

What Drives Collection

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RECOVERED PAPER AND BOARD COLLECTION SYSTEMS IN EUROPE
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What are you going to hear in the next 20 minutes?



- A brief introduction to INGEDE and to the deinking process
- Evaluations of a study on recovered paper collection
- Which quality aspects have to be considered

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Acknowledgements



Thanks are given to:

- Jori Ringman of CEPI for providing the collection study
- My colleagues in a task force of COST E 48: Angeles Blanco and Rubén Miranda of UCM and Giorgio Capretti of SSSCP in Milano for evaluating the study's data
- INGEDE member companies supplying data about their RCP quality

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Who is INGEDE?



Leading European paper manufacturers with deinking plants founded the International Association of the Deinking Industry, a non profit organisation, in 1989.

Currently 40 paper mills are members of INGEDE:

Recovered paper usage will be more than 10 million tons in 2006



Pakistan

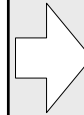
The Objectives for the Work of INGEDE



- The objective of INGEDE is to represent the general conceptual and business interests of companies and organisations working in the paper industry and using graphic recovered paper.
- One of the activities to reach this objective is maintaining and improving the quality of recovered graphic papers.

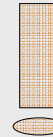
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The Deinking Process



Detaches ink from fibres and removes them from the pulp

Contains often a mild bleaching stage



Is not suited to decolour brown fibres or dyed papers

Therefore: Recovered paper for deinking has to be free of brown components

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The Deinking Process:



There are two processes for ink removal:

- Flotation (predominantly in Europe and Asia for graphic paper)
material losses 10 to 15%
- Washing (in North America and for hygiene paper)
material losses up to 40%
(also in North America there is more and more flotation deinking for graphic papers)

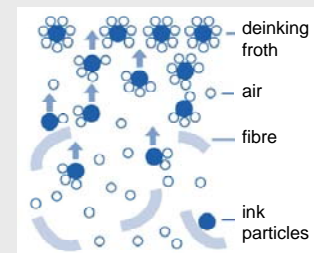
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Main Steps of the Deinking Process



1. Ink Detachment:

- The pulper is the key element to detach the ink particles from the fibres

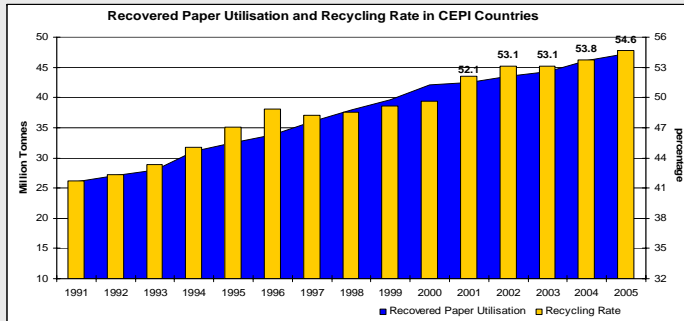


2. Flotation:

- Air is injected into the suspension and forms small bubbles
- The hydrophobic ink particles attach to the air bubbles
- The air bubbles ascend to the surface
- They are removed as deinking froth

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Recovered Paper Utilisation and Recycling Rate in CEPI Countries



Source:CEPI

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Facts about Recovered Paper



- Recovered paper is an important resource
- Recovered paper utilisation and recycling rate are increasing
- The quality of recovered paper is difficult to keep
- The objective of **INGEDE** is:

Higher Collection rates with better quality of graphic paper to maintain or improve the RCP rate in magazines or other high grades of paper

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CEPI Study “Collection System”

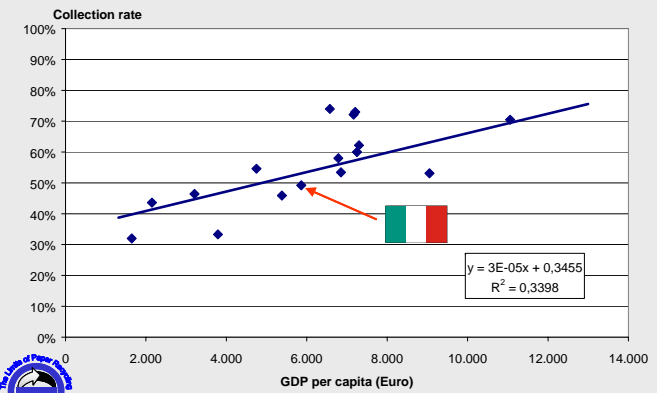


- Contains paper production, consumption and collection data from all CEPI and EU 25 countries as well as socio-economic data
- Study was analysed by a task force within COST Action E 48 “Limits of Recycling” (<http://www.cost-e48.net>)
- Correlations are made to find out the major influencing factors on the collection rate



