

Project name: To re-use a town.

Final report 2020.07.06. Funds granted from ARQ: SEK 200"

0. Introduction

Context of the project:

Stadsåterbruk var en bärande idé i det vinnande tävlingsförslaget för nya Kiruna - att återbruksa materiella och immateriella värden. Återbruket gestaltades genom konceptet Kirunaportalen. I relation till den påbörjade stadsflytten är det nu ett bra tillfälle att studera hur transformation och återbruk kan bedrivas i stor skala och att berätta om det. Genom att undersöka hur Kirunaportalen har tagits tillvara i flytten av Kiruna kan återbruk som idé analyseras och stärka arbetet med stadsflytten samtidigt som lärdomarna relateras till en omvärld där fler städer står inför extrema omvandlingsprocesser. Projektet är en del i den större utställningen om Kiruna på ArkDes – Kiruna Forever. Urban re-use was a key concept in the winning proposal for the new Kiruna – the re-use of immaterial and material resources. Urban re-use was conceptualized and given shape in the Kiruna Portal, a logistics and resource center, both a physical re-cycling yard and a virtual meeting place. In relation to the emergence of the new town centre it is now a good time to study how transformation and re-use can be catered for on a large scale, as well as telling about it. By investigating how the concept of the Kiruna Portal has been taken advantage of, we can analyze re-use and we can strengthen the work of moving a town. By telling about it the experience in Kiruna can be related to other cities in extreme transformations. The project is a part of a larger exhibition about Kiruna at ArkDes – Kiruna Forever.

Target group

The project is displayed up to February 7, 2021 at the exhibition Kiruna Forever at ArkDes in Stockholm. It targets many groups. The public that visits the exhibition have an opportunity to learn from the architectural work and the challenges of re-using a town. Kirunians are an important target group as they are directly affected by the move. The Kiruna Portal came about as a response to the dialogue where many Kirunians wished to keep parts of the old Kiruna in the new. It is therefore important to understand and convey the impact of it. The exhibition is relevant for other cities and an international audience as well, as they face similar challenges. The exhibition will offer the building sector a pedagogical example of transformation and re-use. Different architectural disciplines, from interior design to urban design, can learn how immaterial and material resources can be used in different scales and steps in the design process.

Extent of the project.

The project will foremost be communicated in the exhibition Kiruna Forever and the book with the same name. This means that the role of the mapping and the interviews, to which this research project has contributed, is to be background information and form the basis of the exhibition and the interviews. The project has also contributed to communicating the study in the exhibition and the book.

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1. Mapping urban re-use in Kiruna.

We have listed all buildings that will be moved within the agreement between the municipality of Kiruna and the mining company LKAB. We have also mapped all known projects with re-use in Kiruna. This knowledge forms the basis of the design conversation with Architects Krister Lindstedt and Sara Grahn in the film Design Conversation, part Re-generation with Re-use, in the exhibition. In it we show the extent and type of re-use in ongoing projects.

For table of re-use, see Swedish (not translated).

