

Rockwool Shelters – an alternative solution for refugee camps’ housing

1. The Company

ROCKWOOL group is the world’s leading producer of stone wool, headquartered in Roskilde, Denmark. Stone wool insulation significantly increases energy efficiency of buildings, it can save more than 100 times the energy used for its manufacture.

2. Sustainability Innovation

Rockwool’s shelter is a housing solution based on stone wool, which was developed as an alternative to the typical tents in refugee camps. The shelter is unique thanks to the qualities of stone wool – the main product of Rockwool group. It is recognized as a very efficient insulation material, which protects both from heat and cold, reduces the noise level, and is fire-resistant. All these qualities have been



Source: Rockwool Group

well taken advantage of for construction of permanent housing. But it was only back in 2013 that the company realized how the same qualities could be useful for temporary housing.

The shelter’s inner living area is 4,6m². It consists of rectangular modules, which connect to each other with push-and-click system. This means that no screws or other tools are necessary to put the shelter together. Although it requires some skill and experience, the push-and-click system allows two people to set up the shelter in 15 minutes. The modules are made of stone wool and encased with iron on the outside. On the inside they are covered with a special coating of fleece to protect the skin from coming in contact with stone wool. The modules are of the same shape and size, and can be easily stacked on top of each other, which makes them easy to transport, for instance in a simple hand-pushed cart.

Sustainability is a distinguishing feature of the Rockwool shelter. Apart from the thermal properties of stone wool, it is also a 100% recyclable material, which can either be recycled through the industrial process, or re-used for construction purposes. Modularity of the shelter is an advantage: should anything happen to one of the modules, it is easy to replace it with a new module. Ideally, the shelters in the refugee camps could eventually be disassembled to be used as construction material for building more permanent housing for the refugees.

The social dimension of sustainability is about providing the refugees with more comfortable living conditions thanks to the protection from cold/heat, and increased privacy.

Safety is an important element as well: because stone wool is non-combustible, it ensures fire safety, which is a much needed quality in crowded living conditions. Rockwool has also designed a system for locking the shelters, which allows locking them from inside, or from outside – but not simultaneously. For example, when the inhabitants are inside, they are able to pull the hinges inside, so that nobody could lock them from outside.

3. Engagement of End Users and Other Stakeholders

The case of Rockwool is remarkable in terms of the stakeholder's role in the development of sustainability innovation. The initial idea was born in an informal conversation next to the coffee machine between an enthusiastic prototype coordinator from Rockwool and the director of innovation from a local NGO – Orange Innovation. Subsequently, it was thanks to the intrapreneurial spirit of Rockwool's prototype coordinator and continuous support from Orange Innovation that the shelters materialized into a viable housing solution.

Orange Innovation is an NGO organization behind Roskilde music festival. This organization is part of the larger group with long history called The Roskilde Group, which has started in 1930s as a social enterprise to provide support for the troubled youth. Today Roskilde festival is the most well-known “product” of the Group, and to this day all the extra profits from the festival go to charity. Today the task of Orange Innovation is to develop other profitable “products” that could support socially, environmentally and culturally important initiatives.

Orange Innovation takes the projects forward via organizing collaboration between volunteers, communities and companies – anyone who is willing and open for cooperation. The organization has a long tradition of open innovation and engaging end users – people – is natural for them. Rockwool, on the other hand, was lacking experience in end user engagement, so collaboration with Orange Innovation was a safe way to open up.

Different versions of the shelters were tested during Roskilde music festival 2013 and 2014. **Festival guests** tested 54 shelters by living in them and sharing their experiences related to the comfort & waterproofness of the shelters for their further development. **Festival volunteers** had the task of assembling the shelters, and gave feedback on how that could be improved. Festival's “shelter village” was a popular visiting place for **refugee organizations**.

The Roskilde Festival is a unique opportunity for companies like the Rockwool to test new and innovative products. The festival is a living laboratory for sustainability-oriented innovations. The festival hosts thousands every year, so that it resembles a densely populated mega-city, which is the perfect testing ground for any alternative solutions.

4. Company – NGO collaboration for sustainability-oriented business expansion

The role of Orange Innovation is noteworthy as they supported the innovation process and facilitated the involvement of end users. During one year and a half Rockwool's prototype coordinator had biweekly meetings with Orange Innovation to push the innovation process forward. Although initially Rockwool was not open to revealing shelter prototypes due to patenting concerns, Orange Innovation convinced them of the benefits of prototype testing in

real life conditions. What makes it special is the amount of the NGO involvement and their commitment to supporting product development and the transformation of organizational attitudes at a big company like Rockwool. The decisive factor here was that the product they were developing together had a social mission to facilitate the conditions of people in difficult life situations. This case is an exciting example of how a non-profit organization could make a valuable partner in open innovation when the end result is sustainability-oriented.

As a result, Rockwool will be moving in the direction of even more open innovation, as the organization is realizing the benefits of engaging different stakeholders to the development process. Especially in such cases when getting inputs from certain types of stakeholders might be very intensive in terms of time (or other resources), the companies can benefit from relying on research institutions or other stakeholders as “brokers” – to collect the insights, analyze and summarize them. Traditionally, this would be a job for agencies specializing on consumer research. But in some cases, mutual openness might lead to cooperation, where one benefits from collected insights, and the other one – from access to interesting research data.

Rockwool has decided to continue and expand their cooperation with Roskilde festival as a testing ground for their various innovative ideas (Rockwool cooler, etc.). Even though one might doubt whether festival guests are able to provide insights relevant to refugee conditions, sometimes involving the “unobvious” stakeholders can lead to non-conventional insights and ideas. In addition, the testing in the festival setting is completely different to any regular product testing. The density of population in Roskilde festival is a positive challenge for any product/service testing. But most importantly, what matters is that festival guests are there for the music experience, which makes their use of testable products much less artificial. The guests are there to enjoy, not to test – which makes the product use more authentic.

The market for refugee-related products is a difficult one to enter. The NGOs working directly with refugees rarely have time & resources to get closely involved in product development. Yet, the refugee areas are highly protected for the sake of their inhabitants, so that only the NGOs that work with them have the access. On the other hand, these NGOs are in a difficult spot, because they are obliged to reduce any possible corruptive practices of favoring certain companies. But to improve the experiences of refugee camp inhabitants, it is necessary to promote the development of goods that are useful in the daily lives of displaced people. Therefore, it is essential to find the means to connect innovation process and the insights from refugee areas. Perhaps, removing some antagonism of non-profit organizations towards businesses could give birth to closer cooperation to address environmental and social issues.

Since the refugee market is a completely new area of business for Rockwool, it is yet unclear whether they will succeed in replacing the easily accessible tents with more sustainability-oriented housing solution for the refugee areas. Most likely, the company will first have to come up with a new business model – the one that emphasizes modularity & re-usability of the temporary shelters and their parts for construction of the more permanent housing.