

COST ACTIONS

COST Open Call Proposal

European Network on Urban Heat Resilience URBANHEAT

Field	Value
Call Identifier	OC-2026-1
Type of Action	COST Open Call Proposal
Duration	48 months
Countries in network	At least 12 COST Full or Cooperating Member Countries at launch; open to expansion throughout the Action lifetime
ITC participation	At least 50% of network proposers from COST Inclusiveness Target Countries; ITC institutions serve as WG co-leads and Training School co-organisers
Young Researchers and Innovators	Target of at least 40% of all Action participants; priority beneficiaries of STSMs, Virtual Mobility grants and YRI Conference Grants; embedded in WG deputy leadership

Abstract

Urban heat stress is one of the most pressing and multi-dimensional challenges facing European cities under accelerating climate change. Heat-related mortality, urban heat island intensification, and widening social vulnerability gaps are well-documented across the continent, yet the scientific and policy communities responding to these pressures remain fragmented along disciplinary, institutional and national lines. No pan-European coordination mechanism currently integrates climate science, urban planning, public health and social science in a sustained, structured and inclusive way. URBANHEAT addresses this critical gap by establishing a durable, interdisciplinary and inclusive research and stakeholder network that coordinates knowledge production and exchange on urban heat adaptation across COST Member Countries over four years. Organised around five thematic Working Groups covering heat metrics and exposure assessment, nature-based solutions, health and social vulnerability, governance and urban planning, and dissemination and capacity building, the Action harmonises methodologies, synthesises evidence, co-produces policy guidance with cities and public health authorities, and builds the capacity of early-career investigators - with priority to Inclusiveness Target Country researchers. URBANHEAT will generate harmonised indicator frameworks, comparative open datasets, peer-reviewed evidence syntheses, practitioner guidance tools and policy briefs for EU institutions, national authorities and municipal governments. The Action directly supports the European Green Deal, the EU Adaptation Strategy, the EU Mission on 100 Climate-Neutral and Smart Cities, and the EU4Health programme, and will leave a durable legacy of interdisciplinary human capital and shared knowledge infrastructure for urban heat resilience across Europe.

SECTION 1 - SCIENCE AND TECHNOLOGY EXCELLENCE

1.1 Challenge and S&T Objectives

Urban heat stress constitutes one of the most urgent and structurally complex challenges confronting European cities in the context of accelerating climate change. Heat-related excess mortality, urban heat island intensification, compounding drought-heat events, and widening social vulnerability gaps are documented across the continent, disproportionately affecting elderly populations, low-income communities, outdoor workers and migrants. Despite growing scientific output in individual disciplines, the communities of researchers and practitioners capable of responding to these pressures - climate scientists, urban planners, epidemiologists and social scientists - continue to operate in largely parallel tracks, each producing valuable but discipline-specific knowledge that fails to accumulate into integrated, actionable understanding at European scale. No sustained pan-European coordination mechanism currently bridges these disciplinary, institutional and national divides.

URBANHEAT addresses this structural gap with five specific and interrelated S&T objectives: (1) to develop harmonised, interoperable metrics and indicators for measuring urban heat exposure, vulnerability and adaptation performance across diverse European urban typologies, enabling systematic cross-national comparison for the first time at continental scale; (2) to synthesise and critically evaluate evidence on the effectiveness, co-benefits, equity implications and implementation barriers of nature-based solutions (NbS) as urban heat mitigation tools across European climate zones and urban morphologies; (3) to generate consolidated, cross-national knowledge on the health impacts of urban heat by integrating epidemiological, physiological and social-determinants perspectives and harmonising heat-health surveillance methodologies; (4) to map, compare and evaluate urban heat governance frameworks, regulatory instruments and adaptation planning processes across COST Member Countries, identifying transferable enablers of effective policy uptake; and (5) to build the methodological and leadership capacity of early-career investigators, practitioners and policymakers - particularly in Inclusiveness Target Countries - to engage with and advance state-of-the-art urban heat adaptation research and governance.

