

# Citizen Observatories for Flood Risk Governance: A Whole of Society Approach

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## ABSTRACT

Flooding is a major natural hazard that is becoming more frequent and intense due to climate change and urbanization. Traditional flood management systems often lack sufficient citizen involvement and weak incorporation of local knowledge into risk assessment and response processes. Citizen observatories (COs) have emerged as a transformative solution, incorporating community-based monitoring and crowdsourced data into environmental governance. This work-in-progress paper aims to examine the role of CO in environmental and flood risk governance through a combined scientometric and qualitative analytical approach. The study systematically investigates international policy frameworks that embed participatory governance, maps global CO-integrated flood risk management initiatives, and evaluates the design of European Union CO programmes under FP7, Horizon 2020, and Horizon Europe, with a view toward their contextual adaptation for Nova Scotia, Canada.

## Keywords

Risk Governance, Citizen Observatory, Citizen Science, Climate Change, Flood Governance.

## INTRODUCTION

Flooding remains a major global challenge, causing more than half of all disaster-related deaths and a third of economic losses from natural catastrophes (Hong & Huang, 2025; Wehn et al., 2015). Citizen science initiatives have been undertaken for gathering data. However, these initiatives often suffer from fragmented participation, limited policy integration, and challenges in sustaining long-term engagement and data usability for decision-making (Assumpção et al., 2018). Citizens are often treated as sensors. Similarly, conventional top-down flood governance has been criticized for limited citizen involvement and weak incorporation of local knowledge of risk assessment and response processes (Cheung & Feldman, 2019). Moreover, situation awareness often relies on formal, slow communication channels that treat citizens as passive recipients of information (Lanfranchi et al., 2014). Therefore, the implementation of flood directives worldwide, including in Nova Scotia, Canada, has required a shift towards public participation in flood management (Wehn et al., 2015). In 2009, the citizen observatory (CO) concept was recognized as a transformative mechanism for strengthening inclusive, adaptive, and evidence-based flood risk governance (Assumpção et al., 2018; Pinto et al., 2024; Wehn et al., 2020). COs help bridge these gaps by enabling structured, Information and Communication Technology (ICT)-enabled participatory systems that connect citizens, scientists, and authorities within integrated data and governance frameworks (Wehn et al., 2020). This approach improves spatial and temporal data coverage, enhances the real-time exchange of flood information, and supports the co-production of knowledge for decision-making (Ferri et al., 2020).

The concept of COs has garnered significant attention in recent literature, primarily due to their potential in enhancing governance frameworks for environmental issues, particularly in the context of flood management (Woods et al., 2022; Nye et al., 2011; Silva et al., 2025). COs represent a collaborative approach that integrates the insights and contributions of local communities with formal governance structures to create a more resilient and adaptive system for managing flood risks (Llasat-Botija et al., 2025). However, there is a lack of a comprehensive literature review of the CO projects undertaken and of the prominent players in these areas, particularly in the context of flood risk governance systems. This paper addresses the following research questions:

RQ1: Which major international frameworks and policy instruments have made citizen participation a mandatory or central element of environmental and flood risk governance?

RQ2: What major CO–embedded flood risk management projects have been implemented globally, and what approaches and mechanisms have they used?

RQ3: How has the European Union CO programme (including FP7, Horizon 2020 and Horizon Europe) been designed, and how can its framework be adapted and tailored for implementation in Nova Scotia in the flood risk management context?

Section 2 of this paper explores the CO concept and definition and the major international policy instruments that have institutionalized citizen participation, highlighting how global and regional frameworks have enabled participatory environmental monitoring and decision-making. Section 3 explains the methodology of this review. Section 4 focuses on the European Union Citizen Observatory programmes, particularly those under Horizon Europe, analyzing their design and implementation and proposing a treaty-enabled Integrated Governance Model linking international mandates and COs for flood risk management. Section 4 presents global case studies of CO-embedded flood risk management projects. Section 5 discusses future research directions, in which the authors plan to undertake an extensive scientometric analysis, to be complemented by a qualitative analysis. The scientometric analysis will provide high-level insights into publication trends, leading countries, authors, and institutions undertaking such projects, and the thematic areas covered. The qualitative analysis will help synthesize the approaches, methodologies, and governance mechanisms used in these projects to identify transferable practices for participatory flood risk management systems. Section 6 covers the conclusion of this paper.

