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Assessment Agency

PBL self-evaluation

for the scientific audit 2022

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PBL

Colophon

PBL self-evaluation for the scientific audit 2022

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PBL Netherlands Environmental Assessment Agency is the national institute for strategic policy analysis in the fields of the environment, nature and spatial planning. We contribute to improving the quality of political and administrative decision-making by conducting outlook studies, analyses and evaluations in which an integrated approach is considered paramount. Policy relevance is the prime concern in all of our studies. We conduct solicited and unsolicited research that is both independent and scientifically sound.

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Foreword

At PBL Netherlands Environmental Assessment Agency, it is good practice to have the work audited once every five to seven years by an independent committee. Just as is customary for the other two Dutch assessment agencies (CPB and SCP). These audits are a cornerstone of quality assurance for organisations such as PBL and, therefore, also of their independence. The previous PBL audit took place in 2017–2018 and was conducted by the Knottnerus Committee. This year, 2022, a new audit will be conducted, during which our work will be assessed in terms of scientific quality, social and policy relevance as well as future resilience.

In preparation for such an audit, organisations usually produce a self-evaluation. This report is PBL's self-evaluation for the 2022 audit. It discusses the PBL work produced over the past years. What has been achieved? What went well? What could be improved further? Internal developments are explicitly considered in the context of external changes. Examples are the increased complexity of environmental issues in the fields of climate, biodiversity, natural resource use and spatial planning; the increased multiplicity of the relationship between knowledge and policy (the 'knowledge democracy'); and the greater input of local government authorities, market parties and non-governmental organisations (NGOs) in policy-making ('multi-level, multi-actor').

As a result, our work has come even closer to policy and society, thus meeting the growing demand for our scientific insights. At the same time, the ways in which knowledge is gathered and used have become more diverse. In addition to outlook studies, other common methodologies include monitoring and target-achievement evaluations, learning assessments, especially together with local authorities and organisations, and 'knowledge at the table', in consultation with policymakers. The quality standards that apply to our more traditional research must of course also be maintained for these other types of studies.

An additional element is the need for prioritisation, also in connection with the size of the workload. Task-driven programming of PBL work — based on a sharp analysis of the issues at hand (the 'what'), but also with an informed look ahead to possible perspectives for action (the 'how') — then becomes even more important. Such an approach has been further developed over the past two years — in a period when the coronavirus pandemic enormously increased the pressure on the organisation (working remotely rather than in person), as well as one in which general elections — and the resulting new coalition agreement — also significantly intensified policy attention for environmental issues.

We thank Bas Arts, Aldrik Bakema, Ton Dassen, Alinda Lamein and Jarry Porsius for writing this self-evaluation as well as everyone at PBL who contributed to it. The evaluation provides useful insights for the upcoming audit.

Hans Mommaas, Director-General
André van Lammeren, Deputy Director

Summary

As a crucial part of its quality policy, PBL Netherlands Environmental Assessment Agency organises an external audit every five to seven years. This report is PBL's self-evaluation for the audit of 2022. The report follows the instructions of the most recent Strategy Evaluation Protocol (SEP) 2021–2027 of VSNU, KNAW and NWO, and also adds a few other matters. In addition to the focus on scientific quality, social and policy relevance and future stability, we also consider the specific character of PBL as an assessment agency and our role in the current knowledge–policy arena in relation to the physical environment.

PBL is a medium-sized organisation, with an annual budget of about 37 million euros and 230 FTEs in staff. It is part of the Dutch Ministry of Infrastructure and Water Management (IenW), but has an autonomous and independent position (as do the two other Dutch assessment agencies, CPB and SCP). This position is safeguarded under the Protocol for the three Dutch Assessment Agencies (Aanwijzingen voor de Planbureaus, Staatscourant 3200, 21 February 2012). PBL is the national institute for strategic policy analysis in the fields of environment, nature and spatial planning. It was established in May 2008, following a merger between the Netherlands Institute for Spatial Research (RPB) and the Netherlands Environmental Assessment Agency (MNP). Its core tasks are to investigate and document the state of the current physical environment; to explore related future developments; and to identify and evaluate relevant policy options and policy implementation. Four themes are central to this work: climate change and the energy transition; the transformation in agriculture, food and nature; green and circular economic reform; and urban and regional developments.

The fields in which PBL operates have been subject to considerable change, in recent years. Firstly, environmental issues have risen to a higher and more coherent, systemic level on political, policy-making and social agendas. PBL's work has therefore become more thematic and programmatic, and has simply become busier. Secondly, the knowledge–policy arena itself has changed. More than ever before, PBL is called upon to assist policymakers and administrators 'directly and on the spot' by explaining and substantiating the complex tasks related to change. This calls for different types of products and methodologies. Thirdly, the governance landscape is also changing. Processes of internationalisation, Europeanisation and decentralisation have been going on for decades, but PBL has increasingly taken an interest in such 'governance issues' in recent years, and in addition to the work for the national government, it increasingly serves international organisations, local authorities and societal stakeholders. Fourthly, we need to consider the trend of 'further socialisation of science and policy'.

Citizens no longer automatically accept the authority of experts and government bodies and are increasingly critical of their findings and/or policy intentions. PBL also experiences this on a regular basis. Finally, science and research are not standing still either. Three developments are of importance: the emphasis on the relevance and impact of research, the increasing role of digitisation and big data in science and the importance of open science. Issues to which PBL pays a large amount of attention.

Since 2017, PBL has produced some 1400 knowledge products for politics, policy and society. Of course, the quantity in itself does not say much — what matters ultimately is the quality, relevance and future-resilient nature of the work. Over the currently audited period (2017–2020), scientific

output, productivity and impact have increased, compared to the previous audit (2011–2016), according to an externally prepared bibliometric.

PBL's social and policy-related impact has also grown, as is shown in external research. And the organisation's future-resilience seems guaranteed for the coming period, given PBL's statutory tasks, its slow but steady growth in terms of budget and FTEs and its efforts to learn from the changing playing field and thus adapt its work and roles to the new environment — without neglecting the more traditional work.

Naturally, PBL has also made an effort, in recent years, to internalise the recommendations of the previous audit committee. For instance, a new quality vision was written, further strengthening the quality assurance concerning models, methods and techniques, a Chief Scientist 'new style' was appointed, project management was professionalised, a system was developed and applied to further investigate PBL's impact, and PBL's HRM policy was reinforced to a greater degree, including paying more attention to diversity and inclusion.

Based on the SWOT analysis that was created in consultation with PBL's management team (MT), this self-evaluation also outlines a future strategy that focuses on: (1) keeping a sharp eye on the nature of the development of the four distinct physical environment issues, both in terms of content, policy and governance; (2) further strengthening the long-term, thematic structure and implementation of the work programme; (3) moving closely with the content and policy agenda for the physical environment, and the related needs for new knowledge products, opportunities and roles; (4) more knowledge to link national, regional and local levels of government, and both governmental and non-governmental organisations; and (5) further strengthening the imitability of PBL's work in all of its aspects, as well as the communication about it.

Throughout the report, short text boxes describe specific subjects, such as to illustrate the impact that PBL's work has had, or what it is like to obtain a PhD while working at PBL. But they also address dilemmas and questions about quality, relevance and future-resilience that PBL is grappling with and which may form part of the discussion with the audit committee. For example, scientific quality is sometimes under pressure from hard deadlines related to political events, PBL's scientific output is largely dependent on a limited group of staff members, the realisation of impact is partly dependent on external factors and coincidences and the continual increase in workload and how it is perceived.

1 Introduction

As a crucial part of its quality policy, PBL organises an external audit every five to seven years. In line with the Protocol for the Policy Assessment Agencies, Staatscourant (government gazette) 3200, 21 February 2012, these audits assess both the scientific quality and policy-related and social relevance of PBL's work. The previous audit was in 2017 and another one is conducted this year (2022). This report is PBL's self-evaluation for the upcoming audit of 2022. The report follows the instructions of the most recent Strategy Evaluation Protocol (SEP) 2021–2027 of VSNU, KNAW and NWO, and also adds a few other matters.

In addition to the attention paid to scientific quality, social and policy relevance and future stability, we explicitly consider the specific character of PBL as an assessment agency and our role in the current knowledge–policy arena in relation to the physical environment. Throughout the report, text boxes are included to illustrate PBL's impact. Three special text boxes address dilemmas and questions related to quality, relevance and future resilience, which may also serve as input for the discussion with the audit committee (see Text boxes 3, 9 and 12).

2 Institutional context, policy framework and a changed arena

This chapter looks at the position and role of PBL and the environment in which it operates. It mainly focuses on the changing political and policy environment and developments within society.

2.1 PBL's institutional context

PBL is the national institute for strategic policy analysis in the fields of environment, nature and spatial planning. It was established in May 2008, following a merger between the Netherlands Institute for Spatial Research (RPB) and the Netherlands Environmental Assessment Agency (MNP). PBL's role along the interface of science, policy and society is rather unique, as is that of the other two assessment agencies, mainly because of its independent position at the heart of the knowledge–policy arena related to the environment. Its core tasks are to investigate and articulate the state of the physical environment (nature, the environment and spatial planning); to explore related future developments and new policy challenges; and to propose and evaluate policy options and policy implementation. All this is based on the best available knowledge. Scientific evaluations and explorations for strategic policy are amongst PBL's most important products.

PBL is part of the Dutch Ministry of Infrastructure and Water Management (IenW). It has an autonomous and independent position (as do the two other assessment agencies, CPB and SCP) that is safeguarded under the Protocol for the Policy Assessment Agencies (*Aanwijzingen voor de Planbureaus*, Staatscourant 3200, 21 February 2012). In consultation with the Cabinet and following a public application procedure, the head of PBL, PBL's Director-General, is appointed by the Minister of Infrastructure and Water Management (IenW). In addition, PBL has an independent PBL Advisory Board, whose members are also appointed by the Minister of IenW, in consultation with PBL's Director-General. PBL is organised into six departments (Climate, Air and Energy; Integrated Environmental Policy Analysis; Nature and Rural Areas; Spatial Planning and Quality of the Local Environment; Urbanisation and Transport; and Water, Agriculture and Food) in addition to two staff offices (Communication and Management Support, and Operational and Human Resource Management).

Traditionally, the assessment agencies mainly carry out research for the national government. PBL's annual work programme is determined by its Director-General, after having consulted the Dutch Cabinet. To this end, the draft work programme is presented to the Cabinet, together with the draft work programmes of the other two assessment agencies, CPB and SCP. PBL may receive research requests from ministries, parliament, umbrella organisations of other Dutch government authorities, political parties, Directorates-General of the European Union (DG Climate Action, DG Environment, DG Regio) and international organisations such as the United Nations and the OECD. Policy relevance and available capacity determine whether PBL is able to honour such requests. In addition, PBL can initiate research itself, given its role as think tank.

PBL works on the basis of a fixed budget and is subject to state budgetary rules. The structural annual budget amounts to approximately 27 million euros (from the Ministry of Infrastructure and

Water Management), and non-structural income of approximately 10 million euros (through participation in national and international research programmes, such as Horizon 2020, and through temporary additional funding from various ministries) (see the appendix). Over the years, the total budget has grown substantially, by roughly 20%, between 2017 and 2020. This growth is mainly in non-structural income. At the same time, the number of employees (in FTEs (full-time equivalents)) increased by about 8% between 2017 and 2020 to almost 232 FTEs (see the appendix). This can be explained in particular by the arrival of former ECN staff in 2018, whose task is linked to their financial analysing function in the fields of climate and energy. Slightly less than one fifth of PBL's total number of employees have a temporary employment contract.

Of course, the growth of the organisation is not an end in itself, although the capacity must remain in good proportion to the tasks that PBL needs to take on. Because of the increased complexity of PBL's work in terms of content, the need to switch between multiple administrative levels and spatial scales, the growing importance of long-term objectives in policy (e.g. on climate and sustainability), the need to pay explicit attention to the perspectives of the Dutch citizens and the increased attention for social relevance, imitability, quality and legitimacy of our studies, PBL has indicated the need for an addition to the development of its knowledge base. The Ministry of Infrastructure and Water Management has already approved PBL's request for another 15 FTEs as of 2022.