Vad?	"Talking point"	Typ av återbruk/lager/material	Status	Kontakt
Flytt av Gula raden till ny plats i Nya Kiruna. Först ut i raden av de totalt 31 byggnader ingår i avtal om flytt mellan LKAB och Kommunen. Gula raden uppfördes 1900 som arbetarbostäder åt LKAB	Flytt av bebyggelse	Flytt av sju hela byggnader.	Genomförd oktober 2019. Ny plats i nya stadskärnan. (Etapp 2)	Clara Nyström, Kommunantikvarie
Flytt av 16-rums arbetarborstäderna Byggår: 1900	Flytt av bebyggelse	Flytt av mindre flerbostadshus, 16 rums arbetarbostäder.	Genomförd 2019 (Etapp2)	Clara Nyström, Kommunantikvarie
Flytt av Länsmansbostaden	Flytt av bebyggelse	Flytt av bostadshus	Genomförd oktober 2017 (Etapp 1)	Clara Nyström, Kommunantikvarie
Flytt av Ingenjörvillan Byggår: 1900	Flytt av bebyggelse	Flytt av bostadshus	Genomförd augusti 2017. Ny plats vid Luossavara. (Etapp 1)	Clara Nyström, Kommunantikvarie
Flytt av Hjalmar Lundbohmsgården Byggår: 1895	Flytt av bebyggelse	Flytt av bostadshus/kulturbyggnad	Genomförd september 2017. Ny plats vid Luossavara. (Etapp 1)	Clara Nyström, Kommunantikvarie
Flytt av arbetarbostaden B5 Byggår: 1899	Flytt av bebyggelse	Flytt av bostadshus	Genomförd maj 2017. Ny plats vid Luossavara. (Etapp 1)	Clara Nyström, Kommunantikvarie
Flytt av Bläckhornsmiljön (flytt av de första 3 av 14 hus som ska flyttas enligt avtal)	Flytt av bebyggelse	Flytt av tre hela bostadshus.	Genomförd maj-juni 2017. Ny plats vid Luossavara. (Etapp 1)	Clara Nyström, Kommunantikvarie
Flytt av klocktornet vid Kiruna stadshus	Stadshuset	Ny placering i nya Kiruna	Genomförd 2019. Ny plats vid stadshuset Kristallen.	Clara Nyström, Kommunantikvarie
Rivningen av Kiruna gamla stadshus	Stadshuset	Rivning och nedmontering. Se lista över beverade delar/material/inredning.	Revsed/nedmonterades 2019	Clara Nyström, Kommunantikvarie
Återbruk i nya badhuset	Stadshuset (återbruk i badhuset)	- Skylt/granitportal från gamla badhuset (byggdes 1913) - Konstverk: "Moln över Mesopotamien" av Erling Johansson 28 st. - Mosaik "Djungelinteriös" John Wipp 11x5 m. - Badhusskylt i neon, från gamla badhuset (byggt 1958) - Schiffer från fasad (badhus '58) används inuti nya badhuset. Från stadshuset: - Tegel/räcken/mosaik		Clara Nyström, Kommunantikvarie

Nya stadshotellet	Stadshuset (återbruk i stadshotellet)	Återbruk av armaturer för belysning		Clara Nyström, Kommunantikvarie
Nya räddningstjänsten	Återbrukar gamla (1994) brandstationens torn (som i sin tur är baserat på tornet från den första brandstationen som byggdes 1910)			Clara Nyström, Kommunantikvarie
4 gallerior för handel	Stadshuset - ...	Finns intresse att återbrurka delar från stadshuset...		Clara Nyström, Kommunantikvarie
Järnvägstationen				

2. Interviewing key professionals in Kiruna about urban re-use .

We have interviewed key persons, and taken notes, about how the concept of a Kiruna Portal managing re-use on an urban scale has inspired, or has been used, in moving the town.

The interviews has informed the design conversation with Architects Krister Lindstedt and Sara Grahn in the film Design Conversation, part Re-generation with Re-use, in the exhibition. In it we discussed how urban re-use as a concept can be strengthened and become an important tool in the future move of Kiruna, and more specifically what role the concept of a logistic centre as the Kiruna Portal can play.

The ambition originally was to conclude how the case of Kiruna can be relevant for other cities with similar challenges. At this stage our hope is that visitors of the exhibition will reflect on that by themselves, learning about Kiruna.

Clara Nyström, Architectural Curator at Kiruna kommun. Clara is responsible for thirty-some buildings that are to be relocated within the agreement between the kommun and LKAB.

Is the concept of a Kiruna Portal as a Re-Use-Station alive? Is the idea of Urban re-use alive?

The Kiruna Portal as a place IRL has not been realized so far, no-one has argued for large-scale re-use and a hall or place to manage it. But because the concept has been so well based in the vision for the move has made it useful to join forces, to lead and give re-use support. It has given good arguments in speaking with politicians, to form a re-use-strategy for example. On the other hand, the large-scale urban transformation is still in its infancy. When it picks up speed it might become a bigger issue.

Is there a need for a Kiruna Portal? Would Kiruna be able to establish it?

Kiruna would definitely be able to establish a physical Portal. There is still a lot that will need to come down and the existing warehouses are not enough. The old library for example contains a lot of brick and when its dismantled there will be a need for an intermediate warehouse capacity. But large scale re-use must be well organized. As an Architectural Curator I cannot be responsible for connecting dismantled windows to commercial actors. That requires another set of skills.

Rasmus Norling, former substituting Architectural Curator at Kiruna kommun. Rasmus oversaw the dismantling and demolition of the old Kiruna Town Hall.

Is brick from the old Town Hall, that is not to be relocated at the new site, being re-used?

Interior brick has been saved but none from the exterior. Exterior brick was piled and offered to anyone who happened to pass by.

Had it been possible to re-use more of the old Town Hall?

