

RELEASE OUR RESOURCES, MAKE MORE USE

IMPROVING THE ECOLOGY AND ECONOMY OF MATERIAL RESOURCES.
WE CAN STOP BEING ONLY CONSUMERS. WE CAN BECOME USERS
AND RELEASERS OF RESOURCES TO MAKE MORE USE.

BY DOMINIC BALMFORTH, SUSTURB/ HOUSE OF FUTURES

There is a lot of talk at the moment about how to support human life with the limited resources on offer from a supposedly finite world. I do not believe that the world's capacity to provide natural capital is as limited as we are being led to believe. Even if nature was our only provider, then we could still expand the stock by expanding nature, by creating more nature. We should be precious with nature, but not with the idea of nature. We can care for nature and create new nature simultaneously. No other life form can do this, only humans.

Nature is not the only resource stockpile available to us. All man-made resources that exist in circulation add up to a vast potential supply of new material, but this volume is currently wasted instead of recovered. Cradle-to-Cradle classifies the first material group as biosphere (organic materials) and the second as technosphere (non-organic material). In order to reap the full resources of both sets of materials, it is best to keep them separate. Also, in order to achieve the most productive cycles of supply-recovery-new supply, we need to actively design, manage and maintain the cycles. Nature is programmed for its own cycle to function productively. In the process of ongoing life and death, ecosystems are designed to both feed from as well as contribute rich nutrients; sunlight, oxygen, carbon, nitrates etc. At any one time, any one ecosystem is constantly giving back to its own cycle or to others. When we learn from nature, and not only about nature, then we can apply nature's program to our own man-made world. We can make each action of consumption into a simultaneous action of production. Instead of only consuming, we can use, recover and release many more resources in the process of our everyday lives.

Recent research shows the damage done when we buy and own personal products to the extent and frequency that we do today (see box on this page for GHG emissions). Embedded in our clothes, furniture and electronics is twice the carbon attributed to energy-use and more than four times the carbon attributed to burning car fuel. Outside this research, others are revealing the impacts on rapid depletion of natural resources, and rare metals in particular.

BUYING VS. CONSUMING

It is important to make the distinction between buying and consuming. We do not consume durable personal possessions as we consume food, drink, elec-

tricity and fuel, we simply buy and own them. This means that we can significantly reduce the impacts of so called *mass-consumption* if we can enable many people to use and then release the same products and materials many times over. This for me, is a key concept towards changing the way we are currently wasting valuable resources.

Companies can exploit the concept in order to benefit both global ecology and their own economy. This requires that they change their infrastructure and their business models in order to maintain control of their products and all embedded material beyond the initial point of sale. To this end, a company's infrastructure can be changed, creating two distinct but overlapping cycles; the *material cycle* and the *product cycle*. A company's business model can be aligned to these cycles, generating revenue according to a *material economy* and a *product economy*.

From the perspective of the company, the new system must be easy, simple and profitable. From the perspective of people or customers, the new offer must fulfil all needs whilst being convenient, good value, and high quality.

MATERIAL CYCLE, MATERIAL ECONOMY

As a company, I change my material recipe so that all my products contain only few, clean materials. I start making high volumes of these products in order to achieve a high volume of material downstream. I combine materials physically, but never mix them chemically in order to separate the respective material streams later. Once I have

GHG EMISSIONS PER CAPITA IN DENMARK

The Danish green and independent Think-Tank, CONCITO, published a report in 2010 listing the amount of tons of GHG emissions per capita in Denmark due to the use and consumption of products and services in different categories. The result is listed here:

1. Public services/collective infrastructure (incl. public buildings, police, roads etc.) = 6 tons per capita
2. Personal possessions = 5 tons
3. Food and drink = 3.2 tons
4. Electricity and heat = 2.1 tons
5. Fuel to car = 1.1 tons
6. Flights = 900 kg
7. Service/communication = 700 kg

sold my products, or whilst I am selling the ongoing use of these products (according to new product cycles; see below), I use a track and trace location mechanism and a return-reward customer incentive scheme in order to recover all my material assets. I set up point-of-return thresholds in my store (parallel to the original point-of-sale cash registers), which receive all products leaving the product cycle. I set up new 'back-stage' facilities to disassemble used products and direct the materials down specific material streams to be ground, shredded or melted down into new base materials. I use these base materials to source the creation of my own new products, or when the market is ripe, I sell some of this base material to other companies.

PRODUCT CYCLE, PRODUCT ECONOMY

As a company, I begin selling the use of products, not only the products themselves. I sell the use of the same product many times over, thereby making more money from the same amount of material resources. There is a limit to the number of times a product can be used without losing its functional or material performance. This varies depending on the product. A garden chair has five 'next-use' cycles, a high quality power drill has hundreds. I define the cycle-limit for each of my products and call the products back in when their time is up. They then re-enter the material cycle and continue to generate revenue under the material economy.

