Contextual Response Analysis of reports of the Netherlands Environmental Assessment Agency PBL

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Content

Summary and Conclusions

As a governmental research and advisory agency, the role of PBL is to investigate current environmental, ecological and spatial quality and to explore and identify related social issues and future social trends, and to identify possible strategic options for achieving government objectives. To this end, PBL conducts solicited and unsolicited research that is always independent and scientifically sound. The prime concern of the agency is the policy relevance of its studies which consist of contributions to the improvement of the quality of all political and administrative decision-making related to these fields.

This report studies the use that is made from a selection of the output of PBL among various audiences. To this end, 40 of the PBL reports are investigated for traces of use in various databases including the internet. Also, an analysis is made of the diversity of groups of users in each of the audiences. Particularly, frequent users are individually identified with respect to four designated audiences that are closely related to the domains in which the agency works: 1. Environment and Nature, 2. Sustainable Development, 3. Housing, Urban Issues and Spatial Planning, 4. Mobility and Infrastructure. The report does not trace the impact of PBL in the policy process via direct interaction with policy makers, as this type of information is without the scope of this study.

The analysis of use in National parliament, based on minutes, shows that PBL operates closely within the political as well as policy process. Both members of the government and MPs address issues with the help of outcomes of PBL reports. Also, the research agenda of PBL is partly but actively shaped by the discussions among MP's and government, resulting in various assignments for evaluation and in depth studies about issues that in some cases are highly debated in politics as well as in news media and in society.

The position of advisory agencies such as PBL is not wholly unquestioned, as some parliamentary debate has taken place over their role. However, these discussions take place in general terms, and although PBL in one occasion has been the subject of political discussion, the result of the ensuing study by PBL has not lead to further criticism.

General use, studied here as use traced by internet searches, equally indicates a prominent role of opinion making among a wide diversity of users. Taking all audiences together, the various users of PBL are also described according to their function. Broad categories are: A) government, B) science, and C) users in news and knowledge dissemination and D) with a considerable section of users active in opinion making (including politics).

For the evaluation the audit committee for PBL selected eight reports that together can be taken as characteristic for its recent output. All but one of these reports are listed among the frequently used reports. Among the frequently used reports are also several of the structural reports that periodically appear, such as *Natuurbalans, Milieubalans, Balans van de Leefomgeving, Ruimtelijke verkenning* and *Monitor Duurzaam Nederland.* However, the list of frequently used reports is mixed with, and even headed by reports that address politically sensitive issues. These reports are for instance about changes in national policies on environmental issues or climate change. Apparently, PBL reports addressing these issues are used by a considerable number and variety of users.

Among audiences, there is some degree of specialization in the sense that a specific audience may display more interest in particular reports rather than in other, but the response shows considerable similarity in the use of most if not all reports. Although reports apparently are of use for those specialized in their subject matter, the reports reach also diverse other audiences as well. This is the case for the designated audiences that work on areas closely related to the mission of PBL as well as for audiences that have a different or wider scope. English reports have been slightly less successful in this respect.

For some reports, use in newspapers coincide with the use by institutions and organizations found on the internet. Nevertheless, although the search on the internet identified considerable use for reports addressing politically topical or sensitive issues, this did not coincide with media coverage for these

reports such as *Quick Scan Varianten EHS* and *Rio+20.* These reports have found numerous users in a diversity of audiences through other channels.

A comparison of the use of reports with data for downloads and visitors of PBL websites indicates that the routes for dissemination are varied. Although the PBL websites are definitively important channels of dissemination, other channels are equally important, including knowledge bases for professional and public use and specialized newspapers and journals.

Scholarly use of PBL reports seems to concentrate on those written in English, and on the structural reports. The volume of citations of the structural reports is very modest but on a par with reports of SCP (the Netherlands Institute for Social Research), due partly to the fact that most reports are written in Dutch. Also, scientific publications related to these reports are published by researchers individually. PBL provides a separate analysis of the scholarly attention paid to these forms of output.

Comparison with other governmental organizations suggest an overall similarity in audiences: PBL, SCP and RMO (Council for Societal Developments) share many users in the realms of science, government and policy making. However, as their mission also differs, specialized audiences of users are also noticeable. For PBL, use is found in all designated audiences, in particular in Environment and Nature. More than is the case with SCP and RMO, these audiences are characterized by (voluntary) associations, interest and pressure groups and political organizations of a wide variety, including also critics of vested environmental policies.

In conclusion: PBL strives to be relevant first of all in relation to national policy makers and politicians and secondly for a wide audience of stakeholders and interested parties. From this analysis it appears that the agency is successful in respect to this mission, both with its structural work and with the more topical individual reports. All investigated PBL reports find their way to a wide variety of users, among them news and knowledgebase organizations, scientific organizations as well as national government and lower authorities. More than other advisory agencies PBL reports characteristically find use among "politicized" audiences as well as among a variety of other audiences. Audiences show little or no sign of segmentation, indicating that each report is of relevance for varied users.

1. Introduction

The Netherlands Environmental Assessment Agency PBL is the national institute for strategic policy analysis in the fields of environment, nature and spatial planning. In order to certify and improve the scientific quality and social relevance of the work of the agency, the research program and the individual studies is to be assessed by an external committee. A self evaluation is one of the key documents for this assessment. PBL intends a quantitative analysis (bibliometry) of its social and scientific impact to be part of this evaluation.

The tasks of PBL are to investigate and document current environmental, ecological and spatial quality, to explore and identify related social issues and future social trends, and to identify possible strategic options for achieving government objectives. To this end, PBL conducts solicited and unsolicited research that is always independent and scientifically sound.

The research program is decided by the director of PBL and the relevant ministries have their say during the preparation of the work program. The agency is organized in seven departments and is assisted by an independent advisory board.

The prime concern of the agency is the policy relevance of its studies which consist of contributions to the improvement of the quality of all political and administrative decision-making related to these fields.

The agency produces a considerable number of studies, partly in cooperation with other institutes such as CBS and RIVM. Some of these studies are commanded by the relevant ministries as part of the structural task of the advisory role of PBL. These consist of recurrent overviews and compendia.

