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# Introduction/early concept of the paper recycling research

**Activity 23 of the ISTEAC project**



# Task description

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## **Activity 23: Exploration of recycling potential and recycling schemes for paper in different settings**

Recognizing

- the need of large imports of the Asian countries to satisfy the domestic demands on paper production in result of the lack of waste paper supplies from own sources (indicating a huge potential for increasing the recovery of waste paper within these countries),
- the well developed infrastructure and economies in European countries, including Germany and Greece, for the collection and use of waste paper by the industry.

Specific activities include (for the cases of Vietnam and Philippines):

- ⇒ Review of the paper industry,
- ⇒ Assess waste paper quantities and recycled paper requirement,
- ⇒ Study the existing paper recycling infrastructure,
- ⇒ Propose an optimal strategy to increase recycling of paper,
- ⇒ Write a report of the study.



# Research focus

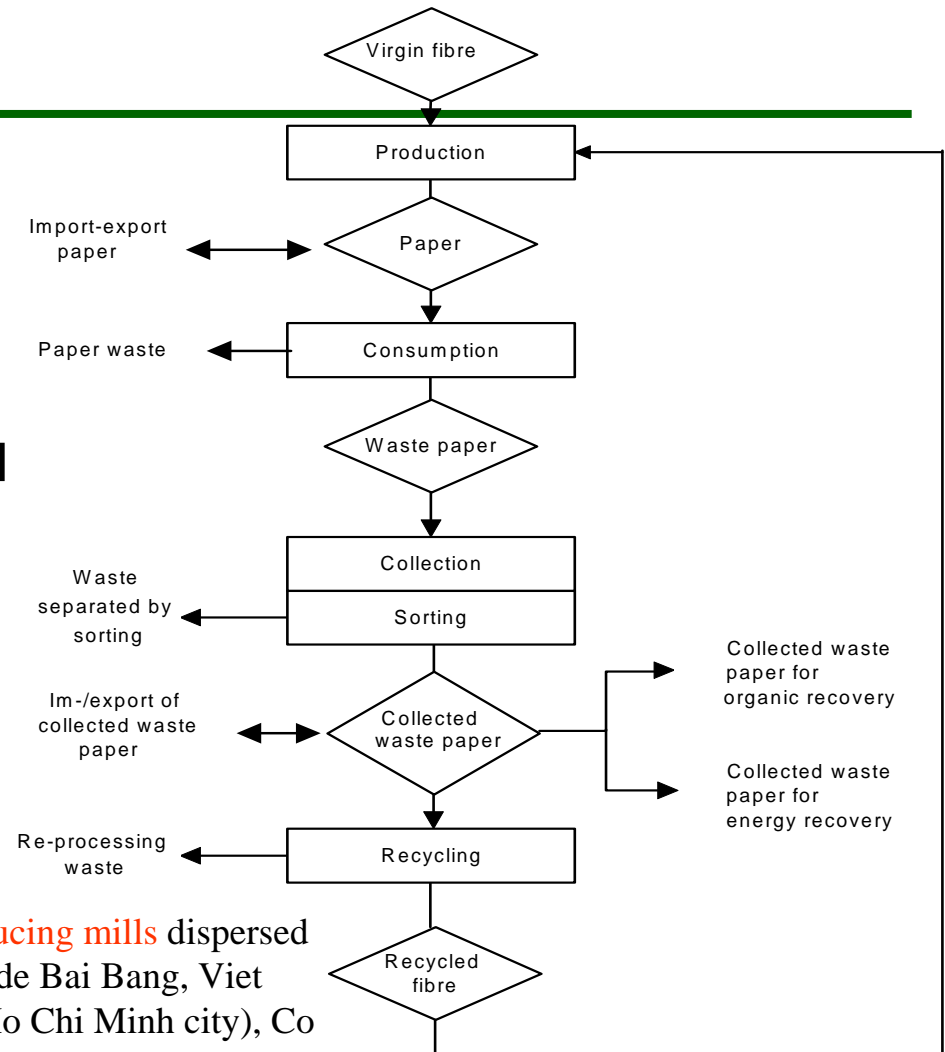
The need of reliable statistics for the research, e.g.

