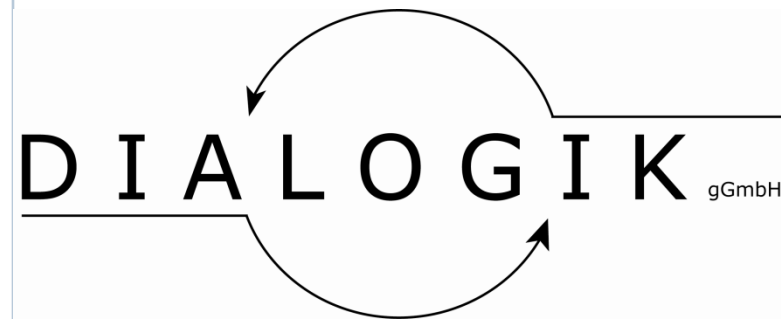




Systemic Risk Management Through Analytic Deliberation



Decision Analysis: Supporting Environmental
Decision Makers Workshop
March 31st, 2009
Piet Sellke & Ortwin Renn



gGmbH

What is Risk Governance?

- **Governance** refers to the actions, processes, laws, traditions and institutions by which authority is exercised and decisions are taken and implemented.
- **Risk** is an uncertain (positive or negative) consequence of an event or an activity with respect to something that humans value
- **Risk governance** refers to the actions, processes, laws, traditions and institutions by which decisions about risk handling are prepared, taken and implemented
- **Best practice in risk governance** integrates the principles of good governance within the processes of risk identification, assessment, management and communication and includes criteria such as effectiveness, accountability, efficiency, fairness and social and ethical acceptability

General Criteria for Evaluating Governance

- **Effectiveness** (Were the goals of risk management accomplished or are they likely to be accomplished?)
- **Efficiency** (Are the management measures cost/effective?)
- **Legality** (Are the risk measurement measures compatible with legal prescriptions and national/international laws?)
- **Legitimacy** (Are the management measures based on due process and publicly accepted procedures)
- **Accountability** (Are all responsibilities for risk management and liability clear and unambiguous?)
- **Fairness** (Is the risk/benefit distribution considered fair and just?)
- **Acceptance** (Are the measures approved by the main stakeholders and the public at large?)
- **Acceptability** (Are the measures compatible with ethical and moral standards?)
- **Sustainability** (Are the measures in line with the goals of sustainable development?)

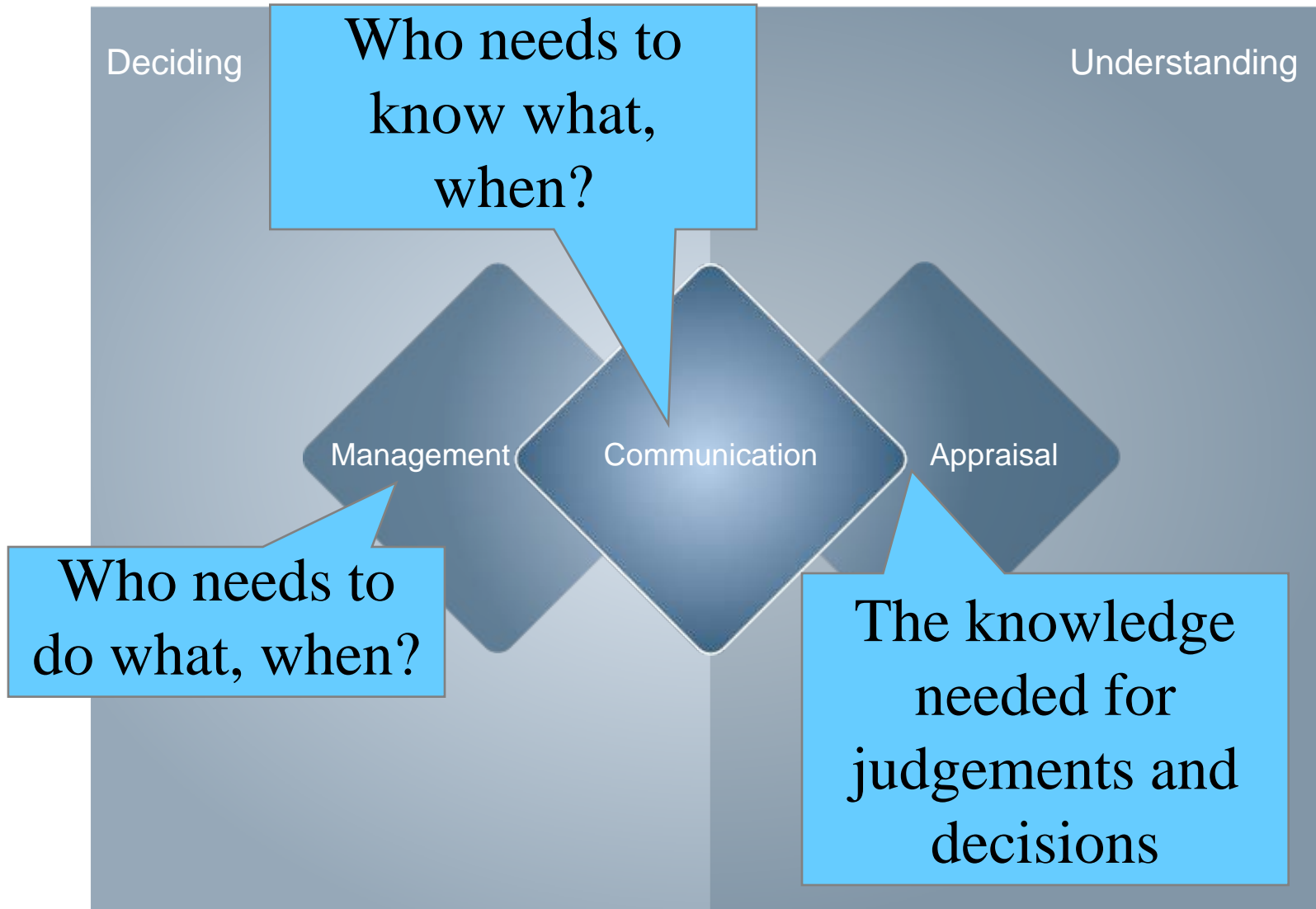
Introduction

Common Deficits

COMMON DEFICITS IN RISK GOVERNANCE

- **Framing** – different stakeholders have conflicting views of the issue
- **Scope** – a risk perceived as only local may have global consequences (and vice versa)
- There is a **scarcity of data** about the risk or people's perceptions of it or, if data does exist, there is a failure to accept it
- **Transparency** – trade-offs are not made explicit and hidden agendas seem to determine the outcome
- **Inequity** – decisions allot the risk and benefits unfairly
- **Accountability** – decision makers are isolated from the impact of their decision
- **Alienation** – people or organisations are ignored (can lead to social mobilisation) (also “Authority knows best”)
- **Lack of trust** in the process or the communication channel
- **“Paralysis by analysis”** – overly inclusive process leads to inertia

