Practical wisdom in Risk Society. Methods and practice of interpretive analysis on questions of sustainable development
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Chapter 2
Exploring ‘phronetic’ TA: a research plan

Sustainable development is a fuzzy concept. In the previous chapter, we have seen that there can be no recourse to an objective truth to define what it exactly means. What is required to incite and support a sustainable development in a particular context is essentially a matter of political judgment. Yet, even though fuzzy, the WCED definition does indicate that a transition to a more sustainable society involves fundamental and simultaneous changes in structure, culture and technology. More particularly, it urges a rethinking of the ways in which ecological and distributional problems are dealt with in policymaking. The previous chapter led to the conclusion that these methodological and substantive considerations together imply the need to rethink existing institutional arrangements as well as the existing repertoire for knowledge generation that informs social problem solving.

Technology Assessment (TA) was identified as a form of analysis that might inspire and instigate both lines of change. Not only as an intellectual performance but also as a social phenomenon, TA may bridge the realm of the technological and the realm of the political. It may inform political judgment in both, thus superseding in practice the dichotomy between the techno-economic and the political decision-making spheres that characterises the risk society. The question how a TA project may do so is preceded by another question: how can one investigate the characteristics of TA projects in relation to their effects in regard to political judgment?

This chapter discusses the research approach that is adopted in this study. To that end, first, the focus on TA as a research topic will be justified from a broader perspective. In the light of this justification, secondly, the objective of the study will be explained. Then, the central question that was posited at the beginning of chapter 1 will be elaborated into several research questions. In so doing, the contours of a research approach are developed that is appropriate to the research topic as well as the research objective. This approach will be elaborated in the next chapter into a conceptual framework that gives direction to the empirical research. The three cases that provide the empirical material in this book are introduced in the final section of this chapter.

The rationale for the present study

The social relevance of taking the concept of sustainable development as a point of departure to explore practices of knowledge generation may be evident. Sustainable development provides a label for an amorphous array of “permanent problems” which,
in Wildavsky's words, leave a "self-conscious society (...) no choice except to think" (1979:22-23). The ways in which such thinking may be organised form the focus of attention in this book. The tenacity of environmental and social problems as well as the theoretical insights into the nature of their perpetuation (cf. Beck 1992, 1997, 1999) prompt a revaluation of our ways to define problems and formulate solutions in a political context. Therewith, also the scientific relevance of the topic from the perspective of the policy sciences is clear.

Since sustainable development involves our common 'being-together' in the future, one could argue that decisions on what sustainable development means preferably are made by those responsible for making political decisions in a parliamentary democracy: the elected representatives and politically appointed authorities. However, a leading role for central government is perhaps desirable but not self-evident (cf. Beck's concept of subpolitics). The actors who have the power to determine in which way a problem has been structured are not necessarily those representing the electorate.¹

The occurrence of politics outside and beyond the political institutions that are traditionally considered the exclusive centres of political action has given cause (among other reasons) to a call for institutional reform with regard to democratic governance (see for instance Dryzek 1990; Fox & Miller 1996; Gutmann & Thompson 1996). This call is often reinforced by arguments that relate to the nature of sustainable development as a topic for policymaking (cf. Lash et al. 1996; Hajer & Kesselring 1999).² The existing political institutions are seen as the products of former times, when considerations pertaining to sustainable development were not yet incorporated in problem-solving activities or in the discussions about the organisation of a civil society. As for-

¹ With his description of the dynamics in traffic management in Germany in the 1980s, Hajer (1996) provides an empirical example of this phenomenon. According to Hajer, German car producers set the tone in the "discourse" on automobile and environmental concern. Their interpretation of sustainable mobility came to dominate the problem structuring process at the exclusion of other interpretations and policy options, strongly influencing the allocation of public means towards their depiction of an "ecologisation of society". As Hajer points out, policy actors in such cases may find themselves confronted with a problem definition that takes the shape of an accomplished fact: "[W]hat happens if politics occur without the policymaker being aware of it? ... The problem that occurs is that the policymaker then has to fight not merely thought constructs but a network of actors, institutions and technologies that have, for themselves, interpreted what sustainable development should be about. The policymaker, then, cannot freely readjust problem definitions or the preferences of problem holders and lacks power precisely where the often decisive initial commitments are being made" (1996:29).

² While differing in tone and emphasis, the work of these authors has in common that an emphasis is put on the procedural conditions for valid judgments as the basis for political decision-making. Acknowledging the political nature of knowledge in their view implies that, rather than on contents and expertise, decision-making should rely on shared rules of sound argumentation. For a methodical elaboration, often reference is made to Habermas' 'authentic communication' as a leading principle to organise debate. Habermas (1990) establishes an argument for a procedural, discourse ethics as a basis for judging the validity of knowledge claims. A central element in his approach is the notion of 'free speech' (machtssfreie Diskussion) that will make possible human emancipation from domination. The notion of free speech makes demands both on the participants in debate (such as regarding the sincerity of the speaker, appropriateness of speech acts, et cetera.) and on the organisation of the debate (offering actors equal opportunity to engage in debate, et cetera) The Habermasian approach to debate is often criticised for its assumption of 'harmony' among discussion partners (cf. Fox & Miller 1996:118-120; cf. Flybjerg 2001:89-107), and for its lack of attention for contents (cf. Beiner 1983:148; Szerszynski 1996:116, see chapter 1, this book).
mer Prime Minister Lubbers of the Netherlands pointed out, from the industrial revolution onward, development has always been governed by economic considerations, augmented, in later years, by social ones. With the endorsement of the sustainable development concept, ecological and distribution-related notions should come to form equally valid touchstones for political actors and others to both judge and act by.

If the standing democratic institutions fail to guide political decision-making on the issue of sustainable development, governance in contemporary society requires the creation of settings in which effective and, most certainly, legitimate programmes for joint action on the issue can be designed. Either or not with explicit reference to the sustainable development debate, many authors consider this challenge a call for establishing new political forums and other opportunities for debate. Hajer, for instance, who considers sustainable development an incentive to “reinvent political choice”, opts for a new set of political institutions as a solution to unwanted processes of subpolitics: “[T]he institutional challenge of environmental politics is more encompassing than are optimum policy design strategies alone. ... [It impels us] to rejuvenate liberal democracy through the implementation of a new set of political institutions to allow for democratic governance of technological decision-making” (Hajer 1996:27, 38). Hajer does not provide practical indications as to the kind of institutions he has in mind. Possible changes are those suggested in Dryzek’s (1990) plea for a “deliberative democracy”. In a deliberative or discursive democracy, procedures for good argumentation take the place of majority rule as an organising principle of democracy.

