

Evaluation of stakeholder participation in monitoring regional sustainable development

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Abstract This paper presents a theoretical framework that can be used to discuss the question of how context, time and different participatory process designs influence the results of participatory monitoring projects in terms of concrete outputs (such as sustainability indicators) and the more intangible social outcomes (such as learning and stakeholder relations). We will discuss and compare four different cases of participatory monitoring of provincial sustainable development in the Netherlands. The results show sustainability issues selected by the stakeholders reflect the socio-economic and ecological structural characteristics of their region. In a different context, stakeholders not only assign different weights to the same set of issues, but more importantly they select a completely different set of regional aims altogether. Since these regional structural characteristics only change slowly over time, the influence of time on stakeholder preferences is shown to be only of minor importance. However, the dissipation of learning effects is shown to be a fundamental challenge for the cyclical nature of participatory monitoring, especially when its goal is shared agenda building. Another important conclusion is that, in the design of participatory processes, more attention should be devoted to providing stakeholders with the opportunity to comment on an ‘intermediate’ product.

Keywords Stakeholders · Participatory monitoring · Participatory integrated assessment · Regional sustainable development

Introduction

A shift is occurring in traditional regional development strategies away from a top-down approach towards more bottom-up approaches characterised by a decentralised style of policy making that also stimulates the horizontal ties between private and public bodies. At the same time, attention for the potential of each region to stimulate sustainable development is increasing (Pike et al. 2007). Adaptive co-management (Armitage et al. 2008), collaborative resources management (Danielsen et al. 2009) and the sustainable rural livelihoods approach (Chambers and Conway 1992; Scoones 2009) are just some examples of various bottom-up approaches that share a commitment to the participation of stakeholders, alongside concepts of social learning and sustainable development (Stringer et al. 2006; Ridder and Pahl-Wostl 2005). A second element that these approaches have in common is their emphasis on the importance of monitoring and evaluation (Guijt 2008; Reed et al. 2006).

In this paper, we will focus on participatory monitoring of sustainable development at the provincial level, which we will define as the systematic collection and analysis of information involving both scientists and regional stakeholders on issues related to regional sustainable development. The collected information consists of a set of indicators, which measures the state of the regional socio-economic and ecological system. However, when we talk about monitoring regional sustainable development, we are not so much interested in the assessment of how proposed

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policies are expected to influence the future state of the region. Rather, our interest focuses on identifying the most important characteristics that underlie the regional socio-economic and ecological system, determining the weaknesses that need to be improved upon, and the strengths that are deemed valuable and thus need to be conserved.

According to Cundill and Fabricius (2009), participatory monitoring can be used for two main purposes. The first purpose aims for a greater understanding of the regional system. It focuses on the integration of different types of variables and aims to create more awareness about possible future trajectories. This type of participatory monitoring is therefore closely related to the concept of participatory integrated assessment (Kasemir et al. 2003; Van Asselt and Rijkens-Klomp 2002). The second type focuses on the promotion of social learning and stakeholder empowerment (Weaver and Rotmans 2006; Leys and Vanclay 2011; Bohunovsky et al. 2010). In the latter case, participatory monitoring is part of a wider process of shared strategic agenda building and starts from the question: where are we now and where would we like to go in the future?

Participatory monitoring can be used for one or both purposes at the same time. However, regional stakeholders can participate in different ways, and these different forms of involvement also influence the set-up of the monitor. The main question this paper addresses is: how can the participation of stakeholders in monitoring processes be evaluated and how do issues such as context, time and different designs of the participation process influence the outputs (the selection of sustainability indicators) and outcomes (learning and stakeholder relations)?

The paper starts with a discussion of the concepts of stakeholder participation and monitoring. Subsequently, we will present a framework to systematically evaluate stakeholder participation in monitoring. This framework will be applied to four different cases of participatory monitoring of regional sustainable development in the Netherlands. The four cases will be compared, and we will explain how different contexts, purposes and participatory designs have led to different outputs and outcomes. The paper ends with a discussion of the main findings and the conclusions.

Stakeholder participation in monitoring sustainable development

The need for stakeholder participation in monitoring stems directly from the subject we wish to monitor: (regional) sustainable development. Since sustainable development is a contested concept, it is by nature normative, subjective and ambiguous and its content cannot be determined by scientists alone (Grosskurth and Rotmans 2005), there are

no universal rules that govern all possible trade-offs in all possible circumstances. Monitoring sustainable development is therefore a political undertaking in which the meaning of the desired development itself has to be adapted with the help of participatory integrated assessments to specific regional circumstances (Hermans and Knippenberg 2006).