CONVENTIONAL RISK HANDLING

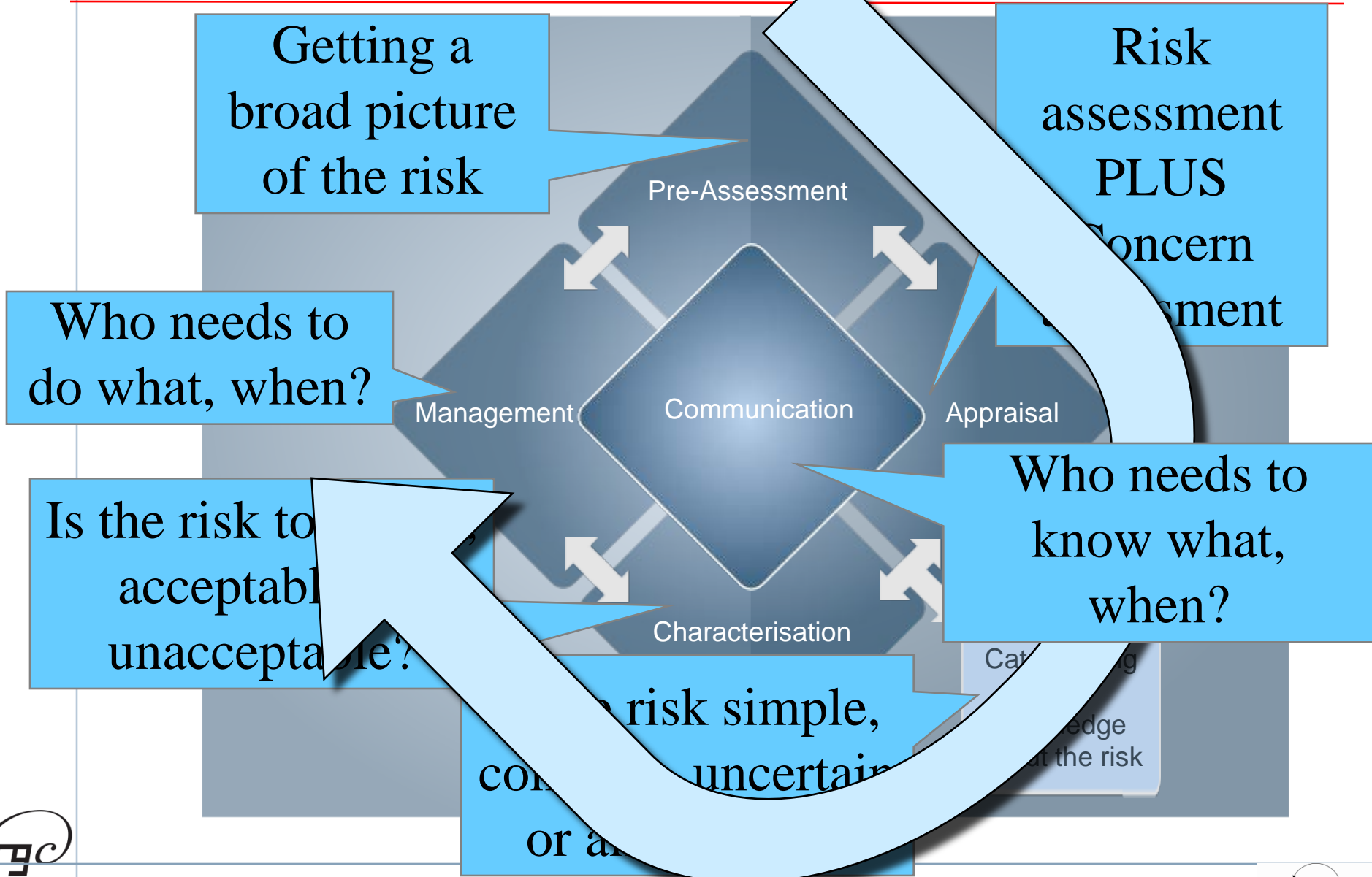


Most risk handling processes do not go beyond those steps

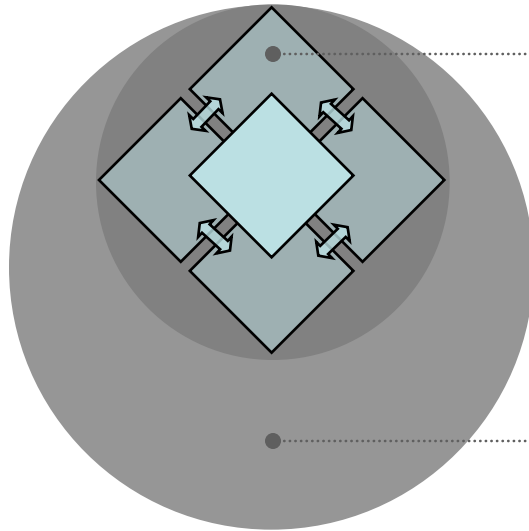
The Basic Fabrics of Risk Governance

The Five Components of Risk Governance

ESSENTIAL DISTINCTIONS WITHIN THE CORE PROCESS



RISK GOVERNANCE INCLUDES AND IS SENSITIVE TO CONTEXT



Core Risk Governance Process

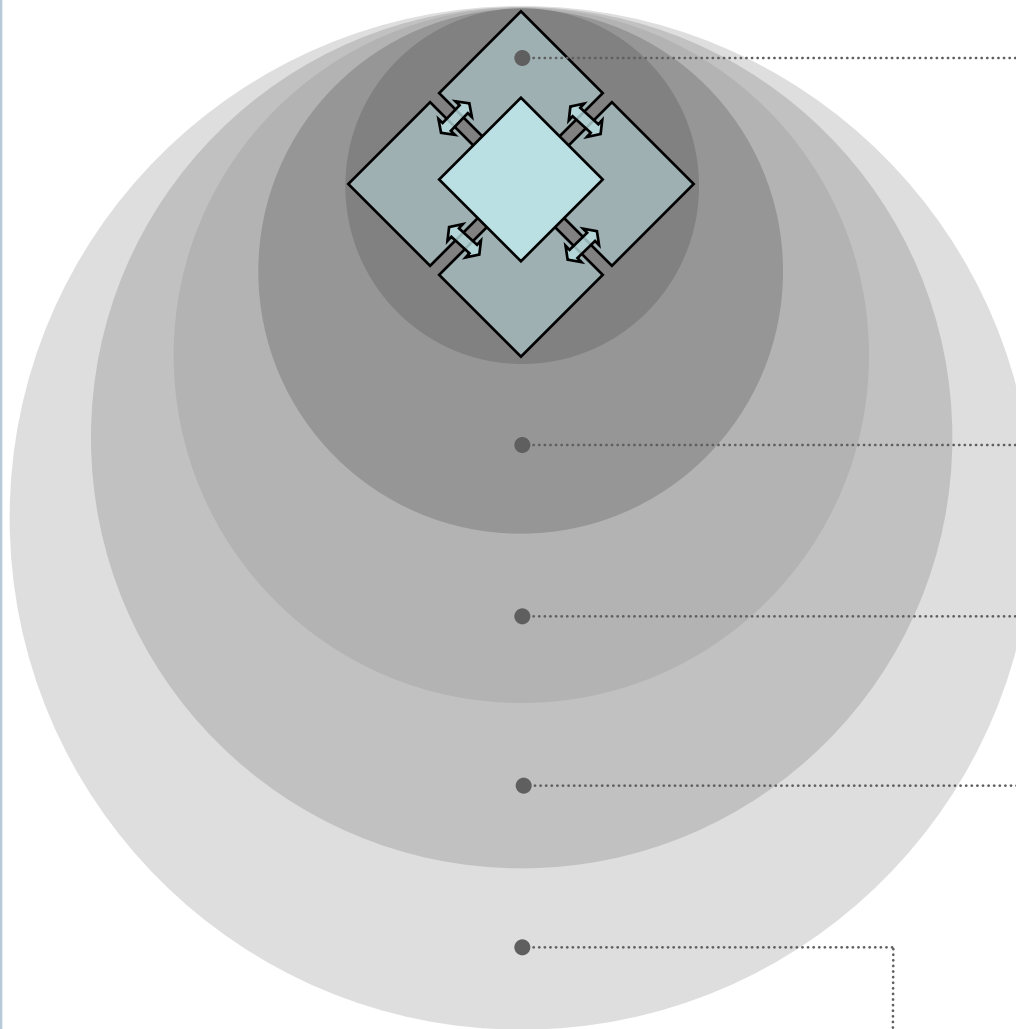
- pre-assessment
- risk appraisal
 - risk assessment
 - concern assessment
- evaluation: tolerability / acceptability judgement
- risk management
- communication

Organisational Capacity

- assets
- skills
- capabilities

Most risk management processes are done in this context only

RISK GOVERNANCE GOES MUCH FURTHER



Core Risk Governance Process

- pre-assessment
- risk appraisal
 - risk assessment
 - concern assessment
- evaluation: tolerability / acceptability judgement
- risk management
- communication

Organisational Capacity

- assets
- skills
- capabilities

Actor Network

- politicians
- regulators
- industry/business
- NGOs
- media
- public at large

Social Climate

- trust in regulatory institutions
- perceived authority of science
- degree of civil society involvement

Political & Regulatory Culture

→ different regulatory styles

Details of each phase

Integrating Disciplines and Perspectives in Risk Governance

The interplay between the five components

Phase 1



COMPONENTS OF PRE-ASSESSMENT

Pre-Assessment Components	Definition	Indicators
1 Problem framing	Different perspectives of how to conceptualize the issue	<ul style="list-style-type: none"> ■ dissent/consent on goals of selection rule ■ dissent/consent on relevance of evidence ■ choice of frame (risk, opportunity, fate)
2 Early warning	Systematic search for new hazards	<ul style="list-style-type: none"> ■ unusual events or phenomena ■ systematic comparison between modeled and observed phenomena ■ novel activities or events