PBL strives to be relevant first of all in relation to national policy makers and politicians and secondly for a wide audience of stakeholders and interested parties.

PBL asks to support the self evaluation by providing an analysis of its social and scientific impact related to the mission of the agency. The focus of the analysis is on the most important publications and on the structural products such as the overview studies and compendia. The social impact is to be found in several domains, including parliament and in news media. As the studies of PBL explicitly intend to be both socially and scientifically relevant, the analysis should also include the impact in the scientific domain.

2. Analyzing PBL reports

The ERiC-project, supported by VSNU, KNAW, NWO and HBO-raad, recommends assessing social impact by focusing on stakeholders and their opinions about the relevance of the research to be evaluated. Key to the method is the identification of known and unknown users and actual usage.

Contextual Response Analysis focuses on the *numbers* of stakeholders and users and the *diversity* among users. This information is taken as an approximation of actual societal use of research output.

Contextual Response Analysis investigates the use of reports, books and other output in various social domains, using internet searches with various search engines (Google, Yahoo) and searches in databases such as LexisNexis (a newspaper database), Google Scholar and parliamentary databases. There are two phases in the analysis.

- In phase one each report is individually investigated both on how many times it is used and also in which social domain it is used. In internet searches, all search results are included to avoid ranking biases.
- Secondly, each user found in phase one is classified according to various characteristics. This is the most elaborate phase in the analysis which is necessary to verify the results of phase one. This results also in detailed information of who is using a specific report or book, and in which social domain use occurs. As the method traces users that are yet unknown to researchers, the outcome can also provide valuable information about (desired or hitherto unknown) stakeholders.

Table 1. Sources used in social impact analysis

Source	Context of usage: social domain
Zoek.Officiëlebekendmakingen.nl	Parliamentary use
Google Scholar	Scientific use
Lexis Nexis	Printed media (newspapers)
Google, Yahoo	General societal use, domains to be specified

The Contextual Response Analysis uses data that can be found and verified in various databases including the internet. However, researchers and representatives of the agency are often also involved in direct interaction with policy makers and interested others, in meetings, conferences and advisory relationships. Although direct interaction is undoubtedly a very substantial task of the agency and an effective way to bring results to the attention of relevant audiences, the analysis provided here makes no claims about use that results from it.

Searching for use of PBL reports on the internet

PBL has provided 41 titles of its most important reports to be investigated with the method of Contextual Response Analysis. This is a selection of the 288 reports published by the agency in the period 2008-2011. (see Addendum II for a full list of investigated reports.)

For each of the selected titles, search terms were composed to enable the identification of unique instances of use. This was done by selecting keywords from the title, sometimes varying the keywords for some of the titles. Some of the titles needed more than one set of keywords, as the report is known under various names. Also, additional information was needed for further identification. This is for instance the case with reports written in cooperation with other research institutes. With the OECD, PBL published *Environmental outlook to 2050*. Similarly, two reports (*Second opinion MKBA Verkassen* and *VMKB Olympische Spelen*) have been written in cooperation with CPB (Netherlands Bureau for Economic Policy Analysis) have also been searched with "CPB" as a term. Since all search results count in this analysis, extra care was taken to include as much as possible results while excluding false positive results. After a test run of search terms of 15 reports it was apparent that the needed extra information consisted of either the word "Planbureau" or the acronym "PBL". The use of "Planbureau" appeared necessary in particular to include results from websites outside of The Netherlands, as the agency in other languages is often in this way referred to instead of the acronym used in Dutch.

The composition of search strings resulted thus in more than one search string for each report. In total, 108 search strings were used to identify the response to 40 titles. Finally, double results were removed from the data presented here.

The search strings were identical while searching via Google, Yahoo and Scholar and in the parliamentary database. The parliamentary database is also searched with the terms "PBL" and "Planbureau, Leefomgeving" for use of results of the agency in which there is no direct reference to the titles that are investigated. For the composition of search strings in Lexis Nexis, see section 5.

Structure of the report

The structure of the report is in part based on the mission of the agency in relation to its audiences. The first task of the agency is to inform and interact with policy makers and politicians. Secondly, the agency focuses also on key policy areas in which various organizations and interested others work, denoted here as society in general, including the various printed news media. Consequently, the analysis starts with *parliamentary use* of PBL reports and of the references in the parliamentary minutes that can be linked to the agency (section 3). Furthermore, the *broader circle of audiences* is studied on the basis of internet data (section 4), which in part are classified to analyze in depth the linkage between individual reports and groups of users. Additionally, use is searched for in two specific social domains, printed news media (section 5) and science (section 6) that can be studied with specialized databases. In section 7, a comparison is made with the outcomes of contextual response analyses of two other government agencies.

3. Parliamentary use

The parliamentary database is investigated in particular with respect to the minutes of the meetings of both houses (Handelingen Tweede en Eerste Kamer), as this reveals substantial use among politicians and cabinet members. Other parts, dealing with the agenda of parliament or set lists of documents are omitted, although in these documents PBL was mentioned 524 times[1]. In the debates between 2008 and 2011 in both houses (Eerste Kamer and Tweede Kamer), the agency has been mentioned in 102 meetings of parliament, both by cabinet members (31 times) and MPs of all political parties. Mentions of reports of the agency, of the agency or of its results were most frequently coming from Green parties such as Groen Links (18 times mentioned) and Partij voor de Dieren (14) and also from the Labour party (11) and the liberal D66 (13).