- on the paper production,
- im-/exports,
- collected and utilised/recycled amounts of paper

is contradicted a.o. by

controversial figures that appear in various country reports.

..“There are **ninety large and small scale paper producing mills** dispersed throughout the country. The larger paper mills include Bai Bang, Viet Tri (Vinh Phu), Vien Dong, Linh Xuan, Thu Duc (Ho Chi Minh city), Co Gido and Tan Mai (Dong Nai) **having an annual output of between 2 to 30 million tonnes. National paper production has a capacity of about 160,000 tonnes/year** and the pulp production is 165,000 tonnes/year.“

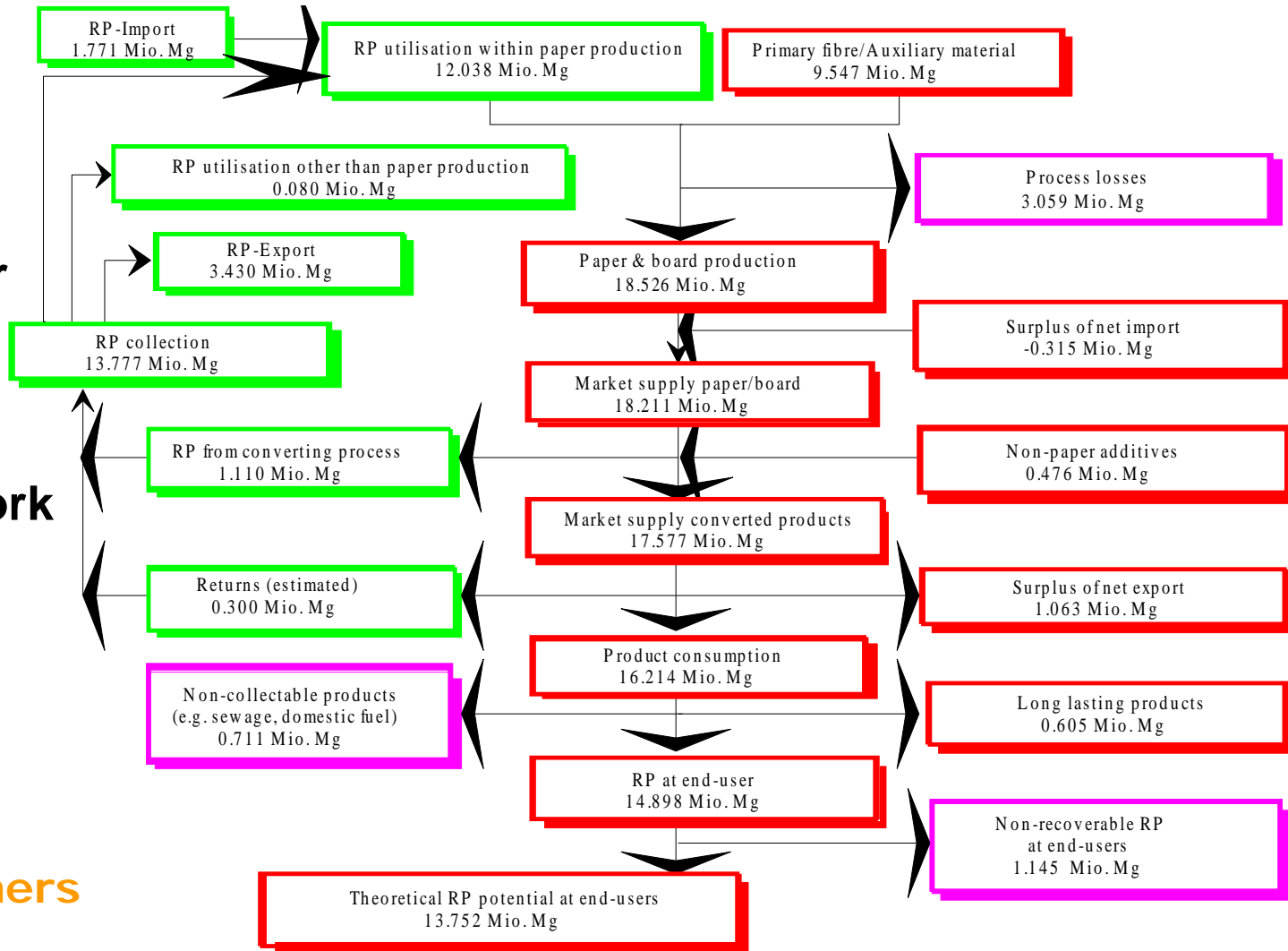


# Paper quantities

**Example:  
Paper mass  
flow in  
Germany for  
2002**

**TASK:  
Trying to work  
out more  
simplified  
versions for  
the other  
countries**