## BACKGROUND

### Citizen Observatory: Definition and Concept

Professor Jacqueline McGlade first proposed the notion of a “global citizen observatory” in 2009, underlining how individual efforts in monitoring and interpreting environmental conditions can play a vital role in informing actions in an adapting global landscape (WeObserve Consortium, 2021). WeObserve is an initiative under the H2020 Coordination and Support Action (CSA) and the first knowledge platform for COs across Europe. Its purpose is to share and consolidate valuable experiences and best practices, thereby informing practitioners, policymakers, and funders in the field. It defined CO: “*Citizen Observatories are a particular form of citizen science and collective action to create evidence and knowledge and to apply the evidence for advocacy and place-based decision-making to reach environmental and societal impact. They provide a mechanism for new partnerships among societal actors, including citizens, scientists, decision-makers, policymakers, and others, to tackle complex socio-environmental challenges. Citizen Observatories engage the public in scientific knowledge creation, employing citizen science methods, digital tools and sensors to gather data, share information, and motivate change. Typically, they intend to engage communities longer-term, or for a defined timeframe to address a specific issue or situation*” (Hager et al., 2021)

### Major R & D Programmes: FP7, H2020, and Horizon Europe

The European Union's Framework Programmes play a crucial role in funding research, technological development, and innovation throughout Europe. These multi-annual programmes, including the Seventh Framework Programme (FP7) (2007–2013), Horizon 2020 (2014–2020), and Horizon Europe (2021–2027), are designed to tackle societal challenges, promote scientific excellence, and encourage collaboration between academia, industry, and policymakers. One of the significant developments in these programmes is support for CO projects, which began under FP7 with initiatives such as COBWEB, CITI-SENSE, and WeSenseIt. These projects demonstrated that citizens could effectively participate in environmental monitoring. As the program moved into Horizon 2020, the funding for these initiatives grew significantly. Projects like Ground Truth 2.0,

SCENT and LandSense took on the challenge of scaling up these efforts, focusing on digital integration and participatory governance. Now, in Horizon Europe, COs are thriving within a framework that emphasizes missions. They integrate cutting-edge technologies such as artificial intelligence and the Internet of Things, underscoring the importance of co-creation. This work aligns closely with the goals of the European Green Deal, which outlines the EU's strategy to achieve climate neutrality and enhance environmental sustainability (Hager et al., 2021).

The European Union (EU) Horizon Europe Program has outlined a roadmap for the future development of COs to enhance participation and better align its research and innovation agenda with societal needs. This initiative suggests that integrating COs into thematic clusters within the Horizon Europe programme could be highly beneficial. For example, Pillar 2, which focuses on Global Challenges and European Industrial Competitiveness, can gain significantly from utilizing the CO concept. This could involve operationalizing air quality observatories for monitoring pollution (Cluster 1: Health), combining Earth Observation from space with citizen-contributed ground truthing (Cluster 4: Digital, Industry, and Space), and providing solutions for natural capital conservation while promoting climate-neutral and resilient societies (Cluster 5: Climate, Energy, and Mobility; Cluster 6: Food, Bioeconomy, Natural Resources, Agriculture, and Environment). Moreover, Horizon Europe's emphasis on establishing permanent research and data infrastructures, along with fostering innovation and new markets (Pillar 1: Open Science and Pillar 3: Innovative Europe), will not only enhance CO technologies and data infrastructures but also help develop new business models and expand their value chains. Figure 1 illustrates how CO integration is a key element within the Horizon EU program. This visualization emphasizes CO's pivotal role as an essential component, underscoring its importance in advancing the program's objectives and environmental sustainability strategies (WeObserve consortium, 2021).