Usually, a stakeholder is defined as a person, organisation or group, which is either affected by or may influence a problem or its solution. Stakeholders may perform two different roles in monitoring. First of all, since it is impossible to reach the whole regional population (who all have a stake in the sustainable development of the region), stakeholders can be chosen to represent a certain interest or segment of the population and thus help to identify the political issues that need monitoring. The second role of stakeholders is that of local or regional expert. This type of stakeholder possesses unique insights into the functioning of certain parts of the regional system due to their profession or experiences. It is important to note that we also include scientists in this last category. They may be asked to provide their specific expertise on the functioning of a certain (sub)system.

The use of stakeholders in assessments is not undisputed, however. Some authors question how far stakeholders can be trusted to correctly assess the complex environment in which they are immersed, to reach consensus, and how tendencies towards self interest can be tackled (Hacking and Guthrie 2006; Coglianese 1999). A general problem concerning stakeholder participation processes is that these tend to quickly lead to a 'unique' solution to a complex problem that is difficult to scale-up or apply in other contexts. By definition, given the subjective and normative nature of sustainability issues, the problem itself and its boundaries are unclear (Van de Kerkhof and Wiczorek 2005). The generated outputs are only applicable to that specific moment in time, to the specific region and its characteristics and to the stakeholder groups that were involved. Applied to participatory monitoring, these issues raise questions in how far the participation of stakeholders in monitoring leads to differences in the results of participatory monitoring? To answer this question, a systematic framework is needed to evaluate the participation of stakeholders in monitoring in the first place. In the next section, we will introduce such a framework.

Evaluation of participatory monitoring processes

To evaluate stakeholder participation processes occurring in the participatory monitoring of regional sustainable development, we have adapted the framework proposed by

Burgess and Chilvers (2006). In this framework, stakeholder participation processes are looked upon as having a series of *inputs, outputs and outcomes* within a certain *context*. These four basic elements are connected to each other both directly and indirectly (see Fig. 1). We will discuss the different elements and how they apply to a participatory monitoring process below.

The context level

The participation process is embedded in the contextual level and governance structure. This means that the participatory process is influenced by the context in which it takes place while it aims to bring about changes in this context at the same time (Pahl-Wostl et al. 2007). The context includes the biophysical and ecological circumstances and the slowly changing socio-economic characteristics of the region: its economic structure, its population and the cultural environment. As Pike et al. (2007) argue, regions are socially constructed spatial scales, where the political, social, cultural, ecological and economic processes relevant for regional development work across each other and between spatial scales. The existing social relations of the agents working within and across the regional scale and their previous experiences with participatory projects can be an important variable of the context (Innes and Booher 2004). As context factors differ from region to region, the same participatory process may yield different results (Enserink et al. 2007).

Purpose and goal

The role and importance of stakeholder input vary according to the purpose of the monitor and its end users (Cundill and Fabricius 2009; Danielsen et al. 2009).

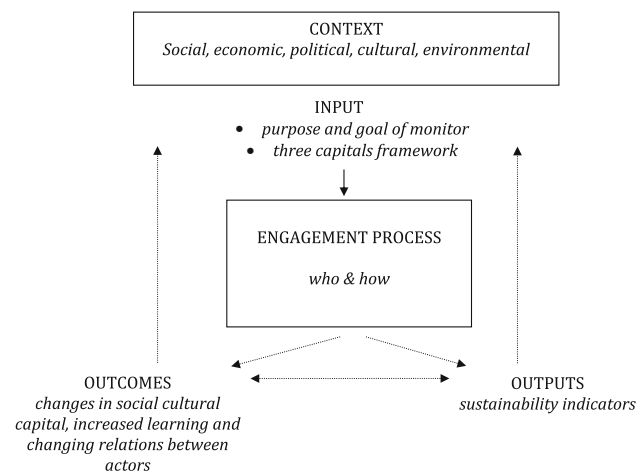


Fig. 1 Contextual model of participatory monitoring processes (adapted from Burgess and Chilvers 2006)

Participatory monitoring aimed at performance evaluation of the regional system will focus on obtaining insights into the relevant elements and their relationship to the regional system. Participation will be aimed at getting the right information into the process through consultation with the relevant stakeholders, while afterwards the stakeholders will be informed about the results of the monitor. However, in a monitoring process that aims for the creation of a shared vision in a process of social learning, the active involvement of stakeholders from the start is indispensable. Typically, people are brought together in workshops in order to discuss and jointly decide on the long-term requirements and development objectives.

