

I. Selected research articles (RA) and books (B)

- i) RA: Risk perception (4)
- ii) RA: Risk communication and public participation (4)
- iii) RA: Psychosocial responses and environmental distress (4)
- iv) B: Risk perception, risk communication, and psychosocial responses(4)

i)

Vandermoere, F. (2008). Hazard perception, risk perception and the need for decontamination by residents exposed to soil pollution: The role of sustainability and the limits of expert knowledge. *Risk Analysis*, 28(2), 387-798.

Grasmück, D., & Scholz, R. W. (2005). Risk perception of heavy metal soil contamination by high-exposed and low exposed inhabitants: The role of knowledge and emotional concerns. *Risk Analysis*, 25(3), 611–622.

Canter, L. W., Nelson, D.I., & Everett, J.W. (1993). Public perception of water-quality risks - Influencing factors and enhancement opportunities. *Journal of Environmental Systems*, 22(2), 163-187.

Freudenburg, W., R. (1993). Risk and recreancy: Weber, the division-of-labor, and the rationality of risk perceptions. *Social Forces*, Vol. 71 (4), 909-932.

ii)

Petts, J. (2004). Barriers to participation and deliberation in risk decisions: Evidence from waste management. *Journal of Risk Research*, Vol 7(2), 115-133.

Fischhoff, B. (1995). Risk perception and communication unplugged: Twenty years of process. *Risk Analysis*, 5(15), 137–145.

Rich, R. C., Edelman, M., Hallman, W. K., & Wandersman, A. H. (1995). Citizen participation and empowerment: the case of local environmental hazards. *American Journal of Community Psychology*, 23(5), 657-676.

Fessenden-Raden, J., Fitchen, J. M., & Heath, J. S. (1987). Providing risk information in communities: Factors influencing what is heard and accepted. *Science, Technology, & Human Values*, Vol. 12, No. 3/4, Special issue on the technical and ethical aspects of risk communication (Summer - Autumn, 1987), pp. 94-101.

iii)

Vandermoere, F. (2008). Psychosocial Health of Residents Exposed to Soil Pollution in a Flemish Neighbourhood. *Social Science & Medicine*. 66, 1646-1657.

Vandermoere, F. (2006). The Process of Soil Excavation in a Community. Site-Specific Determinants of Stress Perception. *Environment and Behavior*, 38(5), 715-739.

Matthies, E., Höger, R., & Guski, R. (2000). Living on polluted soil: determinants of stress symptoms. *Environment and Behavior*, 32, 270-286.

Kroll-Smith, J. S. & Couch, S. R. (1991). As if exposure to toxins were not enough: The social and cultural system as a secondary stressor. *Environmental Health Perspectives*, 95 (Nov.), 61-66.

iv)

Gross, M. (2010). *Ignorance and Surprise: Science, Society, and Ecological Design*. Cambridge, MA: MIT Press.

Gunter, J., & Kroll-Smith, S. (2007). *Volatile places: A sociology of communities and environmental controversies*. Thousand Oaks, London, New Delhi: Pine Forge Press.

Edelstein, M. R. (2004). *Contaminated communities: The social and psychological impacts of residential toxic exposure*, (2nd ed.). Boulder, CO: Westview.

Kasperson, R. E., & Stallen, P. J. M. (Eds.) (1991). *Communicating risks to the public: international perspectives*. Boston: Kluwer Academic Publishers.

II. Abstracts

i)

Vandermoere, F. (2008). Hazard perception, risk perception and the need for decontamination by residents exposed to soil pollution: The role of sustainability and the limits of expert knowledge. *Risk Analysis*. 28(2), 387-798.

“This case study examines the hazard and risk perception and the need for decontamination according to people exposed to soil pollution. Using an ecological-symbolic approach (ESA), a multidisciplinary model is developed that draws upon psychological and sociological perspectives on risk perception and includes ecological variables by using data from experts' risk assessments. The results show that hazard perception is best predicted by objective knowledge, subjective knowledge, estimated knowledge of experts, and the assessed risks. However, experts' risk assessments induce an increase in hazard perception only when residents know the urgency of decontamination. Risk perception is best predicted by trust in the risk management. Additionally, need for decontamination relates to hazard perception, risk perception, estimated knowledge of experts, and thoughts about sustainability. In contrast to the knowledge deficit model, objective and subjective knowledge did not significantly relate to risk perception and need for decontamination. The results suggest that residents can make a distinction between hazards in terms of the seriousness of contamination on the one hand, and human health risks on the other hand. Moreover, next to the importance of social determinants of environmental risk perception, this study shows that the output of experts' risk assessments-or the objective risks-can create a hazard awareness rather than an alarming risk consciousness, despite residents' distrust of scientific knowledge.”

