BRIGAID

Stocktaking Report WP2-4

Deliverable 2.4: Stocktaking report of 3th Innovation Cycle including the selections for WP2, WP3 and WP4

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- The innovators mentioned in this report

Preface

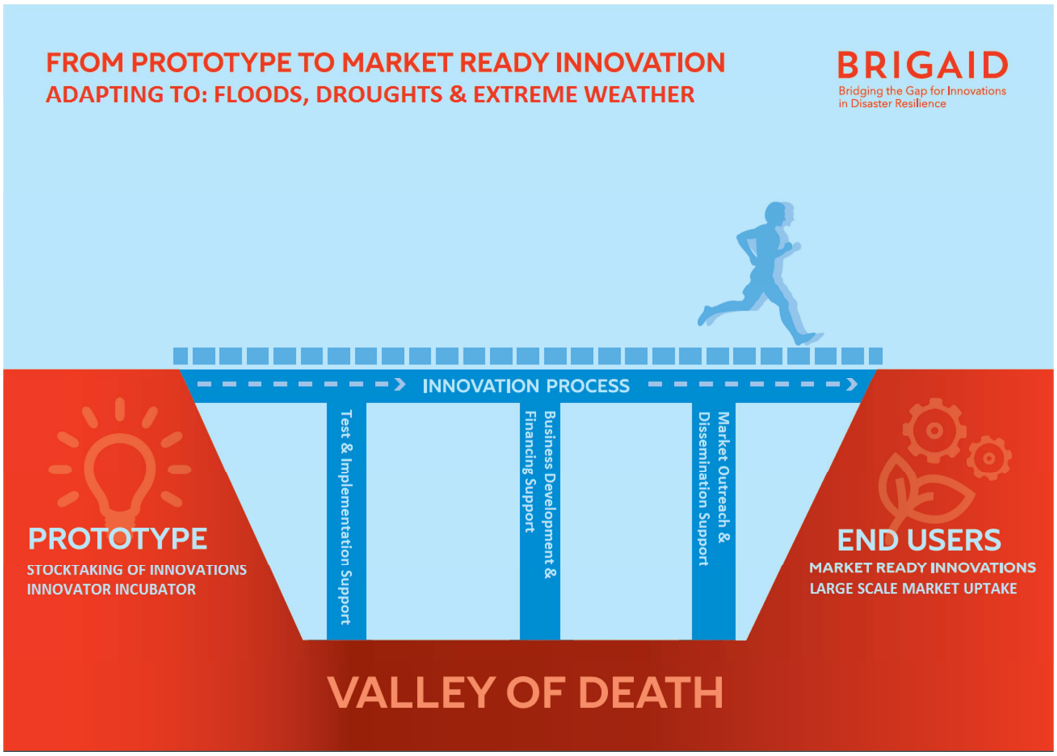
Identification and selection of innovations within the first and second innovation cycles (C1 and C2) have previously been reported in separate deliverables: D2.1, D3.1 and D4.1 for C1, and D2.2, D3.2 and D4.2 for C2. Since stocktaking is a joint effort of WP2 (Floods), WP3 (Droughts) and WP4 (Extreme weather) the content of these three deliverables was identical. To further streamline this the current report presents the results from the third innovation cycle (C3) in a single report, which is uploaded in the EU portal as D2.4.

Table of Contents

Chapter 1: Introduction

Background: BRIGAID's objectives

Studies from the IPCC indicate that Europe is particularly prone to risks of river and coastal floods, droughts resulting in water restrictions and damages from extreme weather events such as heat waves and wildfires. Evidence is now ever stronger that damages from these natural hazards will increase. Evaluations also show a huge potential to reduce these risks through adaptation strategies. Although there is no lack of research institutes and entrepreneurs such as start-ups that develop innovative solutions, only 6% of the European companies are capable of testing and demonstrating their innovations. Many fail to complete the innovation development cycle due to a lack of resources in terms of funds, knowledge of testing and networks to engage with end users and investors early on.[(1)] BRIGAID aims to help innovatiors to overcome these limitations by bridging this gap that is sometimes also referred to the valley of death (see Figure 1).



[1] European Commission (2013). Commission staff working document, Impact Assessment - Part 1. Accompanying the document Communication from the commission to the European Parliament, The Council, the European economic and social committee and the Committee of the regions. An EU Strategy on adaptation to climate change.

Figure 1. BRIGAID's conceptual approach with three types of support for innovations.

This 'gap' refers to a combined lack of methodologies and support that are needed to turn already existing innovations into complete and market ready products. **BRIGAID's ambition is to provide structural, ongoing support for innovations in climate adaptation by developing an innovative mix of methods and tools, that should become a standard for climate adaptation innovations. To achieve this, BRIGAID follows a 2-layered approach:**

- First, BRIGAID's unique mix of methods and tools consists of three elements; 1) a framework that evaluates the effectiveness of innovations and the organizational and governance requirements, 2) a business development and financing model for climate adaptation innovations and 3) an online interactive platform that presents innovations and connects innovators, end users, qualified investors, and grants and fiscal incentives advisors throughout Europe.

- Second, these methods and tools are validated in the project by reviewing 75-100 promising innovations on floods, droughts and extreme weather, improving the 35-50 most promising ones, and bringing the top 20-30 innovations with the highest socio-technical and investment readiness to the market.

Why Stocktaking?

BRIGAID consortium partners work on the improvement of their own innovations throughout the project. To maximize BRIGAID's impact, project partners will perform regular stocktaking with the aim to identify and select additional innovations from ***outside*** the consortium for support in reaching the market (which refers to layer 1). Moreover,through stocktaking BRIGAID enables to test the methods and tools on a wide range of innovations to find a standard for developing climate adaptation innovations (which refers to layer 2).

BRIGAID comprises three overlapping innovation cycles (Figure 2). Within these cycles, innovations are selected, validated and demonstrated, and launched to the market. Stocktaking is performed at the start of each innovation cycle. Stocktaking means that BRIGAID identifies promising innovations in climate adaptation, and consults with the owner(s) whether further improvement within BRIGAID is expedient and desirable.

