

WRR

THE NETHERLANDS SCIENTIFIC COUNCIL FOR GOVERNMENT POLICY

Physical Safety

A MATTER OF BALANCING RESPONSIBILITIES

*Marjolein B.A. van Asselt, Peter de Goede, V.C. Karin Ammerlaan
& Jelle van Aanholt*

ROUTLEDGE



Physical Safety

The Netherlands Scientific Council for Government Policy (WRR) was established on a provisional basis in 1972. It was given a formal legal basis under the Act of Establishment of June, 30 1976. The present term of office runs up to 31 December 2012.

According to the Act of Establishment, it is the Council's task to supply, in behalf of government policy, scientifically sound information on developments which may affect society in the long term, and to draw timely attention to likely anomalies and obstacles, to define major policy problems and to indicate policy alternatives.

The Council draws up its own programme of work, after consultation with the Prime Minister, who also takes cognisance of the cabinet's view on the proposed programme.

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FOREWORD

The Netherlands Scientific Council for Government Policy (WRR) is an independent advisory body for the Dutch government. Its position is governed by the Act Establishing a Scientific Council on Government Policy of 30 June 1976 (*Instellingswet WRR*). The task of the WRR is to advise government on issues of importance for society. Unlike other advisory bodies in The Hague, the WRR is not tied to one policy sector. Rather, its reports go beyond individual sectors; they are concerned with the direction of government policy in the longer term.

This report was prepared by an internal WRR project group consisting of Professor Marjolein van Asselt (Council member and project group chairperson), Professor André Knottnerus (Council chairperson) and Dr Peter de Goede (project coordinator). Dr Karin Ammerlaan made a major contribution to the section on damage arrangements. Interns Joris van Egmond and Jelle van Aanholt lent outstanding support to the project group.

The project group discussed the topics covered in this report with the members of other advisory boards and with specialists in the fields of public administration, politics, science and scholarship, and business (insurance and law). The original report in Dutch provides a detailed list of the experts consulted. The WRR is grateful that they have been willing to share their knowledge and insights. Many of them also produced valuable comments on earlier drafts of the present document.



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1 INTRODUCTION

1.1 RESPONSIBILITY FOR PHYSICAL SAFETY

Physical safety is a basic requirement for personal development and lays the foundation for prosperity and wellbeing. Thanks to many decades of government intervention, the Netherlands has become a relatively safe country. As the outgoing Government made clear in the most recent Coalition Agreement (2010): “Safety is a central task of government”. In addition, government is obliged by the Dutch Constitution and international conventions¹ to guarantee a certain level of safety and risk coverage.

It is hence neither surprising nor unreasonable for the public to hold government responsible for real or potential threats to and actual violations of physical safety. The public is justified in expecting a certain level of protection, and government legitimacy may be threatened if it fails to live up to that expectation.

It is possible, however, for the public to expect too much of government. Government obviously cannot guarantee absolute safety, nor can it be held responsible and accountable for every violation of physical safety. Physical safety results from the actions of many different parties, each one acting in accordance with its own logic and interests. They operate in complex chains and networks, often international ones, that are beyond the national government’s control. Government must depend on experts to size up threats, although it cannot trust their expertise blindly. Its ability to act is defined by such dependencies. Any discussion about government’s responsibility for physical safety must take this into account (WRR 2008).

In addition, the democratic rule of law limits government’s ability to guarantee our physical safety. After all, the rule of law must never succumb to the pressures that arise when attempting to guarantee safety: “The rule of law implies a subtle combination: state power is restricted on the one hand while power is exercised on the other, in order to safeguard individual freedoms and ensure that they have real meaning” (WRR 2002: 79).

1.2 REQUEST FOR REFLECTION

The Minister of the Interior and Kingdom Relations² has requested that the WRR should reflect on the topic of ‘risks and responsibilities’. His request should be seen in the light of an undertaking (made by his predecessor to the Dutch House of Representatives) to develop a strategic agenda for government’s role in matters of risk. In 2011, the Organisation and Personnel Policy

Department for National Government, part of the Interior Ministry, launched the *Risks and Responsibilities* programme in that connection. This programme focuses on physical safety, a wide-ranging issue that touches on many different areas of policy and ministries, with major differences but also similarities between them.³ Physical safety is at issue when material and immaterial assets regarded as valuable by society are threatened by activities, trends, accidents and events that can be attributed primarily to natural or technological causes. These include epidemics, natural disasters, floods, hazardous substances, threats to food safety, transport accidents, major fires in public areas, accidents caused by construction flaws, and risks associated with new or existing technologies, such as nuclear energy, CO₂ storage and nanotechnology.⁴

The request for reflection refers to a ‘broadly supported’ problem definition: In recent decades, government has been held increasingly responsible for protecting the public and trade and industry against all manner of risk. When a new risk is exposed or after a serious accident, it is almost routine for the public and politicians to call for strict government measures to rule out that risk in future. Government often anticipates such responses and in doing so, inadvertently contributes to the idea that it is in fact society’s main safety net. That expectation then frequently ends in disappointment when government seemingly fails to live up to it. In many areas, the ‘risk-regulation reflex’ furthermore results in imbalances in public safety policy, with towering costs, inefficient use of government resources, a low return on the investment in safety, the violation of civil rights and other values, confusion as to responsibilities, and the obstruction of technological innovation and economic prosperity.

According to this request for reflection, the risk-regulation reflex is a ‘persistent’ phenomenon that occupies a ‘prominent’ place in our society. The impression left by the request is one of a government that feels overstretched, overburdened and overly sensitive.

Specifically, the Interior Minister asked the WRR to reflect on two questions:

1. How can government develop a general risk policy in which it plays a smaller role in avoiding and compensating for risks?
2. Are there reference points for dismantling existing mechanisms and breaking through barriers associated with both the risk-regulation reflex and the reflex in which the responsibility is laid squarely at the feet of government?

The first question concerns policy principles and therefore considers what basic principles, rules, mechanisms and institutions are desirable. How can government promote a balanced allocation of responsibility when it comes to physical safety? The second question is more concerned with the behavioural mecha-

nisms and political phenomena behind the assumed reflexes. Both questions refer to a difficult process in which government must weigh up different factors, for example between its own responsibility and solidarity, between fairness and reasonableness, or between safety and the freedom to act. There are no easy answers. The responsibility for physical safety is a balancing act.

1.3 KEY CONCEPTS: INCIDENTS, DAMAGE, RISKS AND UNCERTAINTY

The answers to the Minister's questions call for conceptual clarity. When concepts such as 'risk' and 'incident' are mentioned in the same breath, it becomes difficult to assess the nature and scale of the problem or the reference points for policy. In this document, we make a distinction between incidents, damage, risks and uncertainty. In other words, we differentiate between action leading to an actual violation of physical safety (incidents⁵), how the consequences of that action (damage) are dealt with, and how relatively known and undisputed threats to safety (risks) are handled, as well as the safety issues arising from faulty knowledge and/or conflicting values, for which we use the collective term 'uncertainty'.⁶

Incidents

An incident is the actual violation of physical safety. We use this term as an overall concept to describe acute or rising emergencies within the realm of physical safety. They may be emergencies that, prior to their advent, were considered more or less likely or unlikely to occur. However, the instant they do occur, the probability calculation becomes irrelevant. Until the eve of its occurrence, an incident can be referred to in terms of risk; after it takes place, it helps us to estimate the likeliness of similar incidents in future; while it is happening, however, the danger is very real. The emphasis is therefore on how politicians and public administrators deal with actual physical unsafety and the damage that it causes.

At its most basic, risk in fact involves the question of when, where and to what extent unopportunities possibilities (see textbox 1.1) will become reality. If there is uncertainty in these respects, then a further question is whether the threats will become reality at all. During an incident, the point is to combat the actual violation of physical safety. In cases of risk and uncertainty, the point is to weigh up the opportunities and threats. The aim of risk and uncertainty management is to prevent or limit incidents and damage or to anticipate them.⁷ When an incident or damage cannot be prevented, the aim is to 'remedy' physical unsafety.

Textbox 1.1: Opportunities and threats

This document uses the terms ‘opportunities and threats’ as referred to in the WRR report *Uncertain Safety* (2008). This is a free translation of *goede en kwade kansen*, a concept that is difficult to translate literally. Here, it refers to potential advantages and disadvantages, i.e. to the effects that may arise. It is used in the everyday sense, i.e. as the chance that something will have a favourable or unfavourable impact, and not as a statistically calculable likelihood. The term opportunities and threats (i.e. *goede en kwade kansen*) is also used in a report by the National Institute for Public Health and the Environment (RIVM) entitled *Nuchter omgaan met risico’s* [Dealing pragmatically with risks] (2003).⁸ Both reports refer to the archetypal proposition advanced by Wildavsky (1988) that innovation is never risk-free: the potential advantages and disadvantages must be viewed in relation to one another. Although Wildavsky does not use the terms opportunities and threats, Stallen (2002),⁹ who builds on Wildavsky’s ideas, does (*goede en kwade kansen*).

The vocabulary of opportunities and threats is more common beyond the specific literature on risk. It is a familiar term in the field of bodily injury and liability, however. It can be traced back to the Dutch Civil Code, which contains the following passage: “The Court may wholly or partly postpone the assessment of damage which has not yet occurred or, after an evaluation of the *opportunities and threats*, make an anticipatory assessment” (italics added).¹⁰

Risks and uncertainty

In our conceptual framework, risk is defined as a calculable safety problem – calculable because the nature and scale of the potential danger, the probability of its occurring and its impacts are sufficiently known and undisputed. Risk can be expressed as the function of chance (probability) and consequence (impacts). The questions that public administrators and politicians face concern whether a risk is acceptable in the light of the associated opportunities, how the risk can be managed, and what role government should play in that scenario.

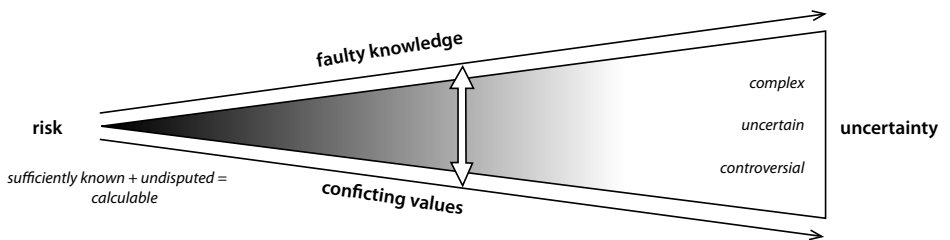
There are also safety issues related to faulty knowledge and conflicting values. As a result:

- there is a flawed understanding of the relationship between cause and effect (complex);
- threats are conceivable but not indisputable (uncertain);
- the effects are debatable and opinions vary as to what is and is not acceptable in normative terms (controversial¹¹).

We use the collective term ‘uncertainty’ to refer to such threats to physical safety. It is important, then, to distinguish between uncertainty and unlikely (or improbability): complex, conceivable but unproved or disputed threats are not, by definition, unlikely. Indeed, faulty knowledge makes it impossible to say anything definite about likelihood. Those who see the two terms as equivalent have failed to take faulty knowledge and conflicting values seriously enough.

In situations of uncertainty, then, danger must be understood in the most fundamental sense of the word: the threat to physical safety, incidents and harmful impacts are conceivable but not indisputable. Examples include new technologies, new infectious diseases, natural disasters caused by climate change, unprecedented problems within the context of food safety, and accidents involving hazardous substances. In cases of uncertainty, there is a fundamental basis of doubt regarding the need for policy, the reference points for that policy, and the policy framework. Uncertainty requires reflection, investigation, and an in-depth dialogue with various parties about the opportunities and threats and, as a result, about the normative principles (WRR 2008). These are required before anything sensible can be said concerning the allocation of responsibilities and the policy to be pursued. Uncertainty therefore requires public administrators and politicians to consider how faulty knowledge and conflicting values should be handled.

Figure 1.1 Risk-uncertainty continuum ↺



The difference between calculable and incalculable threats is of vital significance, but it is a gradual distinction and the dividing lines are blurred (see Figure 1.1). Controversy can easily arise as to whether the danger in question is sufficiently known and undisputed (risk), or whether it is uncertain, complex and/or controversial (uncertainty). We are therefore dealing with a conceptual distinction that draws explicit attention to faulty knowledge and conflicting values, and therefore to the normative and socio-psychological dimension of safety issues (see also Chapter 3).

By making active use of investigation, dialogue, experience, and cumulative insight, we can transform uncertainty into calculable risks. Risks can therefore also be thought of as exceptional cases within the group of potential threats to physical safety (De Vries et al. 2011). But what may at first appear to be a calculable risk can also evolve into an uncertainty, for example because new parties that adhere to other values or have other insights join in the public debate. We must therefore accept that uncertainty is often an enduring factor in decision-making.

Damage

The term damage refers not to the moment (or momentum) of physical unsafety (the incident), but to the negative consequences of natural and technological activities, developments, accidents and events, both in the shorter and longer term. Damage may be material and immaterial; people, surroundings, and private and public property can suffer damage in all sorts of ways. Damage is the physical manifestation for citizens, businesses and government of a violation of physical safety. The main challenge for public administrators and politicians is how to deal with damage (i.e. clearing up, settling claims, repairing, compensating).

We regard damage as the focus of all responsibility-related questions. Issues concerning prevention, risk management and dealing with uncertainty can be linked to the urgent questions that arise in the case of incidents and damage. We have introduced the term ‘damage arrangements’ to refer to the full spectrum of measures and mechanisms intended to prevent, limit and cover damage. This perspective gives us a basis for building a coherent view concerning the allocation of responsibility. It gives us a way of considering, retrospectively, how responsibility should be allocated in advance. In our view, the allocation of responsibilities is balanced if all the relevant parties are encouraged to prevent or at least to limit damage as much as possible, and if the necessary financial resources are made available to expedite damage control and management.

1.4 INTERACTIONS

Lumping incidents, damage, risk and uncertainty into a single category clouds our view of the various challenges facing politicians and public administrators and the appropriate reference points for re-evaluating the allocation of responsibility. The various ways in which we handle incidents, damage, risks and uncertainty do influence one another, however.

Incidents can make it clear that we have failed to acknowledge certain risks and uncertainties, or that we have underestimated or disregarded them. We can hence learn a great deal from incidents. But if our concern for physical safety is

based exclusively on incidents, in particular on events that are unlikely to occur but would have a huge impact if they did, then we will end up merely ‘fighting yesterday’s battles’ (Versluis et al. 2010). Risk management and a sensible approach to uncertainty should ideally balance out the tendency to overreact after incidents. Conversely, the way we deal with incidents and damage may influence the context within which risk policy arises and the extent to which we can accept uncertainty. The way incidents are managed may encourage potential sources of damage to exercise risk management and to be proactive, leading to a more balanced allocation of roles.

Incidents, damage, risk and uncertainty are therefore distinct dimensions of physical safety policy. Each dimension raises other political and administrative issues, but the way we deal with each one influences the way we deal with the others. That requires us to take a balanced and coherent approach to the various dimensions.

1.5 GUIDE TO THIS PUBLICATION

Chapter 2 considers the risk-regulation reflex problem, i.e. the ‘conceptual framework’ applied within the context of the *Risks and Responsibilities* programme. We argue that this discourse in fact centres on political and administrative conduct (or misconduct) in incidents. That is why we prefer the term ‘incident-regulation reflex’ or simply ‘incident reflex’.

Our conclusion is that, while politicians, public administrators and public servants see the incident-regulation reflex as a real phenomenon, there has, so far, been no empirical evidence to support that claim. In this document, we therefore propose a slightly different perspective: instead of demonstrating poor political and administrative conduct, we look at how to encourage good governance. We are therefore shifting the emphasis from the reason for legislation and regulations (the incident) to the purpose of policy (physical safety) and the way in which that purpose can be achieved (allocation of responsibility). The question of how to deal with potential threats to physical safety across the entire spectrum of risk and uncertainty – a fundamental question that is nevertheless difficult to answer – moves front and centre. Chapter 3 presents five guidelines in this context and describes how they can be used in present-day policymaking. As our basis, we used the National Risk Assessment, carried out within the context of the National Safety and Security Strategy, and the Environment and Planning Act as amended by the *Simply Better* [Eenvoudig beter] operation.

Chapter 4 considers how damage arrangements can provide a new perspective for reassessing the allocation of responsibility for physical safety. The purpose

of damage arrangements is obviously to compensate for losses suffered, but they also offer positive or negative incentives to prevent incidents, limit damage, manage risk and reduce uncertainty. We outline a series of options that may help suppress a presumed tendency to automatically hold government responsible (financially and otherwise) and at the same time improve safety.

Chapter 5 summarises the insights that we have gained by investigating the various dimensions of safety (incidents, risks, uncertainty and damage). We reflect on the questions we have been asked concerning: 1) the possibility of developing a general policy focusing on a balanced allocation of responsibility and 2) reference points for dealing with violations of physical safety within the political and administrative context. We hope in this way to contribute to a broader discussion of physical safety and to policymaking in that field. We did not carry out all the necessary research ourselves. In Chapter 5, we therefore present the ‘top three’ studies that we believe are necessary before the following step can be taken.

The WRR is a government-wide advisory body that concerns itself with long-term policy. In this document, we therefore reflect on fundamental challenges of overarching concern or of interest to multiple ministries. The key issue is what the Dutch government can do on its own, allowing for the limits to its ability to act. The options outlined here can also be used to build an international strategy that focuses on tackling challenges to physical safety within a European or international context. (For more details, please consult the WRR report (2010) *Aan het buitenland gehecht*.)

Our reflections here are a synthesis of relevant WRR advisory reports¹² that we have reconsidered and augmented by drawing on comments on the reports, recent literature, contributions and reports by other advisory bodies, contributions from current WRR projects (including Market, State and Society [*Markt, staat en samenleving*], The lessons of evaluations [*Lessen van evaluaties*], Supervision [*Toezicht*] and Confidence in the Citizen [*Vertrouwen in de burger*] and additional interviews.

