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Reinforcing risk policy at IenM: Analysis of “Explicitly dealing with safety: General principles”

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1. Introduction: purpose of the study and methods

Since the early 1980s, multi-disciplinary efforts have been made to formulate universal risk and safety approaches that support decision-making for most risky activities – from nuclear waste to nanotechnology. The development of “risk analysis” and “risk governance” frameworks has been a key priority on both sides of the Atlantic (NRC 1983, 1996, HSE 1988 and 2001, Royal Society 1983; IRGC 2006). The Netherlands with its long history of being at the forefront of risk policy (Ale and Whitehouse 1984; Ale, 1988; Beroggi et al. 1997; Ale and Uitdehaag, 1999; Ale, 2005) is an integral part of this effort. On the whole, the Dutch approach has been characterised by 1- a particular attention to effective public policy (Stallen and Coppock 1987; Vlek 1996; Vlek and Steg 2002) and 2- promoting “holistic” and “consensual” models (Health Council of the Netherlands 1995, 1996 and 2008). Recently, however, concerns have been raised that the Dutch approach may be in need of a rethink. For instance, conflicting claims have been made that the Dutch approach to risk and safety has become too risk-averse (Tol et al. 2011) or that it is not precautionary enough (WWR 2012). On 10 June 2014, the Ministry of Infrastructure and the Environment (IenM) of the Netherlands published a Policy document entitled *Explicitly Dealing with Safety* as a step towards meeting its objectives of “improving, broadening and refining the assessment framework used to address safety and risk issues” (IenM 2014:1). This initiative took place as a response to the Dutch Senate’s debate on the new Basic Network for Transport of Hazardous Substances Act¹. IenM invested considerable efforts into reviewing and updating the Dutch approach to tackling risk and safety ‘dossiers’ (RIVM 2003; Rli 2009; Dutch Cabinet 2014). The result is a formulation of ten principles that IenM suggests may “provide the basis for all policy formulation with regard to safety and risk management” (IenM2014: 6).

Explicitly Dealing with Safety is an ambitious document that goes beyond practical managerial advice to include an integrated assessment framework for safety and risk policy (IenM 2014:22). It is largely developed on the basis of the extensive policy experience acquired at IenM, including external input and consultation. Yet, the approach was missing systematic scientific feedback from the Risk Analysis research field across Europe. IenM commissioned this study to test its framework among risk scientific community. We obtained formal feedback on the framework from a panel of 20 respondents from France (4), Sweden (4), UK (4), Germany (4) and Belgium (4) as well as informal feedback from a much larger cohort during meetings of the Society for Risk Analysis as well as the IdMR (French Institute of Risk Management) where the ideas contained in the report were introduced to test views among a wider milieu of risk research scientists.

This report is divided into three parts. The first part situates the ten principles developed by IenM in relation to key concepts of risk analysis. The second part presents the results of the interviews of risk researchers. Finally, the third part offers a discussion moving forward.

2. Risk analysis and IenM’s ten principles

¹ *Wet Basisnet Vervoer Gevaarlijke Stoffen*

The notion of *Risk Analysis* – i.e. the chains that starts with risk identification and ends with appropriate measures to manage, mitigate or eliminate a risk- is a good analytical lens that captures the efforts aimed at joining probabilistic as well as societal approaches of uncertainty (NRC, 1983 and 1996; HSE, 1988; Royal Society, 1992). Research councils, regulatory agencies and industries have funded considerable applied and empirical research in this area (e.g. HSE, 1988 and 2010; NRC, 1983 and 1996; Royal Society, 1992). How do the 10 principles (see box 1) relate to this considerable body of work?

Box 1: IenM’s ten principles

Ten principles *for the policy process within the risk and safety domains* of the Ministry are:

