

From Kobe to Sendai.

Tracing progress in risk discourse and analysis for informing risk management and climate adaptation.

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Risks associated with natural disasters and climate change rank high among global socio-economic sustainability challenges. These risks, the outcomes of coupled socio-ecological systems' interactions, can lead to large adverse developmental consequences (erosion of livelihoods, increase in poverty, loss of human, economic, environmental and social assets, migration) and have been at the centre of attention of disaster management and climate negotiations. Concepts, methodologies, methods and metrics associated with risk have been of fundamental and increasing saliency for informing policy and action on these interlinked challenges. The talk traces the evolution in conceptualisation, modelling and assessment as well as policy related to risk analysis for the examination and management of disaster and climate risks. Building on work done by the presenter with many colleagues, the central line of argumentation of the talk is to show how thinking and analysis on disaster and climate-related risk over the last few years has seen important evolution towards broad-based debate concurrently encompassing epistemological, instrumental, reflective and participative discourses, thus providing great potential for informing action on key challenges associated with extreme event risks across multiple scales along the science-society interface.

Dr. Reinhard Mechler

Personal Profile

Reinhard Mechler has more than 15 years of experience working on the economics of disaster risk, risk modelling and climate change. He currently is deputy director of the 'Risk, Policy, Vulnerability' research program at the International Institute for Applied Systems Analysis (IIASA) and a senior lecturer at the University for Economics and Business in Vienna. Specific interests of his include catastrophe risk modelling, the impacts of extreme events and climate change on development, the use of novel risk financing mechanisms for sharing disaster risks, and the assessment of the efficiency and equity of climate change response measures. He was a lead author on IPCC's special report on adaptation to extreme events (SREX) and is a lead author on the chapter on the Economics of Adaptation in the upcoming 5th assessment report. He has been leading and contributing to many projects for international and donor organizations including the European Commission, DFID, CIDA, the UN, ProVention Consortium, World Bank, Asian Development Bank, Inter-American Development Bank, Caribbean Development Bank and GIZ.

Areas of expertise

Economics of natural disaster risk management and adaptation, disaster risk sharing instruments and insurance, systems modelling, climate change adaptation and mitigation strategies, development economics, ecological economics.

Editorial boards

Climate Risk Management, Mitigation and Adaptation Strategies for Global Change, @Risk

Qualifications

2003. Ph.D. Economics University of Karlsruhe, Germany
1998 Diploma in Economics, University of Heidelberg, Germany
1993-1994 Academic year, University of Massachusetts, Amherst, USA
B.A. equivalents Economics 1995, Mathematics 1992, English 1992

Positions held

2013 to present Deputy program leader "Risk, Policy, Vulnerability," IIASA
2006 to 2013 Leader research group "Disasters, Adaptation and Development," IIASA
2009 to present Senior lecturer at Vienna University of Economics and Business
1999 to 2006 Research scholar, IIASA
1998 to 2001 Ph. D. researcher, University of Karlsruhe
1994 to 1998 Research Assistant, Centre for European Economic Research (ZEW), Mannheim