Today, the average power drill is used for less than ten hours per year. Despite this, the majority of households in western societies own one. Think of the amount of material, energy and emitted carbon we would save by producing one tenth or one thousandth of the number of power drills to fulfill the needs of the same number of users. Think then of the gains to the host company's economy if they exploited this.

LIVE SUSTAINABLY!

Today, as a consumer I am told to adopt a more sustainable lifestyle. But I can only really change what I buy. I cannot significantly change how I buy, consume, use or how much material I can release as new resource, because the mechanisms are not in place which allow me to do so. With this in place companies and so-called 'consumers' can start right away. We can buy, consume and use things differently to give us more use of better performing products, at less cost, taking fewer resources and giving more back. We can stop being only consumers. We can become users and releasers. We can release our resources and make more use.

SOURCES: Hans Fink, Senior associate professor; philosophy and cultural research, Aarhus, Denmark has six conceptions of nature. He discusses how we consider different domains to be nature without consensus that any one is the correct perspective. 'Cradle-to-cradle, Remaking the Way We Make Things', Michael Braungart, and William McDonough (2002, North Point Press). 'Brøset, a unique

BRØSET – HOW TO BECOME A GREEN SUBURB

As part of a wider design team, I tested these concepts in a project in Brøset, a new green suburb of Trondheim, Norway, where the brief demanded that we cut carbon emissions per resident per year from 12 tonnes to 3 tonnes. By designing a dense, compact city with low emission, high frequency bus system, car-sharing and energy generating buildings we managed to reduce carbon per capita to 4.6 tonnes per year. The remaining cut to under 3 tonnes would come in time by adopting new ways of living, supported by new offers for the daily provision of food, household products, home improvement activities and material resource recovery (see graphs on next double spread page). The idea was that as residents see the benefits of these new offers, then they become common practice. The offers were as follows;

SUPER-BASKET provides local, organic food delivery to many households at once. People only buy what they eat, each day. Purchase is per kilo and return of organic waste is registered and rewarded as credit per kilo.

SUPER-FRIDGE is a community sized fridge which is always full. People buy milk, cheese etc. per unit volume or unit weight each day. This reduces food waste and saves transport to/from supermarkets.

SUPER-CLEAN is a shared cleaning service which allows households to pay either for home-cleaning or for a share in environmentally approved cleaning products, or both. Again, people pay per unit volume of say, cleaning detergent, tapped from a common tank. This avoids lots of unnecessary packaging and means kitchen cupboards don't get filled up with half-full plastic bottles.

SUPER-FIX is a community sized tool box which allows people to buy the use of a common set of high performance tools instead of having to buy their own. The less time you use the tools and the faster you return them, the less you pay. A professional craftsman is available to help you with your projects for one evening and one Saturday morning every fortnight. You bring your project to the community tool box, rather than vice versa. There is a large roof cover to enable many projects to be accommodated simultaneously.

everyday life'; as part of Norway's 'Cities of the Future' programme, 2009-2014, Trondheim, Norway. Project team; susturb.com with SLA landscapers, ADEPT architects, ATKINS engineers, LIFE Copenhagen University. These design moves alone brought emissions down from 12 tons per capita to 4.6 tons per capita.

3 TONNE SUBURB, BRØSET, TRONDHEIM, NORWAY

'Brøset, a unique everyday life'; as part of Norway's 'Cities of the Future' programme, 2009-2014, Trondheim, Norway.

Project team; susturb.com with SLA landscapers, ADEPT architects, ATKINS engineers, LIFE Copenhagen University. See article, "Release Resources, Make more use".

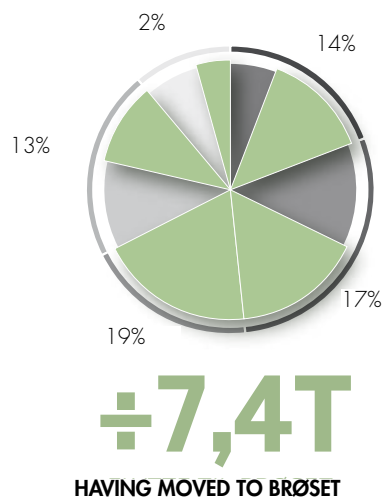
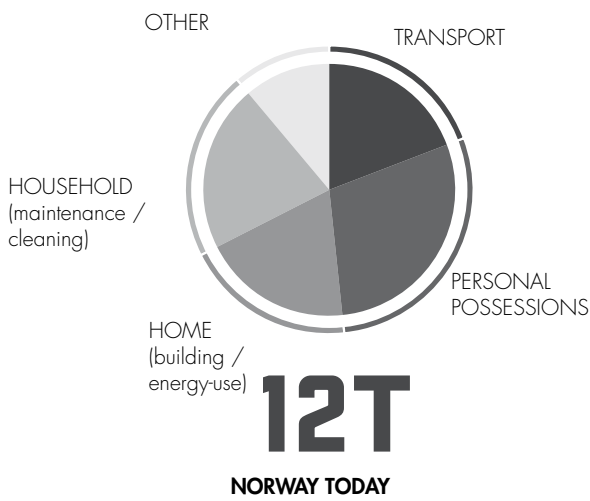
ADEPT ARCHITECTS / SLA, DENMARK



