

**1 Benefits and challenges of public engagement: how can systemic changes
2 enhance researcher well-being and sustained participation?**

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4 Michela Busana^{1,*§}, Leonie Schulz^{1,*}, David Schoo^{1,*}, Korinna Kappler^{1,*}, Theresia
5 Endriss^{1,*}, Pia Wehrmaker^{2,*}, Julian Maindok^{1,*}, Alexandra Zink^{1,*}, Joan Casanelles-
6 Abella^{1,*}, Monika Egerer^{1,*}

7

8 1. Urban Productive Ecosystems, School of Life Sciences, Technical University of
9 Munich, Hans-Carl-von-Carlowitz-Platz 2, D-85354 Freising, Germany

10

11 2. Strategic Landscape Planning and Management, School of Life Sciences, Emil-
12 Ramann-Str. 6, D-85354 Freising, Germany

13

14 * All authors contributed equally to the conception and writing of the manuscript.

15 § Corresponding author (m.busana@tum.de)

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17 ORCIDs:

18 Michela Busana 0000-0002-3806-8575

19 Leonie Schulz 0009-0008-9986-7398

20 David Schoo 0009-0006-4923-6454

21 Korinna Kappler 0009-0008-3159-2033

22 Theresia Endriss 0009-0002-3096-6802

23 Pia Wehrmaker 0009-0003-3719-5163

24 Julian Maindok 0009-0009-1775-3483

25 Alexandra Zink 0009-0003-7578-0400

26 Joan Casanelles-Abella 0000-0003-1924-9298

27 Monika Egerer 0000-0002-3304-0725

28

29 **Keywords:** public engagement, scientific communication, researcher well-being,
30 societal impact, research system reform, academic sustainability

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32

33 **Abstract**

34 Discussions of public engagement typically emphasize its benefits for society and
35 research outcomes, but far less attention has been given to its effects on
36 researchers' well-being. In this viewpoint, we explore how public engagement can
37 contribute to positive work experiences. Drawing on examples from our own projects,
38 we illustrate how engagement activities can foster meaning, connection, motivation,
39 and professional fulfillment. At the same time, we highlight tensions that arise when

engagement is insufficiently valued, resourced, or integrated into academic workloads. We argue that the well-being benefits of public engagement are not automatic but depend on support from the institutional environments. Recognizing and rewarding engagement activities may therefore benefit not only research and society but also the researchers undertaking them.

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46 **Public engagement in the current academic system**

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Public engagement is increasingly becoming an integral part of a researcher's work. It encompasses a wide range of activities through which researchers share knowledge, information, and data while also learning from and collaborating with non-researchers (Miller-Rushing et al. 2012). Rather than a single format, public engagement spans a range of interactions that vary in depth, directionality, degree of participation, and the extent to which they foster sustained relationships enabling long-term collaboration.

55

Public engagement is embedded within the requirements of many funding schemes, where dissemination, broader impact, and exploitation plans are mandatory components of research proposals (e.g., the Horizon 2020 funding program at the European level). This development reflects a growing expectation that publicly funded research should give back to society, making public outreach and communication a core responsibility of researchers. This shift aims to increase accountability to taxpayers, strengthen public trust in science, and reinforce the

63 relationship between science and society, thus maximizing the socioeconomic and
64 policy impact. In addition, public engagement facilitates the sharing, reuse, and
65 public understanding of research findings (Phillipson et al. 2012, Bonney et al. 2016).
66 Collectively, this can foster collaboration with communities and stakeholders, and
67 promote transparency and visibility throughout the scientific process (Bouter 2010).
68

69 Drawing on our experiences and ongoing projects, we highlight how public
70 engagement can enhance work-related well-being, broadly defined as positive
71 physical, mental, social, and emotional health. Supporting well-being is essential not
72 only for individual researchers but also for organizational effectiveness and
73 productivity, given the close relationship between well-being, job satisfaction, and
74 performance (Figure 1; Loffeld et al. 2025). At the same time, we consider the
75 challenges that arise when public engagement is insufficiently supported by
76 institutions (Figure 2). In such cases, it risks becoming an additional demand on
77 researchers' time, increasing workloads and stress. We therefore highlight the need
78 for systemic changes across multiple organizational levels to make public
79 engagement a more sustainable, valued, and rewarding part of a researcher's work.
80

