



Co-UDlabs First Call for Proposals

The overall aim of the Co-UDlabs H2020 European project is to integrate research and innovation activities in the field of urban drainage systems allowing the European stakeholders, academic researchers and innovators in the urban water sector to enhance their activity through a common research network that can provide coherence and access to high quality large scale research facilities, thereby building a collaborative European Urban Drainage innovation community. In Co-UDlabs, 17 unique 'field scale' urban drainage research facilities hosted by seven research organisations are included, aiming to offer the urban drainage innovation community high quality laboratory and field facilities, experimental and technical expertise and improved data sharing platforms. This EU funded access allows diverse groups to collaboratively work on key challenges of the urban water sector, and aids wider, faster and more effective uptake of innovative solutions in order to address pressing public health, flood risks and environmental challenges.

This First Call for Proposals is an invitation to all eligible user groups to submit a proposal for research projects to be carried out before July 2023 accessing Co-UDlabs unique facilities, with financial support from Co-UDlabs (see below for eligible costs). Transnational access will be provided to selected "user groups" (i.e., teams formed by different researchers and institutions) led by a "user group leader".

The facilities are based at 4 Universities (University of A Coruña (Spain), University of Sheffield (UK), INSA Lyon (France) and Aalborg University (Denmark)) with world-class urban water research groups, combined with 3 leading national research institutes (Deltares (Netherlands), EAWAG (Switzerland) and IKT (Germany)). The experimental facilities are designed for research across a range of disciplines, including urban flooding, runoff pollution, physico-chemical and biological in-sewer process, sustainable urban drainage systems (SUDS), performance analysis of urban assets (including SUDS), real time control and asset deterioration. New digital water technologies and solutions for the monitoring and evaluation of these processes are also analysed in the framework of the project. More information on the research facilities and the facility providers is available on www.co-udlabs.eu/access/research-facilities.

Eligible costs

Full costs associated with transnational access (TA) to any of the research facilities are provided and include logistical, technological and scientific support as well as specific training (see below). Associated accommodation and travel costs of user groups are also covered by a *per diem* allowance, and they will be reimbursed according to the internal rules and procedures of the facility provider, as long as the total costs do not exceed the total available budget. Estimated days of access and number of travels for each research facility can be consulted on www.co-udlabs.eu/access/research-facilities.

Support from facility providers

Supporting scientists and technicians from the facility providers will provide full access to the research facilities (physical and knowledge-based) to undertake breakthrough scientific/engineering research and innovative projects. Local teams will help in the preparation of each visit and at least one research assistant and/or laboratory technician will be dedicated to the service of the granted projects. Expert scientific and technical staff will also support user groups during the visits and also act as a local point of contact for logistical queries. Meetings to discuss the progress of the research and exchange of

ideas and proposals will be held to improve the quality and the impact of each access. Specific instrumentation and support services from each facility provider and laboratory capabilities can be consulted to facility providers during the preparation of the proposals and are available on www.co-udlabs.eu/access/research-facilities. The common supported offer under all the facilities include:

- An introducing webinar, a workshop, and a hackathon are planned during the call to foster multi-institutional and multi-sectoral user groups and support the preparation of the proposals in feasibility and scientific terms.
- Preparatory aspects of the visit: web-meetings, on-line training if needed, administrative forms and documents for authorization of access to the organizations and to the facilities.
- Logistical support for local travel.
- Specific on-site training if needed.
- Preparation of the experimental set-up and guided supervision.
- Management of Health and Safety.
- Data collection and data analysis of the different monitoring equipment.
- Access to laboratory facilities and experimental areas for calibration of the equipment and performing, when relevant, conventional wastewater determinations (turbidity, pH, EC, temperature, solids, BOD, COD).
- When relevant, access to non-conventional pollutant determinations to be defined in the description of the proposal.

