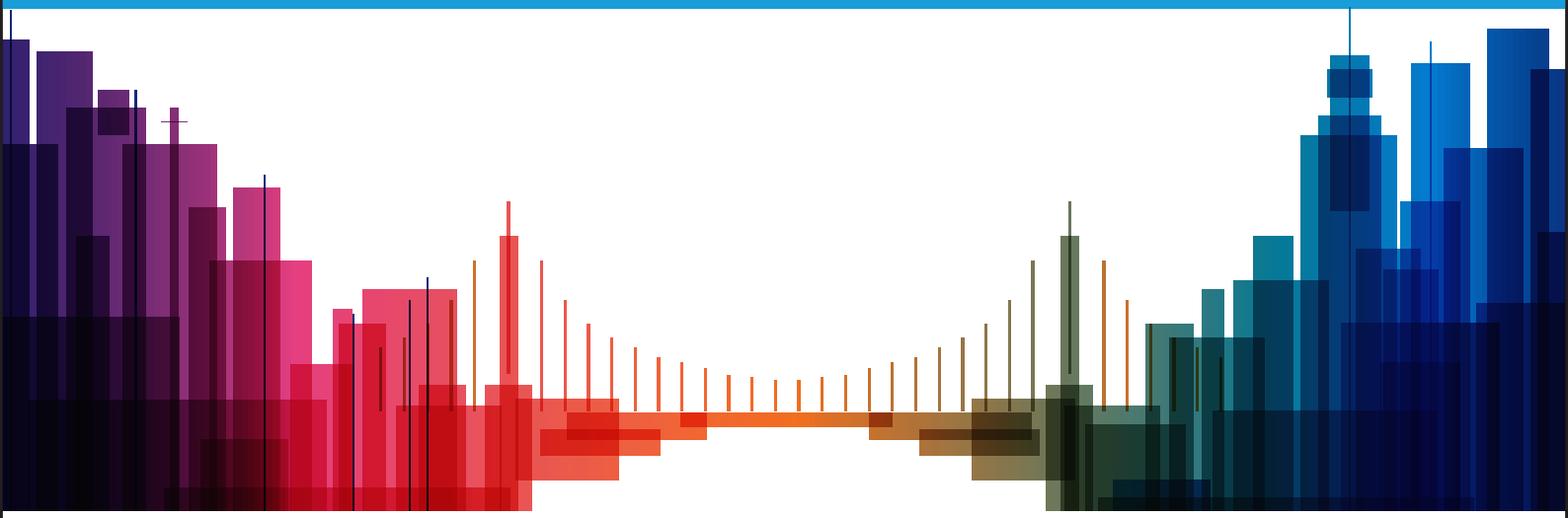
United 4 Smart Sustainable Cities

Affordable housing and social inclusion

Case study of the U4SSC A guide to circular cities

June 2020



Convention on Biological Diversity

United Nations ECLAC

Food and Agriculture Organization of the United Nations

ITU

UNDP Empowered lives. Resilient nations.

United Nations Economic Commission for Africa

UNECE

UNESCO United Nations Educational, Scientific and Cultural Organization

UN environment United Nations Environment Programme

UNEP FINANCE INITIATIVE

United Nations Framework Convention on Climate Change

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Affordable
Housing

United 4 Smart Sustainable Cities

Case study: Affordable housing and social inclusion

June 2020

Foreword

This publication was developed within the framework of the United for Smart Sustainable Cities (U4SSC) initiative.

Acknowledgments

The case study *City of Vienna: House Sharing in Urban Areas as a Tool for Social Inclusion* was developed by Eva Schlotter. The case study *Kirinda, Sri Lanka: Wild Coast Tented Lodge as Best Practice of Building Affordable Housing Using Local Construction Materials* was developed by Louis Thomson and edited by Gamze Hakli Geray.

Both cases were reviewed by Okan Geray.