NOTES

- 1 See, for example, Öneriyildiz v. Turkije and Tatar v. Romenia at the European Court of Human Rights; see Ammerlaan (2009), De Hert (2011) and Spier (2011).
- 2 Piet Hein Donner was the Dutch Minister of Interior and Kingdom Relations from 14 October 2010 to 6 December 2011. He is now the Vice-President of the Council of State.
- 3 In the Netherlands, a distinction is made between physical safety and ‘social’ safety, whereas internationally the distinction is between safety and security. Social safety – i.e. security – refers to defence, crime and terrorism.
- 4 The Ministry of the Interior and Kingdom Relations also refers to this ‘forerunner’ in its *Risks and Responsibilities* project plan. This policy is also reflected in the lines of thought and terminology used in this document.
- 5 And not security, where the damage is the result of malicious intent (terrorism, crime). Compare the definitions in Rob (2011), NIFV Nibra (2008) and WRR (2008).
- 6 In this document, we use the terms incident, crisis and disaster interchangeably. One can debate this choice, for example because the term ‘incident’ does insufficient justice to the systemic nature or causes of a threat to physical safety.
- 7 This categorisation has not been derived directly from the literature, as various experts have pointed out. There is broad agreement, however, that it is useful to distinguish between actual (incidents and damage) and potential (risks and uncertainty) violations of physical safety. The distinction between a violation of physical safety as a political and administrative instance (incident) and the question of damage (material and immaterial) is also acknowledged. There is furthermore general agreement that risks can be defined in two ways: narrowly (sufficiently known and undisputed to be expressed as the product of probability times impact) and broadly, with faulty knowledge and conflicting values playing a role. Risks are usually associated with calculable probabilities and impacts. We therefore use the term ‘uncertainty’ to describe complex, uncertain and controversial issues. At the same time, we emphasise that risks and uncertainty are points on a continuum. Our decision to use ‘uncertainty’ as a collective term is open to debate. Does it in fact improve on the distinction between simple, complex, uncertain and ambiguous risk (inspired by the work of the risk sociologist Ortwin Renn (2008); see also Aven and Renn (2010) and Van Asselt and Renn (2011)) that the WRR used in its report *Uncertain Safety* (2008) and was also applied by the Health Council of the Netherlands (2006; 2008)? We still regard the ‘old’ classification as useful, for those who prefer it.
- 8 See also the widely used four-phase model: mitigation-preparedness-response-recovery, developed by the US Federal Emergency Management Agency (FEMA).
- 9 See also RMNO (2004). This reference is also cited in RIVM (2003) as justification for the use of opportunities and threats as terms.
- 10 Section 6:105 of the Dutch Civil Code: Estimation of damage that has not yet revealed itself.
- 11 *Uncertain Safety* employed the term ‘ambiguous risks’; in the Government’s comments on this report (2 April 2009), this became ‘variably quantifiable risk problems’. Here, we prefer the term ‘controversial’.

- 12 Including, in addition to *Uncertain Safety* (2008), *Systemic Risks* [*Duurzame risico's*] (1994), *Learning Government* [*Lerende overheid*] (2006), *iGovernment* [*iOverheid*] (2011), the foresight studies *Uit zicht* (2010) and *Het gezicht van de publieke zaak* (2010), as well as the theme issue “Uncertainty, Precaution and Risk Governance” (*Journal of Risk Research* 2011) published after a conference on risk and responsibilities co-organised by the WRR.

2 DEALING WITH INCIDENTS

2.1 RISK-REGULATION REFLEX?

In the Minister's request for reflection, he refers to the risk-regulation reflex, the conceptual framework for matters of physical safety. When a clear distinction is made between uncertainty, risks, incidents and damage, then the disquiet expressed in the Minister's questions clearly concerns how politicians and public administrators respond to incidents. At issue is how they respond when physical safety is actually violated, and not their response to risks.¹

Incidents are 'critical moments' in the political and administrative system in which the pattern of decision-making differs from the customary, rule-bound structures (COT 1998; Rosenthal, Boin and Comfort 2001; Boin et al. 2005; Muller et al. 2009). Under the pretext that 'necessity knows no law', decision-making may become more informal and may shift to higher governance levels; advisors (public officials or otherwise) may also gain a disproportional influence. Consensus and support for government action is coupled with polarisation and conflict. The ruling political and administrative classes are expected to act under enormous time pressure and in a turbulent environment to manage the incident. In the 1990s, the term 'structural incidentalism' was coined in this context (Rosenthal, Muller and Bruinsma, 1998). The former Vice President of the Netherlands Council of State, Herman Tjeenk Willink, described incidentalism as follows:

"There is no time to think: a response is needed, and without delay. Political control comes to depend on the media and their priorities. Journalists are regarded as the voice of the 'disgruntled citizens' (...) They set the tone for the political agenda and (subsequently) for governance in action" (Annual report of the Council of State 2003: 18, with the consent of person quoted in Rob 2011: 18).

The worry is that incidents in the political and administrative arena will lead to overreactions in legislation. The incident-regulation reflex (or simply incident reflex) is hence a better term for that worry than risk-regulation reflex. Can we spot an inherent pattern of political and administrative follow-up in the realm of physical safety? Is the incident reflex an empirical fact, or is it a hypothesis that has yet to be tested? Are we simply repeating what others have proposed, or is there solid empirical evidence?

2.2 PERCEIVED REALITY

We live in a world dominated by the media. Politicians and public administrators operate within a network in which the media (including the social media) play a larger role than ever before. Incidents are followed by a flood of media reports on those affected, the damage, the blame and the penalties exacted.² Enquiries are then launched, inspectors begin to dig, and/or the Dutch Safety Board springs into action.³ Some say that incidents are now always politicised, judicialised and mediatised⁴ or even that crises are exploited (Boin, McConnell and 't Hart 2008; Boin, 't Hart and McConnell 2009). Mediatisation always makes huge demands on the way those in charge communicate, but the stakes when incidents occur are higher now than ever; they are played out in many more arenas, and for many more audiences than in the past. The message conveyed by politicians and public administrators must be rational but also emotionally persuasive, because it is no longer enough for them to merely invoke their formal position of authority.⁵

In our interviews with politicians, administrators and public servants, it became clear that they feel moral and psychological pressure to take steps following an incident that will prevent similar incidents from happening in future. They are concerned about the incident reflex and feel it acutely. The more essayistic academic literature paints a particularly vivid picture of a government that overreacts to incidents.⁶ Within the context of physical safety, the Bovenkarspel Legionellosis outbreak (1999) and the Enschede Fireworks Disaster (13 May 2000) are frequently cited instances when the incident reflex took place.⁷ The position taken in the *Risks and Responsibilities* programme and the request for reflection acknowledges this perceived reality, as does the following recommendation, made in a recent study by the scientific bureau of the Christian Democratic Appeal (CDA):⁸

“Have a cooling-off period after an incident. Keep your cool when incidents occur. Too often the follow-up is to produce more rules, whereas the problem is not a systemic one but rather a one-off incident or a symptom. To reduce the chance of hasty decision-making, there ought to be a cooling-off period of six months after incidents occur to give the emotions of the moment a chance to die down” (p. 101).

Reflex is viewed unilaterally as something negative in this context, not only as hasty but also as an inexpedient or even foolish reaction. However, the author who coined the term risk-regulation reflex has pointed out that it is in fact a positive, activist reflex to which our culture owes many of its virtues, such as a historically unprecedented level of physical safety.⁹ In biology as well, every reflex has a purpose. An organism's chance of survival depends in part on its ability to react quickly to real or potential disruption. According to the

Voorhoeve Committee, safety policy can learn lessons from biology.¹⁰

“An organism’s defence against internal and external threats is a highly refined and complex system that wards off threats and repairs itself. All organs contribute to the fight for survival (...) The key to the defence system is its ability to track down threatening elements at an early stage ... Public administration and the state apparatus should base their policy on an ‘immunological’ concept” (Voorhoeve Committee 2005: 13).

Viewed from this vantage point, government responds to stimuli in the form of actual violations of or presumed threats to physical violence because it needs to learn. Comparing its response to the biological one shows that the reflex itself is not necessarily the problem; it is the proportionality of the reaction that is at issue. If the political and administrative defence system runs riot, then it will turn against society. But there is also something wrong if the political and administrative system fails to react at all after a serious safety incident.

2.3 LACK OF EVIDENCE

Has the incident reflex been established as an empirical fact in the domain of physical safety? Publications that ‘demonstrate’ the incident reflex mainly examine Anglo-American political systems.¹¹ Political, social and cultural differences (which may also lead to any threats to or violations of physical safety being appreciated differently)¹² mean that their conclusions may not be entirely relevant to the Dutch situation. Publications by Dutch researchers on the presumed incident reflex are too anecdotal and essayistic in nature, in our view. Although the Netherlands has a sound tradition of crisis research, with Dutch scholars such as Uri Rosenthal, Mark Bovens, Paul ’t Hart and Arjen Boin playing an authoritative role, social scientists in the Netherlands have conducted little research on the political and administrative follow-up to incidents. Even major incidents – the catastrophic floods that struck the Netherlands in 1952, the Bijlmer Aviation Disaster in 1992, and the Enschede Fireworks Disaster in 2000 – have not been studied in that particular way. Crisis research has focused instead on crisis management, on lessons learned in crises and on political accountability.

Indeed, the very idea of an incident reflex could simply be a short-sighted interpretation of the political and administrative commotion that ensued after a small number of incidents. The incident-regulation reflex discourse fits right in with a climate in which government is suspected, almost automatically, of malicious acts or omissions without there being any proof. That is something that we do not wish to agree or contribute to without proper evidence. No one will deny that after the Enschede Fireworks Disaster, the then Minister of Housing,

Spatial Planning and Environment, Jan Pronk, took up the question of stricter regulation, which was then relaxed again after a while. The question, however, is whether this example is iconic or exceptional. We can counterbalance the picture that emerges from the somewhat unrealistic legislation following the fireworks disaster¹³ with examples of more level-headed responses. In fact, Prime Minister Mark Rutte issued an explicit warning against the incident reflex during a press conference addressing, among other things, the Van Dijk Committee's report on Q fever (caused by the *Coxiella burnetii* bacterium):

“... One must learn from the past, but as politicians, one must be cautious not to be too eager to respond to an incident or disaster with new policies or new regulations. At a certain point, it's better to simply observe: something went wrong, we have to find out what went wrong, and draw lessons from it. Such lessons are more cultural in nature – how to work as a team – than exclusively procedural. If only it was a mere question of procedure. We wouldn't need politics then.”
(Dutch Prime Minister Mark Rutte at a press conference on 26 November 2010.)

After the Moerdijk Chemicals Fire (5 January 2011), the Dutch House of Representatives did request an emergency debate, but that is not a disproportionate reaction in itself.¹⁴ During the debate, the House adopted a motion asking for a quick scan to be carried out of locations at risk of similar fires and whether the relevant crisis plans and enforcement measures were in order. The companies surveyed were high-risk ones (coming under the Decree on Major Accident Hazards, BRZO) and businesses that store large quantities of one or more hazardous substances (coming under the highest level of protection within the Dutch PGS directive).¹⁵ A survey of this kind seems to be a useful reflex.

There are also examples of incidents that did not lead to legislation being amended in any way or to policy interventions. In 2002, during a drawn-out political discussion of the Hercules airplane crash¹⁶ (1996), it was observed that Dutch airports had not had much experience or built up much knowledge of how to handle aviation accidents.¹⁷ Hercules aircraft were also still carrying passengers, whereas it had been recommended that they cease doing so. Passenger transport in cargo planes was also contrary to international aviation rules. In other words, there are indications that the incident reflex does exist, but there are also counter-indications.

Research shows that the Dutch rulebook has grown by approximately two per cent per annum in the past thirty years (WODC 2009).¹⁸ Annual output of rules and regulations is relatively consistent over time (and the various ministries differ in that respect). Reactions to incidents are also only one of the possible causes of the regulatory burden.¹⁹ There is no evidence that the way the political and administrative system deals with incidents is the most important or most

decisive factor in that respect. Nevertheless, incidents have had an enormous knock-on effect in the legislation and regulations applicable in certain sectors. The most obvious example, however – the Netherlands counterterrorism policy after 9/11 – falls within the context of security.²⁰

No one denies that an incident can spark off a busy period for public administrators, politicians and public servants and put them under considerable pressure. It may well keep them occupied ‘full time’. The question, however, is whether incidents consistently result in over-regulation. Investigation committees make it seem (unintentionally) as if incidents are avoidable and government is culpable (Van Eeten 2011), but the impetus to produce legislation and regulations need not be sought there. An internal enquiry by the Dutch Safety Board (an independent body) shows that most recommendations by far do not refer to legislation or changes in legislation.²¹ The independent committees that held enquiries into the Enschede Fireworks Disaster (2000) (Oosting Committee) and the Volendam New Year’s Eve Fire (2001) that claimed 14 lives (Alders Committee) did not ask for new rules but instead expressed concern about flawed supervision and a lack of enforcement. The general thrust of crisis evaluations appears to assume that it would be enough to enforce the existing rules, and that new rules are unnecessary.

Because there is so little in-depth empirical research into the political and administrative follow-up to incidents, the question is what value the examples have. Which ones are exceptions, and which ones are representative? Is there a pattern? Do ‘critical moments’ result in excessive rules and regulations, as assumed in the debate concerning the incident reflex? Or is there another pattern visible in the way incidents are actually dealt with, at least in the domain of physical safety? Does the initial commotion perhaps die down? Since there is no valid evidence based on empirical research, the incident reflex remains, at least for the time being, a hypothesis that has yet to be tested.

2.4 TILTING THE PERSPECTIVE TOWARDS GOOD GOVERNANCE

The *Risks and Responsibilities* programme takes the presumed incident-regulation reflex as its starting point. That means that its perspective is basically dominated by the idea of ‘bad’ governance. We propose tilting that perspective towards ‘good’ governance. Is it possible to describe what behaviour is characteristic of good governance when incidents occur? Are there good and best practices? How can we use them as examples, so that the emphasis is on encouraging good governance? We can examine this approach in various ways: by studying follow-ups to incidents, mining the political and administrative lessons learned, and developing a modus operandus that takes the expectations of citizens into account.

Studying follow-ups to incidents

One recommendation is to commence empirical comparative research in the social sciences on the political and administrative follow-up to incidents. The Royal Netherlands Academy of Arts and Sciences²² (2011) has made this point in its most recent research agenda, in particular under the heading ‘resilient governance’.²³ How have politicians and public administrators responded to incidents in the first instance? Is there a pattern in the way they respond? What policy interventions have been proposed with reference to an incident? What policy interventions were ultimately put into place and what positive or negative effects have they had? What proposed interventions were not put into effect or were cancelled relatively quickly? Which lessons have and have not been learned? If patterns of action/non-action and learning/non-learning can be identified, how can they be explained? Answering these questions would provide an empirical basis for describing what good governance means and what it requires following an incident.

Mining the political and administrative lessons learned

Complementing the foregoing, we recommend that the system mine the various political and administrative lessons learned.²⁴ Why is it so difficult for public administrators and politicians to deal effectively with incidents, including those in the domain of physical safety? How can they avoid the pitfall of the incident reflex while at the same time drawing lessons from incidents? Systematically mining the lessons they have already learned would provide a sound basis for developing practical governance tools that can be applied in the event of incidents.

Developing a modus operandus that allows for citizens’ expectations

Politicians and public administrators seem hesitant to admit that they are incapable of solving every problem, that government cannot live up to every expectation, and that people also bear responsibility for making something of their lives (Rob 2010: 35). Their hesitation is basically a reluctance to confess to the limits of their power and of their own grasp of reality.

But the question is whether the expectations that citizens have of their government are in fact realistic. According to essayists who have explored the culture of fear and the precautionary principle, Western society is unable to accept that misfortune is simply part of life; it is obsessed by ‘safety at any price’ and demands that government do everything possible to protect it.²⁵ Citizens are said to expect ‘a safety utopia’ (Boutellier, 2004). However, we are not aware of any survey that directly addresses the public’s expectations regarding physical safety or confirms that it has a ‘safety reflex’ whereby it automatically holds government responsible.²⁶ In other words, there is once again no solid empirical evidence for this reflex. Simply believing that such a reflex exists can have very

real consequences, however, because that belief influences the way government thinks and acts: politicians, public administrators and public servants can let themselves be influenced by expectations about expectations.

Is it possible to develop a realistic *modus operandus* that allows for the fact that government is restricted in its ability to act and takes into account that misfortune and fate are an unavoidable part of human existence (tragic as that may be)?²⁷ If we view things from this perspective, then we should avoid statements such as ‘never again’ and instead seek to frame events in a way that acknowledges people’s emotions but does not give rise to any false expectations (see Rob 2011: 70; Ammerlaan 2009). Victims are generally resilient people who are capable of taking care of themselves. They are normal people in abnormal circumstances. How can we help them in a way that allows them to get on with their lives? How can we prevent the follow-up from once more casting them in the role of victim? What is important to them? What do they want? Victims are not, by definition, only out to get money.²⁸

2.5 CONCLUSION

It is not always possible to avoid incidents. Anyone banking on the benefits of risk-taking must realise that threats can also become reality, despite all the effort devoted to damage limitation and risk management. Not every tightrope act ends well. Does it make sense to focus on incidents as we consider how best to allocate responsibility for physical safety? Emphasising the incident reflex²⁹ puts too much emphasis on preventing incident-driven legislation and regulations.

If we tilt the perspective towards encouraging good governance, then we are no longer focusing on the reason for such legislation (incidents); instead, we have shifted the emphasis to the purpose of policy (physical safety) and the way in which that purpose can be achieved (a balanced allocation of responsibility). How can government assume its share of the responsibility for physical safety, both owing to the legal obligations placed on it and the need for collective mechanisms? How can it also ensure that citizens and businesses assume their share of the responsibility (and are capable of doing so)? The focus is thus on risks and uncertainty as a reference point for how we think about physical safety and government responsibility. In the next chapter we will consider basic principles for dealing with risks and uncertainty and reflect on current policy-making from this perspective.

NOTES

- 1 This document will not cover political and administrative trials and tribulations during incidents, or only in passing. For a more detailed treatment, see 't Hart and Rosenthal (1990).
- 2 Including Beunders (2002), Vasterman (2004), Tiggeloven (2005).
- 3 The WRR project *Lessen van evaluaties* [What evaluations can teach us] looks specifically at crisis evaluation as a political and administrative phenomenon and its political and administrative significance.
- 4 See Muller, Rosenthal, Helsloot and Van Dijkman for this (2009).
- 5 Versteeg and Hajer (2010) and Hajer (2009). For a discussion of the importance of 'rhetorical frames', see De Bruijn (2011).
- 6 Van Twist et al. (2010) and Boutellier (2005, 2011).
- 7 Van Tol et al. (2011).
- 8 The Christian Democratic Appeal (CDA) is a centrist political party. It has its own scientific advisory council. It is currently one of the parties that make up the outgoing coalition centre-right minority Government, along with the People's Party for Freedom and Democracy (VVD). The Government was supported by the right-wing Party for Freedom (PVV). The prime minister, Mark Rutte, and his Government resigned in April 2012 after the coalition partners failed to reach agreement on austerity measures.
- 9 Trappenburg (2011: 44).
- 10 *Commissie Geïntegreerd buitenlands beleid* [Committee on Integrated Foreign Policy] (2005). Wildavsky (1988) drew the same comparison in his influential book *Searching for Safety*.
- 11 See for example, Risk and Regulation Advisory Council (2009).
- 12 See, for example, Renn and Rohrman (2000) for cross-cultural studies that reveal national differences in attitudes towards danger.
- 13 This is not the only follow-up. The fireworks disaster led to a Directorate of External Safety being established at the then Ministry of Housing, Spatial Planning and Environment, and to the installation of an Advisory Council on Hazardous Substances and a National Expertise Centre for External Safety.
- 14 The fire at the *Chemie-Pack* plant (in Moerdijk) on 5 January 2011 caused great concern because the plant stored thousands of litres of carcinogenic materials. The toxic fumes became a public health threat when the smoke cloud drifted to a nearby city.
- 15 The Dutch PGS directives are based on the SEVESO Directives. The Seveso II Directive 96/82/EC was extended by Directive 2003/105/EC of the European Parliament and of the Council of 16 December 2003 amending Council Directive 96/82/EC. The latter was established to cover risks arising from storage and processing activities in mining, from pyrotechnic and explosive substances, and from the storage of ammonium nitrate and ammonium nitrate-based fertilisers.
- 16 The Hercules crash on 15 July 1996 was an aviation disaster in which 34 passengers died.
- 17 See Van Duin (2001).

