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„Can Plastic Waste be the Answer to Low-Cost Housing?“ - Rifqah Naidoo
Future Cape Town, 02.09.2015

„Art Sculpture Showcases Solutions for Sustainability“
Africa Geographic, 20.07.2015

„The ocean dome by Markus Heinsdorff“ - Michaela Stehr
Visi South Africa, 09.07.2015

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FUTURE CAPE TOWN | Can plastic waste be the answer to low-cost housing?

Posted by [Rifqah Naidoo](#) on September 2, 2015 in [Architecture](#), [All](#), [Public Space](#) · 0 Comments

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“I call it Ocean Dome”



The Ocean Dome is an architectural installation meant to showcase the potential of plastic waste up-cycling for construction.

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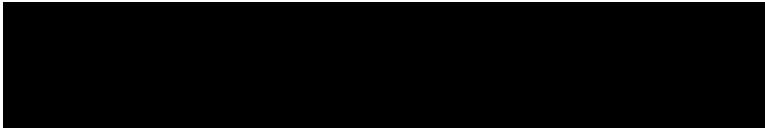
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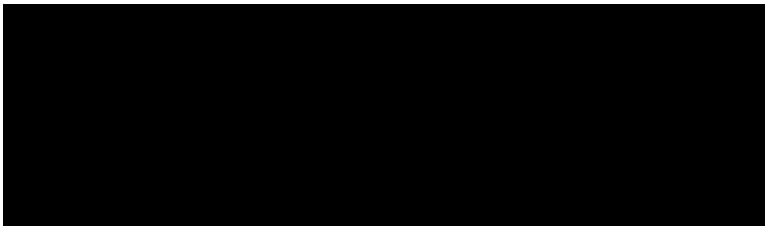
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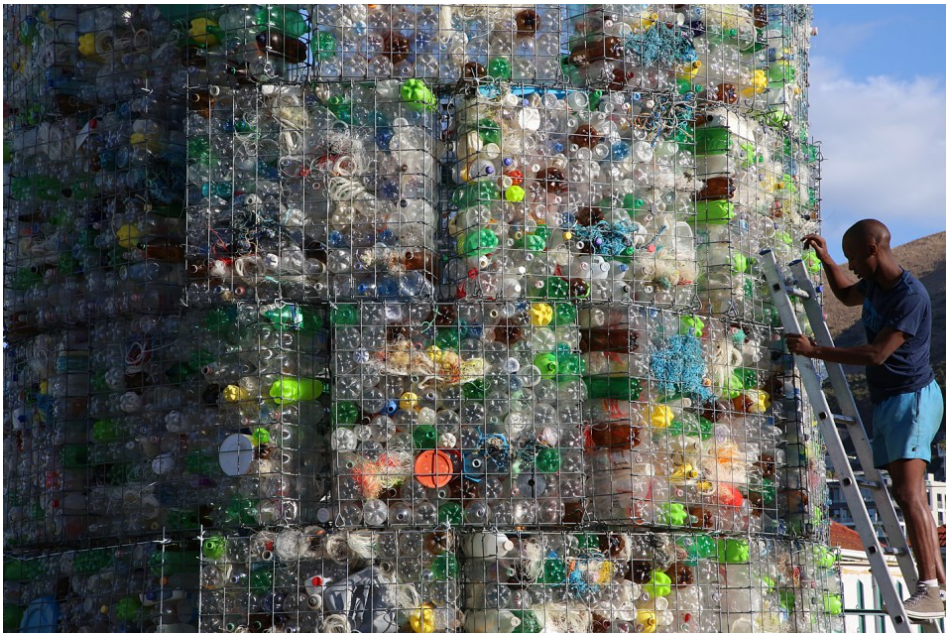


Can plastic waste be the answer to low-cost housing?

Shoppers worldwide are using approximately 500 billion single-use plastic bags per year. This translates to about a million bags every minute across the globe, or 150 bags a year for every person on earth. And the number is rising. “A plastic bag can kill numerous animals because they take so long to disintegrate. Scientists have identified 200 areas declared as ‘dead zones’ where no life organisms can now grow...” reports [Ocean Crusaders](#).

The sustainable use of resources, the reduction and reuse of waste has become one of the most crucial topics [worldwide](#). [Waste](#) from urban areas, domestic or trade, varies considerably from local authority to local authority depending on the socio-economic level of the community. “95% of urban waste is disposed of on landfill sites of which there are about 1200 in South Africa”, according to the Department of Water and Sanitation ([DWA](#)). While a number of industrial sectors have made significant progress in implementing recycling systems to reduce waste, sadly in [South Africa](#) “there are no effective incentives to encourage all waste producers to adopt cleaner production processes and minimise waste generation”.