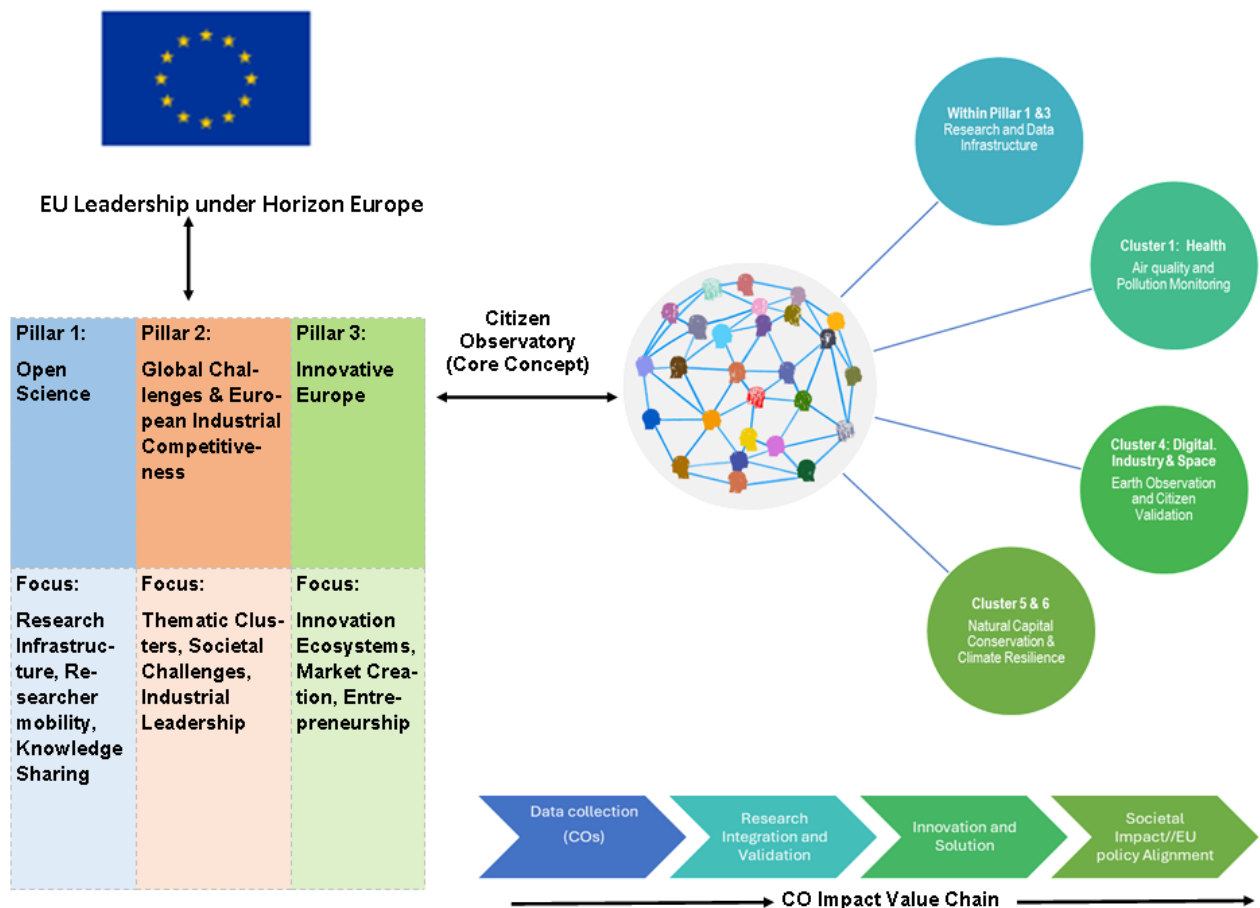


Figure 1. Proposed CO Embedded Horizon EU Program Objectives (Illustration Based on Hager et al., 2021)

## METHODOLOGY

This study followed a PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)- guided approach to ensure transparency, reproducibility, and methodological rigour in literature selection and screening (Matthew et al., 2021). A systematic search was conducted in the SCOPUS database using the keywords “Citizen Observatory” AND “flood” in the title, abstract, and keywords. This search covered publications from 2010 to 2026 since the term was coined in 2009, resulting in the identification of 120 records. The eligibility criteria included only English-language journal articles, thereby excluding book chapters, reviews, books, and errata. Among these records, we identified pertinent documents through an examination of the abstract, which discusses the limitations of citizen science, critiques the conventional top-down approach of the existing flood risk management framework and explores the role of CO in addressing these gaps. These documents were used to write the introductory section of this paper.

In addition to SCOPUS publications, we identified relevant grey literature through a Google search by looking for policy frameworks that demonstrate binding agreements on citizen participation in decision-making. This search yielded pertinent results on the first two pages of Google, including international conventions such as the Aarhus Convention and the Espoo Convention, policy frameworks such as the EU Floods Directive, the Sendai Framework, and the Paris Agreement, and implementation reports such as WeObserve. We utilized these sources as reference documents to prepare the background sections of this paper.