These objectives are ambitious, timely and directly aligned with major EU policy priorities, including the European Green Deal, the EU Adaptation Strategy, the Mission on 100 Climate-Neutral and Smart Cities, and the EU4Health programme. Critically, they are objectives that nationally funded projects cannot achieve in isolation: the cross-national harmonisation, comparative empirical scope, and stakeholder co-production that URBANHEAT pursues are structurally dependent on pan-European networking of the kind that COST uniquely enables.

1.2 Progress Beyond the State of the Art

The current state of knowledge on urban heat is substantial but structurally fragmented. Leading research groups in atmospheric science, urban morphology, landscape ecology, epidemiology and urban governance are distributed across Europe and produce valuable but largely parallel, discipline-specific knowledge streams. Existing coordination efforts - including past and current COST Actions in adjacent domains such as urban energy efficiency, climate services and urban ecology - have addressed components of the challenge but none has integrated the full socio-technical knowledge chain from heat exposure measurement through nature-based intervention to health outcome monitoring and governance response. Urban Heat Island physical science is maturing, yet systematic comparative frameworks for vulnerability mapping across social, climatic and urban-morphological contexts remain underdeveloped. Nature-based solutions have gained significant prominence in EU policy discourse, but rigorous, multi-site evidence syntheses on their heat mitigation performance under diverse real-world conditions are scarce and methodologically inconsistent. Urban heat governance research exists predominantly as single-country case studies, precluding the comparative

analysis needed to identify transferable policy models.

URBANHEAT moves decisively beyond this state of affairs along three axes. First, it provides, for the first time, a coordinated platform that harmonises metrics across disciplines and national contexts, enabling large-scale comparative empirical work that is structurally impossible within any single national research system. Second, it creates the institutional and methodological infrastructure for sustained knowledge integration across the four disciplines most relevant to urban heat adaptation, generating the cross-cutting synthesis outputs that the field urgently needs. Third, it connects scientific knowledge production directly to municipal and regional decision-making processes through structured stakeholder co-production, closing the persistent gap between research evidence and policy practice. The Action also distinguishes itself from predecessor networks by its structural commitment to Inclusiveness Target Countries as knowledge producers and scientific leaders, not peripheral participants - a design choice that is both ethically essential and scientifically advantageous, given that urban heat challenges are most acute in Southern and Eastern Europe where ITC institutions are concentrated.

1.3 S&T Coordination Approach

URBANHEAT is organised around five thematic Working Groups that together span the knowledge chain from measurement through intervention to governance, with a dedicated fifth group ensuring capacity building and knowledge dissemination. WG1 (Heat Metrics and Exposure Assessment) develops common indicator frameworks and data-sharing protocols as shared baselines for all other WGs. WG2 (Nature-Based Solutions for Urban Heat Mitigation) synthesises and evaluates green and blue infrastructure interventions through systematic reviews and collaborative case study protocols. WG3 (Heat, Health and Social Vulnerability) integrates epidemiological, environmental health and social science perspectives into cross-national health impact analyses. WG4 (Governance, Policy and Urban Planning) maps regulatory frameworks and co-produces policy guidance with municipal and regional partners. WG5 (Dissemination, Capacity Building and Stakeholder Engagement) coordinates all knowledge communication, Training School organisation, STSM administration, and stakeholder outreach.

The networking methodology draws on the full portfolio of COST instruments. Annual Management Committee meetings provide strategic oversight and cross-WG integration. WG scientific meetings (two per WG per year) enable intensive collaborative output development. Short-Term Scientific Missions facilitate researcher mobility with priority to Early-Career Investigators (ECIs) and ITC-based researchers, targeting at least 60 completed STSMs over four years. Annual Training Schools, co-organised with ITC institutions in at least three of four cases, build interdisciplinary methodological capacity for graduate students and early-career researchers. ITC Conference Grants and Young Researcher and Innovator Conference Grants expand participation in major international scientific venues. Virtual Mobility grants supplement physical mobility for researchers facing travel constraints. Cross-WG joint workshops are programmed annually to counteract disciplinary siloing and ensure that all major Action outputs carry genuine interdisciplinary co-authorship. The Action operates on a fully open science model: shared data protocols, open-access publication of all outputs, FAIR-compliant data deposition, and publicly available training materials.

