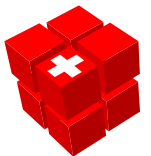



Electronic versus Print Media

Who is the Ecological Winner?

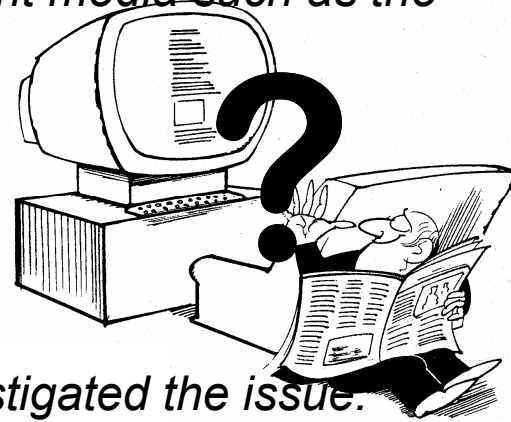
Roland Hischier and Thomas Ruddy

EMPA - Swiss Federal Laboratories for Material Testing and Research
St. Gallen, Switzerland

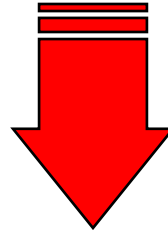




Electronic media such as the Internet or CD-ROM appear to be more ecological than traditional print media such as the newspaper or a catalog.



*Are these arguments correct?
Until 1991 nobody had seriously investigated the issue.*



LCA study aimed to **determine** where the greatest environmental impact is located in various media as well as to **deduce where** any potential for improvement lies.



Conclusions

In the case of a reference book as well as for the consumption of information and entertainment, **electronic media** are **environmentally advantageous** as long as:

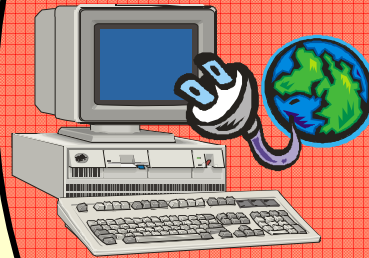
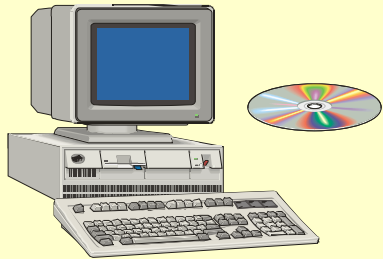
- They are used very **selectively**
- Information found in the Internet is **not printed**
- They are used with an **electricity mix** that is based on **renewable sources**
- A **CD-Rom** is used **within a network** and not only as a single version