Furthermore, we screened relevant documents from the SCOPUS-retrieved dataset to identify case studies on the role of CO in flood contexts and found 6 papers. By delving into these papers, we were able to ascertain the geographical locations where these projects were conducted. This analysis will contribute to Section 5, which outlines the landscape of CO flood projects.

## RESULTS AND DISCUSSION

*RQ1: Which major international frameworks and policy instruments have made citizen participation a mandatory or central component of environmental and flood risk governance?*

### Proposed EU CO-Embedded Governance Framework

The EU has proposed a framework for research and innovation that fosters an environment in which citizen participation is a core part of its aims. Consistent with various international treaties, agreements, and directives, there is a requirement for public involvement as active partners. This includes integrating CO into the governance system.

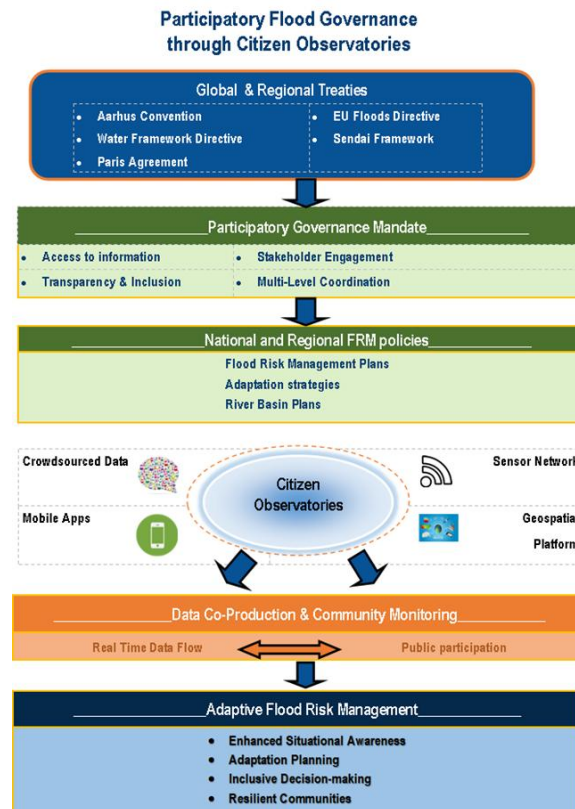
In the context of flood management, international and regional environmental treaties collectively establish a normative and legal foundation for participatory flood risk governance. Citizen observatories provide the operational infrastructure needed to realize these obligations in practice. The Aarhus Convention (UNECE, 1998) legally mandates access to environmental information and meaningful public participation. COs support this mandate by enabling open data dashboards, real-time flood reporting, and public access to hazard maps. Similarly, the EU Floods Directive (2007) requires the active involvement of stakeholders in Flood Risk Management Plans (FRMPs), which can be implemented through participatory mapping platforms and community-based reporting applications integrated within observatory systems. The Sendai Framework for Disaster Risk Reduction (2015–2030), although non-binding, emphasizes the importance of multi-stakeholder governance in disaster risk management. CO bring this principle to life by facilitating community-based monitoring and providing distributed early warning systems. (UNDRR,2015) Under the Paris Agreement (2015), participatory adaptation planning is central to enhancing climate resilience. CO contributes long-term, locally generated flood datasets that inform adaptive strategies. Lastly, the Espoo Convention (1991) requires public consultation in transboundary environmental impact assessments, and this process is strengthened by cross-scale hydrological data sharing and transparent digital platforms. Together, these treaties position participation as a fundamental governance principle, while citizen observatories serve as socio-technical mechanisms that transform these legal mandates into continuous, data-driven, and inclusive flood risk management practices. Table 1 shows an overview of pertinent treaties related to floods, detailing their governance structures, participatory needs, CO functions, and their significance in flood-related situations.

**Table 1. Overview of Treaties/Agreements/Conventions Significant to the Flood-Related Situation**

Instrument	Year	Legal Status	Participation Requirement	Treaty Principle	Governance Requirement	CO Function	Flood Relevance
Espoo Convention*	1991	Binding	Public consultation in EIA	Active involvement	Consultations in EIA	Applies to major flood infrastructure (dams, levees, diversions)	Medium
Aarhus Convention*	1998	Binding (UNECE)	Strong, mandatory	Access to information	Public access to flood maps	Open data dashboards	High
EU Floods Directive	2007	Binding (EU)	Mandatory consultation	Active involvement	Consultation in FRMPs	Participatory mapping & reporting apps	Very High
Paris Agreement	2015	Binding	Participatory adaptation	Adaptive planning	Climate adaptation strategies	Long-term flood trend datasets	Medium–High
Sendai Framework*	2015	Non-binding	Strong governance focus	Risk governance	Multi-stakeholder DRR	Community-based monitoring	Very High

