



*Working with Nature*



THE ALLIANCE FOR  
BEVERAGE CARTONS  
AND THE ENVIRONMENT

# SUSTAINABLE TO ITS ROOTS - WORKING WITH NATURE

## The renewable imperative

We live in a world of increased use of natural resources. As this trend intensifies, renewable resources are at a premium, a fact reflected in EU and global policies on sustainability in general and forest management in particular.

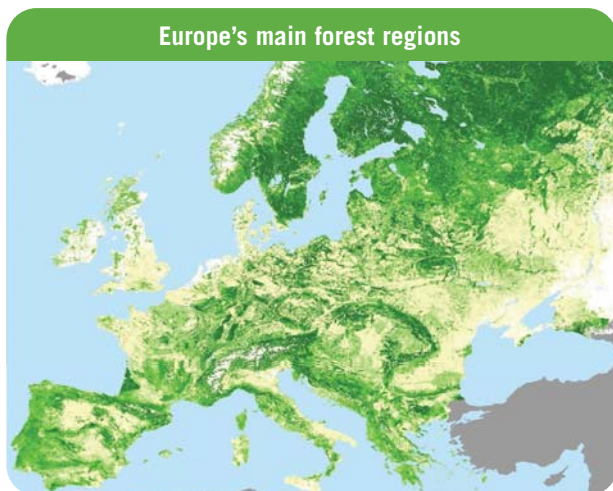
## Forestry management - sustaining the future

It's in the forest the beverage carton story starts. The beverage carton is composed 75% of paperboard<sup>1</sup>, made from wood - a renewable resource and one of Europe's great natural assets. Forests we source from are concentrated in the Nordic region, and managed to ensure they continue to grow year-on-year. This expands the resource base vital to us and the broader communities in which we operate.



Sustainable forestry is a fundamental basis for the beverage carton. From 1950 forest growth in Europe has risen continuously and growth in the forests we source from in Europe has exceeded felling. At present only 75% of the annual wood increment is harvested, meaning a sustained increase in forest resources. Policies and systems are in place to ensure that this sustainable development will continue. Forest regeneration plans, designed to resemble nature's own dynamic renewal of forest areas, form

<sup>1</sup>This is an average for beverage cartons produced by ACE's three manufacturing companies. The paperboard used in beverage cartons is liquid packaging board produced in four mills operated by ACE members in the Nordic region.



Schuck, A., Van Brusselen, J., Päivinen, R., Häme, T., Kennedy, P and Folving, S. 2002. Compilation of a calibrated European forest map derived from NOAA-AVHRR data. European Forest Institute. EFI Internal Report 13, 44p. plus Annexes

Päivinen, R., Lehtikoinen, M., Schuck, A., Häme, T., Väättäin, S., Kennedy, P., & Folving, S., 2001. Combining Earth Observation Data and Forest Statistics. EFI Research Report 14. European Forest Institute, Joint Research Centre - European Commission. EUR 19911 EN. 101p.

# 100%

Of the paperboard produced in Europe for beverage cartons comes from independently certified chain-of-custody paper mills



an integral part of the management measures practiced by our Nordic forestry. Each area scheduled for harvesting must have a regeneration plan favouring renewal of natural habitats.

producers to ensure that all fibres used in beverage cartons come from sustainably managed forests. Independently certified chain-of-custody systems are in place to ensure full traceability of the fibre back to its source.

The beverage carton manufacturers work closely with board

## The origin of wood - tracing the past



To make sure we take no part in the depletion of the world's forests, the wood used by ACE paperboard producers is traced back to its origins. The beverage carton manufacturers require paperboard producers to have verifiable systems in place to trace the wood fibres back to the forest they came from. Traceability is one of our most important tools to combat illegal logging and to avoid using unacceptable sources of wood. Traceability is independently verified according to 'chain-of-custody' standards set by the FSC (Forestry Stewardship

Council) and/or the PEFC (Programme for the Endorsement of Forest Certification Schemes).

Chain-of-custody is a system to ensure that wood comes from controlled and acceptable sources and ensures traceability throughout the value chain. Since 2005 all four European mills of ACE members producing paperboard for beverage cartons have had their chain-of-custody independently certified as complying to FSC or PEFC standards.

## Why is traceability important?



"An increasing amount of stakeholders are seeking evidence of environmentally sound business practices and demand reassurance and proof from the wood-processing industries that the wood they use comes from sustainability managed sources.