Engagement process

Rowe and Frewer (2005) use the flow of communication as a basis for classifying different forms of participation. The flow of information might be one way: from sponsor to stakeholder (informing), or the other way around from stakeholder to sponsor (consultation), or two way (active involvement). Key elements for successful interactive workshops are the quality of the participatory process and independence of the facilitators (Mayer 1997; Mostert et al. 2007). The specific monitoring objectives influence the design of the stakeholder participation process but also the kind of stakeholder that needs to be involved. Using stakeholder analysis (Lindahl and Söderqvist 2004) or actor analysis (Hermans and Thissen 2009), relevant persons and organisations can be identified for each purpose.

During the engagement process, stakeholders’ opinions are elicited and debated in a structured way. In this section, we will introduce the framework we have developed to structure stakeholder involvement and operationalise sustainable regional development at the same time. This framework is summarised in Fig. 2. We will limit our discussion of this monitoring framework to its most important elements and how the input of stakeholders can be used to fill this framework. We refer interested readers to the more extensive discussion of this framework by Knippenberg et al. (2007).

Figure 2 shows the different elements of the sustainability monitor called the sustainability balance sheet (or ‘*Duurzaamheidbalans*’ in Dutch). Its set-up was

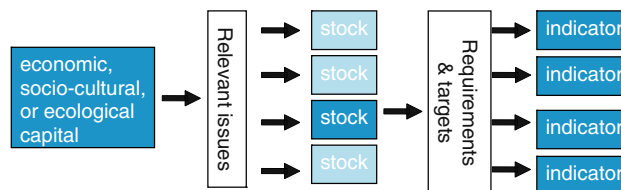


Fig. 2 Monitoring framework to derive regional indicators

inspired by the ScEnes model (Grosskurth and Rotmans 2005) and the indicator system developed by Bossel (1996). We define sustainable regional development as a balanced growth of the three capitals of sustainability: ecological capital, economic capital and socio-cultural capital (Serageldin 1996; Hodge 1997). In our view, sustainable development can be conceived as a development process aimed at fostering balanced growth in the resilience and quality of nature (the ecological capital), in the physical and spiritual wellbeing of people (the socio-cultural capital) and healthy economic development (the economic capital). By adopting this integrated approach, we explicitly choose to take a broad perspective on sustainable development. The concept, as we use it, has both a strategic dimension (the longer term) and a normative dimension (responsibilities devolving on various tiers of government, geographical regions and future generations).

Each of the three capitals consists of a set of 'stocks'.¹ Using soft systems modelling (Checkland and Scholes 1990), these stocks are defined as subsystems that are important for the state and development of each capital as a whole. In order for the stocks to develop sustainably, they need to develop in a certain direction, towards a (sometimes utopian) target. Defining the long-term requirements and targets is the most important step in developing the monitoring system. They form the heart of the monitoring system. One or more indicators may be used to measure each requirement. The development of the indicators over time gives an insight into the direction of the development and the degree to which the requirements are met.

Stakeholder input can be used at all levels of the framework. First of all, stakeholder input can be used to define the relevant stocks of the regional socio-economic and ecological system that need to be optimised. Secondly, stakeholders can also be used to formulate the requirements and targets for each stock. By doing so the contours of a desirable future, the common shared dreams are defined. As this is a subjective and normative step, stakeholder input is indispensable. Not all requirements can be satisfied at short notice, and sometimes stakeholders are necessary to weigh the different requirements, indicators and stocks within the framework. Finally, stakeholders can be used to choose the indicators directly, or their opinions can be used as input at the indicator level. Examples of the latter are indicators that measure stakeholder satisfaction with the quality of the regional landscape or their perception of their influence on regional politics.

¹ The concepts in the framework have a distinct economic flavour: 'capitals', 'stocks' and 'balance sheet'. However, it is important to note that we do not express the indicators in a single economic value. Each indicator is measured in the units that are best suited to that particular indicator.

Outputs and outcomes

The effectiveness of a participatory process can be evaluated according to two criteria: outputs and outcomes. The reports, (computer) models and indicators that are included in the monitor form the outputs of the process. The process products such as the improved relationship between participants through social learning and the development of trust between participants form the outcomes. These intangible relational qualities are also referred to as social capital (Coleman 1988; Putnam 2000). Outcomes and outputs are not completely independent of each other. For instance, the perception of the quality of outputs can affect stakeholders' acceptance of and satisfaction with the end result.

Unfortunately, the outcomes of participatory projects such as the changing relational bonds between stakeholders are very difficult to measure. First of all, the outcomes of participation processes may take several years to materialise, long after the project itself has ended. More importantly, these participatory processes do not take place under laboratory conditions, and therefore, it is very difficult to disentangle the interdependent causal factors that may contribute to changing stakeholder relationship and the development of trust in a process of social learning. Evaluations of the outcomes, therefore, often focus on what has been learned by the different participants, frequently using the concepts of organisational learning developed by Argyris and Schön (1978). Depending on the objectives of the monitoring exercise (performance monitoring or shared agenda building), the expected learning will change accordingly. Performance monitoring will most likely result in first loop learning by stakeholders about the regional system they are immersed in, while we would expect that monitoring with a focus on shared agenda building is more likely to result in a social learning process among those stakeholders that will involve second loop learning effects where people will develop mutual understanding and a shared language with which to speak.