In most cases, the agency is mentioned without direct reference to specific reports. Only in 14 cases a definite relation could be established with one of the PBL reports. In part, this is due to the broad issues discussed in parliament, relating findings and results of the agency to general policy issues such as the environmental consequences of new government policies, the effects of the financial crisis on housing or on the environment, or the question whether the goals of environmental policies will be met. Also, mentioning results of PBL studies often occur in the form of indirect references to reports or in mentioning a single fact from it. This is often the case when broader political issues are discussed. Lastly, discussions in parliament may precede research by the agency, for instance when MP's ask for policy evaluations. This has been the case with reports about the consequences of recent government policies that have become highly debated in politics and in public. Examples of such studies, sometimes requested by MPs, in other cases by the government, were the *Quick scan varianten EHS*, *Beoordeling Natuurakkoord*, *Natura 2000 in Nederland*, and also the *Notitie milieuschadelijke subsidies.*

In six meetings of the house of representatives the position and role of the agency was discussed. In all but one of these instances, however, the discussion was not about PBL itself but of the Agencies for Policy Analysis in general, for instance related to perceived differences between the outcomes of various studies of these agencies and government policies. In one meeting the contributions of PBL were discussed directly. Also, at least five technical meetings were held where members of parliament discussed with researchers of PBL and various other researchers (including sceptics). These discussions and meetings occurred in relation to a parliamentary hearing in 2010 about the perceived importance of errors in IPCC climate studies to which PBL also had participated. The result of this debate was that all parties, including those that criticized IPCC findings agreed to commission PBL with a new study, under the independent supervision by the Royal Netherlands Academy of Arts and Sciences (KNAW). This resulted in the report "Assessing an IPCC assessment", published in 2010. Although the study started with doubts by some MPs about a sufficiently independent position of PBL to be able to perform the study, the results have not been criticized in parliamentary debates, also not by these MPs.

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[1] A more detailed analyses of use of PBL reports in government documents is without the remit of this study. Relevant findings might, however, show in internet searches since government documents are indexed by search engines such as Google and Yahoo.

4. General Societal Use

Use in the general societal domain, as measured via Google and Yahoo, resulted in 6646 references to the 40 PBL studies published in the period 2009-2012. In total, 2044 different websites were responding to one or more of the investigated reports. Reports vary in the received response. Table 2 lists 20 of the most frequently referred to reports, according to the number of websites uniquely referring to each of these reports, and according to the total number of references found in all referring websites.

Websites may contain several references to the same report. Not every instance of such multiple references is substantial. Therefore, the unit of analysis chosen here is the *unique reference*, which is the instance of the website referring to a specific report, independent of how many references more the website may contain to that report. It is assumed that each website represents an organization or a person, the total number of unique references to a report represents also the number of users of that report. In total 3741 unique references were found to the 41 PBL studies, whereby the 2044 different websites referred to one or more reports. A third of these unique references were found in Word-documents or PDFs, most often produced by the user referring to the PBL report.

Table 2. Twenty reports most frequently used, by unique references and in total number of references

Title	Total number of references	Unique reference (Number of websites)	Selected Report
Quick scan varianten EHS (2011)	858	412	
Roads from Rio+20: paden naar mondiale duurzaamheidsdoelen voor 2050 (2012)	344	237	*
Milieubalans 2009 (2009)	383	212	
Notitie milieuschadelijke subsidies (2011)	323	160	*
Natuurbalans 2009 (2009)	318	157	
Signalenrapport De energieke samenleving (2011)	247	144	
Nederland in 2040: een land van regio's. Ruimtelijke verkenning 2011	258	144	*
Monitor Duurzaam Nederland (2011)	251	139	
Ex-ante evaluatie Structuurvisie Infrastructuur en Ruimte (2011)	199	131	
Regionale bevolkingsprognose 2011-2040	175	128	*
OECD Environmental outlook to 2050. The consequences of inaction (2012)	195	123	
De concurrentiepositie van de Noordvleugel van de Randstad in Europa (2011)	216	115	
Balans van de Leefomgeving (2010)	165	111	
Beoordeling Natuurakkoord (2011)	228	110	
Een delta in beweging. Bouwstenen voor een klimaatbestendige ontwikkeling van Nederland (2011)	202	107	*
Assessing an IPCC Assessment. An analysis of statements on projected regional impacts in the 2007 report (2010)	149	103	*
Rethinking Global Biodiversity Strategies (2010)	150	98	
Rapport Omgevingsrecht en het proces van gebiedsontwikkeling (2011)	191	97	
Natuurverkenning 2010–2040 (2012)	162	90	*
Van bestrijden naar begeleiden: demografische krimp in Nederland (2010)	156	86	

Reports with politically topical subject matter receive considerable attention. This is in particular the case with *Quick Scan varianten EHS*, a politically topical study about the foreseeable consequences of drastic budget reductions in the long-term investments in ecological reconstruction. Other politically topical reports, that is, reports of which the subject matter is closely related to political disputes also figure

prominently on this list, such as *Rio+20, Notitie milieuschadelijke subsidies, beoordeling Natuurakkoord, and Assessing an IPCC assessment*. This is also the case with the *Signalenrapport De energieke samenleving*, in which PBL seeks to address governance aspects of sustainable development.

Among the more frequently used reports are also the reports that appear periodically as structural output of PBL*: Milieubalans, Natuurbalans, Ruimtelijke verkenning, Monitor Duurzaam Nederland* and *Balans van de leefomgeving.*

For its self-evaluation, the audit committee selected eight reports that specifically exemplify the kind of work done by the agency over the previous period. All of these reports are among the most frequently used (table 2).

PBL reports are often downloaded from its own websites. Comparing figures for these downloads and for visits to the related pages on these website with the use gathered via internet show hardly any statistical correlation. Although the correlation between visits and downloads is high and significant (r=0.890, p=0.000), the relation seems absent with the use found on the net. Typically, the much used *Quickscan Varianten EHS* notes 364 downloads. The *Signalenrapport De energieke samenleving* and *Ruimtelijke verkenning 2011* are also frequently used. However, these reports have both been downloaded well over 2000 times each, much more than the Quickscan. The high numbers of downloads apparently did not lead to similar amounts of use in the form of mentioning in websites or documents. By contrast, *Notitie milieuschadelijke subsidies*, often used and often mentioned in parliament, has been downloaded only 47 times, much less than the numbers of use found on the net (323 times, by 160 different users). This is also the case for *Ex-durante Evaluation Spatial Planning Act*, which has 108 references from 56 different users, but which is downloaded a mere 7 times. Although clearly not all forms of use is found with the method employed here, it is also clear that the information routes for users to know about reports are more manifold than that of PBLs own websites. These routes may include knowledge and data-bases focused on professional or specialized audiences, special newspapers.

