

5R-Saint-Ursanne

Refuse-Reduce-Reuse-Recycle-Reinvent



How History inspires the future

The way humans deal with available resources says a lot about the quality and sustainability of a society. The 5R Foundation takes up the complex issue of waste management and advocates for a sustainable, circular economy and a stable, resilient society that meets the challenges of the times.

The Foundation aims to create spaces for communication and knowledge transfer on the issue of waste, a resource to be valorized through art, culture, innovation and education. The five principles of zero waste - refusing, reducing, reusing, recycling and reinventing - shape their work. Acting according to these rules is to be promoted through artistic creation, innovation, education or circular eco-conceptualization.

With its particular history of waste, the Canton of Jura, as a pioneer in the clean-up of large contaminated sites, should help to further promote the need for a circular economy. The old lime factory with its mine next to the St-Ursanne railway station conveys the memory of the industrial past and the rehabilitated tunnels. The 5R Foundation proposes to recycle and

reinvent this place itself. Saint-Ursanne, the pearl of the Jura, should support this goal as a small mediaeval attraction visited by many tourists.

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1. An Introduction to Waste

1.1. Waste - a Product of Technology and Innovation

Ever since our ancestors made the first stone axe, residual materials or waste flows have been produced. We call these wastes, whether splinters, shards, bricks, or all kinds of objects of everyday use. But also waste water or smoke belong to it. The latter is well documented in palaeolithic caves. Waste - in the sense of transformation products without further use - is thus always and directly connected with the transformation of materials, i.e. with technology and the production of objects, their consumption as well as with value attitudes. This has remained the case until today.

Historically, man's handling of his waste has always been characterised by two types of behaviours. On the one hand, they threw away everything they considered worthless, or useless. The other was the careful collection and recycling of all materials that had an economic value and could be returned to an economic cycle (Illustration 1). This pattern can be traced through all historical times and cultures and is confirmed by all archaeological excavations. Waste and its recycling have been with man since the origins of time.



Illustration 1 : Reuse of Roman building materials as exemplified by the Cathedral of Pisa (Photo ©Marcos Buser).

1.2. The Challenges of Waste Streams in the Future

With the advancement of modern science and the breakthrough of the industrial revolution, waste has evolved in two new directions. On the one hand, the quantities of waste have grown immeasurably due to mass consumption. On the other hand, the quality of waste has also changed fundamentally. New synthesis processes in chemistry or revolutionary physical processes such as atomic fission have created a new quality of waste products that exceed the hazardousness or toxicity of the original substances by dimensions and are effective and persistent over long periods of time. Even today, such substances are released into the environment in such quantities that natural cycles are severely damaged. Almost all major environmental problems are ultimately waste problems or problems with non-recycled

substances and goods. It is time for society to recognize and address this strong dependency in order to facilitate fundamental changes in behaviour.



Illustration 2 : Radioactive wastes in the repository of Morsleben, Sachsen-Anhalt (© Bundesamt für Strahlenschutz)

1.3. Memory as a chain link between generations

Today, many people already perceive waste materials as hazardous - but the duration of danger is usually completely underestimated. For example, very acidic waters containing heavy metals from Roman mining activities can be detected even after 2,000 years! For most modern waste types or mixtures produced in large quantities, even much longer impact horizons have to be considered, from several thousands to millions of years. It is essential that future generations be reminded of these effects, which are far-reaching in both time and space, in order to better appreciate the impact of technological inventions and uses. The idea of sustainability emerging today could provide a basis on which such considerations could be transferred into the future.



Illustration 3 : The Universality of Production of Long-Term Toxic Waste (© M. Buser/ S. Zantop).

1.4. The Canton of Jura and two of his emblematic landfill sites

In the canton of Jura, two important landfill sites were successfully rehabilitated.

In a clay pit in Bonfol, a village in the Ajoie region on the border with France, clay reserves of sufficient quality were nearing their end at the end of the 1950s. As a result, the pit, which was considered impermeable, was filled with 114,000 tons of industrial waste between 1961 and 1976. From 1981, it became clear that water was seeping into the landfill and that pollutants were leaking into the groundwater. In 2000, in accordance with the newly enacted Ordinance on the Remediation of Polluted Sites (1998), the Canton of Jura ordered the complete dismantling of the Bonfol Industrial Landfill (SMDB) by the operator of the site, Basel Chemical Industry (BCI). 700 metres of railroad track, a new access road and water pipes were built. The site was cleared, a hermetic excavation hall was built, and the soil was excavated to a depth of ten metres. By September 2016, all the waste and practically all contaminated soil had been excavated, with a total volume of 220,000 tons transported by rail for processing. It took 16 years (2000-2016) and cost Basel Chemie 380 million Swiss francs for a cleanup that observers described as exemplary and was extensively documented in publications, films and on various websites.