- 18 De Jong and Zijlstra (2009).
- 19 Other possible causes are the demand for control, bureaucratisation, the demand for regulatory equality, and the quest for support and internationalisation. See for example the *Bruikbare Rechtsorde* [A practicable system of law] programme (2006a, b).
- 20 See the report by the *Commissie Evaluatie antiterrorismebeleid* [Evaluation Committee for Counter-terrorism Policy] (Suyver Committee) (2009).
- 21 Joustra, personal communication.
- 22 The Royal Netherlands Academy of Arts and Sciences was founded in 1808 as an advisory body to the Dutch Government.
- 23 It has asked the following questions, which merit further study and overlap with the questions we have posed to some extent: How should public servants and public administrators deal with an ‘angry public’? Are there significant differences in the effectiveness with which government authorities and sectors respond to crises? Which institutional designs and leadership practices promote and which impede the robustness and reliability of public organisations in taking action against major threats and crises?
- 24 The Dutch Council for Public Administration can play a role in this. The Council already focused on the politics of incidents in an earlier report (*Veiligheid en Vertrouwen*) on security, where it stated that the incident management requires calmness of politicians (who should refrain from opportunistic behaviour), of the media (which should avoid dramatising events) and of citizens (who should reserve judgement and not be overwhelmed by the media assault).
- 25 See, for example, Sunstein (2005), Furedi (2006), Bauman (2006) and Pieterman (2008).
- 26 Conclusions concerning citizens’ expectations are based mainly on risk perception research and post-incident media discussions. Research has been conducted into the perceptions of citizens regarding specific risks (Netherlands Institute for Social Research 2010) or their general views on the principle that they bear responsibility for themselves, in relation to the existing or expected responsibilities of government (Netherlands Institute for Social Research 2011), but so far no research has been conducted into their specific views on the allocation of responsibilities in the area of physical safety. The programme launched by the Dutch Ministry of the Interior and Kingdom Relations, Risks and Responsibilities, provides for research on the public’s expectations concerning physical safety and their views on the allocation of responsibility. The Dutch Council for Social Development (RMO) has recently collaborated with the Netherlands Institute for Social Research on a study investigating fear and distress.
- 27 See De Mul (2006), Van Eeten (2011) and Drenth von Februar (2005).
- 28 Ammerlaan (2009) distinguishes the following needs, which can be met (at least in part) by government: receipt of disaster aid and shelter, access to information, receipt of immaterial support and practical help, recognition/acknowledgement, recoup of financial losses, truth finding, accountability by parties responsible, apologies from those responsible, drawing lessons from the event in order to prevent recurrence, pro-

cedural needs (access to justice or a neutral decision-maker, procedural information). See also Relis (2007), Boom et al. (2008) and Hadfield (2008).

29 It could be said, on the other hand, that the *Risks and Responsibilities* programme is also about risk as an impetus for legislation and rule-making. The idea is that as soon as a risk has been identified, the political and administrative response would be to enact legislation and make rules to cover that risk. If incidents serve to expose risks, then our thinking on the incident-reflection reflex applies. If risks become an issue of public debate for some other reason, then there may well be some commotion in administrative circles, but the impression that emerges both in the literature and in interviews that we have conducted is that it is in no way comparable to the political and administrative uproar that ensues after an incident. As a result, in this document we consider the incident-regulation reflex as the 'hardest case'. As there is no evidence for it, we refrain here from examining the notion that impulsive legislation and regulations come about when risks are identified by means other than incidents.

3 RISKS AND UNCERTAINTY

3.1 FUNDAMENTAL POLITICAL APPRAISAL

How can government take charge of its responsibility in the event of potential threats to physical safety? Policy intended to manage risk and uncertainty calls on politicians and public administrators to undertake a difficult appraisal. After all, high-risk and uncertain activities can also offer society advantages, otherwise we would probably not engage in them. The responsibility for physical safety forces us to consider the opportunities and threats and weigh them against each other (Chapter 1). Do the potential advantages weigh up against the possible disadvantages? Which hazards are personal matters, and which ones require collective mechanisms?¹ Underpinning these questions is a fundamental process of political appraisal that weighs up the short term against the long term, individual responsibility against solidarity, reasonableness against fairness, and the collective interest against the individual's freedom to act. The responsibility for physical safety is thus a balancing act.

Experts, citizens and businesses assess real or potential threats to physical safety in different ways. Such differences are often manifestations of more underlying value conflicts (Douglas and Wildavsky 1982; Schwarz and Thompson 1990; Thompson et al. 1990; WRR 1994). Another factor when assessing danger is the level of trust in the authorities and in the policy-making process, as well as the way in which the media depict the threats (Pidgeon et al. 2003). Differences in estimates and assessments are often a crucial component in safety issues. The challenge is to find a balance within the political arena between all the various risk estimates and actual knowledge of dangers while allowing for conflicting values and faulty knowledge. Anyone who takes refuge in scientific risk assessments or does not allow for the way they are entrenched in society is not doing justice to the public's perceptions and is therefore throwing oil on the fire (Jasanoff 2006). The relationship to science must therefore also be evenly balanced.

In order to explore the possibility of a general policy focusing on real or potential threats to physical safety (the Minister's first question, see Chapter 1), we concentrate in this chapter on basic principles for dealing with risk (sufficiently known and undisputed) and uncertainty (faulty knowledge and/or conflicting values).² Our point of departure is that, although safety is an undisputed public interest that is enshrined in the law, the specific process of weighing up opportunities and threats is necessarily political in nature. It is important to recognise this. The political nature of that process should not be organised into oblivion by developing technocratic mechanisms that give the experts the overhand.

While a knowledge of potential threats (based on practical lessons learned in the present and past and on scientific insights into relevant causal relationships) is useful and necessary, the trick is to help politicians carry out an informed appraisal that can (or perhaps must) also allow for the public's perceptions (Asveld and Roeser 2009).

What guidelines for general policymaking can we offer government based on scientifically informed reflection? We have arrived at five guidelines or reference points:

- intertwine opportunities and threats;
- make allowance for the social and psychological properties of danger;
- utilise risk comparisons;
- accept uncertainty;
- organise the way uncertainty is dealt with.

3.2 INTERTWINE OPPORTUNITIES AND THREATS

Policy focusing on risk and uncertainty requires opportunities and threats to be weighed up with great care; in other words, that process must consider gains and losses, advantages and disadvantages, usefulness and necessity. Often, however, opportunities and threats are raised and discussed at different times and in different places, in different arenas, with different parties and by different means. Political and administrative discussions of innovation often take place separately from discussions of physical safety, both temporally and location-wise. That means that both discussions become unilateral in nature, with blind enthusiasm concerning the outside chances weighing up against a unilateral fixation on danger. Opportunities and threats are scarcely weighed up in either discourse, if at all. That means that dossiers can easily become polarised and stagnant, making it even more difficult to take sensible steps. It would be advisable to seek ways of linking the separate political and administrative appraisals of opportunities and threats at an early stage, in the interests of symmetry and in an effort to keep polarisation at bay.

In decision-making, a reference to the advantages may lead to uncertain dangers being accepted, either implicitly or explicitly, for example because it is simply impossible or undesirable to exclude uncertain threats (too expensive, takes up too much space). The risk-based approach³ implies that physical safety will in fact be violated at some point. The approach taken to incidents (Chapter 2) and damage arrangements (Chapter 4) are therefore necessary complements for a policy that focuses on risks and uncertainty. However, government must then cope with (and be able to cope with) potential violations of physical safety that should always be factored into any calculation of opportunities. The aim is

to find a balance between the opportunities and the cost (in the broadest sense of the word) of prevention and preparation. How is the responsibility for those costs allocated? That question is the focus of Chapter 4.

3.3 MAKE ALLOWANCE FOR THE SOCIAL AND PSYCHOLOGICAL PROPERTIES OF DANGER

Social and psychological research into risk perception (Slovic, 2000, 2010; see, for example, Van Asselt (2000) and Niemeijer and Van Wijck (2007) for syntheses) shows that, in addition to estimating the probability of danger and calculating its impacts in quantitative terms, we must also acknowledge the major role played by the qualitative properties of danger. Such research has revealed that public acceptance depends on whether the potential danger is due to natural causes or human activity. Another factor is whether the balance between opportunities and threats is irreversible. Is there a way back? In addition, the degree of choice is important: can people choose to expose themselves to the danger, or has that choice been made for them? There are therefore grounds to distinguish between voluntary and involuntary risks in the political appraisal process. If exposure is involuntary, the public expects the collective – i.e. government – to offer it a higher level of protection.

Another key factor is whether the causes and possible consequences are familiar and known or more intangible and deterring. An increase in the risk of cancer falls into the latter category, for example. The nature and potential consequences of the danger are therefore also very important. Are they manageable? What *modus operandus* applies if things go wrong? Has something similar gone wrong in the past? In other words, is there an accident history? Is there a potential for catastrophe, in the sense that the danger could lead to the disruption of society? Another significant factor is the impact that such dangers have, or could have, on future generations (children and the ability to have children).

The final factor is the degree of fairness. Are the potential victims the same people who enjoy the advantages of the opportunities? Factors that must be allowed for in this respect are the geographical, social and economic, and demographic differences in risk exposure, vulnerability, self-reliance and insurability. One example is the Rijnmond region of the Netherlands, where there is an accretion of risk. Wealthier and more educated citizens are generally better equipped to ensure themselves of a relatively safe environment.⁴ In contrast, citizens with a lower social and economic status, the elderly, children and the infirm must be regarded as potentially more vulnerable (see also Kruize 2007). In other words, in questions of physical safety, dividing lines may exist or open up in society that can be decreased or even increased by policy.

Risk issues therefore encompass fundamental political questions even if they do not involve conflicting values and faulty knowledge. Depending on the combination of properties, some threats will loom larger in the public debate than one would expect purely on the basis of their probability and impacts (if the risks are sufficiently known), whereas other types of danger are not deemed as serious as they appear to be based on quantitative risk calculations. All of this plays a role in the political decision-making process concerning the role of government. That means that we must also analyse the social and psychological properties of real or potential threats.⁵ It is then up to politicians and public administrators to communicate about these social and psychological dimensions (and to dare to do so).

3.4 UTILISE RISK COMPARISONS

Comparisons of potential threats that allow for the foregoing properties can be useful because they help place specific threats into a broader context. Risk comparisons offer a basis for a more general consideration of policymaking concerning real and potential threats. Risks and uncertainties are often dealt with in isolation in the everyday reality of political and administrative decision-making. Multidimensional comparisons of dangers may well give public administrators and politicians building blocks for weighing up and substantiating opportunities and threats. A risk comparison is thus a useful ‘exercise’ for politicians and public administrators, but ultimately, the appraisal process is a political one.

At the same time, we wish to stress that the idea of an ironclad quantitative appraisal framework for developing and testing all physical safety policy is an illusion, and one that has long been dispelled. It assumes that all safety issues are sufficiently known and undisputed and similar enough to measure with the same yardstick. However, this view does not take the widely differing properties of risk into account (voluntary versus involuntary, natural causes versus human activity, manageable versus unmanageable, etc.) or the types of damage that may ensue (death and injury versus ecological damage, property damage versus cultural and historical damage, material versus immaterial damage, acute social disruption versus creeping long-term impacts). Uncertainty plays no role in this context (i.e. ‘unlikely’ or ‘unimportant’). Faulty knowledge and conflicting values are denied.

Underlying the single-yardstick approach is the faulty notion that major damage is, by definition, the result of a major risk. Our increasingly interdependent world, however, means that serious incidents are often the result of an accretion of relatively small risks. Even if risks could be measured with a single, undisputed risk yardstick, then, the question is what impact this would have on po-

licymaking. The idea of simple decision-making rules based on a universal risk yardstick is an illusion that the literature and reports by various advisory bodies have long since dispelled.⁶

A report by the Health Council of the Netherlands concerning Legionnaires' disease (2003) is a good example. In 1999, an outbreak of Legionellosis at a flower show in the Netherlands affected 188 visitors and exhibitors and led to 28 deaths. Estimates of the quantity of legionella bacteria present at the show exceeded existing standards for infection, illness and death. The Health Council then compared the health benefit per euro of legionella-prevention measures (which would require a significant investment in the water supply system) with other public health measures. The comparison showed that legionella prevention is in fact relatively expensive. The Council therefore recommended that other factors should be allowed for in political decision-making, such as the impact of preventive measures on environmental policy, and the social and psychological properties of the risk (the cause is specific and more or less technical in nature, the consequences are deterring, and a sudden outbreak of Legionnaires' disease is relatively difficult to control). A single yardstick (Quality Adjusted Life Year or QALY) would therefore not be enough to arrive at a well-balanced decision. The Council's report offers a good example of sensible risk comparison, in which the quantitative cost-benefit analysis also considers the social acceptability or unacceptability of the threat to physical safety.

Risk comparisons make it possible to group threats by different properties and to consider, for each separate group, the underlying policy principles, the potential role of government, citizens and businesses, and even the most effective strategies per cluster of threats. Instead of thinking about policy at an extremely high level of aggregation, risk comparisons make it possible to find the right balance between the general and the specific. Are risks (and uncertainties) that resemble one another on various dimensions really treated differently? And if so, why do the relevant practices differ so much? Are there good reasons for treating them differently? If not, how can the differences be removed? Policy comparisons⁷ of this kind can lead to bottom-up rules of thumb and good practices for dealing with potential violations of physical safety.

3.5 ACCEPT UNCERTAINTY – AND THE RESPONSIBILITY FOR UNCERTAINTY

To accept uncertainty means to accept the problems of faulty knowledge and conflicting values and how they manifest themselves in attitudes and behaviour. However, uncertainty refers to safety issues that lie outside the comfort zone. They require a willingness to recognise and acknowledge uncertainty (faulty knowledge and conflicting values) and to identify them as such.

Uncertainty is uncomfortable, certainly in Western cultures. No one wants uncertainty. It describes an emotional state diametrically opposed to the Western ideals of self-assurance, control and effectiveness. This is why it is difficult to openly acknowledge and accept uncertainty. But societies that innovate are themselves generating uncertainty. Innovation opens the door to a world that differs from the one that we all know and trust. Uncertainty is therefore also a product of human activity.

Why should government take responsibility for uncertainty? The reluctance to advise government to do so is very tangible in some publications.⁸ And indeed, assigning government yet more responsibility appears to conflict with ideas about scaling back government's role in physical safety issues.

But can government in fact decide to accept no responsibility whatsoever for uncertain threats to physical safety? Economies of scale, globalisation, technological innovation, widespread human interference with and creeping changes to the system are distinctive causes of uncertainty (RMNO 2004). Government often involves itself in taking decisions on and promoting the associated opportunities. In doing so, it also becomes responsible (or co-responsible) – implicitly, indirectly and possibly also unconsciously – for the threats. Reliable government can be expected to weigh up the advantages and disadvantages.

As German social theorist Ulrich Beck (1986; 2009) and his British contemporary Anthony Giddens (1994) explained convincingly in their books about the risk society, parties will hold government accountable for uncertainty, regardless. Past experience has taught society a few things about physical safety. It has discovered uncertainty. Governments in the West have even been forced to accept a certain amount of responsibility for faulty knowledge and conflicting values even in wireless communication, which enjoys an exceptionally large measure of social support.⁹ To ensure that it can cope with such public pressure, then, government would do well to take the initiative.

The history of the asbestos problem has shown that government will pay a heavy price if damage occurs that is unforeseen, initially uncertain, but ultimately undisputable. That is not to say that the asbestos scenario will repeat itself with every innovation, but it is unwise to assume that it will never repeat itself at all. It is usually very expensive for government to serve as a safety net or life buoy ('last resort'). In order to allocate responsibility for uncertain damage properly (see Chapter 4), it should take uncertainty seriously and accept some or all of the responsibility for investigating it.¹⁰

3.6 ORGANISE THE WAY UNCERTAINTY IS DEALT WITH

Dealing proactively with uncertainty requires an ability to let go of familiar frameworks. It means leaving room for testing, learning, unlearning and experimentation. That requires other processes and mechanisms and a different allocation of roles. “If government is to learn to solve new public problems, it must also learn to create the systems for doing so and to discard the structures and mechanisms grown up around old problems” (Schön 1971: 116). The WRR’s report on the ‘learning government’ [*Lerende overheid*, 2008] argues that issues that come down to faulty knowledge and conflicting values (referred to in that report as ‘untamed problems’) require reflection, investigation and dialogue with differing parties before determining who can or should take on which role and responsibility.

How can we organise the way we deal with uncertainty? What do we need? The process of searching for sound uncertainty mechanisms has only just begun. The Government’s strategic paper on *Nuchter omgaan met risico’s* [Dealing pragmatically with risk] (2006) proposed that ‘procedural agreements’ should provide the basis (Letter to House of Representatives, Pieter van Geel, State Secretary of Housing, Spatial Planning and Environment, 29 May 2006). For example:

- choosing a transparent political decision-making process;
- when decisions are taken, specifying the responsibilities to be borne by government, businesses and citizens;
- to the extent possible, explicitly weighing the dangers and risks associated with an activity against the costs and benefits to society;
- involving citizens explicitly in policymaking at an earlier stage than in the past (with the extent of that involvement and the form it takes depending on the issue);
- making allowance for the possibility of cumulative risk in decision-making.

In *Uncertain Safety*, we tried to find a basis for dealing proactively with safety in legal (e.g. the constitutional and statutory enshrinement of the precautionary principle) and institutional provisions (such as forms of public participation and a more active role for parliament). In this document we seek reference points specifically in mechanisms that involve reflection, investigation and dialogue (uncertainty mechanisms). What settings are conducive to reflection, investigation and an in-depth dialogue about uncertainty? Can uncertainty be taken seriously? Can we accept uncertainty while simultaneously taking steps to deal with it? Do uncertainty mechanisms provide a basis for allocating roles and responsibilities? Will they help us arrive at a balanced appraisal of opportunities and threats?

Textbox 3.1 Uncertain Safety (WRR 2008)

How can individual responsibility for safety issues be increased? What is the basis of government risk management and risk policy and do they match the risks? The policy field of physical safety faces general risk management problems caused by the traditional approach to risk. In this approach, risks are identified in terms of probability and impacts, based on scientific research. Once that has happened, a decision is taken as to whether preventive measures are necessary. If the answer is yes, the various responsibilities associated with organising risk reduction are allocated. Accordingly, the traditional approach has two distinct stages: risk assessment and risk management. Both stages raise questions of a scientific and political nature. The WRR has concluded that the traditional risk approach and the ways in which the responsibility for safety issues are allocated are insufficiently future-proof. The countless regulations that have emerged over time have led to administrative and financial problems, for government as well as the business sector. Moreover, there is often little prospect of achieving consistency in regulation. The domain as a whole is characterised by a lack of transparency. However, the Council also observes that a new approach to risk has evolved in policymaking and research that has taken shape primarily at the organisational level. In addition, it has become increasingly clear that risk is patently more complex than previously assumed. The new risk approach therefore concentrates not on dealing with known risks, but rather on dealing with uncertainties. Such uncertainties should be translated as far as possible into objectified risks. Because a one-to-one translation is not always possible, a certain level of uncertainty will persist when weighing up possibilities and taking decisions. The leading normative principle for the paradigm of the new risk approach is the precautionary principle. Within that paradigm, 'precaution' refers to the awareness that uncertainties need to be taken seriously and that organisations should explicitly reflect this attitude. Where precaution is accepted as the normative principle, risk assessment and management processes will be geared to the early detection and discussion of uncertainties; when decisions are taken, any remaining uncertainties will be explicitly taken into account. The vulnerability of people, society and the natural environment demands a proactive approach to uncertainties. Formulated in this way, the WRR argues, the precautionary principle reflects the normative basis of the new risk approach.

