



# Kennisinstituut Duurzaam Verpakken

Ministry of Infrastructure and the Environment  
Attn. State Secretary W.J. Mansveld  
Plesmanweg 1-6  
2597 GJ Den Haag

Reference: 2015.003

Subject: Environmental Impact Analysis of the Framework Agreement for the Packaging Industry 2013-2022

Appendices<sup>1</sup>:

1. Final report Environmental Impact Analysis of the Framework Agreement for the Packaging Industry
2. External Committee Report
3. The North Sea Foundation letter to KIDV
4. Reaction of KIDV to the North Sea Foundation

The Hague, May 21, 2015

Dear Mrs. Mansveld,

Hereby the Knowledge Institute Sustainable Packaging (KIDV) sends you the final report of the Environmental Impact Analysis of the Framework Agreement for the Packaging Industry 2013-2022 (ROV). The KIDV has supported this analysis, conform the research assignment formulated by the Ministry of Infrastructure and the Environment (IenM), and the research questions based on this, as stated in the letter to IenM of October 16, 2014. In this analysis, the environmental impact of the total package of agreements made in the ROV, including the possible elimination of the deposit system on large PET-bottles, is compared to the situation prior to the ROV, namely the situation in 2012 including the existence of the deposit system. To achieve maximum transparency, the effects of those separate measures have been calculated and presented. In this accompanying letter, we will explain the most important conclusions in this report, and will provide you with a number of special points of interest. For the actual conclusions, analyses, and backgrounds, we gladly refer you to the attached final report.

## **Process**

The research, assigned by IenM, was supported by the KIDV in the period October 2014 through April 2015. The research was conducted by two independent research organizations, namely TNO and CE Delft.

---

<sup>1</sup> Appendices to the Dutch letter, not translated in English.

The research was discussed with the Sounding Board, with regard to method, data, assumptions, results and the reporting. The Sounding Board consisted of representatives of the ROV parties, and civic organizations in the area of packaging and the environment. The Sounding Board convened on four occasions and was led by Mr. Pieter Jan Biesheuvel as independent chairman. Additionally, the content and the process of the project have been assessed by an independent External Committee. In summary, the judgement of the External Committee is that the Environmental Impact Analysis of the ROV has been conducted in a scientifically responsible way, and thus provides a good insight into the expected environmental impacts of the ROV.

The end results have been presented to the Advisory Board (RvA) of the KIDV, in which the government, the packaging industry, the waste management industry, environmental organizations and the sciences are represented. The final results, including the advice given by the Advisory Board of the KIDV, were presented to the Board of the KIDV.

### **Main conclusions**

The general conclusion is that the total package of measures in the ROV will provide environmental benefit in all of the scenarios in 2017, and that the environmental benefit will clearly increase in 2022. The separate analysis of the agreement about the elimination of the mandatory deposit system on large PET-bottles, and the transition to the Plastic Heroes system for large PET-bottles, shows a disadvantage for the environment. This environmental loss will be more than compensated for in 2017 within the agreements on plastic, particularly by the increase of recycling percentages. In 2022, plastic recycling will provide an increased environmental benefit in all of the scenarios. The environmental effects that can be quantified and attributed to the ROV stem for the largest part from the agreements regarding the recycling of plastic. The main conclusions are robust: the sensitivity analyses of the different agreements from the ROV show a limited impact on the main conclusions. Of the four most important environmental themes (climate change, fossil depletion, particulate matter formation and land occupation), only an environmental loss can be noted in regards to fossil depletion in 2017. For the three other dominant environmental themes (climate change, particulate matter formation and land occupation), an improvement will be achieved in all scenarios, as a result of the agreements made in the ROV.

### **Litter**

A quantitative analysis of the environmental impacts of litter is not possible currently. The KIDV regrets this, as do the other parties in and outside the Sounding Board. There are two reasons why this is not yet possible. In the first place, there are no independent studies available which show the consequences of the policies on the amount of litter. Secondly, there is no method available -comparable to the Life Cycle Analyses (LCA)- to quantitatively record the environmental impact of litter.

To assess the effects of policies on the amount of litter, you earlier on promised the House of Representatives, to chart the research, policy, and proceedings regarding litter in the Netherlands. In addition you announced a monitoring analysis to gain a better understanding of the kinds of litter monitoring that are currently being conducted. In your progress report to the House of Representatives of April 16, 2015, you announced that both studies would be conducted

by Rijkswaterstaat<sup>2</sup> / Kenniscentrum Gemeente Schoon<sup>3</sup> and that the results of these studies are expected in the second quarter of 2015. The KIDV hopes that the results of these studies will serve as an opportunity to develop a method comparable to LCA, to be able to quantitatively calculate and compare the environmental impacts of litter. Such a method could certainly be of great value in future studies.