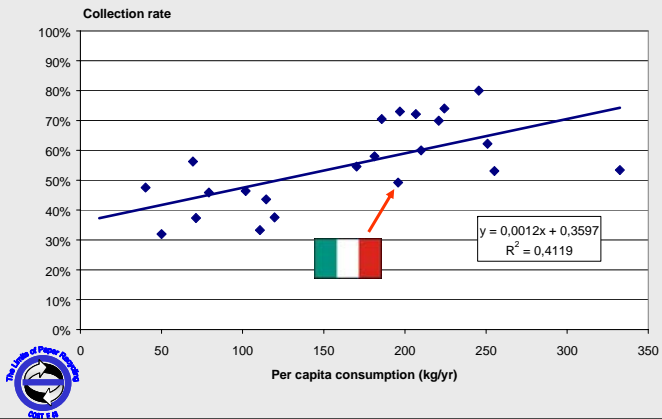
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Statistical Evaluation of the CEPI Study Collection Rate vs. GDP per capita

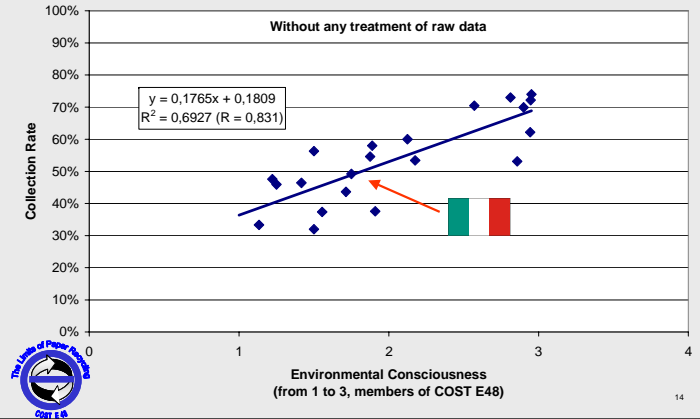


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Statistical Evaluation of the CEPI Study Collection Rate vs. P&B Consumption



Statistical Evaluation of the CEPI Study Collection Rate vs. Environmental Consciousness



Conclusions of the CEPI Study



- The RCP collection rate increases with the P&B consumption, the GDP and the environmental consciousness
- The influence of the P&B consumption and the GDP is significant
- Environmental consciousness is obviously the main driving force
- However, there is only a weak correlation to ISO 9000, ISO 14000 and EMAS certifications
- The population density has only little influence
- Collection rate is not driven by utilisation rate



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Recommendations



- The objective of the Task Force is to give guidance how to increase collection rates:
 - In countries with low collection rate the environmental consciousness has to be developed (= education)
 - In countries with already high collection rate the collection systems have to be optimised for further increase



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Evaluation of Grade 1.11 Contents by INGEDE Member Mills



- Office papers: generally accepted, sometimes with limit
- Envelopes: unsuited in two thirds of the mills
- Dyed papers: unsuited in two thirds of the mills
- Telephone directories: accepted w/o limit at 50% of the mills, with limit in 25%, unsuited in 25% - limits different depending on colour
- Catalogues & junk mail: generally accepted as OMG
- Exercise books: accepted in two thirds, sometimes only w/o covers, unsuited in one third

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Study about RCP Collection Systems in Germany



	Container	Bin	Kerbside bundles	Recycling centres
Amount	high	high	medium	medium
Collection costs	low	medium	high	high
Quality	medium	medium	high	very high
Acceptance	high	high	medium to high	medium to high
Share (2002)	40%	49%	4%	7%

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Sorting Costs for Paper Collection Systems from Households



- Sorting of mixed paper (positive sorting): 30 – 35 €/ton
- Sorting of separately collected paper (negative sorting): 15 – 25 €/ton
- Savings: 5 – 15 €/ton

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Improving Collection Systems for Paper from Households



Separation of household waste can be achieved by:

- Increasing environmental awareness
- Increasing knowledge about environmental problems and solutions
- Higher motivation for citizens by decreasing fees
- Positive and negative feedback about quality of separation (positive: confirmation; negative: need for action)

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Overall Conclusions



- The deinking process requires clean recovered paper, free from non-paper components and undeinkable papers
- Increasing collection has to consider these requirements
- Separate collection of P&B from other recyclables is a must for the paper industry
- Separate collection of graphic papers is an advantage for deinking mills

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