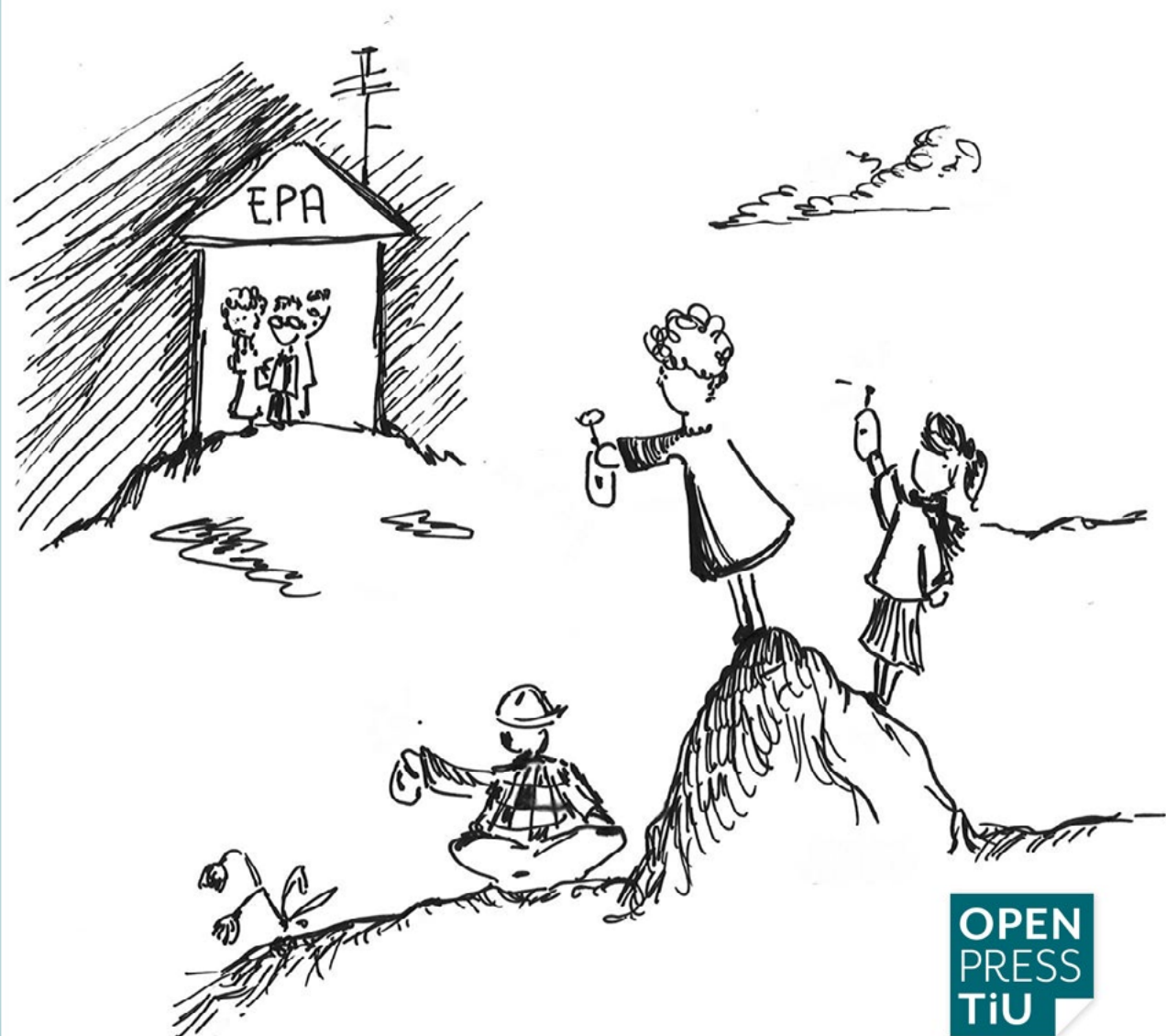


# SENSING THE RISK

A CASE FOR INTEGRATING CITIZEN SENSING  
INTO RISK GOVERNANCE

ANNA BERTI SUMAN



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# SENSING THE RISK

A CASE FOR INTEGRATING CITIZEN SENSING INTO RISK GOVERNANCE

*by Anna Berti Suman*

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*To Samantha Adams,  
who guided and inspired the beginning of this journey but could not see its end.*

## Preface

Grassroots-driven environmental monitoring ('citizen sensing') could substantially influence and contribute to environmental risk governance. The passion for environmental protection that accompanied my adult life pushed me to wonder why, despite this potential, citizen sensing is rarely called upon over controversial risk matters. As a true believer in the power of an active citizenship for the management of environmental issues, I decided to engage in this research and to address it to citizen sensing communities, but also to potentially interested institutions.

In particular, this booklet speaks to citizens that wish to have their citizen-sensed data used for policy- and decision-making, and to policy-makers that wish to consider such data in their decisions, as well as to researchers in the field. When I entered the field, I soon realized that research on the institutional integration of citizen sensing was still in its infancy, especially in terms of empirically-based studies and of studies from an (environmental) law perspective. Furthermore, the existing academic and grey literature on citizen science rarely embraced the idea of combining the elements of risk and the grassroots-driven monitoring to wonder avenues for having the latter contribute to institutional risk governance. In current (scholarly and civic) discourses revolving around risk governance and citizen sensing, an integration framework for structurally including citizen sensing into risk governance has never been developed so far. *"Sensing the risk. A case for integrating citizen sensing into risk governance"* aims at filling this knowledge gap, offering an accessible 'toolbox' for interested communities, policy-makers and researchers to navigate this complex arena.



