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| Close-up image showing the leaf-sides of two oversized books side-by-side on a bookshelf, with additional books in soft focus background |
| LAGI RENEWABLE ENERGY NARRATIVE  DESIGN COMPETITION |
| |  |  |  | | --- | --- | --- | | Ramuthaga Khumbelo | 4/9/22 | INDUSTRIAL DESIGN | |

# **The story behind the artwork**

I designed the artwork to help collect as much sunlight as possible, whilst showcasing the other side of the world, the Sahara Desert. It gets a lot of sunlight throughout the year, which became a source of inspiration for my design. The sculpture is designed in such a way that it not only collects the sunlight but also channels wind so that the turbulence can be used to enhance the wind power needed for wind energy generation. Just like how the wind is affected by the Barchan dunes. Mannheim gets sunlight for more than six months in a year, and quite a fair number of powerful winds. Their winters tend to have less sunlight, so it would help to compensate for the lack of sunlight with wind energy. People love to look and interact with things that leave them in awe and fascination. The idea is to create a wonder that is not only good enough to look at but good enough to give back to the people who are looking with eyes of admiration and the willingness to interact with the artwork. Although Mannheim has water, rainwater and melting snow can be channelled into an underground water storage unit.

# **The technology used to generate artwork**

* Solidworks (CAD).
* Sketchbook.
* Adobe Illustrator.
* Photoshop.

# **Supported public activities and co-benefits**

The dunes are supposed to rise to a height of 45m. The upper ridges of the dunes are to have staircases that allow people to go up and have a view of the park and take pictures and the tallest dunes should have a cable connecting them so that cable cars can commute through the park, around and into the city. This will be a good way to also attract tourists, whilst also acting as beacons for directions whenever people would want to get around the city or the park. The rear parts of the dunes will have ambient lights sipping through the openings between the solar bowls and they should always change colours and brightness so that they can be seen from far during the night or evening.

# **How the design will help support the UN sustainable development goals**

The design takes into consideration the need to match the current polluting power grids so that switching fully to renewable energy generation will not affect the livelihoods of the citizens and visitors in Mannheim. By reducing the use of greenhouse gases, the design will also help give people a cleaner environment that is soothing and reduces the release of harmful gases into the atmosphere. We already have a problem of rising sea levels due to global warming and the release of harmful substances into the atmosphere and the environment. The world population is growing, so it will need to be maintained and sustained. If the population can be sustained using renewable energy, that would be a good step in the right direction.

# **MWh generated per year**

The main objective is to make sure that the electricity generated is approximately 110MWh in a year, depending on how many land arts have been built. The more there are land arts, the more electricity to be generated. Which then can double or triple the production considering the wavy dune effect compensates for the use of space.

# **Environmental Impact Summary**

There are consequences for pretty much everything in this world. So even though we are trying to cut down on the use of non-renewable energy, there is a price to pay for going renewable. The remains of materials used for renewable energy are becoming a problem when it comes to dumping excess materials and maintenance waste. We will then again have to invest our time in finding ways to help us handle this problem better and with care. We can not be reckless by removing one problem just to create another. Another issue with renewable energy is that the infrastructure needs a lot of space so that more sunlight and wind can be harvested and converted into electricity.