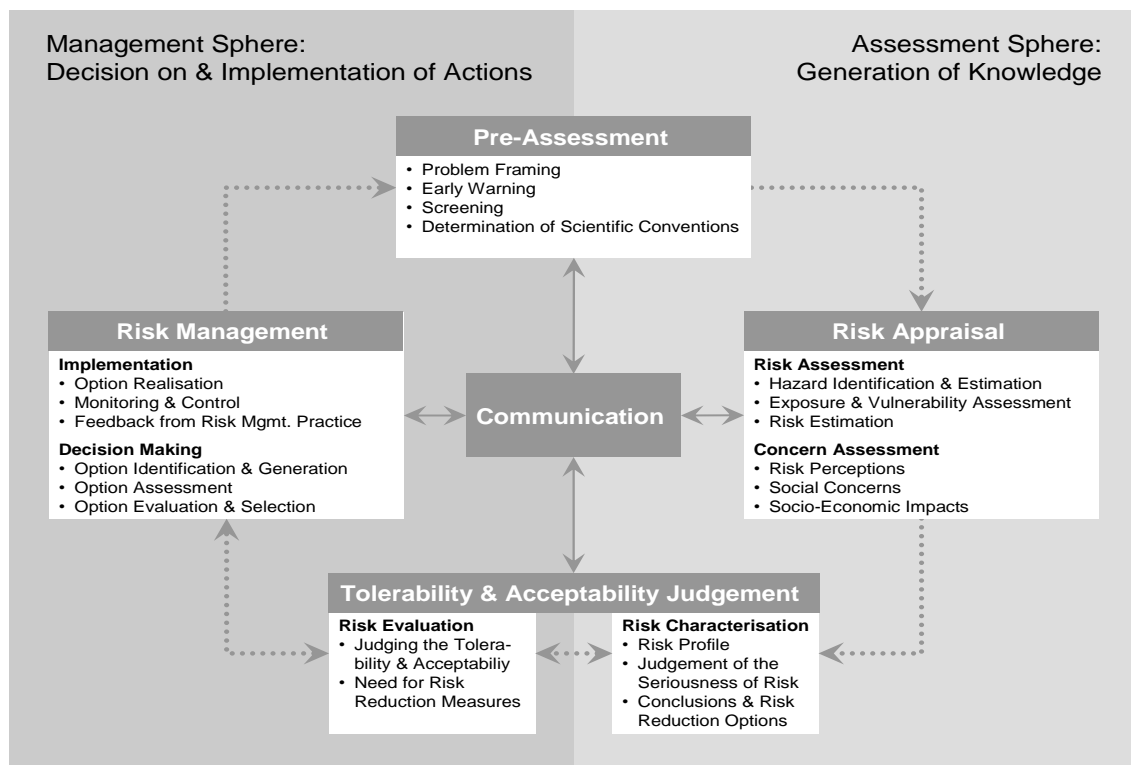
- 1 Ensure transparent political decision-making;
- 2 Explicitly formulate the responsibilities of government, trade and industry and citizens in those decisions;
- 3 Weigh the hazards and risks of an activity explicitly and, to the extent possible, against the societal costs and benefits of that activity;
- 4 Involve citizens in policy making at an early stage (whereby the degree and design of such involvement depends on the problem at issue);
- 5 Weigh the possible accumulation of risks in the decision process;
- 6 Apply the precautionary principle to new, as of yet uncertain risks;
- 7 Make sure, particularly regarding new risks, to engage actors in society (citizens, businesses, NGOs, scientists) throughout the policy process, from problem identification to risk management, and discuss emotions, risk perceptions and ethical considerations;
- 8 Make optimal use of existing knowledge amongst actors in order to identify new (possible) risks promptly;
- 9 Combine safety with security: keep sight of the one when the policy attention and effort are aimed at the other, and also explore ways of linking the two;
- 10 Ensure that innovation and safety reinforce each other: that the formulation of safety standards does not restrict the options for new, smart solutions, and that from the start innovation is combined with attention for safety. In this way, opportunities for improving safety may serve more effectively as a driver for innovation.

On a formal level the principles embody procedural objectives of democratic governance (principles 1, 4 and 7) effectiveness (principles 2, 3, 8 and 9) and proportionality (3, 6 and 10). Arguably this reflects an approach motivated by “good governance” rather than “risk governance”. Yet, there is no fundamental contradiction between these aspirations and previous risk governance principles. For instance the pioneering National Research Council (1983) “red book”, which clarified the conceptual categories of “risk assessment” and “risk management”, clearly expressed the need for a participatory and democratic mechanisms at each step of the process. The most comprehensive and detailed version of the *International Risk Governance Council* (IRGC) model (see Figure 1) also advocates a process that is both participatory and proportional.

A consensual approach among risk scholars is that risk includes critical variables such as quantified assessments, the formal weighing of costs, risk and benefits (Hammitt 2007 and 2009) and risk-risk trade-offs (Graham and Wiener 1995). The need to balance risks against other risks, cost and benefits is considered under principles 3 and 5. The need for distinct procedures to deal with trade-offs is most notably addressed by principles 9 and 10.