On the basis of this budget and staff numbers, PBL produces a large number of 'knowledge products' for politics, policy and society (amounting to 1400 products over the past 4.5 years; see reading material #3)¹, particularly in the form of reports, scientific articles, policy letters, blog posts, papers and websites. Of course, the quantity in itself does not say much — ultimately, it is about the quality, relevance and impact of the work. This is described in more detail further on in this report.

In 2016, PBL carried out an analysis of the most prominent long-term issues related to the physical environment as part of its biennial assessment of the physical environment (*'Balans van de Leefomgeving'*). The reason for this was to create a more explicit task-oriented work programme and to respond to the increased coherence between current environmental issues. On the one hand, these issues show a significant degree of internal systemic coherence, while, on the other, the approach to them will take several government periods, if not decades, ideally using a coherent set of policy instruments.

The 2016 assessment presented four central themes:

1. Climate change and energy transition;
2. Agriculture, food and nature in transformation;
3. Greening the economy and making it circular;
4. Cities and regions under development;

These themes and their development are reassessed every two years in the 'Assessment of the Physical Environment' (*'Balans van de Leefomgeving'*). They have meanwhile also become the central

¹ This self-evaluation includes 20 background documents, in addition to the appendix, which we are making available to the Audit Committee as reading material. These documents provide all kinds of information for this self-evaluation. Where relevant, we refer to that reading material and the document concerned, the numbering of which can be found in the section on reading material (referenced as 'see reading material #number').

themes that structure PBL's annual Work Programme — while, of course, also taking new developments in the various areas and underlying governance and policy issues into account.

Over the years, these four themes have moved, individually and in relation to the others, more towards the centre of policy and society, on national, European and global levels. They have become more explicit subjects of policy and the related consequences have also been felt more strongly in the economy as well as in society, by both households and the business community, in the housing sector and by consumers and citizens. As a result, the social and policy impact of PBL's work has increased to a considerable degree (see Section 3.2).

The developments described above took place in a changing social and policy environment.

Relevant in this context are:

1. Greater diversity in political parties and movements;
2. A broadening of actor involvement in the development and implementation of policy, both on international and local levels of government and social and market parties;
3. An ongoing intensity of the political and social debate, both in terms of information and communication, amongst other things, due to the expansion of social media and more general digitisation.

These developments have resulted in PBL operating closer to policy and society with a greater diversity in knowledge objectives (in addition to exploration and observation, this now also includes information provision, evaluation and assessment), in combination with policy-related and societal target audiences who have become more involved as well as more critical. To cope well with the related workload, PBL updated its strategic vision of the future, over the course of 2017 (see Vision 2025, reading material #6). In doing so, it has explicitly positioned itself as a learning organisation. In 2018, this was also taken into account in the organisation's response to the previous audit committee report, and in turn resulting in a number of additional strategic goals.

2.2 PBL's policy framework: mission, vision and strategic goals

The Protocol for the Policy Assessment Agencies, (Government Gazette, 2012) does not include a description of the tasks of these agencies. It concerns particularly the independent interactions between the agencies and their political and policy environment. Therefore, there is no 'official' task description, but one is implied through the formalised independence as a strategic knowledge institution (and the related budgets). For an actual task description, the agencies can therefore fall back on their own mission in this regard.

PBL's mission is as follows: 'PBL Netherlands Environmental Assessment Agency is the national institute for strategic policy analysis in the fields of the environment, nature and spatial planning. We contribute to improving the quality of political and administrative decision-making by conducting outlook studies, analyses and evaluations in which an integrated approach is considered paramount. Policy relevance is the prime concern in all of our studies. We conduct solicited and unsolicited research that is independent and scientifically sound.'

Certain core tasks flow from this mission. PBL is to:

1. Offer insight into the current quality of the environment, nature and spatial areas;
2. Assess current environmental policy;
3. Explore future societal developments that will affect the quality of the environment, nature and spatial areas;
4. Identify possible strategic policy options for achieving government objectives related to the environment, nature and spatial areas;
5. Identify and call attention to societal issues relevant for the environment, nature and spatial areas.

PBL carries out its analyses, assessments and outlook studies primarily with a view to improve the quality of decision-making on a national level. In addition, the research is increasingly aimed at other government authorities, international organisations and civil society organisations. PBL carries out this research both on its own initiative and at the request of external parties (usually one of the Dutch ministries), international organisations, such as UNEP (United Nations Environment Programme) or the European Commission. Requests from the national government generally originate from the ministries of IenW, LNV, EZK, BZ, AZ, SZW and Finance.

In 2017, in response to the above-mentioned developments in the physical environment and to ongoing changes in the interaction between knowledge and policy, PBL formulated its Vision 2025. In it, PBL identifies three goals:

1. Strive to be an authoritative institute that connects science and policy;
2. Be receptive and alert to what goes on in society;
3. Be a learning organisation.

To continually work on achieving these goals, PBL will need to increase the amount of attention it pays to (i) the complexity and integrality of environmental issues; (ii) developments in governance, such as privatisation, socialisation, decentralisation and internationalisation (with added attention for multi-level, multi-actor governance); (iii) the fact that knowledge is increasingly contested and that PBL is sometimes accused of being normative; (iv) the renewal of methods and products in order to be better able to deal with complex, integral issues; and (v) a more context-aware articulation of research questions and a better prioritisation within the work programme, given the changing interaction between knowledge and policy and the increasing workload.

In its 2018 report, the previous audit committee gave PBL a number of recommendations in the areas of knowledge base, innovative capacity, learning and prioritisation, quality assurance and attention to impact (see reading material #4) to which PBL formulated its response (see reading material #5). This has resulted in a number of intentions and follow-up actions by PBL, summarised in the strategic objectives below. Given the use of the Dutch Standard Evaluation Protocol (SEP), the strategic goals are grouped according to the assessment criteria of quality, relevance and future resilience.

Quality

- Strengthening, broadening and, if necessary, innovating PBL's knowledge base in order to continue to address the complex issues of the future.
- Continuing and, where necessary, renewing and intensifying quality assurance in response to demands and concerns from science, policy and society.

Relevance

- Continuing or further increasing the impact of PBL's knowledge and products in policy and society.
- Gaining more insight into PBL's own impact.

Future resilience

1. A more programmatic, multiannual and thematic structure and organisation of the work programme, in order to be able to address the integrality of current and future issues, and to better manage the workload.
2. Further development of PBL's strategic human resource policy, in order to get and keep the workforce 'fit for use' and 'fit for the future', obviously taking into account the wishes and interests of all of its staff members.

2.3 The changing arena of science, policy and society

The framework within which PBL is currently operating therefore results from the legally independent position of the assessment agencies as strategic knowledge institutes, on the one hand, and the ever-changing arena of science, policy and society in the field of the environment, on the other (see reading material #15). This changing arena should also be reflected in the perceived relevance, quality and future resilience of PBL. For this reason, we chose to first describe the broader arena and its dynamics, followed by the SEP evaluation criteria in Chapter 3.

As mentioned above, environmental issues have risen to a higher and more coherent, 'systemic' level on the political, policy and social agendas, on both national, European and global levels, and this process is expected to continue in the coming years. As a result, the cross-sectoral, integral issues and transitional tasks are becoming more and more anchored in the policy and budget cycles, with more attention for policy instrumentation and implementation, and with a greater and sometimes potential impact on society, such as on production and consumption processes. This development occurs within each of the four distinguished themes.

1. In the areas of climate change and energy transition, the Climate Act of 2018 and the further tightening of policy — such as making the electricity supply more sustainable, 'decarbonisation' of industrial production processes, electrification of transportation, working towards a carbon-free built environment, and reducing agriculture-related greenhouse gas emissions — have been leading to new, broader issues. These include the distribution of the financial burden and benefits, people's capacity for change (citizens, entrepreneurs and farmers), the quality of the landscape and the institutional organisation of markets;
2. In the areas of agriculture, nature and food supply, national and European legislation has particularly been instrumental in a fundamental change of course, in the 2017–2019 period, beyond the sectoral approaches that were applied in the period leading up to 2017. The search for a more sustainable relationship between agriculture and nature needs to be accelerated and to move towards achieving a 'circular agriculture', also in terms of the associated knowledge. In the preparation for more concrete policy measures, farmers' organisations are also making themselves heard;
3. With respect to the policy theme of circular economy, several aspects are shown to be insufficient for achieving the generic policy goal (i.e. 50% reduction in the use of

natural resources by 2030). These aspects include the PFAS crisis over the course of 2019, the more stringent industry-related climate policy, the critical debate on the use of woody biomass and the increasing scarcity of raw materials. The policy goals and the related measures will have to be further refined and differentiated per product group;

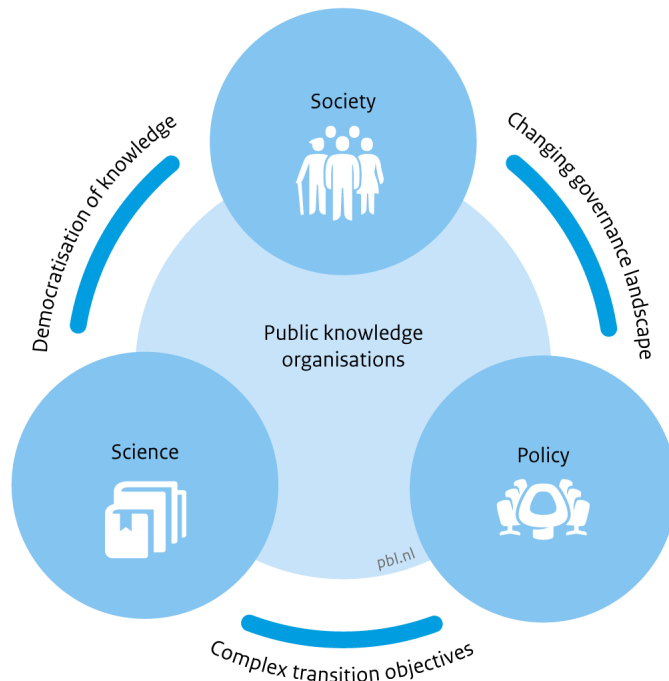
4. In the area of urban-regional development, the housing shortage and related discussion about patterns of urbanisation (building within or outside city limits), combined with related spatial claims (renewable energy, quality of water and nature, water safety) and an accelerated operationalisation of the new environmental policy and a call for renewed spatial policy.

On the one hand, this means that each issue will result in a more in-depth policy, with the accompanying stronger social effect, while, on the other, the approaches to these issues will increasingly interact with each other, because their content and spatial characteristics are strongly interrelated, if not partly overlapping. This not only makes the tasks more politically and administratively challenging, it also places new demands on the knowledge needed for decision-making.

Analyses, assessments and outlook studies need to be conducted more coherently across various issues. Examples include the connection between the climate and nitrogen issues or the spatial consequences of a more circular economy. And the evaluation and exploration of policies will also place more emphasis on implementation. The complex interrelationship of the issues means that many policies are only created during implementation, step-by-step, rather than only in theory; with this increasing complexity — and therefore uncertainty — design and implementation go far more hand in hand.

This presupposes a different, more 'learning' use of knowledge and policy, also taking the social environment into account. PBL already works with groups of models, with scenario studies, meta-analyses, big data and machine learning, but also increasingly with more reflexive methods (e.g. 'learning assessments', 'institutional analyses'). We can expect to have to train ourselves further in this greater diversity of research approaches, and in that sense continuously broaden and strengthen our knowledge base. In addition, we must also extend and/or deepen our cooperation with other research institutes in terms of new methods and techniques, because wanting to do everything ourselves is both impossible and undesirable. In any case, it would be advisable to continue current collaborations with universities, such as joint programmes and projects, for example in the context of the NWO or Horizon Europe, PhD research projects, publication projects, methodology development and chairs of associate professors.

Figure 1
Changes in the arena of public knowledge organisations



Source: PBL

See reading material #15, for more information about the changing arena in which PBL operates.