Environmental art movements have for many years enhanced the way we observe and interact with nature. Some noteworthy movements include [the story of stuff](#), [humans in nature](#), [Oliver Barnett Photography](#), [Our Common Future](#) and [the Centre for Civil Society](#) at UKZN headed by Professor Patrick Bond has made exceptional strides in their contribution to environmental research. With the use of recycled waste, natural or renewable resources, these art installations educate the public about environmental problems but often serve a dual purpose by raising awareness on social issues in a particular area. One such project was recently exhibited by German artist [Markus Heinsdorff](#) and showcased at one of Cape Town’s hotspots, Green Point Urban Park.



“I call it ocean dome” said Heinsdorff. Ocean dome is an art object made of 50 [gabions](#) (metal baskets) in the form of a round tower and filled with plastic bottles. The Ocean Dome is located at the Biodiversity Showcase Garden Environmental Education [Centre](#), adjacent to Green Point Park. The waste/resource,

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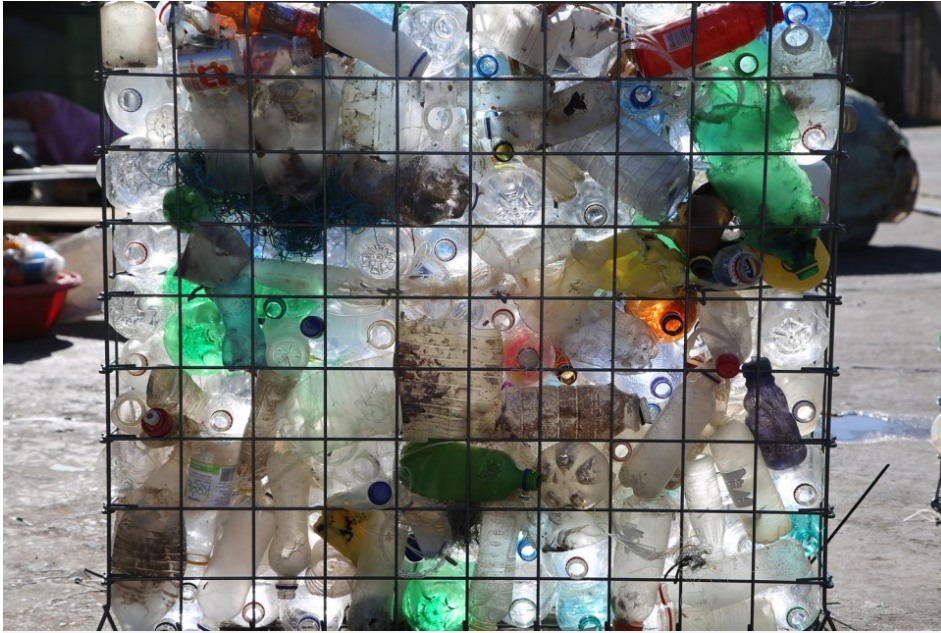
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collected from the Atlantic beaches around Cape Town, consisted of 10 000 bottles, fishing nets, fishing lines and other plastic scraps.



A close-up of the metal gabions filled with plastic waste.

Using plastic as a renewable low-cost building material

"Worldwide there are more than 100 million people who are homeless and more than a billion live in insufficient accommodations. At least 600 million people live in accommodations which are perilous or harmful to health", we learn from Heinsdorff. These numbers are bound to increase because of climate change, environmental disasters and other issues. "That is behind the idea to use cheap or cost-free waste-like recycling material for innovative, attractive and eco-friendly low cost accommodations/buildings. Instead of burying or burning the materials after floods, earthquakes or storms, a cycle with activatable raw material can be started" said Heinsdorff. Bangladesh can be seen as an example of a Nation adapting and responding to change. The floods in Bangladesh in 1988 and 1998 were made more severe because plastic bags clogged the drains. The government has now banned plastic bags.

Educational Value

"When we dispose plastic in a garbage bin, the air, moisture, climate, or soil cannot break them down naturally to dissolve them in the surrounding land. They are not biodegradable". It is planned that school classes visit the art object as an installation illustrating both the quantity of plastic that is washed on Cape Town shores, and their potential for a different use, so as to sensibilise young students to the topic.



Plastic waste washed up on Cape Town shore was the artist's primary construction material.

