

EXPLORING KATENBURGH - OUR DESIGN

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The urban approach on planet Earth has led to numerous cars for mobility possibilities, an economy in need of fossil fuels and rising inequalities (Moreno et al., 2021). These worrying trends demand large changes, with a future that will be different from our past. Some, like Elon Musk, see the solution in establishing a civilization on Mars (SpaceX, 2021). For creating such a multiplanetary base, much research is needed. We are a group of Geosciences Honours students, who have brought our utopian vision to live in this interactive map and a podcast.

The future city on Mars we designed is called "Katenburgh". Our podcast guides the listener through the city, and dives deeper into the physical challenges of the city, its social structure, and the government, education and healthcare systems. This poster visualizes the design of Katenburgh. The design is based on three important principles, which is substantiated by authors who have done impactful research on spatial planning.

Easily Accessible: A 15-minute City

Firstly, we have implemented the urban concept of the 15-minute city inspired by Moreno. The shape of the city creates possibilities for easily walking or using transport for accessing areas. In our Mars city, we have made a layout for a monorail, which makes sustainable transportation possible besides walking. Moreno et al. (2021) argue that every demographic can be included this way and a healthy lifestyle is promoted. Therefore, in our city the distance between the city centre and the outer edge will be five kilometres. The circumference of the city is almost thirty kilometres and the whole city covers an area of about eighty square kilometres.

Safety in the Whole City: Eyes on the Street

Secondly, we have included a system to create safety, as created by Jane Jacobs. She argues that a good public space makes seeing people informally easy, so that they can take care of public places (Fadhila & Lukito, 2020). This decreases invisibility, forming a surveillance system. This approach is called 'Eyes on the Street'. Not only citizens can be used for this, but building owners, local authorities and architects can help as well in shaping public spaces in a way that creates opportunities for sustainable safety in a city (Fadhila & Lukito, 2020). In our city, we realize this by mixing different usages of space, like living (houses) and working (i.e., government) within a neighbourhood. This ensures that at every hour of the day, there are people present in an area, that keep the 'eyes on the street', increasing safety.

Centralized and Decentralized Facilities: Central Place Theory

Lastly, just like cities on Earth, the future city on Mars will have a certain spatial arrangement. We have used the Central Place Theory by Christaller from 1933 to create ours. Christaller (1933) argues that one bigger scaled central city, surrounded by smaller districts, has benefits for the economy and transportation. With this in mind, we have created a central place in the city centre district with the bigger facilities (Christaller, 1950). The inner circle, divided in three parts, includes the hospital, justice system and government. The outer circle covers cultural and sport facilities, such as theatres, a library, cinemas and sport facilities.

These three important influences have shaped our city in a web structure, which contributes to the accessibility and spread of facilities in the city. The circle shape makes space for 25 districts, one of them being the city centre with the clustered large-scaled facilities. The other districts offer housing and small sized facilities, evenly spread to keep "eyes on the street". The monorail allows for quick and sustainable transportation between the city centre and other districts. Our city is easily publicly accessible, which can lead to a stronger social cohesion (Walker & Sherwood, 2003).

There is also a clear division between the "levels" or floors of the city.

- Level -1: transport (monorail for public transport), self-supply farm per household;
- Level 0: transport (pavement for walking), houses, facilities (shops, green, etc.);
- Level +1: facilities with multiple floors, houses for bigger families.

Sources

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