For the most part wood-based products have an excellent overall environmental record, but questions have arisen about the management of the forests from which the wood originates. Thus, a reliable and credible mechanism to prove the origin of wood is needed.

Forest certification is a way of proving that the forests are managed in a sustainable way according to agreed performance standards. A certified chain-of-custody system is a way of proving that an enterprise has a system to track the wood flow in the production process all the way from the certified forests to a factory."

### Rolf Arnkil

Lead Auditor, Forestry  
Det Norske Veritas, Finland



# INTRODUCING SOME NEIGHBOURS

## Responding to the biodiversity challenge

A key component of sustainable forest management is the attention given to habitat and species conservation – one of the main targets of the EU 6th Environmental Action Plan.

**The Nordic countries are home to about 40,000 species of animals, plants and fungi**



*The majestic moose, once under threat, now plentiful in the Nordic forests, including those managed for ACE members*

The beverage carton story continues in the forest. Forests play a major role in conserving the richness of natural species. For example, the Nordic region is home to all four of the large European predators – bear, wolf, wolverine and lynx - whose total number has increased in recent years.

The moose, which has benefited from forestry and hunting regulations, is now to be found in large numbers in Nordic forests after being under threat at the beginning of the last century.

**Pointing the way:**  
*White-backed woodpeckers are a prime indicator of biological diversity in the forest landscape. Projects to develop habitats of this woodpecker, a rare species, have been supported by ACE's Nordic forest companies.*



**The Beaver:**  
*Beavers live in forests near streams and lakes. When beavers fell trees and build their dams, the adjoining forests are flooded. This leads to decreases in some tree life and increases in others. Beavers eat the bark of deciduous trees, leaves, aquatic plants and their roots.*





# SUSTAINABLE LIVELIHOODS

## The bond with nature

Forest-based communities live off the forest and its resources. They have existed often for centuries in harmony with nature in some of Europe's most peripheral regions. These communities and their future generations rely on caring stewardship and renewal of the resource on which they depend.

**We live off  
the forest  
but we also  
live with it**



AssiDomän Frövi paper mill

The beverage carton story now takes us into this broader context. Mills which supply the paperboard for beverage cartons create direct employment and also contribute to the well-being of communities where they operate. The communities are often small, and ACE paperboard producers are both major local employers and significant business partners for many other local enterprises.



## Värmland's forests: getting the balance right

**"We are, and have always been, a region that depends on our forest; it is the key to our prosperity. A fantastic natural resource, that won't run short if we handle it with care.**

Forest activities are essential for Värmland. The forest provides a lot of business for us, not only for the forest industry itself but also for tourism and to make Värmland a place where people enjoy to work and live. Our forestry promotes a balance between industrial use, biodiversity and recreation.

We live off the forest but we also live with it - the forest is an important part of our existence and our way of life - and we know that if we take good care of our forest it will also be an important part of our grandchildren's life - and their children's too."

**Eva Eriksson**  
Governor of Värmland,  
Sweden

## How can our mills help to support local communities?



“The traditional base industries of iron and forestry are the life-blood of Lindesberg. There is therefore a natural interest in the region in conservation issues and ecologically sustainable development.

At the leading edge of this development and its implementation is AssiDomän Frövi.

This cartonboard mill is one of the largest private enterprises in the region and an important part of Lindesberg’s economy. AssiDomän Frövi has, among other things, contributed to the more efficient use of energy in the area.

Excess heat from AssiDomän Frövi is used for municipal heating. This has enabled us to reduce fossil fuel emissions quite dramatically. It has saved money too – and the environment.

It is important for the municipality and the company to work together to build a community where growth, welfare and good environment go hand in hand.

It requires everyone to take a responsible total view. And that is something AssiDomän Frövi has shown it can do to the highest degree.”