Another way of looking at this list of most frequently responded publications is by subject matter. It is headed by a considerable number of reports on issues regarding environment and nature. This is the case for four of the most frequently used reports, the *Quick Scan varianten EHS*, and the recurrent overviews *Milieubalans* (edition 2009) and *Natuurbalans* (also edition 2009, and the brief report on subsidies with harmful consequences for the environment *Notitie Milieuschadelijke Subsidies.* This emphasis on environmental issues is also reflected in the large share of users that work in the area of Environment and Nature, one of the designated audience areas. These aspects are analyzed in the following sections.

Classifying websites: the users of PBL reports

A number of the 2044 different websites have been classified for further investigation. These were the websites that referred more than 3 times to one or more of the reports studied here. The 187 websites that matched this condition responded 1405 times to PBL studies in terms of unique references, which is 38% of the total volume of the 3741 references found in this analysis.

Definitions:
- *Unique reference:* website referring to a specific report, independent of how many references the website contains to that report.
- *Frequent user/organization:* a website of a user or organization referring more than 3 times to one or more PBL reports.

The 187 websites were classified according to characteristics of the various designated audiences of the agency. The organizations linked to these websites were classified according to one of the following fields if it clearly could be established that the main effort of the organization was in that field:
- Environment and Nature (including Water and Air)
- Sustainable Development

- Housing, Urban issues, Spatial planning
- Mobility and infrastructure

Organizations working in other fields, or organizations that clearly have a broader scope than the fields listed above, were classified as *Other.*

Environment and Nature is by far the largest field with 52 organizations using PBL reports. The other designated audience fields are much smaller, as table 3 shows, with 12 referring organizations in the field of Sustainable Development, 12 in Housing, Urban Issues and Spatial Planning and 6 organizations in the apparent tiny area of Mobility and Infrastructure. A large group of organizations fall without the fields of designated audiences. Half of the frequent users, with 105 websites, are working in other fields or have a broader scope than either of these fields.

Table 3. Number of frequent users according to PBL audiences and to their function

Function	Environment and Nature	Sustainable Development	Spatial planning Housing, Urban issues and	Housing, Urban issues and Spatial planning	Mobility and Infrastructure	Other frequent users	Grand Total
News media	8	1		1	1	24	35
Knowledge base	11	4		7	2	3	27
Government other than National government	1	1		1	1	12	16
Library or repository	4	1				11	16
General/internet org.						16	16
Interest groups, pressure groups	12			1		3	16
Universities, Scientific organization	6	2		1	1	5	15
Social Media						11	11
Advisory council, Government Agency	4	2			1	4	11
Political party/group	2					6	8
National Government	2			1		4	7
Publisher						5	5
Consultancy firm	1	1					2
Blog	1					1	2
Grand Total	52	12		12	6	105	187

A second classification of frequent users is according to their function. The classes used here are similar to Contextual Response Analysis of SCP (the Netherlands Institute for Social Research) and RMO (Council for Societal Developments), enabling a comparison. Following the divisions of this classification in the areas of PBL audiences, it appears, first (1), that many of the referring websites are news media: news websites, newspapers, weekly's, professional papers and newsletters (including also newsletters from associations in Nature and other areas relevant to the mission of PBL). Also, numerous websites function mainly as knowledge bases for professional audiences or the public in general. These include the website of Syntens, Infrasite, Kennisplatform Verkeer en Vervoer, GroenKennisNet as well as NICIS and the former IKC-RO. Furthermore (2), group of users can be located in the governmental sector, either provincial or local authorities in The Netherlands, the National Government or among European authorities. Third (3), many organizations are related to scientific research: these are universities or other research organizations such as RIVM (National Institute for Public Health and the Environment), the Wageningen University, the Institute for Environmental Studies of the VU university (university) and libraries or academic repositories. A group of users that is closely related to scientific research is those of advisory

councils and government agencies that have a similar position as PBL, such as CBS Statistics Netherlands, Netherlands Bureau for Economic Policy Analysis (CPB), or governmental advisory agencies such as the Social and Economic Council of the Netherlands (SER).

Among the frequent users a substantial group (4) can be classified as nature conservation organizations and interest groups or pressure groups. Among interest groups are professional organizations and representatives of interests of local authorities (VNG) or of nature conservation (Natuurmonumenten). Pressure groups range from local activists to regional (Gelderse Natuur en Milieu Federatie, Natuur en milieufederatie Utrecht) and national groups (Das en Boom, Milieudefensie, Natuur en Milieu). Organizations operating on a international scale are scarce, however, with only Just Forest referring to two PBL reports. Other international organizations such as Greenpeace, WWF, EREC (European Renewable Energy Council) are not listed in the search results.

The number of interest groups and pressure groups is characteristic in the large area of PBL audiences in Environment and Nature, where almost a quarter of all frequent users are interest groups working on a local or national scale. If blogs and (green) political parties are included, more than 28% of the frequent users in the area of Environment and Nature participate in any form of (political or social) opinion making. These include also critics of vested environmental policies and climate sceptics. Taking all audiences together, the various users of PBL can be largely described as users in news, knowledge dissemination and science, government, and with a considerable section of users active in opinion making (including politics).

Table 4. References according to designated PBL audiences and other frequent users

	Unique references to reports	Total number of references	Number of websites involved
Environment and Nature (incl Water, Air)	349	727	52
Sustainable Development	96	329	12
Housing, Urban issues, Spatial Planning	72	139	12
Mobility and Infrastructure	40	89	6
Other	745	1579	105
Grand Total	**1302**	**2863**	**187**

All of the reports are used by the designated audience groups and by other frequent users as well as by less frequent users. On average, the use of designated audience groups is about 15% of the total use, whereas the other frequent users show a use of somewhat less than a quarter of the total use. For two third (63%) of the total use of PBL reports comes from infrequent users.