Languages

English	Fluent
German	Mother tongue
Spanish	Basic
French	Basic
Italian	Basic

Peer-reviewed publications

- Jongman, B., Hochrainer-Stigler, S., Feyen, L., Aerts, J., Mechler, R., Botzen, W., Bouwer, L., Pflug, G., Rojas, R., Ward, P. (2014). Reply to 'Statistics of flood risk.' *Nature Climate Change*, 4:844-845
- Mechler R. & Bouwer, L. Reviewing trends and projections of global disaster losses and climate change: Is vulnerability the missing link? *Climatic Change*, Published online 12 August 2014.
- Mochizuki, J., Mechler, R., Hochrainer-Stigler, S., Keating, A., Williges, K. (2014). Revisiting the "disaster and development" debate - Toward a broader understanding of macroeconomic risk and resilience. *Climate Risk Management*, Article in press (Published online 22 May 2014).
- Scolobig, A., Mechler, R., Komendantova, N., Liu, W., Schroeter, D., Patt, A. (2014). The co-production of scientific advice and decision making under uncertainty: Lessons from the 2009 L'Aquila earthquake, Italy. *GRF Davos Planet@Risk*, 2(2):71-76
- Mechler, R. Bouwer, L., Linnerooth-Bayer, J., Hochrainer-Stigler, S., Aerts, J., Surminski, S. (2014). Managing unnatural disaster risk from climate extremes. *Nature Climate Change* 4, 235-237
- Jongman, B., Hochrainer-Stigler, S., Feyen, L., Aerts, J., Mechler, R., Botzen, W., Bouwer, L., Pflug, G., Rojas, R., Ward, P. (2014). Increasing stress on disaster risk finance due to large floods. *Nature Climate Change* 4, 264-268
- Scricciu, S. Chalabi, Z., Belton, V. Mechler, R. (2014). Advancing Methodological Thinking and Practice for Development-Compatible Climate Policy Planning. *Mitigation and Adaptation Strategies for Global Change* doi.org/10.1007/s11027-013-9538-z.
- Hochrainer-Stigler, S., Mechler, R., Pflug, G., Williges, K. (2014). Funding Public Adaptation to Climate-related Disasters. Estimates for a Global Climate Fund. *Global Environmental Change* 25, 87-96
- Mechler, R., Hochrainer-Stigler, S. (2014). Revisiting Arrow-Lind: Managing sovereign disaster risk. *Journal of Natural Resources Policy Research* 6 (1): 93-100
- Kundzewicz, Z.W., Kanae, S., Seneviratne, S.I., Handmer, J., Nicholls, N., Peduzzi, P., Mechler, R. Bouwer, L., Arnell, N., Mach, K., Muir-Wood, R. Brakenridge, G.R., Kron, W., Benito, G., Honda, Y., Takahashi, K., Sherstyukov, B. (2013). Flood risk and climate change – global and regional perspectives. *Hydrological Sciences Journal* 59 (1): 1-28
- Kull, D., Mechler, R. Hochrainer-Stigler, S. (2013). Probabilistic Cost-Benefit Analysis of Disaster Risk Management in a Development Context. *Disasters* 37(3): 374-400.
- Rezai, A. Taylor, L., Mechler, R. (2013). Ecological Climate Economics. *Climate Policy and Economic Growth. Ecological Economics* 85:69-76.
- Scricciu, S., Rezai, A., Mechler, R. (2013). On the economic foundations of green growth discourses: the case of climate change mitigation and macroeconomic dynamics in economic modeling. *WIREs Energy and Environment* 2 (3): 251-268.
- Michel-Kerjan, E., Hochrainer-Stigler, S., Kunreuther, H., Linnerooth-Bayer, Mechler, R. Muir-Wood, R., Ranger, N., Vaziri, P., and Young, M. (2012). Catastrophe Risk Models for Evaluating Disaster Risk Reduction Investments in Developing Countries. *Risk Analysis* 33(6): 984-999
- Lal, P., Mitchell, T., Aldunce, P., Auld, H., Mechler, R. Miyan, A., Romano, L., Zakaria, S. (2012). Chapter 6. National Systems for Managing the Risks from Climate Extremes and Disasters. In: Intergovernmental Panel on Climate Change Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation [Field, C. B., Barros, V., Stocker, T.F., Qin, D., Dokken, D., Ebi, K.L., Mastrandrea, M. D., Mach, K. J., Plattner, G.-K., Allen, S., Tignor, M. and P. M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA: 339-392.
- Murray, V., G. McBean, M. Bhatt, S. Borsch, T.S. Cheong, W.F. Erian, S. Llosa, F. Nadim, M. Nunez, R. Oyun, A.G. Suarez (Lead authors) and Mechler, R. et al. (Contributing authors) (2012). Case studies. In: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change (IPCC). Cambridge University