I do not agree with those who say that the exterior brick was not fit for re-use. It is not correct that the wall consisted of hollow brick joined by cement. The exterior wall consisted of excellent brick with lime mortar. This is backed up by two studies made by Daniel Nyberg and Kristina Balksten. Rasmus continues, I have tasted the mortar myself and it is lime. To use these bricks, from an award winning piece of architecture like this, as fillers when building roads is insane.

Does the Kiruna Portal and the concept of re-use have any potential in Kiruna?

Re-using the old Town Hall was an easy sell, many contractors wanted material from there. But there has also been a demand for materials from other dismantled building. This shows that there is a potential and that the market is ready.

The urban transformation in Kiruna gives the opportunity to build a well functioning infrastructure for large scale re-use that in turn can be implemented nationally. But at the moment, it seems as if many have the pre-conception that it is not possible.

Why is the urban re-use in Kiruna off to such a slow start?

Large scale re-use is a labour intense since the material resources need to be processed. A problem is that there is a labour shortage in Kiruna. Another problem has been that demolition sites have not sufficed for re-use since they have not offered enough space and time for it. So the machinery for processing of the materials have been in the way for the demolition and has delayed the demolition process, which has made it more expensive. Re-use requires a process where you transport the material to another site. The Kiruna Portal as a physical place had supported a logistical chain for the resources to be re-used. It had also offered a display for Architects to see what resources that are available (a material-definition-chain). The companies that dismantle buildings are very skilled in sorting materials from the load

bearing structure before it is demolished. Then the job is done already to a large extent.

What is needed for re-use to take off?

There is a need for an initiative from the local authority in Kiruna (Kiruna kommun). An idea that has circulated is to establish an innovative lab for upgrading or upcycling material. I would like to see an innovative re-use of the nice old window frames made of teak wood from the Kiruna baths. The wood is most probably from the rain forest and it would be foolish to throw it away. What a potential!

What impact has the concept of the Kiruna Portal had?

The Kiruna Re-use strategy is written in line with the proposal of the Kiruna Portal. And the re-use of the old Town Hall as a result of that is good. To move the whole clock tower to the square and spread the re-use of the different parts so that you see it here and there in your everyday life. It is nice to see our ideas become real.

Mari Koukkonen, LKAB. Mari is responsible for the demolishing and dismantling the old town and for moving buildings within the agreement between the town and LKAB.

Are there any examples of re-use from buildings that are not moved along?

Rows of garages from Bromsgatan in an area to be demolished, have been moved to Jägarskolan, to be used as garages.

Brick from the old Railway station is stored by Tekniska verken (Karl Venäläinen) in block nr 95. A part of it is used for a new electricity station in the town centre.

Windows, doors and kitchens and appliances from almost all demolition projects are for sale to private citizens on site for the demolition.

Some parts of the demolished building are kept in place to memorialize the old site within the Mining Town Park which is being established on the land of the former town. The entrance roof and a flight of steps from the old Town Hall are examples of this.

The largest volumes of re-use is concrete, stone etc that is crushed to become **fillers for road projects**. Including this type of re-use 98% of each project is re-used, preferably on site and close in time to minimize transports.

What impact has the concept of the Kiruna Portal had? What potential does it have?

A one-day workshop about re-use was held with Kiruna kommun, builders, re-use-entrepreneurs, LKAB and others. The Kiruna Portal is a good idea that has turned out to be difficult to realize.

What are the obstacles?

Storage is expensive.

It will be necessary to guarantee that the re-used material is safe to use and will sustain over time.

It is difficult to match the supply and demand of the re-used resources.

Planning and building regulations, PBR and PBL, can be obstacles.

All in all there is a need for another process of providing building materials. We compared with a project in Stockholm that had a hard time to make it economically viable. Why would it work in Kiruna? What happens when the market is saturated? Then long distance transport will be an obstacle. At this point the discussions around the Kiruna Portal silenced. Now, the initiative must come from the local authority in Kiruna kommun.

Kari Venäläinen, TVAB. Kari took part in the dismantling of the old Raiylway station and the old Town Hall in Kiruna.

Why could the brick from the railway station be re-used and not the brick from the Town Hall?

The bricks from the railway station were joined by mortar of lime, so they were easy to dismantle. The town hall was something different, it was hollow bricks and mortar made of cement, it was too expensive! They saved some brick from the interior, they used a special machine for it. The brick is stored in block nr 95.

Peter Eklund, Landscape Architect for White arkitekter. Peter has overseen the re-use of vegetation.

How has the re-use of vegetation been done?

The relocation of trees has been done in two ways.