In **St-Ursanne**, in the heart of the Jura chain, the lime mine ceased production in 1993. The site then served as a temporary storage facility and dumping ground for hazardous waste. On June 12, 1995, a group of environmental activists from the Greenpeace organisation occupied the mine's labyrinth of tunnels, which had been operating for a century in the steep walls above the mediaeval town. The occupation lasted for almost a month. The activists - no fewer than 75, judging by the number of croissants delivered each morning by the bakery - denounced the mine's use as a dumping ground that posed a threat to the environment. This dispute represents the beginning of a long and costly remediation process that had to be carried out by the canton of Jura (more in section 3.2 on the site and its history).

1.5. Art and its ability to reflect social processes

Art has always had the ability to sensitise people and make them aware of certain social issues. At the same time, art has always been a means of holding up a mirror to society. Both also apply to art, which uses waste as a disposable product as well as a raw material or basic material for artistic creation.



Illustration 4 : : Ancient mosaic of the remains of a banquet after a model by Sosos of Pergamon, Vatican Museums

Jean Tinguely, the sculptor of the «Nouveau Réalisme», did exactly this with his senseless and useless machines: to produce art objects as a reflection on man and existential meaning. For the project in St. Ursanne, Tinguely's work is so valuable because it accomplishes precisely this combination of waste and art. The exhibition of his art machines in the summer of 1993, shown shortly after his death in the galleries of the old mine, which were still open at the time, still has a radiance and appeal today that would be absolutely worthy of repetition. But the location is also generally suitable for developing this relationship and exhibiting art objects made of waste materials.

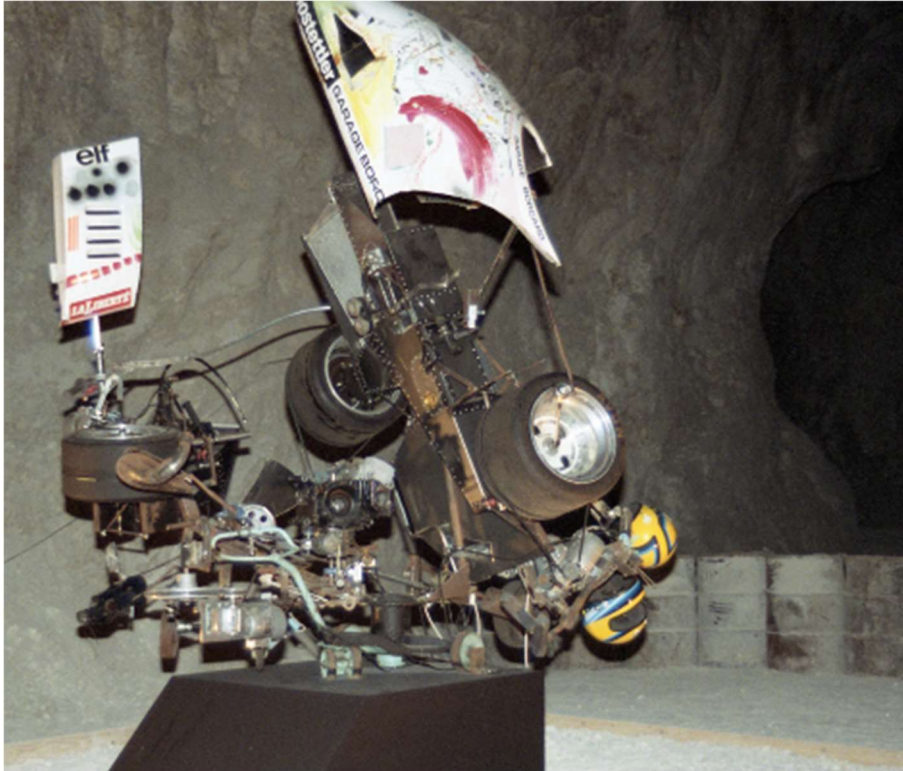


Illustration 5 : Tinguely exhibition in the galleries of the old lime mine in 1993 (Photo © Nicolas Paupe)

2. 5R – One Discipline - One Vision

2.1. The principle of the 5Rs

The principle or rule of the 5Rs is a recommendation popularised by blogger Bea Johnson for an ecological lifestyle that aims to function without waste.

The five instructions for action are :

- **Refuse** all disposable products and instead prefer purchases that do not generate waste (e.g. loose goods)
- **Reduce** the consumption of goods,
- **Reuse** (and repair),
- **Repurpose** for other purposes
- **Recycle** – everything that cannot be reused

Finally, the remains should be returned to nature to the extent that it can reabsorb the substances, as is the case with organic waste (compost).

These recommendations were extended to the approach of improving processes to minimise the amount of waste generated - with the goal of zero waste. In the scope of innovation, the last R stands for Reinventing, which is what the artists of «Waste Art"»do.



Illustration 6 : The 5 principles of the «5R» Foundation.

