

## Cycle Terre

Sevran, Frankreich

Projektleitung: Die Stadt Servan sowie ein Mix aus privaten Unternehmen, öffentlichen Förderern, NGOs und Forschungslaboren

Mitarbeiter: 5 Mitarbeiter:innen in der Fabrik sowie weitere bei der Stadt und bei den Kooperationspartnern

Email:

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**Cycle Terre** ist ein Mischkonzept aus einer Organisation und einer wirtschaftlich agierenden Firma. Das durch die Europäische Union geförderte Projekt hatte zum Ziel, der französischen Bevölkerung den Baustoff Lehm als modernes Baumaterial zugänglich zu machen und über die möglichen Verwendungsbereiche aufzuklären. Das Projekt ist in dem Sinne einzigartig, als dass für die Produktion lediglich Aushubmaterial verwendet wird und dies dazu führt, dass die verwendete Erde immer eine andere ist. Darum hat man sich neben der Produktion von nachhaltigen Baustoffen auf die Analyse der angelieferten Böden spezialisiert, um eine immer gleichbleibende Qualität der Produkte garantieren zu können.

**Der Standort Sevran** wurde gewählt, da es sich um eine sehr innovative und junge Stadt handelt, welche sich im Einzugsgebiet von Paris verortet und ein rasantes Wachstum erfährt. Die 18 km nordöstlich von Paris gelegene Stadt hat sich zum Ziel gesetzt, jährlich, ab dem Jahr 2026, 10.000 Tonnen Erdreich zu verarbeiten.

Die Idee ist es, den Erdaushub des wachsenden Ballungsraums Paris zu sammeln, zu analysieren und zu Baustoffen umzuarbeiten, welche auf Lehmbasis setzen. Die momentane Produktionspalette umfasst gepresste Lehmziegel, Lehm-bautrockenplatten, sowie spezielle Mauermörtel und Putze, passend zu den bereits beschriebenen Materialien. Für die Umsetzung dieser Ziele wurde ein Fabriksgebäude errichtet, welches als Ankerpunkt des Projektes anzusehen ist. Die Fabrik wurde im Oktober 2021 fertiggestellt und produziert seitdem Testchargen der Materialien. Ebenso werden Kurse für Interessierte sowie Bauunternehmen angeboten, um zu

lernen, mit den Besonderheiten, die ein ungebranntes Material mit sich bringt, umzugehen. Im Oktober 2021 wurde mit der kommerziellen Herstellung von Baustoffen vor Ort begonnen. Gefördert wurde das Projekt von der Europäischen Union mit 4,9 Millionen Euro und mit 200.000 Euro von der Stadt Sevran. 1,2 Millionen kam von diversen Akteuren und NGOs. Beteiligt sind neben der Stadt Sevran beispielsweise auch die Université Gustave Eiffel in Paris, CRAterre, die Société du Grand Paris, Quartus und viele mehr.

Die Baustoffe haben bereits eine große Hürde genommen. Sie wurden bei der Zertifizierungsbehörde für Baustoffe in Frankreich einreicht und haben alle nötigen Tests bestanden. Die Standard-Lehmziegel erfüllen Brandschutzklasse A1/EI45, wiegen etwa 9 Kilogramm und haben eine flächenbezogene Masse von 2000 kg/m<sup>3</sup> (± 5 %). Zu jedem Produkt, welches in der Fabrik von Cycle Terre produziert wird, gibt die Firma einen umfangreichen Katalog mit Informationen für Bauunternehmen sowie EndverbraucherInnen heraus. Ebenso enthalten die Kataloge wichtige Informationen bezüglich der Verwendung des Materials und der Herstellung. Eine der höchsten Prioritäten der Firma ist Informationen zur Verfügung zu stellen, um Menschen den Umgang mit dem Material so leicht und komfortabel wie möglich zu gestalten.

Mit dem Sommer 2022 stieg Anzahl an Projekten, die mit Produktion von Cycle Terre ausgestattet sind rasant an. Darunter befinden sich drei Schulen, ein Krankenhaus, Wohnhäuser sowie Sport- und Eventgebäude, darunter das Olympische Dorf 2024.

