

Limited resources and unlimited usage.  
*How can we save it?*

Newsletter



**Conserve the energy,  
Save our climate!**

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Issue : 12

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## Why ???

We the people on the earth are gifted with wonderful energy sources by the nature, which has made our routine much more smother & easier... However, this gift of the nature is ' limited '. What we have done is, with the growth of science & technology, we have started using it extremely, because of which the energy resources are going to finish in near future. Hence, let us take the pledge to conserve the energy - save the energy!!!

## Tips of the Month



*Keep the bulbs / tubelights clean as dust formation over them will reduce the light output by almost 40-50%.*

## Article - 1 : CRAZY BIG WARKA TREE TOWER

This crazy warka tree tower creates 25 gallons of drinking water per day from thin air. It is often said that water is life, and that the next big war will be over water. This crazy looking tower just might be the solution to the water problem. It's simply an atmospheric water collector which collects precipitation from the air.

The 9 m tall bamboo framework has a special fabric hanging inside the tower which has capacity to collect potable water from the thin air by condensation. The water which is obtained from the warka tree tower is called Warkawater. The name 'WarkaWater' comes from the Warka Tree, a giant wild tree native to Ethiopia, traditionally used for public gatherings and school education. The Warka Tree is an archetype of the Biennale theme Common Ground.

'WarkaWater' is a project conceived for the mountainous regions in Ethiopia, where women and children walk several hours to collect water.

To ease this intense condition, the studio 'Architecture and Vision' is developing the project 'WarkaWater' which is harvesting potable water from the air and honors the disappearing Ethiopian warka trees.

The simple and practical, yet well-designed powers out ahead of any of the commercial atmospheric water generators on the market which cost thousands more to build than this.

This is a very lightweight structure designed with parametric

computing, but can be easily built with local skills and materials by the village residents.

This is a wonderful water generation idea, that's inexpensive, and actually beautiful to look at. Water is life, and being designed after a tree. This is a real Tree of Life.

*\*Source: <http://www.stumbleupon.com/>;*

*<http://www.thegoodsurvivalist.com>*



*\*Image source: <http://assets.inhabitat.com>*

## Article - 2 : ECO-ENERGY FLOORING SYSTEM

A new concept design from Stephen Chan Wing makes use of the energy generated by people walking, running or rolling over a piezoelectric floor pad to power Organic Light Emitting Diode (OLED) lights. An Organic Light Emitting Diode (OLED) is a type of Light-Emitting Diode (LED) in which the emissive electroluminescent layer is a film of organic compound which emits light in response to an electric current.

Piezoelectric flooring is a technology with a wide range of applications that is slowly being adopted in the race to develop alternative energy sources. Piezoelectricity is electric polarization in a substance resulting from the application of mechanical stress.

The pads are actually made up of 7 layers, which are as follows: 1. Upper housing layer: Ultrasonic welded to lower housing in forming water-tight enclosure to hold at electronic/electrical parts and components. It is water resistant to prevent moisture from entering the lower layers.

2. OLED Board: To support LEDs in providing visual information. It is programmed with letters, patterns, all kinds of stuff to be lit up by the power below

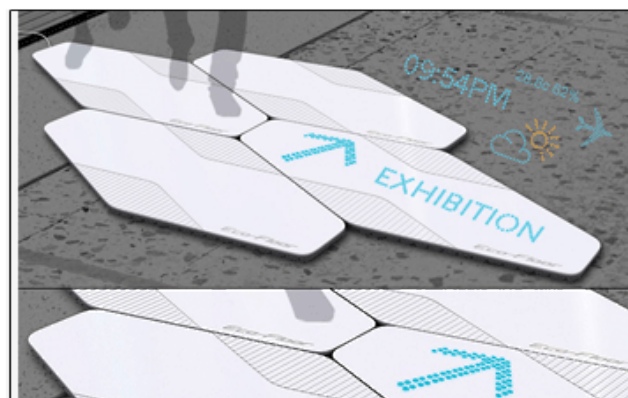
3. Sponge Material layer: Sponge material like silicon or rubber working as cushioning mechanism to distribute force/pressure.

4. Piezoelectric Board: It contains crystal boards to generate energy.

5. PCB Board

6. Paper Battery: To store energy

7. Lower housing layer: The bottom layer, the part that touches the ground.



*\*Image source: <http://www.yankodesign.com/2010/01/13/piezoelectricity-generation-x/>*

The advantages of Eco- Energy Flooring System is that it is easy to transport and easy to use.

Here electricity is generated by harnessing the energy of pressure that gets released when flooring blocks are squeezed by people; current is charged and stored in the paper battery system. The batteries are constantly recharged by the movement pedestrians and use to power parts of the LEDs illumination. LED lights are used for display directions and notices on each block. Image shows that the blue colored ones are the LED lights.