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Case Study 1 – City of Vienna: House sharing in urban areas as a tool for social inclusion

Author:

Eva Schlotter

Introduction

Background

Residential property prices in Austria rose by 4.7 per cent year on year in the fourth quarter of 2017. Price growth for the year as a whole was 3.8 per cent. Property prices in Austria have risen by an average of 39 per cent since 2010, according to the ImmoDEX real estate report.[1] New homes are the most expensive in the capital of Austria, Vienna, where a 123 m^2 apartment or house costs around EUR 471 000 – an increase of 22 per cent since 2010. Rental prices for new properties have risen steeply, by 21 per cent, with average costs now EUR 11.50 per square metre. In Vienna, council-owned properties, where rents tend to be cheaper and only rise according to inflation, are in high demand. Wiener Wohnen, the municipal department that manages the public buildings in Vienna, says it currently has 13 100 people on its waiting list, that is people who have registered their interest in renting a council flat.[2] The fact that property prices are increasing should be cause for alarm. According to a recent study, the total population of Vienna will increase by 289 000 (+15.5%) during the period 2018–2048. The corresponding number of residents with a primary residence in the city will amount to 2 178 000 on 1 January 2018.[3]

Since 2007, the number of residents of Vienna has grown by twelve per cent, from 1 661 246 to 1 867 582 in 2016. The population is expected to increase by over 2 million by 2029. More than one third of all new migrants who come to Austria from abroad each year move to Vienna. Most of them come from other European countries.[4]

Challenge and response

The city is about to face a housing shortage that will impact young people and students in particular. The demand for affordable one- or two-bedroom apartments is high. WGE! is a social start-up that is supported by the City of Vienna. It uses existing housing to provide affordable housing options for young people. It connects students with elderly people who have a spare room or even a small apartment

1 ImmoDEX report available at: https://www.immobilienscout24.at/unternehmen/presse/presseaussendungen/2017/27-02-2017-immodex.html

2 Wiener Wohnen at https://www.wienerwohnen.at/

3 Population Projection Vienna 2018, City of Vienna: https://www.wien.gv.at/statistik/pdf/pop-proj-2018-sum.pdf

4 Facts and figures on Migration 2017- Viennese population (official statistics of the City of Vienna): https://www.wien.gv.at/english/social/integration/facts-figures/population-migration.html

available in their house. WGE! not only acts as a broker for the two parties, it also accompanies the process of renting or renting out, and takes care that everyone involved is satisfied.

Promoting circularity

Vision and content

The project was launched to respond to three challenges facing the city:

- Rising rents (affordable and cosy housing is getting more and more difficult to access).
- Elderly people fear loneliness and isolation.
- In Vienna, like many other cities, vacant housing is increasing.

The problem is that there is not a simple and systematic way to bring together the empty living space and the people looking for housing. WGE! changes the way we use our homes based upon a mutuality of needs of different generations: young people are moving into elderly people's houses or into an empty room in a retirement home. Elderly people can reduce their housing costs, get someone to keep them company and give them a helping hand in managing the household. Young people are benefitting from low rents and the life experience of an elderly person.

Table 1: Data for Vienna

Data for Vienna:	
People over age 60 feel at risk of exclusion	30%[5]
Average money students live with	EUR 850[6]
Amount of students living in Vienna	200 000[7]
Average rental cost	EUR 15.50 per m^2 [8]

Affordable housing is one of the key factors at play when measuring a city's competitiveness. Vienna considers itself to be a social city, and the requirement to take care of the needs of young and elderly people alike will be met by this project.

WGE! connects older people and senior citizen residences with housemates. Mostly, this will be young people who provide time for joint activities and everyday support for a low-cost room.

5 Silver Living Study: https://www.silver-living.com/silver-living/news/silver-living-studie-angst-vor-einsamkeit-im-alter-ist-weit-verbreitet/

6 Austrian Federal Ministry for Science, Research and Economy; Report on the Social Conditions for Students: https://www.ihs.ac.at/fileadmin/public/2016_Files/Documents/2016_BMWFW_Materialien_zur_sozialen_Lage_der_Studierenden.pdf

7 Vienna in Figures 2018 (City of Vienna): https://www.wien.gv.at/statistik/pdf/viennainfigures-2018.pdf

8 https://www.immopreise.at/Wien/Wohnung/Miete

WGE! does connect people through:

- An elaborate algorithm to find the right partner for a flat share (website).
- A residential agreement to regulate the flat share.
- Supervision and monitoring throughout the project.

