

## A Greener Blanket

Written by Tzu Chi Foundation  
Thursday, 25 September 2008 00:00

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The revelation that the soft, warm blankets are made from hard, creaky PET bottles always draws wows and awe. With their combined efforts, TIHAA and Tzu Chi recycling volunteers give new life to recycled bottles, keeping needy people, rather than the earth, warm.

Petroleum and energy crises have been in the limelight on and off for the last four decades. It has taken nature a million years to form oil underground, but a mere century for humans to deplete almost all of it. Oil consumption discharges carbon dioxide and other pollutants that help trap heat and warm the earth to alarmingly unsafe levels. TIHAA, tapping the collective strength of Tzu Chi recycling volunteers in Taiwan, is doing its part to reverse this damaging trend.

### **PET bottles, aka textile?**

Although no one person, organization, or even nation can slow the extraction or consumption of oil, even a mere individual can help blunt oil's harmful effects. Luo Zhong-you (羅宗佑) is one such person. Luo, chairman of the board of Super Textile Corporation in Taipei, is keen on the three R's--reduce, reuse, and recycle. He wants to convert already existing petroleum products into something more useful.

PET bottles are a byproduct of oil--they are made from polyester extracted from petroleum. Polyester can also be used to make textiles. Consequently, PET bottles, when melted, have characteristics very similar to those of textiles.

In 1997, Luo and a few others in the Taiwanese textile industry learned of reusing PET bottles to make textile fibers. He urged the group to push the idea forward. However, used PET bottles, though plentiful, either were not properly sorted (e.g., different colors mixed together) or had caps or cap rings still attached. Caps and bottles are made of different materials and require different processes to reclaim. The enormous task of properly sorting out and cleaning recycled bottles proved to be too much of a hurdle for Luo and his associates to surmount at the time. They had to set the effort aside.

In early 2000, Luo attended a trade show in the United States where he was introduced to Walter Huang (黃國華), chairman of the board of Texma International Co., Ltd., and a Tzu Chi volunteer who would later head TIHAA. In 2004, at Huang's urging, Luo joined TIHAA, and there he dusted off the bottle-to-textile idea. He said, "Tzu Chi's more than 4,500 recycling stations throughout Taiwan are staffed by over 62,000 volunteers. They thoroughly sort everything out into groups, de-cap and de-ring PET bottles, and make just the bodies of the bottles available--exactly what we need to make textile."

In early 2006, TIHAA started to put the concept into use and worked out the kinks along the way. The whole process involves the efforts of many people. Tzu Chi volunteers separate PET bottles by color, remove caps and cap rings, and flatten and bag the bottles. The bottles are then delivered to factories where they are shredded, rinsed, and made into polyester resin. This is then spun into yarn and woven into cloth from which light, soft, warm blankets are made.

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The blankets went into quantity production at the end of 2006. By September 2008, TIHAA had used about 11,856,000 bottles to make more than 152,000 blankets.

So far the blankets have been used in winter distributions to the needy in Taiwan. They have also been provided abroad for victims of natural disasters in Pakistan, the United States, the Philippines, and Sri Lanka.



### Rising up from polyester ashes

PET bottles, if not recycled, create garbage that pollutes almost forever. Happily, if they are recycled, the same bottles become useful again and can provide positive value almost forever.

Luo picked up a light green swatch of cloth and said, "This is made from green PET bottles. The color of the bottles becomes the color of the fibers at the end of the transformation. No dyes are used in the process. The fibers are colorfast. You may label the TIHAA process green in design and clean in production. No new garbage is created in the production process."

He pointed out the extremely damaging effects of commercial dyeing: It takes 100 kilograms of water to dye a kilogram of cloth. The wastewater from dyeing becomes an environmental hazard. If wastewater is treated before it is discharged from the dyeing factory, the energy expended exacts an environmental toll. If not treated, the dye-laced water also damages the environment.

Luo went on to explain how TIHAA achieves the dark blue color in its blankets. "Dye is added when polyester resins are spun into yarn. This does away with the need to use water in dyeing. The yarn, now a dark blue color, is ready to be woven into cloth. This saves water, entirely avoids using the energy needed to treat dyed water, and is friendlier to the environment."

The good thing about polyester is that everything made from it is itself recyclable also. "Trimmings, defective items, and even the end products like blankets can all be recycled and made into new articles," Lou said enthusiastically.

He and his TIHAA team have encountered many setbacks along the way. However, they have worked tirelessly and overcome many obstacles to get to where they are today. They intend to press on and make this bottle-to-cloth project even better.

So far, TIHAA has produced blankets, T-shirts, and thermal underwear. It is also working on other uses for the reclaimed cloth: volunteer uniforms, hospital bed sheets, and gowns for physicians and nurses.

## The Plastic Crisis

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[http://www.tzuchi.org.tw/eng/press/2008/09/25/08092501.htm](#)