The distinction between faulty knowledge and conflicting values is relevant here. When faulty knowledge is at issue, reflection and investigation are paramount. There have been various attempts to take this type of uncertainty seriously. Examples include the Knowledge Platform on Electromagnetic Fields, the Nanotechnology Public Dialogue Committee, and the future National Prevention Platform. Such mechanisms demand forms of interaction other than the customary ones and require the parties involved – including the experts – to take on other roles than they normally do. In situations where expertise

Textbox 3.2 Dutch Knowledge Platform on Electromagnetic Fields & Health (EMF & Health)

The Dutch Knowledge Platform on Electromagnetic Fields (EMF & Health) was set up by the Netherlands National Institute for Public Health and the Environment (RIVM), TNO Netherlands Organisation for Applied Scientific Research, KEMA energy consulting, testing and certification, GGD Nederland municipal health organisation for preventive healthcare, the Radiocommunications Agency (part of the Ministry of Economic Affairs, Agriculture and Innovation), and the Netherlands Organisation for Health Research and Development (ZonMw). The Platform was established in response to a need to cluster expertise on EMF and to offer access to and communicate about research and knowledge “quickly, objectively and independently” (House of Representatives, session 2005-2006, 27 561, no. 24, p. 4). This need is related to the lingering public concern about mobile communication technologies and high-voltage cables. The platform can be seen as a bridge between science and society because it interprets scientific knowledge for a broad public and addresses and answers the public’s questions. This “public consciousness” is represented by a Feedback Committee, which meets one to five times a year. The committee’s members represent various organisations that represent the specific interests of citizens, businesses, employers, employees and government regarding the health aspects of EMFs. In recent years, interest groups – in particular those that advocate recognising EMFs as a health threat – have fought to put the following topics on the political agenda: electro-hyper sensibility, children and EMFs, and the transparency and integrity of science.

Dutch National Prevention Platform

The National Prevention Platform is made up of employees, employers, insurers and research institutions. The Platform addresses risks that have not yet been identified. The National Union of Insurers (*Verbond van Verzekeraars*) also plays a role. The Platform focuses in particular on work-related issues and creates roadmaps for further action.

or knowledge is disputed, experts should take on the role of what Van Dijk et al. (2011) refer to as ‘mapping the decision situation’: presenting the relevant scientific knowledge by focusing on identifying and interpreting uncertainties (see also Van Asselt et al. 2010). That requires experts to be open and willing to discuss faulty knowledge openly.

In the case of conflicting values, experts play a much more limited role. When values conflict, an in-depth dialogue about normative principles is crucial. Reflection and investigation are also necessary, but they tend to take a back seat. An in-depth dialogue between different (and frequently dissimilar) parties should offer a basis for joint action and for the allocation of responsibility, despite the normative differences.

There are also situations in which faulty knowledge and conflicting values interfere. The Rathenau Institute (which informs political and public opinion on science and technology) and comparable organisations elsewhere have examined uncertainty questions of this kind. What can we learn from them? Who is in a position to head a dialogue on this topic?

It is important to investigate the existing mechanisms systematically, and to also consider research and studies carried out abroad.¹¹ What we recommend, then, is that we learn from existing uncertainty mechanisms, or attempts to create such mechanisms.¹² Which factors lead to success, and which to failure? What are the underlying prerequisites? What can we learn about the role that differing parties (citizens, businesses, civil society organisations, insurers, experts, politicians, public servants) play in exploring uncertainty?

3.7 INCORPORATION INTO POLICY

The question of how to deal with risks and uncertainty is certainly not new and has been examined many times before. Numerous policies have already been produced concerning physical safety and, to a greater or lesser extent, how responsibility should be allocated. The more interesting question now is how our five guidelines (intertwine opportunities and threats; make allowance for social and psychological properties of danger; utilise risk comparisons; accept uncertainty and the responsibility for uncertainty; organise how uncertainty is dealt with) can be used in existing policy practice. In the following sections, we look at the National Risk Assessment, intended to support policy, and at a planned review of the Netherlands’ Environment and Planning Act (the *Simply Better* operation), which will take legislation and regulations governing area-specific risks to physical safety into account. The purpose of our exercise is to illustrate that existing policy practice can offer us reference points for a more general approach to potential threats.

3.7.1 THE NATIONAL RISK ASSESSMENT

Since 2007, the National Risk Assessment (NRA),^{13,14} initially the responsibility of the Ministry of the Interior and Kingdom Relations but now falling under the Ministry of Security and Justice, has concentrated on risk comparison. The NRA concerns itself with safety issues that could lead to social disruption (catastrophe potential). The NRA is used to make suggestions for the role of government and the means it should use in the interests of prevention, preparation and emergency assistance (referred to as ‘capacity planning’).¹⁵

Looking at opportunities

The NRA is an asymmetrical representation of safety issues: it looks only at threats. This unilateral approach is understandable, given that the exercise is concerned with social disruption (catastrophe potential). But the safety issues that are included in the NRA also offer opportunities. The risk involved in processing hazardous substances is balanced by the economic interests of the petro-chemical industry; the uncertain health risks involved in intensive livestock farming are balanced by the economic interests of this sector; and the risk of flooding is balanced by fertile soil and the enjoyment people get from living along a river or lake. If we look at the opportunities (in the NRA or complementary documents), we immediately face another question: what share of the responsibility is borne by those who enjoy the benefits?

Textbox 3.3 National Risk Assessment

National Risk Assessment

In 2009, the OECD published a report on innovation in country risk management in which the Dutch National Risk Assessment (NRA) was cited as a best practice, along with the British National Risk Assessment. According to the OECD report, the Netherlands stands out in particular in helping policymakers understand the potential impacts and likelihood of catastrophic events. Its coordinators also motivate participants by continuing to recruit new and different participants for the network (OECD, 2009: 41).

Multidimensional risk comparison

Despite all the snags, an attempt is being made to compare a huge variety of different risks (with the help of various research institutes). The method makes allowance for the social and psychological properties of risks. Multidimensional risk comparison has thus been institutionalised. It is nevertheless striking how unknown the National Risk Assessment is in the Netherlands, even though it is cited as an exemplary in international circles (see textbox 3.3). The NRA is po-

tentially very useful, but could be used more widely as both an instrument and a process for inter-ministerial risk comparison.

Although the NRA tries to pay serious attention to the various risk properties and types of damage, using a single yardstick to measure aggregates of different threats means that the normative and political appraisal of the differing dimensions becomes invisible. The NRA also pays virtually no attention to cumulative risks. It does not look explicitly at the possibility that differing risks could manifest themselves at the same time and trigger other incidents, thereby also increasing the likelihood of certain risks. The NRA could make better use of a risk comparison process that takes differing dimensions into account. For example, safety issues could be clustered by various social and psychological properties.¹⁶ It would then be possible to consider more general starting points for safety policy per cluster, in keeping with the specific context.

It is naturally possible to apply another normative appraisal system that gives rise to a different list of political priorities. The NRA acknowledges this, but these alternatives are too often hidden away in background documents. That is why political circles can treat the NRA (and dismiss it) as a technocratic exercise instead of a tool for political appraisal. It is a missed opportunity to view specific risks within a broader context.

Uncertainty agenda

As it now stands, the NRA is a risk comparison. It treats all safety issues as sufficiently known and undisputed, even if this underlying assumption is open to debate. That means that it does not have the scope to examine uncertainty; faulty knowledge and conflicting values are concealed. What is required is for experts to identify faulty knowledge and, where possible, conflicting values and not to hide them away in a 'best guess'. How can uncertainty be articulated in the NRA process? Should experts be encouraged to identify relevant uncertainties? Or would it be possible to broaden the circle of stakeholders (see also Chapter 4) so that input for a process of deliberation cannot be hijacked by experts who presume to know better?

The NRA could be complemented by an Uncertainty Agenda, which would address a small number (for example three) uncertainty issues that invite reflection, investigation and dialogue. This approach would fit in with the emerging practice of ministerial and inter-ministerial 'Knowledge Agendas'. An Uncertainty Agenda can help foster acceptance of uncertainty and to explore uncertainty as it relates to physical safety. Government can take the initiative in this or leave it to others (see also Chapter 4).

The guidelines for dealing with risk and uncertainty elaborated in this chapter can be used to help improve and boost the NRA. At the same time, this mental exercise shows us how the guidelines can be put into practice.

3.7.2 **AMENDING ENVIRONMENT AND PLANNING LAW: THE SIMPLY BETTER OPERATION**

Legislation governing the physical surroundings – environment and planning law – is important to area-specific risks and uncertainty. The existing legislation is highly complex. There are a total of more than sixty acts, for example the Spatial Planning Act, the Spatial Planning and Development Permits (General Provisions) Act, the Water Act, the Soil Protection Act, the Environmental Management Act, and so on. There are also more than a hundred general orders in council and hundreds of ministerial decrees. The Rutte Government's coalition agreement (2010) announced a set of proposals designed to cluster, streamline, modernise and cut back on the rules and regulations. This was also the purpose of the Simply Better operation, coordinated by the Ministry of Infrastructure and Environment. According to the plans (which are ambitious), the operation will lead to a bill (June 2012) and then to a single law, the Environment and Planning Act, scheduled to be ready by the end of the current Government's term in office.

The new law proposes to put a new system into place for managing the physical environment. This includes physical structures (including structures for flood protection, traffic and transport, housing, industry and business activity) and for the physical environment (including water, soil and air). *Simply Better* thus also concerns legislation that applies to area-specific threats to physical safety, for example safety in tunnels and on the railways, the storage and processing of hazardous substances, and construction safety. Epidemics (including animal and plant diseases) and food safety are not covered, nor is any legislation pertaining to the licensing of chemical substances, nanotechnology and genetically modified organisms.¹⁷ Nevertheless, it would be useful to see whether the guidelines we have identified for dealing with risk and uncertainty can be included in the *Simply Better* operation.

The *Simply Better* operation is only one step in an ambitious plan. At the time of writing, however, nothing more was known about the Environment and Planning Act than its main outlines and general contours, recently explained in a letter addressed to the Dutch House of Representatives (28 June 2011). That has made it difficult to key into this policy development, even though those involved have been generous with their information. At the same time, the fact that the operation focuses on area-specific physical safety shows that the guidelines for dealing with risk and uncertainty are relevant (or should be). What fol-

lows can be regarded as a reflection on *Simply Better* as an ambition. As a result, not all of the suggestions are immediately relevant to the project as it currently stands; they may become more appropriate in the follow-up steps.

Threats and the export value of physical safety

The responsibility for physical safety should also be considered within the context of the Netherlands' position in international markets and our international responsibility. Incidents, especially in border regions, can have an impact on neighbouring countries. Flooding in the Netherlands affects the reputation of our water management sector, which is a promising niche for the Dutch economy (see the WRR report *Aan het buitenland gehecht* (2010)). The crisis involving the EHEC bacterium illustrates how important food safety is for our agriculture and horticulture sectors. These examples show that physical safety has an export value (see also Chapter 4).

The practice of 'goldplating', is referred to disdainfully within the context of the *Simply Better* operation. Goldplating occurs when national governments impose extra stringent safety requirements when transposing European directives into national law. The aim of *Simply Better* is to reduce 'national goldplating' of European directives as much as possible with a view to opportunities. Given that EU environmental law has been harmonised, it would certainly be useful to look at national environment and planning law as a single, coherent whole. This does, however, require us to continue asking whether there are enough guarantees of physical safety, even taking government's statutory obligations into account. The danger is that by focusing too single-mindedly on the opportunities, we will put accomplishments in the field of physical safety at risk and miss chances to promote the Netherlands' international interests, as mentioned above.

The Netherlands' population density, its intense level of economic activity, geographical location, open society and role as an international trading nation may make it more vulnerable in future than some European directives assume. For example, the chemicals and petro-chemicals industries are very important to the Dutch economy, while areas in which those industries operate are in fact becoming much more built up (*Adviesraad Gevaarlijke Stoffen* 2011). That raises specific safety questions for the Netherlands.

In short, goldplating may well be necessary if the aim is to ensure physical safety. What worries about physical safety were behind the legislation and rules produced back then, and are those worries still relevant? Has the danger increased or decreased over time? In what way does the Netherlands seem most vulnerable, either now or in the future, and is the 'goldplating' of European legislation desirable? Conversely, which laws and rules have become superfluous

because physical safety is already being safeguarded or more effectively safeguarded in some other way? Asking these questions shows clearly what specific national regulations should be added on top of European legislation with a view to the threats.

Textbox 3.4 Löffstedt Review

The foregoing questions were inspired by the UK's Löffstedt Review (named after its president, risk sociologist Ragnar Löffstedt of King's College, London) (DWP, 2011a). The final report was published in November 2011. Its goal was "[to] consider the opportunities for reducing the burden of health and safety legislation on UK businesses whilst maintaining the progress made in improving health and safety outcomes" (DWP 2011b: 2). The Review considers a substantial database of regulations, many of which can be considered to be in the area of safety. The Löffstedt Review was independent, but it had an advisory board made up of the representatives of various political parties, employers and employees. The process of gathering information on the effectiveness of regulation was participative: interested parties were invited to join via a website and other media. The conclusions of the Löffstedt Review were as follows:

1. The general sweep of requirements set out in health and safety regulation are broadly fit for purpose but there are a few that offer little benefit to health and safety and which the Government should remove, revise or clarify, in particular the duties for self-employed people whose work activities pose no potential risk of harm to others.
2. The much bigger problem is that regulatory requirements are misunderstood and applied inappropriately. The recommended changes seek to address where this arises by:
 - a. streamlining the body of regulation through consolidation;
 - b. re-directing enforcement activity towards businesses where there is the greatest risk of injury or ill health;
 - c. re-balancing the civil justice system by clarifying the status of pre-action protocols and reviewing strict liability provisions.
3. This will help to ensure that all key elements of the regulatory and legal system are better targeted towards risk and support the proper management of health and safety instead of a focus on trying to cover every possible risk and accumulating paperwork.

The Löffstedt Review provides the following key recommendations:

- Exempt from health and safety law those self-employed whose work activities pose no potential risk of harm to others.
- Have the Health and Safety Executive (HSE) review all its ACoPs. The initial phase of the review should be completed by June 2012 so busines-

ses have certainty about what is planned and when changes can be anticipated.

- Have HSE undertake a programme of sector-specific consolidations to be completed by April 2015.
- Change legislation to give HSE the authority to direct all local authority health and safety inspection and enforcement activity, in order to ensure that it is consistent and targeted towards the most risky workplaces.
- Clarify and restate the original intention of the pre-action protocol standard disclosure list and review regulatory provisions that impose strict liability by June 2013 and either qualify them as ‘reasonably practicable’ where strict liability is not absolutely necessary or amend them to prevent civil liability from attaching to a breach of those provisions.

It is also important when simplifying the rules to ask whether, and if so how, improvements can be made in safety, for example by enforcing the rules more strictly (see also Chapters 2 and 4) or allocating the responsibility for physical safety more effectively (see also Chapter 4).

Dealing with uncertainty

The Environment and Planning Act will seek to strike a balance between highly detailed rules (target or means requirements) and a more general form of regulation, for example, duties of care and open standards.¹⁸ Use of these latter results from the wish to reduce the number of rules and the administrative burden and give those charged with execution greater freedom. The distinction between risks and uncertainty seems to be relevant in the quest for a balance.

If the threats to physical safety are sufficiently known and undisputed, and the most effective risk management methods are clear, then it is possible to impose specific requirements. Indeed, SMEs often prefer detailed rules so that business owners know precisely where they stand.¹⁹ We would like to emphasise that risk regulation can also be a form of knowledge transfer to businesses. Ideally, rules embody ‘a consolidated body of experience’, relieving business owners of the work of investing individually in the necessary knowledge.²⁰ Risk legislation should therefore not be regarded only as an administrative burden, because it can also lighten the load for businesses.

In the case of risk, a duty of care can serve as an additional safety net beneath specific legislation and regulations. In the case of uncertainty, however, a duty of care is the starting point. Uncertainty involves a fundamental basis of doubt regarding the need for policy, the reference points for that policy, and the policy framework (see Chapter 1). Faulty knowledge and conflicting values prevent detailed rules from being drawn up. Uncertainty therefore requires other forms of

regulation and supervision.²¹ A duty of care that is grounded in the law may offer a statutory method of obligating businesses to take responsibility for uncertainty. Business owners enjoy the benefits of the opportunities and often have (or could have) the most accurate view of the threats. That means reversing the burden of proof: businesses must demonstrate that they are acting responsibly, while government is no longer obliged to demonstrate a threat to physical safety. In other words, a duty of care does not necessarily lighten the load. It is an important starting point for considering and allocating the responsibility for uncertainty and placing it squarely with the relevant parties.

Continuous investigatory duty

Our reflections concerning uncertainty and risk are also relevant when considering how to cut back on investigatory duties. The planned Environment and Planning Act focuses on simplifying such duties and the associated burdens. Scientific knowledge makes it possible to estimate the impacts of risks in advance to a fair degree of accuracy. In the case of known risks, the emphasis can then shift to risk management (what do businesses do to prevent incidents, limit damage and manage risks?), rather than the investigation of impacts. The Minister of Infrastructure and Environment, Melanie Schultz van Haegen, wants less investigation in advance and more opportunity to introduce additional measures retroactively:²²

“It is often impossible to exclude uncertainty about the impacts of something. Uncertainty can be made acceptable if it is reasonably shown in advance that appropriate measures can be introduced retroactively in order to satisfy particular standards or meet previously agreed targets. That means conducting fewer investigations in advance and offering more opportunity to introduce additional measures retroactively. It also means being more willing to accept that uncertainty about impacts cannot be excluded.”²³

We support the Minister in acknowledging uncertainty, but we also believe that taking uncertainty seriously requires investigation, reflection and dialogue, not only before but also after a permit is issued. We agree that the investigatory duty should not come to be regarded as an impossible demand to provide certainty about uncertain dangers. It would be counterproductive to base that duty on the illusion that all uncertainties can be eliminated before a decision is taken. The investigatory duty should focus instead on identifying faulty knowledge: what threats may be at issue and should be allowed for in the process of political appraisal? The purpose of an investigation would then be to arrive at an increasingly accurate understanding of the uncertain threats to physical safety, so that 1) the political appraisal process can allow for both the opportunities and threats in equal measure; and 2) the responsibility for the threats can be properly organised and allocated. The focus of investigatory duty should therefore be to

explore uncertainty. It would then cease to be a one-off, all-inclusive obligation tied to decision-making and the granting of permits, but instead become a continuous task for risk-bearing parties. Businesses would therefore have the duty to inform government (and society in a wider sense) of the most recent insights into potential dangers. Based on that information, politicians then have the option of reappraising the situation.