**Silvia Devescovi** im Videogespräch mit Maximilian Flassak 06 April 2022

### Who are You and what is Cycle Terre ?

**SD:** I am Silvia Devescovi. I live in Paris but I work in Sevran. I'm in home office for a couple of days a week. I work at the municipality of Sevran, but twice a week I'm at the factory. The factory is owned by 8 partners today, but the project was developed by a larger partnership, whose coordinator

was the city of Sevran and which was funded by the European Union (ERDF UIA funds). The other partners are NGOs, research labs and private companies.

### When was cycle terre founded and how did it happen, that your organization/company is focusing on earth as a building material?

**SD:** The idea of building a structure like that started in 2017. There was an exhibition in a very well-known showroom called „Pavillon de l'arsenal“ in Paris. There are many exhibitions about architecture at that place, and one of them, 2016 until 2017, was called „Terre de Paris“. The scientific coordinators of the idea „Terre de Paris“ were Paul-Emmanuel Loiret from CRAterre along with Serge Joly. They created the exhibition with the goal that everyone, also the public authorities, could see, that earthen materials can be contemporary materials. Earth is not just a material from the past, it can be used downtown in urban projects, not just on the countryside. At this time that was something really new because people thought that the Parisian soil is fully polluted. It is not as polluted as people imagine. Of course, whenever you use earth as a material you have to analyze it, but according to the region only about 10 % of the soil is actually not usable, that is a really small percentage.

So that was the idea, and then some people tried to implement the idea, but they had no fundings, so they weren't able to succeed. In 2017 some people were aware that there was a financial opportunity by the European Union, an initiative called UIA (Urban Innovative Actions). So they asked the municipality since the city had to be the main actor of the funding towards the EU. They asked us because we were already working together in other projects. In spring 2017 we applied and that was the beginning of the factory of Cycle Terre. At the end of 2017 we were notified, that we had received the fundings. We started working in 2018, so this was the moment the project really started.

### Do you see yourself more as a company or as an organization?

**SD:** Actually, it's really in between. The wider goal has always been to prove that earthen materials can and should be used in contemporary urban architecture and to spread knowledge and teachings on the use of the materials. But to achieve this goal, it was necessary to create an economic activity. We have to make sure that this company succeeds. So we are working on both fronts. On the one side we want to be quite generous in the way we are giving information to the public, so they can also do the same things on their own. We try to be very transparent, so everything that is made in the company should inspire people. But at the same time we also need to make sure that the salaries are paid at the end of the month, so we try to get a good economic balance at the end. And then there are the companies, the dividends at the moment are very low, but when Cycle Terre starts producing at full scale, which means starting to have a positive balance, the dividends will go up and partly will be paid out to the investing companies and shareholders. However, mostly they have to be reinvested in the company itself or to finance other related projects, because of the cooperative status of the company. We thought this is a good tool for the branch, there is a massive need of investments, for research mainly, to proof that our materials and the products we produce are good enough, strong enough and that their impact on the environment is low enough.

### How many workers are at your organization/company at the moment?

**SD:** In the company there are six people today, I'm not part of the company at the moment. My salary was paid by the European Union during project implementation. Now the City is a member of the company but my own role has shifted: I work mostly on how to develop training opportunities in earthen construction.

### Do you think that compared to other European countries it is easier or harder to work with earthen materials in France?

**SD:** I think if something is possible in France it is possible everywhere else. The regulations of the French government are very strict, so if we were able to do it here, it should be possible anywhere else.

### Do traditional earth building techniques play a role in your work and are you conducting research on earth construction?

**SD:** I would say the main local objective was a way to use excavated material. In Paris there is, like in all urban areas, a lot of excavated soil, so we needed a way to use it. That was one of the objectives: we are not going to take the resource out of mines or so, it's just going to be excavated soil which is considered as waste by regimentations. So that was one of the starting points and then we started to examine how usable the excavated soil is here in Paris, what is it like and what can we do with it.

### Do you focus on a special earth building technique?

**SD:** That was one of the entering questions, but another one was about the proposal for the market: What kind of products is the market ready to accept and how can we use as much of the soil as possible. The choice of earth building technique is influenced by the soil that is locally available. Here we have a very rich earth with a lot of clay in it, so light earth constructions (with added fibres) are very suitable for the local soil. But that type of material is not well suited for the Parisienne market because of the width of the walls. Every centimeter in Paris costs lots of money.