Case descriptions

We selected four different cases in which stakeholders were involved in constructing a sustainability monitor. These cases involve five different provinces in the Netherlands: Brabant, Zeeland, Limburg, Flevoland and Utrecht. The structure of the framework discussed above allows us to systematically describe these cases in terms of their outputs and outcomes. We have subsequently analysed the outputs in each case by comparing the collection of stocks, requirements and indicators that made up that particular sustainability balance sheet. The outcomes were

more difficult to assess, however. The description of the outcomes in all cases is based on our personal observations. Each of the three authors has been part of the technical team conducting the assessments of at least three of the four cases described, and therefore, we can compare these cases to each other on their outcomes and the effects of the learning processes taking place. In order to gain an indication as to the use of the monitor and its effects on regional policy (at the context level), we have investigated the follow-up projects carried out and examined references to the original monitoring project in other provincial documents and policies.

The first case, Noord-Brabant 2001–2002, will be described extensively, not only in terms of its participatory process but also in terms of its outputs and outcomes. The other cases are more or less variations on the original process design, so for these we will highlight only the most important differences in the process design. The different outputs and outcomes of the cases will be discussed as part of the cross-case comparison in ‘Cross-case analysis’ section.

Sustainability balance sheet for the Province of Noord-Brabant (2001–2002)

Context and purpose

The idea for a provincial sustainability monitor in the Province of Noord-Brabant was conceived during an extensive strategic participatory project, initiated by the regional authorities of the Province of Noord-Brabant and aimed at defining what Brabant should look like in 2050. The result of this participation process was a long-term vision that was formalised with the signing of a declaration by regional administrators, dignitaries and stakeholder representatives called the ‘Brabant Manifesto 2050’. Subsequently, an independent organisation was founded, tasked with developing a provincial sustainability index that could monitor the progress towards this sustainability vision (Grijzen-Schreurs 2005).

Input

A multidisciplinary group of researchers started to work on this assignment. After a year of intensive debates, the three capital approach was chosen as the basis for the monitoring system, and a first draft of stocks and requirements was made. The researchers decided that stakeholder involvement in the further development of the monitoring system was a ‘conditio sine qua non’. Not only because of the nature of the concept of sustainability, intrinsic normative and subjective on the one hand and strategic on the other, but also because the forging process of developing the

Brabant manifesto had shown the importance of getting the public involved in formulating a common strategy. Stakeholders were thus selected based on their knowledge of Brabant and their representativeness for segments of Brabant society. The group of stakeholders was completed by professionals from knowledge institutes and think tanks.

Engagement process

Two workshops were organised in which this group of approximately 40 stakeholders was asked to reflect critically on the framework and to determine whether all the relevant issues relating to the sustainable development of Brabant had been covered. During the workshop, stakeholders were divided into three subgroups each covering one of the capitals: ecological, economic and socio-cultural. The criteria used for grouping the people into the subgroups were their stake, expertise and background. In order to prevent stakeholders only talking about issues they were familiar with, a so-called carousel method was used. The workshop was set up in four rounds. In the first round, the stakeholders talked about their ‘own capital’, the issues they were most familiar with. In the second and the third round, the subgroups were rotated and now they had to talk about the non-familiar issues in the other two capitals. In a plenary session, the results of the carousel discussions were presented and evaluated. The result of the first stakeholder meeting was a confirmation of the general framework, while some issues were added, rearranged or renamed.

In a second workshop, a start was made on the more technical aspects of indicator selection, data gathering, developing norms for the indicators and aggregation. The same stakeholders were invited to this second meeting. In this second workshop, stakeholders were also asked to weight the different stocks, requirements and indicators using a prioritising method. Stakeholders were also used to define the norms for indicators. They were asked to assign the ranges of indicator scores that represent a ‘good’ or a ‘bad’ situation. It was not possible to discuss all the indicators, but a number of general ideas were investigated.

Outputs

In 2001, the first sustainability balance sheet was published (Lemmens et al. 2001). This first version was presented as a concept version, a proof of principle. Over the following year, a great deal of time and effort was put into presentations and public debates about the results and set-up of the monitor. In total, 36 presentations were given to a range of stakeholders: political parties, non-governmental organisations (NGOs), schools and scientists. During these presentations, the audience was also given the opportunity to weight stocks and indicators differently. After a year, the

results of this consultation round were evaluated, the framework adapted and a new round of data gathering started. One of the interesting findings of this round of consultation in which the audience was given the opportunity to weight the stocks, requirements and indicators was that ultimately there were no differences in the end results. In 2002, the new and improved monitor was published (Lemmens and Haarmann 2002).

