

Affordable and Resilient Built Environment Project Template

The SBC Programme is one of six programmes under the One Planet Network (UN 10YFP). Please give us more information on the project

Title of project

USquare, Brussels–The reconversion of the Ancient School of Gendarmerie in a resilient, mixed and socially integrated neighbourhood

Overview/Summary (1000 characters).

In the context of rapid demographic growth, Brussels Region has initiated an ambitious agenda to address the green transition and urbanisation, through different strategic urban (re)development and renovation projects. These projects aim to respond to the urgent need for affordable housing, bring an integrated socio-economic response to environmental and climate challenges, and notably, the lack of resources and growing waste creation. Usquare project entails the reconversion of the Brussels' Ancient School of Gendarmerie in a new neighbourhood that combines innovative ways of living, learning and creating. Co-promoted by Brussels Region and leading Brussels universities VUB and ULB, the project is an ambitious circular economy and construction laboratory gathering a multitude of stakeholders. The project combines a four-track vision that aims to deliver: a unique neighbourhood, an academic and entrepreneurship hub, a dynamic social environment, a model for urban heritage preservation.

What do you want other people to know about your project?

Usquare consists in the transformation of the 19th-century military complex—an enclosed urban island—in a neighbourhood open to the whole district—a vibrant place dedicated to knowledge, innovation and healthy living. The project is deployed on four hectares. In the next five years, Usquare expects more or less 9.300sqm university facilities, 1400 sqm sustainable food court, 18.000sqm of affordable student housing and 20.000sqm family affordable housing, to be realised. Commerce and cultural activities will be organised around two hectares of public space—a valuable spatial link between different districts. However, the development of the project Usquare is an on-going planning and implementation process that started with a feasibility study, the realisation of the new masterplan tool (PAD) approved in November 2020. While the site currently hosts the biggest Belgian temporary occupation, subsequent tenders for the accommodation of the final programs foreseen in the development plan (PAD), are-ongoing. Circular research developed by the region and circular public procurement models are tested through the tenders. Several actions have already taken place, such as de-pollution programs, energy studies, inventories of existing resources, feasibility study for urban agriculture to support nature based solutions.

What is the aim of the project (50 words/350 characters)?

The Usquare project aims to create a new urban dynamic based on knowledge, innovation, inclusion and accessibility, healthy and resilient environment. It leverages on the architectural existing quality to preserve heritage and scale-up refurbishment of circular building solutions for current and future transformation, using both circular design and reuse of local materials.

Explain what is special/unique about this case? (1000 characters)

The uniqueness of the project is the ambition, scale and the successful stakeholder cooperation. Usquare project takes into consideration a broader spatial urban context and a sectorial territorial approach. It addresses structural challenges such as the lack of affordable housing for both students and lower socio-economic households, the lack of public, green spaces and urban facilities within the proximity. It leverages opportunities driven by the international role of Brussels, the position of the site within the region next to the existing academic hubs, the potential of the site to create physical and social links, provide shared space and facilities for the surroundings. Usquare addresses territorial deployment of a circular approach, efficient value chains for sectors such as food, construction and manufacturing. It tests material re-employment demand and supply, efficient delivery combined with sustainable and car-free mobility, both inside the 4ha site and in relation with the regional cluster level.

Year of delivery or ongoing?

Commenced in 2016 and ongoing. Master plan to be adopted in November 2020 Academic hub project co-financed by the European Regional Development Fund (ERDF) and to be delivered by 2024 for Housing project and public space anticipated to be completed by 2025

What did the project achieve (1000 characters)?