Modalities of access

Access will be provided according to either one of the following modalities:

- **In-Person Access** (hands-on). This modality has been designed for the access to the main laboratory facilities. The presence of at least one member of the user group is required during the whole period of the access. The visit of approximately 5 additional researchers at different stages of the project is also expected (e.g. configuration, installation and/or operation of specific equipment, supervision). Access duration ranges from 15 to 60 work days (from 3 weeks to 3 months)
- **Partially Remote Access**. The presence of the user group is required at some stage of the access period (e.g. installing and un-installing user's equipment or configuring the facility). This modality of access is intended for mid- and long-term performance monitoring of processes, typically 2-9 months, which depends on external non-controlled factors (e.g. rainfall). During the development of the experiments, the facility owner will devote resources for maintenance and control the experiment, and to transfer the gathered data to the user group. The visit of about 3 researchers is expected during the different stages of the project (configuration or deployment of equipment at the beginning of the project, during the experiment or at the end to uninstall or disassemble). The estimated in person access time is from 10 to 20 work days, depending on the facility.

Conditions of access









Details on the conditions for eligibility can be consulted in the rules and conditions document available on www.co-udlabs.eu/access/ta-call. User groups must satisfy the following conditions:

- It is possible to apply from all over the world, but user groups where all or most users work in third countries (defined as not EU or Associated country according to EU H2020 rules) can be supported as far as the cumulative access provided to them is below 20% of the total amount of days of access provided under the grant.
- The total amount of researchers from Co-UDlabs partners may not exceed 1/3 of the total number of researchers in the user group.

- Both the user group leader and the majority of the user group members must work in a country other than the country where the facility is located.
- Only user groups that are allowed to disseminate the results they have generated under the action may benefit from the access, unless the users are working for SMEs.
- The user group members should normally not have access to a similar facility.

Application process and key days

October 2021							November 2021							December 2021							January 2022						
M	Tu	W	Th	F	Sa	Su	M	Tu	W	Th	F	Sa	Su	M	Tu	W	Th	F	Sa	Su	M	Tu	W	Th	F	Sa	Su
				1	2	3	1	2	3	4	5	6	7			1	2	3	4	5						1	2
4	5	6	7	8	9	10	8	9	10	11	12	13	14	6	7	8	9	10	11	12	3	4	5	6	7	8	9
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25	26	27	28	29	30	31	29	30						27	28	29	30	31			24	25	26	27	28	29	30
																					31						

Phases of the call:							Activities:						
	Oct-Dec 2021 Proposal preparation phase							13/10/2021 Introductory Webinar					
	Jan 2022 Final proposal submission phase							31/10/2021 Open first call for proposals					
	31/11/2021 Deadline for requesting feedback from draft proposals							03/11/2021 & 04/11/2021 IKT Workshop					
	31/01/2022 Deadline for final proposal submission							23/11/2021 & 25/11/2021 Hackathon					

The proposals will be evaluated by May 2022, and we expect the first TA project by September 2022. The projects of the first call have to be finished by July 2023.

Proposal preparation phase:

Co-UDlabs will organize specific supporting activities to introduce Co-UDlabs first call for TA and foster the creation of multidisciplinary user groups and draft proposals. These supporting activities are recommendable to user groups in order to Co-UDlabs requirements. An **Introductory Webinar** has been held on **13th October** within **Delft Software Days**. It has featured a presentation of the Co-UDlabs project and a discussion between attendees and facility providers so that they have given more detailed information on the services and potential uses that can be carried out within the scope of Co-UDlabs. The recording of the webinar is available [online](#) to be consulted. The main topics of Co-UDlabs project will be developed in more depth in the **IKT Co-UDlabs Workshop** on **3rd and 4th November**.

The Webinar and the Workshop will have continuity through a 2-days **Hackathon (23rd and 25th November)** designed to help define 'pre-project' proposals aiming at solving pre-existing issues and/or research questions that affect urban drainage via solutions that take advantage of the services and facilities offered. The time available between the introductory webinar and the Hackathon should be used to both develop early ideas and consolidate the user groups, teams, and consortia which will apply to take part in the Hackathon. At the end of the Hackathon, the best proposal draft will be selected and awarded with a few days visit to the requested facility with the aim of improving the final project proposal.

These support activities are recommended for user groups so that projects meet Co-UDlabs requirements but are not mandatory for requesting feedback or submitting a proposal. Facility providers are also available through Co-UDlabs contact form available on www.co-udlabs.eu/facility-contact-form/ to advise users with respect to technical constraints, feasibility or eligibility conditions

and provide additional information about specific support. The deadline for requesting feedback from draft proposals is 31st December in order to ensure a timely response.