\* Aarhus Convention: Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters; Espoo: Convention on Environmental Impact Assessment in a Transboundary Context; Sendai Framework: Sendai Framework for Disaster Risk Reduction (DRR)

Based on the obligations outlined in various treaties, agreements, and conventions related to flood risk management, we propose a framework for a national and regional flood governance system, with CO as the central element. This framework aims to enhance an adaptive flood risk management system, as illustrated in Figure 2.



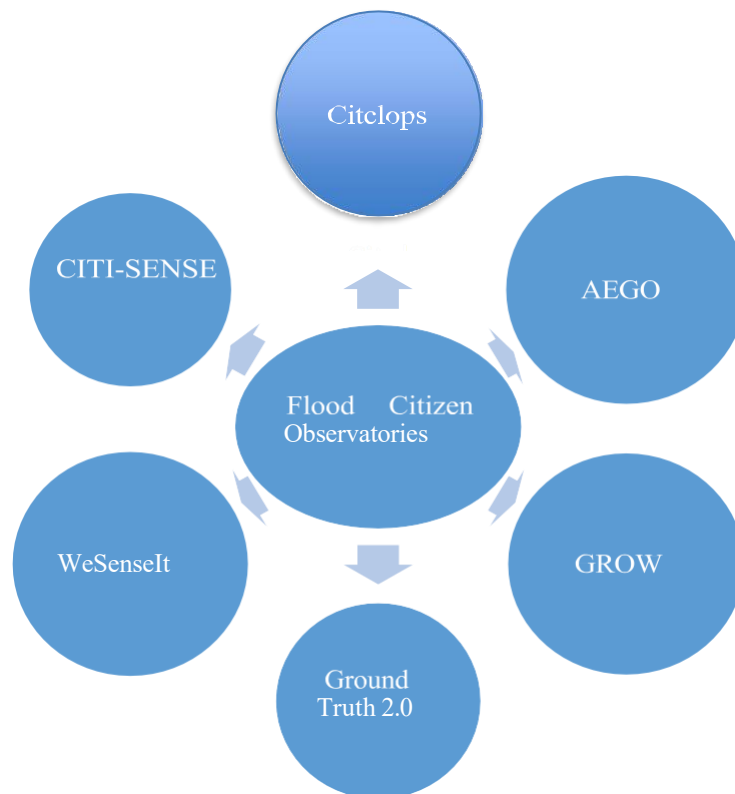
**Figure 2. Proposed Integrated Governance Model Linking International Mandates and COs for Flood Risk Management**

The proposed framework features a multi-level governance architecture in which international and regional agreements, such as the Aarhus Convention, the EU Floods Directive, the Espoo Convention, the Sendai Framework for Disaster Risk Reduction, and the Paris Agreement, establish normative commitments. These commitments focus on transparency, access to information, stakeholder engagement, and multi-level coordination in flood risk governance. These treaty obligations are translated into national and regional flood risk management tools, including flood risk management plans, river basin plans, and climate adaptation strategies, all of which require participatory, evidence-based implementation. COs serve as the operational bridge in this system by integrating crowdsourced data, mobile applications, sensor networks, and geospatial platforms. This integration enables real-time co-production of data between communities and institutions. Through continuous public participation and community-based monitoring, locally generated knowledge is incorporated into formal decision-making processes, thereby strengthening situational awareness and facilitating adaptive planning. Ultimately, the framework's proposed integrated governance model linking international mandates and Cos that transforms top-down regulatory mandates into inclusive, data-driven, and adaptive flood risk management. This approach enhances institutional responsiveness and fosters resilient communities.

**RQ2:** *What major CO-embedded flood risk management projects have been implemented globally, and what approaches and mechanisms have they used?*

### Flood Citizen Observatory Landscape

We used the SCOPUS database to identify relevant articles on COs using the keyword “citizen observatory”. This search yielded 120 articles covering topics such as air pollution, biodiversity, night skies, acoustic monitoring, and floods. The time span chosen is from 2010 to 2025, as this term was coined in 2009. We focused particularly on articles discussing flood COs. Figure 3 shows several CO projects related to the flood domain, primarily located in European Union countries.