The study has undertaken the following:

1. The project combines successfully the objectives of two new regional planning tools, the strategic spatial and flexible development plan (PAD) and the goal of the new Brussels Regional Plan for Circular Economy. 2. Regulation and guidelines for a circular economy in the building sector, to reinforce preservation of heritage, adapt spaces and technology to be flexible and transformable. 3. Test circular food chain: Integrate the concept of a sustainable food court and test the implementation of urban agriculture and the involvement of different communities to shorten the processes from farm to fork 4. Climate change adaptation using local strategies: Design public space with a focus on both social interaction and climate-related solutions such as a coherent global approach for water management (infiltration retention, evapo-transpiration), green infrastructure to enhance biodiversity, reduce heat island effects.

Who was involved/who were your stakeholders, and what was their contribution?

Please list the entire supply chain of stakeholders/actors. *

Usquare is an ongoing project and process which involves a multitude of stakeholders:

Different coordinators and decision-makers:

- Perspective.brussels – The Brussels Planning Agency,
- The Brussels Urban Development Corporation (SAU-MSI),
- The French-speaking, Université libre de Bruxelles (ULB),

- The Dutch-speaking, Vrij Universiteit Brussels (VUB)
- Europe through European Regional Development Funds (ERDF) ,
- Brussels Social Housing Company (SLRB)
- etc.

Different regional institutions as part of the advisory committee, follow the development process.

Different design offices :

Planning at the site design level:

- MSA (in charge of the feasibility study),
- BUUR (Bureau for Urbanism), Idea Consult (programming), both authors in charge of Master development plan (PAD)
- etc.

Buildings and public space level:

- EVR architecten,
- BC-Architecten,
- VK (stability),
- Sweco (energy efficiency),
- Rotor (identification of re-useable materials),
- etc.

Several public tenders are on-going or planned. Thus, more consultancy and design companies will be involved in the future.

Temporary occupancy:

A hundred of organisations, private companies and NGO's are accompanying the site transition during the temporary occupation. On the site, we find today: urban mining stakeholders, producers, logistic specialist, urban and architectural designers, engineering teams, academic research groups, start-ups specialised in different sectors: food, entertainment, family care, re-use industry, digital innovation. More information about the transition phase can be found on <https://www.see-u.brussels/>. These stakeholders are involved in ongoing operational input of the site.

What were the outcome(s)? Please list examples of any outcomes achieved.

The project is considered an European regional best practice, that can help the transition towards the implementation of Green Deal objectives in terms of climate and resource preservation. Different programs will participate to the circular economy objectives by providing sharable spaces and services for both inhabitants and users. Programs that are already in place or underway: a fab-lab/incubator for young entrepreneurs, accessible to a broader public. The interpretation centre presenting university research on sustainability, an inter-university research cluster for sustainable development will reinforce the identity of the site and provide continuous training for academics and inhabitants. The local authority will also provide different neighbourhood facilities, such as an international library.. The auditorium is already used as an

innovative neighbourhood cinema. The main public space is already polarising the activity organised around the wooden structure of the velodrome. Several activities are taking place in the indoor arena of the former horse training warehouse.

Is the project replicable? If yes, how? (1000 characters)(e.g. Yes, best practice guidelines can be adapted for other SIDS. Training can also be applied to other disaster prone regions). *

Yes. On the planning side, the size of the intervention builds experience and capacity. The success of the project will support approaches to similar development - Brussels master architect institution and the new "joint regional sustainability guideline, called Be.Sustainable" support PAD actions and the implementation of regional policies. These tools are helping the replication. On the building site, different tools are likely to be improved or developed during the Usquare implementation, such as: - The upgrade of TOTEM (regional life cycle assessment tool) to a circular building tool - The development of an efficient methodology for a circular building retrofitting - The development of an efficient methodology for the re-use of materials - Test the regional capacity, to stock and prepare materials for use, avoiding logistics bottlenecks, the inefficiency of inventories and enhancing flows.

Is the project scalable? If so, please explain (1000 characters)?