It is my contention, however, that institutional reform or the creation of a “new set of institutions” does not present a likely and suitable starting point for improving political judgment on issues of sustainable development. Various considerations argue against it. First of all, conscious and wilful attempts at changing institutions amount to a starting at the end. After all, institutions are the settlements of repeated actions over time of capable, acting individuals. This point of view has been convincingly established by Giddens (1984), who explored the interrelation between the concepts of cognition (“consciousness”), action and social systems. In his view, actors (“agents”) act according to their own motivations and intentions and, at the same time, react to the intentional actions of others as well as to the (intended or unintended) consequences of these actions (1984:8-11). Furthermore, their actions are moderated and guided by

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1 May 10, 1999; at a symposium organised by the Inter-ministerial Programme STD (cf. chapter 5). Lubbers’ remark reflects the argument that environmental concern prompts endeavours to correct economic ethics in order to reach ‘ecological justice’, analogous to earlier efforts for attaining social justice (cf. Ebergoj 1997; Albeda 1992).

4 With Giddens, ‘agency’ as a concept does not refer to the intentions people have in doing things, as is the case for instance with Schutz’s notion (1962) of ‘action’ as opposed to ‘behaviour’, but to “their capability of doing those things in the first place; agency concerns events to which an individual is the perpetrator [...] Agency refers to doing” (1984:10). The relation between intentional conduct and its intended and unintended consequences is fluid: “In general, it is true that the further removed the consequences of an act are in time and space from the original context of the act, the less likely those consequences are to be intentional – but
structure, that is, by concepts of rules, resources and other expressions of social institutions that are produced and reproduced through the acts of agents. According to Giddens, such structure presents a "virtual order" that exists beyond time and place, that comes into being only by an "actualisation" or "instantiation" through the actions of actors or their interactions. It is through action that structures are reproduced and changed. In other words, action (human conduct) and structure (social institutions) presuppose one another. As concerns institutions: through the continual reconfirmation (instantiation) of certain structural properties, actors reproduce these in such a way that they appear 'given' to the actor and observer alike. It is through these 'recursive practices' that institutions come into being. To Giddens, institutions are "those practices that have the greatest time-space extension" (1984:X).\(^5\) Put to the extreme, this implies, as Fox and Miller phrase it, that "[institutions are habits, not things"](1996:91).

Understood in these terms, reforming institutions implies a breaking in in recursive practices, that is, in the reiterative patterns of conduct. At present, these practices reflect and constitute current non-sustainable (i.e. not cast in terms of sustainable development) concepts of rules, resources and other social institutions. A change in institutions presumes a change in the (professional) practice of a variety of actors. This brings us back to the original question: how are we to determine what sustainable development means in a specific context? By which standards do we judge current practices, and in which direction do we seek to change these? In other words, the need to exercise political judgment on issues of sustainable development precedes the possibility of creating new institutions.

Of a different, more practical nature is an argument regarding the possibility of participation in processes of political judgment and decision-making. The necessity of involving knowledgeable actors in order to provide legitimacy to governmental actions is inherent to the notion of deliberative democracy. In the current institutional settings of representative democracy, however, the option of participation is not self-evident. Obviously, any attempt at organising full participation in a democratic society as an alternative to representation runs into the limits of practicality. The creation of new political institutions hence must be preceded by a provision of answers to the question whose knowledge, whose values and preferences are to be given priority and on what grounds. Political judgment precedes political choice in order to inform acceptable and

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5 As follows from this depiction of reality, structures have no existence independent of the knowledge that actors have about these and their meaning in the actors' day-to-day activity (Giddens 1984:26). In addition to their instantiations in social practices, they exist only "as memory traces orienting the conduct of knowledgeable human agents" (1984:17). In and through action structures are reproduced and changed. In turn, action is only possible by the very existence of structure, which at one and the same time enables action and constrains it. The latter notion is crucial to the understanding of Giddens' view on the interplay between actors and their social context.
authoritative governmental action; it may also do so regarding choices about the organisation of society, including decisions about its political institutions.

A third, related argument concerns the relation between the acts of gathering information and formulating judgments on the one hand, and decision-making on the other. In general, professional action takes shape in a continuous alternation of processes of judgment and decision-making (cf. Schön 1983). A similar observation can be made with regard to the practice of policymaking. Hoppe (1983) describes the process of policy formation as a continual struggle to balance the activity of designing policy plans (which implies the need for distance from the power-plays that dominate the political process, and for deliberation, creativity and contemplation) with activities to instigate developments (also at the stage of policy formulation), which involve processes of will formation, the need to make alliances, et cetera. Characteristic of policy-related action is the clear caesura between the two at a certain moment in time: in the policy process, inevitably there is a temporary stopping of information gathering and judgment and a transition to action (Hoppe 1983). In the policy process in a democratic setting, such a caesura is formalised in the shape of a political decision that is ratified by the elected body of representatives. As we have seen, the occurrence of subpolitics challenges not only the effectiveness but also the legitimacy of the political decisions thus taken. Yet, an abolishment of formal political decision-making procedures in favour of participatory, co-operative design procedures may neglect rather than improve the possibilities to deal with the power aspect involved in decision-making as well as in policy design (cf. Flyvbjerg 2001).

An alternative to radical institutional reform for dealing with the governmental capacity deficit and legitimacy deficit is the improvement of policy-preparing activities. Seen from this perspective, the potential benefits of subpolitics, if 'opened up', come to the fore. A well-organised exchange of information between policy actors and non-state actors in an early stage of policy preparation or agenda setting may help overcome the government’s knowledge gap (Van Gunsteren 1993) that results from the dispersion of policy-relevant knowledge and power among policy actors and policy area actors. Furthermore, it is a prerequisite for authoritatively providing a legitimate basis to formulating policy interventions. This alternative suggests the creation of new practices of knowledge generation to improve the activity of policy design.

Taking the practice of knowledge generation as a point of departure has several advantages. Over time, change at the level of practice may set into motion institutional reform. Inducing a change in knowledge generating practices furthermore offers the possibility to exploit the beneficiary aspects of subpolitics. Opening up the processes of knowledge generation that precede and inform judgment and decision-making by non-

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6 As Hoppe points out (1983:233), this is reflected in the very word 'decision', which roots in the Latin word for 'cutting off'.

state actors allows for a more public scrutiny of their (inherently) political decisions. In addition, problem-oriented, temporary analytic projects have the advantage that they are by definition context-specific and that the scale permits participation of relevant actors. When processes of problem structuration and the formulation of solutions are organised as joint activities that precede formal political decision-making, the democratic quality of that decision-making is improved (Hoppe 1989; Hisschemöller 1993; cf. Oldersma & Woldendorp 1995). For these reasons, the present study focuses on practices of knowledge generation that focus on issues of sustainable development.

Research objective and justification

Sustainable development requires political judgment. Practices of knowledge generation on a project basis may provide the forums to generate the required knowledge to inform political judgment on the issue. The question is what these projects should look like in order to yield the required knowledge and, moreover, what kind of knowledge exactly is required.

The two concepts that were identified in the previous chapter as being relevant for dealing with the characteristics of the current risk society – Technology Assessment and phronèsis – provide a first tentative answer to this question. With this research, I seek to contribute to the elaboration of methodical and practical guidelines for Technology Assessment to yield practical wisdom to inform political judgment that contributes to a transition to a more sustainable society.