1.4 Interdisciplinarity and Innovation

URBANHEAT is intrinsically and structurally interdisciplinary. The challenge of urban heat adaptation cannot be addressed within any single discipline: physical measurement of heat exposure requires atmospheric science and remote sensing expertise; understanding of effective mitigation requires landscape ecology, urban morphology and civil engineering; health impact assessment requires epidemiology, environmental health science and social medicine; and governance analysis requires political science, public administration and urban planning. The Action recruits proposers with expertise spanning all these domains and structures WG activity to require cross-disciplinary

collaboration on all major joint outputs - no significant deliverable is produced within a single disciplinary track.

The Action also embeds trans-disciplinary innovation through structured engagement with non-academic knowledge holders. Municipal authorities, regional health agencies, urban planning directorates, climate justice NGOs and European city networks such as Eurocities and the Covenant of Mayors are integrated as co-producers of knowledge in WG4 and as knowledge users across all WGs. This trans-disciplinary dimension - combining academic knowledge production with practitioner expertise and policy needs - is central to the Action's theory of change and differentiates it from purely academic coordination networks. Gender and social equity dimensions are integrated as substantive analytical categories across all WGs from the outset: heat vulnerability is inherently gendered and socially stratified, and the Action's analytical frameworks reflect this from the design stage. Methodological innovation is likewise embedded: the harmonisation of metrics across national data systems (WG1), the development of context-sensitive NbS decision-support tools (WG2), and the co-production of transferable governance models with city partners (WG4) each represent novel scientific and policy-relevant outputs with no current equivalent at European scale.

SECTION 2 - NETWORKING EXCELLENCE

2.1 Added Value of Networking

The European added value of URBANHEAT is structural and non-replicable at the national level. The harmonisation of urban heat exposure metrics across national data systems, the production of multi-site comparative NbS evidence syntheses, the cross-national analysis of heat-health outcomes, and the mapping of governance frameworks across legal and administrative traditions are all activities that require the coordinated participation of researchers, data custodians and practitioners from multiple COST Member Countries. No single nationally funded project - however well-resourced - can generate this type of knowledge. URBANHEAT assembles, for the first time, a network with the disciplinary breadth, geographic scope and stakeholder connectivity to produce it.

The Action creates durable networking value beyond its four-year duration through several mechanisms: a shared methodological infrastructure (harmonised metrics, open datasets, data-sharing protocols) that remains available to the European research community after the Action concludes; a cohort of interdisciplinary researchers - especially from ITCs - whose collaborative relationships and shared frameworks persist independently of COST funding; and formal links to city networks and EU policy processes that institutionalise the uptake of Action outputs. The Action's open science approach maximises the accessibility and reusability of all knowledge produced under its umbrella, amplifying the multiplier effect of COST networking investment. Each participating institution brings nationally funded research resources - data, staff time, infrastructure, stakeholder relationships - that are mobilised and integrated by the COST networking framework, generating collective outputs whose value substantially exceeds the sum of individual national contributions.

2.2 Capacity Building and Inclusiveness

Capacity building is a central and sustained objective of URBANHEAT, not a supplementary activity. The Action targets three overlapping beneficiary groups: Early-Career Investigators (ECIs, defined as within eight years of PhD award), researchers from Inclusiveness Target Countries, and practitioners from municipal and regional authorities with limited prior engagement with European research networks. For ECIs and ITC researchers, the primary instruments are Training Schools (at least four over four years, co-organised with ITC institutions in at least three cases), STSMs (targeting at least 60 missions with a minimum of 60% involving ITC institutions as host or sending institution), Virtual Mobility grants, and YRI Conference Grants. ECIs are embedded in WG deputy leadership positions to ensure meaningful scientific responsibility and career development impact, not merely participation.

Training School curricula are designed to build interdisciplinary competence - combining field methods, quantitative analysis, policy translation and stakeholder engagement skills - that participants cannot acquire within any single nationally funded project or doctoral programme.

