

STANS AWARD 2014

Dear Colleagues and Friends ,

It is sad to see that my fellow member of the Jury Gjalt Huppes is unable to attend this festive CML event. He suffers a lot from a broken hip and is eagerly awaiting a hip replacement in a couple of weeks done.

Nevertheless... With pain and crutches, Gjalt has done his homework so what I'm going to say is no doubt on behalf of the Grand Jury.

In 1985 the just retired pharmacist Misses **Constance Eikelenboom** (her nickname was Stans) decided to take our CML Course 'Environmental science'. Due to her expertise and outspoken character, she was an unusual critical student. I was told that right from the start she really was a pain in the ass for professors of all sort, but gradually she came to like the course and at the time she graduated she offered a substantial sum of money to establish an award for the best student's thesis or paper. Her aim was to enhance the quality by introducing some competition.

The board of CML named the price after this remarkable student and later on extended the idea as to serve the staff, by introducing two new prices one for the best scientific paper and one for the best 'societal paper'.

The STANS price was first awarded in **1986** so we celebrate our 29th. Stans herself is 93 and still alive and kicking, but - understandably - a bit picky in what she attends or not. So now you all know why we are here, and why Stans is not here.

It was not an easy task for the Jury to make choices. For every category we received excellent nominations. In theory they almost all could be winners.

We will start with the award for the **best scientific paper**.

Here we got three nominations.

The first paper is written by **Achmad Adhitya** and 6 co-authors. Its title is: "Comparison of the Influence of patch-scale and meadow-scale characteristics on flow within seagrass meadows: a flume study".

So it is about the hydrodynamics and the availability of nutrients/resources for seagrass meadows. These meadows could have different spatial patterns of patches. Patches that also in themselves differ in density. The researchers used a carefully designed laboratory flume –simulating 4 scenario's in shallow water circumstances using a mimic plastic species of seagrass - to find out that in resource – limited environments more resources are being transported to low density patches regardless of the configuration, eventually causing meadows to become more homogeneous.

There seems to be a sense of equality - some kind of justice - in the seagrass world. At least in shallow waters. For deeper waters, species mixtures and a nutrient rich environment the outcomes might be different.

The second paper is written by **David Font Vivanco** and Ester van der Voet. The title is: “The rebound effect through industrial ecology’s eyes: a review of LCA-based studies”.

The mere technologic comparison of options with the same function -taking into account the full life cycle – is useful. But it leaves out dynamic consequences of a choice. One of them being the well-known Rebound effect. A multitude of approaches has been developed to reckon with the dynamic rebound effects of choices and changes. These are surveyed by David and Ester, shifting the good from the bad; the inconsistent from the more consistent; trying to find a common framework and pointing to modesty: there is much we cannot know for certain. This methodical approach clears the way for a more scientific approach to this key issue in sustainability analysis of technology choices. More relevant applied studies could merit from this theoretical development.

The third and last scientific paper is written by **Sasha Ieromina** and 3 CML colleagues. Title: “Population responses of *Daphnia magna*, *Chydorus sphaericus* and *Asellus aquaticus* in pesticide contaminated ditches around bulb fields”.

(two types of water flea and a water louse; we all have our favorites in the animal world)

Cultivation of Flower bulbs (our national pride) is leading to pesticide concentrations in ditches often exceeding water quality standards. How would this effect water quality as measured by the growth of aquatic invertebrates in ditches? No answers were available. The method employed was to see how a number of parameters work out on the growth of three main invertebrates, abiotic factors in combination with different ‘toxic units’. The outcomes show a very differentiated picture, with in general different abiotic factors having dominant effects on the growth of each of the three different invertebrate species.

On balance, the mimic seagrass experiment is elegant but focusing on a limited number of variables related to one plant species. The aquatic vertebrates study fits in a row of field studies, covering the major factors determining the growth of the different species on a limited time scale.

The rebound study is primarily a theoretical study, surveying a developing field of analysis, bringing some order in it. In a scientific sense this study therefore might be seen as more challenging. The price of the best scientific paper will be awarded to: David Font Vivanco and Ester vd Voet.