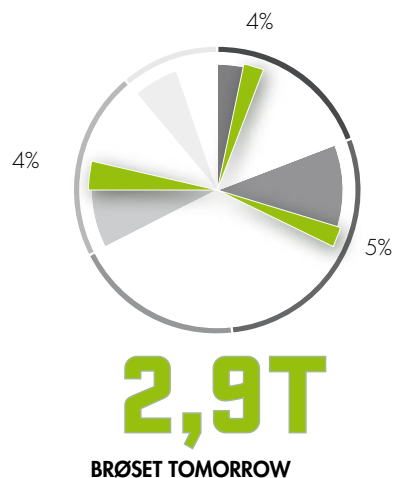
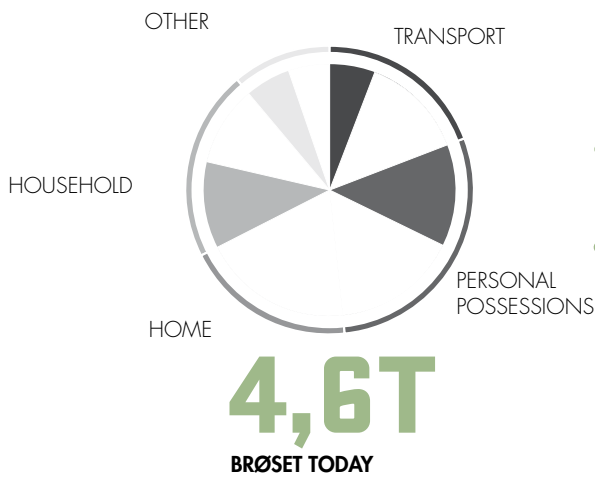
DENSE & INTENSE
MAX. HUMANISM
MAX. RESOURCE USE



ADEPT ARCHITECTS / SLA, DENMARK



■ Percent CO2 saved by moving to Brøset.
(relative to national emissions per capita 2011)



■ Percent CO2 saved by changing daily life patterns.
(relative to national emissions per capita 2011)

CONTENTS CONSUMED,
CASING RE-USED

In Denmark, a deposit system enables all PET soda bottles to be returned and deposit reimbursed. The number of refillable bottles returned in 2010 totalled 106% the number of full bottles sold; that is, more bottles were returned empty than sold full!

The company, Kodak sells the use of their disposable camera casings as a 'host' product. As a customer, you buy the camera but then bring it back in return for your pictures. The same casing is then reloaded with film, repackaged and resold to the next customer.



PHOTO: KODAK



PHOTO: DOMINIC BALMFORTH

STEALING ART, STEALING UTILITY

Metal theft costs the UK £1 billion a year and causes 16,000 hours of train delays due to the loss of metal cables. The Waste and Metal Theft Taskforce in Bexley, south-east London has now been established by Scotland Yard. In 2005, the Henry Moore sculpture 'Reclining Figure' was stolen. Valued at 3 million pounds, with a reward of 10,000 pounds and allegedly sold as scrap for 1,500. In 2011, the Barbara Hepworth sculpture (image to left) was stolen. Valued at 500,000 pounds, with a reward of 1000 pounds and yet to be found.



PHOTO: DAVID RITTER



PHOTO: FELIPE GABARDON



PHOTO: STEVE JOHNSON



PHOTO: STINE SKØTT OLSEN

EVER-USE WORK-WEAR

The company, Berendsen, sells the use of clothing, sheets, towels etc.

Their primary customers are the catering and hospital sectors. The above system at Holsterbro Hospital in Denmark allows hospital workers to collect clean uniforms and deposit dirty ones again via a mechanised closet system. Failure to return, or late returns results in deduction of credit stored for new, fresh uniforms.

The system operates via membership and log-in in order to meet personal needs for sizes and specific work-wear performance; surgeon, nurse, porter.



PHOTO: BERENDSEN

