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## A PET initiative

### Taj Hotels Resorts & Palaces has thrown their might behind an unusual project that uses discarded PET bottles to build sustainable structures at Chennai

Plastic is one of the world's worst pollutants because of its non-decomposable nature. Every bit of plastic ever manufactured still remains on Earth in some form or the other. However, environmentalists have found that not all is bad about plastic bottles and have devised a method to use these bottles as construction material.

Polyethylene terephthalate (PET) bottles are commonly used by soft drink manufacturers and companies selling bottled water. Andreas Froese, an ecologist from Honduras, founded Eco Tech in 2001, a company that works with government and non-governmental organisations (NGOs) around the world to develop structures out of PET bottles. Mr Froese and his team first built a house with 8,000 PET bottles in Honduras, after which, they went on to build bus stops, kiosks, water reserve tanks, retention and protection walls, vertical gardens and houses.



Even though using PET bottles as structural support has many advantages, the idea took some time to spread around the world. In an interview with *The Indian Express*, Mr Froese said, "Twenty years ago, nobody would have believed that you could make a phone call with a mobile. It takes time, but if you see that you can build with bottles, the idea will catch on." The idea soon began to catch the eye of ecologists, eco-designers and architects the world over and made its debut in India in 2009 when S Shyam Kumar, an

engineer and a friend of Mr Froese, launched Eco Tech India. The two men have since been providing training to design and architecture students, women self-help groups and others on this new method of construction.

In 2006, Patrick San Francesco, founder of Samarpan Foundation, an NGO based in India, which works in the area of rural and urban development among other causes, decided to test the PET bottle concept to build a school. The Samarpan school is the first educational facility built with PET bottles (6,000) in New Delhi. The school's structure has virtually no cracks in the wall since it was built and is completely waterproof.

In April 2012, Samarpan reached out to Prakash Nataraj, general manager of Taj Coromandel, Chennai, to help the hotel with their PET bottle project at Redhill in Chennai.

Their goal was to build a similar facility at Redhill. Taj Coromandel joined hands with Samarpan to help build an educational cum recreational facility and other structures to benefit surrounding underprivileged communities.



The project started with Taj Coromandel but, now, all four Taj hotels in Chennai are closely involved and together have donated over 30,000 PET bottles last year. In addition, employees have also volunteered their time to help Samarapan build other structures such as park benches, and are using this concept to build similar structures in their hotel premises.

The building process of PET bottle structures is simple. The bottles are first cleaned out, after which they are compactly filled with mud. They are then placed side by side and the space between the bottles is filled with mud and building waste and cemented together to construct the floor and walls.



There are many advantages to building a structure out of PET bottles:

- ① The mud-filled plastic bottles are non-brittle and can withstand abrupt shock loads. For example, in 2009, when a 7.1-magnitude earthquake shook Honduras and destroyed over 100 homes, the PET bottle structures did not suffer any damage.
- ① Structures made from PET bottles are estimated to last over 100 years as these bottles are non-biodegradable and have a lifespan of over 1,000 years.
- ① There is less carbon emission while building with bottles as compared to building with bricks, which are baked. The process is also more energy-efficient, and it takes less time to fill bottles with mud than to make a clay brick.
- ① The bottle walls act as heat insulators and are strong, durable and versatile.
- ① These structures are easy to build, reduce land and water pollution and will lead to the creation of an array of jobs for different sectors of society.



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