1) The large part of the trees that are being moved to the new town centre come from the surroundings and more specifically from areas with gravelly moraine (grusig moränmark) where the root of the trees are shallow and therefore easy to move. Images and videos of the procedure are available. The trees are moved to a tree plantation in the north-western parkarea. As a consequence the method does not include re-use from the old town but one that is simpler and thus decreases costs compared to a conventional method (1/4 of the price of having trees from a regular tree plantation).

2) There are presently about 20 trees from the old town centre in the tree plantation. There is still an ambition to move more trees from the old town but the agreement does not spell it out specifically. The procedure to move a tree from the town is more complicated and takes more than a year. A somewhat simplified description says: year one, a root pruning procedure aims to have the system of roots grow into a more compact lump. Year two,

the tree can be moved. Besides, the former town will be transformed into the Mining Town Park, a recreational area which needs trees. It makes sense to keep the trees in place. At a later stage the park will transform into a mining area and a second chance will arise for re-use of trees.

Birches and firs can be moved. The tree plantation has room for up to 100 trees which will start to be used from 2021.

3. Our contribution to the book Kiruna Forever.

The book is published by ArkDes and Arkitektur Förlag in connection with the exhibition Kiruna Forever. The editors Carlos Carrasco Minguez and Daniel Golling describes it: Kiruna Forever examines the current relocation of the city through the works of architects, urban planners, artists and writers who have transformed the community and addressed the challenges that have shaped the region – from the first industrial settlement and onward into the future. By placing the relocation of Kiruna in historical and geographical contexts, the authors reflect on the big questions such a complex project raises. What is the limit of natural resources? What happens to residents' identity and security when their homes are demolished? Who decides, and how, which components of the cultural heritage should be preserved or sacrificed? How does the relocation affect the Indigenous Sámi population's way of living? How permanent are the cities we live in?

Our contribution is *Moving a place, notes from the first chapters* gives. It is an overview of the move, highlighting the re-use of its immaterial and material resources.

Moving a place, notes from the first chapters, by Krister Lindstedt, Erik Stenman and Martin Johnson.

1 The start

It was on our first visit to Kiruna, when we stood on Kiirunavaara mountain, overlooking the city that we were confronted with the intricate challenge to move an entire city.

What good can come out of a forced move? What will motivate individuals to come along to the new site and not move elsewhere? What possible opportunities could be realised with the relocation of a community of 17,000 people? What aspirations do Kirunians have that can give form and meaning to the new town so that it can serve its citizens well?

The series of conversations that followed gave us valuable knowledge of the unique culture of this city and gradually made us see the future for the town.

Kiruna 4-ever, our proposal for the future of Kiruna, is a diversified and livable town, with meeting places. It is in close relation to the natural surroundings,

claiming identity from its mixed inhabitants, its cultural artefacts and rich history. We imagine a future where Kiruna has developed both economically, socially and culturally to sustain life, without dependency of the mine – forever. We expanded the design beyond the 2033 planning horizon that was given in the competition brief, to the year 2100.

2 Collaboration through the Utvecklingsplan

After winning the competition in 2013 we were commissioned to develop “Kiruna 4-ever” into what became the Development plan. This document contains the masterplan and the strategic guidelines for moving the city. It is the result of the collaborative effort between specialists and representatives from Kiruna Municipality, LKAB, White, Ghilardi+Hellsten and Spacescape.

We developed the plan in a number of ways. The E10 motorway was accommodated to the north-east of the new site. We delved in deeper to the particular place and challenges of living in an artic climate. Also it became increasingly clear that the first step of the transformation would be critical in order for it to be successful. There would need to be a certain mass for any commercial or social enterprises to be viable. To follow through on the vision the first phase was to include the foremost meeting place, the town square, and along with it the town hall, the culture house and the railway station. A shopping street was introduced to create an, central, shopping destination with town centre shops and big box shops at each end. What evolved was a more dynamic system of streets that tie into the existing network and bridge the gaps between the existing urban fabric.

The town hall is a major character of the city centre and its commission was a separate design competition with the winning proposal by Henning Larsen architects. This unexpected round shape, along with the evolving street network, made us redesign the square from a classic rectangle to the hexagon that it has become. The town hall now sits next to the square, with public space of the square occupying its ground floor.

3 Making it happen

A visitor to Kiruna in 2020 will be able to discern the new streets and block layout as built-up ridges with temporary sign posts. With the technical infrastructure in place it signals the extent of what is to come. While buildings gradually start to frame the emerging streetscapes, it is evident that the time of construction is one of action and material priority – which challenges the focus on dialogue.