- Press, Cambridge, UK, and New York, NY, USA, 487-542
- O'Brien, K., M. Pelling, A. Patwardhan, S. Hallegatte, A. Maskrey, T. Oki, U. Oswald-Spring, T. Wilbanks, P.Z. Yanda (Lead authors) and Mechler, R. et al. (Contributing authors) (2012). Toward a sustainable and resilient future. In: *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation* [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change (IPCC). Cambridge University Press, Cambridge, UK, and New York, NY, USA, 437-486.
- Cardona, O.D., M.K. van Aalst, J. Birkmann, M. Fordham, G. McGregor, R. Perez, R.S. Pulwarty, E.L.F. Schipper, and B.T. Sinh (Lead authors) and Mechler, R. et al. (Contributing authors) (2012). Determinants of risk: exposure and vulnerability. In: *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation* [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change (IPCC). Cambridge University Press, Cambridge, UK, and New York, NY, USA, 65-108.
- Handmer, J., Y. Honda, Z.W. Kundzewicz, N. Arnell, G. Benito, J. Hatfield, I.F. Mohamed, P. Peduzzi, S. Wu, B. Sherstyukov, K. Takahashi, Z. Yan (Lead authors) and Mechler, R. et al. (Contributing authors) (2012). Changes in impacts of climate extremes: human systems and ecosystems. In: *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation* [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change (IPCC). Cambridge University Press, Cambridge, UK, and New York, NY, USA, 231-290.
- Hochrainer-Stigler, S., Sharma, R.B, and Mechler, R. (2012). Disaster Microinsurance for Pro-Poor Risk Management: Evidence from South Asia. *Journal of Integrated Disaster Risk Management*, 2(2): 1-19.
- IPCC (2011). Summary for Policymakers. In: *Intergovernmental Panel on Climate Change Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation* [Field, C. B., Barros, V., Stocker, T.F., Qin, D., Dokken, D., Ebi, K.L., Mastrandrea, M. D., Mach, K. J., Plattner, G.-K., Allen, S., Tignor, M. and P. M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA
- Linnerooth-Bayer, J., Hochrainer, S., Mechler, R. (2011). Insurance against Losses from Natural Disasters in Developing Countries. Evidence, gaps and the way forward. *Journal of Integrated Disaster Risk Management* DOI10.5595/idrim.2011.0013
- van Vuuren, D., Isaac, M., Kundzewicz, Z., Arnell, N., Barker, T., Criqui, P., Berkhout, F., Hilderink, H., Hinkel, J., Hof, A., Kitous, A., Kram, T., Mechler, R., Scricciu, S. (2011). The use of scenarios as the basis for combined assessment of climate change mitigation and adaptation, *Global Environmental Change*, doi: 10.1016/j.gloenvcha.2010.11.003.
- Hochrainer, S. and Mechler, R. (2011). Natural Disaster Risk in Asian Megacities: A Case for Risk Pooling? *Cities*. DOI 10.1016/j.cities.2010.09.00
- Mechler, R., Rezai, A., Stagl, S. (2010). Is Green Growth feasible? Some reflections and implications for Austria. *Wirtschaftspolitische Blätter* (4): 451-465.
- Mechler, R. and Z.W. Kundzewicz (2010). Assessing adaptation to extreme weather events in Europe—Editorial. *Mitigation and Adaptation Strategies for Global Change* 15 (7): 611-620.
- Aakre, S., I. Banaszak, R. Mechler, D. Rübhelke, A. Wreford and H. Kalirai (2010). Financial adaptation to disaster risk in the European Union. *Mitigation and Adaptation Strategies for Global Change* 15 (7): 721-736
- Mechler, R., S. Hochrainer, A. Aaheim, H. Salen and A. Wreford (2010). Modelling economic impacts

