practices in lighting design, as well as generate civic pride among neighbourhoods.
   
   6. Social Sustainability - in its initial years, Chandigarh has the highest number of cars owned per head, which has resulted in a business depression for the industry, would benefit from the development of such an industry focussed market. The festival can attract the attention around tier 1 cities. Chandigarh, with its active architectural heritage of the city, would benefit from the development of such an industry focussed market. The festival can attract the attention around tier 1 cities. Chandigarh, with its active architectural heritage of the city, would benefit from the development of such an industry focussed market.

   7. A mentorship program during the first 2-3 years may lend the festival a guiding hand required to make Chandigarh light festival a success in its initial years.

2. Multi-pronged community involvement – the success of this can be seen in the popularity growth of Baltimore from Chapter 4 and 5

3. Industry involvement - the success of Baltimore, GLOW and Medellin clearly show the importance of bringing the community together from decision making to volunteer work. As mentioned in Chapter 1, 86% of the Chandigarh community is literate. An educated community can take intelligent and informed decisions that benefit the society. Through this involved leadership, a sense of ownership may be inspired leading to volunteering with the execution. Women community representation is mandatory to tackle many social concerns during the festival and to bring forth more areas that require the festival intervention due to being unsafe. Similarly, leisure, an open green space adjacent to site 1, being a popular site for event, would also serve as an accessible magnet point.

STAGES OF THE FESTIVAL

1. Identification of context – since its inception Chandigarh has been the experimental hot bed of India, setting new examples in architecture and urban planning. The same experimental approach towards and through out the light festival resonates well with the Chandigarh context.

2. Site selection - Problem based selection of sites as in Chapter 1 should be the driving factor of the festival. But the case studies revealed that a combination of dead and popular spaces is a good marketing technique to draw upon the popularity of the well-known spaces. For the first edition of the festival, the main piazza of the city center (mentioned in Chapter 1 to be on the other side of Site 1 underbridge) could serve as the magnet to draw visitors in. Similarly, leisure, an open green space adjacent to site 1, being a popular site for event, would also serve as an accessible magnet point.

Fig 80 Proposed components of chandigarh light festival

Fig 81 Proposed stages of chandigarh light festival
3. Theme selection
The theme should clearly direct the
designers to achieve the aim of revitalizing public spaces. The
most significant factor in this, as seen throughout this study, is
people. By getting people together, we can create chances
of exchanges and new experiences. As seen chapter 3, light
tests, draw the attention of people. Consequently, they
draw people away from their screens, creating chances
for people to experience their city in a new light. Therefore, a
suggested theme for the first edition of the festival, could be
"interactivity", be it through the installation or between people
by creating instances for interaction.

4. Format
India has a deep cultural association with light, with
Diwali being well known all across the world. It is only fitting to
take cue from it. But as seen in the trend study in Chapter 5,
old formats are slowly losing public interest. Therefore, a salient
fusion of the traditional and new technology and materials
appears to have the ability to lend the format a uniqueness.

5. Designer selection
A team of two designers
per site to ensure
critical development of
design and also create
opportunities for national
and international designers
to work together in teams. Designers
should be selected on the following
criteria:
- Equal number of male and female participants to ensure
equal representation
- At least one local designer
- At least one Indian designer
- At least one international team of designers
- Variety in the kind and periods in experience

CONCEPTUAL SUGGESTIONS
Some suggestions are made as possible solutions to the problems
identified in Chandigarh:

• Dead walls
1. Bright urban surfaces

• Unsafe places
1. Building facades serving as light sources for ambient light

3. Human scale to evoke comfort

4. Fill space with play

5. Highly unsafe places should be left dark with only peripheral lighting as a sign to avoid the place

6.3 Conclusions

This thesis qualitatively proved the feasibility of a light festival as a solution to dead public spaces. In this thesis, the site analysis and the program design is for the city of Chandigarh. But the results of the investigations on light art and light festivals can form the basis for other light festivals as well.

The study proved that light festivals act upon the memory of inhabitants. Light art creates moments of magic in the nocturnal urban scape, adding playfulness and identity value to the place. They draw the attention away from the screens that turn the city’s experience two-dimensional. By creating instances for the inhabitants to experience their city in a new light, light festivals create moments of magic in nocturnal city scape.

Though the interventions may disappear, the memory of it remains in collective memory. This starts discussions on light and public spaces. The repetitive intervention of light art in public spaces creates a continuous sensation and talk of renewal, surprise and play. Through this, light festivals transform the views of inhabitants, so that they in turn, can transform their public spaces.