The Action's inclusiveness architecture is both structural and substantive. ITC countries are represented as WG co-leads and Training School co-organisers, ensuring that ITC researchers exercise scientific leadership and shape the Action's intellectual agenda. The network's geographic design deliberately aligns institutional representation with the regions where urban heat challenges are most acute - Southern and Eastern Europe - turning geographic complementarity into scientific and policy relevance. Gender balance is monitored and actively managed: a Gender Balance Coordinator role within the Management Committee produces annual monitoring reports, targets a minimum of 40% representation for each gender in all WG leadership positions and speaker slots, and flags corrective action where targets are not met. The Action's open-access publication and openly available training materials policies ensure that capacity building outputs benefit the broader research community beyond direct Action participants.

2.3 Stakeholder Engagement

Stakeholder engagement is embedded in the Action's scientific design from the outset, not appended as a communication activity. WG4 (Governance, Policy and Urban Planning) explicitly mandates co-production workshops with municipal authorities, regional health agencies and city networks as a core scientific activity, generating transferable governance guidance that reflects both research evidence and practitioner knowledge. Memoranda of Understanding with at least three European city networks - including Eurocities and the Covenant of Mayors - formalise institutional uptake channels and provide access to diversified portfolios of city partners that are robust to individual personnel changes. WG3 engages national public health agencies as co-producers of heat-health surveillance methodology protocols, ensuring that harmonised approaches are practically implementable within existing national data systems.

The Action maps its stakeholder universe across three tiers: European institutions (European Commission, European Environment Agency, EU Mission cities); national authorities (environment, health and urban planning ministries); and sub-national actors (municipal governments, regional health authorities, urban planning agencies). WG5 coordinates a structured stakeholder communication programme that includes biannual policy webinars for city and health authority audiences, an annually updated urban heat knowledge portal accessible to practitioners, and at least two Policy Briefs per year targeted to each stakeholder tier. The Action's stakeholder engagement plan is monitored semi-annually by WG5 against defined output and reach indicators, with corrective action protocols where engagement targets are not being met.

SECTION 3 - IMPACT

3.1 Expected Impact and Benefits

The primary scientific impact of URBANHEAT is the creation of shared methodological frameworks and comparative empirical knowledge that no single nationally funded project can produce. By harmonising heat exposure metrics (WG1), the Action enables systematic, cross-national comparison of urban heat vulnerability at European scale for the first time, generating a public good for the entire research community. By synthesising NbS evidence across climate zones and urban typologies (WG2), the Action provides the rigorous evidence base urgently needed by city planners, landscape architects and regional environmental authorities. By connecting health outcomes to governance responses through the WG3-WG4 interface, the Action constructs the causal narratives and evidence chains necessary to justify and design effective policy intervention.

The pathway to societal impact runs through the structured stakeholder engagement programme of

WG4 and WG5. The Action will co-produce at least eight Policy Briefs over four years targeting EU institutions, national ministries and municipal authorities, and will engage formally with the EU Mission on Climate-Neutral and Smart Cities, the European Environment Agency's Urban Adaptation Support Tool, and national adaptation platforms. The long-term aim is to ensure that URBANHEAT outputs materially inform the next generation of EU and national urban climate adaptation plans, building codes incorporating heat resilience standards, and public health early-warning and heat action systems. Capacity building constitutes a sustained impact pathway in its own right: through Training Schools, STSMs and YRI grants, the Action develops a cohort of interdisciplinary researchers - particularly from ITCs - capable of independently leading urban heat adaptation research and policy engagement well beyond the Action's four-year duration, constituting a durable human capital legacy.

3.2 Target Groups

URBANHEAT addresses four primary target groups with distinct but interrelated knowledge needs. First, the interdisciplinary research community in climate science, urban planning, public health, epidemiology, landscape ecology and social science: the Action provides shared methods, comparative data, joint publication opportunities and structured collaboration that accelerate knowledge production and broaden individual researchers' disciplinary reach. Second, early-career investigators across all participating disciplines and countries: the Action provides training, mobility, mentoring and leadership experience that directly advance their research careers and expand their professional networks at European scale. Third, urban practitioners - municipal planners, landscape architects, urban climate advisors and local authority officials: the Action provides evidence-based NbS guidance, governance case studies and accessible Policy Briefs that translate research evidence into actionable planning support.