Final proposal submission phase:

Final Project proposals should be uploaded via the website using the available templates on www.co-udlabs.eu/access/ta-call **before 31 January 2022 at 17:00 (CET)**. The following items are required:

- Application form including title of the project, user group leader information, requested facility, access days and preferred dates for conducting the project.
- Project proposal: not exceeding 4 pages including text, references and figures, with the following sections:
 - o Excellence of the proposal, including a brief state of the art and general description of the project highlighting the effectiveness of the research approach and its fit with the main themes of Co-UDlabs, the quality of the proposal and its novelty in the field of urban drainage, and the suitability of the composition of the team to carry out the proposal.
 - o Impact of the expected results with a Project publication plan and a Project data storage plan focused on the dissemination of the results for the European Urban Drainage Community.
 - o Potential for academic or industrial innovation considering end-user applications of the expected project results and the possible further development of the research line outside the facility once the transnational access is completed
- Methodology and access plan: required research facility and equipment, technical details and specifications of the planned experiments, necessary modifications or adaptations of the facility setup, the estimated number of access days, and the number and duration of visits should be included. The document should contain technical details and specifications to aid the facility providers in assessing the project's feasibility (2 page maximum).
- User group CV: composition of the user group, 1 page CV of the user group leader and 1 page CV common to all members per institution involved.

Evaluation and selection procedure

Proposals for TA projects will be received by the Co-UDlabs Project Coordinator, who will check their eligibility in accordance with the rules and conditions of the present call (available on www.co-udlabs.eu/access/ta-call). Please note that proposals exceeding the size requirements, not using provided templates or received after the deadline cannot be considered by the Evaluation Panel. The eligible proposals will be then reviewed by the requested facility provider to check their feasibility. After the feasibility check, the applications will be sent to an External Evaluation Panel (EEP), that will be composed of international independent scientists and end-users. Facility providers will have only an advisory role during the selection procedure. The EEP members will be responsible for independent evaluation of the access projects using the following selection criteria:

- Feasibility and Eligibility (yes/no)
- Excellence of the proposal (weak: 0 – outstanding: 10)
- Impact (weak: 0 – outstanding: 5)
- Potential for academic or industrial innovation (weak: 0 – outstanding: 5).

During the evaluation phase, user groups composed of members from a wide range of institutions, and different work countries, will be positively considered. Representation from the non-academic sector within user groups is also encouraged. If two proposals have the same rating, the number of

new users (defined as those who have not been granted in previous Co-UDlabs Transnational access call and those who have not already had access to the requested facility beyond the scope of the project) and female users will be considered when making the selection. The user group leaders of the granted projects will be informed of the outcome and re-directed to facility providers to coordinate the access and sign the User Facility Agreement. In case of non-acceptance, the applicants will be informed by mail with a summary of the comments made by the EEP and their rank. Where appropriate, the report will also include recommendations and suggestions for improvement and resubmission of a new proposal for the second call for projects scheduled for 2023.

Appendix I: List of providers and facilities

Co-UDlabs has been designed to offer a range of complementary research infrastructures to cover the entire range of urban drainage systems processes: rainfall-runoff, surface wash-off, wastewater collection systems and their interactions with urban surfaces and soils, and the operation of ancillary assets such as pumping stations CSO infrastructures and Sustainable Urban Drainage Systems. Co-UDlabs provides access to the following research infrastructures and facilities (further details can be consulted on www.co-udlabs.eu/access/research-facilities):

University of A Coruña

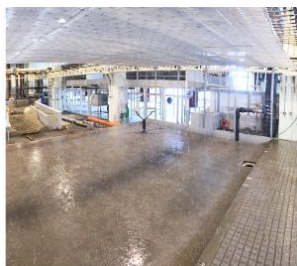
A Coruña (Spain)

<https://www.udc.es/citeec/hidraulica-en.html>



1:1 scale street surface model (STREET)

In-Person Access



- Full scale model of a 36 m² street section (including buried drainage pipes) for studying rainfall processes, street flooding pollutant runoff and in pipe pollutant transport.
- Controllable rainfall is generated. Measurement capabilities include: Large-scale Surface Particle Image Velocimetry (LSPIV), online monitoring and automated sampling for sediments and other pollutants. Surface and inlets can be re-configured.