Usquare is a scalable project and process. Its success is vital for the next step of regional large scale implementation. The project tests different circular-economy related concepts, tools, circular building initiatives and regulations at a large scale—over four hectares—and on different types of buildings and activities. It addresses the whole value chain. For example, it tries to create synergies between materials reuse flows at the level of the region. These outcomes are likely to help policymakers develop and implement effective measures to enhance the scale-up of the model. Other solutions to be scaled-up are integrated solutions. These are solutions that create cross-thematic and sectorial co-benefits. For example, circular economy models will tackle climate change challenges at the neighbourhood scale. Used both for energy and food production, the roofs provide climate change mitigation and adaptation solutions. Waste from food activities would be used for producing energy, and so on.

What are the 3 main challenges (1000 characters) you encountered? And why?

A process not a plan

Today, the planning system from land use to buildings design, policies and regulations need to be more robust, process & stakeholder oriented to be able to cope with fast societal changes. The new Brussels Master Development Plan (PAD) aims to be a flexible tool. However, its implementation, the alignment of public institutions engaged in different change management phases are requiring time.

Transformation capacity

Despite being a scenario-based flexible tool, the PAD's transformation capacity is reduced to current assumptions.

Horizontal approach

Existent studies on circularity (ex. BAMB) showed the importance to create and work within a “value network” ecosystems, where stakeholders and future users are involved continuously within the project development, identify a win-win solution and develop business models that decouple resources from economic growth.

Integrate bottom-up process requires a change in both the existing governance pattern and public procurement.

What are the 3 main successes (1000 characters) of this study? And why?

Integrated approach

More than working within the site boundaries, the development of Usquare integrates a broader reflection about the local and regional context. Usquare aim is to develop adaptive environmental solutions that create benefits across different and sectors, e.g. housing, food, reemployment industry

Stakeholder's engagement towards a shared vision

The upfront investment in building up a consolidated vision was both a challenge and an opportunity. While time-consuming, achieving a joint planning layout and consensus creates the necessary critical mass for an efficient implementation

Circular economy and sustainability

Circular guidelines are integrated at different regulatory levels. For each subsequential project, public tenders contain related environmental requirements, actions that maximise resource efficiency, and shorten value chains, prone reemployment of resources and building, life cycle assessments, circular design and minimise waste.

Provide an overview of the local context including summary, culture, climate zone and disaster risks (1000 characters) (

The site is situated within the 19th-century military neighbourhood, which has been undergoing significant transformations during the last decades. The site was designed according to the standard army masterplans; a squared plan, with a sober geometrical layout. The artificial topography makes the site, flat, hardened, vulnerable to regional climate changes impacts such as urban heat islands and urban flooding.

Provide an overview of the target group/beneficiaries/clients (100 words) (e.g. The target groups are informal settlement dwellers in three informal settlements. These are Aekafo, Ontong Java and Kukum. Each settlement consists of about 500 people).

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The aim of the project is to create an inclusive and accessible neighbourhood. Different programs address different users, such as the university community, students and professors, young entrepreneurs, inhabitants from the site and from the existing neighbourhood, local manufacturers, and so on. Two hundred families and around six hundred students are likely to live in Usquare.

Provide some details of the current situation with regard to building materials, details of construction and some technical issues (300 words)

Reuse

An inventory of all materials, products, systems, techniques employed in existing building and equipment has been realised. The inventory assessed the quality and quantity of resources and provided architects and landscape designers with a list of reusable resources to be either conserved or re-employed within site or integrated into a regional reuse scheme. Only three buildings are likely to be dismantled. To be awarded, and during the design selection process, architects need to maximise the reuse potential of the existing buildings and materials and to focus on upcycling.

Circular Design

Besides the 20,000 sqm new buildings to be designed circularly, the rest of the site concerns the renovation of existing brick buildings. The selected teams need to make strategic choices to meet as much as possible, both energy and circular objectives. Other selection criteria assess the proposed solutions for their transformation potential of spaces and systems, exchangeability of components. Neither energy nor circular solutions are easy to implement. The heritage value of buildings and facades is incompatible with exterior insulation. The interior insulation is as well a challenge. The brick is old, permeable and waterproof treatment might be inefficient.