The above also means that the knowledge policy arena for PBL is likely to change, in the coming years. PBL will probably be called upon — even more so than before — to help politicians and administrators untangle the complex knots of related issues of change, on environmental, spatial, socio-economic and administrative levels. As a result, PBL will be playing multiple roles in the interaction between knowledge and policy. In this respect, it is important to continue to strengthen and expand its role of arithmetician, analyst and think tank 'from a distance' (the more 'traditional' assessment function).

At the same time, there is a greater need for 'knowledge at the table', where national or regional agreements have to be concluded; for joint fact-finding with stakeholders, where themes are controversial or knowledge is uncertain; or for facilitating citizen science, where national data files are still incomplete or where common visions of the future have to be made.

Each new role, however, also brings new quality issues (e.g. on credibility, independence, continuity, relevance and legitimacy). PBL will have to prepare itself strategically for this partly new future within the knowledge–policy arena, but it will also have to ask itself, time and again, whether the quality of PBL work and that of the envisaged decision-making process are served by this, and whether PBL should take on this task alone or in consultation with others. The debate on these subjects requires a strong and open orientation on PBL tasks, quality and environment. Promoting this in our daily work is therefore one of the key elements of PBL's Quality Vision, which was published in 2021 (see reading material #11).

Furthermore, the governance landscape itself will continue to change. Processes of internationalisation, Europeanisation, decentralisation and socialisation of policy and governance

have been going on for decades, and will remain topical, alongside the renewed call for more national governance, also in the domain of the physical environment. Dutch climate policy, for example, based on a national Climate Act derived from a national agreement, invites regions to come up with their own independent Regional Energy Strategy and municipalities are called on to present their heat strategy. However, as soon as the national law was adopted, the European Union announced a Green Deal and a related Fit for 55 policy programme that will undoubtedly lead to a tightening of Dutch national and regional policy.

Text box 1: PBL Academy

The PBL Academy helps PBL staff to reflect on and navigate the changing arena of science, environmental policy and society. It does this by organising PBL Academy talks, inspiration lectures, training courses and other activities, such as discussions during breakfast sessions.

The activities focus on PBL staff gaining concrete insights and developing practical skills. Examples are the learning workshop 'Dealing with a changing playing field', in which NSOB introduces participants to new developments in dealing with public administration, the media and society, and the training course 'Relaxed presentation', in which Debat.NL teaches participants to communicate research results in a convincing and inspiring way.

The PBL Academy organises a lecture twice a year. These are not only intended for PBL staff, but also for civil servants from national and local authorities and representatives of companies and social organisations. With these lectures, we introduce new ways of thinking or of approaching problems and broadening the network of the assessment agency. Examples include the 'World Energy Outlook' lecture by Fatih Birol (Director of the International Energy Agency), with a response from Eric Wiebes (at the time, Minister of Economic Affairs, Agriculture and Innovation), and the lecture titled 'Increasing sustainability of the economy and the role of the financial sector' by Frank Elderson (Director of DNB), with responses from Christiaan Rebergen (Treasurer-General at the Ministry of Finance) and Bas Rüter (Director of sustainability at Rabobank). The well-attended and well-reviewed academy lectures regularly lead to discussions along PBL's corridors about the changing arena and new forms of cooperation within it.

The underlying question meanwhile concerns choosing the right method of governance for the right type of social change: local, provincial, national or European, or a combination thereof, and what role government authorities and non-government bodies should play in this respect — and how which type of knowledge and provided by whom can be of service. Moreover, the instrumentation of that policy is under discussion. Are national agreements between government and stakeholders sufficient or do we mainly need legally binding European or national legislation/standards or economic incentives?

What would be the optimal 'smart instrument mix'? Over the years, PBL has increasingly come to relate to this governance issue, including the associated knowledge questions (see the Community of Practice 'Multi-level Multi-actor', and the attention to national and regional aspects in each of the thematic programmes), and this will continue to be a point of attention, certainly now that the focus is shifting more towards the implementation of integrated policy. Of course, PBL needs to be vigilant about not stepping into the shoes of politics and/or management. This explicitly concerns analyses, assessments and outlooks about existing and possible new administrative arrangements in the domain of the physical environment.

At the same time, there is another trend, namely that of the 'socialisation' of science and policy. Citizens no longer automatically accept the authority of experts and authorities and are increasingly critical of their findings or policy intentions, or are countering these with counter-expertise which they have collected themselves, particularly where it comes to the implications of knowledge opinions and policy intentions for their own social environment.

Some speak of the rise of a 'knowledge democracy' (see Figure 1). Others, on the contrary, have lost faith in science and policy, which is expressed in so-called populist views and 'alternative facts'. Whatever the reaction of parts of society may be, for PBL it means that we must first of all be impeccable in our working methods and findings, be clear about the use and limitations of our methods, techniques and data (increasing 'modelling and numerical literacy'), and make clear how we guarantee the quality and independence of our work.

In our research, moreover, we must pay attention to citizens and their concerns about the consequences of further implementation of the environmental policy (especially also in consultation with our fellow assessment agencies and other knowledge institutes). This includes attention for distributional issues (the distribution of benefits and financial burdens), for questions of landscape quality and regional identity, for the diverse capacity for change of groups of citizens, and for unequal regional development opportunities associated with the transition. A start has already been made on this.

See, for example, the attention for the citizen perspective in PBL's assessment of the physical environment ('Balans voor de Leefomgeving', 2020), the attention for regional economic and labour market developments in the framework of the regional deals and the energy transition, and for the landscape impact from the wind energy policy objective, for spatial and participatory aspects in the monitoring of the renewable energy sources (RESs). However, attention for the physical environment of citizens, in addition to the systems of transition policy, will remain important for the coming years because of the implementation phase in which environment policy is increasingly ending up. This also has methodological implications, and qualitative research is also important, in addition to modelling to gain insight into citizens' perceptions, interpretations and motivations concerning the transition task. Together, this points to the importance of mixed methods, in which quantitative and qualitative research are proportionally geared to the nature of the issue.

Finally, science and research are also not standing still. Three developments are important and will continue to be so in the coming years: the emphasis on the relevance and impact of research, the increasing role of digitisation and big data in science, and the importance of open science. The increasing emphasis on 'relevance' and 'impact' fits in well with PBL's mission, so we 'naturally' move with it. PBL is also affected by the trend towards further digitisation and the role of big data in research and policy. Its Department of Integrated Environmental Policy Analysis (IBL) has started the programme 'Innovative data management' to develop new methods of data collection and analysis and apply them to environmental issues.

In this context, two data scientists were added to PBL's staff and experience is being gained in data mining, machine learning and image recognition, amongst other things. Cooperation has been set up with Utrecht University and the National Model and Data Centre (the latter a joint venture between Wageningen University, TNO, Deltares, KNMI, RIVM and RWS).

Open science initially seems to be something mainly for universities, but it is also important for a knowledge institute such as PBL. Part of the emphasis on open science is also on the imitability of

research, for example with regard to the choice of methods, the origins of data or the assumptions about links in the modelling of developments. PBL is strongly committed to this. For example, the Environmental Data Compendium makes many relevant data files and analyses available to a wide audience and all publications can be downloaded for free from the PBL website.

Furthermore, many of PBL's scientific publications are also open-access. PBL's modelling tools, including, for example, the algorithms, data files, expert judgements and underlying assumptions, are increasingly often and extensively described on websites and in scientific publications. Nevertheless, steps can still be taken in the field of open-access publishing and the transparency of methodologies and models.

3 Activities and results 2017–2021

3.1 Quality

3.1.1 Introduction

The scientific quality of PBL's work is crucial to its authority, reputation and impact within the triangle of science, policy and society. In order to guarantee this quality, we take various routes, both within the individual projects and on the scale of the assessment agency as a whole, aimed at individual staff members and the mutual functioning within the organisation. Below, we briefly discuss: (1) the organisational structure, (2) procedures and tools, (3) the staff, and (4) the research culture.

Organisational structure – The central body in the whole of the quality assurance process is the PBL Advisory Board, which monitors the scientific level of PBL's work and its social relevance and legitimacy on behalf of 'society at large'. Supervising the scientific quality and independence, first and foremost, entails ensuring that regular audits are conducted. In addition, the advisory board focuses on the main elements of PBL's quality policy, including the content and execution of PBL's annual Work Programme. The second important body is the Office of the Chief Scientist. The Chief Scientist (CS) promotes and monitors the scientific quality of PBL's work at the organisational level. In doing so, the CS is supported by a number of PBL staff from strong and various methodological backgrounds. Besides a 'system' role on scientific quality, the CS also leads or coordinates projects on quality, impact and methodology. The third important body is PBL's Management Team (MT), consisting of the Executive Board (i.e. the Director-General and Deputy Director) and the Department Heads. The Department Heads monitor and promote the quality of research in their department, while the Executive Board has the final responsibility for the overall quality.

Procedures and resources – Every four to six years, a scientific and policy audit of PBL's work is conducted. The previous one dates from 2017–2018. As a rule, individual PBL projects are also reviewed scientifically — more extensively for large or innovative projects than for smaller projects or standard work. In any case, PBL products are always reviewed, by colleagues and/or external experts, and iconic research designs and results are also critically discussed in internal start-up, mid-term and final seminars, sometimes also in the presence of external experts. In addition, for large projects, a scientific and, if necessary, also a social sounding board, is established that meets regularly and discusses the products. In addition, PBL encourages the publication of project results and methods and techniques used in scientific journals as a form of quality assurance, because this means they are subject to additional review.

Moreover, PBL's main models, such as IMAGE, GLOBIO and TIGRIS, are regularly externally audited, and data management, information management, model management and development and PBL's knowledge infrastructure, as a whole, regularly receive additional attention in strategic projects. This, in addition to the fact that these matters obviously receive all the attention they need in regular work. This involves updating PBL's information management, ICT management and advice on the one hand, and further improving the management and archiving of data/geodata, text editing, visualisation, the repertoire of qualitative and quantitative assessment methodologies,

and the maintenance and development of models and model series, on the other. Finally, PBL also has guidance documents and standardisation frameworks that help individual researchers to work in a quality-conscious manner, for example in the field of CBAs, models, scenarios and dealing with stakeholders and uncertainties. These guidelines and frameworks are available from PBL's intranet and consulting them is part of project management.

Staff – The quality of PBL analyses depends mainly on the knowledge and skills of its staff: PBL's human capital. Therefore, it is very important to promote further knowledge development of current staff members and to attract new talented researchers. For example, PBL has its own PBL Academy, which provides courses and training, sometimes in collaboration with external partners, such as the NSOB (see Text box 1). Furthermore, upon request, staff members can take relevant courses elsewhere and participate in national or international conferences, and PBL gives its staff members, where possible, the opportunity — in relation to the projects they are working on — to obtain a PhD degree. In cooperation with universities, they can also apply for NWO grants. About 10 PBL staff members are also endowed or part-time professors at universities (see reading material #3).

Quality culture – Quality is not only ensured by organisational structures, procedures, tools and individual employees, but certainly also by a flourishing research culture. This involves standards, values and practices, supported by the staff and management, which promote quality-conscious working. This is a subject on which PBL has worked emphatically over the past four years, partly in response to the recommendations of the previous audit committee (see Section 3.1.2).

3.1.2 Initiatives following the 2017 audit

In terms of quality, PBL indicated in 2018 that it intended to deal with the recommendations of the previous audit committee as follows (see reading material #5):

PBL was pleased with the very positive assessment regarding its scientific quality. The 2018 audit report therefore did not require making any major changes. However, it does challenge us to learn from internal best practices, to be prepared for new challenges and to seize opportunities, especially on the topics of quality, transparency, normativity and independence. We do this primarily at obvious moments, including when filling vacancies such as that of Chief Scientist, and by explicitly incorporating further quality improvements, where relevant, in the objectives, approach and efforts in planned projects.