From the discussion on the concepts of sustainable development and of subpolitics, it may be clear that such an elaboration of methodical guidelines is not to result merely in design-rules for policymakers vis-à-vis policy formulation as such, but rather in suggestions for analysis that may equally inform judgments by policy actors as well as by non-state actors whose decisions may be no less political in character.

Phronèsis as a point of departure

The decision to take phronèsis as a conceptual point of departure for the elaboration of the envisioned guidelines I made only after I reached the conclusion that existing classifications of TA concepts do not provide a fruitful starting point. At the initial stages of my research, I struggled in vain to build on various TA-concepts and methods – of which there are many – in search for guidelines to fit the specific characteristics of sustainable development questions.

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TA-practices are characterised by numerous attempts at classification, either based on the functions that TA-studies can serve or on the methodology employed. Both sets of criteria intersect. Smits and Leyten (1991), for instance, distinguish between ‘Awareness TA’ (ATA) (with a focus on long-term technological potentials,
The TA concepts that were developed, in reaction to the criticism on the classical critical-synoptic perspective, with the aim of broadening the design processes of technological development (among which CTA) appeared too limited in their approach to suit the specific purpose of this study. When debating sustainable development, at issue are not, at least not in the first instance, the design criteria of a particular technological development or a technical device. Rather, as was discussed in chapter 1, the question of sustainable technological development touches upon the organisation and design of society as such. Even when the primary focus is on technological developments in pursuit of more general ends, a TA-study on issues of ‘sustainable’ technology development addresses questions that precede and transcend the actual design stage of technology.

Yet, the TA concepts that aim to support processes of opinion forming and political decision-making on technology in the public domain (the alternative orientation of so-called public TA that the critical-synoptic perspective on TA gave way to) do not seem to fit the purpose either. They appear to underscore the criticism that they invoke discussions on technology-related aspects only after initial research and investment decisions have been made. Furthermore, as Beck pointed out (1992:230), such efforts assume the need of a centrally organised political control, overlooking the political nature of decisions made by non-state actors such as technologists and others.

Regarding their suitability for the purpose that is at issue here, the two orientations seem in need of some overarching conceptualisation, which is – in spite of their common denominator of featuring participatory approaches to analysis – by and large lacking in the literature on TA. I therefore chose to start my search from the concept of practical wisdom.

devolopments and the creation of awareness concerning the societal choices), ‘Strategic TA’ (STA) (which is sector- or problem-specific and has a medium time horizon), and ‘Constructive TA’ (CTA) (with a focus on short-term design and construction stages of the innovation process) (1991:308-317; cf. Maye1997:16). The latter notion is subdivided by the spiritual fathers of the concept into (in Dutch:) pCTA, cCTA and oCTA, indicating respectively a focus on producers, consumers and government (Schot & Rip 1997). Furthermore, there is the classification of Bechmann (1993) who differentiates between an ‘Instrumental Model’ of TA, which aims at increasing the effectiveness of political and administrative procedures concerning technology policy, the ‘Elite Model’ that requires the participation of highly qualified experts, and a ‘Democratic Model’ that details a significant role for the general public in its evaluation of science and technology. The latter type of TAs is commonly referred to as ‘participatory TA’. An international comparative evaluation of participatory TA, which has been initiated in the late 1990s by a number of national TA institutes (under the heading of ‘EUropTA’, see chapter 1, nt.26), showed clearly the tremendous diversity in concepts, methods and techniques which have been developed under the umbrella-name of pTA in response to, and under the influence of, the needs and characteristics of specific national contexts (Kluver et al. 2000; Joss & Bellucci 2002).

In spite of the common denominator of participation in these TA-concepts, activities for involving a plurality of perspectives in the assessment aimed at influencing either technology policy or technology development itself are by and large considered fundamentally separate forms of analysis. The director of the Dutch TA-institute underlined this dichotomy thus: “Consensus activities and constructive Technology Assessment both spring from the idea that the basis for decision-making about technology should be broadened. Both also share the conviction that interaction among actors is important in conducting assessments. But, although closer links are often suggested, I do believe that these do not necessarily exist. Consensus conferences and the like emerge from a specific ideal of participatory democracy, and they can therefore be seen as a kind of public Technology Assessment; whereas the main point of constructive Technology Assessment is influencing
The decision to revert to the classical notion of *phronēsis* was informed by the training in policy analysis and public administration that I received at the University of Amsterdam, with Robert Hoppe and Henk van de Graaf. Hoppe introduced the notion to *phronēsis* to the discipline in the Netherlands (cf. Hoppe 1983) and thus became the ‘founding father’ of the argumentative turn in Dutch policy analysis literature (cf. Hoppe & Peterse 1998). Hoppe and Van de Graaf’s work (for instance, Van de Graaf & Hoppe 1989) roots in and draws on the pragmatism of such authors as Dewey, Merriam, Lasswell, Lindblom and Wildavsky. It is in line with this tradition in the policy sciences, in which ‘knowing’ and ‘doing’ are considered intimately intertwined, that here the analytic perspective on questions of sustainable development is explored.

In one respect, my understanding of *phronēsis* deviates from Hoppe’s interpretation. While Hoppe (1983) elaborates prudence (after the Latin equivalent) in policymaking, I focus on the implications of the *phronēsis* concept for processes of (policy) analysis. According to Hoppe, prudence in policymaking entails a rhythmic alternation, and a dynamic equilibrium, between activities regarding policy design and those regarding decision-making and policy instigation. The first line of action results in what he calls “intellectual maturation”. This element of *phronēsis* is emphasised in my interpretation of the concept. In that way, it shows close resemblance to the understanding of the *phronēsis* concept in the work of Torgerson (1995) and Ruderman (1997). I share with Hoppe, however, the assertion that prudential action (that is, with Hoppe: in policymaking; with me: in knowledge generation through analysis) involves both “judging and willing” (Hoppe 1983:312). It is my contention that this well-balanced combination of activities for design and instigation can be displayed by policy actors and by non-state actors alike, whose political judgment may be supported by phronetic TA. It is with this practical goal in mind, that the central research question was formulated.

**Research approach and questions**

The above discussion of the reasons why *phronēsis* offers a suitable point of departure, as well as the concept’s elaboration in the previous chapter, clarifies the specific wording of the research question:

*In which way and under which conditions may Technology Assessment contribute to making the concept of sustainable development contextual and operational in a specific setting, in such a way that it affects processes of policy formulation and of technological innovation?*

*Phronēsis*, we have seen, entails the comprehensive moral capacity to know what is required (read: the TA ‘makes operational’) in a particular situation (read: the TA ‘contextual technological choice. These two directions may entail very different viewpoints and make use of very different bodies of knowledge” (Van Eijndhoven 1997:281).
tualises'), and to act consistently on that knowledge (read: the TA affects action). The latter is understood, as discussed before, as a TA's impact on policy formulation and/or technological innovation through the incorporation of its findings and insights into policy documents and/or the decision-making processes on technological innovation.