81 **The positive effects of public engagement: meaning, motivation, and** 82 **connection**

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84 Many researchers report increased job satisfaction, a stronger sense of community
85 connection, renewed motivation, and inspiration for new research ideas through
86 public engagement activities (Pace et al. 2010, Research Councils UK 2010, Besley
87 and Downs 2025, Ogbukagu et al. 2026). For example, researchers describe how

public engagement can clarify why their work matters, and inspire new perspectives thanks to insightful questions from the public—often from children—that challenge assumptions (Research Councils UK 2010). These benefits likely emerge through relationship-building with the public, understood here as the process of creating and maintaining meaningful connections, whether through long-term engagement or shorter interactions.

Hidden costs of public engagement in an already overloaded system

Under current conditions, public engagement is often perceived by researchers as an additional burden and source of stress. This is because even though public engagement is emphasized and embedded in research requirements at the proposal stage, the associated resources and time allocations are rarely formalized or protected. Public engagement is often poorly integrated into the standard workweek of most researchers. Academic and research careers often already involve overtime and above-average stress levels (e.g., driven by publishing pressure, funding acquisition, or job insecurity (De Rond and Miller 2005, González Flores 2025)). Consequently, research is widely recognized as a high-stress profession with researchers being particularly affected by mental health problems – for example, approximately 30–40% of researchers report mental health difficulties (Gloria and Steinhardt 2016, Boone et al. 2022). Adding public engagement activities on top of existing workloads can overload researchers and exacerbate stress. This is due both to time demands and to increased responsibility for accurate and accessible communication with the public. Consequently, these responsibilities can be keenly felt as an additional burden.

113

114 **Our perspectives**

115

116 Such benefits and challenges of public engagement also resonate with our research
117 experiences. Engagement often takes place outside regular working hours, leading
118 to overwork, and requires continuous emotional and communicative effort,
119 particularly when addressing diverse audiences or maintaining relationships with
120 participants. We are frequently dependent on the availability and goodwill of
121 volunteer collaborators, which can create uncertainty, delays, and stress around
122 research site access and data collection. Carefully managing expectations,
123 communicating clearly across levels of expertise, and navigating differing institutional
124 logics can be time-consuming and, at times, frustrating. Balancing these demands
125 with other work duties requires sustained investment and can impact overall
126 workload and well-being.

127

128 Here, we reflect on our experiences (see an example in Box 1). Direct contact with
129 citizens, teachers, and stakeholders allows us to see how our research translates
130 into practice, which strengthens our sense of purpose and motivation. The social
131 dimension—meeting diverse, often highly committed people—and the mutual
132 exchange of knowledge are energizing, while hands-on and outdoor activities
133 contribute positively to both physical and mental well-being. At the same time, long-
134 term collaborations and interdisciplinary exchanges create stimulating learning
135 environments and foster a sense of shared impact. Thus, such interactions can
136 enhance communication skills, reduce feelings of isolation, and help researchers
137 experience their work as more creative, meaningful, and socially grounded.

138 Our expertise in urban ecology and conservation places us close to everyday life,
139 creating unique opportunities for public engagement, mutual learning, and exploring
140 human-nature relationships in cities. While grounded in ecology, the experiences
141 discussed here are likely to resonate across research disciplines, as public
142 engagement often involves similar motivations, constraints, and professional trade-
143 offs regardless of field.

144

145 **Balancing public engagement and researcher wellbeing for sustainable**
146 **research experiences**

147

148 Overall, these contrasting experiences reported by researchers point to a central
149 tension: while public engagement can be a source of stress, it can also enhance
150 motivation, meaning, and connection. Yet we still lack a clear understanding of how
151 to foster these positive outcomes while supporting researchers' well-being. This gap
152 is particularly important because poorly supported or valued outreach activities may
153 undermine researchers' motivation to engage with the public (Beattie 2026).

154 Addressing this issue could direct how public engagement is designed, supported,
155 and incentivized, helping to maximize its benefits while minimizing potential stress
156 for researchers. Ultimately, such knowledge could strengthen the translation of
157 research into society and promote sustained researcher participation in public
158 engagement.