- and adaptation to extreme events: Insights from European case studies. *Mitigation and Adaptation Strategies for Global Change* 15 (7): 737-762
- Hochrainer, S., J. Linnerooth-Bayer and R. Mechler (2010). The European Union Solidarity Fund. *Mitigation and Adaptation Strategies for Global Change* 15 (7): 797-810
- Hochrainer, S., Mechler, R., Kull, D. (2010). Micro-Insurance Against Drought Risk in a Changing Climate: Assessing demand and supply considerations. *International Journal of Climate Change Strategies and Management*, doi 10.1108/17568691011040407.
- Linnerooth-Bayer, J., Suarez, P., Victor, M. and Mechler, R. (2009). Drought insurance for subsistence farmers in Malawi. *Natural Hazards Observer* 33 (5): 1-8.
- Patt, A., van Vuuren, D., Berkhout, F., Aaheim, A., Hof, A., Isaac, M., Mechler, R. (2009). Adaptation in integrated assessment modeling: where do we stand? *Climatic Change*, doi 10.1007/s10584-009-9687
- Hochrainer, S., Mechler, R., Pflug, G. (2009). Climate change and financial adaptation in Africa: Investigating the impact of climate change on the robustness of index-based microinsurance in Malawi. *Mitigation and Adaptation Strategies for Global Change* 14: 231-250
- Lugeri, N., Hochrainer, S. and Mechler, R. (2009). Going to Extremes. *European Research and Innovation Review* 8: 22-23
- Linnerooth-Bayer, J., Mechler, R. (2007). Disaster safety nets for developing countries: Extending public-private partnerships. *Environmental Hazards* 7: 54-61
- Cardenas, V., Hochrainer, S., Mechler, R., Pflug, G., Linnerooth-Bayer, J. (2007). Sovereign financial disaster risk management: the case of Mexico. *Environmental Hazards* 7: 40-53
- Linnerooth-Bayer, J., R. Mechler and M.J. Mace (2007). Insurance for Assisting Adaptation to Climate Change in developing countries. A proposed strategy. *Climate Policy* 6 : 621-636
- Hochrainer, S., and R. Mechler (2006). Naturkatastrophen: Auswirkungen, Lösungsansätze und Rollen fuer Wissenschaft, Staat und Wirtschaft. *Wirtschaftspolitische Blätter* 4: 561-579
- Derwent, R.G., P.G. Simmonds, S. O'Doherty, D.S. Stevenson, W.J. Collins, M.G. Sanderson, C.E. Johnson, F. Dentener, J. Cofala, R. Mechler, and M. Amann (2006). External influences on Europe's air quality: Baseline methane, carbon monoxide and ozone from 1990 to 2030 at Mace Head, Ireland. *Atmospheric Environment*, 40: 844-855
- Linnerooth-Bayer, J., R. Mechler, G. Pflug (2005). Refocusing Disaster Aid. *Science* 309: 1044-1046
- Freeman, P., L. Martin, R. Mechler, K. Warner (2004). A Methodology for Incorporating Natural Catastrophes into Macroeconomic Projections. *Disaster Prevention and Management* 13: 337-342
- Derwent, R., S. Stevenson, R. Doherty, W. Collins, M. Sanderson, C. Johnson, J. Cofala, R. Mechler, M. Amann, F. Dentener (2004). The Contribution from Shipping Emissions to Air Quality and Acid Deposition in Europe. *AMBIO* 34: 54-59
- Dentener, F., D. Stevenson, J. Cofala, R. Mechler, M. Amann, P. Bergamaschi, F. Raes, R. Derwent (2004). The impact of air pollutant and methane emission controls on tropospheric ozone and radiative forcing: CTM calculations for the period 1990-2030. *Atmospheric Chemistry and Physics Discussions* 4, 8471-8538
- Werner, U., R. Mechler, T. Plapp (2003). Hochwasser 2002 - Wechselwirkungen zwischen der Finanzierung von Überschwemmungsschäden und der Wahrnehmung von Hochwasserrisiken. *Zeitschrift für Versicherungswesen* 54: 722-727

Books

- Amendola, A., Ermolieva, T., Linnerooth-Bayer, Mechler, R. (eds.) (2013). *Integrated Catastrophe Risk Modeling. Supporting Policy Processes*. Springer, Heidelberg
- Mechler, R. (2004). *Natural Disaster Risk Management and Financing Disaster Losses in Developing*

Countries, Verlag für Versicherungswirtschaft, Karlsruhe.