Outcomes

The first two sustainability balance sheets were generally considered to be very successful examples of provincial monitoring of sustainable development. This meant that there was a strong commitment to participate among the various stakeholder groups right from the start. The two workshops that were used to engage the stakeholders and fill in the indicator framework resulted in commitment and buy-in, not only within the provincial administration (government and civil servants) but also among participating regional NGOs. The workshops and the intensive communication both prior to and following the publication of the first draft of the sustainability balance sheet meant that the monitor and its trademark ‘sustainability triangle’ (a visual representation of the three capital approach) became a by-word in discussions on sustainable development in the Province of Noord-Brabant. One of the most important outcomes of the process of developing the monitor was the creation of a shared, common language, which provided discussions on sustainable development with a neutral starting point that the diverse interests could all agree on (Dagevos and Te Poel 2004). In the years following the publication of the sustainability balance sheet, several major provincial policy plans referred directly to the monitoring approach: the reconstruction plans for the intensive livestock sector (Provincie Noord-Brabant 2001), the regional coalition agreement ‘*bestuursakkoord*’ (Provincie Noord-Brabant 2003) and the regional spatial development plan ‘*streekplan*’ (Provincie Noord-Brabant 2002).

Provinces of Zeeland, Limburg and Flevoland (2004)

The aim of the project was to investigate the possibilities offered by the SBS approach for comparing and benchmarking Dutch provinces with regard to issues of sustainable regional development. In each province, a project team was formed comprising civil servants and a group of researchers.

The civil servants were responsible for selecting and inviting regional stakeholders to the workshops. Stakeholders were invited for their regional expertise and their position within the regional networks. The design of the engagement process was copied from the successful

workshops previously held in Brabant. Two separate interactive workshops were organised in each of the three provinces. The first workshop was for civil servants from different provincial departments, covering more or less all the issues that the sustainability balance sheet addresses. In the second workshop, some 15–20 external provincial stakeholders were invited to reflect on the framework, thus developed and add further important issues. In the next step, civil servants were responsible for gathering provincial data together with the project researchers who were also responsible for quality control and maintaining comparability of the frameworks between the provinces.

Sustainability balance sheet for Noord-Brabant (2006)

In 2006, the next monitoring cycle was started up for the sustainability balance sheet for Noord-Brabant. At this time, the development of a completely new sustainability vision was not given priority since the results of the extensive participation process 4 years earlier were considered to be relatively robust. The focus, therefore, shifted towards strengthening the underlying theoretical and analytical framework and making a comparison between the monitoring results from 2002 and from 2006: is Brabant making progress?

The SBS itself was discussed at a scientific working conference where international and national scientists, involved in monitoring sustainable development, were invited to discuss its set up and working method. Results from this conference were used to strengthen the framework and the following engagement process. The set-up and working method of the SBS were subsequently discussed with provincial civil servants in a separate workshop in order to improve the policy relevance of the monitor.

The other stakeholders were approached differently, however. Fifteen stakeholders were selected, based on their expertise and representativeness (five for each of the three capitals), and personally interviewed in depth about what they viewed as the most important future trends for sustainable provincial development. In an attempt to involve the general public and not just their representatives, an electronic survey was sent out to members of the so-called Brabant Panel (<http://www.brabantpanel.nl>). This online citizen’s panel involves citizens of Brabant, aged 16 and above. About 1,240 people were asked to participate, and approximately two-thirds took part. The sustainability balance sheet 2006 was presented in December 2006 for an audience of stakeholders in the Province of Noord-Brabant (Hermans and Dagevos 2006).

The State of Utrecht (2008)

The development of the ‘State of Utrecht’ provincial sustainability monitor was part of a larger process of

long-term vision development that the province of Utrecht started in 2008. The engagement process in this case included an initial stakeholder workshop, consultancy of the population of the Province of Utrecht through an online survey and a series of debates and presentations on the initial results. The participatory monitoring process was mainly organised by the Province of Utrecht itself. At the end of October 2008, a two-day conference was organised under the name ‘*On the way towards 2040 together*’ during which the first results of the sustainability monitor were presented as a so-called pre-pilot. The sustainability monitor was presented as a possible guiding framework for discussions on sustainable regional development and as an indication of the present ‘state of the province’ with regard to socio-cultural, ecological and economic issues. The discussion surrounding the publication of the pre-pilot was instrumental in achieving acceptance of the final result. Both quality and public acceptance were enhanced in this process. Based on these discussions, the monitor was adapted slightly and filled with new data. Six months after the conference, the final version of the ‘State of Utrecht’ was published (Lukkenauer et al. 2009).