The low energy consumption could be used for instance lightening LEDs illumination for displaying public/commercial information. It can be used for common areas and pathways in buildings, exhibition areas, shopping malls, etc.

*\*source:<http://www.yankodesign.com/2010/01/13/piezoelectricity-generation-x/>*



## Article - 3 : PUMP WATER WITHOUT ELECTRICITY

Water is used to pump water for irrigation and many other purposes. A spiral water wheel uses the energy of flowing water to move the water through coiled pipe which spins continuously and adding water through the coils. Without any external electricity, depending upon where to set the output pipes can move water from a creek to the field.

As water is taken into the coils, each column of water moves under pressure to the next column of water. The water displaced in each coil provides a pressure head and the cycle continues. The water current moves through these coils. As the wheel turns, several small heads of water develop, one in each coil pushing water forward through all the coils.

It is a form of positive displacement pump made from a single length of coiled polypipe. The pipe is coiled in a vertical plane and is mounted on a horizontal axle. When the bottom quarter of the coil is immersed in water and the whole coil is rotated, an alternating sequence of air and water will be driven along the pipe towards the centre point of the coil. Additional successive coils of pipe lead to a cumulative increase in the pump's output pressure. And when a reticulation pipe is connected to the end of the last inner coil, the water can be shifted to a higher point, such as a dam or tank on a hill.

There are several advantages of this pump which are as follows:

1. It is very environmental friendly
2. It is made up of basic materials like polypipe and angle iron
3. Easy to make
4. Not expensive

At times when waters may rise metres above the optimum level, to avoid flood damage to this pump the axle and bearings of the water wheel are provided and there is a height-adjustable support at the half-way point and a steel cable attached to the water wheel end. This allows for the whole unit to be winched up vertically at flood time.

*\*source: <http://www.sxlist.com/techref/other/pump/spiral.htm>*



*\*Image source: <http://www.idealistrevolution.org/pump-water-without-electricity/>*

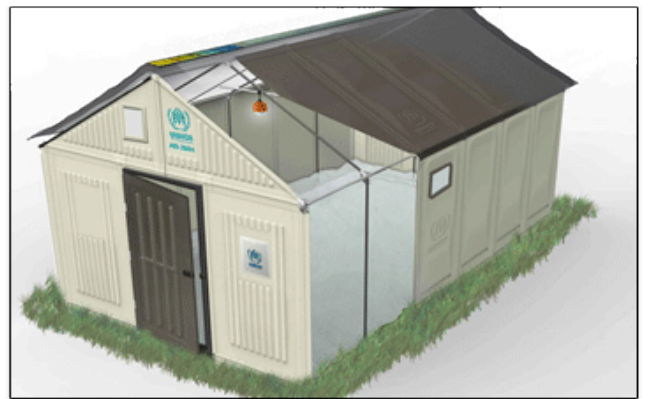
## Article - 4 : SOLAR POWER REFUGEE SHELTER

The IKEA foundation and the United Nations High Commission for Refugees (UNHCR) have combined together for development of a solar powered refugee shelter. Earlier the tents used by UNHCR provided little privacy or security and a low level of comfort. They have no built-in electricity or lights.

The solar power refugee shelter has a roof that is designed to keep the shelter cool in the daytime by reflecting 70% of the sun's rays and traps 30% of heat to keep warm at night. The walls of the shelter are made from a light weight material called Rhulite. Shelter comes with a solar panel that provides powers for both a built-in light and a USB outlet. The shelter is 88 square feet and 5 people can fit inside comfortably. Its weight is 100 kg and can be assembled within four hours. And its life span is about 3 years.

About 3.4 million Euros have been invested in this project. They are further developing to Photo Voltaic Cells which would provide enough power to operate cooking devises and run water purification systems. This is much more comfortable, private and permanent form of shelter.

These are designed for refugees during emergencies where most of them are children and to provide temporary housing for victims of natural disasters. UNHCR estimates that 10% of the world's refugee population lives in tents.



*\*Image source: <http://innovatedevelopment.org/2014/03/05/ikeas-flat-pack-solar-powered-refugee-shelter/>*

Its overall cost is less than the regular tent costs. It can also withstand rains and winds. The solar power refugee shelter is quite flexible it can be used in the regions both hot and cold. They are adaptable and modular. Naturally, they require no tools that are not included. It can be modified, enhanced and expanded in various ways.

*\*source: <http://weburbanist.com/2013/10/27/deconstructing-the-1000-ikea-flat-pack-refugee-shelter/>*



Conserve the Energy,  
*Save our Climate!*

**Conserve™**  
**The Energy**



It's  
**Tomorrow™**

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