We wanted to find a material that is easy to use on the working-side and so we chose the compressed block. The first reason was, that there was a lot of research already, so it was the technique that was best known, and second that it is easy to use for the people who are going to build with it. They just need a couple of days training because they know already

how to use burned bricks.

The second material that we wanted to develop were extruded panels, next to special mortar for earthen walls. But we had to back off from producing panels because it was not traded in the project. We are actually producing them right now but not in a very industrialized way. So we are currently producing really small volumes and quantities of the panels for very specific projects just to test them.

The choice of the products was more about what is available locally as base material, what is easy to implement on working-sites and what do we know best already. The reason for that was, that the European project was so short, or more likely the European funding was so short, that we haven't had time for long research, we had to be very pragmatic.

### And what is the difference between the two bricks? (BTC and BTC/S)

**SD:** Both are for construction, the BTC/S is stabilized with a small amount of cement, about 5%. We consider that the most important product is the BTC. So when people buy the BTC to build a wall, maybe we are going to suggest them to also buy a few BTC/S to stabilize heavily stressed areas like the Basement in the very low part of the walls, so if there is some water or permanent humidity, the wall is not going to be damaged. There is a very specific use for these bricks. People come to our factory and say what kind of building they want to construct, and if it is a house with a roof without any roof overhang or a flat roof and they want to build the walls and facade out of BTC/S or BTC, we are going to tell them that this is not a good idea and that it is not a good use for the products made from raw earth material. We would recommend using it more inside or if they really want to use it outside, they should make sure that the roof is large enough or has enough balconies to protect the material. That is our position of how to use these materials.

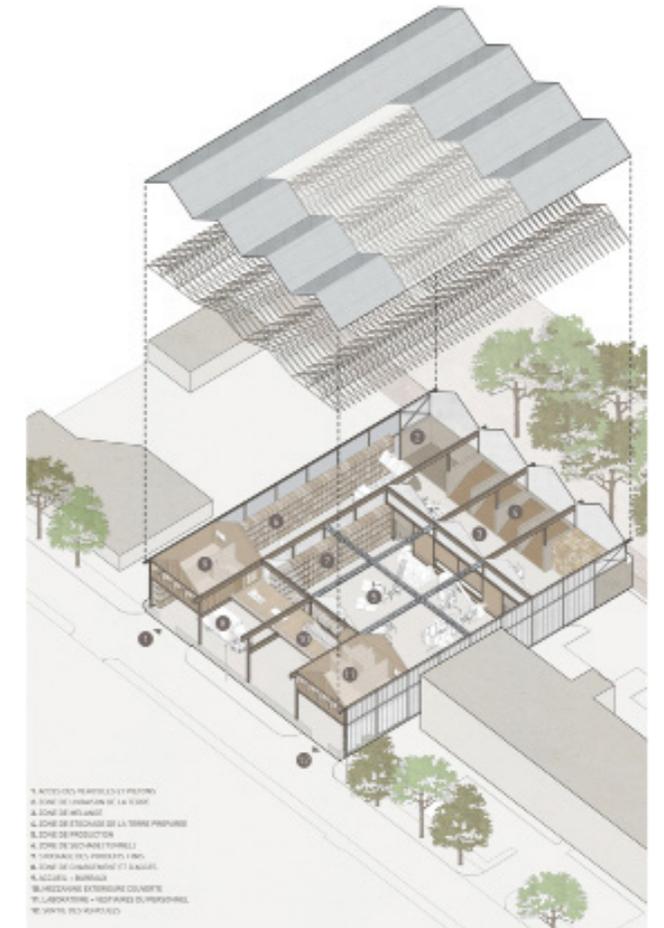
### How does the cooperation with the professionals like structural engineers and building physicists work?

**SD:** It is very difficult to be honest. It is one of the, by now, unanswered things in our projects. That is one of the questions that is going to be a major point to make the factory successful. There are a few very skilled professional craftsmen in the Paris area and their fees and their salaries are very high, so they cannot be employed at many projects. Many construction companies are going to use our material, and these are not skilled yet. We have got some special funding to train some workers and companies but that's not so easy. The architects and the project managers are quite interested but they want walls that are built cheap and as quickly as possible, otherwise it's going to delay the rest of the project.