The response to individual reports varies somewhat by each of the audiences (Table 5). Among the users in the area of Environment and Nature, *the Quick Scan varianten EHS* is used significantly[2] more in comparison to the average use of other reports in this same group. Though not quite significantly, *Milieubalans 2009* too is often used in this group. The recurrent *Milieubalans* edition 2009 is significantly used among users working on Sustainable Development. Organizations in the area of Housing, Urban Issues and Spatial Planning used significantly more *Omgevingsrecht en het proces van gebiedsontwikkeling*, and quite also the *Ex-durante Evaluation Spatial Planning Act* (not in table 5, used 10 times by users in this area, 66 times in total). And in the small designated audience of mobility and infrastructure the interest in *De concurrentiepositie van de Noordvleugel van de Randstad in Europa* is relatively high.

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[2] A significantly higher or lower use for a report by a group is defined here as above or lower than twice the standard deviation from the statistical average for the total of use of all reports by that group.

Although use of each of these reports among these audiences to some extent seem to follow their subject matter, none of the reports is uniquely or specifically used by a single audience group: the reports are substantially used by other audiences as well, including a wide variety of both frequent and infrequent users, thus serving a wide diversity of audiences.

Table 5. Number of users of twenty frequently used report, according to PBL audience

Title	Environment and Nature	Sustainable Development	Housing, Urban issues and Spatial Planning	Mobility and Infrastructure	Other frequent users	Infrequent users	Grand Total
Quick scan varianten EHS (2011)	37*	3	6	3	71*	292*	412
Roads from Rio+20: paden naar mondiale duurzaamheidsdoelen voor 2050 (2012)	8	1			17	211*	237
Milieubalans 2009 (2009)	27*	7*	4	1	41	132	212
Notitie milieuschadelijke subsidies (2011)	11	5	1	1	38	104	160
Natuurbalans 2009 (2009)	23	2	2		42	88	157
Signalenrapport De energieke samenleving (2011)	12	3	4	1	32	92	144
Nederland in 2040: een land van regio's. Ruimtelijke verkenning 2011	10	4	4	4	35	87	144
Monitor Duurzaam Nederland (2011)	18	5	3		24	89	139
Ex-ante evaluatie Structuurvisie Infrastructuur en Ruimte (2011)	8	2	8*	5	41	67	131
Regionale bevolkingsprognose 2011-2040	6		4	2	24	92	128
OECD Environmental outlook to 2050. The consequences of inaction (2012)	2	4	1		11	105	123
De concurrentiepositie van de Noordvleugel van de Randstad in Europa (2011)	8	2	6	6*	37	56	115
Balans van de Leefomgeving (2010)	25*	1	3		28	54	111
Beoordeling Natuurakkoord (2011)	15	1	2	1	45	46	110
Een delta in beweging. Bouwstenen voor een klimaatbestendige ontwikkeling van Nederland (2011)	11	2	2	3	36	53	107
Assessing an IPCC Assessment. An analysis of statements on projected regional impacts in the 2007 report (2010)	3		1		10	89	103
Rethinking Global Biodiversity Strategies (2010)	10	2	1		22	63	98
Rapport Omgevingsrecht en het proces van gebiedsontwikkeling (2011)	9	1	7	3	27	50	97
Natuurverkenning 2010–2040 (2012)	14		2		24	50	90
Van bestrijden naar begeleiden: demografische krimp in Nederland (2010)	2		2	1	16	65	86

* Statistically significant use in comparison to use of other reports in the same area of audience, see footnote 2

Table 6. Number of users of twenty frequently used reports, according to groups of functions

Titles	Science, incl libraries,	Political parties, interest groups, pressure groups, blogs	News	Knowledge bases	Governments	Other frequent users	Infrequent users	Grand Total
Quick scan varianten EHS (2011)	22	53	38	15	27	9	242	412
Roads from Rio+20 (2012)	5	11	10	2	7	3	195	237
Milieubalans 2009 (2009)	19	20	26	12	17	5	106	212
Notitie milieuschadelijke subsidies (2011)	7	22	24	6	7	7	83	160
Natuurbalans 2009 (2009)	19	22	14	9	16	7	64	157
Signalenrapport De energieke samenleving (2011)	7	23	12	8	8	9	70	144
Nederland in 2040: een land van regio's. Ruimtelijke verkenning 2011	13	12	12	8	11	8	74	144
Monitor Duurzaam Nederland (2011)	9	15	13	8	9	3	77	139
Ex-ante evaluatie Structuurvisie Infrastructuur en Ruimte (2011)	12	10	14	10	16	10	57	131
Regionale bevolkingsprognose 2011-2040	8	8	4	5	10	4	82	128
OECD Environmental outlook to 2050. (2012)	4	4	7	3	2	3	96	123
De concurrentiepositie van de Noordvleugel van de Randstad in Europa (2011)	12	13	12	9	16	2	48	115
Balans van de Leefomgeving (2010)	13	14	13	7	10	7	42	111
Beoordeling Natuurakkoord (2011)	10	20	17	9	11	5	35	110
Een delta in beweging. (2011)	12	8	21	10	6	2	42	107
Assessing an IPCC Assessment. (2010)	5	3	6	1	2	4	79	103
Rethinking Global Biodiversity Strategies (2010)	10	13	7	4	7	3	48	98
Rapport Omgevingsrecht en het proces van gebiedsontwikkeling (2011)	8	9	9	8	14	3	42	97
Natuurverkenning 2010–2040 (2012)	7	11	13	5	6	5	42	90
Van bestrijden naar begeleiden: demografische krimp in Nederland (2010)	1	13	4	2	5	3	54	86

Some differences in use can be discerned, however, related to the balance between frequent and infrequent users. Even though many of the English reports of PBL are among the most frequently used works, these were significantly more used by infrequent rather than by frequent users (including the designated audiences). This is the case for *Rio+20, the Challenge of Sustainable Development,* for the *OECD Environmental outlook to 2050,* and for the evaluation of climate studies *Assessing an IPCC Assessment.* And although *Scarcity in a Sea of Plenty? Global Resource Scarcities and Policies in the European Union and the Netherlands* and *Forks in the road. Alternative Routes for International Climate Policies and their Implications for the Netherlands* both are somewhat less frequently used, these report too are used, above average, by infrequent rather than frequent users. Although the total figures point to a substantial interest in reports written in English, this does not necessarily - or does not yet - translate in similar proportions of loyal users as is the case with reports written in Dutch. In general, that is, for all reports taken together there is a weak but significant correlation

between frequency of use of a report and the share of infrequent users among the total of users. (r=0.40, p=0.009): the more a report is used, the more likely it is that this user is an infrequent one.