Any event of this scale requires large economic investments. Light festivals prove to be economically sustainable when compared with other solutions in the context of urban renewal and highly lucrative for the host cities. With the expansive use of internet and social media, festivals do not take as long as they used to, to gain popularity, which is also why they are profitable investments.

Not only this, the digital impact of these events creates a glowing global image of the city on the world map. Light festivals can be used to solve multi-faceted problems. This has been realized by many cities, which can be seen in the popularity flare up of light festivals in the past 5 years. Even though they are growing popular, statistical data is not available to prove the degree of impacts of light festivals on host cities. The author invites further quantitative observation and study on the topic.

In conclusion, a light festival is not just an entertainment based light show. In the right hands and minds, it is a tool for urban renewal while maintaining social sustainability. But this is possible only when the objective is clear.
Chapter title page illustrations

• Fig C2 - https://www.theyardsdc.com/event/2018/12/light-yards-3/
• Fig C3 - Joel Chester Wildes for Quays Culture, https://www.phoenix.org.uk/blog/squidsoup-discuss-ocean-of-light/
• Fig C4 - https://www.gsd.harvard.edu/2017/09/student-designed-we-all-debuts-in-allston/
• Fig C6 - https://www.azredbook.com/homepage-grid-feature-spot-1/prism-sculptures-prismatica-to-glow-in-scottsdale/
• Fig C8 - http://www.fas.nus.edu.sg/srn/archives/photos-bank/light-art-installation/
• Fig C9 - https://www.insidehook.com/article/art/bruce-munro-plants-thousands-of-light-bulbs-to-make-artwork/
• Fig C10 - http://archeyes.com/forest-light-sou-fujimoto/

Illustrations

• Fig 1 – Lecture by Kristian Rhenstrom from Fagerhult, Light Contrasts in Retail Lighting
• Fig 2 - https://www.pps.org/article/grplacefeature
drupal8:82475/2016-03-03-drupal8-82475/
• Fig 3 - https://arquiscopio.com/archivo/2012/06/10/plan-para-la-ciudad-de-chandigarh/?lang=en
• Fig 4 - http://www.citycollaborative.org/resurfaced-fall-2014
• Fig 5 - https://www.facebook.com/pg/TNBreweryUntapped/photos/?ref=page_internal
• Fig 6 – Illustration by Mashaara Bhatia
• Fig 7 - https://arquiscopio.com/archivo/2017/06/29/plan-para-la-ciudad-de-chandigarh/
• Fig 8 - https://www.pps.org/article/grplacefeature
drupal8:82475/2016-03-03-drupal8-82475/
• Fig 9 - http://www.citycollaborative.org/resurfaced-fall-2014
• Fig 10 - https://www.pps.org/article/grplacefeature
drupal8:82475/2016-03-03-drupal8-82475/
• Fig 11 - http://www.citycollaborative.org/resurfaced-fall-2014
• Fig 12 - Illustration by Mashaara Bhatia
• Fig 13 - Illustration by Mashaara Bhatia
• Fig 14 - Illustration by Mashaara Bhatia
• Fig 15 - Illustration by Mashaara Bhatia
• Fig 16 - Illustration by Mashaara Bhatia
• Fig 17 - Illustration by Mashaara Bhatia
• Fig 18 – Illustration by Mashaara Bhatia
• Fig 19 – Illustration by Mashaara Bhatia
• Fig 20 – Illustration by Mashaara Bhatia
• Fig 21 – Illustration by Mashaara Bhatia
• Fig 22 – Illustration by Mashaara Bhatia
• Fig 23 - https://architizer.com/projects/silo-468/
• Fig 24 - http://www.ldcol.com/286/silo-468/
• Fig 25 - https://www.gp.se/kulturnu-kan-alla-sk%C3%A5da-ljuset-i-tunneln-1.244501
• Fig 26 - https://www.youtube.com/watch?v=EBweh_LEDM8
• Fig 27 - https://archinect.com/news/article/44413002/clats-de-verre-by-atomic3
• Fig 28 - https://www.archdaily.com/226560/eclats-de-verre-atomic3
• Fig 29 - https://amsterdamlightfestival.com/en
• Fig 30 - Matthew Andrews 2015 on https://www.archlighting.com/industry/reports/illuminated-economics_ovaldesign-2015/2016-
• Fig 31 - Patrik Gunnar Helin on https://www.lightsinalingsas.se/sv/bilder
• Fig 32 - Patrik Gunnar Helin on https://www.lightsinalingsas.se/sv/bilder
• Fig 33 - Patrik Gunnar Helin on https://www.lightsinalingsas.se/sv/bilder
• Fig 34 - Patrik Gunnar Helin on https://www.lightsinalingsas.se/sv/bilder
• Fig 35 - Patrik Gunnar Helin on https://www.lightsinalingsas.se/sv/bilder
• Fig 36 - Patrik Gunnar Helin on https://www.lightsinalingsas.se/sv/bilder
• Fig 37 - Illustration by Mashaara Bhatia
• Fig 38 – Illustration by Mashaara Bhatia
• Fig 40 - https://www.facebook.com/pg/lightcityfestival/photos/?ref=page_internal
• Fig 41 - https://lightcity.org/light/neighborhood-lights
• Fig 42 - https://lightcity.org/light/neighborhood-lights
• Fig 43 - https://www.archlighting.com/industry/reports/illuminated-economics_ovaldesign-2015/2016-
• Fig 44 - https://issuu.com/jetvetter/docs/def_-_jaarverslag_glow_eindhoven_20
• Fig 45 - https://issuu.com/jetvetter/docs/def_-_jaarverslag_glow_eindhoven_20
• Fig 46 - https://www.shutterstock.com/video/clip-8452636-medellin-30-dec-timelapse-view-over-christmas
• Fig 47 - LUCI organization publication ‘The Social Dimensions of Light”, 2011
• Fig 48 - http://archeyes.com/medellin-christmas-lights-colombia/
## Appendix A
Blank questionnaires sent to designers and organisers

