Toward A Sustainable and Resilient Future

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Abstract

Actions that range from incremental steps to transformational changes are essential for reducing risk from weather and climate extremes (high agreement, robust evidence). [8.6, 8.7] Incremental steps aim to improve efficiency within existing technological, governance, and value systems, whereas transformation may involve alterations of fundamental attributes of those systems. The balance between incremental and transformational approaches depends on evolving risk profiles and underlying social and ecological conditions. Disaster risk, climate change impacts, and capacity to cope and adapt are unevenly distributed. Vulnerability is often concentrated in poorer countries or groups, although the wealthy can also be vulnerable to extreme events. Where vulnerability is high and adaptive capacity relatively low, changes in extreme climate and weather events can make it difficult for systems to adapt sustainably without transformational changes. Such transformations, where they are required, are facilitated through increased emphasis on adaptive management, learning, innovation, and leadership. Evidence indicates that disaster risk management and adaptation policy can be integrated, reinforcing, and supportive - but this requires careful coordination that reaches across domains of policy and practice (high agreement, medium evidence). [8.2, 8.3, 8.5, 8.7] Including disaster risk management in resilient and sustainable development pathways is facilitated through integrated, systemic approaches that enhance capacity to cope with, adapt to, and shape unfolding processes of change, while taking into consideration multiple stressors, different prioritized values, and competing policy goals. Development planning and post-disaster recovery have often prioritized strategic economic sectors and infrastructure over livelihoods and well-being in poor and marginalized communities. This can generate missed opportunities for building local capacity and integrating local development visions into longer-term strategies for disaster risk reduction and adaptation to climate change (high agreement, robust evidence). [8.4.1, 8.5.2] A key constraint that limits pathways to post-disaster resilience is the time-bound nature of reconstruction funding. The degradation of ecosystems providing essential services also limits options for future risk management and adaptation actions locally. Learning processes are central in shaping the capacities and outcomes of resilience in disaster risk management, climate change adaptation, and sustainable development (high agreement, robust evidence). [8.6.3, 8.7] An iterative process of monitoring, research, evaluation, learning, and innovation can reduce disaster risks and promote adaptive management in the context of extremes. Technological innovation and access may help achieve resilience, especially when combined with capacity development anchored in local contexts. Progress toward resilient and sustainable development in the context of changing climate extremes can benefit from questioning assumptions and paradigms, and stimulating innovation to encourage new patterns of response (medium agreement, robust evidence). [8.2.5, 8.6.3, 8.7] Successfully addressing disaster risk, climate change, and other stressors often involves embracing broad participation in strategy development, the capacity to combine multiple perspectives, and contrasting ways of organizing social relations. Multi-hazard risk management approaches provide opportunities to reduce complex and compound hazards in rural and urban contexts (high agreement, robust

evidence). [8.2.5, 8.5.2, 8.7] Considering multiple types of hazards reduces the likelihood that risk reduction efforts targeted at one type of hazard will increase exposure and vulnerability from other hazards, both in the present and future. Building adaptation into multi-hazard risk management involves consideration of current climate variability and projected changes in climate extremes, which pose different challenges to affected human and natural systems than changes in the means. Where changes in extremes cause greater stresses on human and natural systems, direct impacts may be more unpredictable, increasing associated adaptation challenges. The most effective adaptation and disaster risk reduction actions are those that offer development benefits in the relative near term, as well as reductions in vulnerability over the longer term (high agreement, medium evidence). [8.2.1, 8.3.1, 8.3.2, 8.5.1, 8.6.1] There are trade-offs between current decisions and long-term goals linked to diverse values, interests, and priorities for the future. Short-term and long-term perspectives on both disaster risk management and adaptation to climate change thus can be difficult to reconcile. Such reconciliation involves overcoming the disconnect between local risk management practices and national institutional and legal frameworks, policy, and planning. Resilience thinking offers some tools for reconciling short- and long-term responses, including integrating different types of knowledge, an emphasis on inclusive governance, and principles of adaptive management. However, limits to resilience are faced when thresholds or tipping points associated with social and/or natural systems are exceeded. Building a strong foundation for integrating disaster risk management and adaptation to climate change includes making transparent the values and interests that underpin development, including who wins and losses from current policies and practices, and the implications for human security (high agreement, medium evidence). [8.2.3, 8.2.4, 8.4.2, 8.4.3, 8.6.1.2] Both disaster risk management and adaptation to climate change share challenges related to (1) reassessing and potentially transforming the goals, functions, and structure of institutions and governance arrangements; (2) creating synergies across temporal and spatial scales; and (3) increasing access to information, technology, resources, and capacity. These challenges are particularly demanding in countries and localities with the highest climate-related risks and weak capacities to manage those risks. Countries with significant capacity and strong risk management records also benefit from addressing these challenges. Social, economic, and environmental sustainability can be enhanced by disaster risk management and adaptation approaches. A prerequisite for sustainability is addressing the underlying causes of vulnerability, including the structural inequalities that create and sustain poverty and constrain access to resources (medium agreement, robust evidence). [8.6.2, 8.7] This involves integrating disaster risk management in other social and economic policy domains, as well as a long-term commitment to managing risk. The interactions among climate change mitigation, adaptation, and disaster risk management will have a major influence on resilient and sustainable pathways (high agreement, low evidence). [8.2.5, 8.5.2, 8.7] Interactions between the goals of mitigation and adaptation in particular will play out locally, but have global consequences. There are many approaches and pathways to a sustainable and resilient future. Multiple approaches and development pathways can increase resilience to climate extremes (medium agreement, medium evidence). [8.2.3, 8.4.1, 8.6.1, 8.7] Choices and outcomes for adaptive actions to climate extremes must reflect divergent capacities and resources and multiple interacting processes. Actions are framed by trade-offs between competing prioritized values and objectives, and different visions of development that can change over time. Iterative, reflexive approaches allow development pathways to integrate risk management so that diverse policy solutions can be considered, as risk and its measurement, perception, and understanding evolve over time. Choices made today can reduce or exacerbate current or future vulnerability, and facilitate or constrain future responses. Available at: https://www.ipcc-wg1.unibe.ch/srex/downloads/SREX-Chap8_FINAL.pdf

Keywords

Environment and science; climate change; environment