Grasmück, D., & Scholz, R. W. (2005). Risk perception of heavy metal soil contamination by high-exposed and low exposed inhabitants: The role of knowledge and emotional concerns. *Risk Analysis*, 25(3), 611–622.

“Soil contaminated with heavy metals is a salient example of environmental risk. Consumption of vegetables cultivated in contaminated soil or direct ingestion of soil by small children can damage health. In contrast to other kinds of pollution or risks such as air pollution or exposure to ozone, the individual risk concerning soil contamination is highly dependent on the way one is exposed to the local source of risk. Thus, we wanted to know if risk perception varies according to the level of exposure. A quasi-experimental, questionnaire-based study was conducted in a community in northwest Switzerland, where the soil is widely contaminated. The level of contamination varies with the distance from the source of the contamination, a metal processing plant. We investigated the perception of risk of heavy-metal-contaminated soil by inhabitants with high-exposure levels (N= 27) and those with low-exposure levels (N= 30). Both groups judged the risk for oneself similarly whereas the low-exposure group, when compared to the high-exposure group, judged perceived risk for other affected people living in their community to be higher. Besides this exposure effect, risk perception was mainly determined by emotional concerns. Participants with higher scores in self-estimated knowledge tended to provide low-risk judgments, were less interested in further information, showed low emotional concern, and thus displayed high risk acceptance. In contrast, actual knowledge showed no correlation with any of these variables. Judgments on the need for decontamination are determined by risk perception, less application of dissonance-reducing heuristics and commitment to sustainability. The desire for additional information is not affected by missing knowledge but is affected by emotional concerns.”

Canter, L., W., Nelson, D.I., & Everett, J.W. (1993). Public perception of water-quality risks - Influencing factors and enhancement opportunities. *Journal of Environmental Systems*, 22(2), 163-187.

“Public perceptions of the human health risks associated with water quality deterioration have been increasing in recent years, and a better understanding of the determinants of such perceptions and the communication of these perceptions to the policy community will facilitate water quality management. The objective of this study was to conduct a state-of-the-art literature review on factors affecting public perception of risk and levels of acceptable risk in relation to water quality, and to delineate research opportunities for such perceptions in relation to their usage in water quality management. Extensive literature searches yielded approximately 150 papers or other published items related to water quality risk concerns. Although there have been few comprehensive studies of factors that influence water quality risk perception and the delineation of acceptable risk, many individual and combinations of factors have been identified as affecting perceptions held by different publics. Examples of such factors include whether or not pollution is visible, personal usage of the water resource, historical changes from emphases on bacteriological quality to the occurrence of toxic chemicals, education level, age, proximity to the problem, familiarity with the contaminant and source, trust in local public officials, involvement in decision processes, and poor risk communication efforts. Outrage factors such as whether the risk is voluntary or involuntary, familiar or unfamiliar, controlled by self or controlled by others, memorable or not memorable, dreaded or not dreaded, or natural or unnatural, can also influence risk perception. Complications associated with identifying influencing factors include the facts that: 1) the water environment is technically and scientifically complicated due to hydrodynamic considerations, chemical processes, and the kinetics of bacteriological decomposition; 2) there are many uncertainties associated with risk identification and evaluation; 3) effective communication of risk information to different publics is difficult; and 4) conflicts may arise due to different perceptions of water risk between policy makers, scientific experts, public interest groups, the media, and individuals within the general public.

A fundamental research need in relation to water quality and risk perception is for a basic conceptual model which can be utilized and tested in terms of the factors which influence perceptions of water quality risks held by different publics. The conceptual model should incorporate both individual perception of risks as well as group perception of risks. Acceptable risk needs to be systematically defined and various causative factors or issues should be delineated. Very little information exists on how public perceptions of water quality risks are actually used by policy makers in planning and implementing water quality management programs. Research is also needed on institutional and interdisciplinary barriers to the development and transmission of information needed by policy makers and the general public in their formation of risk perceptions. Consideration should also be given to the degree that narrow disciplinary perspectives influence scientific and technical information communicated to policy makers and the general public."

