

Synopsis of variations of the BUWAL Ecopoints LCIA method

synonyms: BUWAL method, Ecological scarcity, Ecoscarcity, ECO, Umwelt-belastungs-punkte, UBP'97

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Disclaimer: The mentioned methods were not all checked on them actually being based on the same calculation procedures as the original BUWAL Ecopoints method. Similarity is suggested mainly by name and in cases confirmed by LCA practitioners.

1. Swedish variant 93

An Ecoscarcity method for Sweden was created by Baumann et al. in 1993:

<http://www.ekologik.cit.chalmers.se/Publications.htm>, cited also in

www.samsungelectronics.com/ehs_report/greport/systems/images/treatise8.pdf

Henrikke Baumann, Tomas Ekvall, Elin Eriksson, Mikael Kullman, Tomas Rydberg, Sven-Olof Ryding and Bengt Steen, Miljömässiga skillnader mellan återvinning/återanvändning och förbränning/ deponering [Environmental Differences in Recycling, Reuse, Incineration and Landfill], FoU nr 79, REFORSK, Malmö, **January 1993. In Swedish, summary in English.** Available from REFORSK, Malmö.

(also cited as *Tillman* et al. 1993 (REFORSK 79) in

http://www.ce.kth.se/bim/leas/vol1/a3/LEASART_03_1999.PDF)

Lisa Hallberg, Chalmers Industriteknik, Gothenburg, lisa.hallberg@cit.chalmers.se wrote December 9, 2002: "If you are interested in purchasing this report, you will have to address Reforsk directly. The **Reforsk organisation has however ceased to exist**, but I have heard that their reports still can be ordered by calling their telephone number +46-40-12 98 80. The address is: Fersens väg 9, S-211 42 Malmö, Sweden."

2. Swedish variant 98

For 1996 and 1998 updates of the 1993 Swedish variant were calculated:

Tomas Rydberg, Co-author, tomas.rydberg@jrc.it wrote December 9, 2002:

"The main calculations are described in the following report, which is in English (reference cut from Ekologik website):

- Elin Eriksson, Viveca Johannisson & Tomas Rydberg, Characterization factors and Valuation Indexes for Four Methods, CIT Ekologik 1996:3, Chalmers Industriteknik,

Göteborg. (Updated version 1998 in Excel) In English/Public. Available from CIT Ekologik.

That report probably refers to some older reports, among other the REFORSK 79 [above], but also to

- H Baumann, LCA: Utvärdering med index, Beräkning av två uppsättningar norska index [Valuation with indexes, Calculation of two sets of Norwegian indexes], CIT Ekologik 1992:2, Chalmers Industriteknik, Göteborg. In Swedish/Public. Available from CIT Ekologik

The update mentioned in the reference above has not been separately published in a report, however, the excel file mentioned contains the information relating to the update. This includes updates on Swedish emission inventories and updated environmental goals for Sweden, status 1998, with references to sources for this information.

The above report as well as the excel file are available at some cost from Ekologik."

<http://www.ekologik.cit.chalmers.se>

The **LCAit software** (by Chalmers Industriteknik CIT Ekologik AB) lists following Ecopoint-based LCIA methods, including the updated Swedish variant for 1998:

http://www.lcait.com/download/Impact_assessment_list.PDF

(from http://www.lcait.com/01_3b.html)

1. ECO Sweden 1998
2. ECO Norway
3. ECO Netherlands
4. ECO Switzerland

3. Norwegian variant

An unreferenced Norwegian Ecopoints method (named ECOPOINT Norway) is included in the characterisation factors sheet of the **CML'01 method**. See

<http://www.leidenuniv.nl/interfac/cml/lca2>

According to communications from Jeroen Guinee of Leiden University, Guinee@cml.leidenuniv.nl this method is not recommendend. No further information was given by Leiden University staff. The apparently same method (ECO Norway) is included in the **LCAit software** cf. above.

According to communications from Thomas Rydberg, Chalmers Industriteknik, Ekologik, (Sweden) tomas.rydberg@jrc.it in December 2002 this method is probably the same as referenced in

- H. Baumann, LCA: Utvärdering med index, Beräkning av två uppsättningar norska index [Valuation with indexes, Calculation of two sets of Norwegian indexes], CIT Ekologik 1992:2, Chalmers Industriteknik, Göteborg. In Swedish/Public. Available from CIT Ekologik.

For more recent updates of this method, Thomas Rydberg suggests to contact the Oestfold research foundation in Norway, www.sto.no.