Credit: ph. L. Dematteis, Ecuador, Amazon Rainforest.

## Summary

‘Citizen sensing’, framed as grassroots-driven monitoring initiatives based on sensor technology, is increasingly entering the debate on environmental risk governance. When lay people distrust official information or just want to fill data gaps, they may resort to sensors and data infrastructures to visualize, monitor and report risks caused by environmental factors to public health. Although through a possible initial conflict, citizen sensing may ultimately have the potential to contribute to institutional risk governance. The practice brings the promise to make risk governance more transparent and accountable. Whereas studies on broader citizen science and on citizen sensing often focus on the learning gains for the participants, this research rather explores the potential for the sensing citizens to concretely influence risk governance and complement it by means of integration. Building on previous empirical research based on a combination of methods, including ethnographical research, descriptive analysis and fuzzy-set Qualitative Comparative Analysis (Berti Suman 2021, *“The policy uptake of citizen sensing”*, Edward Elgar), this contribution offers an accessible ‘toolbox’ for interested communities, policy-makers and researchers that wish to shape citizen sensing initiatives in a way to contribute to risk governance. The identification of a ‘dilemma of integration’ deriving from the incompatibility of integration with strongly community-led projects will serve as a warning on the complexity of this process.

**Keywords:** citizen sensing; environmental citizen science; risk governance; public participation.



Credit: ph. NPS, U.S., Rocky Mountain National Park.

## Visual Summary



Credit: own drawing, "Sensing citizens in action"



# Roadmap

Based on the theoretical and empirical assessment of how technology, the grassroots-drive, the risk element and distrust from the sensing citizens towards the competent institutions influence the policy uptake of citizen sensing (see Berti Suman 2021)

Construction of **the integrative framework** based on the empirical results, complemented with adjacent integrative experiences

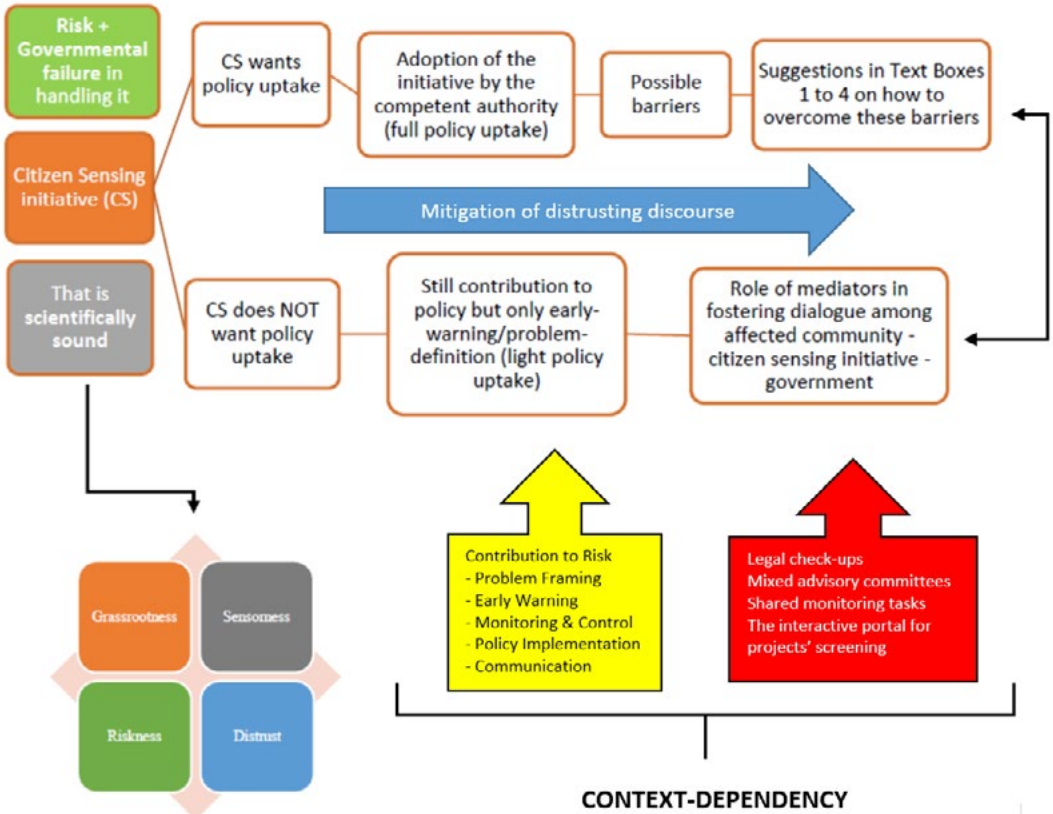
Demonstrating that, under certain conditions, citizen sensing can contribute to the governance of environmental risk to public health

But integration can have adverse consequences, for example for the initiative's independence.

Credit: ph. GitHub, "Umarell".



## The integrative framework at a glance



**Reference:** “Two avenues for an initiative wanting integration or not”, taken from Chapter 3 of this booklet.

**Note:** Text Boxes 1-4 can be found in the main body of text in Chapter 3.