In line with PBL's strategic objectives, several actions were taken between 2017 and 2020 to further strengthen the scientific quality assurance of PBL's work. Although the audit committee judged this quality to be excellent, it does not mean that the work on quality assurance no longer requires attention. To this end, the committee recommended establishing and complying with institute-wide quality assurance principles. Other points of attention in its recommendations concerned the positioning of the Chief Scientist, the transparency of PBL's research and methodological innovation. These recommendations fit in well with PBL's strategic goals of better access to knowledge and constant attention for quality assurance.

Project quality vision – Partly in response to these recommendations, PBL started its Quality Vision project in 2018. This project used action research to investigate how quality-conscious working could be promoted further within PBL. The project included (1) the establishment of a Community of Practice (CoP) Quality & Impact, in which staff from all departments are represented, (2) several

pilot projects, in which instruments were tested to make quality risks more transparent and easier to weigh, and (3) several sessions with the management team, including one on the SWOT for this self-evaluation (see Chapter 4). In 2021, a report was published that describes the results and outlines the strengthening of the quality policy (see reading material #11). The tasks relate to:

1. Broadening the quality values against which we assess our work. In addition to credibility and independence, the relevance for policy and societal legitimacy of our work is of increasing importance.
2. Shifting the focus from the procedures and tools to the quality culture. Of course, procedures and tools are indispensable for quality assurance, but everyday conversations about quality must also be sufficiently conducted — both to better guarantee compliance with those procedures and the use of those tools and to broaden the quality mindset.
3. Rethinking from a quality to a risk approach. Because quality is important, but risks are more urgent. Moreover, you can never have enough quality, but the means to achieve it are limited. Thinking in terms of quality risks makes it possible to jointly make explicit and transparent assessments of situations to be avoided.

Parallel to the Quality Vision, we have also published a short memorandum on normativity, surrounded by several activities (lunch lectures, workshops, a CoP meeting). PBL's work revolves around paying attention to the physical environment, a subject that is close to people's hearts and about which many have strong views. This sometimes leads to us being accused of partiality in society at large, but not by everyone. The brand awareness study carried out for PBL by Motivation shows that people associate PBL, first and foremost, with an image that is 'reliable', as well as with 'scientific', 'objective' and 'critical' (see reading material #16). Within PBL itself we also have different perspectives on what it means to do 'good research'. This touches on issues of normativity, especially where we want to be independent and without making value judgements, wherever possible. The report aimed to structure the debate on this issue and to come up with some strategies to deal with normativity in varying circumstances.

In consultation with the MT and CoP Quality & Impact, an implementation agenda was drawn up to ensure that the Quality Vision would be embedded in the organisation. This is something we are still working on today and includes 'making a risk profile' a standard part of project management; annually drawing up a SWOT analysis of the quality of the work in each department; practising using risk profiles and quality dilemmas in pilot projects; including quality in performance reviews and in project progress meetings; organising more internal and external audits of models, methods and techniques; and expanding the introductory meeting for new employees to include a 'quality' section.

A large part of the implementation agenda coincides with the POLKA project and its predecessor SALSA. SALSA is a Dutch acronym that stands for 'decisive cooperation in projects' and originated from the need to professionalise project management. This resulted in an approach that was further concretised in the POLKA guild (the Dutch acronym that stands for 'project managers in development, learning and actively sharing knowledge').

Text box 2: PBL models related to climate and biodiversity

PBL has a number of unique and widely recognised calculation models at its disposal to evaluate the effects of policy on climate and biodiversity, at various administrative levels. The national collection of models on climate and energy provides the input for the annual Climate and Energy Outlook (KEV), which monitors the progress of Dutch climate policy. The Meta Nature Planner (MNP) calculates the consequences of changes to the size and quality of habitats for plant and animal species in the Netherlands. Prominent applications of the MNP are the ex-ante evaluation of the Nature Pact, the analyses of the election manifestos and of nitrogen policy.

With its models, PBL also plays a visible and respected role in various global assessments. This is especially possible thanks to the IMAGE and GLOBIO models, aimed at evaluating policy options for global environmental problems in general and for biodiversity, in particular. The analyses using the IMAGE and GLOBIO models are important inputs for IPCC, IPBES and the Convention on Biological Diversity. Specifically, with IMAGE, for example, the scenarios were made consistent with the goals of the Paris Agreement. Scientific publications are an important means of quality assurance through peer review on the one hand, and maintaining academic status in the global research community on the other. An example is the contribution made by IMAGE and GLOBIO to the publication 'Bending the curve of terrestrial biodiversity needs an integrated strategy' about possibilities for the far-reaching protection of biodiversity, which was published in *Nature*, the renowned scientific journal. The work of IMAGE and GLOBIO largely takes place in externally funded research projects (often by the European Commission), using the available regular capacity within PBL.

In cooperation with POLKA, the above implementation agenda will be implemented by the end of 2021/beginning of 2022. Both the Quality Vision project and SALSA/POLKA show that quality care is alive and well at PBL. Bringing these initiatives together will increase the chances of successful implementation.

Affiliation LOWI – To formally underline the importance of integrity in research, in 2020 PBL became affiliated with LOWI, the Dutch independent advisory body in the complaints procedure for possible violations of research integrity. By doing so, PBL endorsed the principles, standards and duties of care as laid down in the Code of Conduct for Scientific Integrity. As a result of this affiliation, two confidential advisors were appointed at PBL with whom staff members can discuss a suspected breach of scientific integrity. A specific complaints procedure has been established for this purpose. In addition, a Scientific Integrity Committee (CWI) was set up in cooperation with the other two assessment agencies. At the request of the PBL Executive Board or the Advisory Board, the CWI can look into possible integrity issues if the confidential advisors are unable to mediate an agreement between complainant and defendant. A possible appeal can then be lodged with the LOWI itself.

Appointment new Chief Scientist (CS) – In line with the advice of the previous audit committee, a Chief Scientist 'new style' was appointed in 2018. The new CS does not have a managerial position within the organisation, but does hold a scientific position at professorial level outside PBL. Within the 0.44 FTE appointment, the CS can therefore fully concentrate on the related work and also take on a more independent position within PBL. To this end, the current CS drew up a work programme (see reading material #17). Besides project work on quality and impact, the activities consist of

reviewing prominent PBL projects, involvement in sectoral quality initiatives, participation in the PBL Academy and promoting scientific publishing within the organisation.

Model transparency – The quality of the models used by PBL, and in particular the transparency of the assumptions made in such models, requires ongoing attention. This is illustrated by the discussion in the Dutch House of Representatives concerning the transparency of the Carbon Tax model also used by PBL. An important step towards such transparency was taken by the creation of an up-to-date overview of all the models used by PBL in a so-called model portfolio. It describes the status of all PBL models, their mutual interactions and their ICT dependencies. The functional managers of the various models must keep this information up-to-date. By including the model portfolio in PBL's annual work cycle, the currently missing information will be supplemented, over time.

There are several recent initiatives to increase the transparency of PBL's models, such as:

1. The project on model development and quality improvement in national studies on energy and climate, which began in 2019 and runs up to 2023 and for which at least 7.5 labour years will be deployed during this period; it is the largest project in this field. The main activities concern regular model maintenance for the KEV, further development of the NEV-RS and SDE+ models, and improvement of documentation and access to models.
2. Tigris XL, a Land Use Transport Interaction model used by PBL, was externally audited in 2020 and the audit committee's opinion and advice can be found on our website. Based on this, a plan of action was drawn up for further improvement in the future.
3. A successor to the aforementioned Carbon Tax model is now in sight, in which providing more transparency is also an important objective.

Another initiative is the further improvement and release of the VESTA-MAIS model, which was developed to provide insight into possible future transition pathways for supplying heat within the built environment. This model is fully open source and downloadable from PBL's website and includes a detailed manual for people who want to start working with it themselves. Version 4.0 was released in 2019 and version 5.0 has since been published, which, amongst other things, has made more operating options available to users.

Iconic projects – PBL used to talk about Top 10 products when it came to large and visible projects that required a more extensive assessment and approval procedure. Partly on the basis of the advice by the previous audit committee, PBL abandoned this categorisation and now refers to 'iconic projects', whether these are large or small. As a result, in addition to the larger projects, smaller ones may also be subject to a more extensive review.

Text box 3: Dilemmas and questions around quality

It goes without saying that the quality of PBL's work is crucial to its authority, reputation and impact. But at which point is good good enough? Because quality is never 'finished' and because PBL staff often work with strict deadlines, often determined by external policy developments. So, for most projects, a good balance must be struck between quality and time. In the past, PBL's quality policy was mainly based on a large number of guidelines and frameworks that often described a certain methodology in detail. This system did not take sufficient account of the trade-offs that have to be made in practice between quality and time. That is why we propose a risk approach in our latest quality vision, whereby a risk profile is used at the start of projects to think about and discuss the explicit consideration of quality risks and strategies to mitigate them as best as possible (the roll-out of this profile throughout the organisation is still in its infancy). In addition, we do not apply the strictest research quality standards to all PBL projects as this would be unworkable. They are, after all, very different in nature. Think of knowledge-based or policy-oriented projects, the large long-term or smaller short-term studies, national or international publications, modelling studies or policy letters. Naturally, a minimum level of quality assurance is a given for all projects, such as kick-off meetings and approval procedures, and to hold critical discussions within PBL on project plans and project products. External peer reviews are also often part of the process. For the iconic projects that define PBL's image, steering groups and sounding boards also come into the picture, as do international scientific publications. We also work together with universities to strengthen the quality assurance of new methodologies, and PBL's most important models are externally reviewed on a regular basis.

What is the opinion of the audit committee on how we address quality, based on a risk approach and on an increasing degree of stricter quality requirements as projects become larger and more iconic?

3.1.3 Results related to quality

The Quality Vision was published internally in July 2021 and we are currently working on the implementation agenda. The objectives of internalising quality values within the organisation, strengthening the quality culture, learning from and inspiring each other, making risks transparent and weighing them up more effectively have obviously not yet been fully achieved. It is also possible that not all PBL staff members are equally aware of all the elements in this Quality Vision. Nevertheless, the quality of PBL's work has become a subject of discussion, broader and more explicitly than before, within the organisation. It has been presented and discussed in all sectors, the Quality & Impact CoP is still active, experiments are being carried out with the risk profile in projects, the broadened quality values are more often the basis for discussing and evaluating projects, the introduction meeting for new staff has recently been extended with an additional session on quality, and the DT and MT(+) have regularly discussed the subject, over the past two years. The new Chief Scientist also went around talking to the various departments during the 2019–2020 period to present his Work Programme. And the same was done by the Scientific Integrity Confidential Advisors in 2021, to further explain PBL's affiliation to the LOWI and to discuss some of the dilemmas surrounding integrity. Text box 4 discusses integrity issues within PBL in more detail, although this concerns the integrity of government employees in a broad sense. We do not yet have figures available explicitly on scientific integrity, due to our very recent affiliation with the LOWI.

Text box 4: Ministry of IenW Integrity survey

Every two years, the Ministry of IenW organises an integrity survey. The results from the last two surveys (2019 and 2021) show encouraging figures for PBL, certainly also compared to IenW as a whole. There are no major integrity dilemmas. Some striking positive points from the latest survey (2021, 93 respondents) include the following: the high level of awareness amongst PBL staff of the confidential advisors (99%), and of where possible problems related to scientific integrity can be reported (93%); the high scores managers are given for setting the right example (score of 7.5); the confidence that staff have in their managers to make decisions from the position of their own responsibility (8.1); the scope for discussing integrity dilemmas in their team (7.3); and how safe staff feel about discussing matters with their manager (7.7). Employees also indicated that they are not afraid to be themselves at work (8.0) and feel hardly any pressure to deviate from the rules (8%). And if it does happen, this can be discussed (7.8). The openness in communication about how breaches of integrity are handled scored 7.3, which was the highest score within IenW on this point. There are a limited number of observations (32%) or personal experience (18%) of undesirable behaviour, such as badmouthing colleagues behind their backs, and obstructing or ignoring them. The most frequently mentioned reason for experiencing pressure to deviate from the rules is related to organisational processes. The results from such surveys are discussed in the MT, in the Works Council and in all departments, so that we can learn from them together and keep the discussion open (see reading material #19 and 20).