Freudenburg, W., R. (1993). Risk and recreancy: Weber, the division-of-labor, and the rationality of risk perceptions. *Social Forces*, Vol. 71 (4), 909-932.

"To date, most analyses of risk perceptions have focused on the characteristics of individual perceivers, but given the societal changes that have occurred since the early days of the industrial revolution, there is need for greater attention to the institutions that are responsible for risk management. Risks of death have been dropping significantly for more than a century, but during that time, there has been a dramatic growth of societal interdependence and hence of the potential for recreancy - the failure of institutional actors to carry out their responsibilities with the degree of vigor necessary to merit the societal trust they enjoy. In the case of facilities for handling nuclear waste, analyses of survey data find that the recreancy perspective explains roughly three times as much variance in levels of concern as do sociodemographic and ideological variables combined. The recreancy concept may also have significant applicability in other contexts involving the potentially problematic performance of specialized responsibilities."

ii)

Petts, J. (2004). Barriers to participation and deliberation in risk decisions: Evidence from waste management. *Journal of Risk Research*, Vol 7(2), 115-133.

"Despite increased support for extended public engagement in risk decision-making, significant questions remain over the best means to integrated deliberative processes with conventional 'scientific' or technical elements. This paper analyses the barriers to analytic-deliberative processes as a means by which the public can influence risk decisions, including the generation of data and the derivation of acceptable policy options. Using evidence from waste management decision processes in Britain, the discussion identifies technical, institutional and cultural barriers to effective process. The barriers are seen to limit systematic analysis appropriate to the problems as framed by the public. The principle that the nature of the risks and the assessment required needs to be determined through discussion with the public not in advance of discussion with them is challenged by proceduralization cultures within decision authorities and ingrained technical cultural perspectives. It is evident also that fundamental barriers lie in fragmentary decision processes and weak regulation. The paper discusses the requirements for a decision-support framework for multicriteria decision-making with full public participation."

Fischhoff, B. (1995). Risk perception and communication unplugged: Twenty years of process. *Risk Analysis*, 5(15), 137-145.

“Over the past twenty years, risk communication researchers and practitioners have learned some lessons, often at considerable personal price. For the most part, the mistakes that they have made have been natural, even intelligent ones. As a result, the same pitfalls may tempt newcomers to the field. This essay offers a personal (even confessional) history of the field over this period. It identifies a series of developmental stages. Progress through the stages involves consolidating the skills needed to execute it and learning its limitations. Knowing about their existence might speed the learning process and alert one to how much there still is to learn.”

Rich, R. C., Edelstein, M., Hallman, W. K., & Wandersman, A. H. (1995). Citizen participation and empowerment: the case of local environmental hazards. *American Journal of Community Psychology*, 23(5), 657-676.

“Local environmental hazards place millions of citizens at risk of physical emotional and financial harm. While the discovery of such hazards can be fundamentally disempowering for individuals and communities few scholars have examined the dynamics of empowerment in this context. We explore the relationships among forms of empowerment, citizen participation, and local environmental hazards, and offer a model of the processes of empowerment and disempowerment appropriate to a broad range of citizen issues. On the basis of this analysis we recommend a partnership approach to community decision making that is designed both to reduce the likelihood that local environmental hazards will develop and to minimize the disempowering impact of any threats that do occur.”

Fessenden-Raden, J., Fitchen, J. M., & Heath, J. S. (1987). Providing risk information in communities: Factors influencing what is heard and accepted. *Science, Technology, & Human Values*, Vol. 12, No. 3/4, Special issue on the technical and ethical aspects of risk communication (Summer - Autumn, 1987), pp. 94-101.

“This paper argues that risk communication is not simply a one-way transfer of information. Nor is it a single, discrete event. Rather, risk communication is a process involving interaction over time between senders and receivers of information about a risk. This dynamic view of risk communication, derived from our research on cases of chemical contamination of drinking water, carries important practical implications: If risk communication is interactive, then those who would inform others about risk should take into account the concerns and priorities of the recipients of the information.”

iii)

Vandermoere, F. (2008). Psychosocial Health of Residents Exposed to Soil Pollution in a Flemish Neighbourhood. *Social Science & Medicine*. 66, 1646-1657.