The new Town Hall fixates the location of the new center by standing on the foremost meeting place, the town square. The bell tower from the dismantled

town hall is re-appropriated and plays an important role of continuing the identity of Kiruna. The square will mark the most important first step in fulfilling the vision of an emerging town with urban meeting places as its new social infrastructure.

While our intention of establishing a re-cycling and re-use center for moving building parts has proven challenging to implement, a culture of moving complete buildings has started to develop. Länsmansbostaden (the Sheriff's house) was an early example where it was proven to be economically viable and has encouraged more buildings to move than was initially expected. The original seed of the idea from the competition has grown into something, but it is taking a different form than we had envisioned. The "portal" exists in another guise and there is knowledge and action.

The concept of re-appropriation has been proven relevant when it comes to landscape as well. The new site has been elevated by filling made of extraction-residue from a closed mine nearby and transplanting fully-grown vegetation from the deformation zone to provide a mature urban flora in a climate of slow growth.

In the first phase of the development private actors have been careful in investing to avoid waiting time for the city to become built. This has resulted in public actors stepping up. A municipally owned company will own and coordinate all ground floors along the shopping street to better overcome the critical phase of moving.

In the spring of 2018 LKAB signaled that the investment for a new mining platform at level 1365 may be reversed due to meager reserves of iron ore in the expected direction. Although these are stress signals for the transformation, the move will be carried through as planned.

It is precisely this precarious condition which the plan initially aimed to approach and relate to. Kiruna 4-ever aspires for a future with a more diverse economy, the new town is a tool to meet this unwelcome challenge. Transformation and adaptation are integral parts of the development plan- it intends to allow the city to shift and morph across the unknown future.

4 Learning with Kiruna

The predicament of Kiruna shares similarities with many other cities in relation to climate change. In Kiruna 4-ever we foresaw the potential for an exchange of ideas and experiences and proposed to establish a platform to support this discourse - the Kiruna Biennale. In relation to this, the ArkDes exhibition in collaboration with Konstmuséet i Norr offers an extraordinary opportunity to become that platform, for discussing the direction of Kiruna and our future in a changing cultural and climatic landscape.

We hope to stand in Kiruna in 2050 and see a new kind of arctic living that has grown out of its heritage. The landscape will be interwoven with the city, a place that will outlive the mine.

4) 'Kiruna 4-ever' som del i utställningen 'Kiruna Forever' på ArkDes.

The exhibition opens at ArkDes on June 2 and runs until February 7, 2021. On June 1, at 12.00, the virtual vernissage of ArkDes' exhibition Kiruna Forever was shown at Dezeen's Virtual Design Festival. Do you want to join the vernissage in 360 ° and see what we have done? (Virtual exhibition opening of ArkDes' new exhibition Kiruna Forever | Virtual Design Festival).

https://www.youtube.com/watch?v=nI_jtTX0AEs

There are many people at White who have contributed to the exhibition and worked on the project to relocate Kiruna.

The exhibition, which got the same name as our competition proposal, puts the relocation of Kiruna into a historical and geographical context and centers around the issues such a complex project raises.

Together with Ghilardi+Hellsten Arkitekter and Spacescape, we contribute by showing what role and vision we have had in one of the biggest urban transformation projects in recent history. This is done with a projection on a landscape model that shows how the city is phased out in the west and developed in the east but also with a physical model of the square in the city center

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Furthermore, visitors can watch films where the team talks about the relocation and design of the new Kiruna. The film is described as follows:

Design Conversations, 2020. What challenges does Kiruna face that may form the basis for the design of the new city? What makes the design proposal attractive enough to Kiruna residents? In the film, the team of architects from White Arkitekter and Ghilardi+Hellsten Arkitekter discuss the thoughts behind the project Kiruna 4-ever and the development plan. The film reflects on the role of the architects in the negotiations between the vision, the concrete plans and its implementation.

Team: Anna Edblom, Sanna Eriksson, Sara Grahn, Jack Johnson, Sam Keshevarz, Krister Lindstedt, Erik Stenman, Mikael Stenqvist, Viktoria Walldin, Nina Piroth, Alejandro Gonzalez Castilla. Film, 12 min. Courtesy of the authors

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For further description of the different parts of the exhibition, see enclosed document 'kiruna-forever_object-labels_white_ghilardi
hellsten_20x20_FINAL.pdf'