The foregoing requires that government should learn to accept uncertainty and have the courage to categorise dangers as uncertainties. It also requires businesses to accept uncertainty. There is a real danger that an intolerance for uncertainty will inform the way parties interpret the continuous investigatory duty (“hear no evil, see no evil”) (Van Asselt and Vos 2008),²⁴ but that is contrary to what we mean by proactiveness. What we mean is that government must consider how to organise the continuous investigatory duty for businesses such that they deal with uncertainty in a socially responsible manner. In her comparative study²⁵ of environmental administrative law, which focuses on the enforcement of environmental responsibilities, Nilsson (2011) concludes that the Swedish environmental code (Miljöbalken)²⁶ is exemplary. In Sweden, risk-bearing parties have a continuous investigatory duty and must demonstrate that they comply with that duty. The burden of proof thus lies with them. Nilsson studied how the obligations associated with uncertainty are enforced in the differing national systems. She concludes that even if the burden of proof lies largely with the risk-bearing parties, it is important for government – basing itself on independent scientific research, for example²⁷ – to identify potential dangers as well so that it can order businesses to investigate them. She also proposes undertaking a more communicative, step-by-step approach in which risk-bearing parties are first asked to provide basic information and only ordered to supply additional information if the basic data points towards a potential danger. In addition, if there is growing evidence of threats, Nilsson suggests that the risk-bearing parties should be asked which measures they would themselves wish to take or see implemented on a sector-wide basis.

3.8 CONCLUSION

Is it possible to develop an overall policy focusing on potential threats to physical safety? Can that policy provide reference points for reassessing the responsibilities for physical safety? By interpreting the questions put to the WRR in this manner, we have arrived at five guidelines: 1) intertwine opportunities and threats; 2) make allowance for the social and psychological properties of danger; 3) utilise risk comparisons; 4) accept uncertainty; 5) organise how uncertainty is dealt with. As we wish to stress that the real challenge is to apply these guidelines in actual policymaking, we have attempted to find reference points in the National Risk Assessment and the amended Environment and Planning Act (via the *Simply Better* operation).

We wish to emphasise, however, that damage arrangements also play a meaningful role in matters of risk and uncertainty. It goes without saying that their purpose is to cover the losses that have been suffered, but they also offer positive or negative incentives for preventing incidents, limiting damage, managing risk and reducing uncertainty. Risk and uncertainty involve weighing up the opportunities and threats, including the associated uncertainties. Damage arrangements can help the various parties – and the risk-bearing parties in particular – weigh up the two sides. That is the topic of the following chapter.

NOTES

- 1 Early statistical research showed that industrial accidents could not be blamed on individual workers because they were ‘systemic’ in nature. As a result, the Dutch Industrial Accident Act [*Ongevalwet*] of 1901 made employers responsible by law for worker safety.
- 2 As indicated, this is a gradual distinction (see Chapter 1, fig. 1.1): at a certain point, faulty knowledge and/or conflicting values become too serious, making it impossible to calculate risk meaningfully as a function of probability and impact.
- 3 When we use the term ‘risk-based approach’ in this text, we actually mean thinking about danger in terms of risk. Legal specialists also use the term to refer to a particular type of action, i.e. intervening in suspect situations and groups in advance, where the yardstick is not culpability under criminal law but the risk profile (Van Swaaningen 2001; Niemeijer and Van Wijck 2007).
- 4 The report that the WRR is preparing on ‘confidence in the citizen’ looks in detail at how citizens are equipped.
- 5 This was already emphasised in *Nuchter omgaan met risico’s* [Dealing pragmatically with risk] (Ministerie van VROM 2004).
- 6 Every attempt to express risk in numerical terms involves making normative choices (WRR 1994; RIVM 2003; WRR 2008; Gezondheidsraad 2008). The way that we discuss risks and ‘establish’ them inevitably reveals the different conceptual frameworks.
- 7 See AVV/RIZA (2004), as commissioned by the then Ministry of Transport, Public Works and Water Management. The former Ministry of Housing, Spatial Planning and Environment also conducted a similar internal risk comparison for a number of years.
- 8 For example, Helsloot et al. (2010, 2011) believe that we must move away from “what we might suspect” and concentrate instead on what can be predicted “with some measure of likelihood”. In their view, uncertainty should not be allowed for in policy-making.
- 9 For example by installing the Knowledge Platform for Electromagnetic Fields and by financing a research programme on Electromagnetic Fields and Health (undertaken by ZonMw Netherlands Organisation for Health Research and Development and involving a budget of EUR 16.6 million between 2005 and 2017). For government responses in other countries, see: Burgess (2004); Drake (2006); Soneryd (2007) and Stilgoe (2007).
- 10 The term precaution is used in the reports *Uncertain Safety* (WRR) and *Prudent Precaution* (National Health Council of the Netherlands): “the vulnerability of people, society and the natural environment requires that we deal proactively with uncertainty” (WRR 2008: 18). These two reports make the specific point that precaution is not synonymous with radical prevention. Now, three years after their publication, we must conclude – based on the Government’s response, the many discussions, and trends in policy practice since then – that the attempt made to redefine precaution has not been successful so far. There is a lingering association between the term ‘precaution’ and radical prevention. At the same time, the precautionary principle

has become common practice in environmental policy, is enshrined in the European Union's Maastricht Treaty, has gained a place in international statutory frameworks and conventions, and has made its way into case law at national and European level. It is also invoked by citizens and civil society organisations. Precaution is therefore here to stay. Parties that undertake activities in which uncertainty about opportunities and threats plays a role will face calls for precaution or will be confronted later with their responsibility to take precautions. That is precisely why it is important to emphasise that precaution is not radical prevention, but should involve proactively dealing with uncertainties and considering measures to reduce vulnerability and increase resilience. It is precisely those who oppose the idea of radical prevention that should support such a reinterpretation, given the degree to which the term has become entrenched in society and the legal context. But in order to sidestep what is an already polarised discussion of the precautionary principle, we have decided to avoid the term precaution in this document.

- 11 See for example Weick and Sutcliffe (2007); Forester (2009) and Heazle (2010).
- 12 There is a similar recommendation in the Royal Academy's research agenda (2011), which calls for "institutional designs and leadership practices" within the context of vulnerability and resilience.
- 13 The NRA is 'only' part of the National Safety and Security Strategy. In our exercise, we regard this risk comparison instrument as a separate activity and inter-ministerial process for discussing risk.
- 14 The risk assessment is not limited to risks in the domain of physical safety but concerns all such risks in the widest sense of the word (including security risks involving malicious intent).
- 15 For a detailed description of the method, see the document *Werken met scenario's, risicobeoordeling en capaciteiten in de Strategie Nationale Veiligheid* (October 2009).
- 16 These are now clustered in terms of impact probability.
- 17 How that is to be dealt with in the Environmental Management Act and related legislation and regulations is still open to debate.
- 18 In actual practice, it appears (according to initial observations within the context of the WRR's *Toezicht* – i.e. Supervision – project) that regulators are still attempting to interpret open standards by producing policy rules, guidelines and so on. The situation is tricky even in the legal domain. Similar comments have been made regarding duties of care. Nevertheless, we believe that we must look beyond the practical and legal objections if we are to make any progress on allocating the responsibility for investigating uncertainty.
- 19 The danger is that a checklist culture will begin to dominate ("we've satisfied all of the government's requirements") (Adviesraad Gevaarlijke Stoffen 2011). This is a relevant point of discussion internationally too.
- 20 See Degas (2010).
- 21 The WRR is currently studying the system of supervision and will publish a separate report on this topic at the end of this year.
- 22 The questions that then arise are whether this is ultimately cheaper and who is to

bear the cost. The danger of this approach is that what are in fact illegal activities will be tolerated or legalised after the fact. It may be advisable from a strategic viewpoint to differentiate between businesses that demonstrate an intrinsic motivation to take responsibility for physical safety and businesses that do not (see also Chapter 4).

23 Letter from the Minister of Infrastructure and Environment to the House of Representatives, 28 June 2011: 9.

24 One example is the situation that arose concerning the underground storage of carbon dioxide. Government (CATO) set up a major programme to study this. Trade and industry quickly became active participants. The unanimous opinion was that underground storage of carbon dioxide in residential areas could not pose any major threats to physical safety.

25 Sweden, the United Kingdom (England and Wales) and the Netherlands.

26 It is interesting to report within the context of Simply Better that this environmental code also aimed to achieve closer coordination between legislation and regulations and to simplify the permit procedures (Nilsson 2011: 315).

27 See WRR (2008) for a more detailed discussion of the importance of independent scientific research within the domain of physical safety.

4 DAMAGE ARRANGEMENTS: A DIFFERENT PERSPECTIVE

4.1 DAMAGE AS THE FOCAL POINT

The debate concerning responsibility for physical safety has wrongly neglected the topic of damage arrangements.¹ After all, the burden associated with threats must be borne by someone. Arguing from the perspective of damage clarifies matters, because damage is something tangible. It also adds a sense of urgency. Who is going to help foot the bill for safety and for any damage that occurs? What can we expect potential sources of damage to do and to contribute? What role can potential victims play? To what extent are citizens and businesses responsible in a private capacity, and where does government's collective responsibility begin? Which other parties – for example insurers and lenders – might play a role?

Government's risk-regulation reflex – in the form of incident-driven legislation and regulations – is generating considerable attention. There is less concern for the financial role that government plays, is assigned or has taken upon itself when settling damage claims, although it does put explicit pressure on public finances. How we deal with damage is a focal point for questions related to responsibility: it is where issues of risk management and uncertainty can be linked to the urgent questions that arise in connection with incidents and damage. We believe that looking systematically at how we deal with damage will help us find reference points for reallocating responsibility in a way that will improve safety and may therefore trim the role of government, in any event financially.²

Damage arrangements should serve two purposes: 1) they should cover the loss that has been suffered and 2) offer incentives to prevent incidents, limit damage, manage risks and deal proactively with uncertainty. The allocation of responsibilities will be balanced if 1) all the relevant parties are encouraged to prevent damage as much as possible, or at least to limit it, and 2) if the necessary financial resources are available to expedite damage control and management.

4.2 CURRENT PRACTICES

The Netherlands has had its share of crises and disasters.³ Examples in the domain of physical safety include the Bijlmer Aviation Disaster (1992), flooding in Limburg (1993, 1995), the Bovenkarspel Legionellosis outbreak (1999), the Enschede Fireworks Disaster (2000), the Volendam New Year's Eve Fire (2001), the Moerdijk Chemicals Fire (2011), and the food safety issues arising from EHEC contamination (2011). Damage suffered collectively by groups of citi-

zens, businesses and institutions is referred to as ‘mass damage’. In addition to damage suffered in the private sector, it is also possible for damage to occur in the public domain, for example affecting the environment (soil, water and air pollution, loss of flora, fauna, ecosystems, landscapes or biodiversity), objects of cultural heritage, and infrastructure, public areas and public buildings. One of the concerns expressed by the Minister (the second question, see Chapter 1) is that the responsibility for compensating (financially) violations of physical safety appears to be laid automatically and unilaterally at the feet of government. We will therefore begin by considering the role that government plays in today’s damage settlement practices.

Textbox 4.1 European perspective

“In general there seem to be three different types of reactions chosen by European legislators as far as the financial compensation after catastrophes is concerned: a first possibility is that (in addition to liability law and social security which exists as basic structure in every European legal system) no specific regulatory measures have been taken. In those cases governments may provide additional compensation for victims in some cases on an ad hoc basis. That seems to be the case in e.g. Germany and Sweden. A second possibility is that a first party insurance solution is chosen. In this respect we do not refer to voluntary first party insurances that victims can of course take in all countries where these are available on the insurance market, but to regulatory interventions as a result of which coverage is mandatorily extended to include natural disasters. That is e.g. the case in France, will be the case in Belgium as a result of a legislative intervention and is discussed in both Germany and Italy. The third approach would be to have an outright compensation fund for victims of disasters that can provide for some amounts, although usually not full compensation (such as under tort law). Such a disaster fund exists *inter alia* in Belgium as a result of the Disaster Act 1976.”

Nonmandatory compensation

Government plays a role in cases of mass damage in the domain of physical safety because it contributes voluntarily to the financial settlement of damage claims (Ammerlaan 2009; Bruggeman 2010). Following Den Ouden and Tjepkema (2006), we refer to this as nonmandatory compensation:⁴ government chooses to spend public funds to help compensate victims for their losses. Its choice is motivated by political notions concerning the role of government, solidarity, ethics and decency, or by more politically strategic considerations (i.e. winning votes).

In the late 1990s, the Dutch authorities came up with a fundamental, statutory ‘solution’ to mass damage arising from natural disasters:⁵ the Damage Compensation (Disasters and Serious Accidents) Act (WTS 1998),^{6,7} a scheme that is paid for entirely from the public purse. Another fundamental scheme was set up to deal with outbreaks of animal diseases: livestock owners receive compensation for the mandatory slaughter of their animals from the Animal Health Fund (DGF), which is based on the Animal Health and Welfare Act (GWWD). The fund draws on public and private sources: half is paid by the sector (i.e. by the industry boards), and the other half by government (primarily from European funds). The DGF paid out 3 billion guilders after an outbreak of swine fever in 1997, EUR 260 million during the bird flu epidemic in 2003, and EUR 44 million during the Q fever crisis between 2007 and 2010.

An ad hoc policy has predominated in other instances of mass damage (see Table 4.1). For example, the authorities created ad hoc arrangements for nonmandatory compensation after the Bijlmer Aviation Disaster (1992), the Bovenkarspel Legionellosis outbreak (1999), the Enschede Fireworks Disaster (2000), and the Volendam New Year’s Eve Fire (2001). The bird flu epidemic in 2003 led the then Minister of Agriculture, Nature Management and Environment to set up a second financial scheme in addition to the fundamental DGF in order to compensate businesses subject to transport restrictions in quarantined areas. This scheme covered losses that are not compensated under the GWWD, i.e. losses incurred due to measures taken to combat an infectious animal disease (Den Ouden and Tjepkema 2006). It is clear, then, that government makes ad hoc arrangements for nonmandatory compensation even outside the fundamental, prearranged schemes.

Table 4.1 Examples of nonmandatory compensation ↴

INCIDENT	DAMAGE	NONMANDATORY COMPENSATION	DESCRIPTION
Bijlmer Aviation Disaster (1992)	44 deaths on the ground 11 persons seriously injured 15 persons slightly injured Total damage estimate: tens of millions of guilders, mainly material and immaterial personal injury	spent: EUR 4 million	Aid fund for victims of the Bijlmer crash: compensation for immaterial damage
Bovenkarspel Legionellosis outbreak (1999)	32 deaths 200 seriously ill Total damage estimate: tens of millions of guilders	capacity fund: 2 million guilders	Legionnaires’ Epidemic Victims Fund: compensation for immaterial damage

Enschede Fireworks Disaster (2000)	22 deaths 947 wounded Total damage estimate: EUR 684 million	estimate: EUR 117 million remediation and reconstruction: EUR 270 million	Multiple fireworks disaster schemes for property damage and personal injury and business schemes
Volendam New Year's Eve Fire (2001)	14 deaths 63 with serious burns 273 with other injuries Total damage estimate: minimum of EUR 50 million	EUR 18 million	Multiple schemes for young victims suffering personal injury
Schiphol Fire (2005)	11 deaths 15 injured	EUR 70,000 in compensation EUR 160,000 for additional immaterial compensation total: EUR 230,000	Compensation for immaterial damage for survivors
Moerdijk Chemicals Fire (2011)	approx. EUR 71 million (government) EUR 4.5 million (citizens and businesses)	one-off payment by national government to municipality of Moerdijk: EUR 3.5 million (municipality's total costs: EUR 12.45 million) one-off payment by national government to Brabantse Delta Water Board: EUR 5.25 million (water board's total costs: EUR 13.5 million) safety regions' total costs: EUR 7.29 million Province of Noord-Brabant total costs: EUR 38.22 million p.m. farmers compensated by State Secretary Henk Bleker	

The ad hoc, nonmandatory compensation schemes differ considerably in terms of the type of loss or damage covered (personal injury or property damage, compensation for costs incurred), the size of the payment, the parties eligible for compensation (individuals, businesses or authorities) and the method of financing.⁸ The funds set up for victims of the Enschede Fireworks Disaster (2000) and the Volendam New Year's Eve Fire (2001) involved charitable donations. In the case of the swine fever, bird flu and Q fever epidemics, no one was directly responsible for the damage, but the relevant sector did suffer serious financial consequences. The compensation paid to farmers after the Moerdijk Chemicals Fire (2011) was similarly politically motivated. The nonmandatory compensation paid to victims after the Bovenkarspel Legionellosis outbreak (1999), the Bijlmer Aviation Disaster (1992) and the Schiphol Fire (2005) can be

described as a frugal expression of sympathy in the form of a one-off payment for immaterial damage. The schemes set up for the victims of the Enschede Fireworks Disaster and the Volendam New Year's Eve Fire were much more generous. They encompassed a supplementary social insurance benefit (for personal injury) (CTRC 2004 and Ammerlaan 2009) and, in the case of the fireworks disaster, compensation for property damage (Van der Helm 2003). The nonmandatory compensation paid out by the national government to local authorities after the Moerdijk Chemicals Fire (2011)⁹ was based on the intergovernmental rationale that local government should not be saddled with the costs.¹⁰

There is a persistent misconception that government pays out nonmandatory compensation only in cases of mass damage. In fact, victims of premeditated crimes of violence also receive compensation from a special government fund (Groenhuijsen 2001). A special compensation scheme was also set up in 2000 for mesothelioma patients who had contracted the disease due to occupational exposure to asbestos.¹¹ The scheme pays workers with an irrecoverable claim a lump-sum benefit (Peeters 2007). It is therefore conceivable that government will eventually play an even larger role in the domain of physical safety by providing nonmandatory compensation for forms of uncompensated damage other than mass damage, for example because individual victims or civil society organisations unite to exert political pressure.¹²

Government thus has a choice in cases of nonmandatory compensation. It is not under a statutory obligation to compensate the injured parties. It is also free to decide whether it will create claims and, if so, how far it is prepared to go, within the limits set by general principles of good governance. This makes it possible for government to set financial ceilings (per scheme or claimant), to limit the group of potential claimants, to establish criteria related to the claimants' financial means, and to impose additional requirements and obligations (Den Ouden and Tjepkema 2006).

Government liability

Government can also be held liable for deficient supervision or enforcement, for errors in granting permits, and for faulty maintenance leading to violations of physical safety or additional damage. It is then subject to a statutory obligation to pay damages. If the courts find that government should be held liable, then the case involves a lawful or unlawful act on the part of government under administrative law, or an unlawful act under civil liability law. Victims of the Bovenkarspel Legionellosis outbreak (1999), the Enschede Fireworks Disaster (2000) and the Schiphol Fire (2005) made unsuccessful attempts to hold government liable in civil proceedings (Barkhuysen and Van Emmerik 2003, 2004; Van Maanen 2007). The Dutch courts seem reluctant to accept government liability under civil law for violations of physical safety.¹³ This means that go-

vernment enjoys considerable immunity (Van Ravels 2006). That immunity is not unrestricted, of course, nor should it be: in a constitutional system, it must be possible to hold government accountable for its failings.

Public damage

In addition, government foots the bill for public damage (i.e. damage in the public domain). It can attempt to recover the cost from the party that caused the damage, if such a party can be designated (which is not possible when the causes are primarily natural ones), but if that proves impossible, then the cost is covered from the public purse.