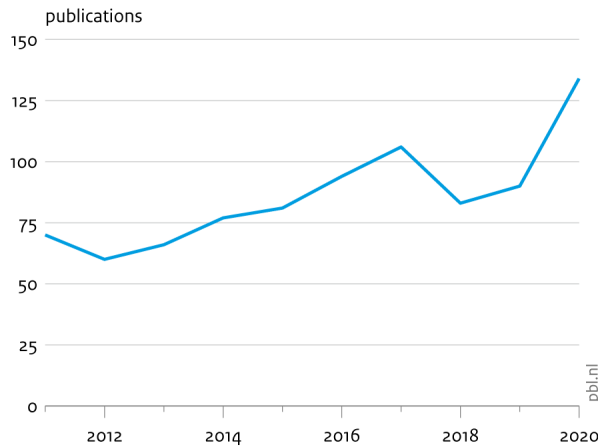
A number of methodologies and models have been updated in recent years, for the sake of transparency, quality and assurance. Examples of this are the national models on climate and energy, TIGRIS-XL and VESTA-MAIS. In addition, the methodology of learning assessments, which are relatively new to PBL, is now better safeguarded in cooperation with VU Amsterdam.

PBL Young also published a memorandum on doctoral studies at PBL, for both staff and management (see Text box 11). It distinguishes various models and pathways for obtaining a PhD degree while working at PBL. During the period currently under audit, around 20 PhD theses were published or supervised by PBL staff (see reading material #3). In addition, some 10 PBL staff members currently hold part-time or full-time endowed professorships at a university. The PhDs and the professors working at PBL ensure strong ties with a number of universities (including VU, UU, WUR and Radboud).

As mentioned before, publishing in scientific journals is an important way for PBL to ensure scientific quality. Compared to the previous audit period (2011–2015), scientific output has increased significantly between 2016 and 2020; from 70 publications in 2011 to 81 in 2015, 94 in 2016 and 134 in 2020 (see Figure 2 and reading material #1). This increase may be partly related to the increase in FTEs, but certainly not in its entirety. Scientific productivity, therefore, has also slightly increased (from an average of just over a third of a publication per FTE per year in the 2011–2016 period to almost half a publication between 2017 and 2020). The majority (80%—90%) concerns journal papers.

Figure 2

Numbers of scientific PBL publications



Source: CWTS 2021

For more information, see reading material #1 Research performance analysis (2011–2019/20).

Text box 5: Leading scientists and their publications

One of the cornerstones of quality at PBL are the scientists themselves. PBL employs many excellent scientists, one of which has stood out in recent years: Professor Detlef van Vuuren. He works both at PBL and Utrecht University and, in 2018, won the Huibregtsen Prize. This prize is annually awarded to an innovative and socially relevant research project. Van Vuuren received this prize for his work on the IMAGE model, which plays a prominent role in the IPCC scenarios. Moreover, in 2020, Van Vuuren was found to be one of the 10 most cited interdisciplinary researchers in the world (based on his many citations in three disciplines simultaneously; see Clarivate, Web of Sciences 2020). A final point worth mentioning is the fact that Van Vuuren — together with many co-authors — is responsible for almost a third of PBL's scientific publications, which are published regularly in internationally renowned journals, such as Nature, Science and PNAS. At the same time, the dependence on a top scientist also makes organisations such as PBL vulnerable; after all, what would be the consequences if such a person leaves the organisation? This vulnerability applies more broadly, incidentally. The 10 most frequently published PBL authors (Van Vuuren, Stehfest, Hof, Beusen, Alkemade, Bouwman, Den Elzen, Doelman, Janse and Schipper) are collectively involved in more than 80% of PBL's scientific output (often together with other PBL colleagues as co-authors). It is also striking but perhaps not surprising that almost all of PBL's scientific publications consist of international work.

This is, of course, not only about the number of publications, but also about whether they are used. Here, we see a similar trend. The mean normalised citation scores (the MNCS indicator) of PBL's publications increased slightly, from just below 'twice the world average' in the 2011–2016 period to just above 'twice the world average' between 2017 and 2020 (see reading material #1). PBL publications are thus cited far more than average — and increasingly so over time, within their individual disciplines. PBL's share in the top 10% most cited publications in a discipline remained more or less the same over the past decade (about a quarter of PBL publications fall into this category). Similarly, the CWTS report (see reading material #1) shows the use of PBL's knowledge by fellow scientists (NB the MNCS indicator shows the same, but in a general and anonymous

sense). It shows that the scientific response is strongly international, ranging from institutes in Germany and the United States to those in China.

In addition to publications, there are also other forms of output as possible indicators of quality. For example, researchers holding academic lectures (about 150 in the 2017–2021 period), participating in scientific advisory committees (more than 50), winning prizes and awards (13), participating in editorial boards of journals (about 15) and advisory committees, and PBL staff creating web pages, infographics or videos (see reading material #3).

3.2 Relevance and impact

3.2.1 Introduction

In line with PBL's mission (see Section 2.2), pursuing policy relevance is at the core of the organisation (i.e. contribute to the quality of political-administrative decision-making, and PBL, first and foremost, is policy-oriented). This policy relevance is also part of the institutional framework of the Dutch assessment agencies. The Protocol for the Policy Assessment Agencies states that assessment agencies have a special function within the government's knowledge and advice system. Typically, they function intersectorally and interdepartmentally. It also states that assessment agencies carry out both policy-relevant and strategic research. Relevance is also one of the four core values for the quality of PBL's work (alongside credibility, independence and legitimacy, see Section 3.1). PBL also wants to be relevant because it is funded from public money. Being relevant and having impact are forms of accountability that show that public funds are well spent and that the quality of decision-making is indeed enhanced by PBL's knowledge. In addition, PBL also wants to learn from its level of impact, which leads to the question of how we can use our knowledge more strategically in the future in the direction of governance and policy.

The meaning of relevance, however, is subject to change over time (related to the dynamics in the fields of science, policy and society, see Section 2.3). What is considered relevant depends on the phase in which an issue and the related policy approach find themselves and the broader social context in which this approach is used (whether or not together with other government authorities, companies, NGOs and groups of citizens). Conducting relevant research, therefore, means repeatedly seeking and finding a connection with the state of policy and knowledge, perception and the course of action by the groups involved, not only in terms of content but also of form, timing and wording. Strategies to achieve relevance and impact must therefore 'move with the times'. At the same time, PBL must remain independent, credible and authoritative, so the pursuit of relevance and impact must go hand in hand with maintaining these quality values.

As also noted by the previous review committee, PBL did not have an explicit impact policy until recently. It did, of course, have the objective of producing relevant, usable knowledge, based on scientific principles in order to improve the quality of decision-making. But this was more a result of the substantive-scientific involvement in dossiers than of systematic consideration of impact strategies. That is, until recently.

Text box 6: Impact of a circular economy report

As a result of the previous audit, PBL conducted research into its own impact (see reading material #12 and #13). Below is a brief summary of one of the case studies.

In the 2019 report 'Outline of the circular economy', PBL took stock of the state of the circular economy (CE) in the Netherlands, and the opportunities for accelerating the transition towards it. The study was primarily aimed at policymakers on a national level, although it also focused on actions by and interactions between other governments, implementation organisations and companies in the field of CE. In policy and politics, the report received the desired attention, including in a discussion with the State Secretary, in a technical briefing in the House of Representatives and in the Circular Economy Implementation Programme 2019–2023, as adopted by the Dutch Cabinet. Key messages have also certainly landed in politics, policy and society (such as the need to pay more attention to 'higher' R-strategies). Somewhat unexpected was the large amount of attention in the national media for the report, with front page news and several interviews in newspapers and radio broadcasts.

3.2.2 Initiatives following the 2017 audit

With regard to its impact and relevance, PBL set out to achieve the aspects as described below, following the recommendations by the previous audit committee (see reading material #5).

Conform the recommendations, PBL will focus on further increasing the impact and policy and social relevance of its work in the coming years, and, in doing so, will also look for new and effective methods of measuring impact amongst the various target groups. PBL will also investigate how researchers can be given more time for the impact phase of and communication about their research. Amongst other things, this will also force us to prioritise the work more strongly in the work programme.

To increase its recognisability and impact, PBL has increasingly clustered its research programming around the four central themes, which were distinguished in 2016: (1) Climate change and energy transition; (2) Agriculture, food and nature in transformation; (3) Making the economy circular; and (4) City and region in development. Within these themes, PBL aims to link up as much as possible with the major issues in society and with what society should see as major issues (i.e. agenda-setting). In addition, broader knowledge target audiences are now distinguished, such as local authorities and private parties (multi-level, multi-actor). Moreover, there is also a broadening of knowledge roles, such as 'knowledge at the table', learning evaluations, joint fact finding, stakeholder dialogues — depending on the nature of the issue and the target audience concerned. Meanwhile, the more traditional knowledge roles of calculator, assessor and think tank remain just as important. Thus, each issue has its own portfolio of programme lines, projects and methods, attuned to external dynamics, with the corresponding impact-related considerations.

Text box 7: Impact of the learning assessment of the nature pact

Following the previous audit, below, we provide a description of another case study conducted by PBL on its own impact (see reading material #12 and #13).

In the 'Learning evaluation of the Nature Pact' (LEN), PBL in cooperation with WUR and VU evaluates the progress of provincial nature policy every three years up to 2027. The choice of research methodology for the 'learning evaluation' implies that the researchers design and conduct the research together with stakeholders. In this way, the research takes place during policy development and implementation, so that the insights gained are immediately available to those involved. This means that, where necessary, they can be put to use immediately. This has resulted in more attention for the so-called broadened ambitions of nature policy, in new courses of action for the implementation of nature policy and in a strengthening the national and provincial policy network. The LEN generated only little media attention, but this was also not the intention.

In terms of methods for measuring impact, PBL started an impact project in early 2019. The aim was and still is to better map PBL's impact, to develop a system to determine impact and to apply this system to a number of cases. This was laid down in an impact document and in six impact narratives (see reading material #12 and #13, and text boxes 6, 7 and 8 in this self-evaluation, for short summaries of three of these narratives). In terms of methodology, we followed common social science techniques for determining the impact of knowledge (theory of change; network analysis; media analysis; impact perceptions). While this system focuses on qualitative analyses on a project level, for PBL as a whole and in a quantitative manner, the impact is also assessed with a Contextual Response Analysis (CRA) and a name recognition survey (see reading material #2 and #16).

PBL is trying to create more time for the 'impact phase' of projects by applying better prioritising in the Work Programme and the project portfolio, by allowing more time for the impact phase in project planning and by more adherence to its recently established 60–20–20 rule (60% project work in accordance with the Work Programme, 20% knowledge base and 20% free space for emerging questions, in order to create more room for activities other than the intended project work alone). However, this is not easy. After all, PBL is receiving more and more requests. Still, the impact phase is more prominent in people's minds than before. A good example is the Spatial Outlook 2019 about the future of mobility and urbanisation, where researchers toured the country after the publication of the scenario report (see Text box 8). In addition, the number of technical briefings held by PBL for the Dutch House of Representatives increased significantly in recent years, which is another example of the increased concern about the impact of products.

Text box 8: Impact of the Spatial Outlook studies

Following the previous scientific audit, PBL conducted research into its own impact (see reading material #12 and #13). Below is a brief summary of one of the case studies.

Society and policy are faced with light speed technological and social developments that involve great uncertainties for urban development, infrastructure and mobility. Because these uncertainties are difficult to interpret let alone quantify, PBL, in its Spatial Outlook 2019 argues for a new way of dealing with them. In that outlook study, four qualitative future scenarios were drawn up in the form of a concise publication for policymakers, an in-depth report, a theme website, several short films and a guide for organising scenario workshops. PBL then went on tour with these scenarios and products. More than 1500 stakeholders participated in a series of workshops. In addition, various cities, the Rotterdam-The Hague metropolitan region, Rijkswaterstaat (government service for roads and waterways) and departments at the former Ministry of Infrastructure and the Environment now use these scenarios to think through their own long-term policies. Lectures and workshops have also reached secondary schools and university students. Although the media were not actively contacted, the publications were noticed by trade journals.

