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## Making of a Bottle House

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Plastic bottles, the largest waste menace confronting the world and a highly non-bio degradable material that takes over 400 years to disintegrate, are being put through several scientific processes for disposal and recycling. The right method of segregation, collection, treatment or constructive usage in an environmentally sound manner is the need of the hour. Today, many innovative methods are being adopted to recycle plastic waste bottles and interestingly they are also being used in the making of the famous Levis jeans. However, most of the recycling methods involve processes which require time, space, feasibility and technology.



In an innovative concept ideated in 2014 by Patrick San Francisco, Chairman of Samarpan Foundation, the waste PET bottle has been turned into an eco-construction material replacing bricks with plastic bottles. "If something is tiringly invincible and doesn't degrade, why not exploit its very invincibility and non-degradability? Once we open our minds to the idea of using something for anything, the possibilities are endless."

A normal brick which requires raw material and a process in its making, the plastic bottle brick requires just waste plastic bottles which is available in abundance and filling material such as mud, fly ash or sand depending upon the availability. "When I first spoke about this to people, they laughed at me. They said, plastic bottles can never be joined together with each other, they will slide off... The first building project with mudfilled plastic bottles was a schoolroom in Delhi, and it was a huge instant success. The children in the school gave me the best feedback, they said that it was the coolest room in summer and the warmest in winter," avers Patrick.

The eco-construction technology using plastic bottle has some major advantages:

- It is available in plenty
- It is an effective thermal insulation
- It reduces energy consumption
- It provides employment opportunities
- It reduces burden on landfills "PET bottles are lightweight, easily transportable and are available everywhere right on the roads, unlike conventional baked bricks which require good soil and a kiln.



Bali silan hospital, Sundarbans, India. Photo: Samarpan Foundation

"The making of the plastic bottle brick could also be developed into a cottage industry providing livelihood to many. "Since every bottle that is filled and packed is paid for, it is a great way to empower the old and infirm labour looking for their economic independence," he adds.

The waste PET bottles are collected, manually sorted by size and compactly filled mud, fly ash or sand and sealed. "A foundation trench is dug as per the load-bearing capacity of the soil on site. A base of PCC is laid in the foundation trench and then the packed bottles are placed inside at twice the width of the wall, up to ground level. The cement mortar slurry is poured on top. Cement mortar joins the bottles together. Plastic bottles are then stacked to form walls."

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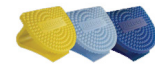
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