In short, when damage arises in the domain of physical safety, government tends to step in if damage in the public domain cannot be recovered and it provides nonmandatory compensation for damage in the private domain. In addition, the social insurance system (including the Sickness Benefits Act, the Disability Benefits Act, the National Assistance Act, the Unemployment Benefits Act, and the Surviving Dependents Act) can also be classified as damage arrangements, because those who have suffered illness, occupational disability and loss of income due to violations of physical safety can fall back on such schemes.¹⁴ Government also often makes ad hoc arrangements to compensate those who have fallen victim to uncompensated mass damage through no fault of their own (nonmandatory compensation). We must emphasise, once again, that government is not required to do so, but that a refusal does not solve the problem of uncompensated damage. That is why we will consider the reasons for uncompensated damage. Our examination of this question will bring parties to light that could or should play a role in damage arrangements.

4.3 REASONS FOR UNCOMPENSATED DAMAGE

Uncompensated damage is a many-headed monster. There are various reasons why damage may be uncompensated in current practice. It may be that the damage cannot be ascribed to a particular source, or that the threat to physical safety was uninsurable or uninsured. The damage may also be irrecoverable, even if a source has been established. The victims' inability to bear or recover all or part of an uncompensated loss results in a political problem. Damage is also uncompensated if government is unable to recover a loss from the source of public damage. All these reasons imply that there is a range of political and administrative challenges involved and many different reference points for reassessing the allocation of responsibility. We must therefore look more closely at the various reasons for uncompensated damage.

Attribution problem

Many threats to and violations of physical safety centre on the question of who or what is responsible for the damage (attribution of damage or suffering, for example a chronic illness, a loss of biodiversity, a decline in wellbeing or the loss of an object of cultural heritage). The problem of attribution often means that damage is irrecoverable and, possibly, uninsured or uninsurable. Mourik (2004) provides an example in which the damage (dead livestock) could not be attributed to polluted water even though the contamination had been demonstrated beyond a doubt. None of the parties involved would admit responsibility for the situation. The livestock remained sick (or continued to get sick), the water was still polluted, and several of the farmers involved went bankrupt. This example illustrates how the attribution problem can serve as a negative incentive for avoiding damage and risk management.

Irrecoverable damage: getting blood from a stone

Dutch tort law sets strict eligibility requirements for compensation (Tzankova 2007). Even if victims have cleared the hurdle of tort law, the damage is often irrecoverable owing to limited coverage under the responsible party's liability insurance policy and that party's limited ability to pay (Table 4.2). Victims – including government – have little or no recourse to the party that caused the damage. Small and medium-sized companies often have liability insurance that covers approxima-

Table 4.2 Examples of damage arrangements or lack of such arrangements in violations of physical safety (for the specific damage/loss, see Table 4.1) ↵

INCIDENT	INSURANCE COVERAGE AND SOLVENCY
Bijlmer Aviation Disaster (1992)	Boeing and El Al were sufficiently insured and solvent. Victims in the “zone of danger” received full compensation from El Al and Boeing (under US law).
Bovenkarspel Legionellosis outbreak (1999)	Exhibitor 1: EUR 453,780 and Exhibitor 2: EUR 1.13 million; loss irrecoverable from parties responsible
Enschede Fireworks Disaster (2000)	SE Fireworks: EUR 1.13 million; loss irrecoverable from party/parties responsible
Volendam New Year's Eve Fire (2001)	Pub owner's own assets: several millions of guilders; insurance coverage: EUR 1.13 million; loss partly irrecoverable from party responsible
Moerdijk Chemicals Fire (2011)	According to the media, the insurance fell far short of covering the damage and the insurer has so far refused to pay. Chemie-Pack has since gone into liquidation, but has been relaunched under a new name and new management. Loss is irrecoverable from the party responsible

tely EUR 1 to 2.5 million in the event of damage arising from liability.¹⁵ Experience shows that this is never enough in cases of mass damage and/or serious public damage. Nor can consolation be found in the company's equity. What makes such cases additionally complex is that insurers are not obliged to compensate for damage in cases of an act or omission that is purposeful, knowing and reckless (*opzettelijk*), regardless of the amount of coverage. The party that has caused the damage can be sentenced via the criminal courts and liability can be established under criminal law, but whether the victims will be able to recover their losses depends entirely on that party's business and private assets. On top of everything else, victims will be making only one of many competing claims if a business that has caused damage goes into liquidation.

The problem of irrecoverable damage played a role in the Enschede Fireworks Disaster (SE Fireworks), the Bovenkarspel Legionellosis outbreak (exhibitors), the Volendam New Year's Eve Fire (the pub owner), and the Moerdijk Chemicals Fire (Chemie-Pack). Wringing financial compensation from the relevant businesses was like getting blood from a stone (Table 4.2). The contrast with the Bijlmer Aviation Disaster could not be greater: El Al and Boeing organised satisfactory damage arrangements. The aviation sector is often mentioned and praised as admirable. It combines exemplary damage arrangements with a culture of safety in which the core business is to prevent incidents, avoid or limit damage, manage risks and deal with uncertainty. This example suggests a practical correlation between the two aims of damage arrangements: covering damage and preventing it.

Given the problem of recoverability, we may certainly expect risk-bearing businesses to take steps to limit damage, manage risk and deal proactively with uncertainty (see also 4.4.1). Once an incident has occurred, victims and government have often been turned away empty-handed.

Insurable/uninsurable

Damage may also be uncompensated because it is uninsurable: there is no insurance package available to cover the specific risk, or the premiums are considered out of proportion to the cover (and as a result, no one takes out policies and the insurance company discontinues the package). This plays a role in natural disasters, environmental damage, mass damage and new and hence uncertain risks. The problem of insurability becomes urgent if the victims are unable to bear most or all of the loss, if the damage is irrecoverable (even if there is a responsible party), and if government is unwilling to pay nonmandatory compensation or does not have or wish to use resources to compensate public damage. The question is therefore: can the potential sources of damage (by means of third party coverage¹⁶) and potential victims (by means of first party coverage¹⁷) in fact insure themselves adequately against risks in the realm of physical safety?

The rationale behind the Damage Compensation (Disasters and Serious Accidents) Act (WTS) lay precisely in such problems of insurability. Since the devastating floods that struck the Netherlands in 1953, Dutch insurers have insisted that the risk of flooding is uninsurable (Faure and Hartlief 2002).¹⁸ Insurability or uninsurability is therefore not a law of nature; it is the result of negotiation. Increasing the scope of insurability usually requires insurers, reinsurers and government¹⁹ to join forces²⁰ and citizens and businesses to be prepared to insure themselves or to show solidarity in that regard. There have been various attempts to make flood risk insurable, but these cases illustrate how difficult it is to clear all the various hurdles. They also demonstrate that there is scope for innovation in the world of insurance, however. Indeed, some progress has been made: certain risks related to water damage can now be insured. Flood damage caused by rainwater is covered by brick and mortar insurance, and harvests can also be insured against water damage.

According to Faure and Hartlief (2002; 2006a; 2006b), progress in extending the scope of insurability has ground to a halt because the private insurance market has been unable to find solutions to such problems as cumulative damage, faulty data and the phenomenon that only high-risk individuals and businesses take out insurance (adverse selection).²¹ In their view, insurers should be encouraged to solve these problems and not conclude too quickly that certain threats to physical safety are uninsurable, with the responsibility for damage automatically being shifted to government. But the question is whether government has itself failed to take advantage of opportunities to make risks, for example flood risk, insurable, and whether it might still be able to do so.

It is often assumed pre-emptively that uncertainty is uninsurable and that insurers cannot play a meaningful role in damage arrangements. The thinking is that it is impossible for insurers to calculate a suitable premium if the risk is insufficiently known. And yet, there are certain potential violations of physical safety that can be described as highly uncertain but to which insurance makes a decided contribution to the relevant damage arrangements. One is in the field of nuclear energy, where a stratified system has been created:²² nuclear power plants are obligated to take out liability insurance coverage for EUR 340 million (after the Nuclear Accidents Liability Act (WAKO) enters into force, that sum will increase to EUR 700 million).²³ Several insurers participate in a Dutch atomic energy insurance pool set up for this purpose, with most of the risk being reinsured with foreign atomic energy insurance pools. If the amount paid out is insufficient, part of the loss will be borne by the countries that have signed the Brussels Convention. Nuclear accident compensation and liability is regulated under the OECD's 1960 Convention on Third Party Liability in the Field of Nuclear Energy (Paris Convention), and the IAEA's 1963 Convention on Civil Liability for Nuclear Damage (Vienna Convention). Insurance or financial secu-

rity is mandatory, yet there are limits on the amount, duration and types of damage, and strict and channelled liability for the plant operator. The Dutch State also has a EUR 14 billion guarantee obligation (under the Ministry of Finance's budget), i.e. more than EUR 2 billion per plant covered under the WAKO (EUR 3.2 billion after the Act is amended). The State is required to provide the guarantee.²⁴ The Dutch government thus acts as a reinsurer in this case (see also Bruggeman 2010). This example shows that setting a ceiling on liability can help create a market for insurance and help market parties discipline one another when it comes to avoiding incidents, preventing damage, managing risks and exploring uncertainty.

Another example comes from the domain of security and concerns the way in which insurers deal with the uncertainty of terrorism. After 9/11, insurers – feeling pressure from reinsurers²⁵ – removed damage or loss arising from acts of terrorism from all their policies. However, in 2003 a dedicated reinsurance company for terrorism cover, the NHT, was set up in the Netherlands to which insurers make proportional contributions, with government as a 'last resort' for catastrophic damage.²⁶ If a terrorist act leads to mass damage, in other words, the damage arrangements will be made through the insurance sector.

It is clear that innovative damage mechanisms are feasible for uncertainty as well, and that insurers or the insurance industry may have a part to play. Introducing such mechanisms will, however, require fundamental political choices. One such decision could be to focus on first party insurance for environment risks. That would mean that potential victims would take out insurance against damage (or would be obliged to do so), even though they carry none of the blame for the threats.²⁷ Such a system is contrary to our modern sense of fair play, but in certain circumstances it would make it possible to provide coverage for (uncertain) damage.

Uninsured damage as a political issue

Alongside uninsurable damage, some incidents may lead to uninsured loss that is beyond the victims' ability to bear. It is unreasonable to expect potential victims – individuals and businesses – to make extensive insurance coverage for environment risk a priority in their cost-benefit analysis. Basically, then, insurable damage is not always insured or adequately insured. In addition, it is only when the damage becomes visible that the actual degree of coverage is clear. Only then do individuals and businesses that once considered themselves well insured find they are facing uninsured damage after all. Cover is seldom unlimited; the claims paid out tend to be standardised amounts. But an insured party may only discover that after the damage is done.

Many of the victims of the Enschede Fireworks Disaster, which devastated a low-income neighbourhood, were underinsured or uninsured (Ammerlaan 2009); the same was true of the Bijlmer Aviation Disaster, in part because many of the victims were illegal aliens. When individuals or businesses suffer uninsured damage through no fault of their own, the incident very quickly becomes a government matter, especially if the victims are unable to bear most or all of the loss. If the loss is irrecoverable, for example because the party causing the damage was underinsured, it would be cruel to ignore the uninsured or underinsured victims, who in many cases will not or could not have been aware of the risk in their environment.²⁸

4.4 DAMAGE ARRANGEMENTS AS A BASIS FOR A BALANCED ALLOCATION OF RESPONSIBILITY

Is there a problem with the way the responsibility for damage arrangements is now allocated? We can interpret this question narrowly to mean: does government have a financial problem? Are the losses suffered by government such that we are justified in reallocating that responsibility? This is a political question that cannot be answered here. What we would like is to reframe the question regarding the current system of damage arrangements. Are all of the parties given sufficient incentives to prevent or at least limit damage as much as possible? And if damage occurs after all, are the necessary financial resources available to bear the losses involved? Government is in a position to take responsibility for the damage arrangements system.²⁹ Our analysis of uncompensated damage has shown that there are indeed parties to which government could allocate or with which it could share responsibility. At the same time, this particular line of action raises new challenges for government.

It is not possible to come up with a general system of damage arrangements for the entire domain of physical safety (Faure and Hartlief 2002, 2006; Bruggeman 2010). We need to find the right balance in each sector and policy area when allocating responsibility between the different parties, each of which could also play various different roles. For example, the SME sector in the chemicals industry is organised very differently than sectors typified by international production chains (food safety), fragmentation and complex hierarchies of contractors and subcontractors (construction safety), or with more or less institutionalised public-private mechanisms for damage arrangements (nuclear energy, animal diseases). The risks and uncertainties may also differ so much that questions related to insurability and insurance have to be addressed in very different ways. There is thus no general, one-size-fits-all solution. Nevertheless, there are three general questions that must always be asked, even though they may lead to a different answer in each context:

- How can trade and industry be held accountable?
- What can we expect of citizens?
- What role should government play?

Each of these questions raises political and administrative issues and provides different reference points for reassessing the allocation of responsibility. It is also important to realise that choices made in one area may have consequences for another, for example for what is possible in terms of public support or political feasibility. Deciding to tolerate ‘free riders’ in trade and industry is difficult to combine with the demands insurers make on citizens. The same goes for a relaxed regime of licensing, maintenance, supervision and enforcement, a bare-bones system of social insurance and nonmandatory compensation, and liability legislation that offers little comfort. The burden is then shifted unilaterally onto the innocent victims. On the other hand, if nonmandatory compensation is too generous, other parties will be disinclined to accept their share of the responsibility for damage arrangements. Measures that favour damage coverage will not necessarily provide the right incentives for preventing incidents and damage, managing risk and dealing proactively with uncertainty.

4.4.1 **BUSINESSES TAKING RESPONSIBILITY FOR THEMSELVES AND SOCIETY INTRINSIC MOTIVATION³⁰ FOR PHYSICAL SAFETY**

Some sectors and individual businesses are intrinsically motivated to take responsibility for threats. The aviation sector is a prime example, and according to our interviewees, the same is true of the ‘chemicals giants’. In these sectors, a culture of safety goes hand in hand with generous damage arrangement policies. They not only look at their own methods and systems, but also consider the circumstances (hazardous and uncertain) in which they operate. Other industries or sectors have made public-private arrangements for damage, for example in the livestock sector via its industry boards. In addition, there are industry organisations that act as platforms for providing information³¹ and coordinating matters related to physical safety. Industries and sectors may be more proactive than government believes when it comes to thinking about risks and uncertainty. They are motivated by considerations of corporate social responsibility and by concerns about business continuity or reputation. Examples include the Compendium of Construction Safety,³² drawn up by a broad range of representatives in the construction industry (Galjaard 2011), and the Safety First action plan drafted by Dutch trade union confederation VNO-NCW and four industry organisations in the chemicals and petrochemicals industry. One example of industry self-regulation is the NEN standards,³³ developed (and financed) by trade and industry. These can also play a role in public law, however, when they are inserted into legislation and regulations. That is what happened with the Dutch Buildings Decree and the associated general orders in council.

NEN standards have been produced for food safety, the environment, fire safety, hazardous substances, and nanotechnology.

Uncertainty mechanisms could be designed to make more use of such intrinsic motivation for physical safety, and of the willingness shown by businesses and industries (and the resulting knowledge and expertise) (Chapter 3).

External incentives

Unfortunately, not all of the businesses that operate in the Netherlands are intrinsically motivated. If we view matters from the perspective of damage coverage, then it becomes clear that the traditional ‘polluter pays’ principle and liability legislation do not offer either government or citizens enough assurance that their losses can be recovered from risk-bearing parties.³⁴ Even the threat of liquidation and criminal proceedings is evidently not enough to cause some businesses to take responsibility for preventing incidents, limiting damage, managing risk, dealing proactively with uncertainty and introducing provisions to cover any damage that may arise. And it is the victims, and society in general, that pay the price. The quick scan of high-risk companies³⁵ mentioned earlier (in Chapter 2) revealed that many businesses are unable to show compliance with current fire safety rules, despite the serious risks and uncertainties involved. Fire safety is a primary risk, because the first ones to be affected are the people who actually work in the business. Why should we then assume that such businesses will take responsibility for the broader context if there is no incentive to do so? And how can such free riders be persuaded or forced to make adequate arrangements for damage?³⁶

Insurers and lenders

Perhaps the financial sector can also play a role in this respect. Insurers and lenders have an interest in working with damage-free businesses, and it is disadvantageous for them to involve themselves in businesses that fail due to uncompensated damage. How can financial guarantees be aligned more closely with potential threats to physical safety and potential damage? Do insurers make enough use of the various options available to them (such as inspections, policy conditions and higher or lower insurance rates) to promote prevention, risk management and a proactive approach to uncertainty (Havinga 2010)? What role is there for the lenders, given that they often already impose damage and liability insurance obligations on borrowers? How can we help insurers promote physical safety as a public interest?³⁷ Is it a good idea to impose a duty of care on them? Dutch legislation and regulations currently restrict the role of insurers in damage and liability insurance, for example owing to exemptions under the Financial Supervision Act (WFT). It seems as if the legislature optimistically assumed that such policies are relatively simple products and that businesses know enough to insure themselves adequately against major

risks. The duty of care could also be modelled on the German system, however. There, insurers (and insurance agents) are obliged by law to advise businesses on insured amounts and coverage. In other words, they must point out gaps in coverage. If businesses base themselves on that advice and suffer uncompensated losses, then they can hold the insurer liable. This gives the insurance industry a very good reason to analyse risks and uncertainty proactively and to acquire the necessary expertise in that regard. Businesses, in turn, are obliged to inform insurers adequately about their activities.³⁸

Insurers have always tried to find a balance between safety and risks (Hartlief 2009). They too are concerned about ‘new risks’ such as electromagnetic fields and nanotechnology. What more can they do to help weigh up opportunities and threats, both for individual businesses and in the political and public debate?³⁹ The financial sector could play a larger role as a partner in the proposals, initiatives and activities mentioned in Chapter 3.

Costs and benefits

The responsibility for damage arrangements – in the double sense of covering damage on the one hand and preventing damage, managing risk and dealing proactively with uncertainty on the other – means that business costs may increase.⁴⁰ Those who question whether potential sources of damage should be held primarily responsible often use this economic disadvantage to back up their argument. It means, however, accepting that the responsibility is then shifted to citizens, other businesses and government. Another frequent argument is that high operational costs will be included in the price, and that the citizen, in the guise of the consumer, ultimately pays. But is that really so terrible? It could in fact be argued that consumers should help pay for safe production processes, rather than passing on the cost to the taxpayer, either directly or indirectly. For a trading nation such as the Netherlands, it will not only be the Dutch consumer who foots the bill. And as we already argued in Chapter 3, Dutch trade and industry also benefits from a high level of physical safety and adequate damage arrangements. Here too, one has to spend money to make money.

Potential victims

Businesses are not only potential sources of damage or partners in organising damage arrangements; they themselves can incur losses or benefit from such arrangements. Can businesses, as potential victims, be encouraged to take responsibility for their own losses? Which threats to physical safety should be regarded as a normal business risk that companies are responsible for themselves? Which risks are insurable or should be? And when are collective damage arrangements (private, public-private or public) necessary to ensure a healthy business climate?

In summary, the point is to hold trade and industry – both individual businesses and sectors – accountable for themselves and for their responsibility to society, in differing roles: 1) as a potential cause of damage, 2) as a potential victim and interested party in matters of damage arrangements and physical safety, and 3) as a facilitator regarding both of the aims of damage arrangements.

