"THE POTENTIAL OF A CIRCULAR ECONOMY IN THE NETHERLANDS"

TNO innovation for life

This report takes stock of the opportunities and obstacles for the next steps towards a more circular economy in the Netherlands and outlines a view of how the government can accelerate these steps. We focus on the 'circular economy' whose point of departure is the reusability and recycling of final products and the minimisation of value destruction.

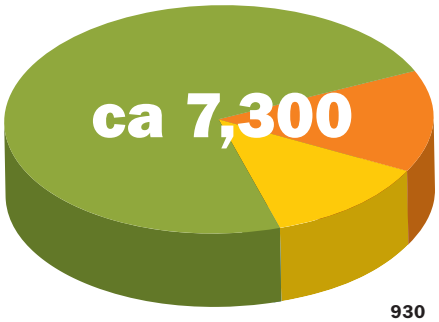
APPROACH

In this report the (economic) opportunities are quantified where possible, showing the effects on employment and the environment. While the study focuses on the entire Dutch economy, the analysis begins with two detailed case studies, namely 1) the utilisation of biotic waste streams and 2) the circular economy that could emerge for electrical and electronics equipment. The first case concerns the recycling of 'biotic' components. The second case the recycling of 'abiotic' components. Both cases have their own specific challenges and opportunities.

The aim of this report is to answer the following questions:

- What are the opportunities for the Netherlands if the transition to a circular economy is accelerated?
- How can the opportunities be taken, obstacles removed and the transition shaped?
- What is the desired role of the Dutch government in this?

GROWTH FROM POTENTIAL CE (MIO. EUR.)



1,062
Growth Services
from potential CE

5,331
Growth Manufacturing and
Construction from potential CE

930
Growth Argiculture
from potential CE

Potential growth due to growth circular economy, expressed in mio. EUR. 2010.
Total Gross Domestic Product of the Netherlands in 2010: 588,740 mio. EUR.

RESULTS ANALYSIS OF THE CIRCULAR POTENTIAL OF THE TWO CASES

An expansion of the circular economy for technical products in the Netherlands means, in the first instance, that we aim to increase maintenance and repair, to intensify reuse and give recycling a further boost. Of course, these activities are already taking place, so the circular economy does already exist to a certain extent. From seventeen detailed product categories (related to metal products, electrical and electronic equipment) we show that the current annual value of the circular economy for these products is 3.3 billion euros and that an extra 572 million euros of annual market value can be achieved by utilising a wide range of trends and opportunities signalled by stakeholders and experts in the coming years.

In respect of creating value with biotic waste streams, the Netherlands can benefit from being a densely populated country with an intensive agricultural industry and large agro and food industry. This results in a significant volume of biotic waste streams available, the 34 most important having been identified in this report. The utilisation of these waste streams represents a current value of 3.5 billion euros annually. By employing new technology, an annual added value of 1 billion euros can be created for the circular economy using bio-refineries, biogas production and more intensive separation of household waste at an estimated investment of between 4 and 8 billion euros.

ESTIMATION EFFECTS OF CIRCULAR ECONOMY FOR THE NETHERLANDS

After a detailed analysis of an expanding circular economy for electronic and electrical products and the use of biotic waste streams, we can estimate the effects of an expanding circular economy for the entire Netherlands: a total of 7.3 billion euros resulting in around 54,000 jobs. In addition, there are several spin-off opportunities for the Dutch economy, including a stronger technology/knowledge position.

SEIZING THE OPPORTUNITIES AND REMOVING OBSTACLES ON THE WAY TO A MORE CIRCULAR ECONOMY

In order to arrive at an initial outline of a useful and realistic approach, the opportunities and obstacles were explored from various perspectives gained on the basis of a literature review, interviews and a workshop with stakeholders selected according to the biotic and abiotic case studies investigated. Focal topics were knowledge development and dissemination, business activities, shaping the market and mobilising funds as well as policy, law and legislation, and lobbying.

THE ROLE OF THE DUTCH GOVERNMENT

The enticing opportunities and significant economic possibilities identified in this document can be facilitated in part by an active government that puts in place a consistent, multidisciplinary and well founded long-term strategy that will lead to a Dutch Circular Economy. Tangible actions (and substantiating studies) are:

1. Create a clear, interdepartmental, consistent strategy for the circular economy;
2. Set a coherent education and research agenda for the circular economy;
3. Comprehensively consider the pros and cons of existing (waste) law and legislation;
4. Boost knowledge and awareness of raw materials in the value chain;
5. Ensure a lasting and significant benefit for the front runners and those who stick their necks out, for instance through a so-called chain director supported by the government;
6. Investigate the effectiveness of a broad set of fiscal and financial incentives to promote circular behaviour;
7. Investigate the influence of waste incineration plants on the viability of circular business cases and take the appropriate action;
8. Government should act as an active and expert ‘launching customer’;
9. Use the international playing field to help drive the circular economy forward.

"With a circular economy potential of 7,300 mio. EUR. and 54,000 new jobs, TNO shows that sustainability and societal welfare can be one!"

The picture of a Dutch circular economy subscribes to the powerful potential of a transition to a circular economy whereby government-wide coherent, uniform communication is key to success. Society appears very willing to follow suit but is undoubtedly sensitive to conflicting information and incentives. Society can, in any case, be stimulated by high-quality communication on what has already been achieved and by the introduction of well chosen transition experiments. An integral part of the abovementioned approach for the government is that it has a strongly exploratory and research nature. Fiscal, legal and legislative measures are complex and must guarantee the right effect. The input of stakeholders has been absolutely vital in this study to identify the direction of the desired transition and the extent of the obstacles, but not by definition to propose a conscious judgement. This is why an expert, analytical government in all its aspects contributes to a sustainable change to a circular economy.

The ambition being embraced at European level is resource efficiency and the rollout of a circular economy par excellence. Nonetheless, the measures suggested here reveal that the Netherlands does not have to wait for the most part for collaboration at European level. More than once in this report it is mentioned that the transition to a circular economy benefits from both initiatives that bring about sometimes drastic improvements towards more circularity and radical initiatives in a narrower sense that strive for an ideal circular economic model. That is, an economy whereby circularity is incorporated from the design phase. Based on the methods used here it is difficult to ascertain what the economic contribution of these more radical innovations and transitions could be. Still, the government can provide emphatic support to radical (design) innovations by identifying the stakeholders as front runners and helping to remove the barriers. Or, as a launching customer, giving a good start to high-risk and radical initiatives.

Link to report (in Dutch):
http://www.rijksoverheid.nl/documenten-en-publicaties/kamerstukken/2013/06/20/van-afval-naar-grondstof.html

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SUMMARY TNO-REPORT 'THE POTENTIAL OF A CIRCULAR ECONOMY IN THE NETHERLANDS'
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