The ten principles also attempt to broaden the view on the relevant knowledge used for decision-making. It is generally understood that risk is “more than a number” (Health Council of the Netherlands 1996). Risk is ‘tangible’ and subject to probabilistic assessment; but risk is also ‘perceived’ and subject to contingent interpretation (Freudentburg, 1988). Perceptions play a central role for shaping views about risks and benefits as well as risk acceptance, which suggests that there is more to risk decisions than just technical analyses. An entire branch of risk analysis has uncovered the drivers of risk perception. It is now well-established that risk perceptions and social preferences vary between activities (Fischhoff et al. 1978; Slovic 1987) and that it becomes therefore crucial to factor perception drivers into decision making (HSE 1988, 2001) and sensible risk communications (Fischhoff 1994, 1995 and 2009; Leiss and Chociolko 1994; Leiss 1996). While experts tend to focus primarily on rationalisations of expected harm, including likelihood and magnitude of death, other factors shape lay perceptions: a perceived benevolence of nature, a sense of security when situations look familiar, voluntary and controllable, or concerns for the vulnerable (e.g. children), to highlight only a few critical examples. The recommendation that the policy process should make room for the discussion of “emotions”, “risk perceptions” and “ethical considerations” (principle 7) is consistent with the state of the art.

Figure 1: IRGC framework



Source: IRGC 2007; Boudier 2007

Principle 3 also introduces the notions of “risk” and “hazard”, yet without making the distinction very clearly. The SRA glossary of the Society for Risk Analysis suggests that risk is “the potential for realization of unwanted, adverse consequences to human life, health,

property, or the environment”², as opposed to a hazard, which is about the *possibility* of adverse consequences (Löfstedt, 2011). Yet, the use of hazard and risk, even as a basis for regulation, often lacks consistency (Löfstedt 2011), and variations may also be observed across languages.³ Similarly, the focus on “unwanted consequences” is by no means consensual. Different communities and disciplines hold different views: engineers tend to focus on estimating the negatives – e.g. how likely it is that a dam may burst – while financial analysts will rather look at the financial ups and downs of a given decision – e.g. to invest in a given fund. This only mirrors the fact that in everyday language the word risk is associated with a range of different meanings, from negative and adverse events and catastrophes, to more positive connotations (e.g. ‘the taste for risk’).

3- Scientific comments on the IenM’s approach

Respondents and commentators conveyed a general sense that the idea of formulating a Dutch strategy supported by key principles should be welcome and encouraged. Two types of comments were formulated, some formal and some more substantial. On a formal level there was a general consensus that the *Explicitly Dealing with Safety* was a rather long report, that there were several repetitions (e.g. the 10 principles are mentioned 3 times). It was also noted that the information that the strategic points raised were somewhat hidden among more general observations. Many elements were seen as interesting but not always related to the same dimensions of policy.

On a more substantial level respondents were explicitly invited to reflect on each of the ten points of the strategy as well as critical notions such as “safe by design” innovations, and “accumulative risk”. There was an overwhelming sense that the principles were sound, yet thought-provoking and raising new questions, in particular:

- Who will be in charge of implementation?
- How to really bridge the gap between wishful thinking and making a difference?
- Can all these principles be met?
- How do we prioritise the principles?
- What about explicit choices and trade-offs?

Some respondents struggled with the programmatic/ aspirational nature of the approach, which has been identified in the past as a known and controversial feature of Dutch environmental policy (Paul et al. 2015). What are the procedures, by which these principles ought to be achieved, what is the road map? And is there funding for delivery and research? One respondent highlighted:

² SRA glossary. Accessed at http://www.sra.org/sites/default/files/docs/SRA_Glossary.pdf on 28.08.2016

³ In French and German, for instance, the differences between hazard, peril, danger etc. are blurred. The German translation of hazard is “Gefahr”, a word more usually translated by “danger”. In French, hazard may be translated by “danger” “péril” or “aléas”, each involving different intrinsic property or disposition of something to cause harm. Although systematic and in-depth analysis would be necessary, a superficial look at the French and German literature about risk suggests that there is a much weaker use of the words “péril” or “Gefahr” compared to the extensive use of the word hazard in English. “Risque” (French) and “Risiko” on the other hand are often used to describe both hazard and risk.