“The objective of this study is to examine several major covariates of mental health among residents living on polluted soil. In the Kouterwijk community, Belgium, which is contaminated by heavy metals and polyaromatic hydrocarbons, 109 residents were compared with a quasi-control group (n = 161). The mental health of the exposed residents was much worse than in the matched group. To examine the residents' mental health in detail, site-specific variables were added in a binary logistic regression. The probability of distress did not covary with independently assessed or perceived danger of the contaminants, but with residents' sense of participation in consultation over the contamination problem, and with interaction of the latter with a perceived need for decontamination. This suggests that a disbelief in the necessity of risk mitigation, along with a perceived lack of participation, can be more stressful than actual and perceived contamination.”

Vandermoere, F. (2006). The Process of Soil Excavation in a Community. Site-Specific Determinants of Stress Perception. *Environment and Behavior*. 38(5), 715-739.

“This study examines the psychosocial impact of the process of soil excavation in a Belgian community after the initial responses to the announcement of the contamination. Qualitative and quantitative data are connected to predict the stress experience of the residents. Halfway through the excavation of the community, structured questionnaires were collected (N = 98) that included questions about stressors related to the risks of the physical environment and to the process of soil excavation. The results show that neither risk assessments nor risk perceptions about the contaminated sources significantly contribute to the explanation of variance. The stress perception is best predicted by the need for additional information about the risks, the decontamination stage, and the extent of site-specific concerns. However, concerns related to the process of soil excavation seemed to have an effect on the experience of stress only if inhabitants had started with the recovery of the excavation.”

Matthies, E., Höger, R., & Guski, R. (2000). Living on polluted soil: determinants of stress symptoms. *Environment and Behavior*, 32, 270-286.

“The study evaluated stress-related complaints of residents living on contaminated ground. Two hundred and fifteen residents of an area that was contaminated by toxics of a former coking plant (toxins were benzo(a)pyrene, dicyclopentadiene, benzol, toluol, and xylol) were compared to a control group composed of 200 subjects living in an uncontaminated part of the same city. Data are based on a standardized interview concerning stress-related somatic and psychological symptoms and on exposure parameters. The residents of the contaminated area were also required to report their estimation of danger and trust in the city council's managing of the redevelopment. The results show that the residents reported significantly more stress symptoms than the control group. In a stepwise regression analysis, symptoms turned out to be best predicted by cognitive variables. Exposure parameters were excluded from the regression model because they provided a comparatively small contribution to the explanation of variance.”

Kroll-Smith, J. S. & Couch, S. R. (1991). As if exposure to toxins were not enough: The social and cultural system as a secondary stressor. *Environmental Health Perspectives*, 95 (Nov.), 61-66.

“A growing body of evidence indicates that toxic contamination, both indoor and outdoor, negatively affects sociocultural systems and that this in turn affects the social and psychological response to the contamination. Using secondary case studies and primary survey, interview and observation data from three toxic contamination situations, this paper conceptualizes and summarizes the findings to date. We argue that using a sociocultural perspective helps us to understand much of the seemingly inexplicable behavior that accompanies cases of toxic contamination. Using examples from primary and secondary case studies, four areas in which the sociocultural system affected by toxic contamination can influence the outcome of the response are described: a) engineering options may be frustrated by sociocultural systems; b) communications may be frustrated by sociocultural systems; c) cultural images and social structural patterns of space usage can affect response; and d) sociocultural systems can affect medical outcomes. Given the nature of sociocultural systems and human behavior, measuring the relationship between contamination, social response, and individual behavior is difficult. An example of one approach using the concept of alienation is discussed, wherein linkages have been found between toxic contamination, alienation, and psychological coping difficulties. Implications for professionals responding to toxic contamination cases are also discussed. We conclude that a sociocultural perspective provides a

necessary complement to medical and engineering perspectives if we are to fully understand human reactions to toxic contamination and move toward alleviating human health problems associated with these risks.”

iv)

Gross, M. (2010). *Ignorance and Surprise: Science, Society, and Ecological Design*. Cambridge, MA: MIT Press.