3 Screening (risk assessment and concern assessment policy)	Establishing a procedure for screening hazards and risks and determining assessment and management route	<ul style="list-style-type: none"> ■ screening in place? ■ criteria for screening: hazard potential, persistence, ubiquity, etc. ■ criteria for selecting risk assessment procedures for: known risks, emergencies, etc. ■ criteria for identifying and measuring social concerns
4 Scientific conventions for risk assessment & concern assessment	Establishing a procedure for screening hazards and risks and determining assessment and management route	<ul style="list-style-type: none"> ■ definition of NOAEL ■ validity of methods and techniques for risk assessments ■ methodological rules for assessing concerns



IMPORTANCE OF FRAMING

- *Frames represent social, economic and cultural perspectives*
 - Challenge or problem
 - Opportunity or risk
 - Innovation or intervention

- *Frames determine boundaries of what is included and excluded*
 - Time and duration (future generations, sustainability)
 - Location and space (the universe, all nation, the Netherlands, Le Hague)
 - Social class and stratus (vulnerable groups, poor, immigrants)
 - Types of adverse effects (physical, mental, social, cultural)
 - Primary or secondary impacts (ripple effects)
 - Criteria taken into account (risk reduction, cost, benefit, equity, environmental justice, value violations...)

NOVELTY AND PRECAUTION: THE IMPACT OF FRAMING ON THE RISK-HANDLING OF GMOs

Comparing USA and Europe:

Different framing



Different regulatory approach

In the **EU**, GM crops were framed as a radical departure from any previous products and were seen as requiring path-breaking regulatory approaches.