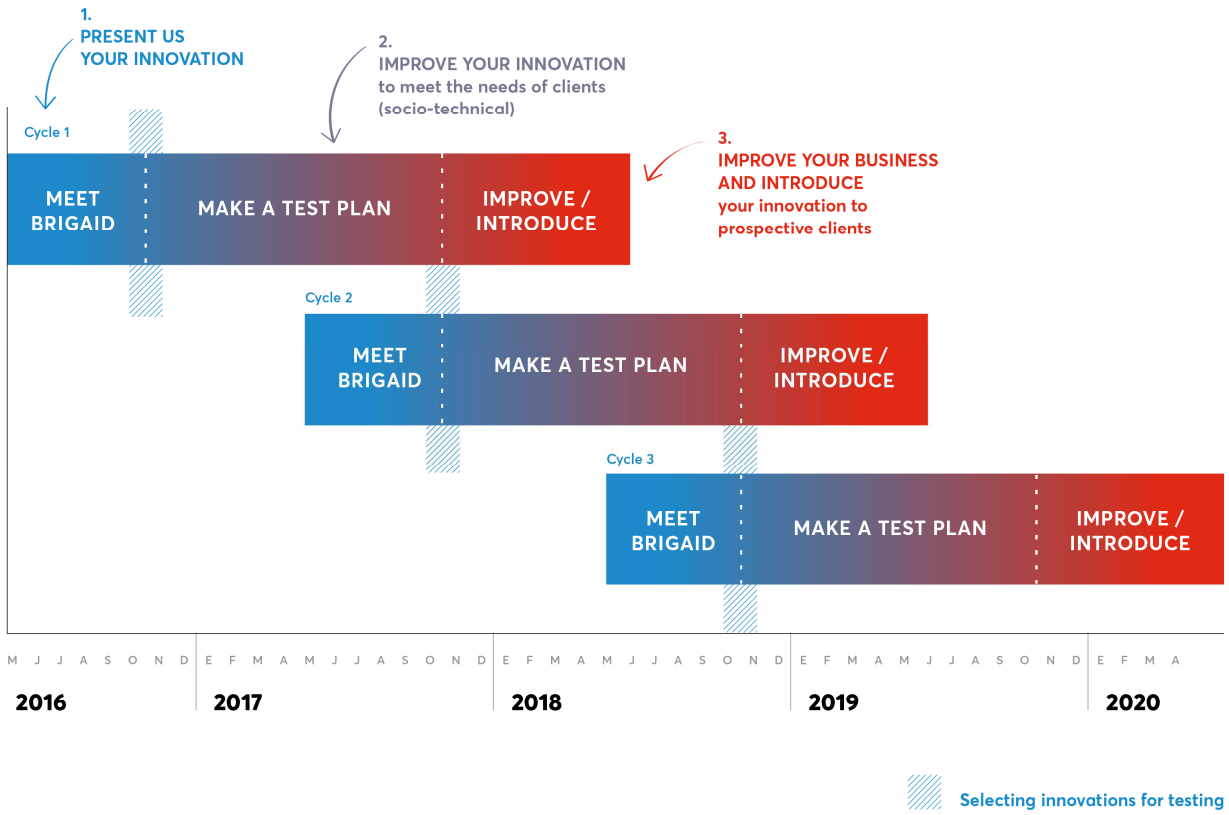


Figure 2. The three innovation cycles with stocktaking ("meet BRIGAID") at the start of each cycle.

Targets for stocktaking

Table 1 presents the targets for stocktaking. BRIGAID strives to describe 75-100 innovations over the course of the project (3 innovation cycles), and select 35-50 for testing, validation and demonstration. So, per innovation cycle at least 25 (75/3) will be described and 12 (35/3) will be selected for testing and improvement.

In each cycle, these numbers reflect a mix of innovations from consortium partners and non-consortium partners. The share of innovations from consortium and non-consortium partners will vary over the three innovation cycles. In Cycle 1 (C1), most identified innovations will come from consortium partners. In Cycle 2 (C2) and Cycle 3 (C3) a larger share will enter BRIGAID through stocktaking. These numbers will be updated during each of the three stocktaking phases (see Chapter 5 for an update after the stocktaking phase of Cycle 3).

Table 1. Target contribution of the stocktaking process in BRIGAIDs overall goals.

	total	**average per cycle**	Cycle1	Cycle2	Cycle 3
Identification for description Identify innovations (TRL4-8) on floods, droughts and extreme weather	**75-100**	**25-33**			
Consortium partners	±30	±10			
Stocktaking	45-70	15-23			

Selection for testing Select the most promising innovations for further testing, validation and demonstration	**35-50**	**12-17**			
Consortium partners	±25	±8			
Stocktaking	10-25	3-8			

Scope of this report and reading guide

This report explains the methodology for stocktaking innovations from outside the consortium, and reports the results for the *third* innovation cycle (C3). For a clear and complete overview, we also include the innovations from consortium members that will be tested in C3. In addition we present the overall picture of all three cycles. The report is structured as follows:

- Chapter 1: Introduction
- Chapter 2: Stocktaking methodology
- Chapter 3: Identified innovations in Cycle 1 and 2
- Chapter 4: Selected innovations in Cycle 3
- Chapter 5: Innovations in Climate Innovation Window
- Chapter 6: Lessons learned

Chapter 2: Stocktaking methodology

Which innovations are eligible?

BRIGAID aims to bring existing innovations (from European companies) to the market and therefore focuses on improving existing innovation prototypes that reduce risks of floods, droughts and/or extreme weather events (see Table 2). These innovations can be a fixed or mobile structure, a software-IT product, or a methodology. An 'existing innovation' means that at least a prototype should be available. On the *Technological Readiness Level* (TRL) scale a prototype should at least have reached TRL 4, which means that separate components have been put together and the first complete innovation prototype has undergone basic functional tests to evaluate its performance. A complete overview of TRL levels is provided in Appendix 1.

Table 2. Definitions of floods, droughts and extreme weather used within BRIGAID. Definitions based on the European Environment Agency (2010).[2]

Hazard type	Definitions adopted in BRIGAID
Floods	• Coastal floods resulting from high sea water levels and wave impact that exceed flood protection levels; these hydraulic conditions are caused by storm surges. • River floods resulting from discharges that exceed flood protection levels; the high-river discharges are caused by heavy precipitation in the river basin. • Other types of floods are classified under extreme weather events (see below)
Droughts	• A sustained and extensive occurrence of below average water availability, whether atmospheric, surface, or ground water caused by climate variability. Droughts can result in water scarcity when the drought conditions cause long-term imbalances between water availability and demands.
Extreme weather	• Heatwave: a prolonged period of excessively hot, and sometimes also humid, weather relative to normal climate patterns of a certain region. • Wildfires: an uncontrolled fire in an area of combustible vegetation that occurs in the countryside. Fire ignition and spread are both enhanced by cumulated drought, high temperature, low relative humidity and the presence of wind. • Storms: natural events characterised by strong winds, often in combination with heavy precipitation (e.g. heavy rainfall, hail, etc.). • Heavy precipitation: rainfall events that result in 1) (urban) floods due to exceedance of drainage capacity, and 2) flash floods, defined as rapid flooding of low lying areas, generally within a few hours after a heavy rainfall events such as thunderstorms.

[2] European Environment Agency (2010). Mapping the impacts of natural hazards and technological accidents in Europe. An overview of the last decade. EEA Technical report No 13/2010.

Overall workflow for stocktaking

The flow chart in Figure 3 depicts the workflow for stocktaking. The process is organized into 3 stages: 1) dissemination and recruitment, 2) description and dialogue, and 3) selection.