Through a close scrutiny of three analytic projects that can be designated as 'dealing with questions of sustainable development', I hope to learn about the way in which and the conditions under which a TA project may achieve these goals.

Research set-up

The research design of the (single or multiple) case study is the preferred research strategy for studying contemporary events in which one has to judge on the basis of the particular. Such an approach allows for the description and exploration of research objects that present unique and non-repeatable cases, in which there are more variables of interest than can be marked as “data points” (Yin 1994:8-15). A case-study approach is particularly appropriate to the research topic of phronēsis. As Flyvbjerg (2001) points out, the characteristic focus on the particular circumstances in phronēsis implies that phronetic research “benefits from focusing on case studies, precedents, and exemplars” (2001:135).

Flyvbjerg reputes the view that case-studies are valuable only for generating hypotheses (Flyvbjerg 2001:66). Cases generate precisely the concrete, practical, and context-dependent knowledge that is required for making the “qualitative leap” from rule-governed analytical rationality to the “higher levels in a learning process” that are required for true proficiency and skills in handling problematic (social) situations (2001:66-70, 135). While Flyvbjerg emphasises the value of case-studies from the perspective of the learning practitioner, he makes his point in the context of a more general plea for a “reformation” of the social sciences. In order to make social science “matter”, he convincingly argues, it must not merely take into account the particular. Rather, it should focus on the generation of concrete, context-dependent knowledge as such.

In his elaboration of “phronetic social science”, Flyvbjerg systematically outlines the consequences of such a viewpoint for the practice of (case-) research. Whereas Yin (1994) in his discussion of case studies as a research strategy insists on the (neo-positivist) conviction that a neat and clear caesura between the realm of discovery and the realm of verification can be made, Flyvbjerg abandons this view as erroneous (2001:66). In the interpretive approach to research that Flyvbjerg advocates, discovery and verifica-
tion are two sides of the same coin. This point of view, which I fully endorse, has implications for the way in which case study research is conducted. On the one hand, it holds implications for the selection of cases and of case material (what are relevant data?) and on the other hand it implies a specific way of collecting, processing and presenting that material (how are the data gathered and interpreted?).

Let us first focus on the issue of case and data selection. Flyvbjerg suggests four types of “logics” regarding case selection: selecting i) extreme/deviant cases (to obtain information on unusual cases, such as in psycho-analysis); ii) maximum variation cases (to obtain information about the significance of various circumstances for case process and outcome); iii) critical cases (to achieve information which permits logical deductions of the type: ‘if this is (not) valid for this case, then it applies to all (no) cases’); and iv) paradigmatic cases (to develop a metaphor or to establish a school for the domain which the cases concerns) (2001:78-80). In this study, I adopted the second ‘logic,’ i.e. I made an effort to select the cases in such a way that together they provide a more profound insight in the issue under scrutiny than the sum of the findings of the individual cases (the actual case selection and the substantive arguments on the basis of which that selection was made are discussed in the final section of this chapter).

A subsequent, related issue is that of data selection, that is, of how to approach the selected cases. On the one hand, a researcher cannot, even if desired, approach a situation with a completely blank mind. On the other hand, interpretive social science requires an open attitude on the side of the researcher, who has to put into practice in his/her research the maxim that ‘one does not know what one does not know’. In the literature on qualitative research, several suggestions are available for dealing with these two intricacies.

The Popperian viewpoint that one cannot approach a research object without a theoretical lens that functions as a search light to guide the process of data collection has been elaborated in the social sciences in several ways. Blumer (1969), for instance, has developed the notion of “sensitising concepts” to capture the issue. Sensitising concepts are roughly defined notions that are inferred from the central research question and a research’s objectives and that give guidance to the process of data collection. To that end, they are elaborated into a conceptual framework on the basis of which a situa-

\[ This \ point \ of \ view \ is \ widely \ championed \ in \ constructivist \ or \ interpretive \ approaches \ to \ the \ social \ sciences \ (cf. \ Berger \ & \ Luckmann, 1991) \ whether \ these \ are \ captured \ under \ the \ label \ of \ phenomenology \ (cf. \ for \ instance \ Bernstein \ 1976; \ Schön \ 1983) \ or \ hermeneutics \ (cf. \ for \ instance, \ Guba \ & \ Lincoln \ 1989).\]

\[ There \ is \ no \ reason \ to \ exclusively \ link \ up \ interpretive \ approaches \ to \ the \ social \ sciences \ with \ qualitative \ research \ methods. \ Both \ qualitative \ and \ quantitative \ methods \ are \ applicable \ in \ either \ interpretive \ or \ (neo-) positivist \ research; \ see \ Guba \ and \ Lincoln’s \ discussion \ on \ ”natural \ inquiry \ of \ the \ first \ and \ second \ kind” \ (1989:158-162) \ or \ Flyvbjer \ 2001, \ chapter \ 10, \ n.t. \). \ However, \ because \ the \ discovery \ and \ verification \ aspects \ of \ research \ are \ indistinguishably \ intertwined \ in \ the \ former, \ qualitative \ methods \ are \ an \ obvious \ choice: \ “Humans \ collect \ information \ best”, \ according \ to \ Guba \ and \ Lincoln, \ “and \ most \ easily, \ through \ the \ direct \ employment \ of \ their \ senses: \ talking \ to \ people, \ observing \ their \ activities, \ reading \ their \ documents, \ assessing \ the \ unobtrusive \ signs \ they \ leave \ behind, \ responding \ to \ their \ non-verbal \ cues, \ and \ the \ like” \ (1989:175-6).\]
tion can be described and analysed. Hence, these sensitising concepts provide a first, tentative framework for understanding the case material in the light of the research questions that are being asked (Wester 1995:27). In turn, the concepts are elaborated and further refined on the basis of the empirical findings.

While the notion of sensitising concepts was elaborated with respect to social anthropological field work, in which use is made of the method of participant observation, in my opinion a similar approach can be adopted on the basis of literature study. In that case, an initial search light consists of a selection of theoretical notions, elaborated on the basis of relevant literature. The resulting framework serves as a conceptual lens, raking together, so to speak\(^1\), the data that are relevant in the light of the research question and objectives from the available case material.

The development and use of such a conceptual framework on the basis of existing literature I deem both a necessary and a valid approach to dealing with the present research object. On the one hand, the methods of TA-projects on questions of sustainable development are as yet sparsely researched. Therefore, an exploratory approach is called for. On the other hand, as is argued above, the notion of phronēsis and its application in modern policy science has been elaborated extensively in policy analysis literature. It hence may provide valuable insights to guide the empirical exploration. Therefore, a first question to be answered before conducting the case research is:

*Which methodical and practical factors can be considered of relevance for investigating and understanding the relation between a TA project and the processes of policy formulation and/or technological innovation that the TA addresses?*

The answer to this question may be formulated on the basis of existing literature and provides the conceptual lens that is required for conducting the subsequent case research.