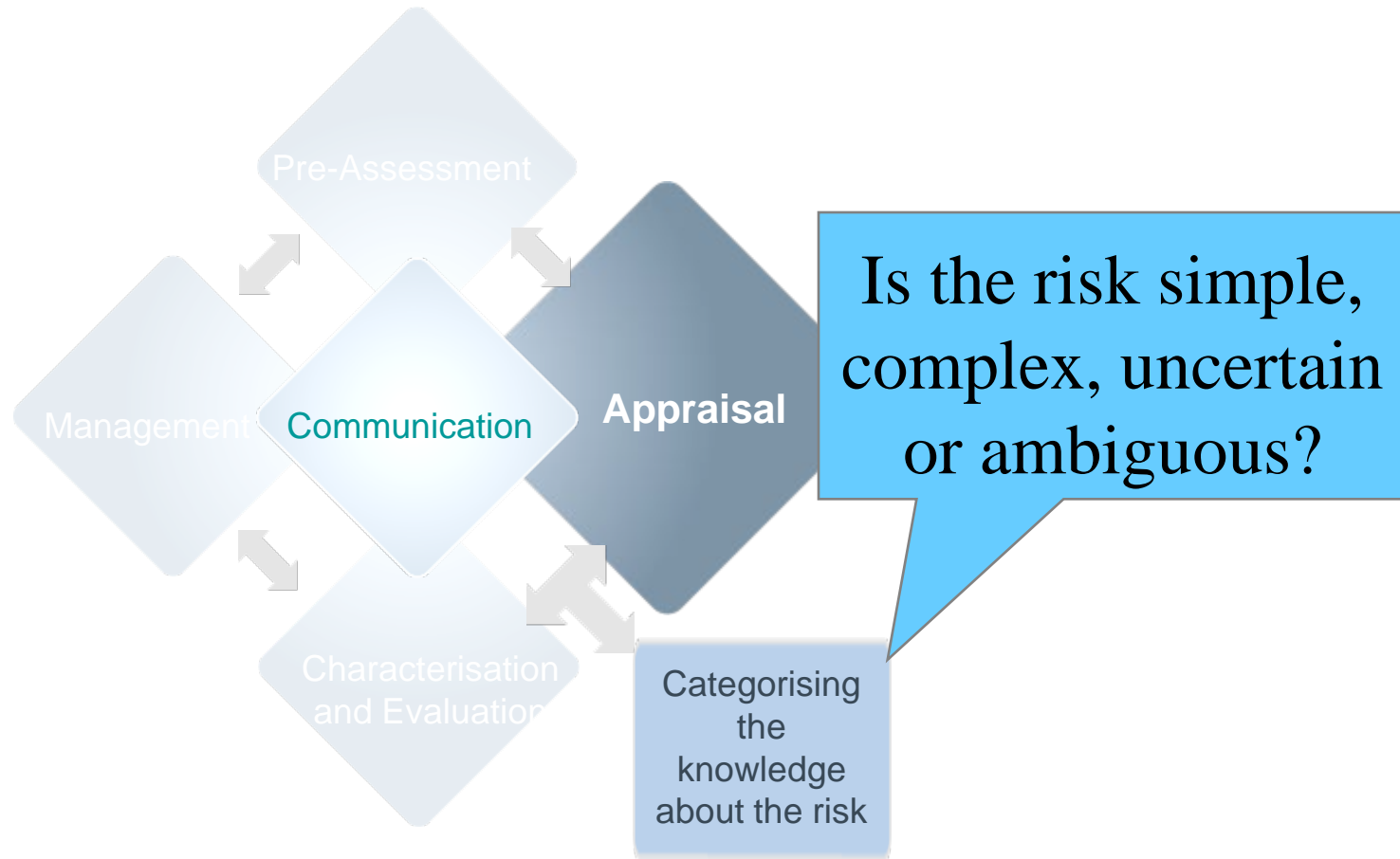
The US, in line with the OECD approach, framed them as inherently similar to existing products developed through conventional plant breeding programmes and therefore not requiring any additional scrutiny beyond existing regulatory systems, for example for pesticides, food for human consumption or animal feeds (i.e. they were seen as requiring path-dependent and evolutionary regulation).



Copyright: Freakingnews.com

Taken from Risk governance of genetically modified crops – European and American perspectives, Joyce Tait, for publication by Springer in 2007 in the book “Global Risk Governance: Concept and Practise Using the IRGC Framework”

Phase 2



RISK APPRAISAL

■ Risk Assessment

- Hazard identification and estimation
- Exposure assessment
- Risk estimation

■ Concern Assessment

- Socio-economic impacts
- Economic benefits
- Public concerns (stakeholders and individuals)

CONCERN ASSESSMENT

How do values and emotions impact on how the risk is perceived?

- What are the public's **concerns and perceptions**?
- What is the **social response** to the risk? Is there the possibility of political mobilisation or potential conflict?
- What role are existing institutions, governance structures and the media **playing in defining public concerns**?
- Are risk managers likely to face important controversies (ambiguities) arising from **differences in stakeholder objectives and values, or from inequities in the distribution of benefits and risks**?

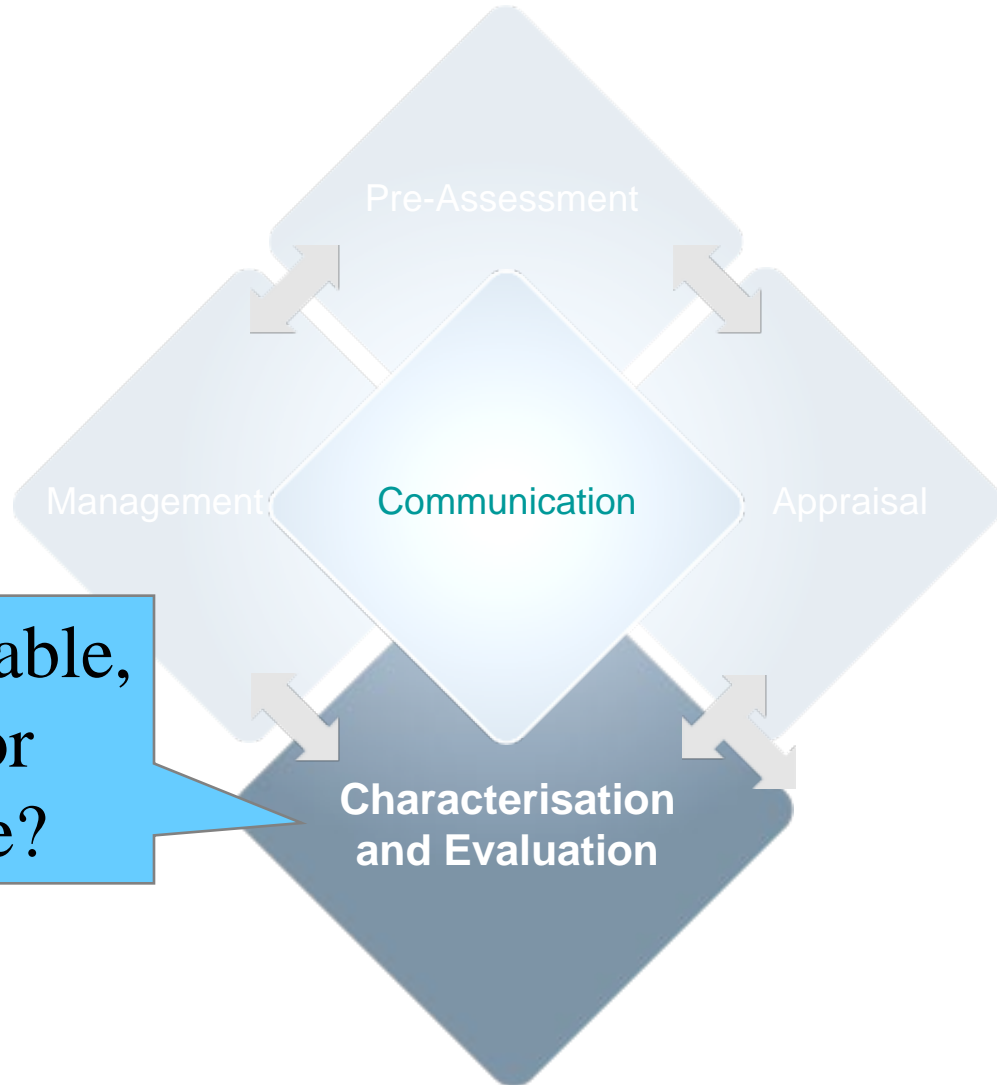
BRENT SPAR – UNDERESTIMATING STAKEHOLDER CONCERN