“I do not see from the descriptions of principles and achievement strategies how any of this is put into practice institutionally speaking”

We specifically asked whether the principles could be applicable and, if so, how they may be translated at the national level. Below is an attempt to summarise and capture distinctive observations that were made for each principle from the perspective of their transferability into the national contexts:

1. *Ensure a fully transparent policy process*⁴

Transparency is usually seen in regulatory circles as a much-needed principle that may build trust in the policy process (for a detailed discussion see Löfstedt and Boudier 2014). A Swedish respondent highlighted that transparency is a megatrend put forward in the post 9-11 environment. It is therefore not surprising that most respondents expressed support for Transparency as a general principle. A French respondent, however, suggested that full transparency will never be met and, as a result, making such promises is at best unrealistic and could even be dangerous. Respondents from France were particularly concerned that there is actually an “opacity” trend in the French public sector. This trend follows the collapse of trust between government and citizens and the fact that government officials have grown very suspicious of citizens.

The goal of transparency policies may be to “look through the windows of an organisation”, e.g. provide access to documents, render meetings public etc.; or it may be to offer information on people, e.g. disclose improprieties, conflicts of interests and the like (Löfstedt and Boudier 2014; Boudier et al. 2015). The two main aspects of transparency, i.e. access to information as well as disclosure were highlighted. Belgian respondents were particularly concerned about introducing “Right to know” initiatives and releasing of information about the background of experts: for especially whether experts have any relation with industry. More generally, respondents were concerned about the composition of expert panels, trying to minimise bias due to the over- or underrepresentation of specific types of expertise. It was understood that bias cannot be eliminated and as a consequence it was suggested to recruit a large pool of experts.

Respondents across the five countries asked for more detail and wondered how transparency should be operationalised. In particular, who will be in charge of transparency, who will be its ‘watchdog’ and what will be the standards applied to transparency (yardstick)? Respondents from the UK and Sweden observed that transparency is a meaningful concept where and when it is conceptualized as “adapted” (Sweden) or “managed” (UK) transparency – that is the release of contextualised and meaningful information. In many sectors the trend is, however, towards “fishbowl” transparency, that is the release of raw data to fulfil legal /political imperatives of looking through the windows of organisations (for a discussion of the concepts see Löfstedt and Boudier 2014). There is a risk that data dumping may lead to “data snowing”, making decisions more rather than less difficult. In Sweden MSB (The Swedish Civil Contingencies Agency) is active in this space.

⁴ The intent in the original version in Dutch was to stress the need for transparent political decision-making. This may need to be better captured in the English document.

2. *Explicitly formulate the responsibilities of government, trade and industry and citizens in those decisions*

One Swedish respondent pointed that allocating responsibilities is particularly important at an early stage, when an issue is being discussed. On the other hand the dominant view was that in its present shape this principle was not clear enough to be operationalised. To be workable a form of clear restraint would be expected from Government. Yet, a respondent pointed that in the French context, for instance, it is difficult to imagine one area where the government would consciously decide to retreat and has no say at all. The fact that it is not what the principle implies in the Dutch context suggests that further clarification is needed. Similarly the UK concept of the "Big Society", which seems to underpin the statement, has not really been very practicable and is now being abandoned. Government's retreat has been difficult to achieve. One final question is how this allocation of responsibility would be achieved. Will it be top down? Will it be decided by deliberation? Any one-sided attribution of responsibilities (say by the government towards citizens) may provoke conflict and contestation, or stakeholders might not agree on how responsibilities are shared, so the specific process will matter.

3. *Weigh the hazards and risks of an activity explicitly and, to the extent possible, against the societal costs and benefits of that activity*

The responses illustrate strong divergence of views between the UK – where cost/benefit analysis is a widely accepted concept- and continental Europe where non-economists are reluctant to embrace this notion. For instance, UK respondents questioned the notion of "societal" benefit/ cost. How is societal benefit/cost different from conventional cost/benefit analysis? Does this new category add any meaningful new dimension? In sharp contrast, respondents from Sweden wondered whether the concept of cost/benefit should be used at all. What is vital is examining what do humans value. This should be more than just monetary benefits. One could use the term impact instead of costs and benefits. Belgian respondents adopted an intermediary position: risk-benefit, cost-benefit analyses and multi-criteria decision analysis are technical methods that should be welcome to help reconciling trade-offs, including conflicting objectives and goals in different groups. Such analyses may be a part of a formal impact assessment. To be 'societally sensitive' these technical methods can be supplemented by, for example, consultative or deliberative techniques.