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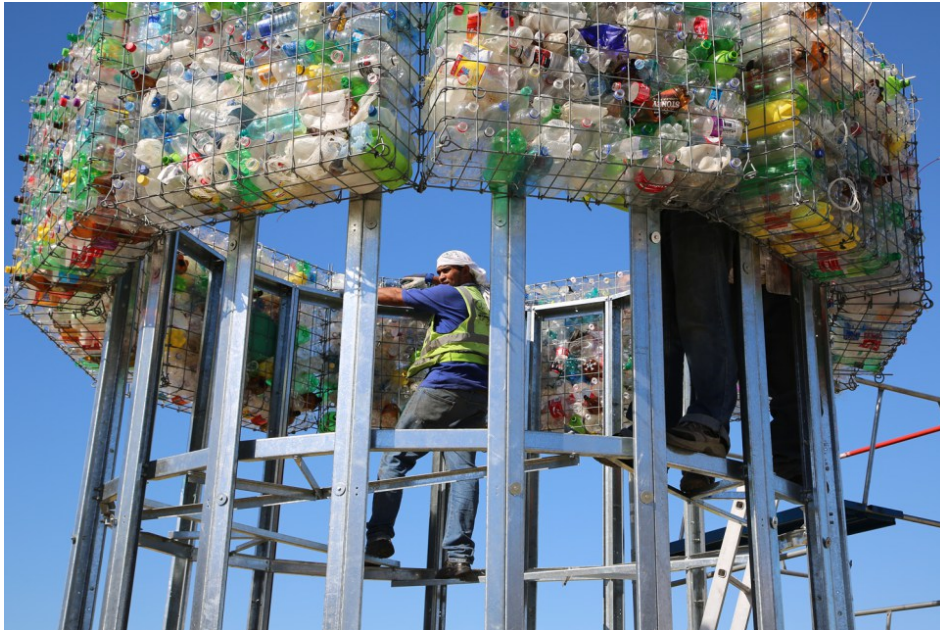
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The architectural idea is based on the concept of filling waste-like materials in the metal gabions. In order to do that, a light-weight construction is assembled, in which the gabions are stacked like bricks. "Currently, I'm examining different options in cooperation with the Chair of Climate at the Technical University Munich, in a workshop. There, the waste is supposed to be used not only as construction material, but also as insulation for cooling or warming" says Heinsdorff. Various materials can be used or upcycled, including either regular plastering, s or clay, or membranes like newly developed, flexible cement sheets on textile supports. "In regions with a lot of plastic waste, this precious material can re-enter the circulation in projects like this and be downcycled later on" says Heinsdorff.



The steel frame supporting the Dome during its construction phase.

The idea of building with waste highlights two important lessons – first, the creative and sustainable up-cycling of waste as an extremely low-cost construction material when new building forms are created. Secondly, "transforming the halo of poverty into a visitor magnet and architectural attraction (with e. g. guided tours, etc) through the creative use of waste in art project" adds Heinsdorff.



The architectural potential of plastic waste showcased through the night lighting of the installation.

Markus Heinsdorff is an internationally recognised artist whose installations explore the relationship between Nature and space in different contexts of the world. Using design, architecture and photography, Markus documents the process of developing artistic projects with locally available materials, while exploring possibilities for up-cycling and empowering communities. In 2013, he was the recipient of a [Recycling Design Award](#).

Read more:

- [Read more about the Ocean Dome.](#)
- [6 questions for public art in the cities.](#)
- [Infecting the city: public art in Cape Town.](#)

Credits:

1. <http://www.heinsdorff.de/en/work/installations/ocean-dome>
2. All the photos and their rights belong to the artist.

Bio

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Rifqah Naidoo

Reluctant to categorise herself in an age of definitions, Rifqah Tifloen can best be described as a freelancer of life.

Having completed her Post Graduate degree in Media Studies at NMMU, her fields of research were primarily focused on Ecofeminism, Philosophy, Culture and Film. However, as a researcher her passion for the environment, urbanism, gender relations and socio-economic justice have broadened her research interests. While she is an endorser of active citizenship, her vision is to inspire others by making windows where there were once walls.



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Written by: [Markus Heinsdorff](#)

The sustainable use, reduction and reuse of resources has become one of the most important topics worldwide. That is why the Ocean Dome art sculpture by Markus Heinsdorff – a collaborative project that aims to showcase innovative solutions for sustainability at [Green Point Urban Park](#) in Cape Town.