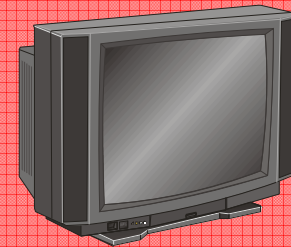
Research objects



Case I
use of a
reference book

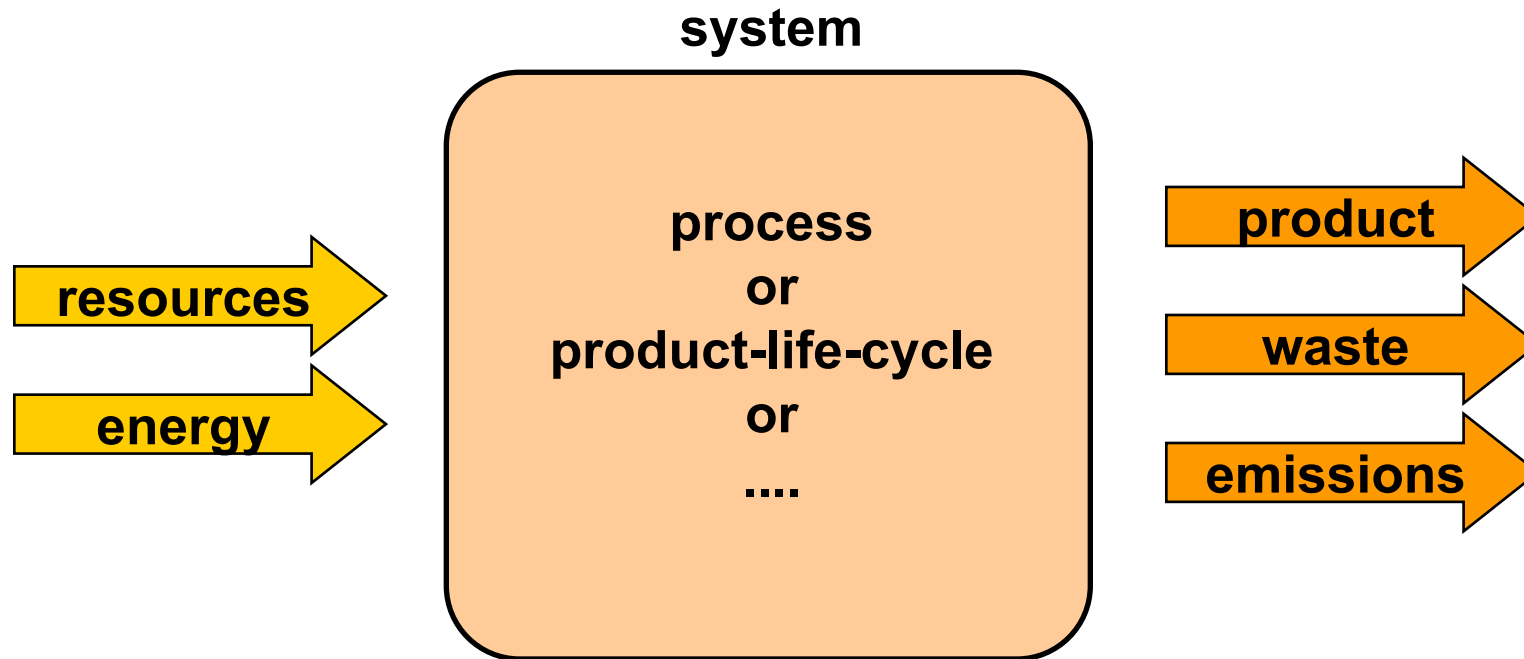


Case II
information and
entertainment

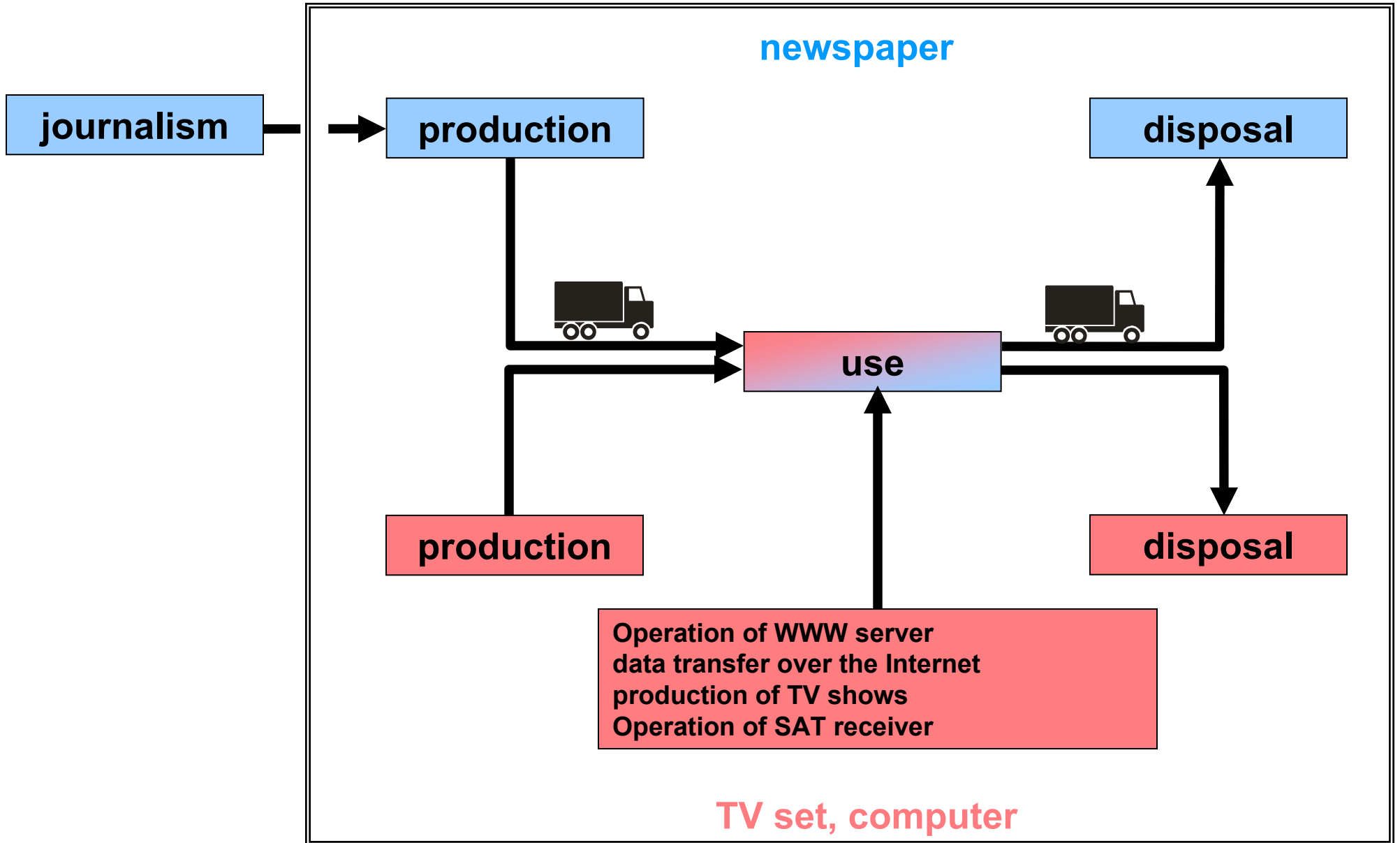


Life-Cycle Assessment method

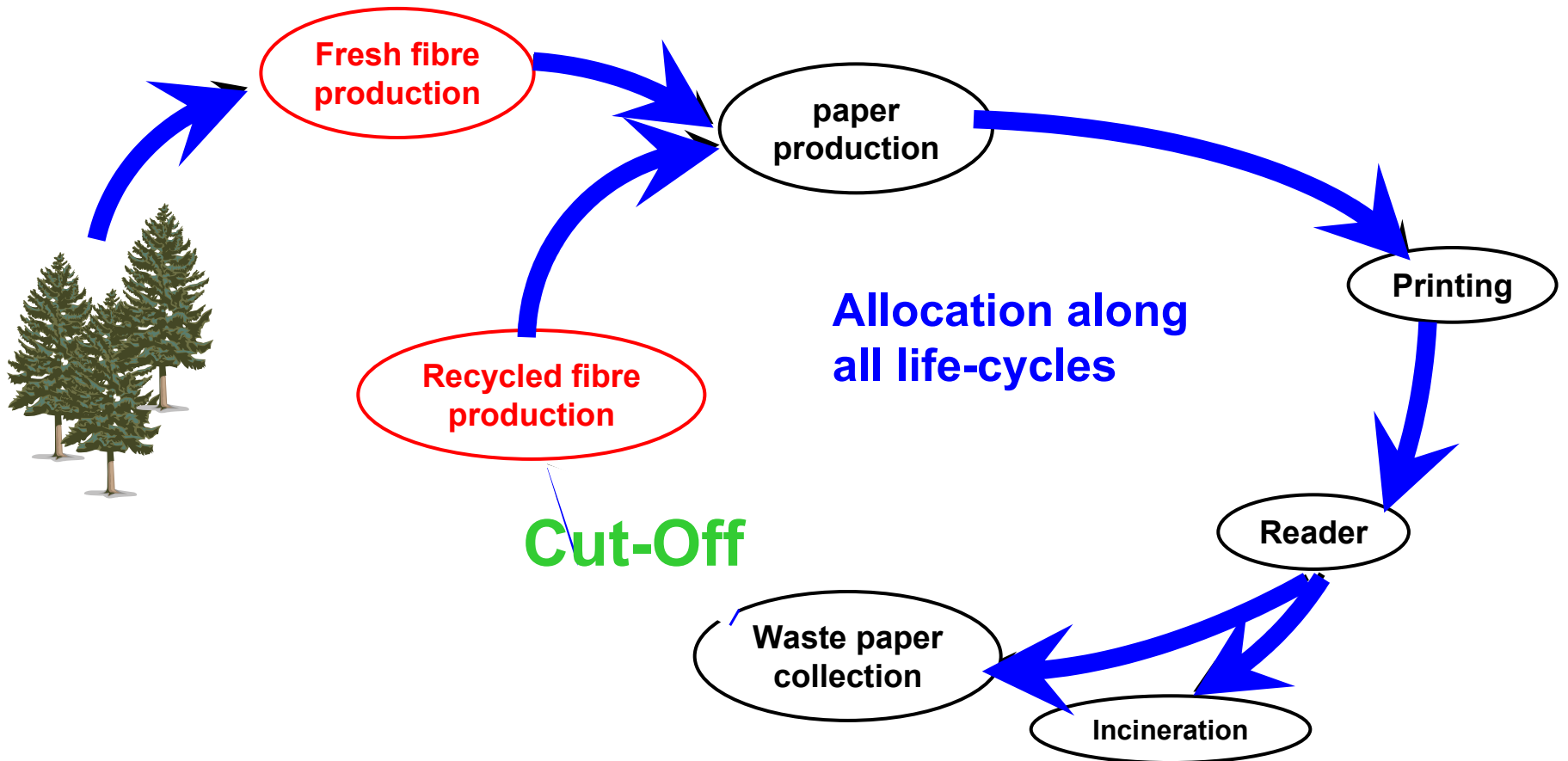
1. Compiling an inventory of relevant inputs and outputs of a system
2. Evaluating the environmental impacts associated with those inputs and outputs
3. Interpreting the results in relation to the objectives of the study



System boundary



Impact allocation procedure



General framework

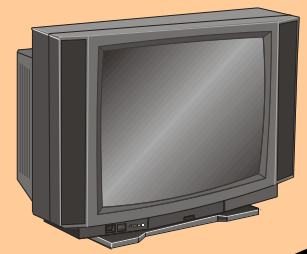
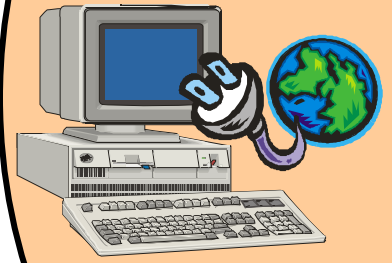
- Precisely **specified** media
- **Private** utilization of media
- **User**: an average adult media user with average reading skills within a typical family
- All **screen media** considered are also used for purposes **other** than the one examined