“Ignorance and surprise belong together: surprises can make people aware of their own ignorance. And yet, perhaps paradoxically, a surprising event in scientific research—one that defies prediction or risk assessment—is often a window to new and unexpected knowledge. In this book, Matthias Gross examines the relationship between ignorance and surprise, proposing a conceptual framework for handling the unexpected and offering case studies of ecological design that demonstrate the advantages of allowing for surprises and including ignorance in the design and negotiation processes. Gross draws on classical and contemporary sociological accounts of ignorance and surprise in science and ecology and integrates these with the idea of experiment in society. He develops a notion of how unexpected occurrences can be incorporated into a model of scientific and technological development that includes the experimental handling of surprises. Gross discusses different projects in ecological design, including Chicago's restoration of the shoreline of Lake Michigan and Germany's revitalization of brownfields near Leipzig. These cases show how ignorance and surprise can successfully play out in ecological design projects, and how the acknowledgment of the unknown can become a part of decision making. The appropriation of surprises can lead to robust design strategies. Ecological design, Gross argues, is neither a linear process of master planning nor a process of trial and error but a carefully coordinated process of dealing with unexpected turns by means of experimental practice.”

(source: <http://mitpress.mit.edu/catalog/item/default.asp?ttype=2&tid=12180>)

Gunter, J., & Kroll-Smith, S. (2007). *Volatile places: A sociology of communities and environmental controversies*. Thousand Oaks, London, New Delhi: Pine Forge Press.

“Volatile Places was written to provide both students and faculty with a case study approach to the investigation of community and environmental controversies. Key Features: Case Studies in every chapter: creates a dramatic and telling story around certain features of the controversy. The case studies are written to capture students attention. Making Connections with previous chapters: students and instructors are encouraged to read and discuss how the current discussion links to previous discussions creating a strong sense for the integrated approach to the study of community and environmental controversies. Adding to the Portfolio: a portfolio was created for each chapter that both summarizes material and provides questions that lead students into thoughtful encounters with key concepts. Concept and Theory Boxes: Ideas and theories introduced, but not elaborated on, in the text are given a more thorough and concise treatment in the boxes.”

(source: <http://www.uk.sagepub.com/books/Book229208>)

Edelstein, M. R. (2004). *Contaminated communities: The social and psychological impacts of residential toxic exposure*, (2nd ed.). Boulder, CO: Westview.

“In this wholly revised Second Edition, Michael Edelstein draws on his thirty years as a community activist to provide a much-expanded theoretical foundation for understanding the psychosocial impacts of toxic contamination. Informed by social psychological theory and an extensive survey of documented cases of toxic exposure, and enlivened by excerpts drawn from more than a thousand interviews with victims, *Contaminated Communities* presents a candid portrayal of the toxic victim's experience and the key stages in the course of toxic disaster. The Second Edition introduces dozens of new cases and provides expanded considerations of environmental justice, environmental racism, environmental turbulence, and environmental stigma, as well as a fully articulated theory of "lifescape." The new edition moves past the well-charted role of reactive environmentalism to explore issues for a proactivist approach that employs a "third path" of social learning, sustainable innovation, consensus building, and community empowerment.”

(source: http://books.google.co.za/books?id=mGr71ofGET0C&hl=nl&source=gbs_similarbooks)

Kasperson, R. E. & Stallen, P. J. M. (Eds.) (1991). *Communicating risks to the public: international perspectives*. Boston: Kluwer Academic Publishers.

“In recent decades, risk communication has emerged not only as a field of professional interest but also as an issue of scholarly research. It is an area of study that focuses on how and why individuals respond to communications of risks and hazards. Risk communication has been heavily critiqued from various positions. Some say it diverts too much attention away from engineering safety; others say it has become a mechanism to placate community concerns or that much of it fails tests of scholarly rigor. *Communicating Risks to the Public* addresses many such concerns and pitfalls. Its overall agenda is to secure risk communication within scholarly social science and to present avenues for future research. Kasperson and Stallen write to their introductory chapter that the bulk of research on risk communication during the 1980s was defined and driven by the pragmatic needs of governmental and industrial risk communicators (p. 4). They suggest that this has warped risk communication research toward a product (the understanding of the message), detaching it from the social and historical research required for an understanding of the process by which communication works. Consequently, this branch of social science has turned into something akin to social engineering, and it fails to deal properly with a wide range of ethical issues. In general, the authors feel, many researchers and practitioners have been too hasty in forwarding prescriptions without much knowledge of how communication operates. The book is broken up into three sections: risk communication practices, research perspectives on them, and new approaches and methods. Including the introduction, there are twenty chapters, which cover a wide range of topics and formats. Some are review articles, others are original research studies, and several are empirically based.”

(source: Book review by William D. Solecki (1992), in: *Annals of the Association of American Geographers*, 82(4), 720-722)