The most innovative part of WGE! is that its projects stretch out through the generations. Especially in highly technological and developed cities, social isolation is a huge problem. WGE! addresses this problem directly. Not only do the flatmates live together, they also share their lives.

In addition, the very real problem of the housing shortage is addressed. Instead of leaving rooms or lodger flats unoccupied (while still paying for their maintenance, gas and electricity), WGE! makes sure that such spaces can be used by people in need.

Results

The results of the project are numerous and can be summarized as follows:

- Young people get affordable housing and a family home.
- Elderly people can afford steadily more expensive apartments through having a roommate.
- Cross-generational exchange of knowledge and experience.
- Understanding and strengthening solidarity between the generations.
- Elderly people get support in everyday life and can thus live more self-determined lives.
- Elderly people can share their life experience and knowledge with younger generations.
- Separation and isolation are being counteracted.

Since its foundation in early 2016, WGE! has successfully connected more than 230 people. At the moment, WGE! is expanding to two other cities in Austria. Three other countries are interested in implementing the concept in their cities. All the flat shares that WGE! helped to create over the last two and a half years are still happily running.

References

- WGE! Website available at http://www.wge-wien.org/
- WGE! In the Social Challenge Platform at https://www.socialchallenges.eu/en-US/city/10/Organisations/199

List of partners/interviews

- Mr. Lukas Hecke, Co-Founder of WGE! (http://www.wge-wien.org/, German only).

Case Study 2 – Kirinda, Sri Lanka: wild coast tented lodge

Author:

Louis Thomson

Reviewer and editor:

Gamze Hakli Geray

Introduction

Sustainability, community and heritage were intertwined in the design of the Wild Coast Tented Lodge, located on the edge of Yala National Park in the south of Sri Lanka. A multidisciplinary design team, consisting of Nomadic Resorts (architecture and landscape design) and Bo Reudler Studio (interior design), created the award-winning safari camp for Resplendent Ceylon, a subsidiary of Dilmah Tea.

The project was designed using a combination of local materials like bamboo shingles for the main area buildings such as the welcome area, bar, and restaurant, and sophisticated, tensioned architectural fabrics for the 36 tented accommodation units. The project was built in close cooperation with the local community.

Background

Kirinda is a small village in the south-east of Sri Lanka on the edge of Yala National Park (the largest and oldest national park in Sri Lanka). The village was originally founded as a shrine dedicated to Queen Viharamahadevi, who lived in the 2nd century BC. The temple is at the heart of a local legend: when raging waters threatened Ceylon, King Kelanitissa ordered his youngest daughter into a boat as a sacrifice. The waters were calmed and the princess miraculously survived.

In the 18th Century, when the British built salt flats in the area, they imported a community of Malay Muslims into the region and they have lived and worked in the village ever since, side by side with the existing Buddhist fishermen and farmers.

The village is extremely poor – essentially the population survives from fishing activities on the Basses reef complex off the coast, working in the saltpans and taking part in some minor tourist activities.

Over recent decades, fish stocks have been in decline and, as a result, many of the young men from the village have left to seek their fortune in the capital, Colombo.

In many ways, this rural village is an isolated enclave in one of the remotest corners of the country, which has been forgotten as the Rajapaksa Government has focused its attention on the mega projects planned in the Hambantota.

In the shadow of this behemoth, a smaller, more natural project was built. This case incorporates commercial buildings among the city assets and products, and encompasses recycling and re-using as the action items as defined within the U4SSC '*Guidelines on strategies for circular cities*'.

Challenges

Running parallel to these mega developments, the local tourism industry had suffered a series of setbacks due to the mismanagement of the area's main tourism attraction. Yala National Park is the second-largest national park in Sri Lanka, and the most visited. The park covers 979 square kilometres and is located about 300 kilometres from Colombo.

The park is best known for its variety of wild animals and is crucially important for the conservation of Sri Lankan elephants. It also has the highest density of Sri Lankan leopards in the country, as well as an abundance of aquatic birds.