Case II

Consumption of
information and
entertainment





Case II: Consumption of Information and Entertainment

3 Approaches:

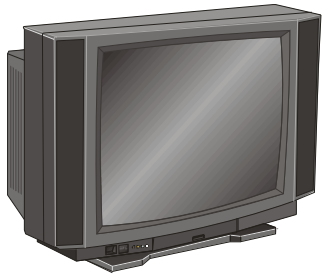
- **Average news item**

- **Consumption of the daily news**

- **Average Swiss media consumption**



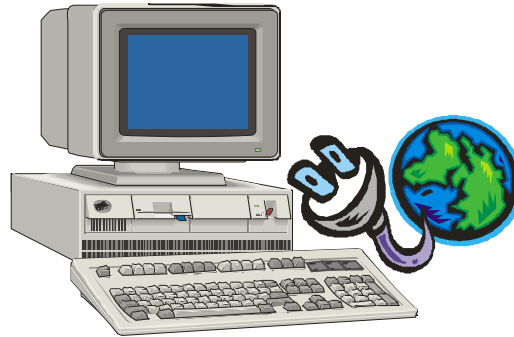
Approach 1 - Average news item



Watching
evening news



180 s



NZZ Online



Search + read



90 s



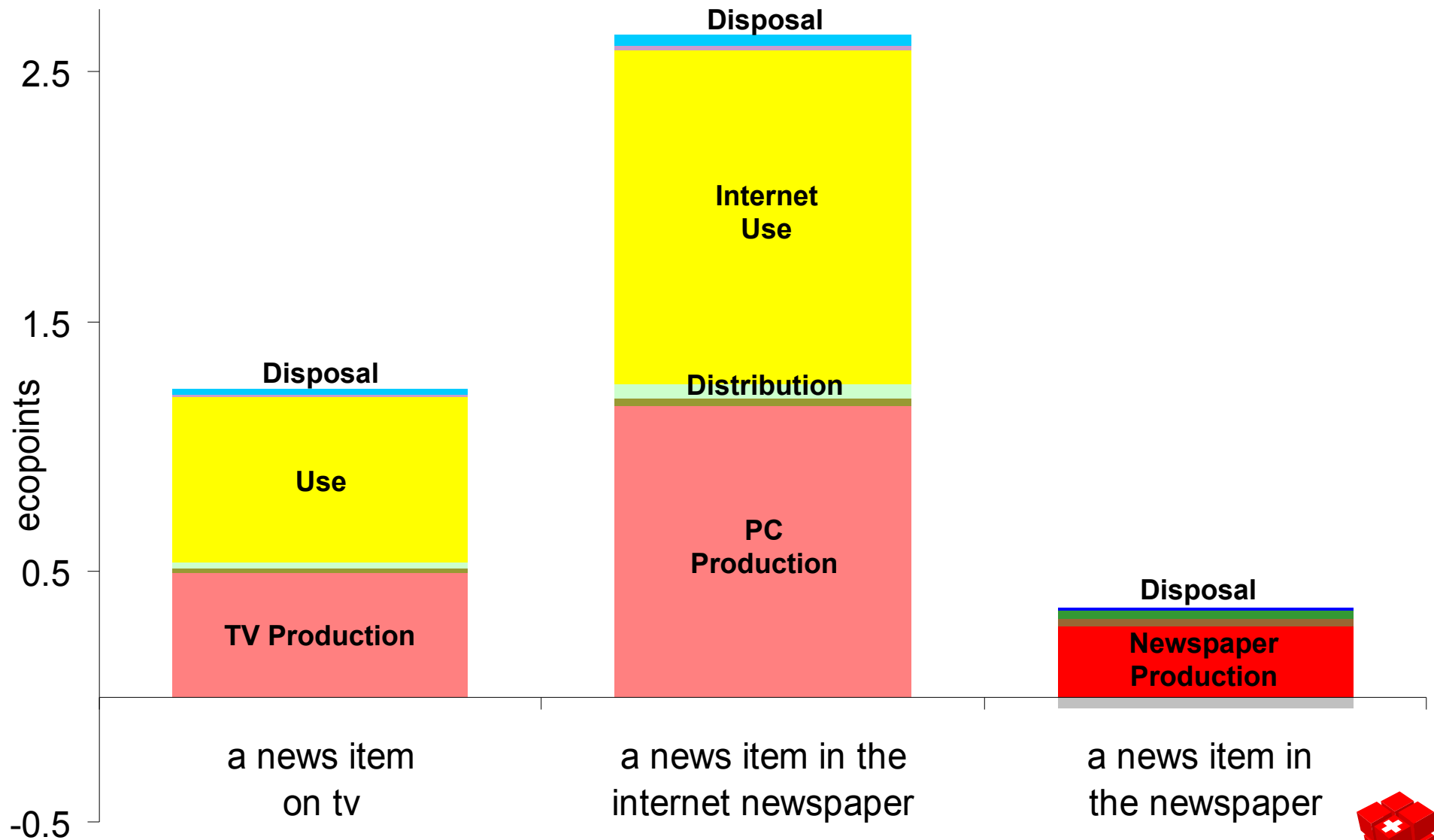
Read



250 cm²

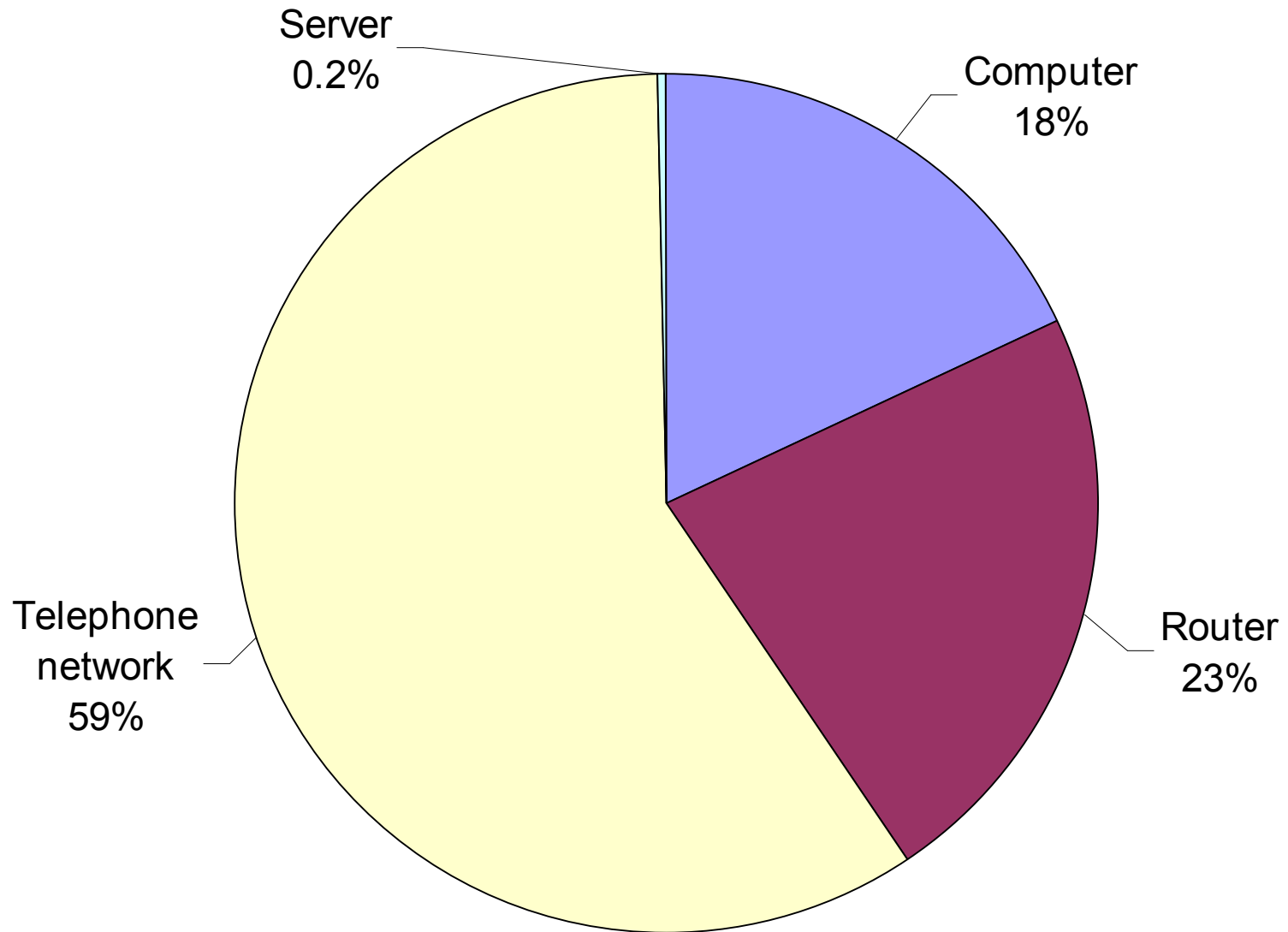


Average news item

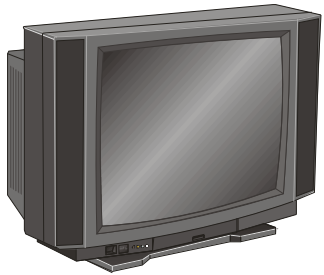




Internet use in detail (ecopoints)