However, acknowledging the basic maxim in exploratory research that one does not know what one does not know, such an *a priori* elaboration may not suffice. Therefore, this approach may be complemented with a more open, reasoned approach to data collection and comparison that allows for the formulation of new insights (as complementary to those developed on the basis of existing literature) in the light of the empiri-\(^1\) cf. Kuypers' *factorenhark* ('data rake', cf. 1973:24, 91-2), that is, a categorisation of potentially relevant data that serves as a heuristic device to focus empirical research. The relevance of developing such a conceptual lens is illuminated by Geertz: "Although one starts any effort at thick description, beyond the obvious and the superficial, from a state of general bewilderment as to what the devil is going on — trying to find one's feet — one does not start (or ought not) intellectually empty-handed. Theoretical ideas are not created wholly anew in each study; (...) they are adopted from other, related studies, and, refined in the process, applied to new interpretive problems. ... Such a view of how theory functions in an interpretive science suggest that the distinction, relative in any case, that appears in the experimental or observational sciences between 'description' and 'explanation' appears here as one, even more relative, between 'inscription' ('thick description') and 'specification' ('diagnosis') — between setting down the meaning particular social actions have for the actors whose actions they are, and stating, as explicitly as we can manage, what the knowledge thus attained demonstrates about the society in which it is found and, beyond that, about social life as such" (1973:27).
call evidence. Although the extent to which the initial conceptual lens is being elaborated does not allow nor require a genuine “grounded theory” approach to studying the case material (cf. Glaser and Strauss 1967; Strauss & Corbin 1990), the findings of the cases should be allowed to contribute to a further fine tuning of the initial conceptual framework.

**Interpretation of the case material**

Since context matters, the issue of methods needs to be questioned from the perspective of practice. The case material that is collected on the basis of the sensitising conceptual lens must be understood in terms of the projects’ own context and contents. Thus, the material may shed a light on potential bottlenecks in employing specific analytic methods and on how these have been dealt with under the particular circumstances of the cases. Therefore, the empirical material should provide a clear view on the interplay between the methods that are being employed in a TA-project, its practice and the processes of policy formulation and technological innovation on which it reflects and which it addresses.

Furthermore, in order to draw inferences from the described TA-projects with regard to the methods employed, these have to be related to some factors that are external to the projects. The conceptual framework that will be developed in the next chapter provides a basis for describing, analysing and discussing the projects, yet it does not (nor pretends to) provide a normative framework on the basis of which to judge the respective cases. In the absence of a blue print for conducting TA-studies on questions of sustainable development, the TA experiments are related to their effects.

In the case descriptions, therefore, the TA projects under scrutiny serve as a starting point for determining which data are of relevance. The TA project is put centre stage. This is the case even when, from another perspective, the analytic project may be considered only a minor element in the events and interactions that, during a specific period of time, have led to changes in the processes of policy formulation or technological development under scrutiny.

**Researching a TA-project and its effects**

The word ‘effects’ is used here on purpose as a neutral umbrella term for the various products and spin-offs that a TA-project may have. Firstly, a project is likely to result in (immediate) material output in the form of books, reports, models et cetera. For such products, I propose to use the word ‘results’. Through these products, but also via other means, the findings of the project are conveyed. These findings may encompass such insights as the project’s resultant problem definition (that is, the way in which in the
analytic process the problem under scrutiny has been structured), the formulation of potential courses of action that may contribute to the reduction or amelioration of that problem, and the accumulated insights in whether and how actors may be motivated to adopt those courses of action. I propose to refer to such immaterial outputs as ‘outcomes’. Both results and outcomes of a project, but also its mere occurrence, may affect the context in which the TA-project is staged. The resulting dynamics may be captured with the word ‘impact’. This concept deserves some further elaboration.

The contribution of TA to processes of policy formulation and of technological innovation after which the main research question asks may consists of the various ways in which actors start to rethink their professional behaviour, consumer behaviour, policy theory, future business projects and so on in the light of new preferences that reflect and/or co-produce ‘sustainable’ solutions. Through the precipitation of their re-formulated thoughts in policy documents or research programmes, for instance, a TA may affect a multitude of actors, whose actions together may contribute to a sustainable development. Because ‘rethinking’ is a necessary yet not a sufficient precondition for change in an actor’s actions, the latter effect subsequently may or may not occur. In either way, in my opinion, the TA has had an impact, namely in terms of stimulating a rethinking of the issue under scrutiny.

The activity of ‘rethinking’ here is understood in terms of ‘learning’. Because the verb learning is so commonly used, both in policy scientific literature and in everyday language, it is necessary to carefully establish the meaning of the phrase as it is used here. Learning is defined as the occurrence of “relatively enduring alterations of thought or behavioral intentions that result from experience (...) [and] involve (...) perceptions concerning external dynamics, and increased knowledge of the state of the problem parameters and the factors affecting them” (Sabatier 1987:654). To ‘map’ the impact of a TA in terms of learning, in this research I will make use of an analytic tool that Grin and Van de Graaf (1996a) developed in order to analyse the considerations and assumptions by which an actor seeks to make sense of a problem situation he encounters, and on the basis of which he chooses his line of action.

Grin and Van de Graaf distinguish between four categories of such arguments on the basis of their epistemological status. Two categories concern the arguments that an actor applies to assess a specific situation, and two categories consist of more generic notions. The latter include value systems and “overarching theories” (1996b:77) and pertain to an actor’s professional perspective and outlook on life. Together these form the normative and empirical background models against which an actor views a situ-

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11 The concept of learning has been criticised for being “overtheorized” (Bennett & Howlett 1992; Minsky 1988:120). As a result, the concept ‘wobbles’ to use a phrase of the Dutch public administration scholar Brasz (1976:8), indicating that a word’s meaning changes in accordance to the context in which it is used and to the position of the speaker.
tion that he considers problematic, and formulates a definition of that problem and assesses the cause-effect relations that he considers of relevance for understanding the problem.

Grin and Van de Graaf convincingly argue (1996b:78-87) that the sets of normative and empirical arguments of various actors (and actor groups) differ in contents yet that these all can be analysed in terms of this four-tiered structure. On the basis of empirical research, the authors (1994, 1996b, 1996c; Grin, 1995) outlined broadly such structures for various actor groups, among them policymakers, corporate managers and technologists (see figure 2.1). A depiction such as this may help to analyse an actor (group)’s set of arguments and to identify the occurrence of changes therein, that is, to indicate the occurrence of learning. (The theoretical notions on which this understanding of learning as ‘changes in knowledge in relation to action’ is based will be discussed in chapter 3.)

Learning in itself is not a sufficient precondition for change. Evidently, an individual’s ability to redirect his/her course of action in the light of new preferences is critically dependent upon the available resources (Sabatier & Jenkins-Smith 1993). These include such things as money, expertise, know-how and authority. Secondly, as Grin and Van de Graaf (1996c) found, individuals or organisations may need an additional external or internal incentive to ‘translate’ learning into an actual change in action. An internal incentive may be a strong inner motivation on the part of the learning individual. An external incentive may involve any factor available outside of the learning individual that stimulates her or him to act on the newly formulated preferences. Thirdly, a person must be in the position to pursue the line of action that occurs of relevance to him, that is, the individual must experience sufficient room for manoeuvring to do so without too high transaction costs. His or her room for manoeuvring is determined by the parameters of the context in which he operates, such as the physical infrastructure, juridical structures but also social conventions about proper behaviour, et cetera. As was observed above in the discussion on structures, characteristic of these is that they present themselves to the acting individual as ‘givens’ that fall outside his sphere of influence.