Part of the attention for that impact phase is of course also the communication around projects. In 2021, PBL published a new internal communication strategy, amongst other things aimed at further professionalising the spokespersonship of researchers, making communication and particularly crisis communication in the outside world more effective and responding more quickly to social media (see reading material #7). The hope is that this will strengthen the impact of PBL's external communication. In this context, it is also worth mentioning that the PBL Academy started a regularly recurring impact training course in early 2021. The aim is to teach PBL staff more 'impact skills', and to let them practice with an impact strategy for one of their projects. One of the sessions in this training course also deals with operating in the traditional and social media to generate impact. Based on experiences with this training course, and inspired by the contents of the impact document, PBL recently also launched an impact guide for researchers. This is intended to help PBL staff design an impact strategy prior to the start of projects. Meanwhile, an intranet page on impact has been launched. Here, researchers can find all PBL documents on impact and respond to them.

3.2.3 Results related to relevance and impact

In the 2017–2021 period, PBL produced close to 1400 knowledge products for politics, policy and society (see reading material #3). All 1400 are of course important to PBL, but the relevance and impact of what PBL considers the 85 most relevant were analysed in more detail. The selection was made by the PBL department heads on the basis of the reports' central position in policy development. The impact analysis itself was subsequently made by external analyst Ad Prins (see reading material #2).

Prins' Contextual Response Analysis (CRA) shows that, compared to the 2012–2016 period, the political, policy, media and social response to PBL's work has increased in all domains between 2016 and 2021. Of course, this is not only a credit to PBL, but also a sign of the changing context in which physical environment issues have risen higher and higher on the political agenda (see Section 2.3).

Text box 9: Dilemmas and questions around impact

While generating impact is part of PBL's mission, this remains an unruly activity. This featured prominently in the recommendations of the 2017 review committee. First of all, impact is difficult to determine, especially the long-term effect of knowledge products. How much time and energy should PBL itself put into this? PBL's impact project (see Section 3.2.2) was a substantial investment in terms of time and research capacity, but as far as we are concerned it has produced an interesting system and a number of nice 'narratives'. It is conceivable that we will be continuing this on an annual basis as part of the evaluation of a number of core projects, in order to keep a close eye on the methodology used and the reflection on impact. In the second place, impact is difficult to manage. Many factors play a role in the knowledge-policy arena, partly outside the sphere of influence of an organisation such as PBL, so often effects are unpredictable and/or the result of external developments. However, there are other environmental factors that can be controlled, to a certain extent (e.g. timely information to the press, government departments and the House of Representatives), so thinking about impact strategies seems a sensible thing to do. We do this in the impact training that the PBL Academy organises, but also in the start-up phase of projects.

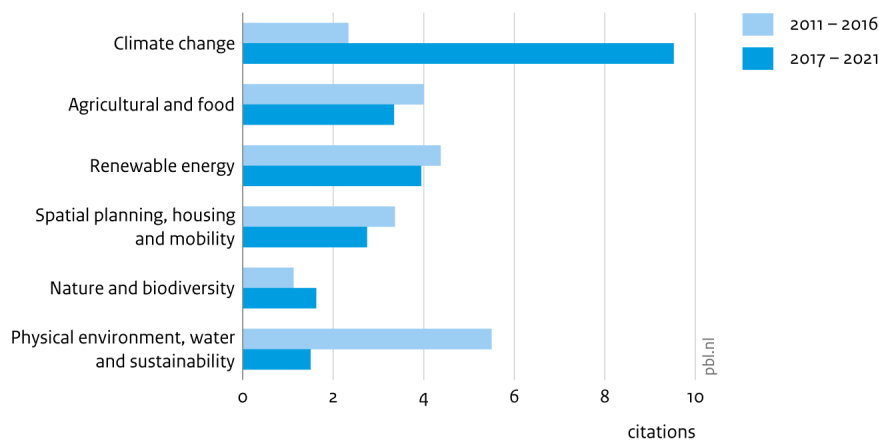
What does the Audit Committee think of PBL's current impact strategy (researching impact itself; organising impact training; project start-up meetings)? Does the committee consider it advisable to continue this strategy in the future or is it perhaps desirable to make certain adjustments?

The attention for PBL's work is first of all evidenced by the number of citations to PBL research in parliamentary debates, which grew considerably over time, particularly in the field of climate and energy (see Figure 3). This increase is also accompanied by a generally positive appreciation of PBL's work by politicians and policymakers. This can be deduced from the fact that the vast majority of citations to PBL work in parliamentary debates are of a substantive nature, often in support of an intervention, and only a small minority concern critical remarks, such as about the models used or PBL's role in a particular dossier. In addition, it appears that the number of roundtable discussions and technical briefings requested by the House of Representatives in response to a PBL report also increased over time. While there were 8 in both 2017 and 2018, this increased to 14 in both 2019 and 2020.

Secondly, the increased attention for PBL is visible in the media. In the past five years, attention in the written press has approximately quadrupled (see Figure 4). PBL also has a strong presence on social media. However, it is difficult to make a comparison with the previous period. Incidentally, this increased attention does not mean that PBL is viewed positively in all cases. Over time, the number of critical comments directed at PBL has also increased; consider the discussions about the figures in the Climate and Energy Outlook, about the use of biomass as a source of energy, the calculations relating to nitrogen, the costs to households related to making their homes more sustainable, the effects of meat consumption and the use of pesticides.

Figure 3

Average number of PBL citations, per theme and parliamentary debate

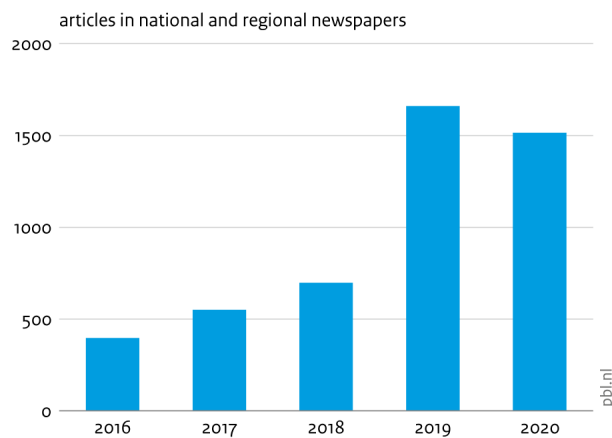


Source: Ad Prins 2021

For more information, see reading material #2 Contextual Response Analysis of PBL research, 2017–2021.

Figure 4

Media attention for PBL in the Dutch print media

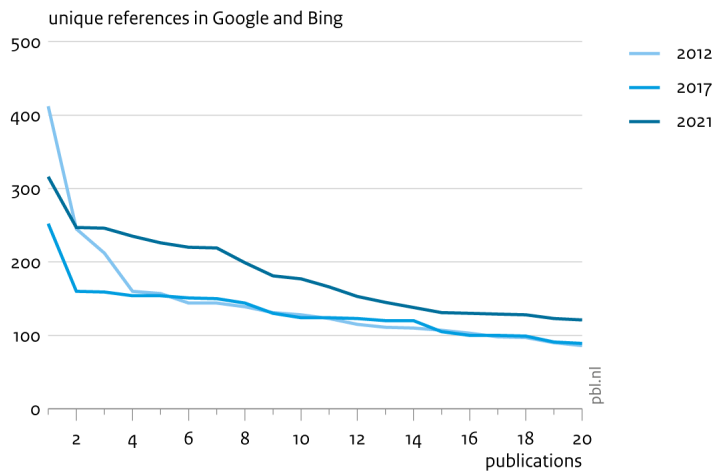


Source: Ad Prins 2021

For more information, see reading material #2 Contextual Response Analysis of PBL research, 2017–2021.

Thirdly, societal stakeholders now consult PBL reports more often than before, at least if we look at the 20 PBL products that were most used at three points in time, over the 2012–2021 period (see Figure 5). On average, the group of 20 most frequently used reports at that point in time were consulted more often in 2021 than in 2017 and 2012. In other words, the social response to PBL's work has increased slightly over time. Finally, PBL brand awareness amongst the general public is also increasing; in 2017, about 25% of Dutch people knew PBL and, in 2020, this was more than 30% (see reading material #16).

Figure 5
References by societal actors to the 20 most-used PBL publications



Source: Ad Prins 2021

For more information, see reading material #2 *Contextual Response Analysis of PBL research, 2017–2021*.

PBL's own impact studies (see reading material #12 and #13) show that, across the board (i.e. with projects of different sizes, themes, types of knowledge, and a different PBL role), a certain impact has been generated, either in decision-making, in the design of policy, in the media or more broadly within society. This impact was also checked with external clients and stakeholders, in an effort to exclude a positive bias as much as possible. Of course we have to remain self-critical when it comes to relevance and impact. Text boxes 6, 7 and 8 contain short summaries of the impact narratives of three of the PBL projects studied.

Finally, PBL has of course also achieved other types of impact, in addition to the political-administrative, media and social response to its reports, but this is more difficult to quantify than to determine qualitatively (see reading material #3). Think in this context of the impact exerted via policy-oriented conferences (about 15), publishing in professional journals (more than 50), organising various webinars (especially in times of COVID-19), events (e.g. De Nacht van de Leefomgeving), maintaining open-source data sets (Environmental Data Compendium, the DigiBalance), sending newsletters and hosting websites.

Text box 10: PBL study into the consequences and opportunities related to the COVID-19 pandemic

Relevance not only means that social actors and policymakers can use PBL's work, but also that PBL responds effectively to societal developments. Below, we give the example of the coronavirus pandemic.

Since the outbreak of the coronavirus pandemic, PBL has contributed at various times to policy and decision-making in response to the pandemic and on the recovery from it. In total, more than 100 publications on over 20 topics, in one way or another, have focused on the effects of and/or the sustainable recovery after the pandemic. Most attention was paid to studies with the pandemic as its the main focus, such as the studies on the effects on inner cities, on working from home and mobility, and the policy letter on green recovery. But much research on other topics is also coronavirus-related. A special coronavirus working group was established at PBL shortly after the start of the first lockdown to align the various topics. In addition, for the Work Programme 2022, the required new knowledge in the field of the physical environment that emerges 'from behind the pandemic' was also identified. First of all, we looked at all the research that has already been carried out or is currently being carried out. In addition, a number of PBL experts were interviewed to identify possible new developments. This inventory shows that there are various relationships between the current pandemic and the physical environment. In addition, it appeared that the pandemic did not so much raise entirely new knowledge issues, but rather mainly made existing themes and issues more urgent. This concerns, for example, attention for the uncertainty, robustness and adaptiveness of policy, the socio-economic consequences of the pandemic and the impact of EU policy. There are also a number of new, more specific knowledge questions. One example is the knowledge gap about possibly changing international trade chains and their consequences for environmental policy, in particular with respect to the circular economy and the climate. It was decided that 'known' and 'new' knowledge questions are best covered by PBL's existing strategic themes and not by a separate 'coronavirus programme'.

3.3 Future resilience

3.3.1 Introduction

With its Vision 2025 (see Section 2.3) and the 'new style' Work Programme (see Section 2.4), PBL outlines how it intends to be and remain relevant, both now and into the future. It is now applying more integrated programming and with a greater focus on the medium to long term, while striving to be a learning organisation open to developments in society and policy. This combination is to ensure a good balance between continuity and dynamics, long-term relevance and topicality, and will make the research programme fit in well with a diverse group of both government and non-government clients, on international, national and regional levels. It goes without saying that, in order to realise its vision and work programme, PBL needs to pursue a human resource policy that ensures it will be able to hold on to and recruit people with the right type of expertise. In the HRM vision 2025 (based on the Vision 2025; see reading material #18), one of the goals is to make PBL 'A great place to be', an organisation where, in addition to interesting and challenging substantive work, attention is also paid to a healthy work environment and career development opportunities for all staff members. In this way, as a 'learning organisation', it will be able to maintain a resilient

and skilful workforce that is equipped to address complex policy tasks and use appropriate methods and techniques, with the ability to renew itself when necessary and/or desirable.