Book chapters

- Mitchell, T., Mechler, R., Harris, K (2014). Economics of adaptation to extreme events. Book chapter. In Markandya, A. Sainz de Murieta, E. Galarraga, I. Handbook on the Economics of Adaptation. Routledge.
- Mechler, R., Hochrainer, S., Linnerooth-Bayer, J., Pflug, G (2013). Public sector financial vulnerability to disasters: The IIASA CATSIM model. In; Measuring Vulnerability to Natural Hazards: Towards Disaster Resilient Societies, J Birkmann (ed.) United Nations University Press, Tokyo, Japan, pp.380-398
- Mechler R. (2013). Modeling aggregate economic risk: an introduction. In Integrated Catastrophe Risk Modeling: Supporting Policy Processes, A. Amendola, T. Ermolieva, J. Linnerooth-Bayer, and R. Mechler Springer, Dordrecht, The Netherlands, pp. 95-102
- Mechler R, Hochrainer-Stigler S, Nakano K. (2013). Managing indirect economic consequences of disaster risk: the case of Nepal. In Integrated Catastrophe Risk Modeling: Supporting Policy Processes, A. Amendola, T. Ermolieva, J. Linnerooth-Bayer, and R. Mechler Springer, Dordrecht, The Netherlands pp.145-169
- Amendola A, Ermolieva T, Linnerooth-Bayer J, Mechler R (2013). Catastrophe models for informing risk management: An introduction. In: Integrated Catastrophe Risk Modeling: Supporting Policy Processes, A. Amendola, T. Ermolieva, J. Linnerooth-Bayer, R. Mechler (eds) Springer, Dordrecht, The Netherlands, pp.3-12
- Hochrainer-Stigler S, Mechler R, Pflug G (2013). Modeling macro scale disaster risk: the CATSIM model. In Integrated Catastrophe Risk Modeling: Supporting Policy Processes, A. Amendola, T. Ermolieva, J. Linnerooth-Bayer, and R. Mechler (eds) Springer, Dordrecht, The Netherlands pp.119-144
- Hochrainer, S. and Mechler, R. (2013). Assessing Financial Adaptation Strategies to Extreme Events in Europe. In: Siebenhüner, B., Arnold, M., Eisenack, K., and Jacob, H. K. (eds.): Long-Term Governance for Social-Ecological Change. New York, Routledge: 93-112.
- Mechler, R. and Islam, N. (2013). Cost Benefit Analysis of Disaster Risk Management and Climate Adaptation in Bangladesh. In: D. Guha-Sapir and I. Santos. The Economic Impacts of Natural Disasters. Assessing the Costs of Prevention, Mitigation and Adaptation, Cambridge University:
- Mechler, R., Hochrainer, S., Aaheim, A., Kundzewicz, Z., Luger, N., Moriondo, M., Salen, H., Bindi, M., Banaszak, I., Chorynski, A., Genovese, E., Kalirai, H., Linnerooth-Bayer, J., Lavalle, C., McEvoy, D., Matczak, P., Radziejewski, M., Rübberke, D., Schelhaas, M.-J., Szwed, M., Wreford, A. (2010). A risk management approach for assessing adaptation to changing flood and drought risks in Europe. In: M. Hulme, H. Neufeldt (eds.). Making Climate Change Work for Us: European Perspectives on Adaptation and Mitigation Strategies. Cambridge University: 200-229
- Aaheim, A., Dokken, T., Hochrainer, S., Hof, A., Jochem, E., Mechler, R., van Vuuren, D., Neufeldt, H., Wei, T. (2010). National responsibilities for adaptation strategies: Lessons from four modelling frameworks. In: M. Hulme, H. Neufeldt (eds.). Making Climate Change Work for Us: European Perspectives on Adaptation and Mitigation Strategies. Cambridge University: 87-112
- van Vuuren, D, Isaac, M., Kundzewicz, Z., Arnell, N, Barker, T., Criqui, P., Bauer, N., Berkhout, F., Hilderink, H., Hinkel, J., Hochrainer, S., Hof, A., Kitous, A., Kram, T., Luger, N., Mechler, R., Scriciu, S. (2010). Scenarios as the Basis for Assessment of Mitigation and Adaptation. In: M. Hulme, H. Neufeldt (eds.). Making Climate Change Work for Us: European Perspectives on Adaptation and Mitigation Strategies. Cambridge University: 54-86
- Linnerooth-Bayer, J., Mechler, R., Bals, C. (2010). Insurance Instruments for Adapting to Climate Risks. Considerations for the Bali Roadmap. In: M. Hulme, H. Neufeldt (eds.). Making Climate Change Work for Us: European Perspectives on Adaptation and Mitigation Strategies. Cambridge University: 340-365
- Hochrainer, S., Mechler, R. (2008). Assessing financial and economic