© Greenpeace / David Sims

Greenpeace's campaign included occupation of the platform but did **not** include calling for a consumer boycott. Nonetheless, Shell is estimated to have lost between £60-100 million, mostly from lost sales across northern Europe; petrol stations were fire-bombed in Germany.

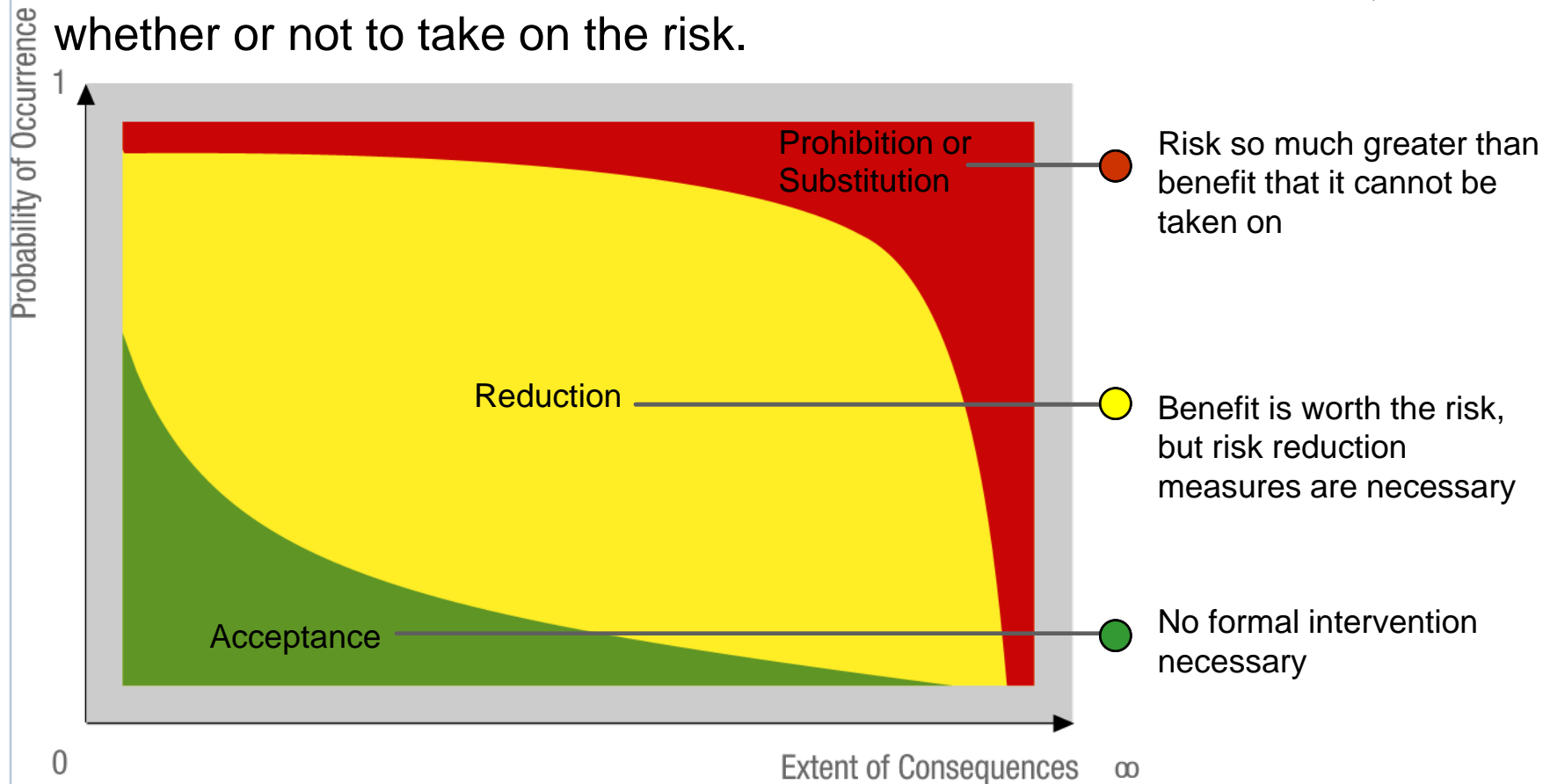
Phase 3



Is the risk tolerable, acceptable or unacceptable?

EVALUATION – IS THE RISK ACCEPTABLE, TOLERABLE OR INTOLERABLE / NOT-ACCEPTABLE (TRAFFIC LIGHT MODEL)

Based on **both the evidence from the risk appraisal and evaluation of broader value-based choices and the trade-offs involved**, decide whether or not to take on the risk.



Acceptable Risk Tolerable Risk Intolerable Risk Not defined

CHARACTERISATION AND EVALUATION

What are the broader, value-based questions to consider?