The rather unselective or unsegmented character of use of the reports by a wide diversity of audiences is also noticeable in the distribution of use per function. In table 6 the most used reports are listed according to the number of users in several groups of functions. The various functions listed in table 3 are grouped as (1) Science, libraries and knowledge bases, (2) Opinion making, including political parties, interest groups, pressure groups and blogs, (3) news, including newspapers and publisher, and (4) governments, including local as well as national governments and advisory organizations, and (5) other organizations. See also addendum II for an additional analysis of segmentation of audiences, or the lack of it.

5. PBL reports in printed news media

Searching newspapers with the generic name of the agency, "Planbureau voor de Leefomgeving" resulted in a list of more than 2400 articles in which the agency was mentioned in the period of 2008-2011. All major newspapers and many regional newspapers in the Netherlands are in this list. The list also carries specialized weekly's and newspapers among the frequently referring media, notably in agriculture, such as *De Boerderij* and *De Boerderij Vandaag.*

References to specific reports have also been searched for. Newspaper articles were found regarding 19 of the 40 reports analyzed here. Searching for specific reports was problematic, however. Titles of reports were often omitted or altered into brief titles. In most cases, references could be found with brief key terms from the titles of the reports combined with search terms such as "PBL" and "Planbureau," The only exception in this strategy was the search for report *Environmental Outlook to 2050*, that gained far less substantial hits with these terms rather than with the added term "OECD," with which PBL cooperated in preparing the report. This led to considerable more international attention to this report than could be found in any other case, including the other reports in English. The complete list of reports mentioned in printed news media can be found in table 7.

Many of the reports that are often mentioned in newspapers are also frequently mentioned by users on the internet, as appears in tables 2 and 5. *Milieubalans 2009* for instance is both in the press and by users often mentioned, as is *Regionale Bevolkingsprognoses* and the *Monitor Duurzaam Nederland*.

Table 7. Reports mentioned in printed news media

Monitor Duurzaam Nederland	29
Environmental Outlook to 2050 (OECD)	26
Milieubalans 2009	21
Regionale bevolkingsprognose	20
Natuurverkenning (Nature outlook)	15
De staat van de ruimte	13
Quick Scan varianten EHS	7
Evaluatie wet ruimtelijke ordening (Ex-durante Evaluation Spatial Planning Act)	6
Signalenrapport De energieke samenleving	5
Natuurbalans 2009	5
Balans van de leefomgeving 2010	5
Ruimtelijke verkenning (Nederland in 2040)	4
Rethinking global biodiversity	3
The protein puzzle	3
Naar een schone economie in 2050	3
Rio+20	2
Raming van broeikasgassen	2
Concurrentiepositie topsectoren	1
Climate policy after kyoto	1
Grand Total	**171**

However, the ranking of this attention is different, resulting in a much lower media coverage for reports such as *Quick Scan Varianten EHS* and *Rio+20* than might be expected on the basis of the political discussion about related issues and the considerable use found for these reports on the internet. Strikingly, reports most closely related to political discussions, such as *Assessing an IPCC assessment, Notitie milieuschadelijke subsidies* and *Beoordeling Natuurakkoord* seem to lack any attention in printed

news media. Clearly, the use for these reports (including the *Quickscan Varianten EHS* and *RIO+20)* is not coinciding with attention in the newspapers, which is an indication that the frequency of use most likely is the outcome of other patterns of dissemination. The existence and relevance of the title for the use must have followed other routes than via the press, most likely through more specialized information channels. These may be found in the knowledge bases transmitting information about PBL reports through to their audiences, and in the numerous specialized news channels, newsletters in the field of Environment, Nature and of Sustainability, and, for instance, in specialized newspapers for agriculture (De Boerderij) or for building (Cobouw, Aedes Magazine). (See also section 7 for a comparison with SCP)

6. Scholarly response to PBL reports

In a similar manner as for the internet searches, the 40 PBL reports were searched for in scholarly literature, using Google Scholar as a source. In view of the response found on the internet, scholarly attention may seem modest. However, many of the reports also have led to academic output in scientific journals. For an analysis of the reception of this specific body of output, see the separate report on this subject provided by PBL. Also, reports are often written in Dutch, leading to a diminished coverage by Anglo-Saxon scientific journals.

Table 8. Scholarly citations for frequently cited reports according to Google Scholar

	Citations found in Scholar	Citations in Scientific Journals	Citations in books, traceable reports and conference papers 1)	Net Total of Scholarly Citations
Natuurbalans 2009 (2009)	49	3	42	45
Assessing an IPCC Assessment (2010)	34	20	10	30
Environmental outlook to 2050 (2012)	30	7	14	21
Milieubalans 2009 (2009)	21	10	10	20
Balans van de Leefomgeving 2010 (2010)	19	1	16	17
The Protein Puzzle (2011)	15	3	9	12
Rethinking Global Biodivesity Strategies (2010)	13	4	4	8
Monitor Duurzaam Nederland (2011)	10	3	3	6
Staat van de Ruimte 2010	6	1	4	5

1) minus student thesis and untraceable sources

Nevertheless, citation takes place for PBL reports. In total, 223 citations were found. However, not all citations found in Google Scholar are thorough scholar citations. Of the 223, 59 were from scientific journals, and 155 from books, conference papers and traceable reports, if student thesis and untraceable sources were excluded. In this way, a total of scholarly citations can be computed. Often cited are the reports in English, and the structural reports such as *Natuurbalans, Milieubalans, Balans van de Leefomgeving, Staat van de Ruimte* and *Monitor Duurzaam Nederland*.