**Anders Ceder**  
Municipal Commissioner,  
Lindesberg, Sweden

## Our forestry promotes a balance between industrial use, biodiversity and recreation



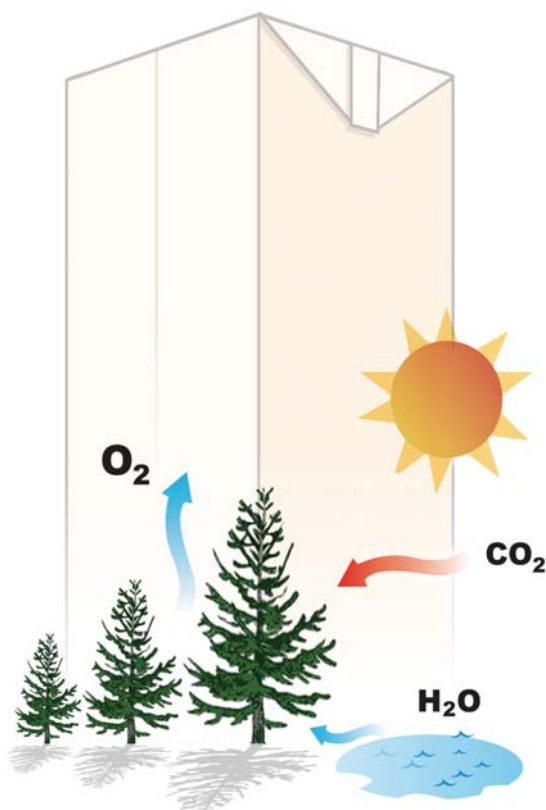
More generally, the managed forests are an important resource for tourism, providing a natural environment for leisure and pleasure activities like camping, fishing and berry-picking.



# HELPING TURN DOWN THE HEAT

## The planet's climate

Emissions of carbon dioxide by human activity, in particular the burning of fossil fuels, are one of the chief causes of the greenhouse effect. Global warming is now seen in Europe as one of the world's overriding challenges because of its impact on present and future generations. Forests play a major part in helping to counter the rise in the world's temperature.



## Neutralizing carbon emissions

The beverage carton story brings us back, then, to one of the forest's key environmental roles – helping to redress the balance in our climate.

Forests naturally absorb carbon. Nature's own carbon cycle is balanced, because green plants like trees take up and store the same amount of CO<sub>2</sub> which is released when they are burned or composted. Trees take CO<sub>2</sub> out of the air and turn it into wood as they grow.

So forests form an effective sink for carbon dioxide. Their steady year-on-year growth, under sustainable forest management, can enhance this effect. Young forests in particular absorb a lot of carbon as they grow. Wood and wood-based products serve as a temporary sink for the carbon which is released only at the end of the product's life. The overall effect of this 'green carbon' cycle is neutral.

Beverage carton producers are constantly monitoring and striving to reduce our products' environmental impacts along the life cycle, especially greenhouse gas emissions. For this reason the non-paper components of our package are limited to a minimum - without, of course, prejudicing the package's health and safety requirements as well as its consumer functionalities.

The low global warming potential of the beverage carton was key to its positive assessment made in 2000 by Germany's environmental agency<sup>1</sup>. The agency considered the beverage carton to be one of a limited number of "ecologically advantageous" packages for the purpose of German packaging law<sup>2</sup>.

<sup>1</sup> Life Cycle Assessment carried out for Germany's Federal Environment Agency (Umweltbundesamt) in 2000 (UBA II).

<sup>2</sup> "Ökologisch vorteilhaft", as worded by the UBA.

## What does Tetra Pak do to reduce greenhouse gas emissions?



"A sustainable use of renewable resources is part of Tetra Pak's long-term perspective. First of all, we produce packaging mainly made from paperboard. This comes from forests which are not only a renewable resource but also help keep the CO<sub>2</sub> in the air in balance.

We have been constantly improving energy efficiency in our operations. From 2002 to 2004 we decreased the energy used to produce a beverage carton package on average by 6% worldwide.

As a next step we shall further decouple our greenhouse gas emissions from our growth in production. We voluntarily commit to reduce our carbon dioxide emissions by 10% in 2010 vs. 2005 in absolute terms, while continuing to grow our business. To achieve this target, we shall make more improvements in our energy efficiency. In addition, we shall purchase Green Power generated from renewable energy sources, starting 2006 in Europe."

### Claes Du Rietz

Vice President Global Environment and Food for Development, Tetra Pak International

# 70%

of the energy used in the mills producing paperboard for the beverage carton comes from bio-energy.