4. Belgian variant

Communicated by Claude Siegentahler, Sinum, claudio.siegentahler@sinum.com
December 5, 2002

Belgian variants are documented in following publications:

from <http://www.egss.ulg.ac.be/EconomieInternationale/gazon.htm>

- Etude financée par l'Etat belge - Ministère fédéral de la Santé publique. "Etude de normalisation écologique des emballages en Belgique", S.G.P. Consultants Rapport final, Volume 1 et 2 novembre 1994, 703 pages
- Etude financée par l'Etat belge - Ministère fédéral de la Santé publique. "La relation entre le taux de recyclage des emballages et les écopoints", mars 1995, rapport 376 p.

A critique of the Belgian method:

from <http://www.rdcenvironment.be/Francais/reference1.htm>

- financé par Fost Plus: Analyse critique de l'étude de SGP Consultants "Etude relative à la normalisation écologique des emballages en Belgique" 1995, effectuée par S.G.P.Consultants pour le Ministère belge de l'Environnement

5. Dutch variant

Michiel Oele, Pre Consultants, NL, oele@pre.nl wrote November 26, 2002: "*In **SimaPro** [LCA software] we created a **Dutch version but this was non official**. It has been deleted last year, as it become to old.*"

The apparently same method (ECO Netherlands) is included in the LCAit software cf. above.

6. Austrian variants

Michael Hofer of University Leoben (Institut für Entsorgungs- und Deponietechnik) hofer@unileoben.ac.at wrote November 27, 2002: "*We have transferred ... the BUWAL method to the Austrian legislation and inventories and calculated the **Austrian and Styrian "Umweltbelastungspunkte" (UBP)**. This was done within a project of the implementation of automated mass and cost flow analyses out of SAP in order to give companies a tool for the evaluation of environmental impacts of process improvements and for the quantification of the continuous improvement of a company's environmental management system (1997-1999)*

Almost at the same time, the Denkstatt in Vienna [a consulting firm] was also calculating Austrian UBPs. Both differ a little bit (data sources we not the same). This will be fixed up next year in a common project University of Leoben/Denkstatt in order to generate one single list of UBPs for Austria.

We strictly used the same assumptions that were used in the BUWAL method. No modification was done. However, we have now expanded the method to noise. This is

not published yet since there are still some scaling problems of the noise UBP with respect to other UBP's. We work on that."

Some ecofactors are listed at

http://www.unileoben.ac.at/~ied/1_seite/betriebsbilanz.htm

Austrian Ecopoints:

http://www.unileoben.ac.at/~ied/publikationen/schriften/deutsch/oekop_oest_d.htm

Staber Wolfgang; Hofer Michael (1999) Bewertung der Umweltauswirkungen im Rahmen der EMAS, der ISO 14001 und der IPPC, Ökopunkte Österreich, Institut für Entsorgungs- und Deponietechnik, Montanuniversität Leoben, Austria. ISBN 3-902017-10-14

Styrian Ecopoints:

http://www.unileoben.ac.at/~ied/publikationen/schriften/deutsch/oekop_stmk_d.htm

Staber Wolfgang; Hofer Michael (1999) Bewertung der Umweltauswirkungen im Rahmen der EMAS, der ISO 14001 und der IPPC, Ökopunkte Steiermark, Institut für Entsorgungs- und Deponietechnik, Montanuniversität Leoben, Austria.

7. Japanese variant

Claude Siegenthaler, Sinum, CH, claude.siegenthaler@sinum.com wrote November 26, 2002: *"A modified approach of EcoScarcity is currently under development for Japan."*

An oral presentation of this new method was given at the Fifth International Conference on EcoBalance, Nov.6 - Nov.8, 2002, Epochal Tsukuba, Tsukuba, JAPAN :

http://www.sntt.or.jp/ecobalance/Pro_test.html

Development of EcoScarcity Japanese Version (ESJ)

E. Shinozuka, S. Kumagai, A. Nagayama, C. P. Siegenthaler*
Yamatake Corp., *sinum A.G. Switzerland

8. Extension to the original Swiss method

Gabor Doka, Doka Life Cycle Assessments, Zürich mubp@doka.ch made an 'unofficial' (i.e. not BUWAL-mediated) extension to the Swiss Ecoscarcity method 1997 for Mobility CarSharing Switzerland in 2000. It is based on the original BUWAL factors of 1997, but extends to damages from **road traffic noise, human fatalities and injuries from road accidents, land use, landscape fragmentation and carbon monoxide**. The method is called MUBP'97 (Mobility Umwelt-Belastungs-Punkte 1997) to contrast it to the original BUWAL-method UBP'97. It incorporates all the ecofactors of the original UBP'97 without change. An LCA study of different car models was presented at the First Swiss Transport Research Conference (STRC), Monte Verita, Ascona, Switzerland, 1-3 March, 2001 and an abstract is available at <http://www.strc.ch/doka.pdf>.

A final report was never finished due to budget cuts and policy changes at Mobility. A preliminary draft in German is available from the author Gabor Doka upon request mubp@doka.ch.