Scientific platform for urban runoff tests (BLOCK)

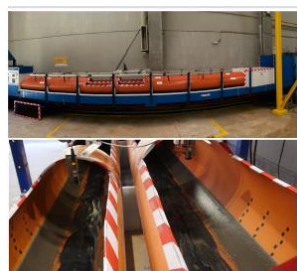
In-Person Access



- 100 m² rainfall simulator model with 1:4 scale model of an urban intersection for studying rainfall-runoff and the transport of pollutants on surface and in the drainage network. Controllable rainfall is generated.
- LSPIV system, online and automated monitoring and sampling procedures for sediments and other pollutants.
- Surface and inlets can be re-configured. 4 buildings models can be utilized to analyze different roof configurations, including green roofs.

Bens waste water flume facility (BENS FLUME)

In-Person Access



- Hydraulic flume (10 m length and 0.8 m width flume), variable slope and adjustable downstream boundary condition, can be internally re-configured with pipe sections.
- Wastewater can be routed through used in the facility, making the flume unique at the international level. Online probes (turbidity, absorbance), acoustic velocimetry, auto-samplers for collecting quality samples, with chemical and microbiological analysis capabilities.

University of Sheffield

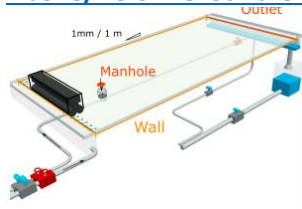
Sheffield (UK)

<https://www.sheffield.ac.uk/civil/water>



The University
Of
Sheffield.

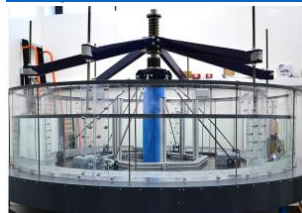
Above/Below Ground Urban Drainage Facility (A/B FLUME)



- System comprises of a 75 mm pipe below a 4 m x 8 m surface model to simulate/characterise interaction of underground drainage and surface flows. LSPIV and automated solute concentration measurement. Steady and unsteady events can be re-produced
- Adaptable system, re-configurable to different street/building layouts.

In-Person Access

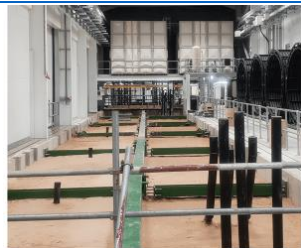
Temperature controlled Annular Flume (ANNULAR)



- The annular flume is a unique facility in that we are able to operate it with wastewater to study microbial and biochemical processes that would be found within a sewer, under different environmental (temperature and nutrient) conditions at pilot scale.
- Advanced chemical and molecular microbiological analysis is available.

In-Person Access

Full Scale Buried Water Infrastructure Test Facility (BURIED FACILITY)



- This is a facility to study buried urban drainage infrastructure. It consists of a 45m x 6m x 5m test tank, that can be split into sections in which different buried drainage infrastructure can be created at full scale and subject to surface/pressurized flows, groundwater flows, surface loadings and pollution.
- Full scale asset performance can then be studied and the interactions between different pressures on asset performance and deterioration can be determined.

In-Person Access

Real Time Control Testing Facility (RTC Rig)



- Full scale system with three linked manholes and a CSO chamber. Flow monitoring and control is installed.
- Allows planned, systematic testing of Real Time Control RTC strategies and control systems under different hydraulic regimes.

In-Person Access

Deltares

Delft (The Netherlands)

<https://www.deltares.nl/en/facilities>



Alpha-loop (A-LOOP)



- Full scale three-phase capable pressurized pipeline. Combined with the measurement expertise at Deltares provides a unique observation platform for gas, water and sediment interaction and transient flow and thermal phenomena in a simulated pressurized sewerage transport network.

In-Person Access

Beta-loop (B-LOOP)



- Unique full-scale pipeline for the study of non-Newtonian slurry flows in pressurized networks.
- This facility can serve to control and investigate rheological conditions in concentrated domestic slurry transport systems.

