

Arctic waste garden – Soilscales of Salangsverket

This project transforms a waste delivery station into a dynamic public resource garden, breathing new life into a historic site, the old iron factory of Salangsverket in northern Norway. The waste that is today shipped to be handled elsewhere in Norway and the world, is instead managed on site for recycling purposes, artistic activities, and soil cultivation. The new recycling station is framed by a series of curated gardens that present different stages of soil maturity and plant succession. Through visiting the repurposed facility, visitors and locals can be involved in the recycling processes, understand the vital relationship between different ecosystems and ground condition, as well as take active part in the production of healthy soil. Situating present day waste recycling in a geologic timeframe, this project challenges contemporary practices of resource extraction and depletion.

A peninsula in the Salangen fjord north of Arctic Circle in Norway unfolds as a captivating landscape amongst majestic mountains. This small territory has a history that spans millennia and encompasses geological evolution, ecological succession, and human influence. A variety of occupations have flourished and declined on these grounds followed by environmental, ecological and social impacts. The one operation that has left significant traces in the territory is the iron ore factory Salangsverket on Langneset. The remnants of the factory stand amidst a diverse landscape, now hosting activities such as a recycling station, a stone crushing enterprise, and a facility for smolt production for salmon farms, all surrounded by other types of industries and agricultural land. These activities represent various forms of resources that have not yet been exhausted, but they continue to exert environmental effects that may be attributed to human consumerism.

Salangsverket has a history of resource depletion, particularly in the case of iron ore. In the modern era, where natural resources are significantly impacted, depleted, or at risk, due to human activities, there is a pressing need for innovative approaches to tackle these issues. Within the realm of landscape architecture, creative strategies can play a pivotal role in providing solutions. In my project, these strategies involve introducing novel perspectives through design to enhance public awareness of the risks associated with resource utilization and the environmental issues confronting us today. Additionally, they aim to shed light on the prospects concerning the value and potential of waste, discussing what is resource and what is waste. Furthermore, these strategies address proactive measures in the production of critical resources, such as soil, which assumes heightened significance in the context of climate change, particularly in the Arctic region¹. Thus, the aim of this project is to redefine the historic site of Salangsverket and turn it into a symbol of sustainable resource management.

The peninsula's geological formation, shaped by the Caledonian orogeny, the forceful bedrock prevented its detachment from the mainland later through glacial activity. Over time, natural erosion and pioneering microorganisms facilitated the transition from exposed rock to fertile ground so larger species were able to follow, one of the later ones being the humans. Through colonization, accelerated

¹ <https://www.nibio.no/en/news/how-will-climate-change-affect-arctic-agriculture>

erosion (man-made erosion) began. The fertile ground offered opportunities for agriculture, peat excavation was important for export and the frigid Norwegian sea provided fishing grounds. In the meantime, plants started to cover up patches of the exposed bed rock and smaller trees started pioneering the grounds as soil layers built up with time.

The landmark discovery of iron ore in 1860 marked a pivotal moment, leading to the construction of Salangsverket in 1909. The bedrock carpet at Langneset with its fragile soil layers were exploded and transformed into terraces for it to host the first iron ore factory of its kind in Norway and the largest one in the world at that time. Constructions of this size, total 6500m², required large amounts of building materials and equipment that came both from local resources and shipped from abroad. The iron ore factory brought about significant alterations to the landscape, transforming the low Arctic shrub forest at Langneset into a modern industrial site. The factory manufactured a substantial quantity of iron ore bricks, which were subsequently transported to European destinations. The period of success proved to be brief, as the iron ore quality declined, the factory operated for only three years until 1912. Certain equipment and structures were divested, while the concrete walls were retained in situ. Salangsverket was ultimately abandoned².

Nature, in its unwavering consistency, has demonstrated its ability to reclaim the terrain. Deciduous forests and Arctic plant patches gradually covered the scars on the landscape. Today, the remnants of the former factory stand as proud ghosts, contributing to the outdoor Sør-Troms museum and once a year transformed into an international art hub. Amidst these beautiful structures, a small recycling station operates. The station only serves as a collection point for local waste, and all of it needs to be transported long distances for further handling, both within Norway and to several destinations in Europe.

This project seeks to repurpose the satellite waste station into a dynamic public resource garden, breathing new life into the historic site. Extensive research into the Salangsverket iron ore factory served as inspiration for the development of a comprehensive contemporary waste processing facility. Photographs from on-site visits, photo archives from Sør-Troms Museum, and a documentary book, *Salangsverket – et nordnorsk industrieventyr*, were utilized as primary sources to gather data, subsequently constructing a three-dimensional digital working model. This tool facilitated a thorough investigation of the project site from various perspectives, allowing for measurements and testing. The project incorporated a scientific and nuanced analysis, involving digital mapping, collecting of plant species from the site, as well as tracings of the site characteristics and sketching.

Modern environmental and societal challenges, specifically those related to the global depletion of the soil resources, waste management and the inadequacies of recycling stations in terms of spatial quality, have motivated the conceptualization of a public resource garden. It is a fact that we, humans, are not really able to place ourselves within the cycle of material systems of today. In our post-industrial society the physical and visible connection to waste is cut, and we have no recognition of the waste nor the prospective processes that could sustainably treat it. In the future, as we see an increased demand for

² Salangsverket – et nordnorsk industrieventyr,

food security in times of climate change, Arctic agriculture might play a big role, and the need for healthy soil more important than ever.

The innovative approach of this project aims to integrate environmental, ecological, social, and aesthetic values into a unified framework. It wants to help transform the perception of recycling stations from mere dumpsters to integral components within a landscape. The Arctic waste garden welcomes consumers through a coordinated system of paths, shedding light on the waste process normally concealed. By recycling and reusing local materials, it establishes a foundation for coexistence with waste, reducing the exportation of waste from the municipality. The introduction of spatial qualities within the five main corridors provides intimate areas for visitors to dwell in and to be able to observe the relationship between plant species and soil layers. The five corridors after The bedrock passage are The lichen bridge, The second pioneering islands, The weed silos, The shrub terraces and The young forest intertwine. The annual art biennale at Salangsverket will continue with enhanced facilities and exhibition spaces within the surrounding forest for installations that expose artistic views upon waste. Water catchment will be integrated with small water channels that collect and direct the water into reservoirs that contribute to soil production, laboratory, and allotment gardening. Mix use gardens call for mixed professions that can combine their expertise within the garden, therefore a common facility in the old power station can accommodate a social, cultural and service hub for locals as well as guests.

Repurposed for sustainable resource management, local materials will be utilized in an expanded waste garden. The waste garden will function both as a waste recycling station and soil factory in an era when the amount of healthy soil on the globe is decreasing and the demand for it is increasing. The garden will allow workers, users, and visitors to participate in the material flow and to grow a deeper appreciation for the afterlife and aesthetics of waste. The strategic compression of the waste cycle and the emphasis on minimal transportation aim to transform the resource factory into a self-sustaining landscape entity. The visitors will meander through the historic and present landscape of the garden through diverse paths and embark on a journey through ecological succession. Witnessing the evolution of Langneset from bare rock rising in the coast to the thriving ecosystem of the climax forest in the uphill, the waste garden will bridge the past and the future. The historical journey of the Arctic waste garden at Salangsverket serves as a reminder of the delicate equilibrium required between human progress and environmental stewardship.