Cross-case analysis

The four cases are summarised in Table 1. They differ in their geographical context, monitoring purpose and the period during which the participatory monitoring process was conducted. In this section, the outputs and the outcomes will be discussed in more detail in a cross-case comparison of the cases. We have analysed the indicator frameworks for the provinces of Brabant, Zeeland, Flevoland and Limburg to investigate the extent to which the differences in geographical context affect the outputs of the monitor. The effect of time will be analysed by making a comparison between the outputs generated by the monitor for Brabant 2002 with that for 2006. Finally, we will discuss how the communication strategy surrounding the introduction of the monitor influences both the outputs and the outcomes.

The effect of geographical context on outputs and outcomes

The question how different geographical contexts influence the outputs of different participatory processes is difficult

Table 1 Assessment of stakeholder participation in different cases of participatory monitoring

Province (year)	Objectives	Participatory design	Stakeholders involved	Outputs	Outcomes
Noord-Brabant (2001, 2002)	Agenda building, social learning and stakeholder buy-in	(a) Workshops with Stakeholders to adapt monitoring framework (b) Debates on the framework and philosophy behind the monitor and the monitoring results	(Provincial) NGOs, businesses, experts and politicians	A first framework. Analytical quality low: ‘wish list’ of stocks, issues and indicators with a bias towards the specific regional situation in Brabant	Strong political support and commitment; learning effect: development of a common language between stakeholders. Wide acceptance of the monitor
Flevoland, Zeeland and Limburg (2004)	Benchmarking and performance evaluation	(a) Workshops with stakeholders to adapt monitoring framework to local circumstances (b) No debates	Provincial civil servants, NGOs and businesses	More generally applicable monitoring framework. Low comparability between provinces, however	Modest learning effects, limited to the project teams of civil servants directly involved
Noord-Brabant (2006)	Performance evaluation	(a) Focus on stakeholder consultation in the form of interviews and a survey (b) A large number of debates mainly focussed on the monitoring results themselves and the possibilities for action	Provincial civil servants, NGOs, businesses, scientists and citizens	Stronger analytical framework showing developments over time and future challenges	Distrust of the results in the political arena; previous positive learning effects dissipated within the 4 years as regards the provincial administration
Utrecht (2008)	Agenda building, social learning and stakeholder buy-in	(a) Workshops to adapt existing indicator framework to regional circumstances (b) Intensive post publication debates	Civil servants, NGOs, businesses, politicians, citizens	Publication of ‘pre-pilot’ before final publication of monitor	Strong political support and commitment; learning effects: common language between stakeholders

Fig. 3 Venn diagram of the overlap between the four provincial sets of indicators. The darker the square the more provinces are included in the comparison: *white squares* show the number of unique indicators for one province; *light grey* the number of indicators that two provinces share; *dark grey* the number of indicators three provinces share and the *black square* shows the number of indicators that is shared by all four provinces (Source: Haarmann et al. 2004)

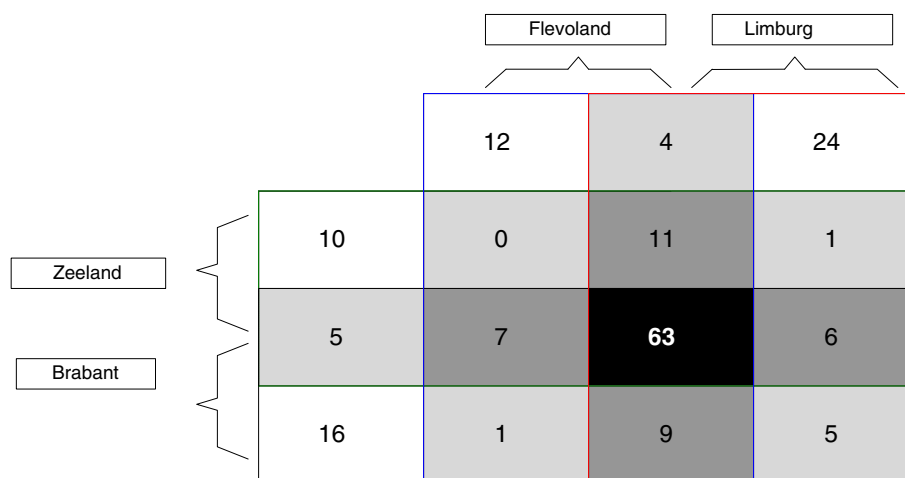
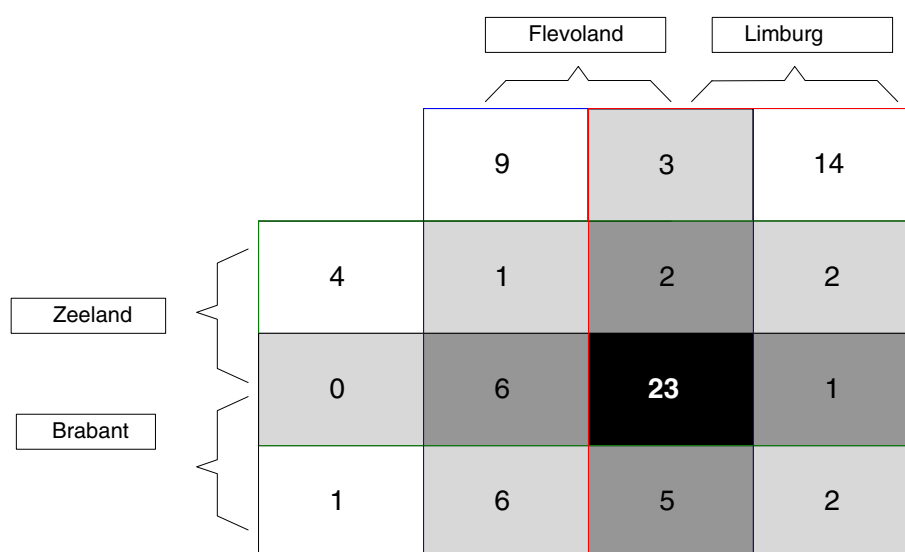