-> All partners



# Waste paper sources

Using a descriptive approach -> All partners

**Pre-consumer waste paper**

- Paper converters and printers

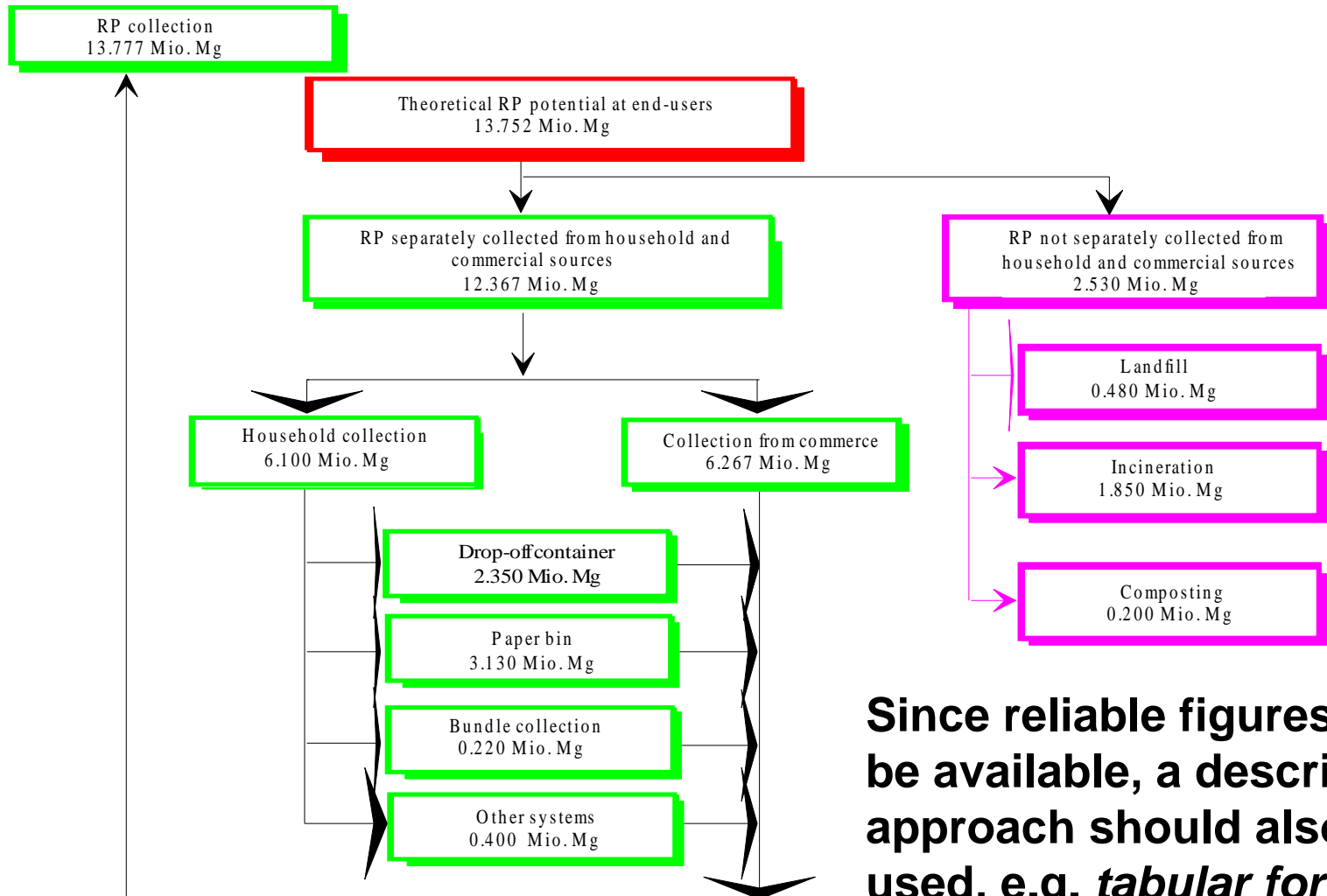
**Post-consumer waste paper**

- Industry, commerce, public and private administration
- Other consumer incl. households

Waste paper sources	Waste paper quality	Waste paper quantity	Uniformity of waste paper
<b>Paper converters and printers</b>	Medium to high	Considerable, large at single sources	High
<b>Industry and trade</b>	Medium to high, corrugated board mainly	Considerable, medium at single sources	Medium
<b>Administration and offices</b>	Medium	Medium, low to medium at single sources	Medium
<b>Other consumers (incl. households)</b>	Low to medium	High, low at single sources	Low to medium, depending on the collection system