In-Person Access



EAWAG

Dübendorf (Switzerland)
<https://www.eawag.ch>



Experimental Hall–recirculating flume (HALL)

In-Person Access



- The experimental hall is a 500 m² test facility for urban drainage and process engineering experiments. It has a fixed installation of flume facilities (4 m length), which allow for temperature-controlled experiments with live raw and (pre) treated wastewaters as well as surface waters.
- The facility is equipped with autosamplers and various flow and level meters, as well as online sensors to monitor water quality (temperature, pH or EC, acoustic turbidity).

Urban Water Observatory – Digital Lab (UWO)

Partially Remote Access



- The UWO digital lab is a unique field site because of the high density of quantity and quality sensors (+80) in a real sewer combined network.
- Calibrated hydrodynamic network model with historical rainfall data. Historical pesticide datasets from online LC-MS-Mass spectrometer.

IKT

Gelsenkirchen (Germany)
<http://www.ikt-online.org/>



IKT Large Test Facility (IKT LTF)

In-Person Access



- Large Scale Test Facility is a large flume of 18 m x 6 m x 6 m designed to study urban drainage assets (pipes, manholes, gully pots) at full scale under replicable soil, groundwater and traffic load conditions.

IKT Hydraulic Test Stand (IKT TEST)

In-Person Access



- Modular facility with a water transport/circulation system for testing hydraulic capacity of full scale pumps, throttles, gullies, DIBt (<https://www.dibt.de/en/>) accredited test stand for decentralized stormwater treatment plants.

INSA

Lyon (France)
<http://deep.insa-lyon.fr/>



Green ROOF experimental Facility (GROOF)

Partially Remote Access



- GROOF is an experimental facility with 6 green roof platforms (3x3 m). The platforms allow comparative mid- to long-term hydrological performance assessment of various green roof configurations. A complete weather monitoring station is installed. Specific outflow and evaporation measurements are also available.
- GROOF is highly flexible and adaptable (green roofs can be re-configured).

Django Reinhardt detention and settling basin (OTHU-DRB)

Partially Remote Access



- The Django Reinhardt detention and settling basin is a “end of pipe” facility that enables to intercept up to 80 % of stormwater particulate pollutants.
- LSPIV is available. Users can implement sensors for quantity and quality measurements at the inlet and outlet of the basin. Historical data collected during 15 years are also available. It is also possible to investigate trace metal sediment contamination.



OTHU SuDS research facilities (OTHU SuDS)

Partially Remote Access



- OTHU SuDS include a porous pavement car park (90 m²), a swale (290 m²) and an infiltration trench (240 m²). Event-based rainfall, flow rate and micropollutants data have been recorded during 4 years. The facility allows the installation of new sensors.

University of Aalborg

Aalborg (Denmark)

<https://www.aau.dk>



Frejlev research station (FREJLEV)

Partially Remote Access



- Frejlev research and monitoring station receives combined and separated sewage water from the urban city Frejlev. The city has around 2800 inhabitants and consists primarily of residential areas.
- Inline access to a continuous flow of sewage water and full list of water quality equipment allow conducting unique wastewater process research.

Appendix II: European Community and associated States list

This appendix is an orientative list of countries that have no restrictions on access to research facilities based on the Horizon 2020 Regulation. In case of any conflict with the H2020 Regulation¹, the latter shall prevail.

Albania	France	Moldova
Armenia	Georgia	Montenegro
Austria	Germany	Netherlands
Belgium	Greece	North Macedonia
Bosnia & Herzegovina	Hungary	Norway
Bulgaria	Iceland	Poland
Croatia	Ireland	Portugal
Cyprus	Israel	Romania
Czech Republic	Italy	Serbia
Denmark	Latvia	Slovakia
Estonia	Lithuania	Slovenia
Faroe Islands	Luxembourg	Spain
Finland	Malta	Sweden
Switzerland	Turkey	United Kingdom
Tunisia	Ukraine	

¹https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-a-countries-rules_en.pdf
https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/3cp/h2020-hi-list-ac_en.pdf
https://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/international-cooperation_en.htm#support-non-eu-countries