In the light of this elaboration of the potential contributions of a TA towards a sustainable development, I propose to use the word ‘impact’ to indicate both the actual behavioural changes in line with the outcome of an analysis that actors give evidence of, and the occurrence of learning in this line.

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7 Please note that in spite of the static appearance of such an analytically systematised depiction of arguments, changes in at least the evaluation of solutions and in problem definitions occur frequently as a result of an actor’s constant reflection and progressive information on the problem at hand.
In addition to its substantive elaboration, the use of the word ‘impact’ requires further explication in terms of the research approach. The notion of ‘impact’ implies an assumed causal relation between a phenomenon (such as a TA-project) and changes in its context. Researching such a relationship is not without complication. The causal relationship between two phenomena may be assessed unambiguously only in those cases where two or more variables are clearly distinguishable from one another and from any other variable in the context. This obviously is not the case when researching TA-projects as social phenomena.

In order to ‘learn about the learning’ and to grasp the relative meaning or significance of the TA-project in the light of the contexts of the involved actors, I have to take into account the actors’ views on these issues. To assess the relation between the learning or the behavioural change that actors give witness of, and their partaking in a TA project, I have to ask the actors themselves about their views on that relationship. In other words, I have to adopt an interpretive approach to data collection. The quintessential element in such an approach is to understand actors’ motives to act (both the reasons why and the intentions with which to act) and their interpretation of their own and others’ actions.

An exclusively hermeneutic approach to research that is based solely on the “ideographic point of departure” (Winch, 1963) does, however, not suffice. A mere contextual micro-hermeneutic approach, in which the interpretation of (written or spoken)
texts is limited to the confines of the world of the speaker itself", results in too narrow a view for understanding the practice and impact of an analytic project in full. As Bernstein pointed out: “One of the things that we may want to know is whether the reasons given by participants are indeed the reasons that explain their action. But it is difficult to see how we could answer such a question unless we investigated systematically a variety of empirical factors that may influence such behaviour” (1976:69). An idio
tographic approach does not rule out the legitimacy of empirical questions about factors that influence human behaviour. One cannot, as Fox and Miller (1996:86) put it, “simply ignore agencies, institutions, bureaucracies, and constitutional regimes” for the sake of an interpretive approach to data collection. To investigate TA projects on the interface between ecological and social policy considerations and technological developments, one is in need of a hermeneutics that takes the outer world seriously. Therefore, the appropriate approach to inquiry to serve my research objective involves a combination of the actors' view and my own assessment as a researcher, that is the spectator's view, guided as it is by the conceptual framework (cf. Jennings' projection of interpretive social science; 1987:129).

As concerns the issue of the relation between the researched TA-projects and the many factors that affect the processes of technological development and public policy on which the projects reflect, I choose to follow up on Guba and Lincoln’s suggestion (1989:96-97) to displace the concept of causality with that of “mutual simultaneous shaping”. In that notion, the suggestion of a one-to-one relationship between two social phenomena is avoided: “Each element is activated in its own way by virtue of the particular configuration of all other elements – potential shapers – that is assumed at the time and in that place. Judgments about which of the potential shapers may most plausibly be implicated in explaining (...) whatever it is that the investigator wishes to explain (...), is a matter both of the circumstances that exist and of the investigator’s purpose” (1989:97). Any claim about the ‘impact’ of a TA-project, either in terms of learning or in actual action, amounts therefore to a reasoned argument about the plausibility of a relation between two or more findings.

In this reasoned way, in the empirical chapters of this book, an answer is sought to the following questions:

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4 The elucidation of the word ‘hermeneutics’ by Brasz (1976:54) may be of interest to the reader: the word finds its origin in the field of bible studies. As Brasz relates, “When the Reformation required new rules to replace the Roman-Catholic clerical hierarchy, the Bible offered but few concrete, applicable suggestions. Interpretation of the Scripture appeared necessary. This was achieved by relating every individual text to the general teachings and doctrines of the church. Conversely, the doctrines were interpreted and explained by referring to the various texts. Thus, the interpretation of the teachings by the church and of the Scripture reinforced one another” (my translation). The result of this exercise is a ‘closed’ system of interpretation: the interpreted texts can be understood in their own terms only, without reference to external systems of meaning. For this reason, some insist that approaches to interpretation that combine the views of the actor (speaker) with those of the spectator (listener), such as Guba and Lincoln’s Fourth Generation Evaluation approach (Guba & Lincoln 1989, see chapter 3, this book) or the approach adopted here do not “deserve” the label ‘hermeneutics’ (G. Locke, personal communication on the occasion of an early presentation of my research, 25-4-1997).
• Which processes of policy formulation and/or technological development did the TA-project address? What were the project’s objectives and intentions, and how were these ambitions pursued methodically and practically? What were the project’s outcome and results?

• To which extent did the TA-project have an impact in terms of learning; to which extent did it have an impact in terms of action?

• Which methodical and practical factors, as well as which contextual factors affected the relation between the TA project and its impact?

Research methods

To provide the answer to these questions, in the case studies, data on the TA-projects and their contexts were collected in various ways. Information on the methods that were employed in the analytic processes, and on the way in which these were evaluated and appreciated by the participants, was gathered through interviewing. The information from the interviewees was compared with, and augmented with, information from document-analysis. With respect to the analytic process itself, data were collected from internal working papers, minutes of conferences and of (in)formal meetings that took place within the context of the TA study. In one case (on novel protein foods, see below), additional data were collected through participant observation of interactive sessions. With respect to the contexts of the analytic projects, public documentation was consulted, i.e. administrative documents, white papers, annual reports, research reports and publicity material respectively. Such a triangulation of methods for data collection also gave insight in the institutional factors that bore on the actors’ beliefs and actions.

A final remark concerns the presentation of the thus collected data. Inevitably, the interpretation of empirical data rests with the researcher, as does the assessment of the relative relevance of one aspect over another. As Ragin et al. remark: “In the end, researchers must make final decisions and interpretations in light of their knowledge and their empirical understanding of the cases in question” (1996:763). I agree, although I do not believe that the interpretation of the researcher has to be final. In order to enable the reader to critically assess my interpretations, I therefore present the cases in the form of thick description. Thick description (a phrase coined by Ryle and introduced to the discussion on evaluation methods and inquiry paradigms by Guba and Lincoln 1981) is a specific way of transferring research findings from one setting to another. “Thick description involves literal description of the entity being evaluated, the circum-

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15 Originally, triangulation is a technique for localising unknown spots on land surface by measuring the land from at least three points of view. In the social sciences, the word triangulation is used for indicating the employment of two or more types of data sources and research methods or strategies (Hakvoort 1995:131; Van der Knaap 1997:20).
stances under which it is used, the characteristics of the people involved in it, the nature of the community in which it is located, and the like" (Guba and Lincoln 1981:119, cf. Flyvbjer g 2001:84). While the purpose and the scope of this book do not allow the empirical chapters to bear the characteristics of anthropological monographs, they aim to provide sufficient empirical detail to enable the reader to critically assess my assessments about the studied TA-projects.