7. Comparison with other government agencies

For reports of two other government agencies, SCP (the Netherlands Institute for Social Research) and RMO (Council for Societal Developments), data are available of similar contextual response analyses. The data about SCP and RMO presented here have been calculated anew on the basis of raw data, in order to provide a match with the classification used for PBL.

Comparison with the outcomes for these organizations is not straightforward, however. First, the analysis provided here is based on 41 selected reports, in contrast to the entire batch of 124 reports and documents produced by SCP and the 17 reports of RMO. Secondly, both other contextual response analyses have been performed in 2008, which may lead to differences in numbers of use simply because the internet expands but also because of changes in the political and institutional context due to a reduction of advisory agencies, increasing polarization etcetera. Although to be treated with caution, a comparison of use is nevertheless valuable if focused on relative use. Another difficulty in comparison are the differences of the organizations, even though their mission is broadly comparable: This is the provision of scientifically based advice for government, professional and public use. RMO is small, consisting of a council supervising research projects that are commissioned and most often are carried out by university researchers or by external research committees. In size and policy regarding the research agenda, SCP is comparable with PBL. However, SCP has a very wide scope in subject matter, related to the whole field of social and cultural developments in The Netherlands. Moreover, it is an established and well entrenched governmental institution, with a history reaching back to 1974, whereas PBL has been established only in 2008, in a merger of two advisory agencies *Ruimtelijk Planbureau* (RPB, Netherlands Institute for Spatial Research) and *Milieu en Natuurplanbureau* (MNP, Netherlands Environmental Assessment Agency). These factors may contribute to different patterns of use and of recognition, including a greater variety of users and a stronger entrenchment among users in governmental institutions for SCP reports.

In comparison with much used SCP reports, a substantial amount of the 41 PBL reports are frequently used. This is in particular the case with nine of the most used PBL reports which are used as often if not more than the most used SCP reports. *Quickscan EHS* is more frequently used than the most used SCP reports, as is *Rio+20.* Several of PBLs structural reports also show rates of use similar to the most frequently used for SCP.

The audiences of PBL reports show similarities with those of SCP and RMO. There is considerable use of reports by scientific institutions, advisory organizations and governmental institutions. Nevertheless, there are also notable differences. As is noticed in the section on parliamentary usage, advisory organizations tend to operate in a more polarized environment than a few years before. On the whole, however, for PBL this seem to be more expressly the case, also in the use of reports analyzed via internet searches. About one in five users of PBL reports are to be found among political parties, interest groups, pressure groups and blogs. This percentage raises to 28% for PBL when considering the designated audience of Environment and Nature.

Table 9. Comparison of use in various sectors, for reports of PBL, SCP, RMO

Sector	PBL	SCP	RMO
Science, incl libraries,	20%	18%	15%
Political parties, interest groups, pressure groups, blogs	20%	8%	17%
Governments	19%	22%	22%
News	19%	7%	2%
Knowledge bases	14%	25%	33%
Other frequent users	7%	20%	11%
Total	100%	100%	100%

Compared to the users of SCP reports analyzed in 2008, a much larger section of users of PBL seem active in political or social opinion making. Whereas the percentage of unique websites of SCP users among interest groups, blogs, politicians and the like is 8% of the total unique websites, the share of those users in the total for PBL is 20%, (which is comparable to the figure for RMO (17%). PBL operates in a "politicized" context, apparently also more strongly than these other advisory organizations, in particular concerning issues of environment and nature. (Table 9)

SCP users more often have an institutional policy oriented background than is the case for PBL. Although PBL and SCP share many of institutional users among their audiences, such as SER (the Social and Economic Council of The Netherlands), RLI (the Advisory Council for the Environment and Infrastructure), and the former VROM Raad[3], SCP has many more advisory institutes and councils among its users, such as the Council for Education, and the Council for Public Health and Health Care (RVZ). The presence of 18 of such advisory institutes for SCP against 10 for PBL indicates not only the wider scope of SCP but also the comparatively more institutional background of its users.

Table 9 also shows that PBL has less response in the category "other frequent users" than SCP. From the raw data for SCP it appears that half of these other frequent users are booksellers and publishers. The other half of this group consists of institutional parties and organizations such as local health authorities, (graduate) schools, which are absent or infrequent users in the case for PBL reports.

Even though the connections to governments and policy making for PBL reports are more or less comparable with SCP, these results indicate characteristic differences in audiences. Whereas users of PBL often can be found in politics and opinion making, users of SCP reports have a more institutional background.

In comparison with SCP and RMO, the 63% of infrequent users in the total of use for PBL is high, higher than the percentage for users of RMO reports (56%), and much higher than for SCP (33%). It is a matter of speculation how this high percentage best is characterized. One possible explanation is that infrequent users are only interested in a particular report. However, this seems less likely since this is in contrast with the finding that each of the reports attract a wide diversity of audiences. If each report is relevant to multiple audiences, then reports with similar subject matter should be of value for these varied audiences, leading also to more frequent use. Another explanation is that the information needed for users to know about relevant reports is not readily available. Nevertheless, although the attention in news papers is (just) slightly less than is the case for SCP, the information channels found for PBL are numerous and varied in source and audiences. Another, perhaps more likely explanation is that PBL is a relatively new agency of which (in comparison with the established SCP) its status is in development, with possibly higher degrees of frequent users in the future.[4]

The response found in national and regional newspapers is comparable with the response for SCP reports. In newspapers and weeklies, 79 SCP reports (about two third of the total studied) were mentioned 890 times, with 7 reports 20 times or more. Of PBL, somewhat less reports, 21 of 41 (half of the total studied) were mentioned, 237 times, with 4 reports 20 times or more. On average, both SCP and PBL reports were mentioned 11 times. This comparison is somewhat flattered, however, since the PBL reports are a

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[3] RLI is a merger of VROM-Raad, Raad voor het Landelijk Gebied and Raad voor Verkeer en Waterstaat.