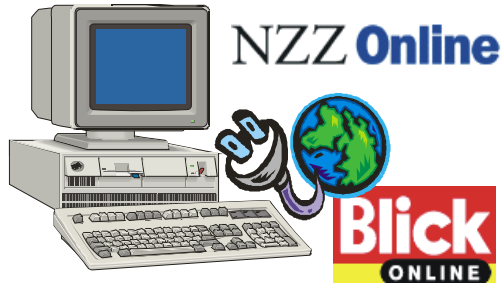
Approach II - Consumption of daily news



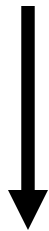
Evening news
incl. weather
forecast



25 min



Internet
newspaper



10 min

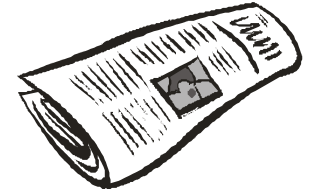


Reading



**43% of
32 pages**

extensive

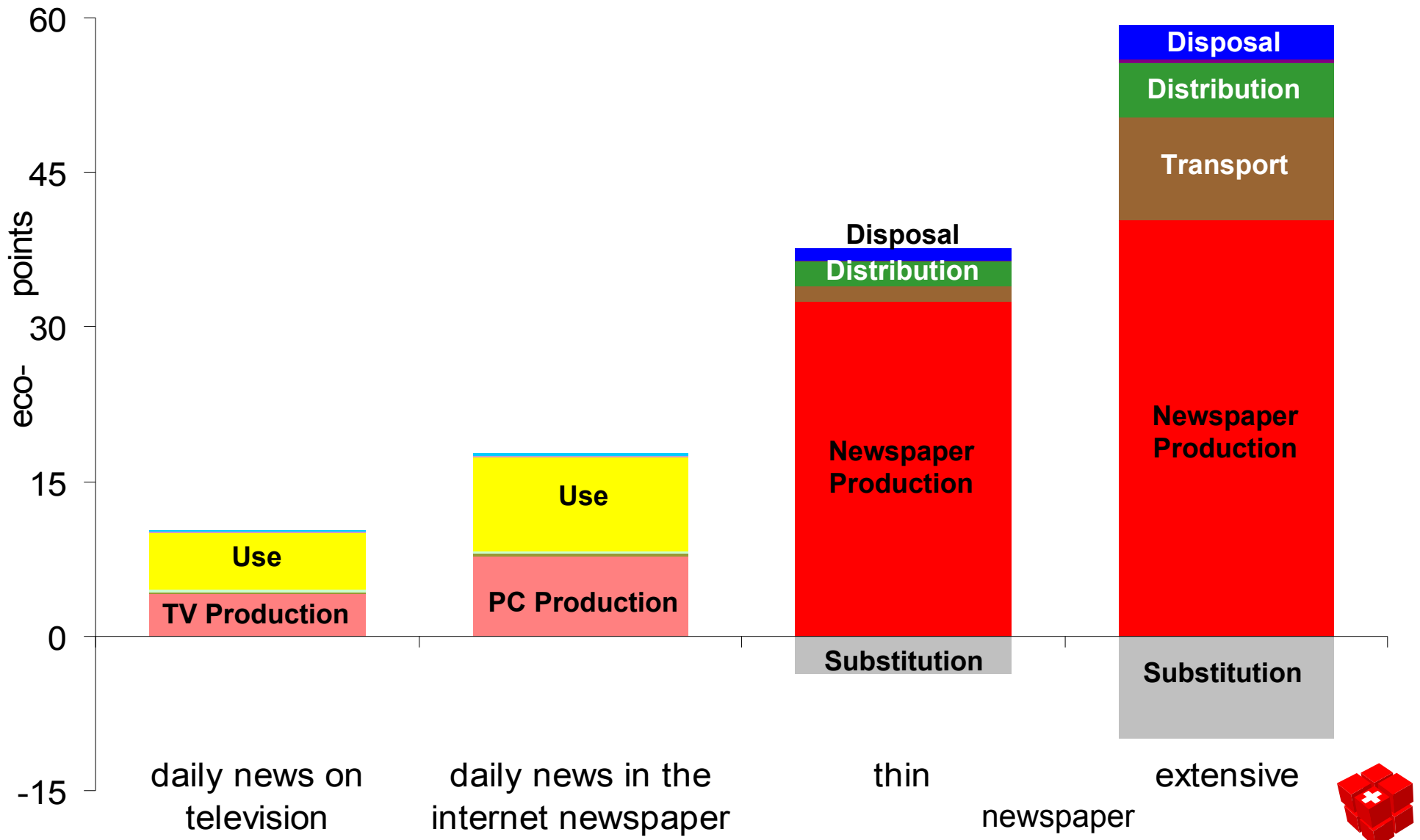


Reading



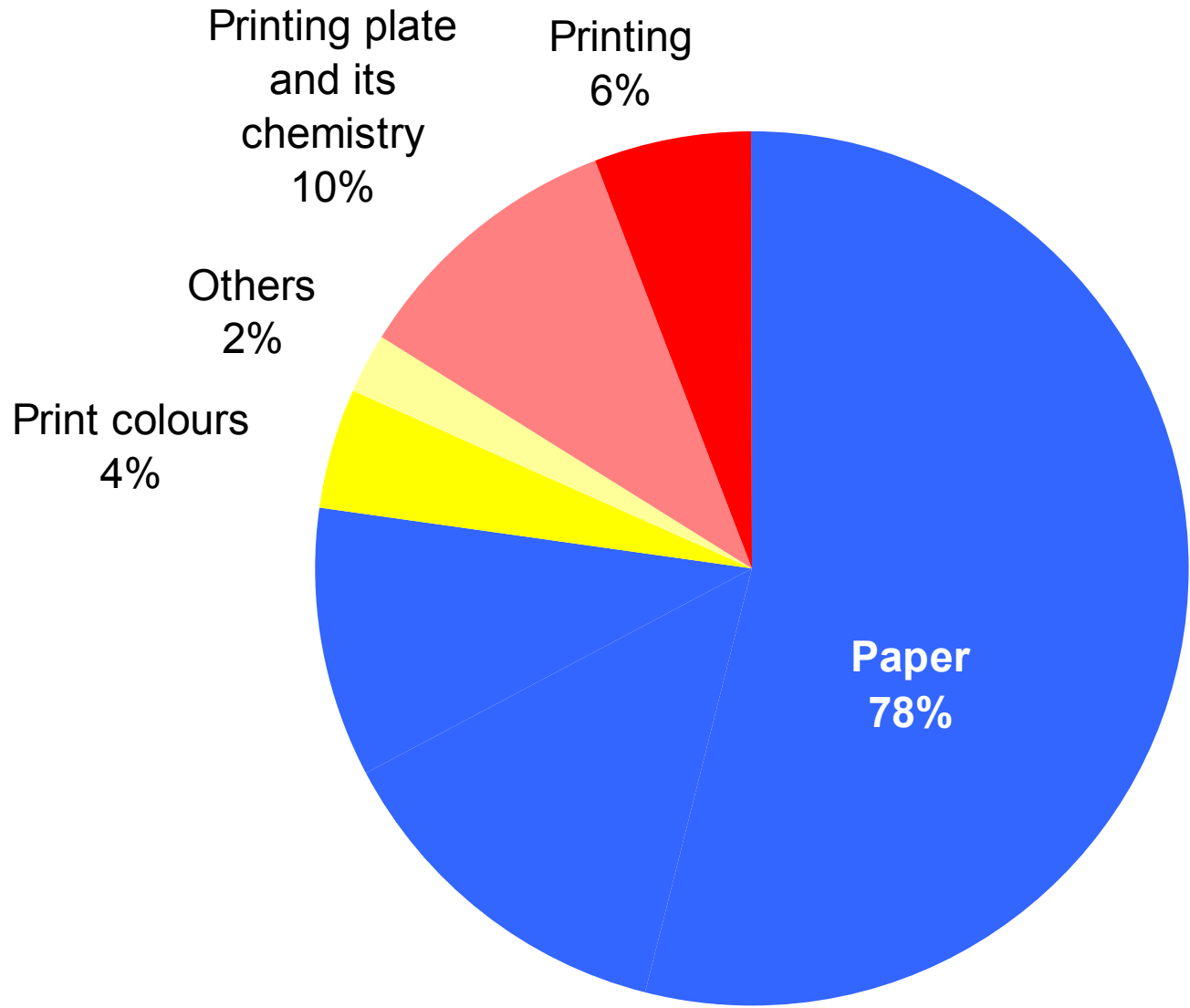