2.2. A discipline

The «5R-Saint-Ursanne» Foundation would like to adopt this 5R rule with the best practices of the circular economy as a discipline of action (for example, in the renovation and use of the site of the lime factory and the mining tunnels). The Advisory Board will support the Foundation to choose the best resources (practical advice, materials and partners).

2.3. One vision, 4 areas

When seeking to raise awareness of social issues, a playful approach is a proven way to attract attention and trigger action. This is usually time consuming. Therefore, a site-based project that can be developed and operated over a longer period of time is particularly attractive.

«5R-Saint-Ursanne» aims to facilitate a variety of activities in four areas at the site.

1st Area: Circular economy

The circular economy and the sustainable use of resources are embodied in the project itself: Recycling of the site, reuse of raw materials and waste recovery. The circular economy will therefore be at the heart of the awareness-raising initiative. Exhibitions, events and meetings for replication and demonstration will be organised on the site itself - for the general public as well as for professionals and experts.

2nd Area: From waste to artwork

«Waste Art» is a powerful way to address the problem of waste. Artists create visual art, paintings and sculptures from waste. Machines by Jean Tinguely were temporarily exhibited in the mine in 1993. It is to be examined whether a permanent exhibition of such waste art is possible. It is also planned to organise temporary art exhibitions focusing on the utilisation of recycled materials.

3rd Area: Contextualization and event activities

An exhibition will be set up to contextualise and enhance the historical reality of the lime factory and its mine. This will also include the waste issue (with a review of the history of the Jura sites) and the circular economy. This will be a new offer in St-Ursanne and the tickets for this new space will be allocated to the operation of the centre.

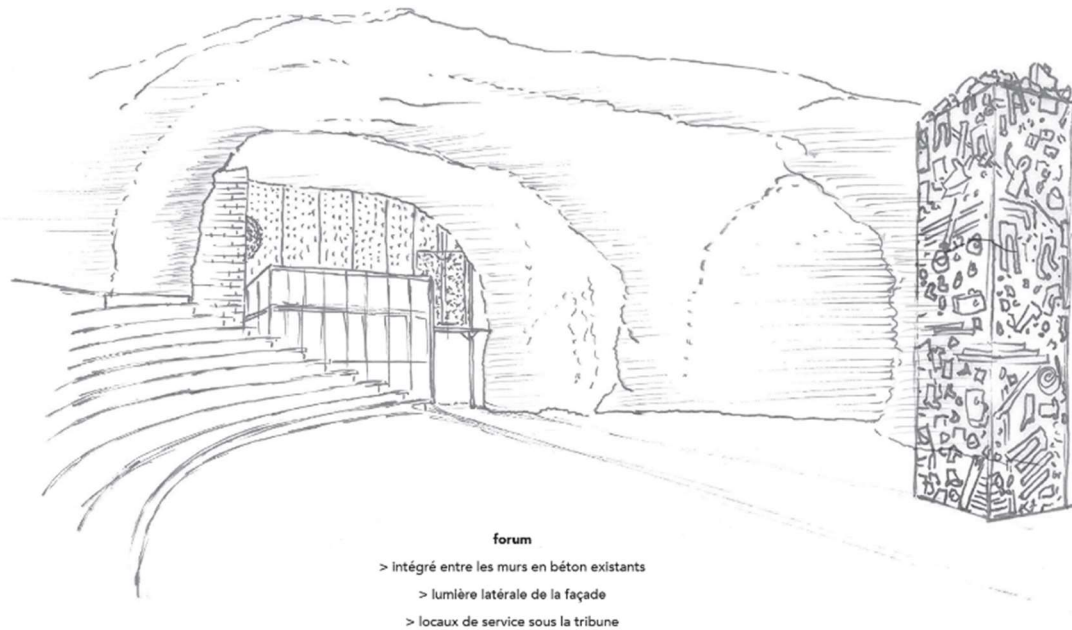


Illustration 7 Sketch of a forum inside the large entrance gallery (© M.Stünzi, s'Quadrat Zürich).

In parallel, a forum will be set up in the galleries to offer discussions, debates, film screenings, and cultural events using the performing arts, including theatre or musical performances.

The premises will be accessible to third-party activities (e.g. Mont-Terri project) or to cultural activities organised by the municipality of Clos du Doubs (e.g. Ursinia cultural calendar), the Parc du Doubs (organisation of the "Jardins musicaux") or the Canton of Jura (whose environmental office is located in St-Ursanne).

4rd Area: Awareness-raising and educational mission

All the activities related to the circular economy, the «Waste Art» shows, the exhibitions and the event activities aim at raising the visitors' awareness about waste. Linking these activities to the scientific world of the Mont Terri Laboratory and visiting it is intended to increase awareness of the issue of waste and the culture of remembrance.

This wide range of activities is intended to lay the Foundation for addressing fundamental questions of human existence, the importance of science and technology in the production and reuse of waste, and the creation of toxic legacies for the future. The playful, creative and light approach to the environmental and social problems of our time should enable visitors with different knowledge backgrounds to approach the many facets of the waste issue.