Fig. 4 Venn diagram of the overlap between the four provincial aims and requirements. The darker the square the more provinces are included in the comparison: *white squares* show the number of unique aims for one province; *light grey* the number of aims that two provinces share; *dark grey* the number of aims three provinces share and the *black square* shows the number of aims that is shared by all four provinces (Source Haarmann et al. 2004)



to answer. However, since the design of the engagement processes was essentially the same for the cases of Limburg, Flevoland and Zeeland and Brabant 2001, the assumption can be made that differences in indicator sets are the result of the differences in the regional contexts and not in differences in the participation method, or selection of stakeholders.

Figure 3 shows a comparison of the indicators sets that were developed in these four provinces. The figure shows that 174 different indicators were collected in the four provinces of which only 63 (or 36%) were present in all four monitors.

From this figure, we can conclude that differences in the historical development and the socio-economic and ecological conditions (summarised as geographical context) are in fact very important, even in a relatively small country as the Netherlands. Figure 4 explains that the differences in indicator sets are in fact the result of the targets and requirements set by the stakeholders. Of the 79

aims that were formulated by the different stakeholders in the four provinces, only 23 (or 29%) were shared by all the four provinces. Different provinces are facing different challenges, and different issues are therefore relevant to provincial stakeholders to be included in the monitor.

The outcomes in these cases were not so much influenced by contextual differences, but more by the intended purpose of the monitors. In the cases of Zeeland, Flevoland and Limburg, we found only moderate effects on the social learning outcomes, especially compared to the case of Brabant (2001/2002). Single-loop learning did occur, but was mostly limited to members of the project team itself. In this project, there was a continuing struggle between the researchers who were also trying to preserve the comparability of the indicator frameworks and the desire on the part of the stakeholders to safeguard their own specific regional issues. Some stakeholders involved in the workshops also complained about abstract concepts used in the workshops. A useful comparison between the provinces on

an overarching sustainability index, the main purpose of the project, turned out to be impossible as the comparisons discussed earlier in Figs. 3 and 4 showed.

The effect of time on outputs and outcomes

The question is whether time will affect the output of the monitor in the same way. As time goes on, some issues relating to the sustainable development of a region are resolved and disappear while others gain importance on the political agenda so that some influence on the output might be expected. A comparison between the sustainability balance sheets for Brabant in 2002 and in 2006 showed that although stakeholder preferences did change over 4 years, they did not change very significantly. The change in stakeholder preferences was reflected in certain issues being allocated a more prominent place in the framework and subsequently being allotted a higher weight. However, the rest of the regional structure remained largely the same; there was little change in their choices of other relevant issues.

We explain this result as the effect time has on the given socio-economic and ecological structure of a region. Particularly when the time period between two monitoring moments is short, the influence of time can be expected to remain small. Regional structures change slowly except when major socio-economic and ecological crises take place. For instance in the period reviewed, as a result of a number of high profile accidents in the Netherlands together with the attention devoted to the threat of terrorism, attention for issues of public safety increased. These issues were thus deemed to be more important than 4 years earlier and were given a higher weight. Major external events were reflected in the way stakeholders weight different issues, but it did not change their preferences as to the choice of sustainability issues to be included.