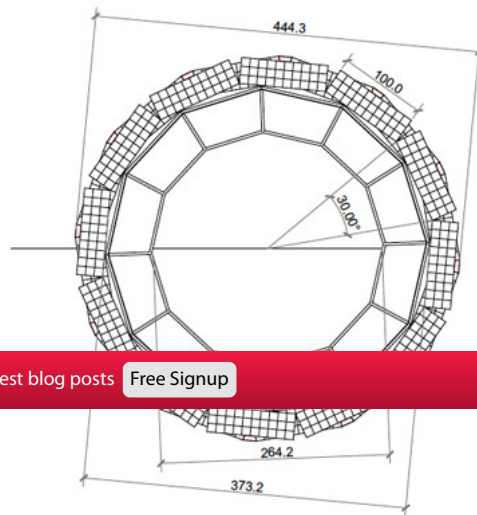
The permanent installation consists of gabions (rectangular steel baskets) that form a round tower and are filled with about 10,000 bottles, fishing nets, fishing lines and other plastic waste from the Atlantic Ocean.

An accompanying workshop and exhibition addresses the topic of “pollution of the seas through plastic” and experiments with the use of waste as recycled construction material for innovative low-cost buildings.



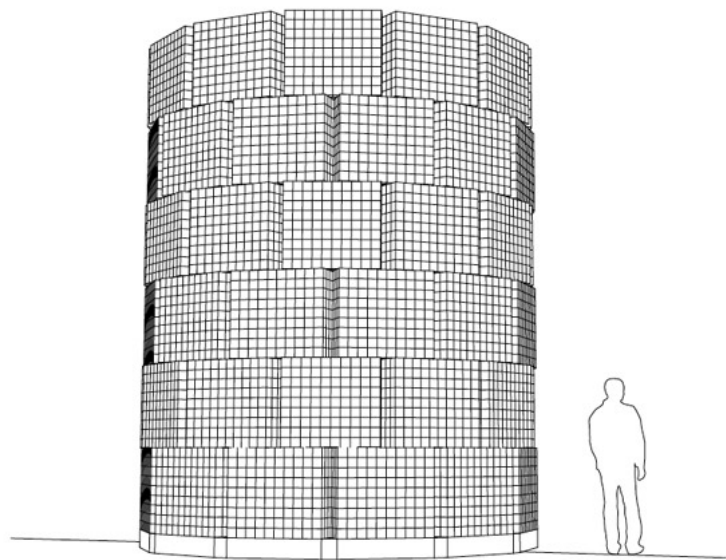


In this respect, the installation calls attention to the topics of urbanisation and the environment. On the one hand it provides an opportunity to experiment with architecture, cheap material and plants, while on the other hand it promotes ecological awareness. As an object of design as well as a piece of artwork, it will also feature architectural components such as shade provision and natural air conditioning.

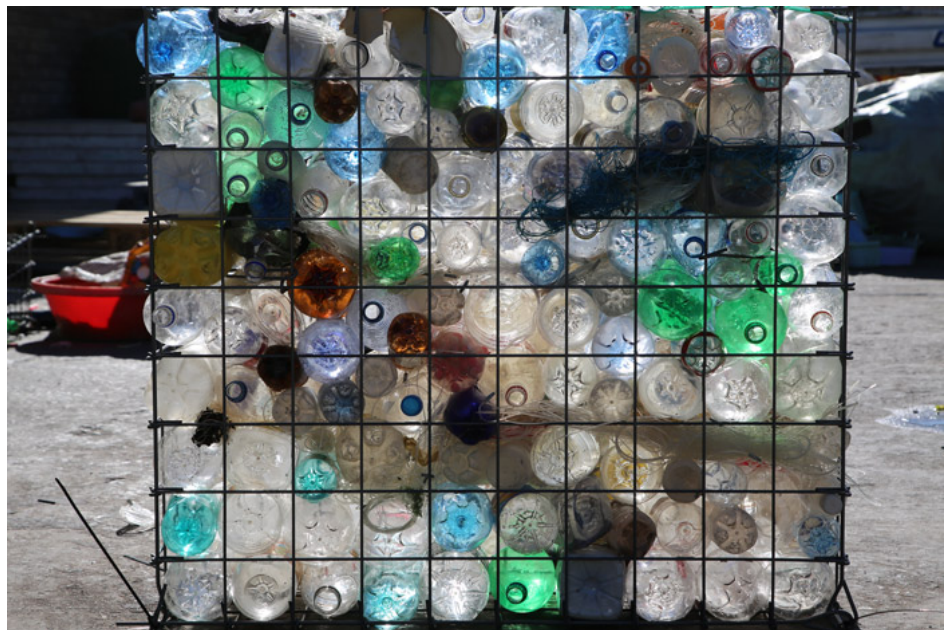


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Worldwide there are more than 100 million homeless people, while more than a billion people live in below standard accommodation with at least 600 million living in perilous or harmful conditions. These numbers are bound to elevate because of climate change, environmental disasters and general unrest. That is why the idea of the sculpture is to promote the use of cheap or cost-free waste to create attractive and eco-friendly buildings. Instead of burying or burning materials after natural disasters, it highlights that re-using raw material is a possibility.