- vulnerability to natural hazards: bridging the gap between scientific assessment and the implementation of disaster risk management with the CatSim model. Patt, A., Schröter, D., Klein, R., de la Vega-Leinert, A. (eds). *Assessing Vulnerability to Global Environmental Change*. Earthscan.
- Mechler, R., J. Linnerooth-Bayer, S. Hochrainer, G. Pflug (2006). *Assessing Financial Vulnerability and Coping Capacity: The IIASA CATSIM Model*. In J. Birkmann (ed.). *Measuring Vulnerability and Coping Capacity to Hazards of Natural Origin. Concepts and Methods*. United Nations University Press, Tokyo: 380-398
- Mechler, R. (2004). *Macroeconomic impacts of natural disasters*. In K. Demeter, N.E. Erkan, A. Guner (eds). *The Role of Local Governments in Reducing the Risk of Disasters*. The World Bank Institute, Washington, DC: 35-47
- Mechler, R. (2003). *Natural Disaster Risk and Cost-Benefit Analysis*. In A. Kreimer et al. (eds.). *The Future of Disaster Risk: Building Safer Cities*. World Bank, Washington DC: 45-56
- Mechler, R. (2001). *Naturkatastrophen und Globaler Wandel*. in: W. Schulz et al. *Lexikon Nachhaltiges Wirtschaften*. R. Oldenbourg-Verlag, München: 253-259

Reports, working papers and conference proceedings

- Kumar, A., Arambepola, N., Mechler, R., and Hochrainer-Stigler, S. (2012). *An Approach for National Earthquake Risk Assessment: Case Study for Nepal*. Proceedings of the 15th World Conference on Earthquake Engineering (WCEE), Lisbon, Portugal.
- Mitchell, T., Mechler, R., Harris, K. (2012). *Tackling exposure: placing disaster risk management at the heart of national economic and fiscal policy*. CDKN guidance note. Climate and Development Knowledge Network (CDKN)- Overseas Development Institute (ODI)
- Bräuninger, M., Butzengeiger-Geyer, S., Dlugolecki, A., Hochrainer, S., Köhler, K., Linnerooth-Bayer, J., Mechler, R., Michaelowa, A., Schulze, S. (2011). *Application of economic instruments for adaptation to climate change*. Report to the European Commission, Directorate General CLIMA, Brussels.
- Bhavnani Sharma, R., Hochrainer, S. and Mechler, R. (2010). *Impact Assessment of Disaster Microinsurance for Pro-Poor Risk Management: Evidence from South Asia*. All India Disaster Management Institute (AIDMI), Ahmedabad, Gujarat, India.
- Mechler, R., Hochrainer, S., Pflug, G., Lotsch, A. with Williges, K. (2010). *Assessing the Financial Vulnerability to Climate-Related Natural Hazards*. Background Paper for the Development and Climate Change World Development Report 2010. Policy Research Working Paper 5232. World Bank, Washington, DC.
- Mechler, R. (2009). *Disasters and Economic Welfare. Can National Savings Help Explain Post-disaster Changes in Consumption?* World Bank Policy Research Working Paper 4988, The World Bank Sustainable Development Network and Global Facility for Disaster Reduction and Recovery Unit.
- Kunreuther, H., Michel-Kerjan, E., Hochrainer, S., Kull, D., Linnerooth-Bayer, J. Mechler, R., Muir-Wood, R., Ranger, N., Vaziri, P., Young, M. (2009). *The Challenges and Importance of Investing in Cost Effective Measures for Reducing Losses From Natural Disasters in Emerging Economies*. Report for the World Bank Global Facility for Disaster Risk Reduction (GFDRR).
- Mechler, R., Hochrainer, S., Kull, D., Chopre, S., Singh, P., Opitz-Stapleton, S., Wajih, S. (2009). *Uttar Pradesh Drought Cost-Benefit Analysis*. Risk to Resilience Working Paper 5. Moench, M., Caspari, E. & A. Pokhrel (eds.), ISET, ISET-Nepal and ProVention, Kathmandu, Nepal. Provention Consortium, Geneva.
- Moench, M., Ahmed, S., Mustafa, D., Khan, F., Mechler, R., Kull, D., Dixit, A., Opitz-Stapleton, S., and The Risk to Resilience Study Team (2009). *Moving from Concepts to Practice: A Process and Methodology Summary for Identifying Effective Avenues for Risk Management Under Changing Climatic Conditions*. From Risk to Resilience Working Paper No. 8. Moench, M., Caspari, E. & A. Pokhrel (eds.), ISET, ISET-Nepal and ProVention, Kathmandu, Nepal.