Text box 11: Obtaining one's doctorate while working at PBL

A scientific knowledge institute such as PBL cannot do without well-trained researchers who are continuing their professional development. PBL therefore benefits from colleagues who want to pursue a PhD degree. Last year, Maarten van Schie and Jolien Groot, two PBL researchers who recently started a PhD project at a university, took the initiative to take a closer look at the 'PhD at PBL'. The reason was that PBL had no norm, standard or fixed approach for a PhD trajectory at a university, next to regular PBL work. By conducting semi-structured interviews with 20 colleagues — who are either thinking about pursuing a PhD, have already completed their degree, are in the process of doing so, or have been involved in supervising the process — they mapped out various possible PhD tracks, listed the relevance for the organisation and employees, and formulated a number of recommendations for both management and prospective PhD candidates.

To start with the latter, the personal importance of completing a PhD for an employee's career is strongly emphasised, but there are just as many warnings about the time and energy that a PhD track requires in connection with PBL work. It therefore should not be entered into lightly. It is all the more important for the organisation to also provide sufficient and proper support when someone is highly motivated. The authors suggest, for example, that it is important for PBL and PhD work to be interrelated as far as possible in terms of content and strategy, and that additional time invested by PBL staff in their PhD programme should be rewarded by the organisation and training hours should be aligned as much as possible with the university's PhD requirements. Up to this point, PBL had never formally drawn up a 'PhD policy', but thanks to Maarten and Jolien, the organisation now has a framework, from which PBL work and PhD tracks can be better aligned.

3.3.2 Initiatives and preview

With regard to its future resilience, and in response to the recommendations by the previous audit committee, PBL intends to take the following steps (see reading material #5):

PBL will address the previous audit committee's recommendations by developing three follow-up trajectories: 1) a learning organisation/knowledge management; 2) an approach to retaining knowledge in the event of a large outflow of staff up to 2025; 3) an approach to facilitating the career development of permanent and temporary employees. Before promoting a diversity policy, PBL will first perform a 'quick scan'.

As said, efforts have been made in the past to strengthen PBL as a learning organisation by stimulating staff development and professionalising knowledge management and knowledge retention. To stimulate personal development, annual development interviews were introduced in 2020, aimed at explicitly spending 20 to 40 hours per employee annually on competency development. For the specific development opportunities of employees, five PBL development lines have been mapped out that are intended as a source of inspiration for the personal development interview (see reading material #10). For the relatively large group of young employees on a temporary contract, additional agreements were made to stimulate their career development and increase their chances for a next job within or outside PBL.

To enable them to make a flying start, new employees are offered a standard package of training courses through the PBL Academy. With these initiatives, we promote both the knowledge development of the organisation and the sustainable employability of its employees. The latter is

also important for increasing the mobility of PBL staff, which benefits opportunities for new inflow and the career development for current staff.

It is still a little early to see the effects of the above initiatives, but an evaluation of the development interviews in 2020 shows that the initiatives are appreciated by the employees and the department management. An employee satisfaction survey shows that PBL staff also appreciate their job in a broader sense, with an average score of 7.8 (out of 10). As reasons for this high score, they pointed to the challenging character of their job in terms of content, the large amount of freedom in organising the work themselves, the fact that PBL occupies an interesting position within the knowledge–policy arena, and that PBL is an organisation with a good working environment and with room for their personal development.

This MTO also shows — as have previous MTOs — that staff are experiencing a heavy workload. PBL employees, based on their intrinsic motivation, tend to set the bar high for themselves and work long hours, and they are facing more and more requests from external clients. We must therefore ensure that the size of the workload remains manageable and open to discussion and does not turn into work-related stress. Multiannual planning and professionalisation of project management can contribute on this point, but so can the ongoing discussion about the organisation’s culture.

We have also initiated a number of changes in the area of retaining and managing knowledge. From 2020 onwards, 20% of the work programme will be devoted to keeping our own knowledge base in order. To meet the demands from the outside world, we have also asked the Ministry of Infrastructure and Water Management for a 15 FTE increase in staffing levels for the knowledge base, which has now been agreed, as of 2022. To prevent the loss of important knowledge due to the larger number of staff members retiring up to 2025, it was agreed with the Ministry in 2017 to start early recruitment for a limited number of strategic core positions. As a result of the large number of temporary employment contracts and limited transition to permanent contracts, there is also a risk of knowledge being lost.

This risk is reduced by entering into more temporary contracts of 3 to 5 years instead of 1 to 3 years. In recent years, the annual personnel review increasingly focused on taking the strategic outlook as a link between upcoming substantive developments and the knowledge development of the organisation and its employees. In addition, the professionalisation of project management (SALSA, POLKA), the organisation of Communities of Practice (quality & impact; multi-level/multi-actor; information management) and the interdepartmental theme meetings contribute to knowledge sharing and retention.

In addition, we have paid additional attention to diversity and inclusion in recent years with respect to culture — also in response to the recommendations by the previous audit committee. PBL wants to be a diverse and inclusive organisation for three reasons. First, a diverse workforce has obvious advantages. For example, it has a positive effect on knowledge development and creativity and prevents tunnel vision and group think, which is of great importance to a knowledge organisation such as PBL. Second, we want to be an inclusive organisation with a pleasant work environment. An organisation where you can have socially safe, open and constructive conversations, whether this concerns a development meeting, staff meeting, department meeting or a chat by the coffee machine. And last but not least, as a central government organisation, we have a duty to contribute to equal opportunities for all and a broadening of labour participation.

In 2018, an internal working group was established to reflect on diversity and inclusion at PBL and organise activities. For example, all staff and MT members attended a 'diversity and inclusion' workshop in 2018/2019, interviews were held in each department to discuss 'living issues' on department level, and 32 staff members participated in an 'inclusive selection' training in 2020 to handle job application procedures differently. In the context of inclusive labour market communication, we also made a short film about working at PBL, in which we indicate the need for knowledgeable staff from various backgrounds.

In 2020 and 2021, from the perspective of inclusion, additional attention was paid to strengthening social cohesion during the COVID-19 period where people were working from home. In addition, given the new situation of hybrid working conditions, we pay additional attention to settling in new employees and, each year, we organise one or more activities around International Women's Day. We also want to pay attention to other dates that are important to certain groups of employees by means of a diversity calendar, which is yet to be introduced.

Talking about diversity and inclusion is one thing, implementing it is quite another. However, there are as yet not many figures available on this subject. For instance, there are no figures on the number of employees with a non-western migration background at PBL, nor on the trend over the years. This is because reports within the Ministry of Infrastructure and Water Management are only compiled in groups of at least 1,000 people and, moreover, registration is voluntary (due to privacy-sensitive information). For KNMI, PBL, ANVS and BBO together, the number of employees in salary scales 11 to 14 with a non-western migration background in 2020 was approximately 5% (the target percentage for this salary scale is 8%). In addition, the Ministry applies a target figure for employees with an occupational disability. For PBL (2021) this target would be five employees — which is currently still only one, not because of a lack of will or commitment, but rather due to the fact that it is difficult to reach the target group and find suitable candidates from within the limited labour supply. Finally, the percentage of women in permanent and temporary employment at PBL in 2021 was 38%. This percentage has grown over the past 4 years by about 1 percentage point per year.

In order to really embed diversity and inclusion in the organisation, and to guarantee it for the long term, it will have to become part of the daily work processes. To this end, an Action Plan has been drawn up that does not focus so much on target figures (e.g. diversity and satisfaction scores), but more on actions and their direct consequences. With this plan, we try to connect as closely as possible to the experiences of the employees. For example, by making the link between striving for organisational improvement on the one hand and strengthening diversity and inclusion on the other, where relevant, in departmental discussions as well as during staff and personal development interviews. In addition, we want to show and positively highlight our own diversity in the near future. This will also make it easier to have a conversation and stimulate empathy through curiosity about 'the other'. And that, in turn, is good for mutual cooperation.

Text box 12: Dilemmas and questions around future resilience

PBL finds itself in a tumultuous environment, in turbulent times. There is a large degree of dynamism (see Section 2.3 on the changing arena and the political issues of the day). And this situation is expected to continue, or even increase. The question, therefore, is how we can ensure that we, both as an organisation and as individual staff members, continue to move with the times without neglecting the valuable knowledge and experience of the past. On the one hand, we do this through a combination of strategic, multiannual programming on the one hand, and a dynamic, annual project planning (the alignment of which remains difficult) on the other.

Part of this is also the 60–20–20 rule, which should allow for the granting of ad-hoc, highly topical requests, in addition to long-term work on the major themes. However, with our strategic HR policy we aim to guarantee mobility and stability amongst PBL staff, and the PBL Academy offers sufficient training facilities to cope with these dynamics. In general, PBL employees are very satisfied with their work, but sometimes the daily dynamics and pressures are a bit much. In short, this remains a challenge.

What does the Review Committee think about the way in which PBL tries to deal with current and future dynamics within and outside the organisation in the way of 'new style' programming (thematic, multiannual, 60–20–20) and HR initiatives (personal development interviews, PBL development pathways, mobility, diversity)? Are there still steps to be taken, in this respect?

4 Strategy for the coming 5 years: SWOT and strategic objectives

How does PBL intend to maintain its position regarding the need and necessity for a national institute for strategic policy analysis in the area of the physical environment, in the coming years? And how can PBL, in accordance with its mission, continue to contribute to the quality of government decision-making and preferably improve it? To answer these questions, an awareness of the context in which PBL operates is indispensable.

Firstly, there is the context of the increasingly urgent environmental issues themselves. Think of climate change and impending shortages of raw materials, and the necessary transitions to a sustainable energy supply and circular economy that this entails. Such issues are interrelated, which means that their solutions must be seen in relation to each other; in other words, a 'systemic' approach is required. Secondly, there is the context of the changing policy field of the physical environment, which has moved increasingly to the political centre and has also broadened socially. For example, nitrogen once seemed a peripheral phenomenon, but now it regularly dominates the political agenda in The Hague and in rural areas. As a result, more stakeholders than before have become involved in the policy field, and issues have not only become politically more important, but are also more often subject to social debate.

In order to thoroughly think about how PBL can remain in its role and stay relevant in this changing context in the future, in preparation for this self-evaluation, PBL has recently conducted a SWOT analysis. We took several steps to conduct the analysis, partly based on the information collected for this self-evaluation, and looking back to the SWOT of the 2017 self-evaluation.

Table 1: PBL's updated SWOT

<p>Strengths</p> <ul style="list-style-type: none"> *Integral policy analysis (incl. world-class global models) *Professional and driven researchers who enjoy working at PBL *Research that is relevant to policy and has an impact on the quality of decision making *Productive interactions with policymakers and the scientific community 	<p>Opportunities</p> <ul style="list-style-type: none"> *Physical environment issues are addressed more 'systemically' and move increasingly towards the political governance centre *The multiplicity of the relationship between knowledge and policy will increase; this offers opportunities for taking on new roles (e.g. through joint fact finding, learning evaluations, knowledge at the table) *New governance arrangements (decentralisation, Europeanisation, socialisation) offer opportunities for research and impact
<p>Weaknesses</p> <ul style="list-style-type: none"> *High pressure on workload and working 'against the clock', in relation to the desired quality *Translation of the multiannual work programme into the annual project portfolio is not yet optimal *Choices, application and assumptions regarding methods, techniques and models have not been followed in all areas and at all times 	<p>Threats</p> <ul style="list-style-type: none"> *Physical environment issues themselves and in relation to each other are becoming ever more complex (coherence, uncertainties) *Increasing political fragmentation and issue of the day (short term supersedes long term) *Knowledge and independence are increasingly questioned in politics, society and social media

What has PBL shown to be good at? Where are the opportunities? What should be preserved or expanded? Where are the weaknesses or external risks? What could or should be further strengthened? What would be better to phase out?