The best Societal paper

We got two nominations in this category and we were very pleased to see that by the same token these publications could be good candidates in the scientific category. Somehow proving our conviction that in the end society is best served by good science.

The impressive results presented by **Arnold Tukker** and his 7 co-authors in “**The Global Resource Footprint of Nations.**” are a major scientific contribution to how our world is functioning in delivering, ultimately, consumer products. That final demand for goods and services sets in motion all economic activities, with the material ones deeply linked to the resource use, including carbon, water, land and materials. This report builds on substantial previous work at CML, initiated by Reinout Heijungs and Sangwon Suh more than a decade ago.

No doubt this study, and the wealth of data therein, will find its way to colleagues, scenario-builders, policy advisors and the like.

The second publication, written by **Martina Vijver** and **Paul Van den Brink**, has a straightforward Title “Macro-Invertebrate Decline in Surface Water Polluted with Imidacloprid: A Rebuttal and some New Analysis”.

(At CML you eventually become used to pronounce that toxic tongue twister ‘Imidacloprid’)

The study basically involves a methods strategy issue, showing wisdom. It is a kind of “Ho.. Ho Van Dijk and Van der Sluijs .. be careful guys” message. The core issue is how partial data can be used: either going for basic statistical analysis, or embedding it in a broader theoretical and ecological context. Of course the second option is to be preferred. But that option is more complex and runs the risk of missing key points in the ever expanding mass of data and mechanisms. Getting to terms with this improved analysis on Imidacloprid is the major accomplishment of this paper.

How to choose? Notwithstanding its clear potential to play its part in the ongoing societal debate, we were unable to discern the Tukker production doing that, this last year. May be societal impact should be measured in retrospect after a decade or so. The toxic tongue twister has been around whole year in the public debate and in honour of Martina and Paul’s sensible contribution to that debate the price will awarded to them.

Last but not least the real **STANS Award**

Again two very different studies, both proving a high quality level of graduate student research.

First **Myrthe Fonck** on “**Human-Lion conflicts in the Nairobi National Park**”.

The outcomes of her study are convincing: flashlights reduce the number of cattle taken as prey by lions.

The paper tries to put the lions behavior in an evolutionary perspective. Rightly so, but here the reasoning is not fully convincing as flashlights have not been around long enough to have evolutionary impacts yet. Also the hunting of lions after their feasting on cattle might be difficult for them to connect directly. More complex learning processes might be involved.

Whatever the motives of lions may be, however, the very strong empirical results indicate that the conflict can be reduced, while at the same time reducing the number of lions in the park, as their food supply is reduced.

Overall this is a remarkable study, hardly to be expected from a Master Thesis project of limited duration in a developing country, involving a range of very diverse but complementing research techniques and theoretical backgrounds. Scat gathering and hair analysis; carcass analysis; prey surveying; spatial analysis; and Massai interviews nicely fit together. We advise to submit this paper for publication asap.

Pim Tammes: “LCA of a short use tents for music festivals”

Short use tent – one nights tent – I’m not joking about

It’s amazing how much waste and debris is left at the site after a Music Festival. This study has taken up the challenge of finding out how to improve the situation. The core result is that a recycled throw-away tent is environmentally superior to multiple use tents which are broadly abandoned at festivals (25%). This outcome holds over a range of empirical and methods assumptions. It is in the same cost range as standard cheap tents, which may have been used before the festival.

The reference option of current tent use is well documented. Other eco-friendly options did not pass the functionality requirements in temperate climates: wind and rain. One option not investigated is to collect the conventional tents left behind for second hand distribution.

The data gathering procedures on current use of tents at festivals has been ingenious and creative, using aerial photo material as one main source.

The study combines reasoning from different points of view, in addition to the well-developed LCA point of view. Explaining this option to festival goers also has an

educational value. Explaining this option to close-by inhabitants and local authorities increases the festival acceptability.

Overall a remarkable amount of diverse information has been collected, combined with basic robust LCA theory and sensitivity analysis.

This was absolutely a close finish; Considering the variety of research methods, crossing the boundaries of disciplines, the clear and concise writing and the convincing and applicable outcomes, we decided to grant the STANS award 2014 to Myrthe Fonck.