Fourth, public health authorities and policymakers at national and EU level: the Action provides harmonised surveillance methodologies, cross-national vulnerability maps and governance analysis that support the design, targeting and evaluation of heat health action plans and early-warning systems. Secondary target groups include civil society organisations active in climate justice and urban equity, professional associations in urban planning and public health, and the general public through accessible science communication. The Action's tiered dissemination strategy - detailed in Section 3.3 - is calibrated to the distinct information needs, communication channels and decision-making timescales of each target group.

3.3 Dissemination, Communication and Exploitation

URBANHEAT adopts a tiered dissemination and communication strategy calibrated to three primary audiences. For the scientific community: joint peer-reviewed publications co-authored across at least three COST countries (targeting high-impact journals in climate, health and urban studies), conference presentations at major European and international venues (EGU, European Meteorological Society, ISEE, EURA, IFEH), and open-access sharing of datasets and methodological protocols via FAIR-compliant repositories. All publications resulting from COST-funded networking activities will be open-access; all datasets will be deposited under FAIR principles. For practitioners and policymakers: a series of at least eight Policy Briefs over four years, a publicly accessible urban heat knowledge portal maintained by WG5, biannual webinars for city and health authority networks, and direct contributions to national adaptation reporting processes and EU Mission implementation frameworks. For the general public: a communication plan coordinated by WG5 including active social media presence, press releases coordinated with institutional communication offices, and participation in public engagement events.

The Action website, hosted by the coordinating institution and maintained throughout the four-year period, serves as the central hub for all scientific outputs, training materials, policy documents and stakeholder resources. Training School curricula and recorded lectures are made freely available

online in accessible formats. All webinars are recorded and captioned. WG5 monitors the geographic distribution of dissemination activities annually to ensure that ITC institutions appear as co-authors, co-presenters and co-producers of policy outputs - not merely as recipients of knowledge generated elsewhere. Long-term sustainability of outputs beyond the Action's funding period is ensured through: deposition of all data and methodological resources in persistent open repositories; publication of guidance documents under Creative Commons licences; and the formal city network partnerships established in WG4, which provide institutional anchors for continued knowledge uptake and policy engagement independently of COST funding.

SECTION 4 - IMPLEMENTATION

4.1 Working Groups and Activities

The Action is organised into five Working Groups (WGs) that collectively span the full knowledge chain from heat exposure measurement through nature-based intervention and health impact analysis to governance response and knowledge dissemination. Each WG has a designated Lead (with an ITC co-lead in WGs 2 through 5) and meets twice per year for scientific working sessions. Cross-WG integration workshops are held annually and chaired by the Action Chair, with a Scientific Integration Group at Management Committee level ensuring coherence across WG outputs. All WGs operate under the Action's open science framework: shared data protocols, pre-registration of collaborative studies where applicable, and open-access publication of all joint outputs. WG activities are sequenced so that WG1's harmonised metrics framework, delivered by Month 18, forms the methodological baseline adopted by WGs 2, 3 and 4 for their own comparative analyses. WG5 is active from Month 1 and provides coordination support to all other WGs throughout the Action lifetime.

Working Groups

WG	Title	Objective	Lead
WG1	Heat Metrics and Exposure Assessment	Develop harmonised, interoperable indicator frameworks and data-sharing protocols for urban heat exposure and vulnerability assessment across European urban typologies; produce a comparative open urban heat exposure atlas	Action Chair - University of Athens (Greece); ITC co-lead from Southern/Eastern Europe
WG2	Nature-Based Solutions for Urban Heat Mitigation	Synthesise and critically evaluate evidence on green and blue infrastructure heat mitigation performance across climate zones and urban morphologies; develop a context-sensitive NbS typology and practitioner decision-support tool	ITC institution co-lead (Central/Eastern Europe); Western European partner co-lead
WG3	Heat, Health and Social Vulnerability	Harmonise heat-health surveillance methodologies; produce cross-national analyses linking heat exposure to health outcomes with explicit attention to social determinants and vulnerable population groups	ITC institution co-lead (Balkan/South-Eastern Europe); epidemiology partner co-lead