Ultimately, the space provided by the «5R» Foundation should indeed be a place of education and training, aimed at a diverse audience, new generations, artists as well as professionals who should be inspired by this place. The meeting of history, art and the principles and techniques of the circular economy should favour innovation.

3. The mine of St-Ursanne: an ideal site

3.1. The former galleries

The mine with the two large front halls, still open today, is characterised by its location and its exceptional beauty:

- the ownership of the mine (commune of Clos du Doubs) and of the access roads (canton as owner of the parcels of the former lime factory of St. Ursanne) is secured for the long term,
- the galleries, backfilled with clean excavation material, offer generous possibilities for the creation of additional space,
- the site has been successfully rehabilitated and the majority of it has been backfilled,
- the site's past, which is associated with one of the largest special waste scandals in Switzerland, plays a special role in the history of waste management in Switzerland. The cleanup at Bonfol is also directly attributable to the events at St-Ursanne. The site sends out a positive message.

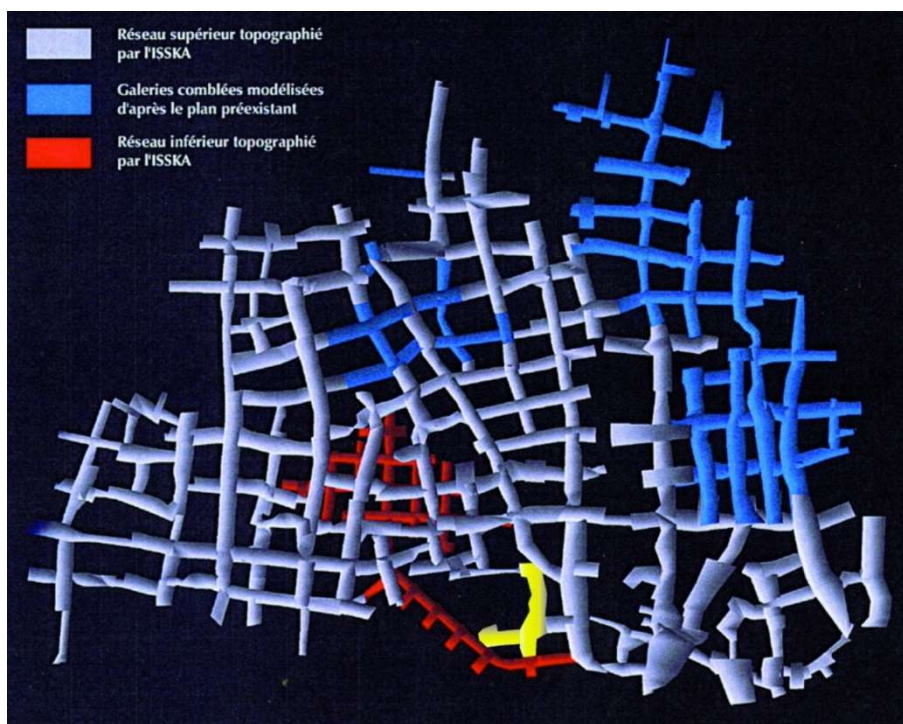


Illustration 8 Galleries network in the St. Ursanne mine (© ISSKA / République et Canton du Jura).



Illustration 9 : Gallery "Bellevue", view of the Doubs valley above Saint-Ursanne (photo @Gauthier Corbat)

3.2. The Saint-Ursanne lime factory: a mine full of stories

The book by Marcos Buser and Nicolas Paupe tells the story of the discovery of the lime and its exploitation, the cessation of underground mining, the storage of industrial waste, and the cultural activities that developed after the rehabilitation of the site.

The industrial waste stored in the underground galleries after the cessation of mining operations in the 1990s, the transformation of the mine into a hazardous waste dump, and the bankruptcy of the company in charge of disposing of this waste triggered a wave of concern in Switzerland in the 1990s. The fight against the construction of the waste dump, as well as later for the rehabilitation of the site, was exemplary and triggered new projects in the field of waste management.

This exciting history enriches the site, enhances it and keeps it alive to share with visitors.