The waste is intended to be used not only as construction material, but also for its cooling or warming properties. Different climates are being examined in a workshop with the Technical University of Munich (TUM) in Germany with buildings designed for South Africa, as well as for disaster areas like Nepal and the Philippines. The low-cost housing prototypes are firstly developed in an experimental lab with the support of the international gabion producer, Maccaferri.



The installation was made possible thanks to Paul Carew Consulting, Dr. Dirk Brand, Western Cape and with the support of the Bavarian State Chancellery and the State of Bavaria. The opening of the low-cost housing exhibition took place at the Cape Institute of Architecture and was supported by Maccaferri Africa.

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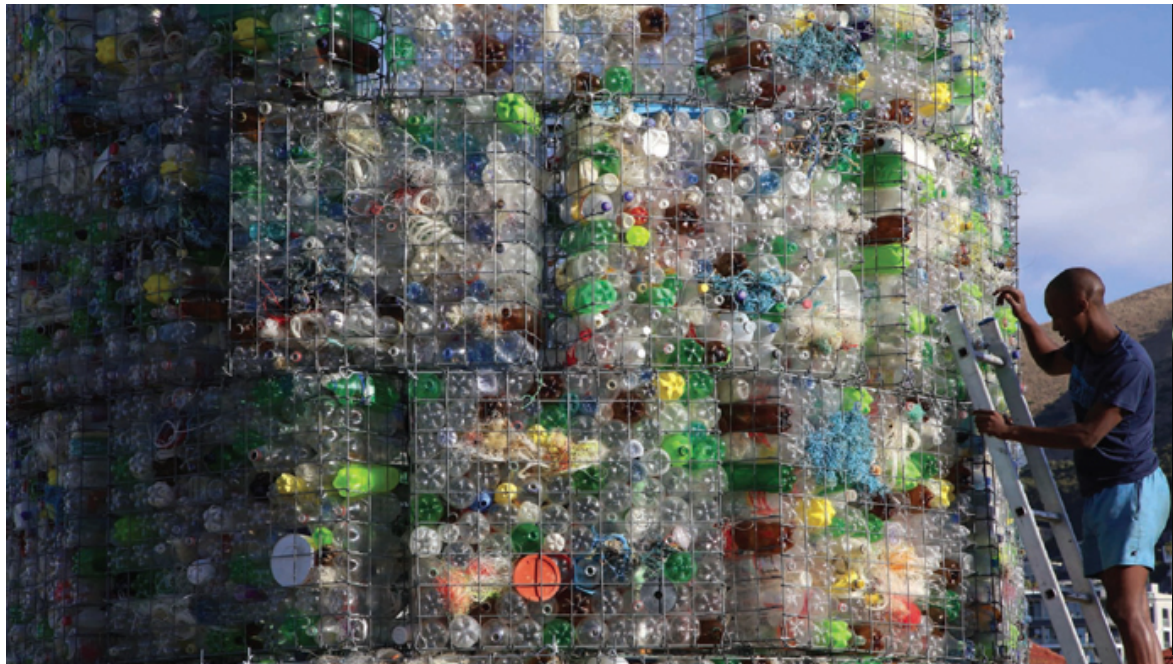
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JULY 9, 2015

THE OCEAN DOME BY MARKUS HEINSDORFF

**WORDS** Michaela Stehr **IMAGES** Supplied

German artist Markus Heinsdorff has constructed an installation in Cape Town's Green Point Park, to raise awareness about waste and provide alternative options for low-cost housing construction.

The Ocean Dome is made from the plastic waste (over 10 000 bottles) gathered from the Atlantic Ocean and beaches around Cape Town.

The exterior is constructed from rectangular steel baskets, which are filled with recyclable plastic. The plastic is layered to create a wall of insulation 4.5 metres high and 4 metres wide.

The different colours and textures of the plastic used create a striking and artistic effect while commenting on different options for architectural materials and ecological awareness.

Watch how the project came together below.

For more information, visit [heinsdorff.de](http://www.heinsdorff.de/en/work/installations/ocean-dome)(<http://www.heinsdorff.de/en/work/installations/ocean-dome>).