

Rethinking Simple Ideas of Emergency Housing

Reading newspaper's headlines in this last couple of weeks about Nunukan should have make people consider the case as a disaster. It is a man-made disaster of hundreds displaced humans stranded homeless with incalculable damage to life and property. They live in weak roughly built hut -some of them made of plywood or plastic- exposed to severe weather, which constantly endanger their health condition.

People are trying to help in every way that they could to help ease the suffer of our nation brothers Indonesian, volunteer themselves to fulfill the urgent need of food and medicine stocks, etc. Rethinking simple ideas of emergency housing for them would be one of a good thought that is crucial for the government (who else?) to take action.

Among lists of countries that are now using the “*SUPERADOBE*” technology to provide –temporary and permanent- houses are the government of Senegal, Hesperia, and high desert California tract home, Peruvian Andes.

It is Nader Khalili that first developed the idea.



Water in the boat is the death of the boat

Water under the boat and the boat's afloat (Jalaluddin Rumi)

Khalili seemed inspired by the poems of the 13th century Persian mystic poet, Jalaluddin Rumi who praised natural elements –earth, fire, water and air-. Khalili then started develop more organic housing that was in tune with the environment.

He did a research in California Institute of Earth and Architecture –better known as Cal-Earth- in Hesperia. He searches ways to build a simple emergency and safe structures with minimum environmental impact where natural materials using are highly recommended. He then founded that like nature itself, which build with minimum materials to create maximum space, the structure must behave like a beehive or a seashell. The strongest structures in nature that work in tune with gravity, friction, minimum exposure and maximum compression are arches, domes and vault forms. They all could be easily learned and utilize with the most available material on earth: Earth.

The style of architecture, called “*SUPERADOBE*” , uses sandbags -filled with dirt, sand, or clay- and barbed wire to construct the dome.

The sandbags are stacked in coils that are held in place with the barbed wire.

As the dome rises, the rings of sandbags gradually get smaller, allowing the walls to curve inward and form a self-supporting roof.

It is one of the most creative, universal, sustainable, non-wood construction options to provide emergency housing.

The construction method allows people to use elements of war –sandbags and barbed wire- and transform those materials into elements of peace.

Actually the system was first proposed by Khalili in 1984 to NASA scientists to be built on the moon. It is revolutionary even though it uses ancient principle construction technology. The simplicity and beauty of “superadobe” allows anyone, old and young, even a child, or a person on its own to build the structure.

It is a main strength of the system that the community could become self-reliant.

Picture this, hundreds of refugee, a hundred students, and maybe a thousand of Indonesian soldiers as basic manpower needed for construction in the first week of building emergency homes in disaster site. They all could build mass structures all together, hand in hand.

In general, the maximum earth that one could lift is around 2.3 kg. One would never lift a sand bags, it’s all laid in place just like coils of spaghetti or toothpaste.



It took six years for “superadobe” technology to pass building code safety standards requirements in United States although it has been approved for use at disaster sites. One of the great advantages is that its two-foot walls insulate the structure, keeping it warm in winter and cool in summer.

Imagine the implementation of the technology in tropical countries such as Indonesia.

Of course Indonesian won’t find it difficult to gain basic materials such as earth, sandbags, and barbed wire.

When the basic material is earth, it is available everywhere. There is no manufactured material in the Indonesia that could supply such an amount for thousands of homeless people living in a state way below acceptable level of habitation. If there’s any, most probably they can’t even afford to buy the material.

These people have dignity and their participation would be allowed with using “superadobe” technology.

Then when volunteers and relief group left the disaster site, they would not be sitting and waiting for more to come. It is a very sustainable system.

A major problem that could occur in Indonesia if “superadobe” is really being used is that the government doesn’t want a permanent refugee presence. A forced and severe action that usually used by the government to make refugees leave temporary settlements could be avoided. If “superadobe” is not protected on the outside with stucco plastering, it will only last for six months to two years, depending on the amount of rain, and then it will go back to the earth. It could last five to 10 years if it’s plaster outside, because the bags themselves disintegrate the sun unless it’s protected. If it’s being plaster with two layers, it could last 15 to 30 years of shelter. So it’s both temporary and permanent.

Reuters discussed patent of “superadobe” in an interview with Nader Khalili on September 10, 2001. *“I have patented this, so that big companies wouldn’t patent it and then nobody would have access to it. If it’s done for the poor in a disaster, it’s all for free. The mission of my life for the last 25 years has been to provide shelter for people who cannot afford it”*, said Nader Khalili.

Eventually, it would all come back to us. It’s all about do and not do. Just do it.

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