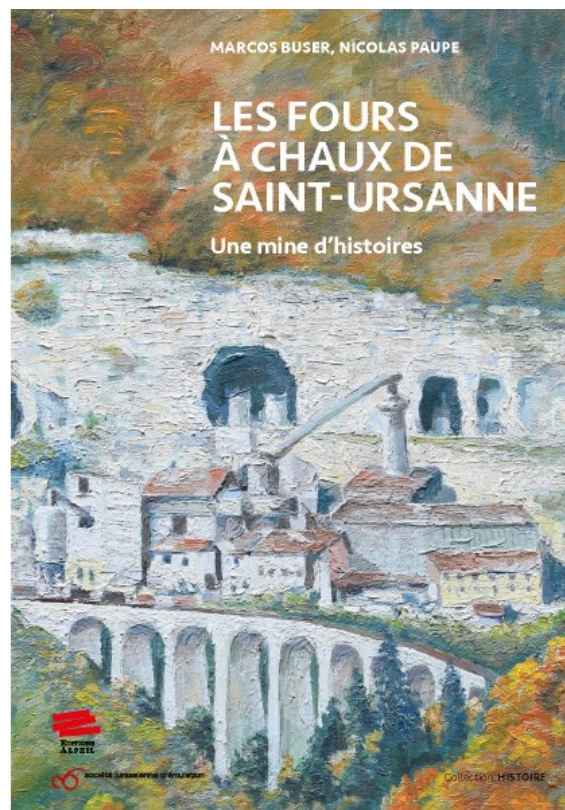


Illustration 10 : Book cover, first edited 2021 (© Alphil/Jean-Pierre Theurillat, Porrentruy).

3.3. Next to the Mont-Terri project

The proximity to the Mont-Terri research project on radioactive waste, underground storage of CO₂ or geothermal energy and its visitor centre makes it possible to provide particularly good and credible information on the subject of long-term waste problems. Swisstopo, which manages the laboratory, shall be involved in the project according to the will of the Foundation. future synergies are emerging.

3.4. In the Pearl of the Jura

The small town of Saint-Ursanne, also known as the «Pearl of the Jura», has remarkable historic buildings, including the collegiate church and cloister dating from the 12th and 13th centuries. Numerous art galleries and antique stores line the streets of the town, and in a mediaeval garden you can discover the medicinal and vegetable plants used in the past. An ideal base for numerous outdoor excursions, the region offers activities as diverse as hiking, biking, canoeing, fishing and paragliding.

Most visitors to the Clos du Doubs are excursionists (75%) and «short-term» tourists (less than 3 nights). According to the local tourism office, the primary area for short-stay tourists is the Lake Geneva area, followed by the Zurich region. The three main types of customers are families, 40- to 65-year-old persons and 65-year-old retired persons or older.

The seasonality of visitor numbers are as follows: a high season in July and August, which is very touristy, two mid-seasons (Easter to June / September to October) and a low season from November to Easter.

4 main events animate the small town, two in summer and two in winter:

- The «Médiévales» or «Medieval Festival» (every other year) : 50'000 visitors
- The summer mountain race St-Ursanne - Les Rangiers: very well attended
- The Saint-Martins festival in Ajoie : 30'000 visitors
- The Christmas market in St-Ursanne : 20,000 visitors

The strategic tourist activities of St-Ursanne are:

- The contemplative nature, with opportunities for swimming and picknicking;
- The soft form of mobility on important Swiss routes (St-Ursanne is a staging post: routes for soft forms of mobility, Grand Tour de Suisse, Green Route with e-bike);
- The historical and spiritual architectural heritage of the mediaeval town of St-Ursanne;
- **MICE** (Meeting, Incentive, Congress, Event), i.e. group and event tourism with predominantly leisure and little business tourism (e.g. also via the Mont-Terri centre visit offer).

4. Accessibility and infrastructure

4.1. Next to the railway station

The immediate proximity to the railway station in St-Ursanne is a great advantage. Transport connections are excellent, even from more distant destinations such as Basel, Bern, Geneva, Zurich and even Paris.