159

160 Overall, we argue that while public outreach can enhance researchers' well-being,
161 fulfillment, and motivation, these benefits are not necessarily guaranteed. Instead, by
162 emphasizing the link between institutional support for public engagement and

researcher stress, we propose that increased support can shift researchers from unhealthy stress towards states more conducive to well-being and productivity (Figure 1). Achieving this requires complementary changes at the three critical levels, individual, team, and institutional, to close the investment gap that we currently see (Figure 2).

At the individual level, structured training and confidence-building are essential. To reduce uncertainty, save time, and alleviate stress, we propose providing researchers with practical skills in science communication and guidance in navigating administrative processes (e.g., permits, legal frameworks, stakeholder contacts), as well as supporting them in developing and contributing to the knowledge base on public engagement (Facer et al. 2012). Equipping researchers with tools to manage challenging interactions and public-facing responsibilities strengthens confidence and helps transform engagement from a potential source of anxiety into a more positive and rewarding experience. To support this shift, science communication training should be integrated earlier into academic pathways. Some universities are already moving in this direction. For instance, Uppsala University, Sweden, offers a dedicated course in science communication for Master's students and professionals in the life sciences, providing a structured framework for developing these essential skills (Uppsala University 2026). Similarly, Goethe University Frankfurt, Germany, hosts a multidisciplinary summer school in science communication that is open to participants from all fields, with a strong emphasis on practical outreach formats and audience engagement (Goethe University Frankfurt 2026). Overall, these initiatives could be further strengthened by incorporating classes on building and maintaining long-term relationships and managing conflicts,

188 thereby better equipping participants to navigate complex and potentially stressful
189 situations (Tyler et al. 2026).

190

191 **At the research team level**, we see strong potential in fostering collective support
192 structures. Sharing both positive and challenging experiences can normalize
193 difficulties, reduce emotional burden, and strengthen team cohesion. A supportive
194 environment in which colleagues exchange advice, reflect on engagement practices,
195 and celebrate successes can enhance a sense of collective purpose and pride, while
196 also improving resilience in the face of demanding interactions. In this sense, well-
197 being is not only an individual responsibility but a shared team outcome.

198

199 However, meaningful and lasting improvements depend on **systemic and**
200 **institutional change**. Without dedicated support, public engagement risks becoming
201 an additional and often invisible workload (Beattie 2026). We advocate for stronger
202 institutional resources, including access to public-engagement professionals,
203 dedicated funding, and protected time allocations for outreach. This would consist of
204 time explicitly set aside that cannot be overridden by other tasks, and is formally
205 counted toward weekly working hours, and can be flexibly scheduled to include
206 evenings or weekends when needed. Importantly, institutional support should be
207 proportional to the demands of different forms of engagement. Activities such as
208 dissemination and science communication typically require fewer resources and less
209 time than participatory approaches such as co-design, co-production, or long-term
210 stakeholder collaboration. Yet institutional support mechanisms often fail to

211 distinguish between these activities, despite substantial differences in the effort,
212 skills, and commitment they require (Figure 2).

213

214 Recognition and reward structures must be reformed (Heney and Poleykett 2022).
215 Although public engagement is increasingly acknowledged within funding schemes,
216 its contribution to career progression remains unclear within evaluation systems still
217 dominated by “*publish or perish*” pressures (De Rond and Miller 2005, Miller et al.
218 2011, Aprile et al. 2021). Therefore, integrating engagement into workload models
219 requires more than symbolic inclusion: it demands an explicit acceptance that time
220 and effort devoted to meaningful engagement will inevitably come at the expense of
221 traditional outputs such as publication volume. While evidence indicates that
222 participation in public outreach may enhance researchers’ performance (Kassab
223 2019, Heney and Poleykett 2022) or at least does not detract from it (Mostert et al.
224 2010), existing studies have largely neglected to consider the associated costs in
225 terms of workload and the well-being of researchers. This is particularly important
226 because when public outreach is not formally recognized within academic workloads,
227 it is often perceived as exploitative or undervalued, leading many researchers to
228 avoid engaging in it (Beattie 2026).

229

230 Recalibrating academic priorities toward research that is accessible, relevant, and
231 socially meaningful requires shifting away from quantity-driven research and
232 focusing on the public engagement dimension. The continued growth in the number
233 of scientific publications in recent years has not necessarily translated into greater
234 societal impact (Hanson et al. 2024). Instead, greater emphasis should be placed on

ensuring that research is accessible, used, and meaningful beyond academic circles, rather than remaining confined to niche scientific journals. This requires a redefinition of what constitutes successful research in society—moving from a system that primarily rewards volume and citation metrics to one that prioritizes relevance, uptake, and real-world impacts, for example, by developing novel metrics to assess the societal impact of research (Bouter 2010, Sutherland et al. 2011, Bornmann 2012).

