

GUEST EDITORIAL

Research on Paper and Board Recycling in the COST Framework

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Europe – the global champion in paper recycling

Paper is one of the most important inventions of the last two millennia and its history is the history of human culture and civilization. In Europe, paper production started as early as medieval times and, until the middle of the 19th century, the collection and recycling of rags was the main way of making paper. Thus, one may say that the origins of the European paper industry lie in recycling.

Paper recycling is often depicted as a loop, involving several actors along the cycle: paper producers, paper consumers and collectors of used paper and board products. Each actor along the chain has a role to play and all have started to work together to understand how their decisions can serve the common interest, in a more systemic approach to recycling. This has allowed the European paper industry to break world record levels of paper recycling in an increasingly sustainable way. The tool for this has been the European Declaration on Paper Recycling, a voluntary commitment acknowledged by the European Commission. After the success of the first European Declaration on Paper Recycling (2000-2005), a new voluntary commitment of the paper recycling chain was signed for the 2006-2010 period, with the challenge of achieving a recycling rate of 66% in 2010. By 2008, this objective was already achieved, making paper the most recycled product and Europe the global champion in paper recycling.

COST Framework

COST is an intergovernmental framework for European Cooperation in Science and Technology, allowing the coordination of nationally funded research at a European level. COST is based on Actions. These are networks of national research projects in fields of interest to at least 5 COST countries. COST Actions cover basic and pre-competitive research for peaceful purposes. The Action achieves results through its cooperative activities: meetings, workshops, short-term scientific missions, etc. Such activities build efficient networks, which often maintain their working relationships beyond the normal 4-year duration. More information is available at <http://www.cost.eu>.

COST Action E48: The Limits of Paper Recycling

Objectives and structural organization

COST Action E48 was launched as an initiative dedicated to the identification of the limits of paper recycling in Europe and to developing ideas on how these limits could be extended. The Action, supported by the “Forests, their Products and Services (FPS)” Domain, had as its main objective the development of scenarios describing the future use of recovered paper within the European paper industry, in order to provide a better background for focused research activities in the field, as well as to facilitate investment decisions or future company strategies concerning raw material markets.

The organisational structure included a *Management Committee (MC)*, chaired by Jan-Erik Levlin (Finland) and Harald Grossmann (Germany), and three *Working Groups (WGs)*: *WG1* – “The development of recovered paper quality”, coordinated by Angeles Blanco (Spain) and Andreas Faul (Germany); *WG2* – “Treatment technologies and future recycled pulp quality”, coordinated by Francois Julien-Saint Amand (France); *WG3* – “Legislative aspects, market trends and societal issues”, coordinated by Arie Hooimeijer (the Netherlands).

In addition to the three working groups, *Task Forces* have been formed to compile information on special questions: *Competitiveness of paper recycling*, chaired by Elena Bobu (Romania) and Bartek Stawicki (the Netherlands); *Collection and sorting*, chaired by Ruben Miranda (Spain); *Statistics*, chaired by Ilpo Ervasti (Finland); *Action final report – the Book*, chaired by an enlarged Action Steering Group.

The Action ran from March 2005 to March 2009 and it has large representation across Europe, comprising 18 European countries and 30 individual research organisations. Throughout its entire lifetime, the Action has had very fruitful cooperation with CEPI (Confederation of European Paper

Industries), INGEDE (International Association of the Deinking Industry), Pöyry Forest Industry Consulting Oy and COST Action E46 – Deinking.

Main achievements

The activities of the Action involved: workshops and WG meetings twice per year with presentations and discussions; collection of information by Action participants *via* questionnaires, interviews; compilation of material for a book on the future of recycling in Europe; STSMs (Short Term Scientific Missions). Some major achievements comprise:

- development of scenarios for the future of paper recycling in Europe;
- drawing conclusions concerning future research needs in recycling. These also indicate further challenges;
- exchange of knowledge by STSMs, which helped young scientists to learn new techniques and test methods that are not available in their own institution/laboratory;
- compilation of information concerning paper recovery and recycling statistics, otherwise not easily achievable;
- creation of a pan-European network, including many new EU countries, around general aspects of paper recycling;
- publishing a book describing the main factors influencing paper recycling in Europe: “The Future of Paper Recycling in Europe – Opportunities and Limitations”.

The final Conference of COST Action E48 “The Limits of Paper Recycling” was organised on May 6-7, 2009, in Munich, Germany. The conference synthesized the 4 years of European co-operation among 18 countries on the potential limits of paper recycling in Europe, and what efforts should and could be undertaken to extend these limits and to safeguard recovered paper as a most valuable raw material for the European paper industry. At the end of the conference, the chair of the Action, Jan-Erik Levlín, concluded:

“COST E48 was not just another COST Action. It was a real European co-operation in which:

- a strong network was further developed,
- the members learnt a lot about the expertise, facilities and research focus of their colleagues all across Europe,
- agreements for further cooperation – beyond the action – were set up – and already put into action.

Admittedly in some cases, it was hard work, but in (almost) all cases the members enjoyed to work together”.

This special issue of *Cellulose Chemistry and Technology (CCT)* is dedicated to an important research theme of pulp and paper industry – **Paper Recycling and Sustainable Development**. The idea for this volume originated in the scientific network developed in the frame of COST Action E48 – The Limits of Paper Recycling. Therefore, this CCT issue includes two papers on the theme of the SORT IT – FP7 project, as proposed by COST E48 partners. *Cellulose Chemistry and Technology* is a reference journal in the field of pulp chemistry and technology, distributed worldwide, which guarantees that the important research results generated by COST E48 will reach all research and industrial communities interested in paper recycling. The partners of the COST E48 Action thank the CCT Editorial Board for accepting to publish this special issue.