- Mechler, R. (2009). From Risk to Resilience. The Cost-Benefit Analysis Methodology. From Risk to Resilience Working Paper No. 1. Moench, M., Caspari, E. & A. Pokhrel (eds.), ISET, ISET-Nepal and ProVention, Kathmandu, Nepal. Provention Consortium, Geneva.
- Linnerooth-Bayer, J., C. Bals, R. Mechler (2008). Insurance Instruments for Adapting to Climate Risks. A Proposal for the Bali Action Plan. Germanwatch, Bonn.
- Linnerooth-Bayer, J. and R. Mechler (2008). Insurance against Losses from Natural Disasters in Developing Countries. Background paper for United Nations World Economic and Social Survey (WESS).
- Aaheim, A., Berkhout, F., McEvoy, D., Mechler, R., Neufeldt, H. Patt, A. Watkiss, P., Wreford, A., Kundzewicz, Z., Lavallo, C., Egenhofer, C. (2008). Adaptation to Climate Change: Why is it needed and how can it be implemented? Centre for European Policy Studies (CEPS) Policy Brief, Brussel.
- Mechler, R., S. Hochrainer, K. Williges (2008). The special nature of natural disaster risk in Asian megacities. A case for megacity risk pooling? ADB conference "Natural Catastrophe Risk Insurance Mechanisms for Asia and the Pacific". 04-05 November 2008, Tokyo, Japan
- Linnerooth-Bayer, J., Bals, C. and Mechler, R. (2008). Climate Change: What Role for Insurance? IIASA Policy Brief #04, IIASA.
- Aaheim, A., Berkhout, F., McEvoy, D., Mechler, R., Neufeldt, H. Patt, A. Watkiss, P., Wreford, A., Kundzewicz, Z., Lavallo, C., Egenhofer, C. (2008). Adaptation to Climate Change: Why is it needed and how can it be implemented? Centre for European Policy Studies (CEPS) Policy Brief, Brussel.
- Hochrainer, S., Mechler, R., Pflug, G., Lotsch, A. (2008). Investigating the Impact of Climate Change on the Robustness of Index-based Microinsurance in Malawi. World Bank Policy Research Working Paper 4631. Development Research Group, The World Bank: Washington DC.
- Moench, M., Mechler, R. and S. Stapleton (2007). Guidance Note on the Costs and Benefits of Disaster Risk Reduction. Prepared for UN - ISDR High Level Platform on Disaster Risk Reduction, Geneva, June 4-7, 2007.
- Tanner, T., Hassan, A., Islam, K., Conway, D., Mechler, R., Ahmed, A. and Alam, M. (2007). ORCHID Piloting Climate Risk Screening in DFID Bangladesh. Detailed Research Report. Institute of Development Studies, University of Sussex, UK.
- Tanner, T., Hassan, A., Islam, K., Conway, D., Mechler, R., Ahmed, A. and Alam, M. (2007). ORCHID: Piloting Climate Risk Screening in DFID Bangladesh. Summary Research Report. Institute of Development Studies, University of Sussex, UK.
- Islam, K. and Mechler, R. (2007). ORCHID: Piloting Climate Risk Screening in DFID Bangladesh. An Economic and Cost Benefit Analysis of Adaptation Options. Institute of Development Studies, University of Sussex, UK
- Mechler, R., J. Linnerooth-Bayer, and D. Peppiatt (2006). Microinsurance for natural disaster risks? Insights from a ProVention/IIASA research initiative. In S. Nicklin, B. Cornwell, and S. Fairbrother (eds.). Real Risk. Leicester, Tudor Rose: 41-42
- Mechler, R. and J. Linnerooth-Bayer (2006). Potential Benefits and Limitations of Micro-Insurance as a Risk Transfer Mechanism for Developing Countries, in Micro-finance and disaster risk reduction. In P.G. Chakrabarti and M. Bhatt (eds.). New Delhi, Knowledge World: 219-225
- Mechler, R., J. Linnerooth-Bayer with D. Peppiatt (2006). Disaster Insurance for the Poor? A ProVention/IIASA study. A review of microinsurance for natural disaster risks in developing countries. Provention consortium, Geneva.
- Bals, C., Burton, I., Butzengeiger, S., Dlugolecki, A., Gurenko, E., Hoekstra, E., Höpfe, P., Kumar, R., Linnerooth-Bayer, J., Mechler, R., Warner, K. (2005). Insurance-related Options for Adaptation to Climate Change. Executive summary for report on occasion of UNFCCC COP meeting, Montreal, The Munich Climate Insurance Initiative (MCII).