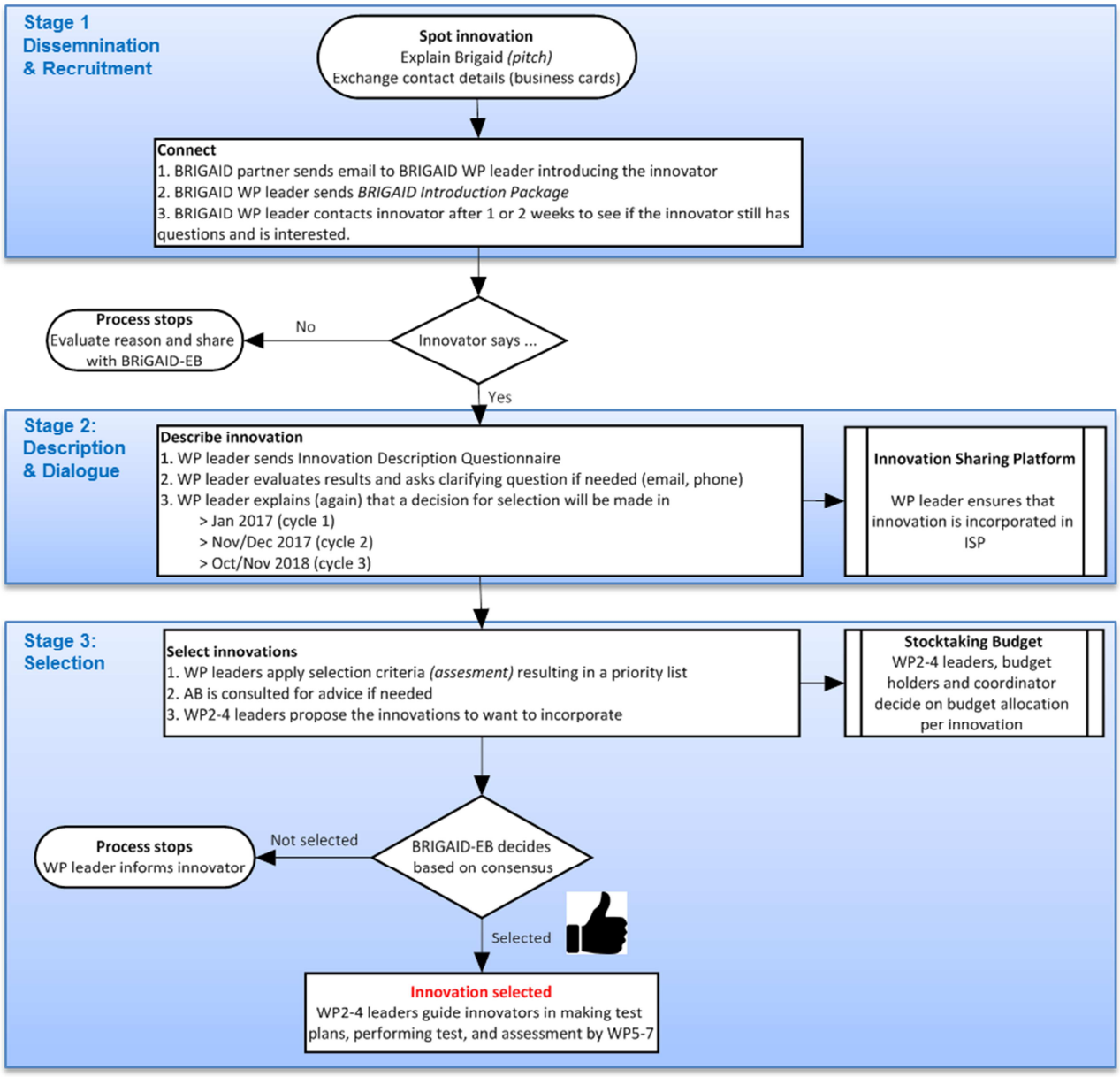


Figure 3. Flow chart showing the stocktaking process. AB = Advisory Board, EB = Executive Board, ISP = Innovation Sharing Platform which has been renamed Climate Innovation Window (www.climateinnovationwindow.eu), WP = Work Package.

Stage 1: Dissemination and recruitment

Stage 1 consists of identifying/detecting an innovation, capturing the attention of the innovator and connecting him/her to the project. Innovations on floods (WP2), droughts (WP3) and extreme weather (WP4) are identified by all BRIGAID partners.

The project coordinator (DUT) and WP2-4 leaders (HKV, FW, KUL) have a special responsibilty to connect with organizations and networks. BRIGAID distinguishes four main target groups on various geographical scales (Figure 4) . BRIGAID partners approach these target groups based on existing contacts, proximity and responsibility. Innovators (home country and/or abroad) and regional/local technology centers and incubators are contacted by all partners, while the contact with EU sister projects or innovation platforms/partnerships/clusters is lead by BRIGAID’s coordinators and WP leaders. An extensive list of these target groups is internally available through BRIGAID’s Sharepoint.

Partner	WP leader	WP2	WP3	WP4
1. DUT	Coordinator	●		●
2. HKV	WP2 leader	●	●	●
3. FW	WP3 leader		●	
4. KUL	WP4 leader			●
7. UNIBO		●	●	
8. DAPP		●	●	
9. THETIS		●		
11. MIGAL			●	
12. AQUA/APA		●	●	
13. ICA		●	●	●
14. NTPA		●	●	●
15. GRED				●
16. SPECTRUM		●		
17. UCL				●
18. ISA			●	●
19. GIFF				●
21. NAAR		●		
22. UTCB		●	●	

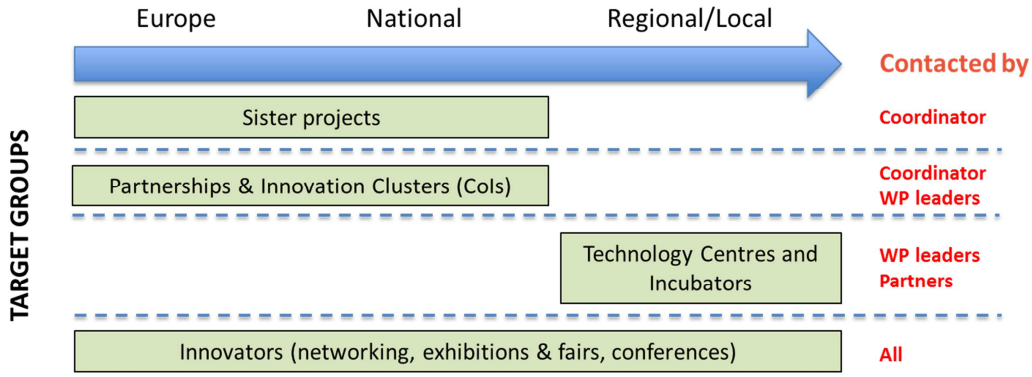


Figure 4. Partners involved in the stocktaking process (upper left table), target groups for stocktaking (lower picture) and examples of target groups (upper right picture).

The following means support this process:

- A set of online videos of 1-minute of duration which pitch on BRIGAID and how it can help innovators in testing and improving their solutions. These videos are already available through a youtube channel generated for the project (https://www.youtube.com/channel/UCBcKUIF5Wh5Dlg2I3o0cy2A)
- The website BRIGAID.eu explains the project to different target groups. The page http://brigaid.eu/new_engage-as-an-innovator/ explains how BRIGAID supports innovations and how an innovator can get involved in the project;
- Uniform messages through research and social networks (ResearchGate, LinkedIn, Twitter: @brigaid_eu);
- The email address climate-innovation@brigaid.eu has been established for interested innovators. Incoming emails are handeld by WP2-4 leaders;
- The Innovator Welcome Pack (see Appendix 5) has been prepared and sent to interested innovators. It explains in more detail what BRIGAID offers and what it asks from innovators, and how the different steps are being organized.