# Collection and recovery routes



**Since reliable figures won't be available, a descriptive approach should also be used, e.g. *tabular format***

**-> All partners**

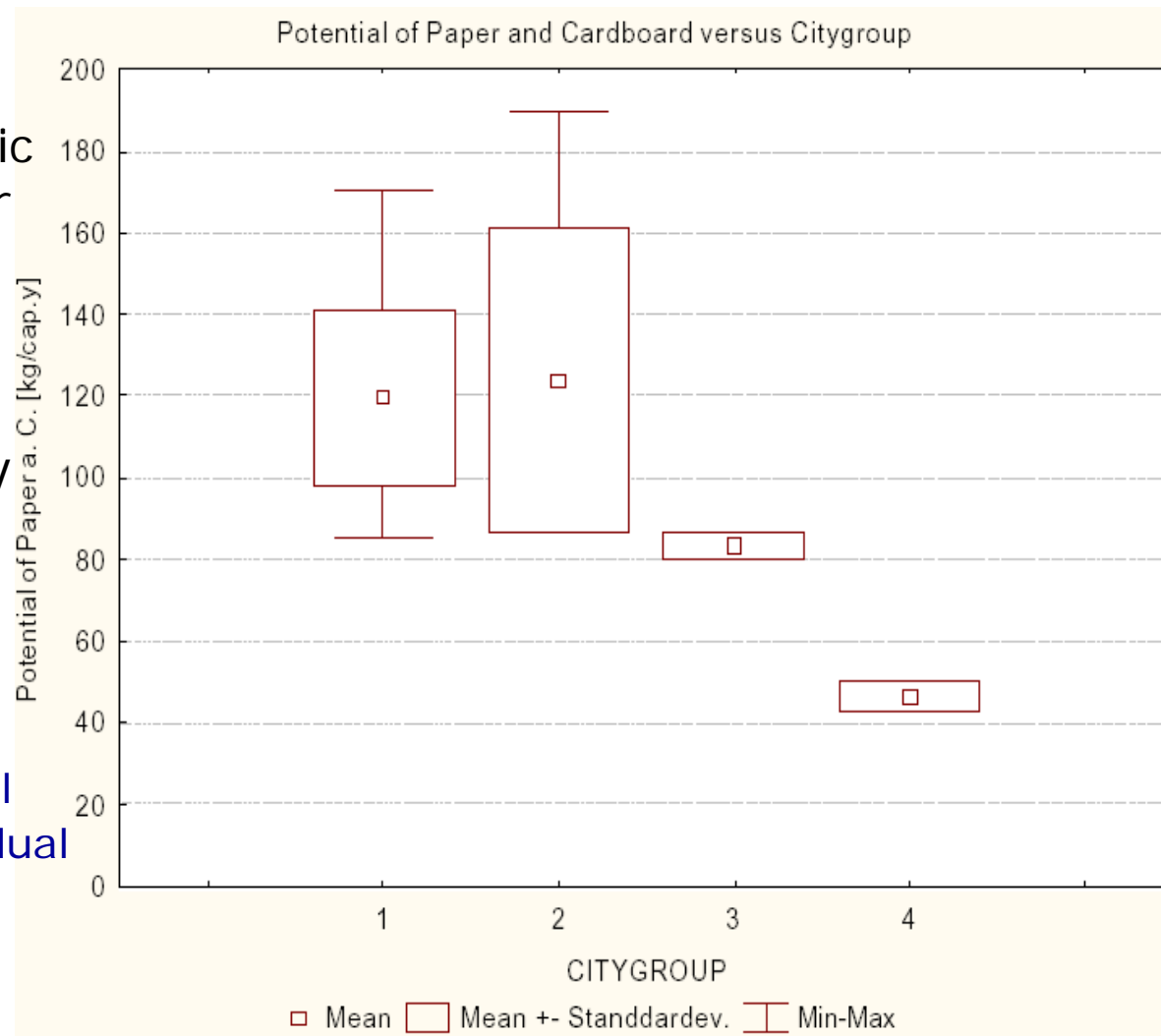


# Recycling potential

Time series of waste quantities, waste composition and economic and social parameters for 55 European cities.