Nevertheless, we argue that a shift toward an impact-driven research framework will only be feasible if the mental well-being of researchers is explicitly recognized and protected. Increasing expectations in the absence of corresponding structural support risks exacerbating workload pressures, ultimately undermining both researchers' well-being and the long-term sustainability of research practice. Such a shift aligns with broader initiatives to reform research assessment and reposition public engagement as a core component of academic practice. Notable examples include the Coalition for Advancing Research Assessment (<https://www.coara.org>), which seeks to transform how research, researchers, and institutions are evaluated, and the UK-based National Co-ordinating Centre for Public Engagement (<https://www.publicengagement.ac.uk>), which supports universities in embedding engagement across research, teaching, and civic missions while promoting it as a strategic institutional priority.

Overall, we envisage a transition toward a more balanced system in which public engagement is supported, resourced, and legitimized. Given that many researchers

259 experience engagement as meaningful and motivating—providing direct insight into
260 real-world applications and fostering a sense of purpose—such changes are likely to
261 yield a net positive effect on well-being. Supporting researchers in this way is not
262 only beneficial for individual researchers but is also essential for maintaining the
263 long-term sustainability, quality, and societal relevance of scientific research.
264 Ultimately, safeguarding the well-being of researchers themselves—as the key
265 actors who produce, translate, and disseminate knowledge—is fundamental to
266 ensuring the resilience and performance of the research system as a whole.

267

268 **Acknowledgements**

269

270 MB, PW & LS were supported by CitySoundscapes, Fdw: 03LW0546K; LS & TE
271 were supported by Evaluierung und Konzeptualisierung von Draußenunterricht: Fdw
272 2221WK27A5; DS was supported by BioDivHubs, Bundesprogramm Biologische
273 Vielfalt, Förderkennzeichen: 3522 89415A-E; KK was supported by REGULUS-
274 Innovationsgruppe A-DUR, Förderkennzeichen: 033L308; AZ was supported by
275 CityBees, Deutsche Forschungsgemeinschaft, Projektnummer: 518386705.

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277 **AI statement**

278

279 AI tools were used to improve language and grammar. All content, interpretations,
280 and conclusions were developed and verified by the authors, who retain full
281 responsibility for the manuscript.

282

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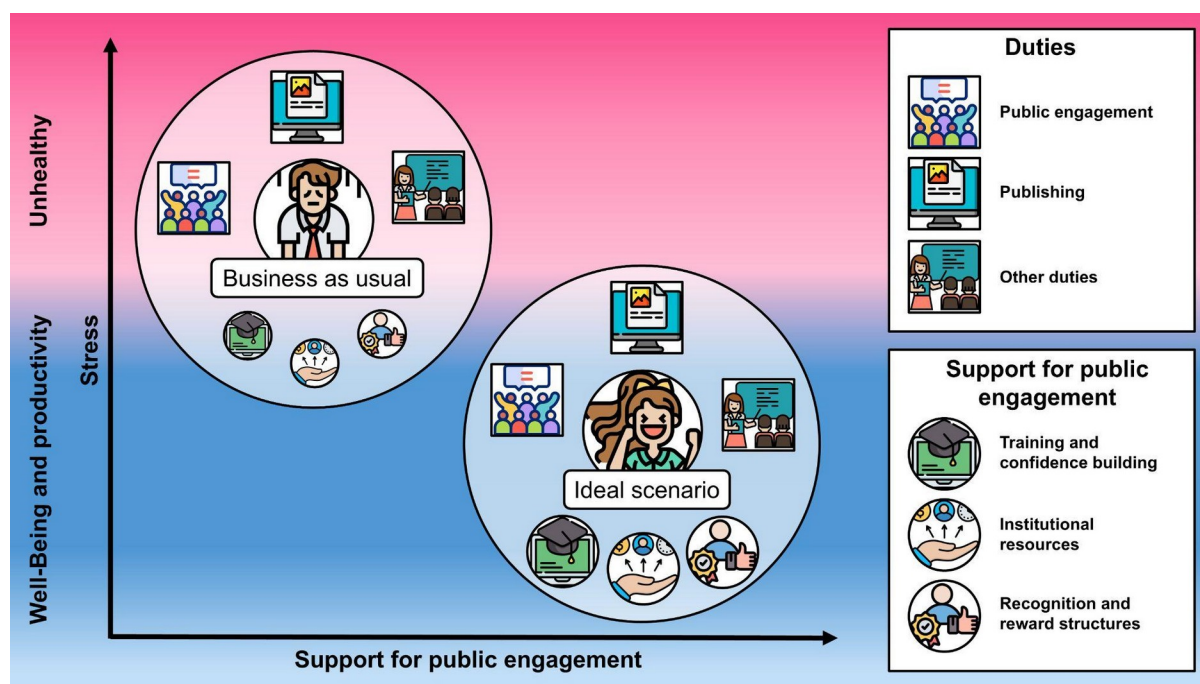