Detailed insight in the particular circumstances that characterise the various cases is indispensable in order to appreciate the cross-case analysis in which the case-study results. Because each TA-project differs in its institutional setting and intentions, as well as in its addressees, each case presents additional information on the issue under investigation: the methodical choices made in the projects in relation to the projects' objectives, contexts and impact. Therefore, the accumulated empirical material allows us to probe further into the way in which, and the conditions under which, TA can contribute to policy formulation and technological change in a sustainable direction. With the help of the conceptual framework that will be developed on the basis of literature in chapter 3, we may generalise6 from the limited number of cases in order to finalise the exploration by answering the question:

*What can we learn from the various cases about the methods and practice of TA as a way to organise political judgment on issues of sustainable development?*

To the extent in which the case material offers an answer to this question, the central research question is answered. Lessons may be drawn with regard to the elaboration of methodical guidelines for Technology Assessment to yield practical wisdom to inform political judgment that contributes to a transition to a more sustainable society.

**The selected cases**

The cases in this study were selected to provide maximum variation in the relevant aspects of the research object. The arguments on the basis of which the specific cases were identified are as follows.

The number of projects that are potentially relevant from the perspective of this research is rapidly expanding. As Jamison and Wynne observe "the quest for sustainability has led to an array of new forms of knowledge production" (1998:10). A first delimi-
tation of candidate cases was based on substantive considerations. Of relevance to the research were only those projects that addressed the interface between ecological and social considerations and technological development. A second consideration concerned the methods employed in the analytic (knowledge generating) activity: The analytic projects had to focus on the (re)structuring of a problem (with social, ecological and technological dimensions) in a way that fitted the so-called post-positivist (argumentative, phronetic) perspective.

Application of the latter criterion was not unambiguous. The shift away from the neo-positivist approach towards the post-positivist perspective gave way to an abundance of methodical variety in analytic projects. Because in many of these projects ‘participation’ appears the common denominator, Mayer argues that one might as well speak of a “participatory turn in policy analysis” (1997:4). Such a label, however, emphasises merely (some of) the methodical aspects in the shift away from positivism, rather than the underlying philosophical stance. In so doing, it hides from view the widely differing rationales for involving actors of various kinds in an analytic process. Motives to involve ‘ordinary people,’ ‘stakeholders,’ ‘citizens’ or ‘laymen’ and the reasons to ascribe these a key role in an analytic process are as diverse as the analytic practices that they inspire. Arguments range from “creating citizenship” (Wildavsky 1979) to “representation of interests through a direct involvement of citizens in politics” (Laird 1993), and from “creating new kinds of knowledge” to “re-establish[ing] the democratic legitimacy of science and politics in society” (Mayer 1997).

Strikingly, the latter two arguments often are postulated in one breath. This suggests that considerations concerning the philosophy of science coincide with arguments concerning the strengthening of the democratic ideal (see, for instance, Arnstein 1971; Pröpper & Steenbeek 2001). Obviously, the latter category of reasons for including non-experts in an analytic process (furthering democracy) is indeed closely related to the first category (improving the quality of knowledge by explicitly acknowledging the normative stance of the observer) (cf. Fischer 1991:124). Yet, both types of reasoning give cause to formulating quite diverse normative or functional criteria for assessing the effectiveness and worth of participation in policy analysis (see nt. 7, this chapter) and most certainly feature different underlying methodological considerations. This implied that a well-considered selection of cases for the present research required a further elaboration of the notion of phronèsis so as to outline some broad methodological maxims by which to choose the cases.

Anticipating the elaboration of phronèsis as a part of the conceptual framework, I here get ahead of my argument in chapter 3 to clarify the eventual case selection.7

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7 The reader will appreciate that, in spite of the linear depiction of the research process preceding the writing of this book, decision-making on issues such as case selection and research set-up was a matter of reasoning to and fro.
Elaboration of the *phronēsis* concept on the basis of literature revealed that the yielding of practical wisdom to inform political judgment is best served with what Grin and Hoppe (1995:101-5) have called "interpretive TA". Interpretive TA is a form of analysis in which the TA-analyst functions as a spider in the web of information flows between a variety of actors involved in the design, production, distribution and (future) use of technological innovations, and those who are in some way or another affected by it: technologists, corporate managers, public policymakers *et cetera*.

The eventual selection was based on the aforementioned substantive criterion – all three cases address a problem that involves a technical issue from the perspective of ecological and social considerations – and on this methodological consideration. An initial quick-scan of the three eventually selected projects revealed that all to a greater or lesser degree could be designated as interpretive TA. Incidentally, each of the researched projects was considered pioneering with respect to the development of TA methods in their time. A further consideration was of a practical nature. In order to have access to the data on the projects and their impact, the TA analysts and others that had been involved in the projects had to be willing to provide information.

Given that these criteria were met, the cases were selected to provide a maximum variety with respect to several relevant aspects of phronetic TA. Maximum variety was sought in terms of the route via which the analysts tried to have an impact on the issue under scrutiny. A TA-project might have an impact on the "real world" (Hogwood & Gunn 1984) by inducing processes of learning on the part of the participants (possibly invoking actual behavioural change) or by informing non-participants about the projects' outcome. On the one hand, it may inform standing bodies of power, such as Parliament; on the other hand, it may inform non-state actors such as the boards of directors of technical firms and research institutes. In both ways, it may enable actors to exercise insightful political judgment on the issue. Depending on the scope, the 'carry-over' and the duration of its ensuing effects, both ways of instigating changes may contribute in the long run to the desired development towards a more sustainable future.

In order to gain insight in the implications of these two routes (aspiring impact via Parliament or via non-state actors) for the methodical elaboration of a TA-project, a specific example of each was included in the case-selection. These considerations have resulted in the selection of the following cases.

*The Phosphate Forum*

The case described in chapter 4 concerns an analytic project on the overenrichment (eutrophication) of Dutch surface waters and the role of detergent powders therein. It

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18 For the Phosphate case, see De Man 1987; for the NPF case, see Weaver et al. 2000; for the Gideon case, see Grin et al. 1997.
took place in the Netherlands between 1980 and 1984 and became known as the Phosphate Forum. The TA consisted of a collective inquiry effort by a heterogeneous group of actors into plant nutrient flows and sources in relation to the occurrence of eutrophication.