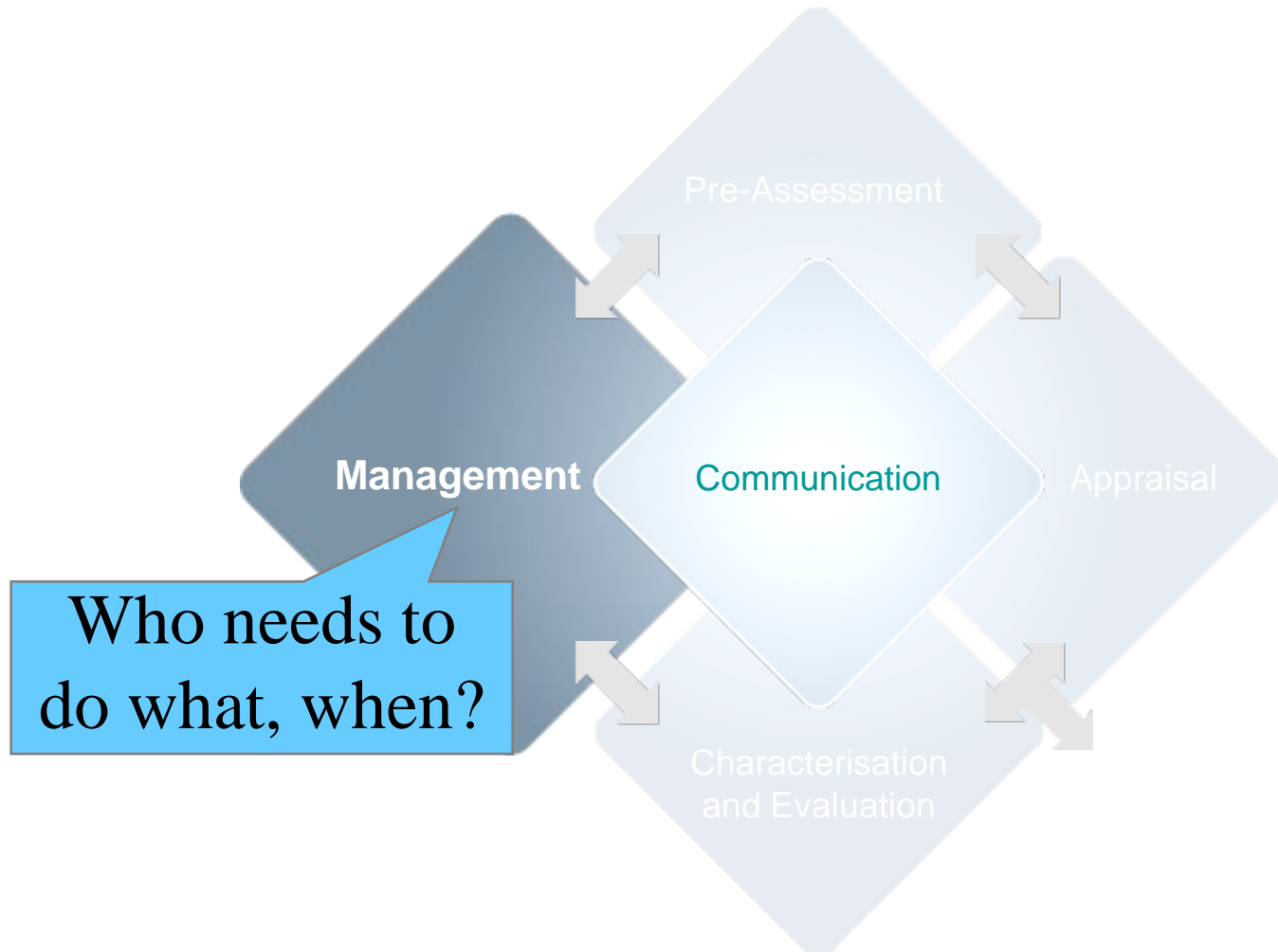
■ Characterization:

- What are the **societal and economic** benefits and risks?
- Are there impacts on **individual or social quality of life**?
- Are there **ethical issues** to consider?
- Is there a **possibility of substitution**?

■ Evaluation:

- What are possible options for **risk compensation or reduction**?
- How can we assign **trade-offs** between different risk categories and between risks and benefits (or opportunities)?
- What are the **societal values and norms** for making judgements about tolerability and acceptability?
- Do any stakeholders have commitments or other reasons for **desiring a particular outcome** of the risk governance process?

Phase 4



COMPONENTS OF RISK MANAGEMENT

Assessment Components	Definition	Indicators
1 Option generation	Identification of potential risk handling options, in particular risk reduction, i.e. prevention, adaptation and mitigation, as well as risk avoidance, transfer and retention	<ul style="list-style-type: none"> ■ standards, voluntary agreements ■ performance rules ■ restrictions on exposure or vulnerability ■ economic incentives ■ compensation ■ insurance and liability ■ labels, information/education
2 Option assessment	Investigations of impacts of each option (economic, technical, social, political, cultural)	<ul style="list-style-type: none"> ■ effectiveness and efficiency ■ minimization of side effects ■ sustainability ■ fairness ■ legal and political implementability ■ ethical acceptability ■ public acceptance
3 Option evaluation and selection	Evaluation of options (multi-criteria analysis)	<ul style="list-style-type: none"> ■ assignment of trade-offs ■ incorporation of stakeholders & the public
4 Option implementation	Realization of the most preferred option	<ul style="list-style-type: none"> ■ accountability ■ consistency ■ effectiveness
5 Monitoring and feedback	<ul style="list-style-type: none"> ■ Observation of effects of implementation (link to early warning) ■ Ex-post evaluation 	<ul style="list-style-type: none"> ■ intended impacts ■ non-intended impacts ■ policy impacts