Figure 1. Conceptual relationship between researcher stress and institutional support for public engagement. The vertical axis represents researcher stress, ranging from conditions associated with well-being and productivity (blue area) to unhealthy stress (pink area). The horizontal axis represents the level of institutional support for public engagement. Under a business-as-usual (BAU) scenario, researchers are expected to balance public engagement alongside publishing, and other core duties (e.g., teaching, administration) while receiving limited institutional support. This places many researchers in a state of moderate to high unhealthy stress and low support (BAU). We identify three broad categories of institutional support that could shift the system towards a more ideal scenario: (i) training and confidence building to enhance researchers' capacity to engage with the public; (ii) institutional resources, including access to communication professionals and dedicated time for public engagement within workload allocations; and (iii) recognition and reward structures that acknowledge public engagement and research impact in career progression. Together, these reforms can move

researchers from the BAU scenario towards an ideal scenario of higher support, reduced stress, improved well-being, and greater productivity. Legend icons from top-down made by 'Magnific', 'Smashicons', 'small.smiles', 'Magnific', 'syafii5758' and 'Mas Art'. Happy and unhappy researchers drawn by 'Eucalyp' from www.flaticon.com.

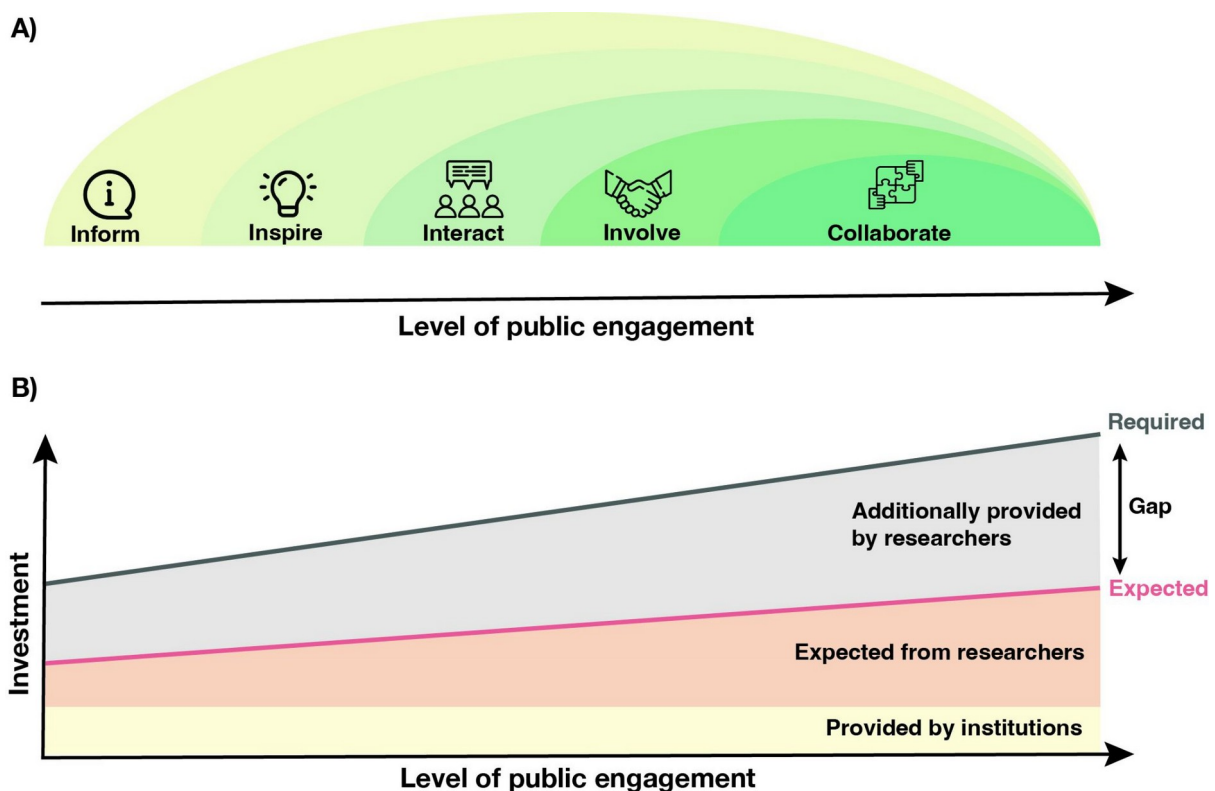


Figure 2. Conceptual framework linking the level of public engagement to the investment required (i.e., time, effort, skills, and financial resources) and its distribution between researchers and institutions. **(A)** Adapted from the “onion of public engagement” framework, public engagement spans a continuum of interactions that vary in the degree of participation and relationship-building. Examples include: Inform (e.g., media outreach, social media, public talks); Inspire (e.g., school visits and workshops); Interact (e.g., community events and informal conversations with stakeholders); Involve (e.g., citizen science projects); and

393 Collaborate (e.g., long-term stakeholder engagement, co-design, and co-creation
394 activities with practitioners and policymakers). **(B)** The required investment increases
395 with the level of public engagement. However, the investment provided by
396 institutions often remains relatively constant (yellow rectangle), regardless of the
397 actual investment required. The orange polygon represents the investment expected
398 from researchers within formal workload allocations. In contrast, the grey area
399 represents the investment gap: namely, the additional investment that researchers
400 frequently contribute themselves to deliver meaningful public engagement activities.
401 This gap becomes particularly pronounced for highly participatory approaches such
