

Letters to the Editor

Int J LCA Could Have Received Better Acknowledgement

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Not long ago, a euphoric E-mail circulated among the members of the editorial board of Int J LCA (Heinrich 2001). The happy message read that the journal was selected for inclusion in the SCIExp (Science Citation Index Expanded). This is an important acknowledgement of the scientific status of the journal and the direct ground for this happiness.

Inclusion in the SCIExp is a good acknowledgement, but inclusion in the SCI (Science Citation Index) is better. The Institute for Scientific Information (ISI) covers 8000 journals annually to produce the SCI, the SCIExp and other related information products (ISI 2001). The SCIExp covers approx. 5800 leading scientific and technical journals, while the SCI includes only 3800 journals which are considered to be the most influential, i.e. the SCI is a subset of the SCIExp. The point is, Int J LCA could have done better. It could have been included in the SCI, if only ISI had got access to more profound citation statistics. I shall explain.

Some time ago, I performed a survey of academic environmental journals (Baumann 2000). More particularly, I investigated why certain journals, such as Int J LCA, are not included in the Science Citation Index or the Social Science Citation Index, as these are the most prestigious indexing services. Why are the SCI and the SSCI so prestigious in academic circles? To answer this, I will have to offer a few words about how indexing works and how ISI produces the SCI and the SSCI.

Indexing

An index is typically an alphabetical list, usually at the end of a book, of names, subjects, etc., with references to where these names, subjects, etc. are mentioned in the book. Basic indexing of a scientific paper includes information about where to find it, i.e. title, author, journal and year of publication. More extensive indexing may include information about the number of pages, keywords, or references cited in the paper.

Information services and their journal selection

ISI conducts an extensive indexing that includes the references cited in a paper. This is used for citation statistics, which is an important basis for the journal selection at ISI. It has been shown that a relatively small number of journals publish the bulk of significant scientific results. As few as 150 journals account for half of what is cited (Garfield 1996). With the citation statistics, ISI identifies the most influential journals and makes a limited selection to produce the SCI and SSCI. ISI reviews nearly 2000 new journal titles annually, of which only 10–12% are selected for the SCI and SSCI. The selected journals, together with some of the remaining ones, are searchable through ISI's other services, for example, SCIExpanded (ISI 1999).

Since ISI is probably the only organisation to operate such an extensive indexing, the SCI and SSCI have come to hold a high status in academic circles. Other information services (e.g. Cambridge Scientific Abstracts, Chemical Abstracts, Compendex Engineering Index and Environment Abstracts) use more basic indexing. These are different from that used by ISI in that they do not make a limited selection (and implicit ranking) of journals. Their aim is to cover the journals of a particular field more completely.

The journal impact factor

As mentioned, ISI identifies the most influential journals to produce the SCI and SSCI. The influence of a journal is measured through the journal impact factor. Journal impact factors are published annually in the 'Journal Citation Reports' (e.g. JCR 2000). The journal impact factor is obtained by relating the number of articles during two consecutive years and the number of times these are cited during the next (third) year (see Table 1 for how this calculation is carried out). This means that ISI needs three years of data to calculate an impact factor (ISI 1999).

Table 1: Impact factor calculation for Int J LCA

No. of articles in Int J LCA 1998 and 1999 (incl. letters, book reviews, etc.)		No. of citations in 2000 of articles in Int J LCA published in 1998 and 1999	
Year of publication	Number of articles	Journal	Number of citations
1998	60	In: Int J LCA	73
1999	75	In: J Cleaner Prod	7
	= 135 articles	In: J Ind Ecol	13
		In: journals listed in SCIExp	13
			= 106 citations
Impact factor (year 2000): citations₂₀₀₀ / articles₁₉₉₈₋₁₉₉₉ = 106 / 135 = 0.785			

Furthermore, ISI does not only count scientific articles, but, for example, also includes editorial letters in the citation statistics. The reason for this is that an important part of the scientific debate occurs in editorial letters. To sum up, the more frequently articles in a particular journal are cited, the higher the journal's impact factor, and the more influential it is considered.

The impact factor of Int J LCA

What is the reason for Int J LCA and related journals (among others, Journal of Cleaner Production, Journal of Industrial Ecology) not being included in the SCI? Is it because the citation levels are too low? Since ISI could not yet calculate an impact factor for Int J LCA, I calculated it myself to check whether the citation levels were too low (see Table 1). It was possible to find some citations to Int J LCA in journals covered in the SCIEp. However, most citations to the journal were found in a group of journals **not** listed in ISI's database.

When I calculated the year's impact factor for Int J LCA in 2000, I included all citations I could find, and ended up with an impact factor of 0.785 for Int J LCA (see Table 1). This ranks the journal as 67th among the 143 environmental journals in the SCI (including the SCI categories of 'environmental science' and 'environmental engineering'), (JCR 2000). It must be considered an acceptable citation level.

Patience...

In spite of an acceptable citation level, Int J LCA has not yet been included in the SCI. The main reason is probably that

the majority of the citations to Int J LCA are left uncounted by ISI. Although Int J LCA did not pass ISI's bar for inclusion in the SCI this time, it is placed 'under observation' in the SCIEp. Since ISI requires citation statistics during a three-year period, it should only be a matter of time until ISI has more complete citation statistics and can produce a more correct impact factor for Int J LCA. Since Int J LCA was accepted with Volume 6 (1) 2001, one can expect to see it appear in the 2003 JCR which will be published in mid-2004. So, in two-years time, in 2004, we will probably see Int J LCA listed in the Science Citation Index.

References

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Henrikke Baumann is an assistant professor at Environmental Systems Analysis, Chalmers University of Technology, Sweden. Her research focuses on the role of environmental tools/information in industry, e.g. in product development (Baumann, Boons and Bragd 2000) and in ethical funds (ongoing). She also leads projects on the development of methods for the environmental assessment of organisations, e.g. a doctoral project on environmental assessment of housing management (Brunklau and Baumann 2001).

Other engagements include the participation in the work of the scientific committee of the 19th Greening of Industry Network conference in Göteborg, June 2002.

Baumann H, Boons F, Bragd A (2000): Mapping the green product development field: Engineering, policy and business perspectives. AFR report 301, Swedish Environmental Protection Agency, Stockholm, Sweden

Brunklau B, Baumann H (2001): Environmental assessment of housing management with LCA and time series. 1st International Life Cycle Management conference, 27-29 August 2001, Copenhagen, Denmark

Remarks by the editor-in-chief:

Yes, Almut B. Heinrich and myself were really pleased, and we communicated our satisfaction to the board of editors and other friends of the Journal. Many of them congratulated us, which demonstrates how important the inclusion in the ISI services has become. We waited long and sometimes impatiently for this decision by ISI; however, we should not forget that Int J LCA had to overcome at least two obstacles:

1. The research area of Life Cycle Assessment does not belong to the 'classical' subject areas and, thus, was new to ISI. Before deciding on the inclusion, they wanted to observe the development of this area for a fairly long time period.
2. ISI-SCI/SCIEp. has no category 'Environmental management' where LCA and similar methods would ideally fit in.

Waiting for the first official impact factor, we'll do our best to further enhance the quality of the journal. *Walter Klöpffer*