**43% of
86 pages**

Consumption of daily news

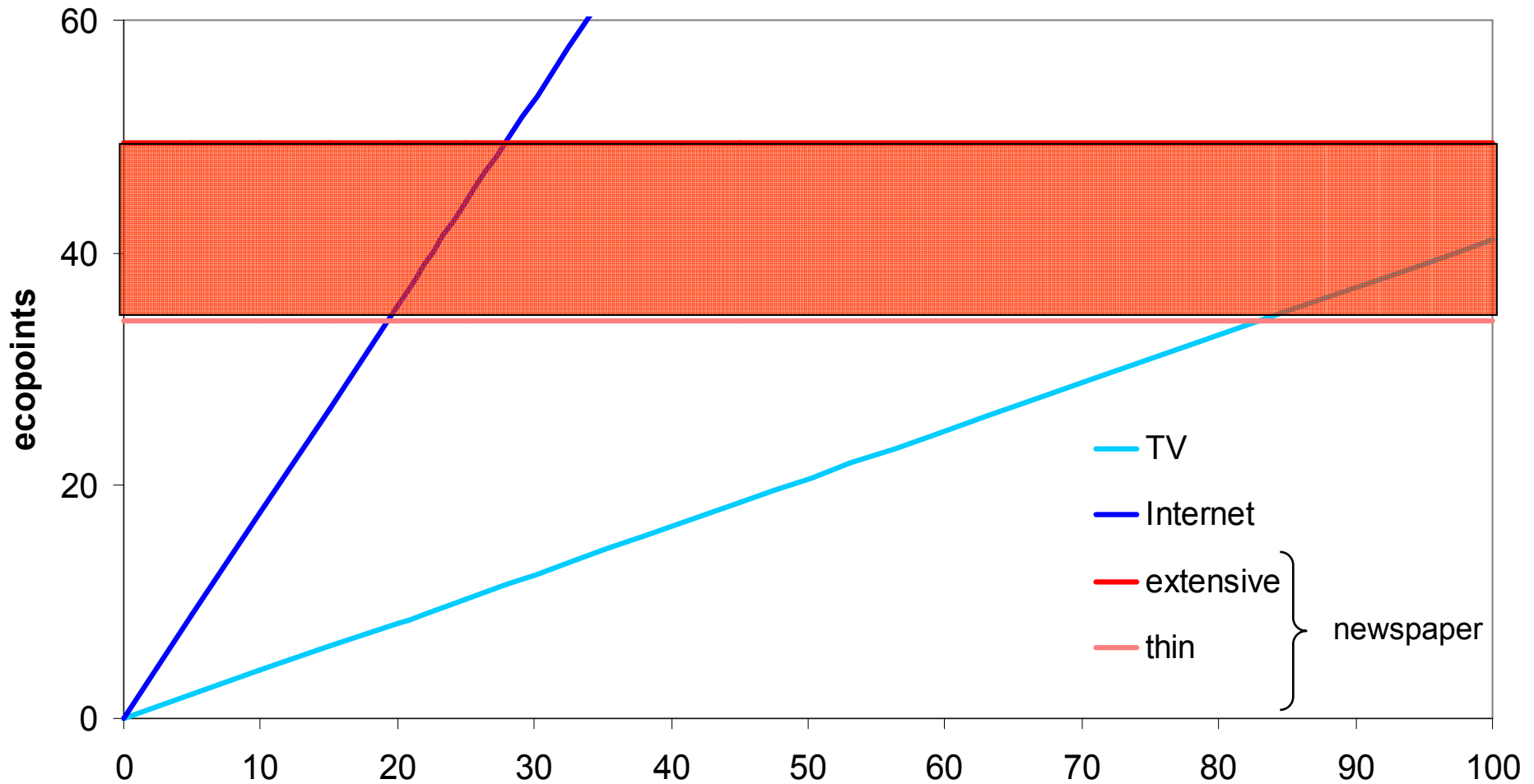




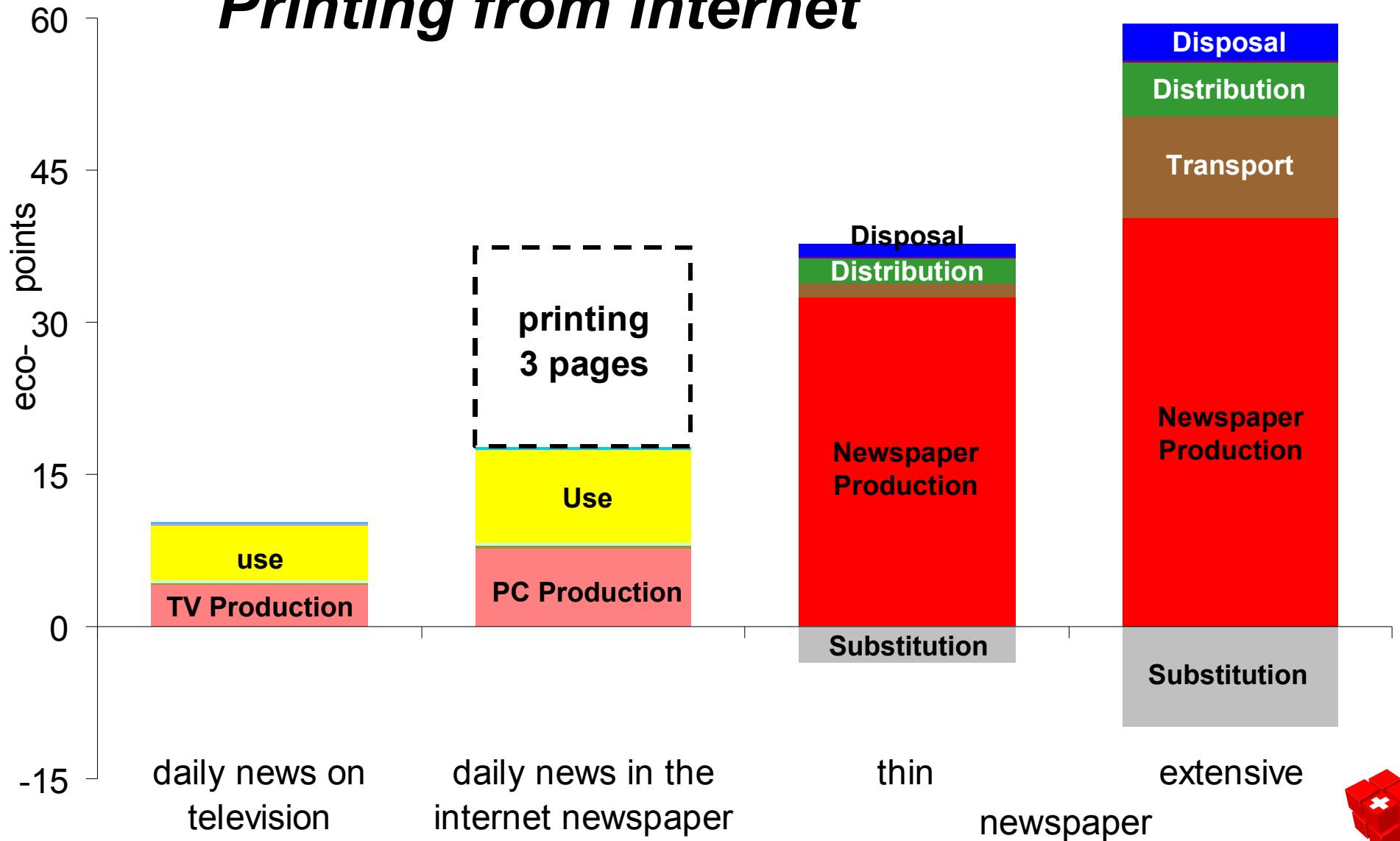
Newspaper production (ecopoints)