The case is interesting because of its methodical elaboration. It combined a system dynamics' approach to model construction with a hermeneutic approach to data collection and a participatory method of data analysis. The system dynamics model, the development of which formed the heart of the analytic process, was constructed interactively on the basis of consultation with a 'reference-group' consisting of a large variety of actors and organisations that were considered knowledgeable on the subject of eutrophication. Among these were representatives of the Ministry of the Environment, which was responsible for the eutrophication control policy, which at the time amounted to a phosphate reduction policy.

In the wake of the Forum's activities, striking changes in water quality management and related policy areas took place. In addition, profound changes in the composition of laundry detergent powders were observable. The question is whether these changes are in some way related to the TA project, and if so, whether the specific methods that were employed were of influence on the occurrence of these changes.

In this case, the analysts did not deliberatively include activities to enhance the project's impact (apart from the strategic considerations that co-determined the selection of the analytic approach, of participants and so on). The methods employed in the analytic project were specifically and consciously developed in order to allow for a collective redefinition of the problem at stake by all parties involved and to induce processes of learning among them. The transfer of the resulting insights was given less consideration. This case may shed a light on the implications of such a choice.

In addition, the case is interesting from a different point of view as well. The 'Phosphate Forum' can be considered an early case of TA supporting political judgment on sustainable development, even though the issue at that time had not yet been coined in these terms. It marked one of the first occasions in Dutch environmental thought that the side-effects of economic (and household) behaviour were put centre stage as the focal point in a process of debating environmental problems. Economic activities and their negative side-effects that previously had been dealt with separately were now conceptualised as aspects of one complex problem situation. Thus, it exemplifies the changes in perception and conceptualisation of the nature of environmental problems that took place at the brink of the publication of the Brundtland report. The case sheds

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19 At the time, it was recognised as a unique case of TA. Some authors at that time considered it an example of the then newly developed concept of CTA (De Man 1987). However, in hindsight, now that the CTA concept has become fully crystallised, it appears more accurate to speak of the Phosphate Forum as a case of interpretative TA.
a light on how the new perception of the environmental crisis was integrated into a practical understanding of a concrete pollution problem. However, typical for its time, the (technical) solution options discussed in the project were conservative: they involve relatively minor changes in the known repertoire of pollution control.

The Illustrative Process on Novel Protein Foods

In contrast to the eutrophication project, in the second case (chapter 5), not the structuring of the problem under scrutiny but rather the elaboration of potential (technical) solutions was put centre stage. Moreover, in contrast, in this case, the transfer of the resulting insights to various stakeholders was given explicit attention. These stakeholders were the parties that were considered of relevance from the perspective of instigating the envisioned technological development paths: business managers, technologists and, to a lesser extent, consumer organisations.

The TA-project concerned the possibility and desirability of developing non-animal protein foods from the perspective of ecological and social considerations. The project was set up by the Inter-ministerial Programme for Sustainable Technology Development (STD). The organisation’s objective was not to influence technology development as a whole, but to set examples to illustrate the feasibility of technological development paths towards a sustainable development.

The project on so-called Novel Protein Foods (NPFs) lasted from 1993 to 1996. It involved research into the technical and the environmental as well as the economic and societal (consumers’) aspects of non-animal protein foods. The project’s main objective was to “illustrate” the feasibility of NPF development in such a way that third parties (industry, research institutes, policymakers, consumers and environmental organisations) would continue to stimulate their development after the Illustrative Process had come to an end.

The NPF project involved a multitude of actors in various ways. The analytic activities regarding the various aspects of NPFs were contracted out to several research institutes. Their research was conducted more or less simultaneously so as to ensure that the output of each research activity in a particular phase could serve as an input in the next in all other research fields. A project team took care of the co-ordination between the clusters of research activities, and of a timely integration of their outputs. Findings were extensively discussed with a variety of stakeholders, who in this case were identified as those parties that could favour or hamper the development of NPFs. In practice, the main discussion partners were food producing companies with a foothold in the Netherlands.

As was the case with the Phosphate Forum, in addition to its methodical elaboration, this case is interesting because of its approach to dealing with the concept of sus-
tainable development. The STD organisation was unique in its set-up: the initiators explicitly insisted on the establishment of an inter-ministerial organisation so as to integrate the activities of the departments of Economic Affairs and of the Environment, with the aim of establishing a link between ecological and economic objectives as was intended in the Brundtland interpretation of sustainable development. The NPF-case was the first project that was set up by STD and is considered the most successful by STD-insiders (cf. Weaver et al. 2000). At this moment, various activities in the field of NPF-development are being undertaken in the Netherlands. The question is whether and how these relate to the occurrence of the Illustrative Process on NPFs and to the methods that were employed in that project.

The Gideon project on crop-protection

As was the case in the NPF project, in the third selected case (chapter 6), the TA analysts were strongly concerned with transferring the outcome to the stakeholders they considered relevant from the perspective of change. In this case, these were the members of Parliament. The project concerned the use and development of crop-protection agents in Dutch agriculture. The project intended to influence the parliamentarian debate on the existing policy on crop-protection.

While the NPF project aimed at stimulating the development of a ‘new’ technology for reasons of a sustainable development, in this project, an established technology was contested for reasons pertaining to the environment. The project was initiated by the Dutch TA organisation (the Rathenau Institute) in 1995 and lasted until 1996. The TA was dubbed Gideon, a Dutch acronym for Crop Protection Suitable for Sustainable Use and Healthy Economic Development in the Netherlands.

In contrast to the phosphate case, in this project the solution options that were formulated entailed a genuine break away from the traditional technological paradigm that had long dominated Dutch agricultural practice, and from the accompanying patterns of technology use. The project’s focus went beyond technical solutions such as component substitution or to aspects of pesticide application and emission reduction. Because of the coherence between various aspects of the agricultural production system, of which pesticides are but one albeit central element, the Gideon project adopted a comprehensive approach to the issue. Taking crop-protection as a point of departure, it addressed the production methods and organisational and institutional aspects of the Dutch agricultural practice as a whole.

This project too is considered unique in its methodical elaboration. The project was set up as an example of Interactive Technology Assessment (ITA) developed by re-
searchers at the University of Amsterdam. It was the first occasion that this concept was put in practice. The analysts consciously combined problem structuring activities with notions about how to transfer the project’s outcome in order to sort effect. On the one hand, the analytic project was organised in a secluded discussion setting, so as to allow for political judgment away from political games. On the other hand, the analysts were aware of the need to transfer the findings of the “analytical space” to the real world, in this case, to address (and possibly influence) Parliament. Deliberate efforts were made to balance the implications from these two imperatives.

At first sight, the project seems to have hardly impacted the discussions in Parliament. Still, with hindsight, changes in the Dutch policy on crop-protection are detectable. The question is whether and how these are related to the Gideon project, and to which extent the project’s efforts to balance ‘seclusion’ and ‘transfer’ were successful in producing such an impact.

*In order to prevent possible confusion, I wish to emphasise that although close to the source (the ‘spiritual father’ of the ITA concept supervised the research project that is presented in this book), the methodical elaboration of ITA in the Gideon project was treated in this research as but one example of interpretive TA and is not considered an exemplary elaboration of interpretive TA par excellence.*