4.4.2 THE ROLE OF CITIZENS

Citizens often have only a limited chance of avoiding or controlling threats to physical safety. They can be offered a *modus operandus*, however: they can be taught what to do to avoid or to minimise damage. One essential factor is to provide them with proper information about the risks in their environment and their insurance options. Organising drills can help them put the *modus operandus* into practice. At the moment, practical drills are often left to the professionals. Citizens are not involved and evacuation drills are in fact usually announced in advance so that there is no disruption to everyday life (“remain seated, this is only a drill”). In countries such as Japan and Singapore, it is more customary for people to learn how to cope with physical safety issues and receive training with respect to specific threats. People are more aware of what they are supposed to do.

Citizens also come into focus as potential victims. The question then is whether they can insure themselves sufficiently and whether first party insurance is the best option. On the one hand, the idea that everyone must pay for their own damage – a basic principle that dates from the nineteenth century (see the WRR report *Uncertain Safety* for a more detailed discussion) – should motivate citizens to take responsibility for damage arrangements themselves. On the other, the law provides grounds to get other parties to pay for the damage. This is where the ‘polluter pays’ principle comes in. Victims must take the initiative to recover their losses from the source of the damage. That does not happen automatically. Experience shows that in cases of mass damage,⁴¹ the victims find very little financial consolation through tort law.⁴² As one of the aims of damage arrangements is damage coverage, this would be a good reason to emphasise first party insurance, in keeping with proposals made earlier in this chapter and as recommended by an independent advisory board on state disaster compensation (Borghouts Committee 2004).⁴³ At the same time, it would be unfair if making potential victims responsible for themselves also discourages potential sources of damage from making adequate arrangements. The responsibilities expected of potential victims must be balanced by obligations imposed on high-risk industry. The demand for fairness – including situations in which there are geographical, social, economic and demographic differences (see Chapter 3) – must be addressed.

4.4.3 THE ROLE OF GOVERNMENT

Government plays several different roles when it comes to damage arrangements. To begin with, it is responsible for the system of damage arrangements, because it is in a position to actively allocate responsibility within the system. The question is what government can do to get businesses and citizens to shoulder their responsibility, either by incentive or coercion. Second, by issuing permits and licences and taking charge of maintenance,⁴⁴ enforcement and supervision, government is responsible for preventing incidents, avoiding damage, managing risk and reducing uncertainty. It can be held accountable in the legal, ethical and political senses. Third, government plays a role as a safety net (through the social insurance system) and life buoy (through nonmandatory compensation). Finally, government is also involved in damage arrangements as a potential victim. For a balanced allocation of responsibility, it is important that these differing roles are properly coordinated and aligned with what is expected of businesses and citizens.

Responsible for the system

In many cases, government is itself in a position to decide what should be considered ‘normal danger’ (and therefore as bad luck⁴⁵ that victims must bear themselves) and what counts as a violation of physical safety for which a collective contribution to claims settlement would be desirable. Government can also share or delegate responsibility: it can obligate or induce citizens and trade and industry to take on certain responsibilities. That is how it bears responsibility for the system of damage arrangements.

Whether businesses should be capable of bearing all the consequences of their actions (with the most extreme consequence being that a certain business does not wish to or cannot set up operations in the Netherlands), or whether reasonable provision is expected to be made for damage are ultimately political decisions. The same is true when considering whether citizens are deemed capable of bearing all their losses by themselves, or whether and to what extent solidarity is appropriate. Is government prepared to oblige or force potential victims to bear the responsibility for their own losses, for example by making first party insurance mandatory or by dismantling fundamental provisions for nonmandatory compensation? How can government encourage citizens and businesses to be ready and willing to accept and take more responsibility for physical safety?⁴⁶

Government can obligate risk-bearing parties to make arrangements for damage, for example by setting certain requirements in permits, making liability insurance mandatory,⁴⁷ holding executives and shareholders liable, imposing administrative fines⁴⁸ or forcing the parties to participate in a damage guarantee

fund.⁴⁹ With regard to mandatory insurance, Belgium is the only country that has general mandatory liability insurance for businesses (Bruggeman 2010: 267-269 ff; Akkermans and Brans 2002: 13). There are differences between countries that are worth exploring, however. For example, businesses in the pharmaceutical industry in Germany must have liability insurance. In addition,⁵⁰ government can try to get trade and industry to internalise its sense of responsibility. Could an inspection regime based on trust⁵¹ help in this regard?⁵² According to Six (2011), it is important in combined regimes for government to make clear to businesses that they have a choice: their treatment will be the result of how they conduct themselves. That should encourage businesses to take responsibility voluntarily.

Responsibility for issuing permits, maintenance, enforcement and supervision

Government is also responsible for issuing permits, for maintenance, for enforcement and for supervision. In that capacity, it too weighs up opportunities and threats and, as the party bearing operational responsibility, it must consider how to deal with uncertain dangers and damage (see *Uncertain Safety* for a more detailed discussion).

Government's permit, enforcement and supervision systems can induce, inspire or force potential sources of damage to display responsible behaviour and make arrangements for damage. The authorities can also take the relevant business's reputation into account when issuing permits. They can refuse to issue permits to a business that has a bad track record in physical safety or displays signs of free ridership, or it can make additional demands on damage arrangements. Businesses that have a weak culture of safety and inadequate damage arrangements can be tackled more aggressively, in the knowledge that a liability claim will not, after all, provide any compensation if damage does arise (see also Chapter 2, which indicates that enforcement is often cited as the main problem in post-incident evaluations).

Safety net and life buoy

The social insurance system functions as a safety net for the victims of damage that cannot be attributed to a particular cause. The provisions are basic, tied to standardised amounts, and victims are entitled to benefit, essentially regardless of the cause. In addition, government can throw victims another life buoy in the shape of nonmandatory compensation. In accordance with current practice, it uses this to compensate victims for part of their private losses in cases of serious damage in the physical safety domain. Even if society does not consider this system problematical in financial terms, the question is whether the current practice of nonmandatory compensation provides other parties with enough incentives to take responsibility for preventing damage, managing risk and investigating uncertainty.

At the moment, many of the nonmandatory compensation schemes are specific, even unique. It seems advisable, then, to develop an overall strategy for nonmandatory compensation based on a set of principles, so that in the case of uncompensated damage, government need not give in immediately to the demand for a generous compensation. If its gestures are overly generous, businesses, insurers, lenders and citizens will not be encouraged to take responsibility themselves, make their own provisions and make a serious appraisal of the opportunities and threats.

The most far-reaching option is to develop a fundamental, general framework for nonmandatory compensation.⁵³ A general framework is not a goal in itself, but a means to provide clarity about what government will do. The other extreme is to annul the WTS and similar fundamental schemes, with only the social insurance system remaining as a basic safety net for victims. Government can also decide to make ad hoc arrangements, tailored to each specific situation, or – analogous to the foreign disaster relief provided via charitable organisations – help pay for the damage (matching donations).⁵⁴ To avoid having to reinvent the wheel every time, with all the associated perverse impacts, we recommend defining a few basic principles for assessing specific initiatives involving non-mandatory compensation.

Government as a potential victim

As the custodian of public assets, government can also be involved in the damage arrangements system as a potential victim. If violations of physical safety lead to environmental pollution, to damage suffered by objects of cultural heritage, or to damaged infrastructure, public areas and buildings, then government must bear its ‘own’ losses, unless it can recover them. The limitations of the liability claims system, in the financial sense, apply in the case of government as well. It is therefore in government’s interest to have access to a system of damage arrangements that either prevents damage from occurring or ensures that it is sufficiently covered. This realisation is echoed in the letter that the Minister of Security and Justice, Ivo Opstelten, presented to the House of Representatives after the Moerdijk Chemicals Fire (2011). Because the company went into liquidation, the clean-up costs had to be paid by local and central government:

“What is most important is that Chemie-Pack must be regarded as the party responsible for the fire. As such, it is obliged to compensate for the costs associated with the disaster. The Government believes it is important to remind citizens and businesses not only of their rights but also of their obligations. This means that as much of the cost of the disaster will be recovered from the party responsible, Chemie-Pack, which has now gone into liquidation. We must not encourage a culture in which all eyes turn automatically to government to cover these sorts of clean-up costs.”

It is clear that fighting such a culture – a worry clearly expressed in the questions that the WRR was asked to consider – will also require government to arrive at a balanced system of damage arrangements in which there is a reallocation of responsibility, in part in its own interest as a potential victim.

4.5 CONCLUSION

Physical safety is one of the core responsibilities of government, but government cannot foot the bill for safety and damage on its own. The Minister's request expresses government's worry that it is playing far too great a role in damage compensation. We have noted that government comes into play as an actual or potential victim (in cases of public damage) and as a life buoy (non-mandatory compensation; in addition, it also acts as a safety net for victims via the social insurance system). On the other hand, there are serious barriers to holding government liable for damage in connection with its responsibility for permits, enforcement and supervision. In that sense, liability is not a problem for government when viewed from the narrow (financial) perspective on damage compensation.

The reference points for trimming government's role must be sought in a reduction in uncompensated damage. Government can effect that reduction by sharing and allocating responsibilities and organising incentives for better damage coverage and for damage prevention and limitation. In the end, it can only legitimise its own financial contribution to damage compensation if it takes responsibility for the system of damage arrangements and if the other relevant parties also bear their share of the burden.

This chapter argues that the concept of damage arrangements offers us a strategy for sharing and reallocating the responsibility for physical safety. Our proposal is to reframe the question of the balanced allocation of responsibility in terms of good and best practices when dealing with damage. Government's role in avoiding threats (i.e. the way it deals with risk and uncertainty) and in compensating for violations of physical safety (i.e. the way it deals with incidents and damage) is part of this process.

Based on the damage arrangements perspective, the allocation of responsibility for physical safety is balanced if 1) all the relevant parties are encouraged to prevent damage as much as possible, or at least to limit it, and 2) if the necessary financial resources are available to expedite damage control and management. Damage arrangements serve two purposes, then, but something that serves one purpose will not necessarily serve the other. That is why government requires a coherent strategic vision when it comes to sharing and allocating responsibility.

By unravelling the reasons for uncompensated damage (including problems of attribution, the ‘blood from a stone’ problem, and uninsurable and uninsured damage), we have been able to examine the political and administrative challenges and reference points and explore which parties have an interest in the damage arrangements system or are or could be involved in organising such arrangements. It is not possible to devise a general system of damage arrangements for the entire domain of physical safety. Segmentation is needed to create systems that can cover subdomains. The mechanisms will differ from one policy area, sector or type of threat to the next, but any thought given to a balanced system of damage arrangements will always come down to answering three interrelated questions:

- How can trade and industry be held accountable?
- What can we expect of citizens?
- What role should government play?

It is important to recognise that citizens, trade and industry and government are and can all be involved in providing for damage in a variety of different roles. The reflections set out in this chapter have led us to a number of conclusions.

First of all, there is no avoiding the fact that risk-bearing businesses bear the primary responsibility. The problem of ‘getting blood from a stone’ illustrates that such businesses ought to play their part in damage prevention, risk management and dealing with uncertainty. A lecture after the fact about blame and liability is not sufficient. It is all too easy, misleading and in fact dangerous to view the primary responsibility of potential sources of damage purely as a matter of regulatory pressure. The discourse about the ‘risk-regulation reflex’ (Chapter 2) and ‘goldplating’ (Chapter 3) offers a strong inducement to do so, however.

Businesses that accept their primary responsibility for physical safety, either owing to intrinsic motivation or external incentives, should not be unfairly disadvantaged as a result, for example due to unfair competition from businesses that do not accept such responsibility. To ensure that responsible businesses operate on a level playing field, it is important to deal firmly with ‘free riders’ and see that they do accept primary responsibility for damage arrangements. That can easily be combined with an ‘honour system’ for businesses that demonstrate a sense of responsibility. But if politicians are reluctant to hold risk-bearing businesses accountable in this way, either because they are afraid to do so or because they do not take the matter seriously enough, then government will end up paying a large chunk of the price for safety and for any damage that occurs. If that happens, it is unlikely that society will accept giving potential victims more responsibility for damage arrangements.

Second, it would be a pity if insurers and lenders were not actively involved both in contemplating the damage arrangements system (and in particular how to increase insurability) and in government initiatives and actions aimed at dealing with risk and uncertainty (see Chapter 3). The same is true for industry organisations and individual businesses that demonstrate intrinsic motivation. Insurers, lenders, intrinsically motivated and willing businesses and industry organisations could play a meaningful role both in appraising and in systematically intertwining opportunities and threats.

Third, it is important to address, specifically, the important role that citizens could play in limiting (*modus operandus*) and covering (first party insurance) damage. The aim should be to prevent nonmandatory compensation from giving rise to perverse incentives. Potential and actual victims should also always be made aware of the limitations of liability legislation: in the end, very little compensation if any is ever awarded by invoking the law of torts. Potential victims should be aware that the notion that they should bear their own loss is not only an ancient legal principle but also an inconvenient truth, even though it conflicts with the ‘polluter pays’ principle. At the same time, it is difficult to imagine that the bill for damage should be footed solely by citizens. After all, they have very little control over threats to their physical safety and very little chance of avoiding such threats. In any discussion of the contribution to be made by potential victims, it is important to address the issue of fairness. In order to create the necessary support in society for first-party insurance, and to avoid a situation in which it is only able to respond to a legitimate demand for fair play by offering nonmandatory compensation, government will not be able to avoid placing the primary responsibility for physical safety squarely at the feet of risk-bearing parties.

Finally, government’s responsibility for the damage arrangements system and for permits, maintenance, enforcement and supervision should be much more central to the way we think about its responsibility for physical safety. This means paying more attention to how those responsibilities can be met, so that government can eventually curtail its role in compensating public damage and acting as a safety net and life buoy. As a potential victim of public damage and uncompensated losses to society, government also has a vested interest in damage arrangements. Such arrangements deserve a spot on the political and administrative agenda not only because physical safety is one of government’s core tasks, but also because government’s own interests are at stake.

NOTES

- 1 The Council for the Environment and Infrastructure (2011) has also drawn attention to damage arrangements.
- 2 This issue has been recognised and is a point of discussion in ‘disaster-prone’ countries such as Australia.
- 3 The history of the Netherlands’ external safety policy begins in around 1800. See Ale (2003) for a detailed historical survey up to the early twenty-first century.
- 4 Den Ouden and Tjepkema (2006) say that “in everyday language, legislative practice and case law ... terms such as allowance, benefit, income provision, contribution, compensation, damages, funding, aid and subsidies are not always used consistently and sometimes even entirely incorrectly” (p. 4). Den Ouden and Tjepkema argue that applying the wrong term for a nonmandatory financial payment, either in error or consciously, can give rise to all sorts of practical and legal problems.
- 5 For example overflowing rivers, collapsing dikes, earthquakes and heavy precipitation. In essence, no one is to blame for such disasters.
- 6 The WTS, which is funded entirely from the public purse, compensates victims only for uninsurable and irrecoverable damage (in other words, it does not provide full compensation). The amounts paid out are standard and there is an ‘own-risk’ element.
- 7 In 2004, the CTRC (also known as the Borghouts Committee) argued in favour of expanding and revamping the WTS into a national solidarity fund in order to arrive at a “consistent and practical government safety net” in the domain of physical safety. That recommendation has so far not been followed.
- 8 See the CTRC (2004) for a detailed discussion. See also Hartlief (2002), Akkermans and Brans (2002) and Ammerlaan (2009).
- 9 See the letter by the Ministry of Security and Justice (16 September 2011) (House of Representatives, 2010-2011, 26 956, No. 112).
- 10 This final example shows that damage settlement has the potential to lead to inter-governmental conflicts. The fire department and municipal authorities appeared to be in default; other authorities, such as the water boards, had run up a bill amounting to millions of euros; and at first it seemed as if the national government wanted no part of it, except for promising, only days after the incident, to pay farmers nonmandatory compensation. It could have come down to one government authority taking the other to court.
- 11 The scheme was a response to deficiencies in tort law (including problems of evidence and prescription, lapse of time). The trade unions and employers’ associations and the Ministry of Social Affairs and Employment also joined together in setting up the Asbestos Victims Institute, which mediates between employers and employees in order to reach agreements.
- 12 The WRR is currently working on a report concerning “trusting in the citizen”, in which it considers how people, once they are properly equipped and are facing a challenge, are quick to organise themselves today using the social media when they want government to do something for them.

13 Giesen and Van Boom 2001; Akkermans and Brans 2002; Muller and Stolker 2001;
 Spier 2002; Gundelach and Michiels 2003; De Mot 2001; Van Rossum 2005; Ammer-
 laan 2009; Bruggeman 2010.

14 The question is whether discussions of the future of the social insurance system make
 enough allowance for the fact that the system also provides for people affected by
 incidents and damage in the domain of physical safety.

15 Motorists in the Netherlands are required to take out liability insurance (many people
 do not seem to realise that the obligation only applies in that context; they take out
 general liability insurance anyway, which is then referred to in everyday language as
 ‘third-party insurance’ (WA-verzekering). The insured amount under such private
 policies is between EUR 1 and 2.5 million. Viewed within this context, the average
 amount for which high-risk small and medium-sized businesses insure themselves
 can be considered on the low side.

16 Policy holders insure themselves against losses suffered by third parties owing to an
 act or omission on the policy holder’s part. This includes liability insurance policies.

17 Policy holders insure themselves against their own losses. Examples of first-party
 insurance relevant within the context of physical safety risks are brick and mortar in-
 surance, fire and theft insurance, occupational disability insurance, and motor vehicle
 insurance.

18 Before then, insurance did cover flooding.

19 There are also countries – Belgium and France being two examples – in which the
 risk of flooding is insurable without government intervention, i.e. as a mandatory
 surcharge on brick and mortar insurance (which is basically voluntary). Flood insur-
 ance is also available at low rates in several developing countries (the amounts paid out
 are standardised). It is striking how few foreign insurance companies are active in the
 Dutch insurance market. It is possible for individuals and businesses abroad to insure
 themselves against damage in the Netherlands, but that scarcely ever occurs. Research
 into the reasons is beyond the remit of this document.

20 As far as we know, there are no official discussions between insurers and government
 about insurability and other insurance issues related to physical safety and security.

21 A further consideration is whether the increasingly stringent supervisory regime,
 specifically the requirement of financial solvency, is forcing insurers to cease insuring
 threats to physical safety, even if they would prefer to do so.

22 Letter from the Minister of Finance to the House of Representatives, 20 April 2011.
 Schedule to the Proceedings, 2010-2011, No. 2307.

23 Other major business liability insurance packages are taken out through the insurance
 exchange (www.vnab.nl), as concerns about its own solvency would prevent a single
 insurer from bearing the risk alone. The exchange allows businesses to seek out part-
 ners. The insurance is thus provided by multiple insurers, and if losses are incurred,
 each pays out in proportion to its stake.