Although a quantitative analysis of litter was thus not yet possible, three possible environmental impacts of the ROV in regards to litter were studied qualitatively. This shows the following:

- First of all, the program to combat litter, made possible by the additional funds of €15.5 million annually from the Packaging Waste Fund, has resulted in additional efforts by municipalities to combat litter. The additional funds from the Packaging Waste Fund contribute to the reduction of litter in 2017 in a useful/beneficial manner, compared to a scenario without ROV, as additional activities can be carried out as a result of the additional funds.
- Secondly, a decrease in the amount of litter is expected due to the elimination of free plastic bags at supermarkets, but this effect will be limited. Furthermore, no information is available about the quantity of plastic bags which, in the Netherlands, end up as litter.
- Thirdly, the effect on litter by the elimination of the deposit system on large PET-bottles seems to be limited, because large PET bottles are typically used at home. In article 12 of the ROV it is agreed that the additional costs, which municipalities must make as a result of the elimination of the bottle deposit system, because extra (previously included in the bottle deposit system) bottles end up as litter, will be compensated by the packaging industry. This will be applicable from the moment the elimination of the bottle deposit system is eliminated until and including 2022. It should be noted that this agreement requires close monitoring.

### **Mixed plastics**

In addition to the sorting and recycling of mono-flows from the plastic packaging waste of households, a mixed plastic flow is also sorted and recycled. An international market exists for the use of recycled mixed plastics, which seems sufficiently to cover the increase in the Dutch mixed plastic products. Using mixed plastics prevents the use of hardwood, concrete and plastic. The ratio between the replacement of concrete, hardwood and plastic is not precisely known. This is due to the strong international character of the market and the shifts in uses over the years. In the Environmental Impact Analysis an equal proportion of one third is assumed for concrete, hardwood, and plastic. In the sensitivity analyzes, the market share of one of the three is every time doubled. This shows that the environmental impact is sensitive to the type of use of mixed plastics. It is beneficial for the environmental impact if a substantial amount of hardwood is saved, relatively unfavorable is the substitution of concrete. Within the range of this sensitivity for the use of mixed plastics in all cases a net environmental benefit is shown for the whole ROV.

### **Packaging Wood**

In terms of environmental impact more recycling of packaging wood conflicts with the aim to generate more sustainable energy via co-firing with biomass. In your letter to the House of

---

<sup>2</sup> Organizational unit of the Dutch Ministry of Infrastructure and the Environment and responsible for the design, construction, management and maintenance of the main infrastructure facilities in the Netherlands.

<sup>3</sup> Knowledge center which supports municipalities in combatting litter.

Representatives of April 16, 2015, you indicate this: “It shall require the necessary efforts of all parties in the chain in the foreseeable future, to increase the recycling of wood again towards the stated standards. The analysis of the Wood Workgroup shows, amongst others, that there is a significant market for the use of waste of wooden packaging for bio-energetic uses”. In the current situation with subsidies and objectives for the use of biomass for energy purposes, increased recycling of waste wood leads to environmental loss. This environmental effect of the recycling of wood, depends on the choices made in the energy policy and the energy sector, on which the ROV has no influence. Therefore, this effect cannot be attributed to the ROV.

### **Packaging sustainability plans for the industry**

The packaging sustainability plans for the industry are expected to result in an environmental benefit, if the plans are additional to the autonomous developments and agreements in the ROV.

The industries are responsible for determining the sustainability plans. With this approach, the sustainability of packaging is handled in a new manner, also for European standards. At the end of 2014, plans were submitted to the KIDV for more than 70% of the market, and an additional quarter of the industries has promised to submit a sustainability plan in the first quarter of 2015. It then practically covers the entire market. The plans will be assessed, determined, and subsequently made public. The expectation is that in 2015 packaging sustainability plans with highest obtainable goals are determined by the KIDV for 80% of the market.

At the time the Environmental Impact Analysis was conducted, the packaging sustainability plans were not yet available. Therefore the environmental impact of the packaging sustainability plans could not be quantified and included in the Environmental Impact Analysis of the ROV. When the packaging sustainability plans for the industry are determined, the KIDV will chart the effects of it.

### **Method**

The determination of the expected quantitative environmental impact of the ROV was conducted via Life Cycle Analyses (LCA's). The environmental impact analysis focuses on environmental impacts. Economic impacts are not a subject in this analysis.

Autonomous developments are developments which could occur, but are not a result of this ROV. These developments have not been included in the sum of environmental impacts.

In the environmental impact analysis, the starting point was to conservatively approach the determination of the assumptions, in order to prevent the overrating of the environmental impacts.

On behalf of the KIDV, I would like to express my deepest thanks to the researchers, the Sounding Board and the independent chairman, the External Committee, and the Advisory Counsel, for their constructive contributions during the process of compiling the final report on the Environmental Impact Analysis of the ROV. We hope that the results of the Environmental Impact Analysis provide a constructive contribution to the decision making process concerning the ROV.

Kind regards,

*Hans van der Vlist*

Chairman Knowledge Institute Sustainable Packaging Foundation