The effect time has on the outcomes is far more important as the results of the Brabant 2006 monitor showed. The enthusiasm and learning effects that were achieved during the first extensive participatory processes in 2001 and 2002 had dissipated far more quickly than anticipated. Many people were now switching jobs, which meant the positive outcomes of the first monitoring cycle partly disappeared with them. This was most visible within the provincial organisation in general and among the provincial governors in particular. This problem was aggravated by the departure within the provincial government of two of the main advocates of the monitor and its underlying philosophy. After all the work that had been carried out on the methodology of the SBS, there was now a certain irony in discovering that, particularly at the political level, the monitor was being perceived as an unwanted legacy and a distrust of its results was being publicly shown.

The dissipating effects of social learning over the years prove to be a fundamental challenge for the cyclical nature of adaptive monitoring and the involvement of stakeholders, especially when its main goal is shared agenda building. As time goes on, participants leave the network, and this leads to a fragmented group of 'old' and 'new' stakeholders in the network for the next cycle of the monitoring process. It is difficult to do justice to the needs of the new stakeholders while at the same time trying not to completely ignore the existing visions already agreed on by the older participating stakeholders.

It is interesting in this context to review the experiences in Utrecht. Utrecht has organised a continuing stakeholder dialogue, by organising an annual conference on an aspect of sustainable development. This way not the whole vision is discussed again, but only an aspect of the existing vision that engages old and new stakeholders alike. It is too early to tell whether this will be a successful strategy and whether this approach can survive a change at the political level. However, we think this might prove to be an interesting option that could at least alleviate the problem.

The effect of communication on outcomes and outputs

Table 1 shows that the cases with the best outcomes (Brabant 2001/2002 and Utrecht 2008) formed part of a larger process of strategic agenda building. These cases were considered to be a success not only by the regional politicians but also by other stakeholder involved in the process. In a process of regional agenda building, the relevant issues were discussed as well as the desired path of development, which issues should be monitored, how to weight them and what norms to use. These processes led to consensus over the way the shared vision could and should be measured. Later discussions on policy measures thus had a starting point that all participants had agreed on earlier.

The discussion above might lead one to conclude that participatory monitoring of sustainable development should always be made part of a larger process of agenda building. However, these two cases shared another similarity and that was the number of debates organised to communicate the monitoring results. In both cases, extensive rounds of debates were organised around the publication of a 'draft' version (Brabant 2001) or a 'pre-pilot' (in Utrecht). This communication strategy proved to be very effective in improving the quality of the final product. Small mistakes were easily identified and sometimes better data were made available. At the same time, stakeholder commitment and identification with the final end product were enhanced. Regional sustainable development can easily turn into confusing debates about relatively abstract principles. When some provisional results can be shown, it

becomes easier to involve stakeholders, and discussions can be structured with the help of the provisional results.

Discussion and conclusions

In this paper, we have looked at the effects different forms of stakeholder participation have on the monitor itself, its outputs (indicator sets) and the more intangible outcomes. We have found that significant improvements in both outputs and outcomes can be generated by debating an intermediate version of the monitor; this increases quality and at the same time enhances stakeholder commitment and acceptance of the end product.

We have found that contextual factors have a greater influence on the outputs of the sustainability monitor than time. The results show that when sustainability issues are selected by the stakeholders these then reflect the socio-economic and ecological structural characteristics of their region. In a different context, stakeholders not only assign different weights to the same set of issues, but more importantly they select a completely different set of regional aims altogether. In the same way as the structural characteristics of a region only change slowly, stakeholder preferences also change slowly. An important exception is the influence of external disturbances. A crisis does not necessarily lead to a completely new selection of sustainability issues by stakeholders, but it does at least influence how they weight those issues.

Time does have a negative effect on the outcomes, however. The dissipating effects of social learning over the years prove to be a fundamental challenge for the cyclical nature of adaptive monitoring and the involvement of stakeholders, especially when its goal is shared agenda building. A continuing stakeholder dialogue on aspects of the existing vision that engages old and new stakeholders alike might be an interesting option to alleviate this problem.

Finally, our own role in the monitoring process has changed. Over the years, our independent status as researchers slowly dissolved and in all the cases we did outside Brabant, the provincial principals often had the final say in the organisation of the process and sometimes even in the publication of the end product. Even though our independent status was lost, in return we gained more political commitment to the monitoring process as politicians did not run the risk of being embarrassed by the reported results. This political commitment also increases the commitment of other provincial actors and civil servants to the process and since the openness of the process of constructing a monitor with stakeholders made it difficult for the political principals to interfere too significantly with the final end product, we found that the overall

effect to be more positive than expected. In our opinion, a bottom-up approach therefore cannot succeed without proper support from the highest political level.

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