Stage 2: Description and dialogue

During C1 innovators were asked to fill out an Innovation Description Questionnaire with 40 items. At the end of C1 it was concluded that this survey was too long and had questions not always relevant given the development phase of the innovation. The survey has been redesigned and a two-step approach has been adopted for C2 and C3. This new scheme consists of:

- The *Climate Innovation Window* Questionnaire (see Table 3). This is a short questionnarie consisting of 14 items aiming to provide a general description of the innovation. The items of the questionnaire are based on Waterwindow (see www.waterwindow.org), which forms the basis for the BRIGAID *Climate Innovation Window*. After the innovator and BRIGAID both agree that the provided information is sufficient and correct, the data is published in the online platform. The complete questionnaire is included in Appendix 2.

- The Innovation Selection Questionnaire (see Table 4). This survey is filled out only by innovators who wish to receive further support from BRIGAID. The survey captures information required to score the innovations on Technical, Social and Market Readiness, and on the extent to which the innovation is promising, the testing is feasible, and the innovator has a clear vision for making progress. The complete questionnaire is included in Appendix 2.

Table 3. Structure of the *Climate Innovation Window* Questionnaire

Section	Items surveyed
Characteristics	Name and short title, brief description, contact information
Hazard and Topic	Type of hazard scoped, topic scoped
Specific information	Innovation functioning, added value or relevant features, technical limitations
Technology Readiness Level	TRL, TRL justification
Dissemination material	Price (purchase or rental), innavation picture, company logo, additional material or web links
Support	Support requirement, innovation updates

Table 4. Structure of the Innovation Selection Questionnaire.

Section	Items surveyed
Introduction	Name, vision & typology; Short description; Hazard(s) mitigated; Innovator contact details
Innovation technical readiness and testing feasibility	Testing design (features to be tested or optimized, short description of the testing plan, testing location and facilities, testing costs)
Innovation social readiness	Level of involvement of end-users, identification of social barriers, actions already adopted or plan to be adopted to cope against social barriers
Innovation maket readiness	End-user and customer identification, current status market and business plans
Innovation impacts	Innovation's added value, impacts on environment
Innovator's vision	Development and market outreach strategy

During the process, WP2-4 leaders guide the innovators and answer the questions that may emerge. At the same time, WP2-4 leaders check the quality of the responses and, if required, invite innovators to solve inconsistencies or information gaps.

Stage 3: Selection procedure

The selection procedure is a two-stage process.

- Pre-selection: based on the information from the Innovation Selection Questionnaire a multi-criteria assessment is performed and the innovations are ranked and shortlisted
- Final selection: pre-selected innovators are requested to submit a test proposal (format provided by BRIGAID) including a specification of the required test budget, which is approved or declined by BRIGAID.

Pre-selection

From the registered innovations, BRIGAID selects the most promising innovations for further testing and improvement. This is done at the end of the stocktaking phase by rating the innovations on the following criteria:

1. Readiness. Three components are evaluated, i.e. technical, social and market readiness;
2. Qualitative criteria: Testing feasibility, Innovator vision, and Promising value;
3. Green components or nature-based solution.

Innovations receive 1 (min) to 5 (max) points on the Readiness criteria and 1 (min) to 3 (max) points on the other Qualitative criteria. The resulting "Grey Score" therefore ranges from 2 (1+1) to 8 (5+3) points. Innovations that have green components or are nature-based receive a bonus of 10% or 25%, respectively, on top of the Grey Score. So, the resulting "Green Score" ranges from 2 to 10 points (8*1,25).

Initial scoring is performed by one WP leader (WP2 leader for flood innovations, WP3 leader for drought innovations, WP4 leader for extreme weather innovations). These three WP leaders compare and discuss the scorings of all innovations in detail to prevent inconsistencies in the application of the criteria and scoring. If needed, scores are adjusted. The result of this process is then submitted to the Executive Board for a last round of questions and comments. If no objections are raised, the scores are approved

The innovations are subsequently ranked from high to low. Innovations that obtained a Grey Score lower than 5 were not considered for further support (in C1 the cut off was applied to the Green Score; applying the cut-off to the Grey Score prevents that too immature or low quality innovations enter BRIGAID). WP2-4 leaders contact the innovators to explain the outcome of the scoring.

Final selection

Pre-selected innovators are then requested to complete a Testing and Budget Proposal form in which testing activities, and budget and ethics requirements need to be specified (see Appendix 3). Testing proposals need to show that tests will lead to a significant improvement of the innovation's readiness, and are practically feasible (test location, required budget, complexity, etc). Based on the green score and the detailed information reported in the testing proposal, the Executive Board makes a final decision on which innovations are finally selected, and how the stocktaking budget is allocated among the selected innovations. This could be all shortlisted innovations or a sub-set. If needed, the Advisory Board may be asked for advice. The budget allocation is then specified in a standardized contract developed by the stocktaking budget holder (ISA in this Cycle 3) and is finally signed by budget holder and the innovator.

The complete method including an explanation of the criteria, the scoring and calculation of the "Grey" and "Green" scores is described in detail in Appendix 4.

Chapter 3: Identified innovations in Cycle 1 and 2

This chapter describes the innovations that have been identified and formally registered during the first, second and third stocktaking cycles. The list comprises innovations from BRIGAID consortium partners and non-consortium partners. The latter group enters the project through the stocktaking procedure described in the previous chapter.

Goal versus realization

As shown in Table 5, 28 innovations were identified in Cycle 1, 51 innovations in Cycle 2, and 46 innovations in Cycle 3. Of the 46 Cycle 3 innovations, 3 are from consortium partners and 43 are from external partners (stocktaking). The total number of innovations after three innovation cycles has therefore reached 125.

These figures are in line with the (average) number of innovations per cycle that was aimed in the project. Comparing these numbers to the project KPIs shows that the lower bound of 75-100 innovations was already reached after Cycle 2 (79 > 75 innovations), and the upper margin was exceeded in Cycle 3 (125 > 100 innovations).

Because the stocktaking strategy, methods and communication material was already available at the beginning of the second innovation cycle, identification and description efforts were more focused on external innovations. Compared to C1, the total number of external innovations identified in C2 and in C3 was more than four times (10 in C1 vs 46 in C2 and 43 in C3) (Figure 5).

Table 5: Numbers of identified innovations in Cycles 1, 2 and 3.

	Goal		**Realized in Cycle 1, 2 and 3**				
	Total	Average per cycle	**Total**	Average per cycle	C1	C2	C3
Consortium partners	±30	±10	**26**	9	18	5	3
Stocktaking	45-70	15-23	**99**	33	10	46	43
Total	**75-100**	**25-33**	**125**	42	28	51	46

		Total	Floods	Drought	Extreme weather	Multi hazards*
Cycle 1	Consortium partners	**18**	6	7	4	1
	Stocktaking	**10**	3	3	4	
	Total C1	**28**	**9**	**10**	**8**	**1**
Cycle 2	Consortium partners	**5**		1		4
	Stocktaking	**46**	10	12	10	14
	Total C2	**51**	**10**	**13**	**10**	**18**
Cycle 3	Consortium partners	**3**		2		1
	Stocktaking	**43**	11	7	14	11
	Total C3	**46**	**10**	**13**	**10**	**18**
Cycle 1+2+3	Consortium partners	**26**	6	10	4	6
	Stocktaking	**99**	24	22	28	25
	Total C1 + C2 + C3	**125**	**30**	**32**	**32**	**31**

**Multi hazards is an additional catageory for innovations that address mutiple hazards. For instance, innovations that allow to store rain water for use in periods of water scarcity.*