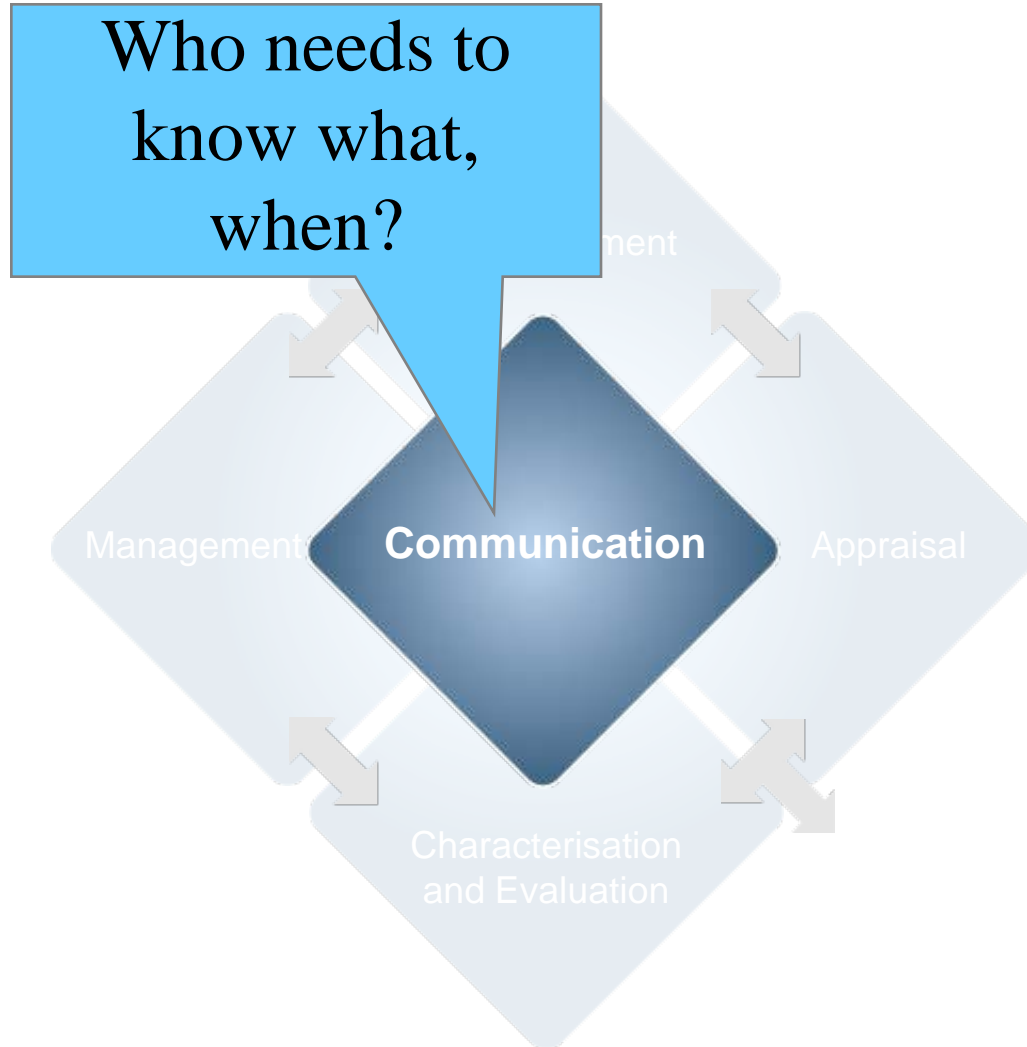
RISK CHARACTERISTICS AND THEIR IMPLICATIONS FOR RISK MANAGEMENT (I/II)

Knowledge Characterisation	Management Strategy	Appropriate Instruments	Stakeholder Participation
1 'Simple' risk problems	<p><i>Routine-based:</i> (tolerability / acceptability judgement)</p> <p>(risk reduction)</p>	<p>→ Applying 'traditional' decision-making</p> <ul style="list-style-type: none"> ■ Risk-benefit analysis ■ Risk-risk trade-offs ■ Trial and error ■ Technical standards ■ Economic incentives ■ Education, labelling, information ■ Voluntary agreements 	Instrumental discourse
2 Complexity-induced risk problems	<p><i>Risk-informed:</i> (risk agent and causal chain)</p>	<p>→ Characterising available evidence</p> <ul style="list-style-type: none"> ■ Expert consensus seeking tools, such as Delphi or consensus conferencing, meta analysis, scenario construction ■ Results fed into routine operation 	Epistemological discourse
	<p><i>Robustness-focussed:</i> (risk absorbing system)</p>	<p>→ Improving buffer capacity of risk target via:</p> <ul style="list-style-type: none"> ■ Additional safety factors ■ Redundancy and diversity in designing safety devices ■ Improving coping capacity ■ Establishing high reliability organisations 	

RISK CHARACTERISTICS AND THEIR IMPLICATIONS FOR RISK MANAGEMENT (II/II)

Knowledge Characterisation	Management Strategy	Appropriate Instruments	Stakeholder Participation
3 Uncertainty-induced risk problems	<i>Precaution-based:</i> (risk agent)	<p>→ Using hazard characteristics such as persistence, ubiquity etc. as proxies for risk estimates</p> <ul style="list-style-type: none"> ■ Tools include: Containment, ALARA, BACT 	Reflective discourse
	<i>Resilience-focussed:</i> (risk absorbing system)	<p>→ Improving capability to cope with surprises</p> <ul style="list-style-type: none"> ■ Diversity of means to accomplish desired benefits ■ Avoiding high vulnerability ■ Allowing for flexible responses ■ Preparedness for adaptation 	
4 Ambiguity-induced risk problems	<i>Discourse-based:</i>	<p>→ Application of conflict resolution methods for reaching consensus or tolerance for risk evaluation results and management option selection</p> <ul style="list-style-type: none"> ■ Integration of stakeholder involvement in reaching closure ■ Emphasis on communication and social discourse 	Participative discourse

Complementary Phase



RISK COMMUNICATION – POTENTIAL GOVERNANCE DEFICITS

The most important governance gaps are:

- **One-way information** instead of two-way communication **prevents building a dialogue**
- **Certain concerns are treated as irrational** and, as a result, those holding them are alienated from the risk handling process (which may cause social mobilisation against the institution)
- The communication is **not adapted to the category of risks** and the stakeholders involved
- **Low level of confidence** or trust in the information given and in the decision-making process weakens the whole process

RISK COMMUNICATION

Risk Communication takes place in all 4 Governance phases

- **Internally (other agencies, regulatory bodies)**
- **Externally (stakeholders, media, public)**

Risk Communication designed to the risk characteristics

- **Complexity, Uncertainty, Ambiguity**

Risk Communication at Different Stages (1)

PREASSSSMENT

- *Internal*
 - Informing other agencies and getting feedback from them (who is affected and how does it relate to their mandate?)
- *External*
 - Media briefing about process to start
 - Inviting stakeholders to provide feedback and framing suggestions (if risk appears to load high on uncertainty and ambiguity)

Risk Communication at Different Stages (2)

APPRAISAL

- *Internal*
 - Informing the appropriate scientific departments in other agencies and, if necessary, organize workshops
- *External*
 - Media briefing and announcement to stakeholders that assessment process is on its way (*low complexity*)
 - Depending on degree of knowledge, press conferences or press releases on results (*high complexity*)
 - Conducting hearings, Delphi, or other information gathering techniques with appropriate knowledge carriers (*high complexity and uncertainty*)

Risk Communication at Different Stages (3)

EVALUATION

- *Internal*
 - Involving all affected agencies if risk characterisation is either uncertain or evaluation controversial
- *External*
 - Press conferences with assessors and managers on evaluation results and protective measures (*low uncertainty and ambiguity*)
 - Information of stakeholders and invitation for written review (*high uncertainty and low ambiguity*)
 - Deliberation with stakeholders about values/perspectives and assigning trade-offs (*high ambiguity*)

