Advancing exposure knowledge and its uptake into policy: The European exposure science strategy 2020-2030 (Special Issue)

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Exposure science is an emerging field focusing on all aspects concerning the contact between chemical, biological, physical or psychosocial stressors and human and ecological receptors. With that, exposure science is central in protecting human and ecosystem health and contributes to the global transition towards green and sustainable societies. Recent advancement in exposure science has been huge. Today, the coverage of exposure methodologies extends from local microenvironments (Vuorinen et al., 2020) to cities worldwide (Apte et al., 2012), and enables, for example, aggregated characterization of population exposure to indoor and outdoor sources (Fantke et al., 2017), geospatial pollutant source-to-exposure analysis (Wannaz et al., 2018), or integrated assessments of urban and country level climate change abatement policies (Liu et al., 2017).

In Europe, however, exposure science is not yet sufficiently recognized as a scientific field, resulting in disconnected scientific advancements, underrepresentation in academia, and ineffective uptake into policies and decision support. In response, the wider European exposure science community developed an overarching 'European Exposure Science Strategy 2020–2030', as a coordinated effort under the guidance of the 'Europe Regional Chapter of the International Society of Exposure Science' (ISES Europe, https://ises-europe.org).

Starting point for building such a strategy was a stakeholder-based scoping process, in which five key priority areas were defined for advancing exposure science and improving the uptake of exposure knowledge into policy (Fantke et al., 2020). For each key priority area, a dedicated working group was formed under the auspices of ISES Europe, namely education, policy uptake, exposure models, exposure data and human biomonitoring. Working groups consolidated the state of the science in each area and developed a strategy action plan, together forming the core of the strategy. First elements of the strategy have been published in a Special Topic of the *Journal of Exposure Science & Environmental Epidemiology* (von Goetz and Fantke, 2022). These elements include more effective uptake of exposure science into policy (Bruinen de Bruin et al., 2022), advancing exposure models (Schlüter et al., 2022), and harmonizing exposure science terminology (Heinemeyer et al., 2022).

Additional elements along with the overall strategy for exposure science in Europe have been published in the present *Environment International* Special Issue. The additional elements focus on developing exposure science education (Connolly et al., 2022), advancing exposure data knowledge (Kosnik et al., 2022), increasing the relevance of human biomonitoring (Zare Jeddi et al., 2022), and discussing the crucial role of exposure science for pandemics management (Jantunen, 2022). Elements across key priority areas for exposure science have finally been compiled into an overall strategy, complemented by strategic actions for funding and international collaboration beyond European borders (Fantke et al., 2022).

All strategy elements are published open access and are available to guide the wider European and global exposure science community on its journey to advance relevant exposure knowledge and help implementing it into related policies. Furthermore, the published strategy elements are the basis of the ongoing work in the ISES Europe Working Groups, which can build on the defined overarching goals and concrete action plans. With that, the strategy enables exposure science to develop its full potential as a key discipline in protecting human and ecosystem health, and facilitating a sustainable transition of our society in Europe and worldwide.

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