**Figure 3. Initiatives Undertaken in Project or Program Mode to Establish Flood Citizen Observatories (sources: Ceccaroni et al., 2020; Lanfranchi et al., 2014; Mangina et al., 2023; Wehn et al., 2015; Woods et al., 2020)**

The AGEO (Atlantic Geohazards Earth Observatory) CO is a geo-hazard platform designed to enhance local participation in monitoring and interpreting natural hazard phenomena such as urban floods, landslides, and seismic risks. Its tools and applications enable local communities and stakeholders to gather geohazard

observations, strengthening risk awareness and local response capacity through citizen engagement linked to formal emergency planning (Mangina et al., 2023).

WeSenseIt CO focuses on fostering two-way communication between citizens and authorities. It enabled citizens to provide water-related observations (e.g., water levels, rainfall, sensor data, and social media contributions) that inform predictive models and decision-support tools. This model has transformed environmental monitoring from a one-way information flow into an interactive process of data and knowledge co-creation, tested in flood and drought-prone basins in the UK, the Netherlands, and Italy (Wehn et al., 2015).

The GROW Observatory established a sustainable large-scale citizen science platform for generating, sharing, and utilizing soil, land, and water data. While not specifically focused on floods, its approach to engaging thousands of volunteers in collecting soil moisture and environmental data illustrates how distributed citizen data networks can enhance high-resolution datasets that support models of extreme weather events, including floods (Woods et al., 2020).

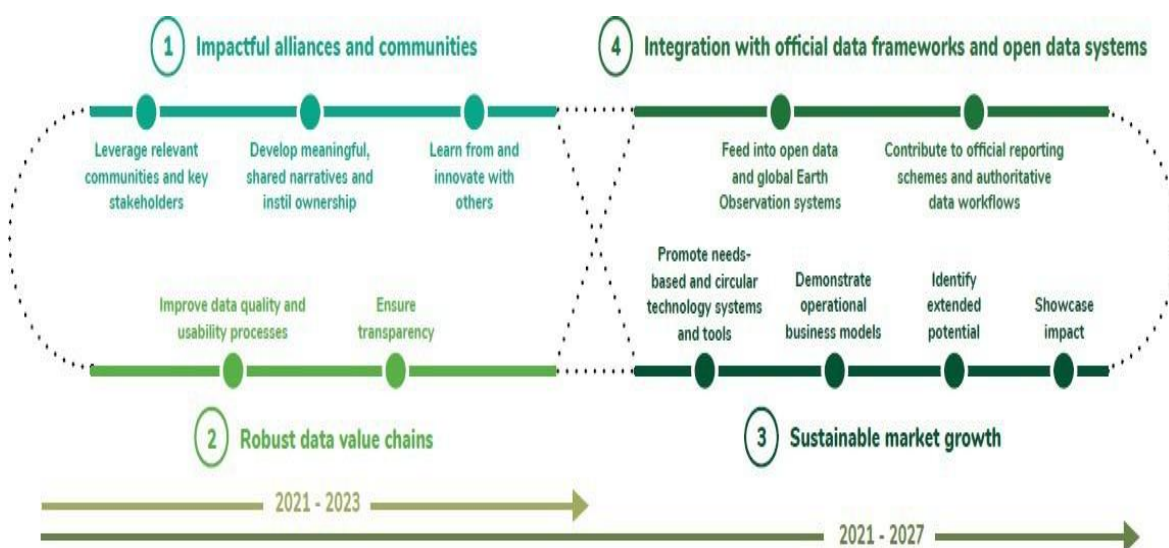
The CITI-SENSE project was built on the early FP7 citizen observatory concept by creating distributed monitoring platforms and participatory methods that empower citizens to contribute environmental data and engage in co-decision-making processes with stakeholders. This sets a precedent for later observatories that integrate environmental perceptions with sensor data (Lanfranchi et al., 2014).

Citclops (Citizens’ Observatory for Coast and Ocean Optical Monitoring) developed low-cost optical sensors and citizen sampling methods for aquatic environments. This initiative demonstrates how citizen-collected data can be systematically integrated into scientific analyses and support authoritative environmental monitoring, with potential applications for flood-related water quality and hydrological assessments (Ceccaroni et al., 2020)

**RQ3:** How has the European Union CO programme (including FP7, Horizon 2020 and Horizon Europe) been designed, and how can its framework be adapted and tailored for implementation in Nova Scotia in the flood risk management context?