Figure 1: Restaurant and Bar at night

However, poaching, gem-mining, logging, encroachment by agriculture, and free-roaming domestic livestock are the main threats to the park. Three wardens have been killed in clashes with poachers.

In addition the noise, air pollution and incessant traffic on the only safari road have caused significant trauma to the wildlife. The situation was highlighted in 2012, when a BBC journalist, Charles Havilland, wrote a scathing article about his visit to the park, highlighting the speeding and traffic jams following the death of a 4-month-old female leopard in a hit-and-run incident.

In 2014, Nomadic Resorts was approached by Resplendent Ceylon, a successful local hotel management company, and asked to design a low-impact, tented resort that would set a sustainability benchmark in Sri Lanka and rival the high-end safari operators in Southern Africa. The aim of the project was to rehabilitate a 7-hectare site, build a tent camp and transform the site into a sanctuary for the surrounding wildlife.

There were, however, a range of complex challenges associated with the project – the site had been leased as part of a tourism development initiative – as water, electricity and sewage treatment facilities were all absent. The site was a 14 km drive from the nearest village and the winding, dirt road access was challenging. In essence, a resort for 72 guests and a staff village to cater for nearly 120 personnel was created, in an area regularly frequented by elephants, leopards and bears.

These challenges were overcome by developing relations with the local community, using a former school principal as the community manager in the village and a 22-year-old British intern from the University of Plymouth as the construction manager, 3D renders for the project were presented to a group of 26 local, unskilled workers who were asked to lend their assistance.

Large, experienced contractors had already proved reticent to build a series of contemporary, organically shaped buildings in such a remote location, which were in complete aesthetic contrast to their traditional work. However, the local community embraced the project and immediately recognized its value and agreed to become involved in the project.

Vision and content

The vision of the project was to create a camp with organic architecture that integrates seamlessly into the site and the rugged sandy coastline overlooking the Indian Ocean. The entire lodge is designed to give visitors an intimate experience of Yala, celebrating the flora, fauna and culture of the area with minimal intrusion on the landscape. Local influences form an integral part of the project, from vernacular traditions and materials to community involvement. The architecture references natural formations in Yala's landscape, namely the massive, rounded boulders scattered throughout the park, at the macro scale, and termite mounds, at the micro scale. Adopting a human scale in between, the camp's main buildings appear as outcrops of boulder-like pavilions clustered organically together at either end of the site. Larger, open volumes intersect with smaller enclosed domes that house more private functions.

Figure 2: Main areas

Connecting the welcome area at the entrance with the waterfront bar, restaurant and library is a meandering natural landscape lined with clusters of cocoon-like tensile membrane structures called Loopers.

Figure 3: Masterplan

Figure 4: Beach cocoon

Resembling a leopard paw print, each cluster overlooks a watering hole designed to attract wildlife. The spa is set back from the beachfront. From afar, the large pavilions appear solid but on closer inspection, they are revealed as light, open structures crafted from a woven gridshell bamboo structure clad in reclaimed teak shingles. Large, arched openings and high vaulted ceilings create a strong sense of space. The existing vegetation is retained to ensure an authentic experience of the landscape.

The cocoon-like guest accommodation was inspired by the caterpillar's process of metamorphosis. The tensile membrane structures have minimal physical impact on the site but maximum resistance to the strong coastal winds and large animals (notably elephants) that roam the site. A 70 mm layer of locally sourced insulation was sandwiched between the recyclable external membrane and internal liner to reduce passive solar gain. The low-emissivity, double-glazed facades on either end of the building ensure that the tents have excellent thermal performance when cooled. In addition, LED lighting and an inverter AC unit with heat recovery for hot water was put in to reduce the electrical load.

Wastewater from the buildings is channelled to the sewage treatment plant, where it is purified and then recycled into the five ponds for tertiary treatment and irrigation of the xeriscape.

The restaurant and welcome area seating is made from site-sourced clay bricks, which were coated in an elephant dung/clay render. The pathways throughout the project are made from site-sourced laterite gravel from the excavation of the ponds, which was then sieved – the clay was used for render, the gravel for the pathways and the large rocks were using in drainage channels.