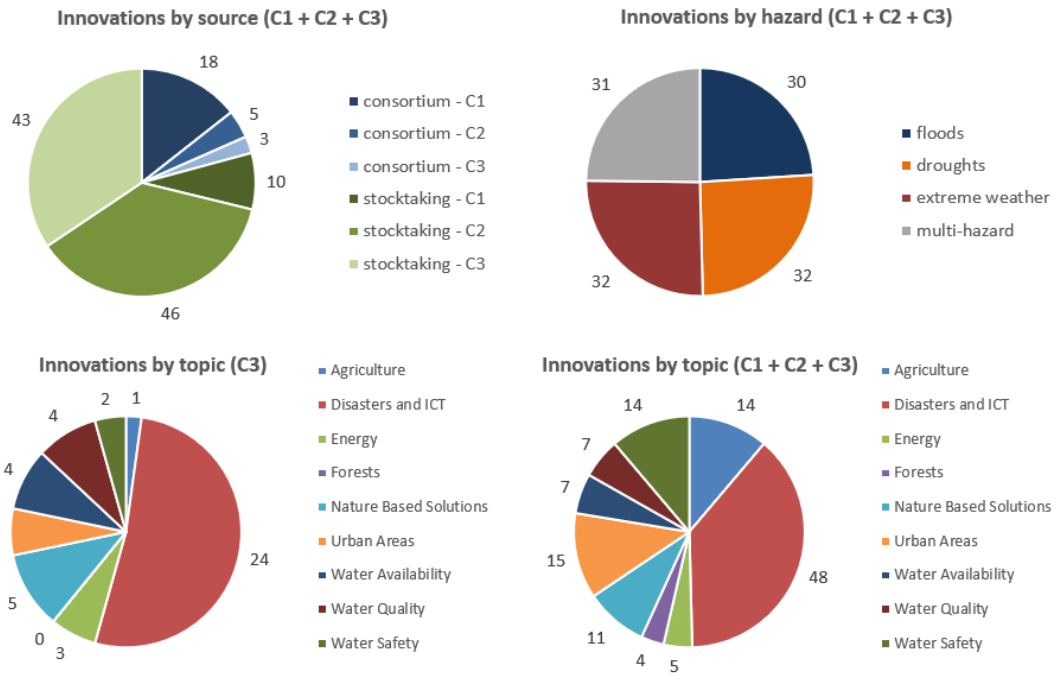


Figure 5. Number of innovations identified in Cycles 1, 2 and 3, identified by source, hazard, and topic.

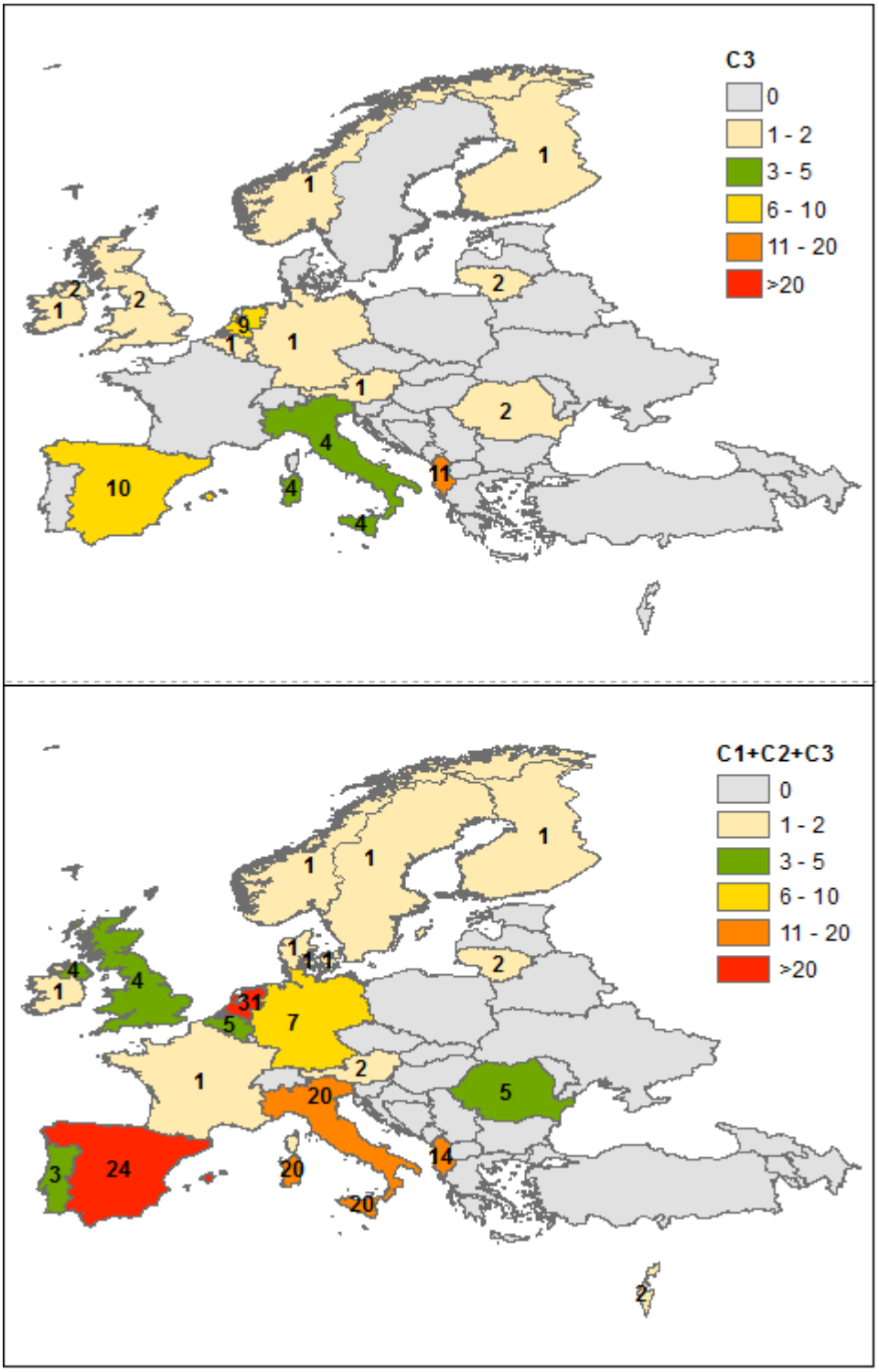


Figure 6. Number of innovations by country registered in CIW (upper figure: in Cycle 3, bottom figure: in Cycles 1 + 2 + 3).

Innovations from consortium partners

Table 6 presents an overview and short description of the innovations from BRIGAID *consortium partners*. In total, in Cycle 3 three new innovations were submitted and uploaded into the BRIGAID Climate Innovation Window by Icatalist (innovations PAS-WATER and AUDIMOD) and UTCB (innovation FlooDrought).

Table 6. Innovations from consortium partners (Cycle 3).