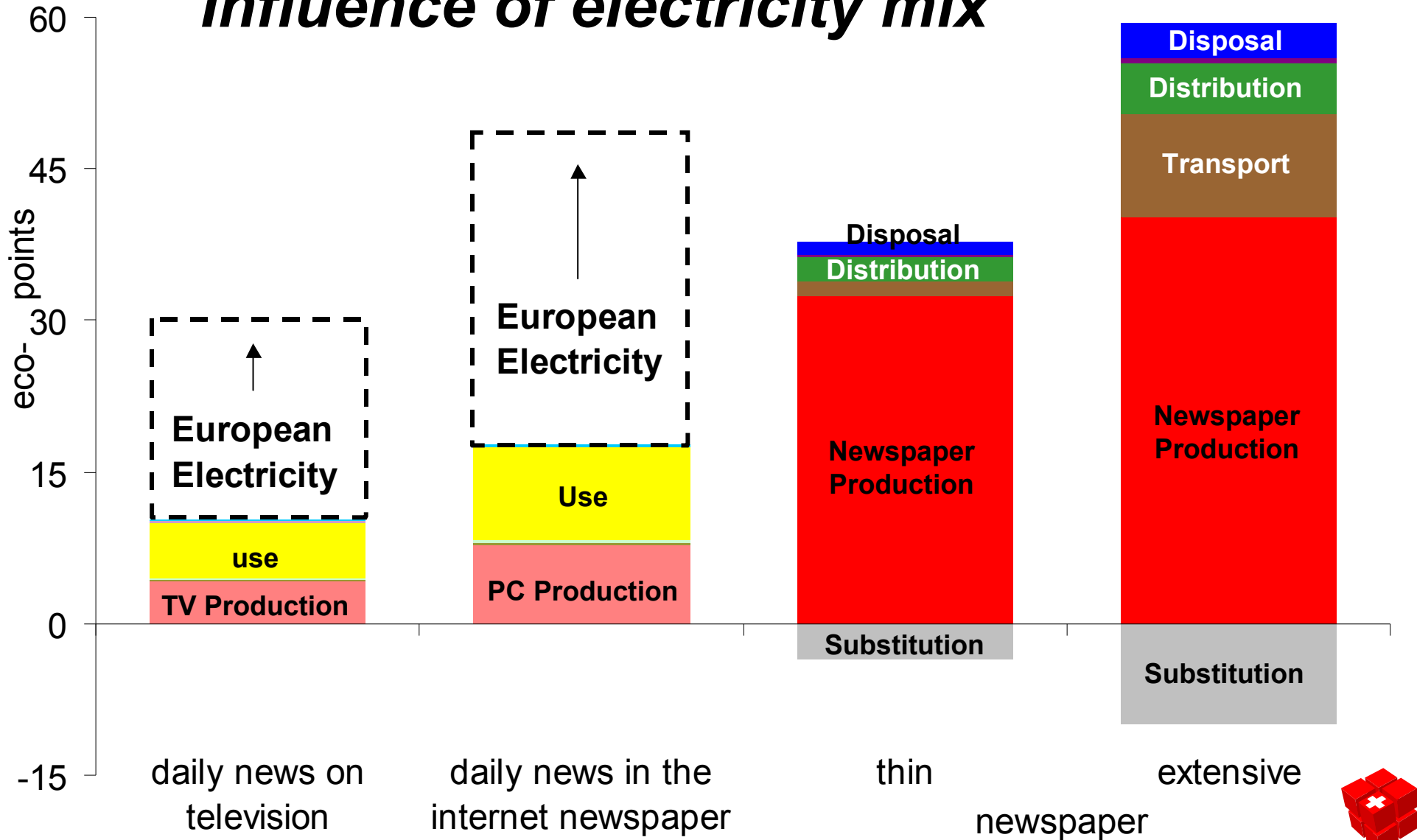
Sensitivity analysis: Time dependency of media use



Sensitivity analysis: Printing from internet



Sensitivity analysis: Influence of electricity mix



Possibilities of improvement

- **Power supplier and power consumer:**

⇒ Producing / buying of „green power“

- **Paper manufacturer:**

⇒ Use of renewable energy sources / of *heat-power-combination* / saving energy

⇒ Lowering waste water emissions in some cases

- **Newspaper manufacturer:**

⇒ “Printing on demand“ with newsprint paper

⇒ Procurement policies: use of renewable energy sources as well as low energy consumption for paper production

- **Consumer:**

⇒ Selective utilization (thinking before using ...)

⇒ No printing of online information

⇒ Extension of the life span of your private computer





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- W. Ravlo, Norske Skog
- J. Pettersson, Stora Enso
- all other paper producers
- K. Schläpfer, P. W. Gilgen, EMPA St. Gallen
- all other persons involved in the project

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