**Horizon Europe Co-Framework and its Implementation Methodology for Nova Scotia**

To fully realize CO’s potential, ongoing investments and targeted actions are essential. The recent WeObserve roadmap outlines key focus areas and recommended actions to enhance the capabilities and impact of these observatories. It serves as a practical guide for researchers, civil society organizations, and public authorities, helping them shape future initiatives (Figure 4). The roadmap is designed for national funding agencies in EU member states to explore potential funding scenarios and for the European Commission to inform Horizon Europe funding calls. By offering various entry points, it acknowledges that the specific paths taken will depend on users’ unique contexts. The roadmap concludes with recommendations for funding bodies to support the development of the next generation of COs in alignment with Horizon Europe objectives. This roadmap can serve as a guide for framing a flood risk governance model that integrates COs into the local context.



**Figure 4. Main Areas and Pathways of the Roadmap, Including Interlinkages Between Areas (Adapted from Hager et al., 2021)**

This framework outlines a four-pillar strategy for developing sustainable, community-driven data ecosystems, particularly in environmental monitoring, COs, and Earth observation systems. It is organized as a phased pathway

from 2021 to 2027. The four interconnected pillars—impactful alliances and communities, robust data value chains, sustainable market growth, and integration with official data frameworks align closely with the core requirements of participatory and evidence-based governance. By fostering strong partnerships among stakeholders and promoting co-ownership, the model supports inclusive decision-making among local communities, emergency responders, and public authorities.

The emphasis on improving data quality, transparency, and usability enhances the reliability of information throughout the risk management cycle. Promoting sustainable operational models ensures long-term viability beyond initial pilot initiatives, while integration with official reporting systems and global Earth observation infrastructures reinforces institutional legitimacy and facilitates policy adoption. In summary, the WeObserve framework provides a scalable, structured foundation for integrating citizen-generated data and collaborative technologies into formal risk governance systems.

Building on the European WeObserve roadmap developed under the EU Horizon 2020 initiative, the authors discuss how this framework may be tailored for the Nova Scotia context to support the implementation of Citizen Observatories. While the original roadmap emphasizes scalable pathways for strengthening environmental observation systems across Europe, its principles are broadly applicable rather than limited to any single hazard or sector. This adaptation therefore does not focus exclusively on floods but instead illustrates how Citizen Observatories can be operationalized within a regional governance and socio-ecological context. Nova Scotia faces a range of climate and environmental challenges, making participatory and data-driven approaches essential for adaptive governance. The framework integrates local institutional structures, Indigenous knowledge systems, and existing environmental monitoring infrastructures to ensure contextual relevance. The pathways outlined below translate the WeObserve strategic vision into actionable implementation steps aligned with provincial and national sustainability and resilience priorities. We have also proposed a theoretical operational mechanism for the Nova Scotia flood context.

#### *Impactful Alliances and Communities*

In Nova Scotia, Canada, we can make a real difference by fostering strong partnerships among coastal municipalities, Indigenous communities, especially the Mi'kmaq Nations, universities such as Dalhousie, and local civil society groups. By setting up COs in areas prone to flooding, we can gather valuable insights through community-driven efforts, such as using mobile apps and mapping exercises. These collaborations will merge our lived experiences with scientific knowledge, creating a richer understanding of flooding issues. Schools, community organizations and local NGOs can play a pivotal role in raising awareness and promoting stewardship programs, helping to ensure that our communities feel a lasting sense of ownership and trust in what we create together.

#### *Robust Data Value Chains*

In Nova Scotia, the European approaches can be adapted by gathering flood observations directly from citizens, such as rainfall reports, photos of coastal flooding, and notes on river levels. We can combine this valuable information with data from provincial hydrometric networks and national sources such as those from Environment and Climate Change Canada. A well-organized data system can be created in which citizen reports undergo smart filtering and expert review before being added to open climate and disaster portals. This not only ensures that the information is reliable but also makes it more transparent and useful for essential tasks, such as flood forecasting and better urban planning. It is about creating a community-driven approach to safety and preparedness that benefits everyone.

#### *Sustainable Market Growth*

Citizen Observatories can stimulate innovative ecosystems in climate resilience services. Local startups, SMEs, and social enterprises in Nova Scotia can develop flood-monitoring tools, sensor networks, early-warning dashboards, and insurance risk analytics. These solutions can be tested through pilot “living labs” in flood-prone coastal and river communities. Public procurement and innovation grants (provincial and federal) can help scale these tools into operational business models. Over time, this fosters a green economy around disaster resilience and climate adaptation services.