Nr	Name	Description	Company	Hazard
1	PAS-WATER	PAS-WATER is a flexible toolkit and consultancy service. It works on different spatial scales and develops iterative diagnosis cycles to provide information and evidence to build consensus among stakeholders and public administration for the adoption of a scheme of payments for adaptation services based on water harvesting. https://www.climateinnovationwindow.eu/innovations/pas-water	Icatalist	Drought
2	AUDIMOD	AUDIMOD is a decision support tool to help investors and decision makers to simulate the potential for irrigation modernization projects to help secure a more efficient water use for the pre-determined objectives, by looking at a large number of indicators before and after the project is made. AUDIMOD provides a standardised method that helps to monitor, audit and anticipate the environmental, socioeconomic and hydrologic effects of an irrigation modernisation project before, during and after the investment. https://www.climateinnovationwindow.eu/innovations/audimod	Icatalist	Drought
3	FlooDrought	The innovation refers to some combined solutions for storm (rain) water collection in polders and subsequently using it for infiltration in the subsurface (groundwater artificial recharge). Software is used to define the water collection area, the volume of rain water that will be collected and to establish and design the location and the dimensions of these polders. https://climateinnovationwindow.eu/innovations/floodrought	UTCB	Multi-hazards

Innovations from non-consortium partners (stocktaking)

As in Cycles 1 and 2, in Cycle 3 innovations from external innovators (Table 7) have been identified from platforms and personal networks / contacts of BRIGAID partners. Additionally, dissemination material was spread and a specific call was launched (as in Cycle 2) to embrance external innovators. The external innovations identified and described cover a broad range of typologies (Figure 5) and topics including ICT solutions to support decision making, and technologies for improving water safety, water availability, and water quality, for optimizing the water use in agriculture and food production, for increasing the efficiencies in energy production and usage, for preventing wildfires and accelerate the recovery of burned areas, and nature-based solutions aiming to increase the resilience of cities and landscapes.

A more detailed description of these innovations is available in the BRIGAID Climate Innovation Window (see the web links in Table 7 for each innovation).

Table 7: Innovations identified from external organizations (stocktaking Cycle 3).

Nr	Name	Description	Company	Hazard
1	Water retention through restoration of the sponge function of drained soils	Natural Water Retention through restoration of the 'sponge' function of currently drained soils in the middle-mountains of the Rhine basin is a locally applied nature-based solution to flood mitigation with potential impacts at basin scale. We argue that the benefits of the proposed solution are not only local, but will also favour end-users further downstream. This solution fits a systems approach and contributes to achieve water, agriculture and nature policy objectives as well as delivering societal benefits such as recreation and carbon capture. https://climateinnovationwindow.eu/innovations/water-retention-through-restoration-sponge-function-drained-soils	Wetlands International	Floods
2	SimuRes	The SimuRes simulation service is a way of improving (and establishing) flood resilient construction standards through robust testing protocols, innovative computer simulation and research for new materials and products. SimuRes will create an environment in which innovation is encouraged among the SME manufacturers, suppliers and designers that are prevalent in this sector. The data and findings produced by SimuRes will support research and development, testing and certification, training of the labour force, and demonstration and marketing. https://climateinnovationwindow.eu/innovations/simures	Aquobex	Floods
3	HAZ-I	The beginning of a research started 7 years ago when Hazus-MH flood model was adapted to satisfy needs of European Flood Directive - map hazard and risk maps. Later on it was adapted to international scale and it was able to perform flood risk analysis (and damage assessment) internationally. Additionally VGI functionality has been added to this application - it was able to easily acquire essential facilities, required for flood risk analysis, from VGI (Volunteer Geographic Information) systems such as Open Street Map with almost no effort. https://climateinnovationwindow.eu/innovations/haz-i	Institute of Environmental Engineering, Kaunas University of Technology	Floods

Nr	Name	Description	Company	Hazard
4	CENTAUR	CENTAUR is an autonomous, intelligent monitoring and control system to reduce urban escapes. It is modular, easily deployed (retrofit), and self-powered. It is deployed “out-of-the-box” without modification of the existing infrastructure. It is orders of magnitude less costly than alternative capital and space intensive solutions. The system provides “virtual storage”. https://climateinnovationwindow.eu/innovations/centaur	Environmental Monitoring Solutions Ltd	Floods
5	3D Printing of coastal protection Reefs	This innovation mitigates Coastal Floods and is focused on the Albanian Coastline using industrial 3D printing technology. Using a large scale robotic arm so-called Reef Ball protective elements are 3D printed in stone like material (mixture of sand, cement and water as the binder) in layer like configurations. Using this technology would allow to print full scale protective barrier reefs to be deployed in different coastal areas in Albania with erosion risks. The innovation it is not a fixed structure, but has mobile components. https://climateinnovationwindow.eu/innovations/3d-printing-coastal-protection-reefs	POLIS University	Floods
6	Drini Watershed Management in Albania	The innovation is an integrated approach of the natural resources management in order to mitigate effects of floods and other natural hazards (erosion, landslides, droughts, heatwaves, wildfires, rainfall and wind storms). It supports the restoration of natural eco-systems of optimal forest management for enhancing the hydrological role of vegetation coverage in rainfall retention and flood prevention. This is done by planting trees and burned area’s re-planting and constructing check-dams and seeding soil stabilizing grasses in selected bare lands in selected Drini river catchments. https://climateinnovationwindow.eu/innovations/drini-watershed-management-albania	ALBAFOREST CENTER	Floods
7	Operational flood forecasting system including levee performance	This operational flood forecasting system takes real time levee performance into account. With this innovation a next step in the future of operational flood risk modelling- and crisis management will become available for areas behind levees which are in danger of flooding. https://climateinnovationwindow.eu/innovations/operational-flood-forecasting-system-including-levee-performance	Neelen Schuurmans	Floods

Nr	Name	Description	Company	Hazard
8	Floodcasting	Nowcasting of location and extent of pluvial flash floods through insertion of X-band meteorological radar data into a 2-D sewer surface inundation model. https://climateinnovationwindow.eu/innovations/floodcasting	City of Antwerp	Floods
9	Flood planting at Erzeni river	The project's application will make it possible to improve the flood conditions and ensure the protection of areas along the Erzeni river bed. By using a variety of natural materials such as Coir log combined with vegetation, this method not only protects the river bank, but also maintains their ecological continuity and stability. Materials used for river rehabilitation will be environmentally friendly. https://climateinnovationwindow.eu/innovations/flood-planting-erzeni-river	POLIS UNIVERSITY	Floods
10	MSN_Flood: an ultra-high resolution flood modelling system	MSN_Flood provides choice regarding the location of boundaries of nested domains. The nested MSN_Flood model through dynamic downscaling facilitates significant improvements in accuracy of model output without incurring the computational expense of high spatial resolution over the entire model domain. The urban flood model provides full characteristics of water levels and flow regimes necessary for flood hazard identification and flood risk assessment. *[Not published]*	NUIGalway	Floods
11	Useful Wastes	The Useful Wastes innovation is a physical-chemical treatment that treats the brines, producing up to 80% more fresh water and transforming the rest into a product for use in the industry itself. The product generated is NaOCl (bleach) at 1%. This NaOCl is safe, clean, useful and enough to kill microorganisms. https://climateinnovationwindow.eu/innovations/useful-wastes	Useful Wastes	Drought
12	RichWater	RichWater is a modular technology reclaiming water from domestic/urban wastewater for combined irrigation and fertlisation purpose. The system allows to produce high quality effluent meeting the regulatory standards for irrigation of crops to be consumed by humans while preserving the content of nutrients relevant for the fertilization effect. The complete system is composed of four modules: i) wastewater treatment module consisting of a Membrane Bioreactor; ii) mixing unit; iii) fertigation module; and iv) control and monitoring unit. https://climateinnovationwindow.eu/innovations/richwater	BIOAZUL	Drought

