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10.D2. Discussion

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10.D2.1. Results of and conclusions from risk perception studies

In general people are doing a good job in assessing the magnitude of a risk that is familiar to them. They underestimate high risks and overestimate low risks, but otherwise they are quite aware of the threats and dangers which they are exposed to.

The perceived degree of severity of risks is almost independent of the perceived number of expected losses. The disaster potential (dread) and the degree of uncertainty (individual familiarity and scientific knowledge) are two of the key factors in determining the perceived level of risk. In addition, the perceived justice in the risk-benefit distribution, the potentials for individual and societal control of the risk, and voluntariness of the risky activity influence personal judgment on how society should deal with risks and what regulations are required.

Social psychological and sociological studies show that judgments on risky technologies or activities depend not only on psychological factors like the ones mentioned above but also on reference group judgments, salient beliefs about the risk source, perception of the proponents and opponents of the risk source, degree of loyalty toward official policymakers, and commitment to social values and cultural goals. Since all these factors, including the psychological ones, are interrelated and sometimes reflect mere post-rationalizations of unconscious feelings and social constraints, it is very difficult to set up a reliable model of how people actually perceive risks and evaluate them. What we know – and to what degree we know it – is what matters; but analysts are still searching for a theory that can explain the process of people's judgment on risks.

We certainly do know that people make judgments on technologies, events, or activities, and not on an abstract notion like risk. There are indications that people assess the potential for threat in a similar way and that similar mechanisms of processing and evaluating information about risk are operating under the psychological premises of common sense. But the meaning of risk differs not only among individuals: it differs also among technologies and activities perceived by one and the same individual.

Hence, there is no universal risk threshold which allows distinction between accepted and nonaccepted risks. What kind of risks are

acceptable or not differs among people and risk sources considerably and is almost independent of the actual probabilities of being affected. A compound model of psychological, group-related, and value-oriented factors can best predict the individual judgment on the acceptance of technologies or activities.

10.D2.2. Lessons for risk communications

Risk comparisons usually fail to convince anyone except the professional risk analyst. Since risk has a different meaning in different contexts, comparisons make little sense to the public. Only in cases where risk sources have a very similar structure and serve the same purpose should comparisons be used in communication.

Risk communication should not concentrate on conveying probabilities and their meaning to the public. Probabilities will be intuitively learnt by experience (although biased by personal performance) or can be indirectly communicated by describing the safety measures taken to protect individuals and society.

Risk communication should focus on the key aspects of risk perception: on the disaster potential, on the management of uncertainty, on the means of societal control and monitoring, and, of course, on the benefits which are given to the society and/or the individual.

Acceptance of risk sources is highly influenced by the trust in the fairness and rationality of the decision-making procedure and the credibility of the actors involved. Psychological barriers of perception can easily be overcome if those two conditions are met. Unfortunately or fortunately – depending on which side one stands – all tricks and recipes for retaining or gaining trust and credibility usually fail in an open society with a pluralist value structure and a free press. Trust and credibility are dependent on honesty, transparency, competence, and a good past record.

Risk communication can only be effective if the communication process is structured as a two-way information exchange. Regulators can learn something from the public and vice versa. It is also essential that the communication process allows for alterations of the final decision. Nobody is motivated to communicate if he cannot change parts of the issue.

10.D2.3. Lessons for compensation

Since there is no universal risk acceptance threshold and people's judgments vary over the severity of risk posed by a technology or activity, risk perception studies provide no recipes for determining

how much compensation is needed to level off the exposure to a specific risk.

Because of the different marginal utilities of income and variations of perceived danger among individuals, compensation on the basis of perceived personal loss will inevitably lead to different compensational sums being handed out to individuals with respect to the same risk taken. Since people demand that risk spreading as well as compensation should be just, variations in payment will not be accepted.

Taking the mean value of all revealed demands for compensation would probably be rejected by those persons whose compensation was lower than originally demanded and would enhance the distrust of those who were overpaid ("if they pay me more than I demand, there has to be something wrong"). Choosing the upper limit of all revealed demands would exceed any financial limits.

Compensation might be a viable and acceptable means of risk management if it were comprised of better or cheaper access to services (e.g. electricity) – disregarding marginal utility – or collective goods (e.g. improvement of the infrastructure). Although people use the community infrastructure in varying degrees, the axiom of perceived justice is met, since anyone has the same chance of using the facility.

Since the exact amount of compensation cannot be calculated on the basis of perceived risk and will run into acceptance problems if the sum is calculated only on the basis of "objective" probabilities, either an open bargaining process with representatives of the community (which will work best if alternative sites are available and compete for this specific risk source) should be initiated or a panel group of selected citizens (in particular ones not directly affected by the risk source to avoid strategic responses) should determine the amount of compensation which they feel just and fair (after being informed about the risks involved).

The above points concerning compensation do not apply if risks can be reduced by compensating measures (e.g. rebuilding houses to increase protection).