Finally, several questions were raised about terminology: what is actually the difference between societal and social risk/benefit analysis? Is the weighing of societal costs and benefit meant to involve stakeholders too? As costs and benefits of risk-taking (or risk avoidance) are seldom distributed equally across different societal groups how is conflict management and compromise-finding being facilitated in the Dutch approach?

4. *Involve citizens in policy making at an early stage (whereby the degree and design of such involvement depends on the problem at issue)*

For Swedish respondents it was a non-issue: citizens involvement should already be enshrined in most societal decision making processes and therefore not specific to risk and safety governance. On the other hand other French respondents highlighted the declining appetite for citizens' involvement in the French context (it is often viewed as potentially conflictual, and outcomes are unpredictable). In the UK, citizens' involvement is often difficult to achieve, especially in the early stages of policy formulation and in contentious areas. One respondent highlighted the concept introduced in the Netherlands by Bijker et al. of "frontstage" and "backstage" (Bijker et al. 2009), and how we need a space to discuss "backstage" as long as this need is clearly explained.

Several respondents questioned the usefulness of this principle in its current form. German and French respondents also suggested that the main issue is how to involve citizens rather than whether we should involve them at all.

5. *Weigh the possible accumulation of risks in the decision process*

Belgian respondents related directly to the Dutch approach and saw the accumulation of risks as a clear problem. One respondent suggested to also include knock-on effects, i.e. complex interactions which lead to an accident (Leveson 2011). Other comments were more sceptical. For example German and Swedish respondents wondered how this notion is different from systemic risks (IRGC 2006). One should not concentrate on a risk-by-risk approach but on multiple risks and interactions. A focus on accumulation tends to neglect the interdependencies that exist in complex systems. Hence, it would be better to address interdependencies between various societal functions and flows. French respondents also suggested to think about coherence and integration rather than accumulation of risks, while UK respondents preferred the classic risk-risk trade-off concept (Graham and Wiener 1995).

One of the versions of the principle also stated that "*cars are responsible for road accidents as well as air pollution*". It was noted that cars do not cause road accidents but the people who drive them do. This example is not an example of risk with different origins, but risks with the same origin, i.e. human behaviour.

6. *Apply the precautionary principle to new, as of yet uncertain risks*

The report specified that the way [the precautionary principle] is defined is "in case of uncertainty about possible risks one must always apply precaution, in addition to the usual risk management." The prevalent view (IRGC 2006+) is that this principle is adapted to situations of high uncertainty and ambiguity. This view was shared across countries, even in Germany and Sweden where the precautionary principle was initially developed (Löfstedt 2004). There was also a preference for "uncertainty" as opposed to "uncertain risk", because all risks contain an element of uncertainty (UK) and degrees of uncertainty vary depending on the levels of confidence in estimates of probability, harm and exposure (France). One could for instance mark that the need to be cautious applies under high scientific uncertainty (sometimes evaluated as low confidence in an assessment). Many respondents highlighted the fact the precautionary principle is not to be used lightly. The need to be cautious refers to extraordinary circumstances, e.g. when dealing with "deep",

“large”, “severe” uncertainties. Even in such cases the use of the precautionary principle is nothing but evident (Wiener et al. 2011; Vogel 2012). After an increase of popularity at the turn of the 20th century it has increasingly fallen out of favour. In France, for instance, despite being enshrined in the constitution, the precautionary principle remains ill-defined and difficult to apply. French respondents highlighted that a better job at making decisions when there are strong uncertainties is now needed. One respondent suggested going back to the notion introduced by the Dutch Health Council of “Prudent Precaution”, which might be further elaborated. Maybe a better term would be a “cautionary approach” to mark that there are more than one way to be cautious – which of course would need to be clarified against “the precautionary principle” as defined in Article 191 of the Treaty on the Functioning of the European Union (EU) .