Nr	Name	Description	Company	Hazard
13	Roads for Water	The negative effect of roads on the environment can be reversed if roads are systematically used as instruments for rainwater harvesting. Thus, road harvesting can generate substantial positive impacts: more secure water supply, better soil moisture, reduced erosion and respite from harmful damage. In addition, rainwater harvesting leads to better returns to land and labour, and a higher ability of people, households and communities to deal with and prosper regardless of shocks and stresses. https://climateinnovationwindow.eu/innovations/roads-water	MetaMeta	Extreme weather
14	ORF-4R Evaluation for Organic Regenerative Farming	Standarized assessment to evaluate the sustainability of the Organic Regenerative Farming - 4 Return (ORF-4R) scheme in a start-up company at SE Spain https://climateinnovationwindow.eu/innovations/holistic-soil-restoration-means-organic-regenerative-agriculture	Almendrehesa S.L.	Drought
15	SkyDowser	SkyDowser is a very special sensor system, carried by a drone, which is able to map the earth's first 50m of soil at high speeds, at least an order of magnitude higher than what is currently available. Due to this big improvement the cost of groundwater monitoring is reduced by an order of magnitude as well. The sensor uses classical groundwater exploration techniques, repackaged in a light-weight fashion for operation with drones. The measured signals can be used to detect groundwater levels, determine soil moisture levels and map salt-water intrusion. https://climateinnovationwindow.eu/innovations/skydowser	Water Mappers	Drought
16	ArboDroughtStress	ArboDroughtStress is a validated model which applies a direct parameterization of the Penman–Monteith equation to compute diurnal courses of orchard canopy conductance (gc) from sap flow in sub-hour resolution for both day and night conditions. https://climateinnovationwindow.eu/innovations/arbodroughtstress	Agricultural University of Tirana	Drought
17	Maptionnaire	The Maptionnaire questionnaire service runs solely on Amazon Web Services (AWS), which is a cloud provider known for its security. Datacenter is located in Ireland, EU, and Maptionnaire complies with the safe harbor directive of EU. The AWS data center physical security is described in the following Amazon Security Whitepaper: https://d0.awsstatic.com/whitepapers/aws-security-whitepaper.pdf. https://climateinnovationwindow.eu/innovations/maptionnaire-albania	Maptionnaire	Floods

Nr	Name	Description	Company	Hazard
18	Pressure Recovery Innovation (PRI)	PRI consists in an isobaric recuperation system that boost the feed pressure to the RO membranes using the pressure of the brine at the outlet of the process. The efficiency of the energy recovery can reach up to 95% at very competitive cost, minimizing the disadvantages of other systems like noises and maintenance shutdowns. PRI simplicity will attract designers and operators of desalination plants. *[Not published]*	Osmalia	Drought
19	Modeling future population's vulnerability to heat waves	This innovation uses a Cellular Automata-based model "Metronamica" to model a proxy indicator - urban landscape at micro (building block)-scale. Based on a number of different urban development scenarios, an allocation of urban landscape cells is used to model future social and landscape data (indicators). In the end indicators are weigthed and combined into an vulnerability index which shows which locations might be most vulnerable in the future and where decision makers should take specific action. https://climateinnovationwindow.eu/innovations/modeling-future-populations-vulnerability-heat-waves	Institute of Environmental Engineering, Kaunas University of Technology	Extreme weather
20	Modeling future population's vulnerability to heat waves	This innovation uses a Cellular Automata-based model "Metronamica" to model a proxy indicator - urban landscape at micro (building block)-scale. Based on a number of different urban development scenarios, an allocation of urban landscape cells is used to model future social and landscape data (indicators). In the end indicators are weigthed and combined into an vulnerability index which shows which locations might be most vulnerable in the future and where decision makers should take specific action. https://climateinnovationwindow.eu/innovations/modeling-future-populations-vulnerability-heat-waves	Institute of Environmental Engineering, Kaunas University of Technology	Extreme weather
21	Access to sustainable water by unlimited resources	Elemental Water Makers provides efficient and easy solar-powered reverse osmosis technology. The energy efficient desalination solutions can be powered by the sun, wind, waves or the local energy. So everyone can get reliable access to clean water that's affordable. A self-sufficient future by solar desalination has arrived. Join us in solving fresh water scarcity, using only the sea, sun, earth & wind. https://climateinnovationwindow.eu/innovations/access-sustainable-water-unlimited-resources	Elemental Watermakers	Drought
22	FIRECAST	FIRECAST is a novel simulation tool for forecasting burned area anomalies through linking seasonal climate predictions with parsimonious empirical climate fire models. https://climateinnovationwindow.eu/innovations/firecast	UB, UM, BSC	Extreme weather

Nr	Name	Description	Company	Hazard
23	Alma raingarden	Alma Raingarden is a pre-fabricated raingarden that can be used to handle runoff water from roofs and open spaces. It is a nature based solution that is flexible, that can be adapted to a local situation, that works during winter time and that can be built with a large detention capacity. In addition, it provides growth space for plants and it has internal storage capacity for water which is useful for the plants in dryer periods. https://climateinnovationwindow.eu/innovations/alma-raingarden	Storm Aqua AS	Extreme weather
24	Draining pavement to support transit traffic and displace storm peak	This solution is a new BREINCO's draining pavement which is able to support transit traffic by regular cars and allows to retain over 10 cm/m2 of water. This high retention capacity promotes runoff peak delays and the reduction of damages due to urban flood events. The permeable pavement also contribute to recharge groundwater bodies and to reduce the urban heat effect. https://climateinnovationwindow.eu/innovations/urban-draining-pavement	INDUSTRIAL BREINCO	Extreme weather
25	Helsinki's stormwater filtration unit	The filtration unit will be built in autumn 2018 and its schedule follows the construction of the separate sewage piping in Mechelininkatu and Eteläinen Hesperiankatu. The filtration unit will be located at an outfall of a stormwater pipe that gathers stormwater from heavily trafficked roads. Depending on the rain event, the filtration unit will capture part of the stormwater which would otherwise be discharged to the sea without a treatment. https://climateinnovationwindow.eu/innovations/helsinki-stormwater-filtration-unit	City of Helsinki & WSP Finland Ltd	Extreme weather
26	A LAM model for regions with complex orography	A LAM model for regions with complex orography is a novel tool based on the development of a WRF (Weather Research and Forecasting model), with ARW (Advanced Research WRF) core, specifically optimized for territories with complex orography, through developments that significantly affect the use of initial high-resolution static orographic data, soil and vegetative coverage data and sea temperature data. A further optimization process of the model is based on the different physical parametrizations The numerical forecasts provided by the models used and the data from the surveys carried out are processed using numerical multiscaling approaches, with particular reference to the wavelets, to identify correlations, trends and anomalies. https://climateinnovationwindow.eu/innovations/lam-model-regions-complex-orography	University of Messina	Extreme weather