[4] An indication for this is the internet response to two reports written with the established CPB: adding the search term "CPB" to the title led to 21 extra unique websites on a total of 27. Also, a weak but significant correlation between frequency of use of a report and the share of infrequent users among the total of users. (r=0.40, p=0.009). The more a report is used, - the more it has established reputation- the more likely it is that other infrequent users will use this report too. Additionally, after completing the datacollection, it appeared that Regionale Bevolkingsprognose 2010-2040 has been written in collaboration with CBS. Replacing the search terms for PBL with CBS resulted in a higher number of unique websites, 172 against 128.

selection of its output, whereas the SCP study comprised all reports and working documents. Although not as high as for SCP, the attention for PBL in national and regional newspapers and weeklies seems therefore substantial. Nevertheless, the use in news media, as found via internet searches is much higher for PBL in comparison with SCP and RMO (see table 9). As is noted in section 6, the media sources found via the internet searches indicated that specialized knowledge bases and in particular specialized news media are important channels for the dissemination of (information about) PBL reports, even more so than for SCP and RMO.

The scholarly use of reports is modest for PBL, as it is for SCP and RMO reports, in comparison to scientific response on individual scientific output. Nevertheless, six PBL reports are quoted as often, if not more, than five SCP reports, which puts the scientific use of PBL reports on a par with those of SCP.

Addendum I: list of tables

Addendum II: list of investigated reports

- Afschaffen van de productierechten in de veehouderij in 2015: gevolgen voor veehouderijen en leefomgeving (2012)
- Assessing an IPCC Assessment. An analysis of statements on projected regional impacts in the 2007 report (2010)
- Balans van de Leefomgeving (2010)
- Beoordeling Natuurakkoord (2011)
- Climate policy after Kyoto. Analytical insights into key issues in the climate negotiations (2011)
- De concurrentiepositie van de Noordvleugel van de Randstad in Europa (2011)
- De concurrentiepositie van Nederlandse regio's/Topsectorenbeleid (2012)
- De staat van de Ruimte 2010. De herschikking van stedelijk Nederland. (2010)
- Doorrekening motie Halsema (2011)
- Een delta in beweging. Bouwstenen voor een klimaatbestendige ontwikkeling van Nederland (2011)
- EU resource efficiency perspectives in a global context (2011)
- Ex-ante evaluatie Structuurvisie Infrastructuur en Ruimte (2011)
- Ex-durante Evaluatie Wet op de Ruimtelijke Ordening (2010)
- Forks in the road. Alternative Routes for International Climate Policies and their implications for the Netherlands (2011)
- Greening the Common Agricultural Policy: impacts on farmland biodiversity on an EU scale. Included also: vervolgnotitie: Greening the CAP: An analysis of the effects of the European Commission's proposals for the Common Agricultural Policy 2014-2020 (2012)
- Herziening geluidbeleid: actualisatierapport 2011
- Milieubalans 2009 (2009)
- Monitor Duurzaam Nederland (2011)
- Naar een schone economie in 2050: routes verkend. Hoe Nederland klimaatneutraal kan worden (2011)
- Natura 2000 in Nederland (2011)
- Natuurverkenning 2010–2040 (2012)
- Natuurbalans 2009 (2009)
- Notitie milieuschadelijke subsidies (2011)
- OECD Environmental outlook to 2050. The consequences of inaction (2012)
- Quick scan varianten EHS (2011)
- Raming van broeikasgassen en luchtverontreinigende stoffen 2011-2015
- Rapport Omgevingsrecht en het proces van gebiedsontwikkeling (2011)
- Regionale bevolkingsprognose 2011-2040
- Rethinking Global Biodiversity Strategies (2010)
- Roads from Rio+20: paden naar mondiale duurzaamheidsdoelen voor 2050 (2012)
- Roads from Rio+20: paden naar mondiale duurzaamheidsdoelen voor 2050 (2012)
- Nederland in 2040: een land van regio's. Ruimtelijke verkenning 2011
- Scarcity in a Sea of Plenty? Global Resource Scarcities and Policies in the European Union and the Netherlands (2011)
- Second opinion MKBA Verkassen (with CPB, 2011)
- Second Opinion VMKB Olympische Spelen (with CPB, 2011)
- Signalenrapport De energieke samenleving (2011)
- The European landscape of knowledge-intensive foreign-owned firms and the attractiveness of Dutch regions (Nederland Kennisland) (2011)
- The Protein Puzzle. The consumption and production of meat, dairy and fish in the European Union (2011)
- The roles of government in multiactor sustainable supply chain governance systems and the effectiveness of their interventions. An exploratory study (2010)
- Van bestrijden naar begeleiden: demografische krimp in Nederland (2010)
- Verbetering van communicatie en presentatie rond de MKBA bij Verstedelijkingsprojecten (2011)
- Welke veestapel past in Nederland? Verkenning van mogelijke uitgangspunten en gevolgen voor milieu en economie (2011)

Addendum III: network analysis of frequently used reports

In order to investigate whether there are clusters of reports that, taken together, are more likely to be used by an identifiable group of users, a network analysis has been performed on the relations of reports and their users with Pajek[5]. The resulting graph is based on an adjacency matrix of 31 of the titles most frequently cited reports. The plotting of reports is based on the distances of each report towards the others, where the distance is calculated on the basis of common frequent users. The more a report A is used by frequent users that also use report B, the closer reports A and B are placed in the graph. The lines between reports indicate at least one common user.

The result of this analysis is that no grouping of reports according to subject matter appears. Visible are the English reports on the outer side of the graph, indicating the "distance" of their users towards other reports. This is according to the other findings in this report. The scattered grouping of reports of related background indicates that there is little reason to assume that some groups of reports are specifically used by one user or even by a group of specific users.

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[5] Vladimir Batagelj and Andrej Mrvar, Pajek 3.0, Program for Large Network Analysis.

Contextual Response Analysis of PBL Reports