402 as co-design and long-term collaboration, where the investment required
403 substantially exceeds that provided by institutions and the effort formally expected of
404 researchers. Credit icons: flaticon.com

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407 **Box: A Snapshot of Our Outreach Activities**

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411 CitySoundscapes

412 The CitySoundscapes project (<https://www.citysoundscapes.de/>) explores how
413 urban green spaces can function as biodiversity habitats and health resources for
414 residents, using sounds as indicators of biodiversity and urban stressors. The project

415 translates research into municipal practice through collaborations with city
416 administrations. Stakeholder workshops bring together decision-makers from
417 different sectors to co-develop strategies that integrate biodiversity and public health
418 into urban development.

419 **Positive Benefits for Researchers**

420 Participating in the knowledge-transfer activity with city administrations provides a
421 strong sense of purpose by translating research findings into practice and offering
422 valuable insights into real-world challenges. Engaging with city administrations from
423 planning, health, biodiversity, and other disciplines broadens perspectives,
424 strengthens interdisciplinary understanding, and creates opportunities for mutual
425 learning.

426 **Challenges**

427 Progress often depends on the availability and engagement of municipal contacts
428 whose involvement is largely voluntary and balanced against daily responsibilities.
429 This creates a sense of dependence and pressure to maintain productive
430 relationships while not overburdening partners. If common interests or synergies
431 cannot be identified in the collaboration, there is a risk that the time invested will not
432 have been worthwhile and will lead to frustration. Coordinating across institutions is
433 time-consuming, as different municipal departments often use different methods,
434 tools, languages, and timelines. Successfully collaborating requires continuous effort
435 to adapt to diverse forms of expertise.

436 **Recommendations**

437 Institutions should allocate dedicated resources for stakeholder participation and
438 include municipal partners as funded project members with defined responsibilities.
439 Creating liaison roles that bridge academia and government could facilitate
440 communication and translation between research and practice. Training
441 opportunities focused on collaboration with public administrations and policymakers
442 would further strengthen impact. Research groups should actively support
443 colleagues by sharing experiences, while individual researchers should develop
444 communication and collaboration skills that enable effective interdisciplinary and
445 cross-sector cooperation.

446

447