24 Based on Article 18 of the Nuclear Accidents Liability Act (WAKO).

25 Insurers, in their turn, depend on the opinions of reinsurers when determining the
 risks that they want to insure.

- 26 See House Documents 28915 Nos. 1 to 3 for a description of the role of government in the NHT. See also Ammerlaan and Van Boom (2003).
- 27 Is government willing and able to encourage citizens to take out coverage for damage in the domain of physical safety, for example following the example of France? This is what Faure and Hartliel (2006a, b) and the CTRC (2004) argue it should do.
- 28 Communication about violations of physical safety is a separate matter that we will not address further in this document. We find it important to state, however, that if there are wishes, expectations or desires concerning the role to be played by potential victims, then they must be appropriately informed about the risks and uncertainties affecting them. See for example the study by Meijer (2004; 2005) on the use of risk maps on the Internet. Citizens make very limited use of the maps; they look at the information but do not respond (no 'exit' or 'voice'). Other stakeholders (property agents, businesses, the media) view the maps but do not exercise social control. Another point of debate is the fear that terrorists will make use of the risk maps. Openness has caused local authorities and businesses to be more concerned about their reputation (and to prepare disaster plans): they act as if citizens and other parties make use of the information and feel as if they are being 'watched'. Meijer's study suggests that the risk maps are an incentive, but not in the manner originally intended. See: <http://www.risicokaart.nl/>. Here too, international comparison could unearth interesting policy options. In France, for example, home owners are obligated to hand over a risk map when selling their property.
- 29 See the WRR's report on *iGovernment* (2011) for another take on the notion of system responsibility within the context of iSecurity. See also: De Hert (2011). In a recent report, the Royal Academy (2011) has also drawn attention to government's responsibility for the system within the context of physical safety.
- 30 See Tyler 2010.
- 31 That means that businesses do not need to acquire knowledge and expertise on risks and uncertainties on their own. Their industry organisations can help them find ways to prevent accidents, limit damage, manage risks and deal proactively with uncertainty.
- 32 <http://www.betonvereniging.nl/>
- 33 www.nen.nl; see also <http://www.rijksoverheid.nl/onderwerpen/certificeren-keuren-en-meten/normalisatie/nederlands-normalisatie-instituut-nen>
- 34 In *Uncertain Safety*, the WRR (2008) explicitly recommended imposing obligations on risk-bearing parties in order to augment the financial guarantees. A similar recommendation had already been made by the CTRC (2004), which said that it was necessary either to establish better payment guarantees for damage compensation or to reduce the risk of liability attaching to an insolvent party. The aim is to prevent any damage from putting undue pressure on public finances, to encourage the serious appraisal of opportunities and threats, and to promote prevention, preparation and a proactive approach to uncertainty. The main aim in *Uncertain Safety* was to create incentives that would get businesses to take responsibility for the risks and uncertainties associated with their activities. A further aim was to get other parties, such

as insurers and lenders, to involve themselves in weighing up the opportunities and threats. Although the Dutch Government looked favourably on this recommendation, there has been no follow-up so far. That is why the WRR has chosen to reconsider the earlier recommendation, in the hope that it can draw attention to damage arrangements policy among politicians and public administrators.

35 See the letters by the Dutch State Secretary of Infrastructure and Environment, Joop Atsma, concerning high-risk businesses (and inspections of those businesses) after the fire at the Chemie-Pack plant in Moerdijk (18 March and 14 July 2011).

36 The quick scan also reveals that many businesses running serious physical safety risks are not members of an industry organisation. Government should join with industry organisations and businesses to explore how risk-bearing businesses can be induced to become members, given how proactively such organisations are attempting to take responsibility and the role that they can play in providing information and coordinating matters in the domain of physical safety.

37 Is competition law hampering them too much in this public role? And if so, how can the necessary scope be created for them? See also the WRR report (still pending) on securing public interest in markets.

38 Correspondence with Gesamtverband der Deutschen Versicherungswirtschaft e.V., the German sister organisation of the Dutch Association of Insurers (*Verbond van Verzekeraars*).

39 In the UK, government and insurers are said to be collaborating on a joint strategic vision concerning insurers' role in society. Because we obtained this information only in the final phases of writing this report, we have not been able to check it.

40 There are also benefits associated with an investment in safety that transcend the costs.

41 See section 4.2. See also Havinga (2010) for lessons learned taking the liability route in the domain of food safety.

42 Victims also have other reasons or motivations for holding a source of damage liable. They may want redress, recognition, an apology, accountability; their aim might be to reveal the truth or to be treated fairly before the law (see also Chapter 2). See also Van Maanen (2003) and Huver et al. (2007).

43 The recommendation was: "people and businesses should arrange better protection for themselves against the financial consequences of disasters". According to the Committee, that means making threats that are presently uninsurable, insurable and by limiting the extent to which insurable risks are not insured or underinsured, for example by urging first-party insurance.

44 When a threat to physical safety is related to natural causes, government's role in damage arrangements also becomes clear in its direct or indirect responsibility for maintaining protective infrastructure, such as dikes. Maintenance also plays a role in infrastructure and in limiting damage in public areas, buildings and items of cultural and historical value.

45 Even if blame can be attributed but the losses cannot be recovered.

- 46 See also the WRR's report on promoting public interests, due to be published in
early 2012.
- 47 Liability insurance is compulsory in the Netherlands only for motorists, nuclear power
plants, oil tankers, medical research involving human subjects (not only businesses
but also universities and other research institutions) and hunters. Businesses do take
out liability insurance for other reasons, for example because they are required to do
so under a permit or because the bank financing them demands it. It is conceivable that
a business may want more substantial liability coverage after appraising its risks, but
that the statutory obligation acts as a perverse incentive, causing it to insure itself only
for the minimum amount.
- 48 Such administrative fines already do exist in Germany, Belgium and the United King-
dom.
- 49 Businesses could unite in a guarantee fund covering 'damage to society', and separate
industry or an umbrella guarantee fund for physical safety, so that they can organise
damage arrangements that they would not be able to provide separately. A damage
guarantee fund could force members to manage risks and investigate uncertainty un-
der penalty of exclusion. A damage guarantee fund could require its members to in-
sure themselves against liability for a minimum amount, or set solvency requirements.
These are ways in which trade and industry can itself organise and internalise notions
of safety and reasonable damage arrangements.
- 50 It is easy enough to make this an 'either-or' choice, but it could also be postulated as
'and-and', with the initial strategy focusing on free riders and the second on intrinsi-
cally motivated and willing parties.
- 51 Such as enforcement agreements in the transport and traffic sector and the 'inspection
holidays' included in the Business Regulatory Burden Reduction Programme (2011-
2015). An inspection holiday means that inspections are not carried out unless there
are counter-indications. This is presented as a reward for good behaviour.
- 52 As mentioned, this is what the CTRC argues (CTRC 2004).
- 53 Not – or not only – to save money, but also to demonstrate public support for nonman-
datory compensation and the effects that it could have on citizens' awareness of their
own responsibility for damage. In this scenario, nonmandatory compensation is not
offered automatically, but it is transparent.
- 54 See the letter by the Minister of Security and Justice (16 September 2011) (House of
Representatives, 2010-2011, 26 956, No. 112).

5 CONCLUSIONS

5.1 DIFFICULT QUESTIONS

How can government take responsibility for physical safety in accordance with its statutory obligations and the need for collective mechanisms, and at the same time ensure that citizens and businesses also assume their share of the responsibility (and are capable of doing so)? What can and should we expect of citizens and businesses, and what should government do?

There are no easy answers to these difficult questions. We have nevertheless attempted to provide a scientifically informed answer to the questions presented to us. These questions are the following:

- Are there reference points for dismantling existing mechanisms and breaking through barriers associated with both the risk-regulation reflex and the reflex in which the responsibility is laid squarely at the feet of government?
- How can government develop a general risk policy in which it plays a smaller role in avoiding and compensating for risks?

5.2 KEY CONCEPTS: INCIDENTS, DAMAGE, RISKS AND UNCERTAINTY

In this document, we stress the importance of distinguishing between risks (sufficiently known and undisputed dangers), uncertainty (dangers that typically involve faulty knowledge and/or conflicting values), incidents (dealing with actual violations of physical safety) and damage (dealing with the consequences of such violations). Risks and uncertainty are points on a continuum. The distinction is a gradual one and controversy can easily arise as to whether the danger in question is in fact sufficiently known and undisputed to be calculated as a function of probability and impact.

Incidents, damage, uncertainty and risks are therefore differing dimensions of physical safety. Each dimension raises other political and administrative issues, but the way we deal with each one influences the way we deal with the others. The potential advantages and disadvantages must therefore be viewed both separately and in relation to one another. It is an intricate balancing act to allocate responsibilities in a way that prevents incidents, limits and covers damage, and manages risks and uncertainty as effectively as possible.

5.3 BEYOND REFLEXES

In Chapter 2, we argued that the discourse about the risk-regulation reflex in fact centres on political and administrative conduct (or misconduct) after an

incident occurs. That is why we prefer the term ‘incident-regulation reflex’.

We concluded that this reflex is perceived to be real, but that there is also a lack of solid evidence for its existence. There has been very little in-depth empirical research into the political and administrative follow-up to incidents. There are indications, but the evidence tends to be anecdotal. And there are also counter-indications. The question is which examples should be taken seriously. Which ones are exceptions, and which ones are representative? Do incidents consistently result in overreactions and excessive rules and regulations, as assumed in the debate concerning the incident reflex? Or is there another pattern visible in the way incidents are actually dealt with, at least in the domain of physical safety? Does the initial commotion perhaps die down? Since there is no valid evidence based on empirical research, the incident reflex remains, at least for the time being, a hypothesis that has yet to be tested. We can imagine alternative hypotheses that can explain why perceived reality co-exists with a lack of solid evidence (see Chapter 2).

The question, then, is whether we have enough grounds for taking the presumed regulation reflex as the starting point for thinking about the responsibility for physical safety. In addition, taking the incident reflex as our underlying assumption means that we must find evidence of ‘bad’ or at least deficient governance. We propose tilting that perspective towards encouraging ‘good’ governance.

Thinking in terms of the incident-regulation reflex puts unilateral emphasis on preventing incident-driven policy. By tilting the perspective, we shift the emphasis from the reason (the incidents) to good governance in incidents, the purpose of policy (physical safety) and the way in which the associated responsibilities can be allocated. The focal point is thus shifted from reacting retroactively to actual violations of physical safety to thinking ahead about potential threats to physical safety. As a result, risks and uncertainty take centre stage as we examine the responsibility for physical safety (and government’s role in that context).

Our reflections have not produced a specific roadmap for promoting good governance in incidents, but we have suggested three routes that can help politicians, public administrators and public servants do so themselves: 1) study the follow-up to incidents (within the social sciences), 2) systematically mine

the political and administrative lessons learned and 3) overcome a reluctance to admit to the limits of their power and to their own grasp of reality by allowing for citizens’ actual expectations in their *modus operandus*.

The Minister's questions show that government is concerned about high (or excessive) costs. It should be noted, however, that no thorough study has been made of citizens' expectations and the role that they believe government should play. There is no solid empirical evidence that citizens 'automatically hold government responsible'. Perhaps government is anticipating something that is only an assumption. Nevertheless, in order to address the idea that the responsibility for compensating violations of physical safety is laid automatically and unilaterally at the feet of government, we considered the role that government plays in damage settlement practices in Chapter 4.

Government enters the picture when someone is needed to foot the bill for irrecoverable public damage and uncompensated damage suffered by citizens and businesses. Government pays for its 'own' damage and throws citizens and/or businesses a life buoy that is known as 'nonmandatory compensation'. The shock to government finances is not that government will be held liable (indirectly) because of its role in issuing permits, enforcement or deficient supervision of the source of damage (the primary source). There are in fact high legal barriers to such liability. The shock is in the uncompensated damage. Damage may be uncompensated owing to problems of attribution, recoverability ('getting blood from a stone'), because it is uninsurable or uninsured and beyond the victims' capacity to bear or their sense of fair play.

5.4 IS A GENERAL POLICY POSSIBLE?

The outgoing Government believes that the allocation of responsibility that has evolved in the domain of physical safety should be reassessed. Would it be possible to develop a general policy in that domain that can be used to shift the allocation of responsibility? How can government ensure that 1) it does not take on more responsibility than necessary and 2) other parties are given or take more responsibility? We believe that the allocation of responsibility is balanced when 1) all the parties are encouraged to prevent or limit damage as much as possible, and 2) there are sufficient financial resources to cover the damage. We have considered options for developing a general policy that reallocates responsibility – i.e. trims government's role – by identifying a set of basic principles for dealing with risks and uncertainty (Chapter 3) and by considering the allocation of responsibility from the perspective of damage arrangements (Chapter 4).

5.4.1 REFERENCE POINTS FOR DEALING WITH RISKS AND UNCERTAINTY

We have arrived at five reference points for dealing with potential threats across the entire spectrum of risks and uncertainty: 1) intertwine opportunities and threats; 2) make allowance for the social and psychological properties of danger; 3) utilise risk comparisons in order to ease the political appraisal process;

4) accept uncertainty (and the responsibility for uncertainty); 5) organise how uncertainty is dealt with. In Chapter 3, we used the National Risk Assessment (NRA) and the amendment of environment and planning legislation (the *Simply Better* operation) to explore how these five reference points can be used in policymaking. They offer opportunities to boost and improve the NRA (draw attention to opportunities, multidimensional risk comparison, an Uncertainty Agenda) so that politicians can more easily make their way through what they consider an avalanche of potential threats to physical safety. The mental exercise related to *Simply Better* addressed the export value of physical safety and the value of risk regulation as a form of knowledge transfer (and thus as a means to lighten the burden for trade and industry), as well as the potential role of duties of care, open standards and the duty of risk-bearing parties to investigate uncertainty.

We believe that working with these general reference points in specific policymaking can help government develop a clearer view of the matters for which and the levels at which it should take responsibility or in fact hold others responsible. It will then find itself facing fewer ‘orphan’ responsibilities that no one wants to accept, leaving it with unexpected claims and uncompensated damage. Risk management and a sensible approach to uncertainty should ideally allow government to deal self-confidently with incidents and damage. After all, thinking in terms of risk and uncertainty implies recognising that physical safety will in fact be violated at some point.

5.4.2 DAMAGE ARRANGEMENTS: A DIFFERENT PERSPECTIVE ON THE ALLOCATION OF RESPONSIBILITY

The conceptual discourse concerning the responsibility for physical safety has wrongly neglected the topic of damage arrangements. Damage arrangements do, however, offer reference points for reallocating responsibility. Reframing matters by considering potential future damage can help us ascertain which parties are and should be held responsible.

Whether the price that government now pays for uncompensated damage is too high is a political question. What is in any event more relevant is to ask whether the current practice of damage arrangements offers parties enough incentives to actually take responsibility for physical damage. Anyone analysing the many-headed monster of uncompensated damage (Chapter 4) will discover that there are indeed parties to which government could allocate or with which it could share responsibility. Recoverability, insurability/uninsurability and underinsured risk offer reference points for reallocating responsibilities so that there is less pressure on public finances.

Damage arrangements serve two purposes. They not only cover loss but also offer incentives to prevent incidents, limit damage, manage risks and investigate uncertainty. This would reduce the risk of violations of physical safety leading to damage. The problem of uncompensated damage can also be tackled along the same route, with both improvements in safety and a smaller financial role for government becoming possible.

We do not consider it possible to devise a general system of damage arrangements for the entire domain of physical safety. The sectors and policy areas differ too much for that. Even though the answers will differ from one segment to the next, then, the questions that should be asked are the same:

- How can trade and industry be held accountable?
- What can we expect of citizens?
- What role should government play?

Government is in a position to take responsibility for the system of damage arrangements because it is the only party that can take, share or allocate the relevant responsibilities. Its role in issuing permits and in enforcement and supervision is of central importance here, precisely because too often, an appeal to tort law offers little comfort when damage arises.

The current allocation of responsibility makes it inevitable that the primary responsibility for damage should be placed more definitely at the feet of risk-bearing businesses, in particular owing to the problem of irrecoverable damage and with a view to generating the necessary public support for making potential victims responsible for damage arrangements. It is important to tackle free riders precisely because there are businesses that take their primary responsibility seriously. Strictness can easily be combined with an ‘honour system’ regime for businesses that are intrinsically motivated and show willingness. Insurers, lenders, industry or sector organisations and intrinsically motivated businesses could be more actively involved in organising the system of damage arrangements and in weighing up opportunities and threats. Citizens can also make a contribution to damage arrangements, even though they usually have little realistic opportunity to avoid risk. The chance of gaining compensation by holding parties liable is small, and the limits to government’s provision of nonmandatory compensation mean that they must take responsibility for any losses they might suffer themselves.

Government’s responsibility for the system also requires it to perform a balancing act. We outlined a number of options that could help it arrive at a balanced allocation of responsibility: imposing a duty of care on insurers, encouraging citizens and businesses to take out first-party insurance, public-private damage arrangement structures, drills so that citizens can practise what to do, obligating risk-bearing parties to compensate for damage and internalise their own

responsibility, setting up a damage guarantee fund for physical safety, increasing the insurability of risks in the environment and developing a general viewpoint on nonmandatory compensation. Our aim was to get politicians and public administrators to focus on the process of organising damage arrangements as an important basis for reassessing the existing allocation of responsibility.

5.5 TOP THREE ON THE LIST OF PRIORITY STUDIES

We have not been able to carry out all the research necessary to study the classic question concerning the allocation of responsibility in the domain of physical safety. We will therefore conclude this document by listing what we consider the top three interdisciplinary studies on our list of priority social science research. Their results should help to take the following steps.

Chapter 2: systematically investigate whether and how lessons have been learned from incidents and whether, and if so, how the incidents led to legislation and regulations or to other policy interventions – or if not, why not – and what the impacts have been. This would provide reference points for considering the mechanisms relevant for dealing with incidents within the political and administrative context.

Chapter 3: investigate uncertainty mechanisms. What settings are conducive to reflection, investigation and dialogue about faulty knowledge and conflicting values? Which factors lead to success, and which to failure? What are the underlying prerequisites? What can we learn about the role of the differing parties, i.e. citizens, businesses, industry organisations, insurers, lenders, experts, politicians, public servants? That would give us useful reference points for organising our approach to uncertainty (or improving that approach).

Chapter 4: international comparison of national damage arrangements (liability and insurance regimes)¹. Faure and Hartlief (2006a, b) have made a start, but their study dates from 2006. Bruggeman offers in-depth research, but her thesis does not cover all of Europe. Reinsurer Swiss Re (2011) recently reviewed public-private partnerships in insurance arrangements (including in the USA, Mexico, China and Malawi). Even so, there is as yet no systematic comparative survey (law and economics) of EU countries. Important questions in such a survey are as follows: What regimes in fact ensure that responsibility is effectively allocated to citizens and businesses, so that better provision is made for damage while safety improves at the same time? How do the various compensation mechanisms (insurance, liability, state compensation funds) relate to one another, and how does this relationship compare to that in other countries? Such a survey would offer additional reference points and specific options for organising damage arrangements.

5.6 FINAL REMARKS

Government will continue to struggle with a difficult and often troubling process of appraisal that pits opportunities against threats, the short term against the long term, individual responsibility against fairness, and safety as a public interest against the individual freedom to act. Physical safety is not just a core task of government; government also has a direct (as potential victim) and indirect (as safety net and life buoy) interest in a high level of physical safety. It is very demanding to take responsibility for the system and allocate responsibilities coherently to businesses, citizens and government for preventing, limiting and covering damage (and thus for preventing incidents, managing risks and reducing uncertainty as much as possible). We hope that our thoughts and reflections will help it perform this intricate balancing act.

NOTE

- 1 Although there have been comparative law studies (Faure and Hartlief 2006a, b), a systematic review of relevant EU Member States' damage arrangements would be valuable when comparing how they differ from or are similar to those of the Netherlands.

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