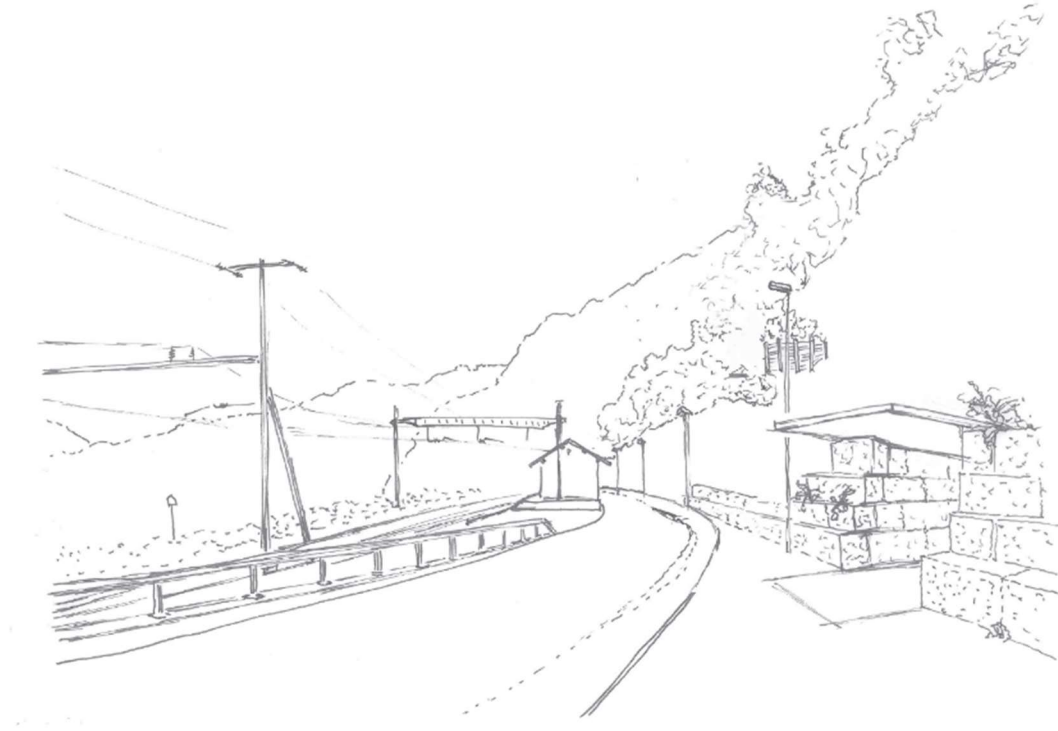


Illustration 11 : The access from St. Ursanne railway station (© M.Stünzi, s'Quadrat Zürich).

4.2. On the height difference

The following scheme, elaborated by the Zurich architectural firm S'QUADRAT, visualises the topography of the site on five levels: Upper Plateau (Galleries) / Middle Plateau (Lighthouse) / The Station / The Promenade / The City. The 23-metre difference in height between the station and the galleries can now be comfortably overcome in part by elevator, stairs and on foot.

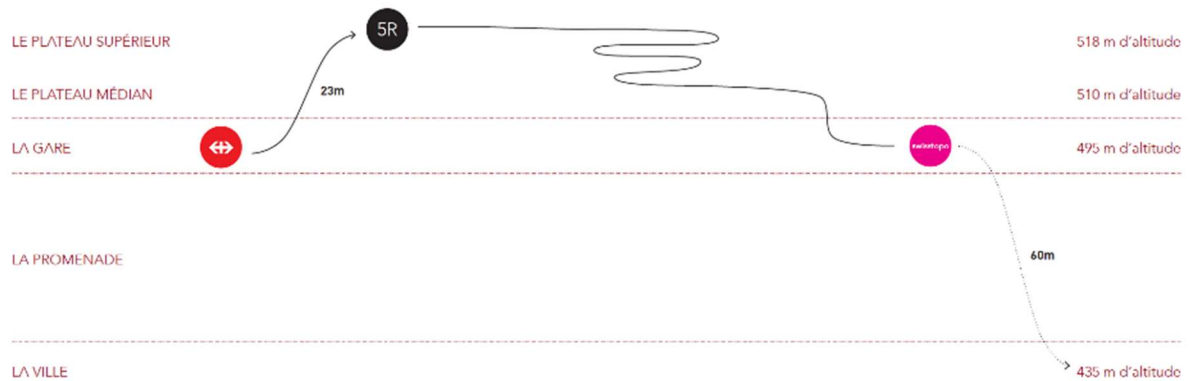


Illustration 12 : Topography of the site (© M.Stünzi, s'Quadrat).

4.3. Access to the galleries

The galleries are well accessible by access roads and hiking trails. The existing network of paths allows attractive and variable access to the two open galleries. There is also the possibility of connecting the platform with the higher middle level by additional lifts, which are located inside one of the buildings of the former lime factory in the far west of the industrial complex. An underground access via galleries would also be relatively easy to realise.

4.4. Infrastructures and spatial planning aspects

Important infrastructures needed on the site, such as water, sewage and electricity, are already present in the buildings of the former lime factory. If needed, these lines can be extended into the galleries without much effort.

Initially, the mine's two large front galleries would be used. The ceiling of the first entry will be reinforced and additionally secured. The ridges (pit roofs) and gallery walls in the second gallery will also need to be stabilised in accordance with current safety requirements. These two large galleries provide further access to other backfilled galleries that could later be cleared out and used.

The buildings of the old lime factory are located in a construction zone, but not the galleries inside the mine, which are owned by the municipality. Their installation would require the approval of the canton and would require a special building permit.