## Using renewable energy

In the mills\* which produce the board for the carton, we are counteracting the greenhouse effect by progressively replacing fossil fuels with bio-energy, thus reducing our net emissions of CO<sub>2</sub>. In these mills, which are among the highest users of bio-energy, some 70% of the total energy used is from bio sources. Some of our mills also distribute excess heat to the nearby communities, helping further

to minimize fossil fuel consumption and CO<sub>2</sub> emissions in our neighbourhoods.

As beverage carton producers we commit to energy efficient production. Tetra Pak, for example, has measurably improved its global energy efficiency in recent years, and has also set a target for further cuts in global CO<sub>2</sub> emissions by 2010.

**\*The Korsnäs mill in Gävle, Sweden, produces and uses large amounts of energy. It is vital both for process economy and the environment to do this as efficiently as possible.**

Most of the energy comes from combustion of bark and wood components dissolved in the cooking process. In these processes large amounts of steam is generated. This accounts for 97 % of the total thermal energy used at the Korsnäs mill.

Additional biofuels are also used in the chemical recovery process together with a small amount of fossil fuels. External energy in the form of electricity is also used in the production (of which 75 % is hydro power).

In the total energy balance 85 % consists of renewable energy originating from wood.



# EXTENDING THE LIFE OF RENEWABLE RESOURCES

## Recycling the beverage carton

Decoupling environmental impacts like waste generation from economic growth is one of the major goals set by the EU for 2010. It puts a particular premium on activities like recycling as a means for achieving this goal.

Lengthening the life of the original materials in the beverage carton, by recycling them into new products, helps expand the use of fibres as carbon sinks and optimize the use of the renewable resources of the forests, where our story began.



## Reincartonation

Beverage cartons are collected from households across Europe for recycling in paper mills. The paper recycling process separates the paperboard from the carton's polymer and aluminium layers, enabling the high fibre quality in our paperboard to be used for new products. The separated non-fibre components are mostly used in industrial processes where aluminium is recycled and energy is produced<sup>1</sup>.

The new lives assumed by the fibres from used cartons are varied: cardboard boxes, cereal boxes and

other packages for consumer goods, office stationery, gypsum board, textile and paper cores etc.

Recycling of the beverage carton has grown steadily in recent years, reaching 29% in the EU-25 in 2004, when 11.7 billion beverage cartons were recycled. Signs of the decoupling of economic growth from environmental impact are beginning to emerge. Increases in beverage carton recycling have been an average 12% a year since 1992, outstripping market growth.

Recycling plays its part in reducing greenhouse gas emissions generated at landfills. Besides avoiding the waste of resources, the 300,000 tonnes of beverage cartons recycled in 2004 amount to a prevention of 270,000 tonnes in greenhouse gas emissions.

<sup>1</sup> Beverage cartons designed to distribute food products at ambient temperature contain on average 75% paperboard, 4% aluminium and 21% polymers. Beverage cartons designed to distribute food products under refrigerated conditions may not contain aluminium. The composition of beverage cartons differs according to packaging sizes and functionalities, and between manufacturers.

# 300.000

tonnes of beverage carton were recycled in Europe in 2004

## Renewables - a sustainable choice

"Using renewable resources is part of Tetra Pak's long-term strategic plan. We work with our board suppliers to ensure all fibres used in our packages come from responsibly managed forests where trees are renewed and biodiversity protected. For us, sustainability means both renewable materials and also renewable energy. We will increasingly purchase green power where it is commercially available. To meet our environmental targets, we cooperate closely with suppliers, customers, public authorities and environmental organizations."

Dennis Jönsson  
President and CEO  
Tetra Pak

## Putting environmental management systems to work

"We are committed to running our business with respect for efficient and responsible resource management and to work systematically to minimize the environmental impact of our products and services. Environmental Management Systems and tools enable us continuously to improve our environmental performance throughout our value chain."

Bjørn Flatgaard  
President and CEO  
Elopak

## Recycling - part of our sustainability strategy

"Sustainability is an integral part of our corporate strategy. Using paperboard as the main material distinguishes the beverage carton fundamentally from all other drinks packaging and fits perfectly into our sustainability concept. This also includes actively promoting and securing adequate national collection systems and recycling capacities for beverage cartons throughout Europe."

Rolf-Dieter Rademacher  
CEO  
SIG Group



## ACE Members' Production Sites



## ACE MEMBERS

Paperboard  
producers



Beverage carton  
manufacturers



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ACE represents leading beverage carton packaging producers and their main European paperboard suppliers in EU environmental policy developments