7. *Make sure, particularly regarding new risks, to engage actors in society (citizens, businesses, NGOs, scientists) throughout the policy process, from problem identification to risk management, and discuss emotions, risk perceptions and ethical considerations.*

Respondents generally agreed that the first part of principle 7 -i.e. the need to engage actors- is particularly important when confronted to emerging and systemic risks. In such situations government may seek new modes of balancing scientific uncertainty and societal challenges, by opening up to more practice-relevant approaches to practitioners and stakeholders. Yet, as one respondent from France pointed, a generic call for participation may not be very helpful. The issue is rather *when* and *how* public participation should take place. When problem-solving is simple and straightforward and when trust in authorities is high, the launch of a participatory process can even backfire, as it is likely to raise doubts about the competence and the efficiency of the decision makers (Löfstedt 2005).

Although there is a clear case for taking public perception on board, respondents from the UK and Sweden suggested that the reference to emotions and ethical considerations was again too generic to be helpful and that this wording can be distracting. Rather the formulation should be that “public risk perceptions and values are important and should be considered.” Finally principle 4 and 7 may be merged as they appear redundant.

8. *Make optimal use of existing knowledge amongst actors in order to identify new (possible) risks promptly.*

One question that was raised is whether this principle is a plea for more robust risk assessment or whether it goes in the opposite direction and promotes “citizen science” (de-facto weakening the scientific process). A number of innovating suggestions came from the UK and France. If the goal is to strengthen scientific risk assessment, then a promising avenue may be to create an “almost inside the tent” yet independent “Think Tank” that would meet 2-3 times a year and produce reports that government would use. A semi-independent body may also be more successful at showing value and mobilising private sector resources in a context characterised by shrinking public resources.

Finally, several respondent across the five countries questioned the notion of “optimal” use of knowledge. What does it actually mean? How is this ensured in practice? On the other hand risk assessment is important for all risks, therefore the principle should be broader in

scope to go beyond emerging risks. Finally, respondents from Sweden wondered whether this principle should be merged with principles 4 and 7. Or at least the added value should be made clearer.

9. *Combine safety with security: keep sight of the one when the policy attention and effort are aimed at the other, and also explore ways of linking the two*

Respondents agreed about the challenge that new threats to security pose to government and the possible trade-offs that need to be made between safety and security objectives. A French respondent, for instance, pointed to the response to the German Wing pilot tragedy as a typical example of safety vs. security trade-off: new security measures have been introduced to control the behaviour of pilots. Yet, these very measures which have been designed to ensure security are also likely to reduce safety levels on planes. Although such trade-offs were clearly identified, the idea that one could “combine” safety and security – in a way getting the best of both worlds -was received with a high degree of scepticism. The notion was described as largely US-centric and reflecting the post 9/11 environment. One respondent from Sweden asked on a slightly provoking note: Why is the Dutch Ministry of Environment and Infrastructure interested in adopting models put forward by the US Department of Homeland Security? Is this practicable at all? In the UK it was also felt that safety and security are fairly well defined semantic categories (unlike in the Dutch language where *veiligheid* is more ambiguous) and that they should not be mixed. Belgian respondents also sharing the view that there are many situations in which the two notions act in contradictory ways suggested to engage in “system thinking” to tackle these contradictions.

10. *Ensure that innovation and safety reinforce each other: that the formulation of safety standards does not restrict the options for new, smart solutions, and that from the start innovation is combined with attention for safety. In this way, opportunities for improving safety may serve more effectively as a driver for innovation.*

Similarly to the safety-security debate, most respondents recognised the safety–innovation dilemma. On the other hand they also questioned the possibility to “reconcile” innovation and safety. It appears impossible to deliver a “perfect system” that allows to control risk and protect the public and yet does not hinder innovation. In other words, critical choices and trade-offs have to be made. A French respondent wondered how to follow principles 6 and 10 at the same time, i.e. applying the precautionary principle to new risks and combining innovation and safety. Quite bluntly Swedish respondents suggested to simply delete this principle, because it is “mission impossible”: in order to innovate one needs to take risks. A more nuanced UK perspective was to stress the need for independence of judgement as a way to foster evidence-based policy. Dealing sensibly with innovation requires to give a stronger role to science. As a result the necessary trade-offs will be better informed. If government does not do it, why others actors (e.g. think tanks) cannot do it?

Finally the Swedish researchers wanted to add one principle—namely that in order to manage risks one needs to broaden collaboration across government departments. This will take away the problems associated with so called “silo mentalities”. This idea is supported

by the French and German respondents as well as the need for collaboration across levels of government.