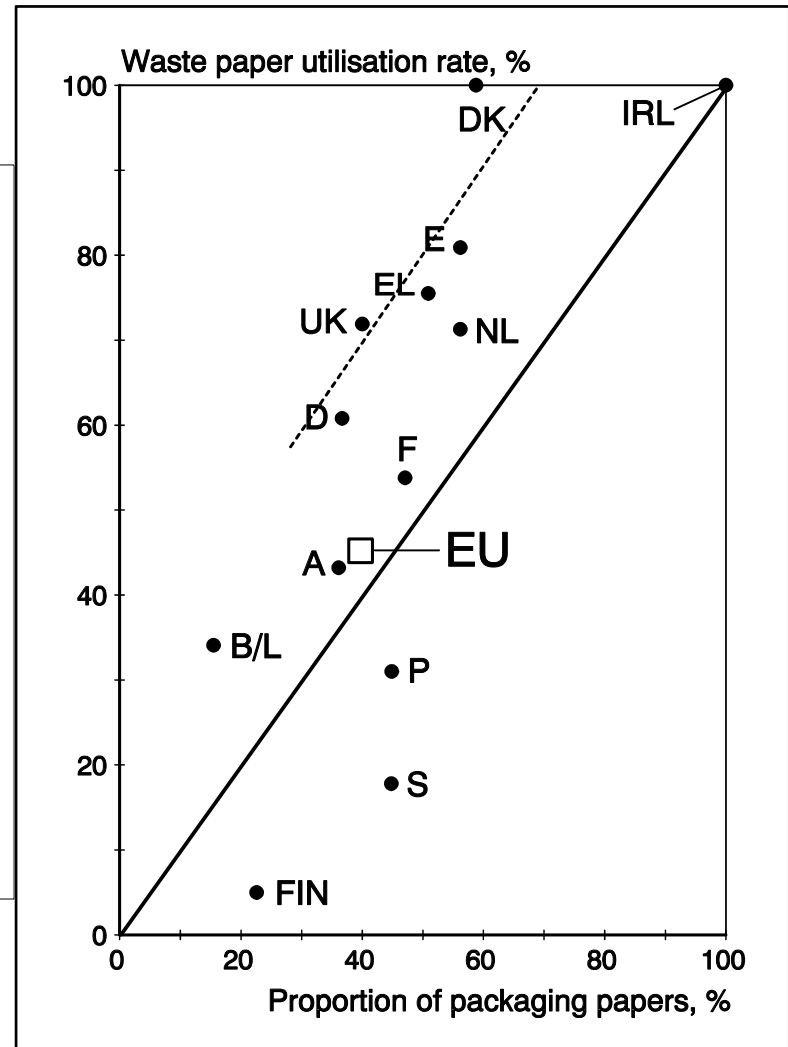
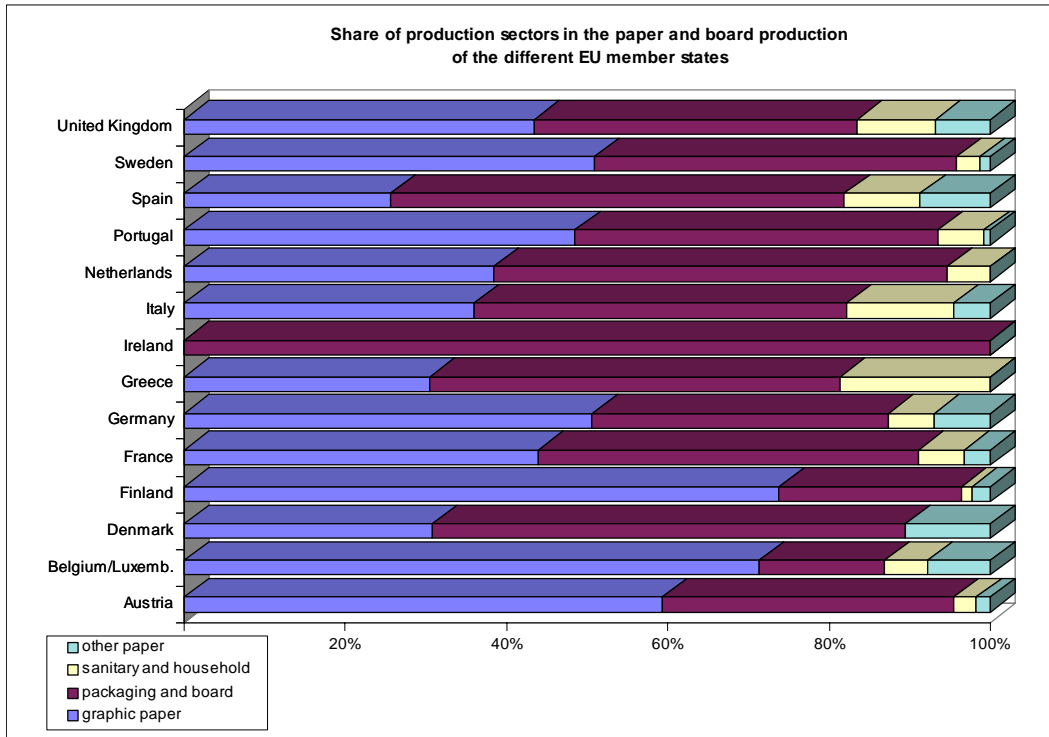
Cities divided into four groups (citygroup 1 to 4 w./ decreasing prosperity level 1 = high ... 4 = low prosperity).

To calculate the recycling potential the quantity of separately collected material and composition of the residual waste must be known for a balance period, however !



# Recovered paper utilisation

Germany: Product shares  
 graphical papers: 49%  
 packaging: 39%



**But there are also other uses aside from paper production !!**



Fig. 3.18 Waste paper utilisation rate of EU member states depending on the proportion of packaging material (1998) related to paper and board production IfP-TUD 2000 c4899he

# Utilisation potential

***Considering the fact that the forms of paper collection and the recovery logistics have significant effects on the quality, and therefore the usability of the secondary materials and economics of recycling.***

**TASK: Establishing what waste paper is used for -> All partners**