WG4	Governance, Policy and Urban Planning	Map and compare urban heat governance frameworks across COST Member Countries; co-produce transferable policy guidance and governance models with municipal and regional partners through structured stakeholder workshops	ITC institution co-lead (Central/Eastern Europe); urban planning partner co-lead
WG5	Dissemination, Capacity Building and Stakeholder Engagement	Coordinate all Training Schools, STSM and Virtual Mobility administration, open science outputs, policy communication, knowledge portal, gender and ECI monitoring, and stakeholder engagement across the Action	Action Vice-Chair with ITC co-lead; Gender Balance Coordinator embedded in WG5 leadership

4.2 Milestones

Milestones

ID	Milestone	Due
M1	Action kick-off meeting held; Management Committee constituted; all WG membership confirmed and initial WG work plans approved	Year 1 (Month 6)
M2	WG1 harmonised urban heat indicator framework agreed, peer-reviewed and published as open-access protocol document; adopted as shared baseline by WGs 2–4	Year 1–2 (Month 18)
M3	First Training School completed, co-organised with ITC institution; curricula and learning materials published open-access; participant statistics (ECI%, ITC%, gender) reported to MC	Year 1–2 (Month 18)
M4	WG2 systematic evidence synthesis and NbS typology manuscript submitted to peer-reviewed journal; WG3 harmonised surveillance protocol published; mid-term review report approved by MC and submitted to COST Association	Year 2 (Month 24)
M5	WG3 cross-national heat-health vulnerability maps deposited in FAIR-compliant open repository; WG4 comparative governance analysis report and first Policy Brief series (minimum 4 briefs) publicly available; at least 30 STSMs completed with 60% ITC involvement	Year 2–3 (Month 30)
M6	Final integrated urban heat adaptation guidance document for European cities published and disseminated to EU institutions, national authorities and city networks; all Action datasets, training materials and protocol documents	Year 4 (Month 48)

	deposited in persistent open repositories; final gender and ECI monitoring report submitted	
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4.3 Management and Risk

The Action is led by an Action Chair based at the University of Athens (Greece), supported by a Vice-Chair and a Science Communication Manager embedded in WG5. The Management Committee (MC) comprises one representative per participating COST Member Country, with the full MC meeting annually and an Executive Board - comprising the Action Chair, Vice-Chair, WG Leads, Gender Balance Coordinator and Science Communication Manager - meeting semi-annually and on an ad hoc basis as required. Strategic decisions are taken by the full MC by simple majority; operational decisions are delegated to the Executive Board. A Scientific Integration Group, comprising deputy leads from each WG, holds quarterly coordination calls to monitor cross-WG coherence and flag emerging integration challenges. Financial management and grant administration are handled by the host institution's research office in accordance with COST financial rules, with no research budget administered by the Action itself - all COST funding covers networking and coordination activities exclusively.

The Action's risk register identifies five primary risks with calibrated mitigation strategies. Risk 1 (Coordination load): the volume of management tasks across five WGs and multiple COST instruments risks exceeding the capacity of volunteer researchers. Mitigation: distribute coordination responsibility across WG co-leads; delegate STSM and event administration to WG5; build realistic timelines with buffer periods before all key milestones. Risk 2 (Stakeholder continuity): municipal contacts may change due to elections or administrative restructuring, disrupting co-production activities in WG4. Mitigation: establish formal Memoranda of Understanding with European city networks as institutional anchors rather than relying on individual contacts; maintain a diversified portfolio of at least ten city partners so that attrition of individual contacts does not jeopardise WG4 activities. Risk 3 (ITC participation barriers): financial and administrative barriers at ITC sending institutions may suppress STSM and Training School uptake. Mitigation: proactively promote all mobility instruments in ITC countries from Month 1; co-locate Training Schools in ITC institutions; provide pre-application guidance and simplified administrative support through WG5. Risk 4 (Disciplinary siloing): persistent disciplinary cultures may limit genuine cross-WG integration. Mitigation: programme mandatory joint cross-WG workshops annually; require all major deliverables to carry co-authorship from at least three disciplines; empower the Scientific Integration Group to propose corrective action. Risk 5 (Data governance constraints): national data protection regulations may impede the cross-border sharing of urban climate and health data needed for the WG1 atlas and WG3 vulnerability maps. Mitigation: conduct a data governance mapping exercise in Year 1; design all data products to accommodate partial or aggregated contributions; deploy federated analysis approaches where full data sharing is not legally permissible.