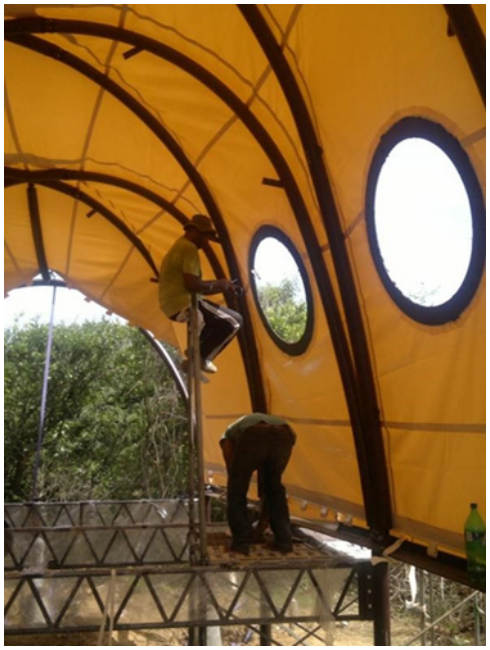
In addition, the resort has 155 kw solar PV array, 885 litres of solar hot water capacity and a biogas plant.

Implementation

As mentioned previously, the project was built with a core group of 23 workers. These workers were trained by Sascha Meyer, a German expert with over 15 years' experience of membrane manufacturing and installation. Sascha showed the workers how to erect the steel and install the membranes.

As the project went on, the size of the teams was increased and the best performers were made team managers and allocated specific targets, which were inspected and approved by Sascha and the site office manager Razim. When targets were met, generous bonuses were distributed among all team players equally. As a result, skill levels improved and teams competed against each other to get larger shares of the bonuses by completing more units.

Figure 5: Membrane installation



During Ramadan, the competition intensified and the Muslim teams asked if they could work at night. Teams worked from 4 pm until 6 am, and then a second team of Buddhists would work the day shift from 6 am through to 4 pm during the day, resulting in remarkable progress.

Following Ramadan, the contractor was asked to build the main area buildings as well (this had not been in the original scope). As a result, two German master carpenters and a French architect were brought in to supervise a new, 36-man team of local fishermen for the construction of the bamboo buildings.

Figure 6: Bamboo building

The construction of the bamboo building was challenging as the materials were less predictable,and working on the complex network of scaffolding was demanding. Safety regulations were strictly enforced, and there were regular inspections of the safety equipment.

In retrospect, one of the critical strategies was to develop an egalitarian spirit.

Results

The recognition of the project and its success are as follows:

- The resort was featured in the world's leading travel magazines and was a financial success for the client, with very high occupancy rates.
- Guest comments and reviews have been outstanding.
- The designers, Nomadic Resorts, won the 2018 UNESCO Prix Versailles for commercial architecture and were finalists in several other international awards.

- The effects on the local community were tangible – workers bought new tuk tuks (local motorized vehicles), their homes were improved, an additional storey was added to the village mosque, and many new skills were gained.
- The construction company received a UNIDO grant to set up a bamboo treatment facility in the village, so that it could offer locals long-term employment and develop bamboo construction technology in the country.
- Sri Lankan tourism has an iconic property to boost tourism arrivals and improve the brand image of the country.
- The wildlife returned to the site in volume after the project completion thanks to the waterholes dotted around the project and a strategy of planting nesting trees and creating a wildlife habitat.

List of discussion partners/interviews

- Architecture: Olav Architecture: Olav Bruin, Creative Director, Nomadic Resorts (www.nomadicresorts.com)
- Landscape Design: Louis Thompson, CEO Nomadic Resorts (www.nomadicresorts.com)
- Interiors: Bo Reudler (www.boreudler.com)
- Client: Dominique Nordmann, CEO Resplendent Ceylon (www.resplendenceylon.com)
- Contractor: Louis Thompson, Managing Director, Lighthouse Sustainability
- Solutions Bamboo consultant: Vinc math (www.vincmath.com)

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