1. Do lighting interventions change activities in a public space in the long term? Describe briefly.

<table>
<thead>
<tr>
<th>Your answer</th>
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2. Is the image/concept of a place affected by its seasonal lighting/temporary event (e.g. Christmas lighting, festival lighting) in your opinion? Could you give some examples please?

<table>
<thead>
<tr>
<th>Your answer</th>
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</table>

3a. When choosing the site of installation for a light festival, how important is each factor (1 being not important at all, while 2 being very important)?

<table>
<thead>
<tr>
<th>Factor</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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3b. If you have rated the option ‘Others’ in the question above, kindly describe it briefly. If there are more than one, kindly rate it as well.

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<tr>
<th>Your answer</th>
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4. After a festival, does the footfall of the local public increase at the particular installation sites at night? Comment briefly, with examples if possible.

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<th>Your answer</th>
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5. When selecting the format/theme, how important is the city’s context?

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<thead>
<tr>
<th>Importance</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Very important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</table>

6. In your experience/opinion, do temporary interventions of any kind, have a long-term effect in the image/idea of the space it occupies? How/are you consistent? If possible with examples.

<table>
<thead>
<tr>
<th>Your answer</th>
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</table>

7. In your opinion, is the choice of place to live or work, affected by the publicity of events occurring in that place? Comment with example if possible.

<table>
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<tr>
<th>Your answer</th>
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</table>

8. How does the event impact the residents in short term and long term? Describe.

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<tr>
<th>Your answer</th>
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9. In your opinion, what are the economic impacts of a light festival on a city? Describe.

<table>
<thead>
<tr>
<th>Your answer</th>
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10a. Do you have an annual light festival in the city you are based out of? Kindly name it.

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<tr>
<th>Your answer</th>
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</table>

10b. If yes, then has the light festival raised awareness about light and lighting design in the public? Describe briefly.

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<tr>
<th>Your answer</th>
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10c. Has this awareness opened new avenues and job market for lighting designers? Describe briefly.

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10d. How was the light festival funded?

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## Appendix A

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### 10b. If yes, then has the light festival raised awareness about light and lighting design in the public? Describe briefly.

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### 10c. Has this awareness opened new avenues and job market for lighting designers? Describe briefly.

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### 10d. How was the light festival funded?

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</table>
Appendix A

8b. If yes, then in which sectors:
   ○ Technical
   ○ Design
   ○ Administrative
   ○ Other: ____________

9. What are the criteria in choosing the designers for a festival? *
   Your answer

10. In your opinion, does the choice of place to live or work get based on the perception of a place get altered by the event? Comment with example if possible *
    Your answer

11. How does the event impact the residents? Describe *
    Your answer

12. In your opinion, what are the economic impacts of the event on the city? Describe *
    Your answer

13. Any further comments on Light festivals and their impacts
    Your answer