Environmental costs

Architects are invited to use the Brussels Environment's TOTEM (Tool to Optimise the Total Environmental Impact of Materials) that "evaluates the environmental impact of building materials or buildings" within the Belgian market context. Environmental effects of materials along the construction value chain (from construction to disposal) are monetised as a building cost (€).

Were the community involved in the planning/participation in devising solutions?

Provide some details on who were involved and how was the engagement facilitated (200 words).

While the planning tool (PAD) involves public participation and information sessions, the most effective way to involve the community and co-create is driven by the temporary occupation. In the process of learning-by-doing, coordinated by the operating company Brussels Urban Development Corporation (SAU-MSI), the site hosts 100 companies and NGOs. This temporary occupation, the biggest in Brussels region looks into:

- testing planned activities in a real context and before the definitive set-up,
- evaluate the success of proposed models,
- involving the local community, district inhabitants, assessing needs and demand - host innovation and innovative models,
- strengthen the vision, by introducing activities related to sustainability, food (urban agriculture, affordable markets),
- activation of the public space, use of the buildings to avoid deterioration.

The interaction between people offers a vibrant, dynamic identity to the site. The project gained the acceptance of the neighbourhood. It allowed inhabitants to discover, share and use new

public spaces, a valuable asset in the current sanitary crisis time. In the context of COVID 19 pandemic, creating a space for interaction between stakeholders is likely to deliver a new resilient way of living and working to better recover and cope with the sanitary crisis.

What are some of the environmental, economic and social (including cultural) considerations of the project)? How did the Project take into account its surroundings? (200 words).

Usquare promotes climate-neutral actions across different scales. Actions related to resource and energy efficiency, sustainable mobility and blue-green infrastructure build-up social interaction. The spatial set-up of activities and programs is playing a crucial role in linking the different parts of the district. It gathers together people in a dynamic, vibrant and animated car-free open space. Usquare is designed in continuation and connection with key district programs and mobility hubs. Cultural functions such as the cinema, the public space for outdoor events, the library reinforce the dynamics of the site.

Please indicate the cost of the project in USD/m2. *

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Would you like to add any other relevant information (1120 characters)?(e.g. As part of the study of informal settlements evacuation centres have also been designed and one such centre has been built with support of an NGO with attendant capacity building opportunities identified). *

The project mobilises different funding from different stakeholders in charge of the coordination. There is no public information available. Different tenders are ongoing. The project received funding from the European and Regional funding (ERDF Operational Program 2014-2020). These funds are eligible for the circular and sustainable refurbishment of the main historical buildings that will host academic research, the entrepreneurship centre for start-ups, the Fablab and the food court.

Are there any additional sources or websites for this project? If yes, please state. *

<https://usquare.brussels/en/usquarebrussels-bringing-people-city-and-knowledge-together>
<https://perspective.brussels/fr/actualites/usquarebrussels-et-le-bkp-distingues-au-green-deal>
<https://cor.europa.eu/en/engage/Pages/green-deal.aspx>

Has this project been verified? If yes, please state. If verification is ongoing, please indicate how long this may take.(e.g. Publication in academic journals undertaken). *

1. In the framework of 2020 CoR Call for Green Deal Best Practices Project, Usquare was Awarded by Green Deal Going Local Initiative of European Committee of the Regions
<https://cor.europa.eu/en/engage/Pages/green-deal.aspx> The list of working group members can be found here:

<https://cor.europa.eu/en/engage/Documents/4350%20Green%20deal%20members%20A4%20FIN.pdf>

2. The project was selected as reference on different International platforms, e.g.:

<https://www.citiescollaboratory.org/city/brussels/> and <https://use.metropolis.org/case-studies/usquarebrussels-bringing-people-the-city-and-knowledge-together>