3. Discussion: moving forward

The authors came to two major findings: 1- the community of risk scholars was rather supportive of IenM's 10 principles. The ideas of proportionality, caution and public involvement are consistent with risk science 2- Yet, many respondents were unsure about the nature of the principles' implementation. For example, when advising for or against precautionary measures will IenM draw on lessons from over 40 years of research on this topic? The report does not give enough clues on concrete directions. Will the implementation of the principles be properly tested against state-of-the-art scientific knowledge? Moving forward, we devised some simple, yet essential, *idées-maîtresses*:

1. **All risks are not equal.** We have simply far more knowledge and experience of some risks than others (Health Council of the Netherlands 1993). A consequence is that organisations will have to do with less knowledge facing the choice of being too risk-taking or too precautionary. This calls to invest in generating more science to address uncertainties and ambiguities (IRGC 2006).

2. Instead of focusing too much on ill-defined "irrationalities" and "emotions" decision makers should recognise the power of **risk perception**. A consequence of the dichotomy between risk perception and technical assessment is that **different risks call for different approaches**. Highly dreaded activities (e.g. nuclear power) have typically low social acceptability. This calls for conservative risk assessments combined with efforts to understand and address lay concerns, even when they seem irrational or emotional. Refuting misconceptions is important but "expert knows best" messages will only work when people trust authorities. In other cases two-way non-persuasive models of communications will be more effective (Löfstedt 2005). Decision makers also need to be aware that people also neglect many risks (exposure to radon is a typical example, see Bostrom et al 1994). In such cases, the regulator will have to raise awareness rather than attenuate fears. One way has been to understand lay people's mental models before devising meaningful communications that bridge perception gaps (Morgan et al 1992).

2. Risks are not everything, **the institutional context matters**. One of the most common errors is to imagine that risk management can be reduced to a purely functional process that is detached from larger policy choices or historical and national realities. One-size-fits-all matrixes – often looking impressively technical and sold by consultants at great expense – are expected to deliver across the board 'solutions' that could be rolled out independently of the policy and regulatory environment. Scholars have eloquently shown how distinct regulatory styles shape regulatory outcomes (O'Riordan 1985 and 1995; Vogel 1986; Jasanoff 1986; O'Riordan and Wynne 1987; Brickman et al. 1990, Kagan 2000), from occupational health (Kelman 1981) to environmental regulation (Lundqvist 1980; Vogel 1986). For example, adversarial legalism is a key feature of the US model (Kagan 2000), while Europe oscillates between different "ideal" types of governance, e.g. consensual, fiduciary, corporatist. As a consequence, both the type of risks involved (i) and the style of risk governance (ii) will shape risk management. Any list of principles should be

supplemented by active efforts to learn from previous comparative analyses that explore the functioning and performance of existing governance and regulatory models. Any applications of the ten principles would need to take these variations on board.

4. Finally maintaining public **Trust**⁵ is paramount, because it is the social glue that keeps together a community, whether a country or an organisation. "State of the art risk communication" is often counter intuitive, and yet has strong empirical backing (Bouder and Löfstedt 2010). Maintaining high levels of trust also requires actions that may vary significantly according to circumstances (Löfstedt 2005). Simple steps to ensure a proactive and two-way communication practice (see box 2) have often been more effective than generic calls for transparency or public participation.

Box 2: State of the art risk communication: simple steps

Maintain frequent communication with key stakeholders (government, Industry, Journalists etc.)

It is not because you don't like what they stand for that you should ignore them.

Avoid unnecessary confrontation

It is not because you don't agree with them that you should get into a fight

Rely on neutral third parties

You may think you are best placed to speak that it is necessarily the case. Someone with no vested interest or stake is likely to be more trusted than you

Avoid the lawyers as long as possible

Think twice before you bring your lawyers in, as their role is to protect your legal interest, which often involves advice to shut communication channels.

Local decision-makers matter

Bypassing local decision-makers may seem like a shortcut, but remember that they are likely to be trusted and non-involving them can be counter-productive as you need them on your side.

NGOs are increasingly shaping policies

Don't ignore pressure groups like NGOs as they may not ignore you

Always take responsibility

It may be tempting to blame others' for one's mistake or not do your bit. The problem is you can't fool people. It will backfire eventually.

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⁵ In the area of risk, trust could mean "acceptance of decisions by the constituents without questioning the rationale behind them", especially "risk judgements made by the regulators" (Löfstedt, 2005: 6)

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