Musée 5R

Situation

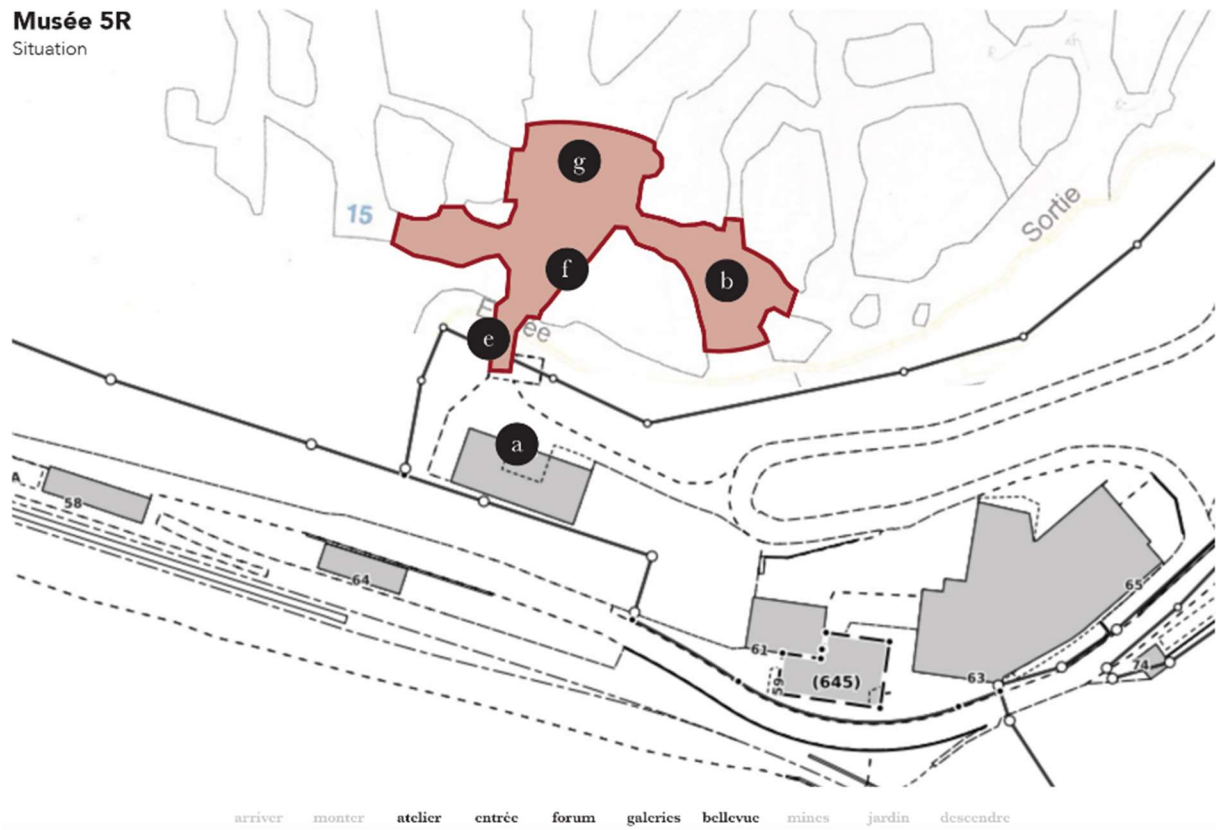


Illustration 13: Extension of the possible use of open galleries and activity zones (© M.Stünzi, s'Quadrat Zürich).

4.5. Architects and scenographers at work

The project «5R-Saint-Ursanne» will be developed in a first phase by a team of architects and scenographers who will have to integrate and work on organisational, thematic and artistic as well as financial issues.

5. Actors and organisation

5.1. The «5R-Saint-Ursanne» Foundation

Its goals

The Foundation aims to create communication spaces and incentives for the theme of «waste as a resource» to be valorized through art, culture, innovation and education. The 5Rs rules of Zero-Waste guide their work. These are refusing, reducing, reusing, recycling, and reinventing (through artistic creation, innovation, education, or circular ecodesign). For this purpose, it can upgrade the galleries in the former mine. It will delegate the implementation to a suitable institution and maintain the spaces created.

The Foundation

The «5R-Saint-Ursanne» Foundation is a foundation within the meaning of Article 80 et seq. of the Swiss Civil Code (ZGB). It was founded on December 8, 2022 in Porrentruy. As a non-profit Foundation, it is tax-exempt.

The members of the Foundation

Kaspar Müller, economist, Binnigen (BL), president.

Jean-Paul Lachat, agricultural engineer FH, St. Ursanne (JU), Vice President.

Jean-Maurice Maître, chartered accountant, Epauvillers (JU), treasurer.

Regula Rytz, historian, Bern (BE), member.

Marcos Buser, geologist, Zurich (ZH), member.

Charles Juillard, lawyer, Porrentruy (JU), member.

François Lachat, lawyer, Porrentruy (JU), member.

Nicolas Paupe, cultural officer, Saint-Ursanne (JU), member.

Nicolas Ullrich, director/curator, Arlesheim (BL)/Saint-Ursanne (JU), member.

5.2. The Advisory Board

Its role

The Advisory Board is a body that advises and accompanies the Foundation Board. It consists of a group of professionals who are involved in the various topics addressed by the Foundation. In other words, people who creatively contribute their experience and knowledge to the Foundation. They advise the Foundation and contribute on issues of strategy, governance, and specific technical or artistic areas. The Advisory Board has no decision-making authority.

Members

The Advisory Board is in the process of being established. Various personalities have already been approached. René Longet, politician, writer and pioneer of sustainable development, has already accepted.

