主題：Less is more

The Rebirth of Goods: LED caps, bottle suits…

一個小小的寶特瓶，是全世界飲料容器的主流，但這些由石油製成的瓶身，早已形成垃圾處理的惡夢。在台灣每年回收約 9 萬公噸的寶特瓶容器，體積可堆滿 3 座台北 101 大樓，串連起來的長度更可以環繞台灣 1080 圈，讓 54 萬戶家庭節省一個月的用電量。其中超過90%的回收率是來自一個宗教團體-慈濟功德會(Tzu Chi Foundation )，超過八萬名的志工加上遍布全台五千多個回收站，表現出驚人的動員力與環保實踐能力。

Plastic bottles, tiny as they are, have become major containers all over the world despite their petro backdrop which results in a nightmare to the planet. There are approximately 90 thousand tons of plastic bottles recycled annually in Taiwan, a volume enough to stuff three 101 building, circle the island 1080 rounds, or save a month worth of electricity for 540 thousand households. More than 90% of the recycle comes from Tsu Chi Foundation; a religious group dispatching over 80 thousand volunteers across some five thousand recycling stations, a true manifest of its mobility and practicality in protecting the environment.

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因為我們有一個非常好的回收體系，而且我們有很多的志工，很細心的幫我們做一些細心的分類，所以我們可以得到這個高階的產品，他這個是別的地方做不到的。

Because we have a strong recycle system

And a good number of volunteers

Sorting out in great detail

In result, we can come up with better product

It’s hard to be done elsewhere

這些由慈濟志工分類、清洗過的保特瓶，來到了世堡紡織(Super Textile)利用抽紗技術轉變成人工纖維，進而做成吸濕、排汗的環保布料，2010年世足賽時Nike就用它做成球衣，讓台灣綠色實力在足球場上發光。2012年台北市長郝龍斌也宣布讓清潔隊員換上由回收寶特瓶做成的制服，享受綠色行動帶來的成果。

These bottles, after sorted out and cleaned by Tsu Chi volunteers, are shipped to Super Textile and processed into synthetic fiber through its yarning machinery, an ideal fabric for active wear which was selected by NIKE as jersey for the players at the 2010 world soccer. In 2012, Taipei city mayor Hao Long Bin chose the same fabric to make the uniform for the city janitors. Taiwan has demonstrated its green power while the world enjoys a cleaner environment.

而過去大愛感恩科技曾經利用環保布料製成毛毯，送到全球地震、海嘯肆虐的災區，今年更發揮創意，使用了100%回收寶特瓶製成「太陽能LED帽」，以環保結合科技，在帽子前端放置太陽能板，吸收太陽能轉化成發光能源，傳達節能減碳的精神；「環保圍巾」亦使用100%回收寶特瓶製成，且透氣舒適，並藉由圍巾上自然圖騰設計，呼籲大眾珍視自然環境，愛護地球。

Da-ai technology has donated blankets made of eco-friendly fabrics to the earthquake- and tsunami-stricken areas. Now, with creativity combines with 100% recycling technology, a solar pad can be placed on the fringe of a hat as a source of light; a scarf can be made more breathable and comfortable, with design that reminds people to cherish the planet.

寶特瓶回收不僅可以織成布，還可以將纖維織成具有任意尺寸與曲面變化、可雙面種植植物的容器來種花花草草，由台灣財團法人紡織產業綜合研究所(Taiwan Textile Research Institude)所研發的「布花園」(Fabric Garden)，只需要一點點的土壤，甚至完全不用土，用棉花當土，澆水就可以養活植物，而且因為非常輕，因此可以種在屋頂，降低室內溫度。

More than just fabrics, with its fiber, the recycled plastic bottles can be turned into twistable, double-sided containers to grow plants. The Fabric Garden, developed by Taiwan Textile Research Institute, allows plants to grow on cotton instead of soil. With reduced weight and simple watering, the Garden can be located on the roof top, which then helps lower temperature inside the building.

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這塊布花園貼在牆壁上就叫植生牆，如果鋪在屋頂上就是一個綠屋頂，這個屋頂的內外溫度最高都可以差到七到八度，就是這樣的一個很簡單的概念，也很有智慧。

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If you apply the Fabric Garden to the wall

It’s a vertical garden

Put it on the roof top

It becomes a green top

There’s a 7 to 8 degree difference inside and out

While the concept is simple

It’s in fact very wise

由於植栽的養分來自空氣、水、陽光，使用者只要將不織布棉絮、碎紙屑或寶特瓶等回收纖維及廢棄織物裝入布料中，這些特殊物質即可幫助植物涵養水分，若台灣上千萬間鐵皮屋屋頂改種「布花園」，不僅可讓地表降溫，隨之取代冷氣機的使用，也有抑制全球暖化的效果，這正是此產品的訴求─把樹木種地上，把花草種布上，甚至成為一種綠建材，這樣結合創新技術與環保概念的產品也榮獲德國漢諾威2011年iF設計大賽金獎。

The fabric coming out of the cloth, paper waste or plastic bottles, can actually be turned into nutrition after processing, replacing air, water and sun. If tens of millions of roof tops in Taiwan choose fabric garden instead, the temperature can be reduced and air conditioners can be less needed. This is exactly the point – growing trees on the ground, plants on the fabric, or better yet, making it a green construction material. The combination of creativity and technology has won the 2011 IF award in Germany.

同樣以環保為出發點，來自宏遠興業(Everest Textile)的一塊環保布料，除了防水、透氣功能強，專利材料結構可經微生物、日光、水分解，比一般即使掩埋仍難以分解的布料更環保，也因此獲得2012綠色典範獎肯定。

On the same premise, an eco-friendly fabric from Everest Textile works beyond water-resistance and ventilation. Its patented material can be decomposed through microbes, sun and water, more friendly to the environment which got Taiwan’s Green Classics Award in 2012.

防水布料使用新技術加入非食用澱粉合成，不用含氟潑水劑對人體無害，100%台灣製造的環保布料，自去年開發後已陸續供應給歐美各國的體育運動、登山休閒品牌，每年為Nike生產1500萬件服飾。過去也曾因應環保，用最細的5丹尼尼龍紗(5D Nylon)製成「國王的新衣」，其質地輕薄且近乎透明，是目前世界最輕布料。

The water-resistant fabric is a mixture of new technology and non-edible starch, with no hazardous ingredient, therefore does no harm to human body. This eco-friendly fabric, 100% made in Taiwan, has been supplying sports brand across Europe and the United States, producing over 15 million pieces of clothing for NIKE annually. It was processed into the slightest 5D Nylon, making clothes feather-like and almost see-through. It’s so far the lightest fabric known to the world.

紡織業背後不再是傳統的高污染惡夢，台灣的寶特瓶再生材質製造技術與日本並列第一，染整技術和品質更是領先全球，透過台灣綠色技術，紡織業不但可以表現時尚，更能引領世界節能潮流。

The textile industry doesn’t have to become an ecological nightmare anymore. Taiwan pioneers in its plastarch processing, and dyeing and finishing engineering technology. The green industry makes textile in Taiwan top of the world, in style.

Every day is a green day. Green trade project office reports.