It's like a fight, actually. The risk is, that people start to use the material without knowing it well enough so they don't use it according to our recommendation. This bears the risk that there might be some negative examples in the next years to come. Problems are not going to be structurally, so the buildings are not going to collapse, but still you can have some etiologies visible, so that's a problem.

### To what extent does earth as a building material influence the timing of the construction as well as the construction costs?

**SD:** For the moment it is both. By now, the material is a bit more expensive than burned bricks and all in all the construction time is longer. When you put the two together, it makes the project more expensive. If you look at the whole project of constructing a building it is not a huge difference, but still a bit. We know that promoters and developers are working on a budget. Even 10.000€ more often isn't acceptable for them. We hope that the environmental legislation, which has just changed in France, is going to facilitate also raw earth material and hopefully it will make other materials less interesting. We are also working on possibilities of how to make it easier for the builders to work with our materials and to minimize the costs for them.



**Do you already have clients and if so, who are they?**

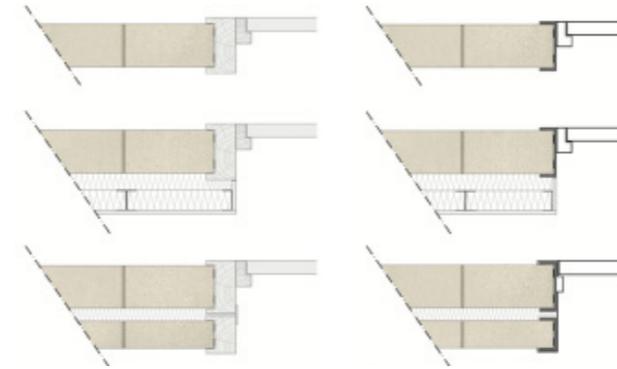
**SD:** Yes, we already have clients who have used our products. We have no preferences regarding who is using the products, we will sell anything to anyone who is interested and willing to pay for it. On the other hand, we have preferences on how the materials are used. We encourage uses that really make the best of raw earth qualities and that do not need cement stabilization. So far our goal was to show the world that raw earth materials can be used to build something, and not just for small houses but for big projects. Two schools in the outskirts of Paris are going to be built this year, using our materials. Then we are probably going to build two big housing projects in the suburbs. Today, Paris is already so dense, that there are not many opportunities to build new structures inside the city, so most of the high visibility projects are in the suburban area called the „proche banlieue“. The two housing projects are both about five stories high and are supposed to use a lot of our material. We will eventually sell some materials to the organization of the Olympic facilities for the Olympics in 2024. They are not going to build just with raw earth material, but some walls will be built with our products.

The majority of our costumers so far belongs to the public sector, and raw earth material will probably be used in a new school in Paris too. The project is being designed right now. But we also do some smaller projects. Coatings in a „Veja“ shoe shop in Montmartre or the extensions of an architectural bureau are made with our material. The projects that we have in Paris city so far are smaller projects.

**Is there an experience related to earth construction or the whole project that you particularly remember that has changed your opinion about how the material will be used in the future?**

**SD:** For me it is too early to say. Before starting this project I hadn't had any experience in building with clay and raw earth material, not even in construction in general. I have a more general background in urban planning. If we look what's happening in the factory today, we receive dozens of mails every week of people asking to visit the facilities, of people who want to use our material, so it is very promising and gives a lot of hope. But how long it is going to take and if there is really something big happening or if it is just a moment of glo-

bal enthusiasm? This is something we will be able to answer in a couple of years, I really can't tell. I am curios but positive and I hope it is going to be a real transformation.



**Silvia Devescovi** lebt in Paris und arbeitet für die Stadt Sevran. Das Projekt Cycle Terre ist aus einer Kooperation der Stadt Servan mit mehreren NGOs, Forschungseinrichtungen und privaten Unternehmen entstanden, um aus dem Erdaushub der Stadt Paris neue Lehmbaumaterialien zu schaffen. Unterstützt wird das Projekt von der Europäischen Union.