Risk Communication at Different Stages (4)

Management

- *Internal*

- Involving all affected regulatory or government bodies if risk management measures have impacts on their mandate

- *External*

- Press conferences on selection of management measures (*low uncertainty and ambiguity*)
- Information of stakeholders about regulatory impact review and, if needed, organisation of hearings (*high uncertainty and low ambiguity*)
- Engaging in formal deliberations with stakeholders and representatives of the public (*high ambiguity*)

Beyond communication

Stakeholder and Public Involvement

Crucial Questions for Involvement

■ *Inclusion*

- *Who*: stakeholders, scientists, public(s)
- *What*: options, policies, scenarios, frames, preferences
- *Scope*: multi-level governance (vertical and horizontal)
- *Scale*: space, time period, future generations

■ *Closure*

- *What counts*: acceptable evidence
- *What is more convincing*: competition of arguments
- *What option is selected*: decision making rule (consensus, compromise, voting)

Stakeholder Involvement at Different Stages

PREASSSSMENT

Shaping the process (consensus on frames)

Design Discourse

APPRAISAL

Gathering information and knowledge

Epistemic Discourse

EVALUATION

Deliberating around values/perspectives and assigning trade-offs

Reflective Discourse

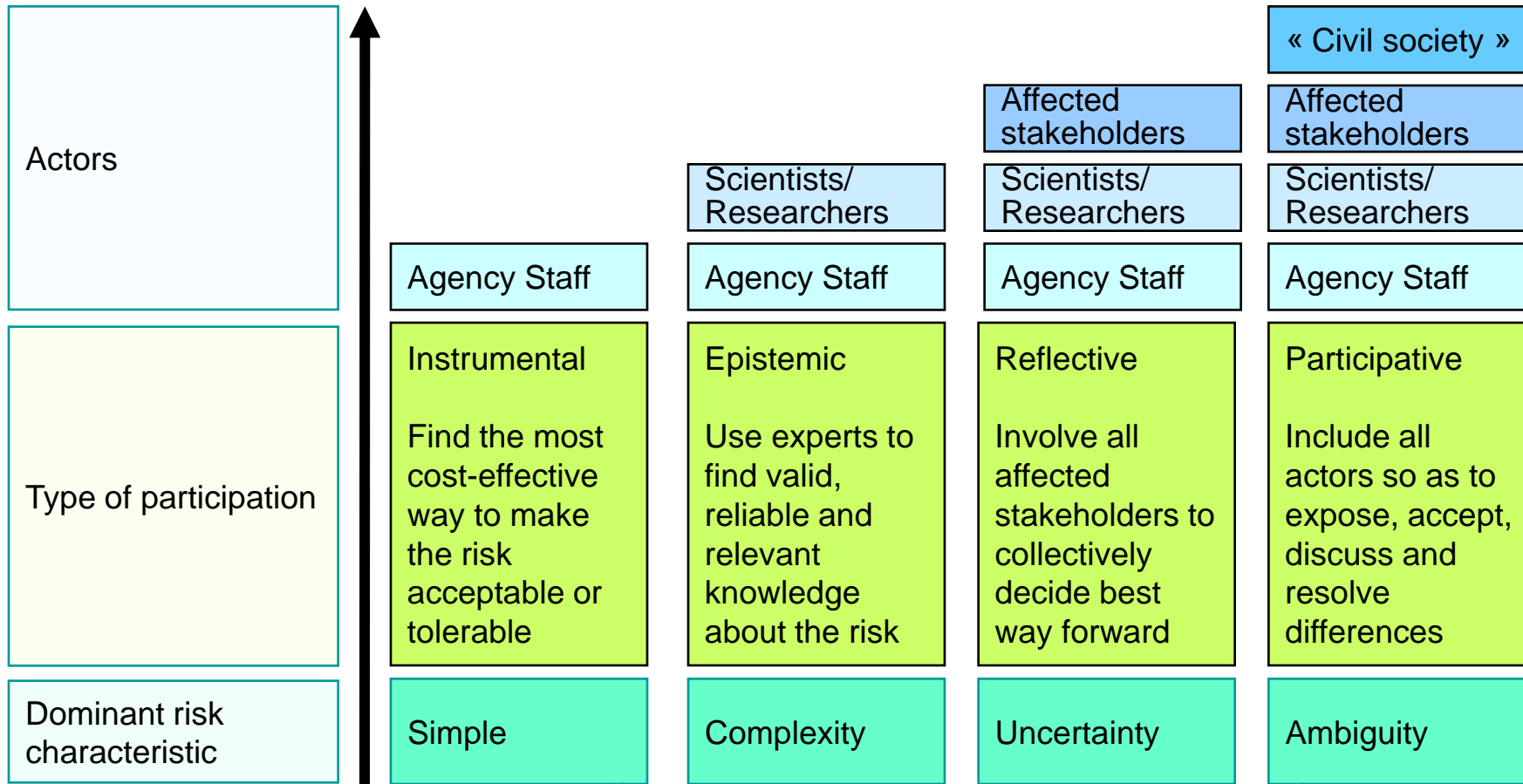
MANAGEMENT

Weighing pros and cons of management measures

Pragmatic Discourse (for low ambiguity)

Participative Discourse (for high ambiguity)

STAKEHOLDER INVOLVEMENT



As the level of knowledge changes, so also will the type of participation need to change

CONCLUSIONS I/II

- Problems in handling risks:
 - Plural values and knowledge claims
 - Expert dissent on risk and benefits
 - Transboundary nature of risks
 - Social amplification and attenuation via perception and social mobilization
 - Pressure from globalized economy
 - Lack of organizational capacity in many countries
 - Lack of effective governance structures

- Emergence of systemic risk that cross national and sectoral boundaries (ripple effects)

- Need for integration of risk analysis and perception

CONCLUSIONS II/II

- Good risk governance **integrates traditional risk analysis with the thorough understanding of how different stakeholders perceive the risk** (“framing” and “concern assessment”)
- Understanding and acting on **how different stakeholders frame the risk** is a key factor in the overall success of the process
- **Categorising the knowledge about the risk** as simple, complex, uncertain or ambiguous can help:
 - select a risk management strategy
 - design the process for stakeholder involvement
- Using the results of both risk assessment and concern assessment can support a **tolerability/acceptability judgement that accounts for both scientific facts and people’s perceptions**

THANK YOU!

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