



The Role of Wind Engineers in Advancing Climate-Responsive and Risk-Informed Sustainable Development: Opportunities and Responsibilities

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ABSTRACT

To date the fields of disaster risk reduction, climate change adaptation and sustainable development have operated without great synergy, leading to not only inefficiencies but more often unintended consequences that undermine progress along any of these fronts. This realization has prompted increased calls to converge these efforts -- and the stakes could not be higher. Global populations continue to migrate to coastal areas exposed to cyclones whose frequency and intensity are increasing under the dynamics of a changing climate. As these migrations are also urbanizing, we are now concentrating more assets and lives in some of the most hazardous areas of the planet, particularly in developing economies. With exposure to climate-driven hazards rising globally (the US being no exception), new and persistent vulnerabilities are becoming increasingly difficult to ignore. In fact, global reinsurer Munich Re reported a record \$210B in damage caused by natural hazards in 2020 including \$95B in the US alone (Munich 2021). The record impacts of climate-driven hazards in 2020 (Erdman & Dolce 2021), all during a global pandemic, are only the latest in a decades-long trend. Wind damage is a considerable contributor to these losses, creating a great responsibility for wind engineers in leading the charge toward more resilient and sustainable communities worldwide.

This talk will introduce the unique opportunities for wind engineers to play a leadership role at the nexus between disaster risk reduction, climate change adaptation and sustainable development. Here we examine how contextually-appropriate solutions can meet the needs of vulnerable communities in the US as well as internationally. We further posit that an integrated, whole-of-society approach to assessing and mitigating disaster risk is essential to not only enhance community resilience but also to avoid “doing harm” through unintended consequences of short-sided development decisions. This presentation will further demonstrate the importance of a stakeholder-centered approach to ensure that research (1) not only responds to the expressed needs of wind-vulnerable communities, but (2) operates within the unique constraints and opportunities of that context, and (3) ultimately is viable for translation into policy and practice.

REFERENCES

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