#### *Integration With Official Data Frameworks and Open Data Systems*

In Nova Scotia, CO outputs can be integrated into municipal GIS platforms, provincial emergency management systems, and national open data infrastructures. Real-time citizen inputs can complement official flood monitoring during extreme events, improving situational awareness and response coordination. Additionally, standardized data protocols would allow contributions to global Earth observation initiatives, aligning local flood governance with international climate reporting and resilience frameworks.

The emergence of COs represents a pivotal shift in flood risk governance, as evidenced by initiatives across regions that integrate community inputs with institutional frameworks. This key transformation reflects a broader paradigm shift from traditional top-down approaches to participatory governance, which regards citizens not

merely as passive recipients of information but as active contributors to situational awareness and decision-making processes (Lanfranchi et al., 2014). One of the significant advantages of COs is their ability to deliver high-resolution, real-time data that are often absent in conventional monitoring systems. The European Union's strategic framework on COs has notably facilitated collaboration among multiple stakeholders, including citizens, policymakers, and emergency responders (WeObserve, 2021). This collaborative ethos echoes with several researchers' assertions that participatory governance is critical for achieving sustainable environmental outcomes. The engagement of a diverse range of actors fosters an inclusive atmosphere in which various perspectives shape flood risk governance, ultimately leading to more robust, adaptive management strategies.

However, integrating citizen observatories into formal governance structures is not without challenges. The successful implementation of COs hinges on fostering trust among stakeholders, ensuring data accuracy, and addressing potential information overload. In future work, we will study real-world case studies in which Citizen Observatories (COs) are embedded in flood contexts and examine cross-cutting instruments applicable within flood risk management systems. To this end, we will conduct a bibliometric analysis of past CO-based projects to map their evolution, thematic focus, and research trends. This will be complemented by a qualitative assessment of selected CO initiatives specifically oriented towards flood-related applications. Together, these analyses will help uncover the detailed mechanisms adopted by such projects within their local socio-ecological contexts and provide a deeper understanding of how COs contribute to effective and context-sensitive flood risk governance.

### **WORK-IN-PROGRESS STATUS AND RESEARCH TRAJECTORY**

The authors plan to undertake an extensive scientometric analysis, to be complemented by a qualitative analysis. The scientometric analysis will provide high-level insights into publication trends, leading countries, authors, and institutions undertaking such projects, and the thematic areas covered. The qualitative analysis will help synthesize the approaches, methodologies, and governance mechanisms used in these projects to identify transferable practices for participatory flood-resilience systems. Exploring these dynamics may uncover effective governance strategies tailored to flood-prone areas, such as Nova Scotia. A thorough examination of CO-integrated flood risk governance frameworks in specific regions will enhance our understanding of their effectiveness and how they can bolster community capacity to reduce flood risks (Somerville and When, 2022; Soacha-Godoy, 2025). By integrating COs into the governance structure, there is potential not only for improved data and information sharing but also for fostering a sense of ownership and responsibility among community members towards flood risk management (O'Grady and Mangina, 2022).

### **CONCLUSION**

The increasing frequency and intensity of flooding, exacerbated by climate change and other socio-economic factors, present a growing challenge. In this context, implementing COs offers a promising solution to enhance flood risk governance. This paper has examined the significant role of COs in integrating community involvement with formal governance frameworks, highlighting their potential to provide real-time, high-resolution data that traditional systems often lack. Our analysis indicates that COs facilitate the sharing of "collective intelligence" among citizens, emergency responders, and policymakers, thereby fostering a more engaged and adaptive approach to flood management. The strategic framework set forth by the European Union emphasizes the importance of participatory governance which further supports our argument for the necessity of integrating COs into existing flood management systems. Future research should focus on the dynamics of COs working alongside formal institutions to strengthen community-driven initiatives. By thoroughly examining CO-integrated flood risk governance in specific regions, we can gain insights into effective strategies that not only improve data sharing but also instill a sense of ownership and responsibility among community members. Exploring these dynamics may uncover effective governance strategies tailored to flood-prone areas, such as Nova Scotia. A thorough examination of CO-integrated flood risk governance frameworks in specific regions will enhance our understanding of their effectiveness and how they can bolster community capacity to reduce flood risks.

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