- Linnerooth-Bayer, J. and R. Mechler (2005). Financing Disaster Risks in developing and emerging-economy countries. Policy Issues in Insurance No. 08: Catastrophic Risks and Insurance. OECD, Paris: 105-162
- Linnerooth-Bayer, J. and R. Mechler (2005). Insurance-related mechanisms for assisting developing countries adapt to Climate Change. In Bals, C., Burton, I., Butzengeiger, S., Dlugolecki, A., Gurenko, E., Hoekstra, E., Höpfe, P., Kumar, R., Linnerooth-Bayer, J., Mechler, R., Warner, K. (2005). Insurance-related Options for Adaptation to Climate Change. Report on occasion of UNFCCC COP meeting, Montreal, The Munich Climate Insurance Initiative (MCII): 38-58.
- Hoeglund-Isaksson, L., R. Mechler (2005). The GAINS Model for Greenhouse Gases - Version 1.0: Methane (CH₄). IIASA Interim Report. IIASA Interim Report IR-05-054 .
- Mechler, R. (2005). Cost-benefit analysis of natural disaster risk management in developing countries. Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), Eschborn.
- Mechler, R. and J. Weichselgartner (2003). Disaster Loss Financing in Germany – The Case of the Elbe River Floods 2002. Interim Report IR-03-021. IIASA, Laxenburg.
- Linnerooth-Bayer, J. and R. Mechler (2003). Climate Change, Extreme Weather and Burden Sharing, Pro-active Strategies for Implementation of Article 4.8 of the UNFCCC, Background paper for UNDP SIDS workshop on Insurance and Climate-Related Extreme Weather Events, Milan.
- Freeman, P., L. Martin, R. Mechler, K. Warner (2003). A Methodology for Incorporating Natural Catastrophes into Macroeconomic Projections. in: van der Veen, A., A. L. Vetere Arellano and J.-P. Nordvik (2003). Proceedings: Joint NEDIES and University of Twente Workshop - In search of a common methodology for damage estimation. Report EUR 20997 EN (2003), Bruxelles, Office for Official Publications of the European Communities, European Union: 151-165.
- Freeman, P. K., L. A. Martin, J. Linnerooth-Bayer, R. Mechler, G. Pflug and K. Warner (2003). Disaster Risk Management: National Systems for the Comprehensive Management of Disaster Risk and Financial Strategies for Natural Disaster Reconstruction. Inter-American Development Bank, Washington DC.
- Mechler, R., M. Amann and W. Schoepp (2002). Methodology to Estimate Changes in Statistical Life Expectancy Due to the Control of Particulate Matter in Air Pollution. IIASA Interim Report IR-02-035.
- Mechler, R., M. Amann and W. Schöpp (2002). Preliminary estimates of changes in statistical life expectancy due to the control of particulate matter air pollution in Europe. EMEP Co-operative Programme for Monitoring and Evaluation of the Long Range Transmission of Air Pollutants in Europe. Transboundary Particulate Matter in Europe: Status report 2002. Kjeller, Norway: 61-89.
- Obersteiner, M., C. Azar, S. Kossmeier, R. Mechler, K. Moellersten, S. Nilsson, K. Read, Y. Yamagata, J. Yan (2002). Managing Climate Risk, Interim Report IR-01-051. Laxenburg, Austria, IIASA.
- Freeman, P., L. Martin, J. Linnerooth-Bayer, R. Mechler, S. Saldana, K. Warner and G. Pflug (2002). Financing Reconstruction. Phase II Background Study for the Inter-American Development Bank Regional Policy Dialogue on National Systems for Comprehensive Disaster Management. Inter-American Development Bank, Washington DC.
- Freeman, P., L. Martin, R. Mechler, K. Warner with P. Hausman (2002). Catastrophes and Development, Integrating Natural Catastrophes into Development Planning, Disaster Risk Management Working Paper Series No. 4. World Bank, Washington DC.