5.3. The partners

Thematically, the project is broad and a variety of public and private actors feel addressed. The first partners of the project are the commune of Clos du Doubs and Jura Tourisme.

The commune of Clos du Doubs

The owner of the mine, the commune of Clos du Doubs, interested in the tourist development, has therefore delegated its mayor, Jean-Paul Lachat, to the board of trustees of 5«R-Saint-Ursanne», in order to guarantee an optimal coordination.

Jura Tourism

The beautiful mediaeval town of Saint-Ursanne and its surroundings have a tourism strategy and an implementation plan. Jura Tourisme is a partner of this project for tourism activities. The coaching office for tourism projects TalentisLAB supports it.

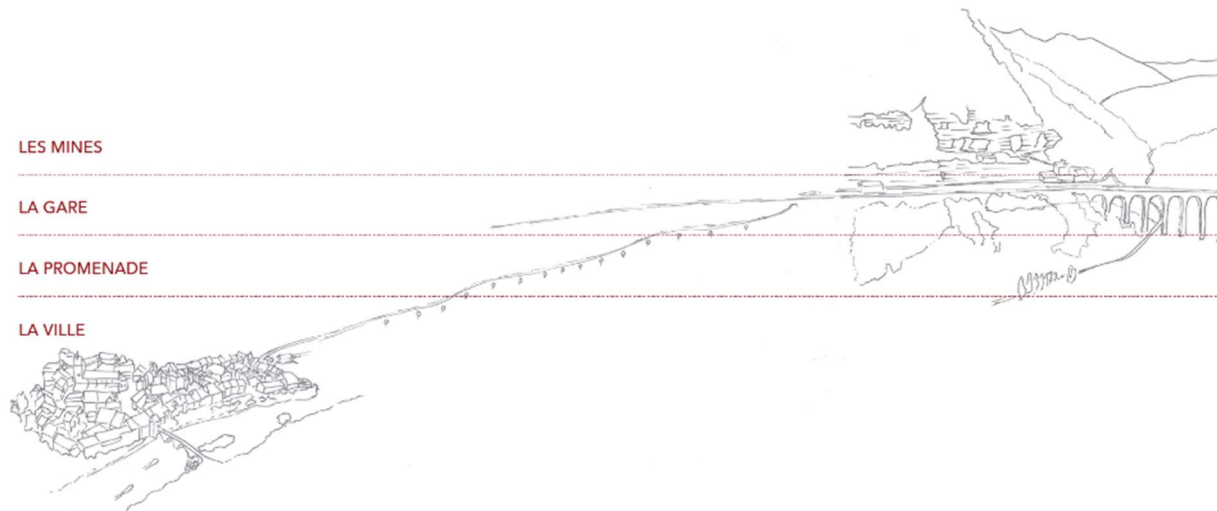


Illustration 14 : Topography of the valley (© M.Stünzi, s'Quadrat Zürich).

Other partners could support the project in the long term:

The Canton of Jura

As the owner of the site of the old lime factory, the Canton of Jura is to be considered as a preferred partner. On September 7, 2022, a first joint inspection of the galleries took place with the five cantonal offices for spatial planning, culture, infrastructure, economy and environment.

The Mont Terri Project and the Swiss Confederation

The Mont Terri Project (<https://www.mont-terri.ch>) is an international research project for the hydrogeological, geochemical and geotechnical characterization of a clayey formation (Opalinus Clay). It allows international scientific experiments to be carried out in the safety tunnel of the highway tunnel. It popularised the research work through a visitor centre and guided tours. The «5R St-Ursanne» project was presented to those responsible for the Mont-Terri project on June 16, 2022. Via the Mont-Terri project, the Swiss Confederation could also be involved in the project.

5.4. Service providers

The service providers listed below have helped develop the project with their initial ideas. They are willing to continue to support it.

Architects

Sylvain Dubail, bureau d'architecte dB dubail begert, Rue des prés 12, 2350 Saignelégier, +41 78 690 56 99, + 41 21 566 11 75, dubail@dbarch.ch, www.dbarch.ch

Michael Stünzi, SQUADRAT Architekten GmbH ETH SIA, Mürtchenstrasse 30 | 8048 Zürich | +41 43 443 59 46, <http://www.squadrat-architekten.ch/>, office@squadrat-architekten.ch – Responsible for the drawings and schemes in this document.

Set designer

Mathieu Kottelat, Atelier Karma, Rue Saint-Georges 6, 2800 Delémont, 079 533 14 97, mathieu@atelierkarma.ch, <https://www.atelierkarma.ch/>

Web-page

Xavier Freléchoz, independent computer scientist

Wood construction

Gauthier Corbat, GROUPE CORBAT, Vendlincourt et Glovelier, +41 32 427 04 04, g.corbat@groupe-corbat.ch, www.groupe-corbat.ch