The SWOT analysis shows that PBL is strong and distinctive in integrated strategic policy analyses in the field of the physical and spatial environment. These analyses look at both developments in the physical environment itself (emissions, nature quality and water quality, patterns of mobility and urbanisation) and at the use of policy instruments (technical interventions, standards, subsidies, taxes), and at any links between them. PBL carries out this work primarily at the national level, but also performs related international analyses using a number of world-class models (IMAGE, GLOBIO) developed by the institute itself. This research is carried out by a professionally driven, multidisciplinary group of researchers who enjoy working at PBL on ground-breaking and high-quality research. Research that is also relevant to policy and has an impact on the quality of decision-making. To this end, 'productive interactions' with policy and science are explicitly sought and maintained, without losing sight of PBL's independent position and specific roles.

The changing playing field in which PBL must continue to perform has been outlined above. We see an opportunity in the fact that the four central themes distinguished by PBL (climate & energy; food, agriculture & nature; circular economy; city & region) are increasingly considered in conjunction, by politicians, policymakers and administrators. Moreover, the physical environment is receiving attention at an increasingly earlier stage, rather than when socio-economic decisions have already been made and as something that must be considered, monitored and repaired 'after the fact' or that merely limits or

hinders socio-economic development. In line with concepts such as 'Broad Prosperity', planetary boundaries or sustainable development goals, the quality of the physical environment is increasingly being included as a crucial precondition, right from the start of policy considerations, at the front end of the policy cycle, and as part of budgeting and investment decisions.

This development fits well with PBL's systemic and integrative perspective. At the same time, it also calls for a broadening of our methods and perspectives. After all, the relationship between knowledge and policy is expanding, in line with the development from 'monitoring and exploration' to also include 'learning and implementation', and in two ways. The increasing complexity of issues requires a broader methodological repertoire; in addition to 'top-down' methods and techniques (model calculations, scenarios, backcasting), this also calls for 'bottom-up' variants ('joint fact finding', 'learning to evaluate', 'knowledge at the table'). In addition, the types of social and policy actors involved in making national environmental policy are becoming more diverse — both 'upwards' (global, European) and 'downwards' (provinces, municipalities, 'regions'), and 'sideways' (businesses, 'NGOs', groups of citizens and consumers). Both developments reinforce each other.

Of course, these developments (centrality of the themes, policy coherence, new governance arrangements) have their own specific variations. They are most pronounced in climate and energy policy. But in agricultural and nature policy, the same quest for a more coherent approach to planning and implementation can be seen, as well as in greening the economy and increasing its circularity. After an initial process of decentralisation, the realisation is dawning that the current policy tasks require more coordination between central and local levels.

In addition to opportunities, we also see risks. Firstly, there is the increased complexity of the issues themselves. As the problems become more systemic, they are increasingly intertwined with other issues, both mutually (e.g. climate and biodiversity) and with broader social concerns (e.g. distribution issues, spatial quality). As a result, the uncertainties and risks of perverse consequences are also increasing. For example, the risk that large investments in technical measures in agriculture to reduce nitrogen emissions will have to be written off more quickly, because farmers will have to cease operations to achieve the required CO₂ reduction. It is important for PBL to keep a finger on the pulse here, for example by exploring how the objectives in various domains relate to each other, but also how domain-specific data and monitoring systems can be linked to each other; by conducting institutional analyses of the type of structure of cross-sectoral policy dossiers; by examining how available national and regional databases can be used to think through, explore and visualise issues that are relevant on several levels of government. This requires, certainly also for PBL, the use of new methods and approaches, such as citizen panels and design workshops.

The incorporation of this interrelationship in our work, as well as the longer term and the socialisation of environmental issues, will also be necessary in light of another current phenomenon: namely that of political fragmentation combined with politicians having a strong short-term focus. This results in limited political attention for the long term of issues related to the physical environment. The work of PBL is also increasingly subject to close scrutinisation. On the one hand, there is a need for robust, credible and reliable knowledge to provide more support and direction to environmental policy in this turbulent political environment. On the other hand, this calls for a strong imitability of our work and for more intensive communication with those around us. But it also requires us to be alert to the possibility that our knowledge will be used by politicians and policymakers in ways other than anticipated, for

example to avoid their own responsibility or to provide legitimacy for new or partial policy measures. This implies that, in addition to our results, we must also continue to share our working methods (methodology, programming) and the underlying considerations with policymakers and society in an imitable way, and to discuss them, also with critics.

We are also aware of PBL's potential weak spots. First of all, there is the perceived pressure related to the workload, a recurring point in our employee satisfaction survey. To some extent, this type of pressure can be seen as a characteristic element of knowledge-intensive organisations, certainly amongst dedicated employees. But that does not make it any less demanding, especially in situations where PBL has become the focus of political and policy attention and requests and workload are increasing for several reasons (see above). A clear course of action, prioritisation/weighting of the work and clear programming are all the more important under these circumstances.

This prioritisation and clear programming touches on a second point of attention. Until now, PBL's work programme was organised on an annual basis. The introduction of the four central themes has provided the possibility of more task-oriented multiannual programming, which we will implement as of 2022. Nevertheless, the alignment between a long-term work programme on the one hand, and the annual project portfolio (including short-term ad-hoc requests) on the other, remains a point of attention. This is particularly important in the field of tension between an increasing need for long-term perspectives (because of policy agenda-setting, current policy assignments and the need for backcasting) and an increasing need for short-term analyses (see above). A possible consequence would be to say 'no' more often to requests, as PBL is not seeking to grow much larger as an organisation, particularly for the sake of manoeuvrability and mutual cohesion. That said, denying such requests must be done in a way that is clearly understood; the requesting party should not be faced with unpleasant surprises.

This imitability is becoming increasingly important and not only with respect to the research itself. Particularly in a political and social environment that is asking more questions on the one hand and, as a result, is looking more critically at PBL on the other, attention for the imitability of decisions, programming, methodological choices and model assumptions is essential. Not only for our target audience, but also for other interested parties and users, we must clearly communicate the underlying scientific and programme-related considerations, with an eye for the motivations and ambitions of the various stakeholders (i.e. groups of citizens, administrative levels, politics, business community). To achieve this objective, the quality culture at PBL needs to be strengthened and expanded, in the light of the quality vision and implementation agenda (see Section 3.1.2).

As a result of the SWOT analysis, we have formulated the following, interrelated, strategic goals for the next five years:

1. Using analyses, evaluations and outlook studies to keep a close eye on the nature of the development of the four distinguished central themes, both in terms of content (systemic nature of the quality of life in the physical environment) and in terms of policy and administration (socialisation of policy, instrumentation, multi-functionality, 'learning while doing'). What are the new challenges that are looming and the opportunities or threats that they present (possible co-benefits, perverse consequences) and what broader, related issues are emerging (e.g. those related to distribution and participation, spatial quality, geopolitical relationships)?

2. Further strengthening the multiannual, thematic structure and implementation of the work programme. The reason for this goal is (i) the increasing complexity and coherence within and between the various issues related to the physical environment; (ii) better prioritisation and programming of an increasing and changing demand for activities; (iii) greater consideration, in advance, of the possible relevance, risks and impact of programmes and projects; (iv) greater accountability of our considerations in the programming; and (v) improved management of the internal work dynamics and workload.
3. Moving closely and in line with the substantive and policy-related shifting agenda of the physical environment (see above) with the associated needs for knowledge products, timing and roles (from model calculations to 'mixed methods', 'knowledge at the table', 'participative research'), without neglecting the long-term programming and, of course, keeping in mind the role and position of PBL as an assessment agency (independent, agenda-setting).
4. Applying more knowledge to connect supra-national, national and local levels of government, as well as government and non-government bodies, such as citizen groups and the business community, in order to address change processes. This should be done both in terms of content (e.g. attention for the mutual effect/coordination of indicator sets), institution (knowledge of the mutual effect of policy instruments), and service provision (in cooperation, knowledge deployed for exploratory studies and/or design workshops). All of this with due regard for PBL's total workload.
5. Increasing PBL's reliability, legitimacy and impact by further increasing the accountability of PBL's work in all its facets (e.g. assumptions in models, choice of methodologies, research question articulation, strategic considerations on which PBL knowledge is deployed), as well as communication on this subject (visualisations, in dialogue). This requires further strengthening and expansion of PBL's quality culture and implementation of the recent quality vision.

Reading material

1. Research performance analysis. PBL, 2011, 2019–2020
2. Contextual Response Analysis. PBL, 2017–2020
3. List of indicators SEP. PBL, 2022
4. Kennisontwikkeling voor een duurzame samenleving [*Knowledge development for a sustainable society. Audit committee Findings*]. PBL, 2017
5. PBL's response to the audit report, 'Kennisontwikkeling voor een duurzame samenleving' [*Knowledge development for a sustainable society*], 2018
6. PBL Visie [*PBL vision*] 2025, 2018
7. PBL Communicatiestrategie [*PBL Communication strategy*]. PBL, 2021–2025
8. Visie internationale activiteiten [*Vision on international activities*] PBL, 2022
9. Hoofdlijnen PBL Werkprogramma [*Outline PBL Work Programme*]. PBL, 2022–2023
10. Ontwikkelingen bij het PBL [*PBL developments*], 2020
11. Kwaliteitsvisie PBL [*PBL's vision on quality*], 2021
12. Impact van het PBL [*PBL's impact*], 2021
13. Impact narratieven [*Impact of narratives*]. PBL, 2021
14. Normativiteit binnen het PBL [*Normativity within PBL*], 2021
15. Kennis met impact [*Knowledge with impact*]. PBL, 2019
16. Naamsbekendheidonderzoek 2021 [*Brand awareness study*]. PBL, 2022
17. Werkprogramma Chief Scientist PBL [*Work programme PBL Chief Scientist*], 2019
18. HRM uitwerking Visie 2025 [*HRM elaboration of vision 2025*]. PBL, 2018
19. Infographic Results PBL. Integriteitsenquête IenW [*Integrity survey IenW*], 2021
20. Results PBL. Integriteitsenquête IenW [*Integrity survey IenW*], 2021

Appendices

Appendix 1: Members of the PBL Advisory Board

- Aart de Geus, Chairman Executive Board of the Goldschmeding Foundation and Chairman of the Supervisory Board of Triodos Bank (Chair)
- Colette Alma-Zeestraten, Director General at the Association of the Dutch Chemical Industry (VNCI)
- Hilde Blank, Director of BVR Advisors Spatial Planning
- Pauline van der Meer Mohr, various directorships and commissioner positions, including Chair of the Dutch Corporate Governance Code, former Chair of the Supervisory Board EY Netherlands LLP and former Deputy Chair of the Supervisory Board DSM NV
- Arthur Mol, Rector Magnificus and Vice-president of Wageningen University & Research
- Mark van Twist, Dean of the Netherlands School of Public Administration and Professor of Public Administration at Erasmus University Rotterdam

Appendix 2: FTEs and finances

PBL staff, in FTEs, 2017–2020

FTEs PBL	Total	General Management	Department Heads	Researchers	Management support staff
2017	213.8	2.0	9.0	168.7	34.1
Permanent	172.6	2.0	9.0	129.3	32.4
Temporary	41.2	2.0		39.4	1.8
		2.0			
2018	223.7	2.0	8.8	179.6	33.3
Permanent	185.5	2.0	8.8	144.2	32.4
Temporary	38.3	2.0		37.4	0.9
		2.0			
2019	234.2	2.0	8.7	191.8	31.7
Permanent	181.6	2.0	8.7	141.8	29.1
Temporary	52.6	2.0		50.0	2.6
		2.0			
2020	231.9	2.0	7.9	189.5	32.5
Permanent	189.3	2.0	7.9	147.8	31.7
Temporary	42.5	2.0		41.7	0.8

Management support staff are those in the BPO and CBO Departments, including secretarial support. The Chief Scientist is included under Researchers. Reference dates: 31 December 2017/2018/2019/2020.

Funding: regular / external

PBL Funding 2017–2020 (2021)

Budget x EUR 1000	2017	2018	2019	2020	2021*
Regular funding by IenW	25,604	25,813	26,131	26,918	27,730
Funding by other ministries	710	3,762	5,484	5,926	6,079
International funding	4,675	3,603	3,857	3,849	4,082
Total	30,989	33,178	35,472	36,693	37,891
*figures on 2021 are not definitive					