Nr	Name	Description	Company	Hazard
27	GREENFIX f3 Fire Free Fibres Blankets	GREENFIX f³ is composed of unique grass fibres of European origin and specially treated according to best environmental practices, so that these fire free fibres are 100 % biodegradable within 36 to 60 months. Dajti Adventure Park is one hot spot to test the blankets. Being vulnerable to human activities, including hazardous activities like inattentive cigarette smoking, the park is at all times risked by human behavior. Erosion is also a phenomenon that has a bad influence on the Park. Using the GREENFIX Fire Free blankets could potentially reduce the negative impacts. https://climateinnovationwindow.eu/innovations/fire-free-fibres-blankets	Al-Geosystem	Extreme weather
28	Permeable Polymer Concrete	Permeable Polymer Concrete (PPC) is a highly porous and permeable material which is mostly appropriate for pavements and roads. With its highly permeability rate it minimizes to a large extent the effect of flash floods. If designed properly it reaches very good strength values and it is resistant to abrasion, wet-dry cycles, frost, high ambient temperatures etc. We propose Permeable Polymer Concrete as a very good solution to the mitigation of flash flood problems in urban and industrial areas like Tirana and Durres. https://climateinnovationwindow.eu/innovations/permeable-polymer-concrete	Epoka University	Extreme weather
29	QoAir: A blockchain-based system for heatwave management in urban areas	The QoAir system will provide a quick feedback about the situation in the urban area. Even though everyone has a mobile device with temperature prediction, all these results come from measurements done in other conditions such as under shadow, etc. They don't reflect the real degree and the real feel of the heat in urban areas caused of pollution factors. The idea of the QoAir project is to create a network of sensors distributed over an area. These sensors, connected together in the blockchain network, will measure the temperature increase of the area where they reside. https://climateinnovationwindow.eu/innovations/qoair	Edlira Martiri (IT specialist-freelancer)	Extreme weather
30	Unified Fire Protection Units and System-UFPUS	The main scope of the invention is to provide an Artificial Intelligence system and method for fire identification and extinguishing in real time, by combining and embodying existing tools, technology systems and products puzzle referred to as an innovation algorithm. This technology in the future should serve to protect the planet from natural fire emergencies and is ready to be test first in Albania by developing a pilot testing area/zone in one of our national forest parks in the country. https://climateinnovationwindow.eu/innovations/ufpus	EXINN TECH CENTER	Extreme weather

Nr	Name	Description	Company	Hazard
31	Polder Roof (Polderdak)	The Polder Roof transforms a flat roof so that it is able to collect and store water. This storage is controlled and can be drained at any chosen moment. The Polder Roof functions as a foundation for a green roof, roof garden, solar park or roof park. https://climateinnovationwindow.eu/innovations/polder-roof-polderdak	Polderdak BV	Extreme weather
32	Leaf.skin	Leaf.skin is an ultralight vertical garden system that can be placed where no other vertical garden systems can be. Leaf.skin is composed by an anti-root waterproof membrane, a technical fabric as a planting support, adhered substrate and seeds with an only 5mm thickness. The installation process is similar to an advertising canvas installation. It is low cost, ultralight and ultrathin solution, of easier and faster installation than other commercial solutions. https://climateinnovationwindow.eu/innovations/leafskin	Singulargreen	Extreme weather
33	EQA-river. Eco-friendly boat mill	The first EQA-river boat mill has been designed and built. The EQA-river is sophisticated and works automatically. It can lift out of the water when the water is running too fast. The EQA-river is made of 80% 'plastic soup'. The 'mill' can be made of max. 15 m width. When the river water is running 1,5 m/sec or more the EQA-river is a profitable investment. EQA-projects has more hydropower innovations. They are for sale now, and bought by Dutch Water Authorities. EQA-projects is a start-up and ready to scale up. https://climateinnovationwindow.eu/innovations/eqa-river-eco-friendly-boat-mill	EQA-projects	Multi-hazards
34	EQA-tidal. Sophisticated boat mill	The first EQA-river boat mill has been designed and built. We didn't built a EQA-tidal yet. Building a EQA-tidal 1.0. won't be difficult. It is in some way building a catamaran. Building a EQA-tidal 2.0. starts with D&C to include idea's for battery storage, vertical windturbines, PVsolar and also winning wave energy. The EQA-tidal 2.0. will be an all-inclusive green energy unit. The 'mill' can be made of max. 15 m width. When the tide is running 2 m/sec max. or more the EQA-tidal will be a profitable investment. https://climateinnovationwindow.eu/innovations/eqa-tidal-sophisticated-boat-mill	EQA-projects	Multi-hazards
35	RiskAPP	RiskAPP is a smart one-stop-shop risk assessment platform dedicated and designed specifically for SMEs which simplifies structured data collection for direct and indirect clients via digital channels and then uses proprietary analytics to model and visualize complex exposures to businesses. RiskAPP communicates with existing legacy systems and IT management	RiskAPP s.r.l.	Multi-hazards

Nr	Name	Description	Company	Hazard
		software. Moreover, it can increase sales by 20%, inspected risks by 400%, and decrease assessment costs by 90%. *[Not published]*		
36	HAZUR DataManager for Climate Change	HAZUR DataManager for CC is an online tool for organizations that must face impacts and reduce risks derived from natural and manmade hazards. It provides an integrated system to identify and manage the critical data aiming at modelling, simulating and monitoring resilience of the operational processes needed to cope with different impacts in urban areas. HAZUR® DMCC will focus on acquiring and connecting urban data for risk-reduction based on a systematic analysis of the urban networks in order to provide "augmented intelligence" to the decision makers. https://climateinnovationwindow.eu/innovations/hazur-dmcc	Opticits	Multi-hazards
37	Low cost meteorological stations	The low cost meteorological station is a module composed of a microcontroller connected to: 1. GPS sensor, which shows the accurate coordinates of the module; 2. Precipitation sensor; 3. Humidity sensor; 4. Temperature sensor; 5. Real time data transmitter connected to internet via SIM card; 6. Other optional sensors could be added, ex: fire detector etc.; 7. Power supply. The cost of a module equipped with all of the above devices varies between 30-50 Euros. https://climateinnovationwindow.eu/innovations/low-cost-meteorological-stations	Epoka University	Multi-hazards
38	MyClimateServices.eu	MyClimateServices.eu contains: a) a digitized standardized workflow for assessing climate risks and appraise adaptation scenarios basing on climate- and location data at the site of the respective infrastructure project, and b) a marketplace to match projects with relevant localized data, experts for in-depth and specific counsel and to find projects (already realized or in planning) comparable in terms of hazard profile, elements at risk and type of project in order to share and transfer knowledge. https://climateinnovationwindow.eu/innovations/myclimateserviceseu	MYCLIMATESERVICES	Multi-hazards
39	SAEx–L (Signal of Atmosphere Extreme Locally)	An integrated system provides the Signal of Atmosphere Extreme at the local scale and enables automatic dissemination of SAEx-L warning to SIM card holders who live or are occasionally located in the risk area by SMS and also a phone number making possible the connection of risked population with the rescue teams at the terrain. https://climateinnovationwindow.eu/innovations/saex-l	Meteoalb Ltd	Multi-hazards

Nr	Name	Description	Company	Hazard
40	Rainwater in kindegarden	Small rainwater havesting system adpated for kindergardens. https://climateinnovationwindow.eu/innovations/rainwater-kindergarten	Ecomovement Group	Multi-hazards
41	Application for Danube Living Lab Romania	Along the Danube and in the Danube Delta using nature based solutions for floods and drought management is a set objective of ICPDR and national management plans but at the same time, for many years, an open subject for debate as regards practical implementation. https://climateinnovationwindow.eu/innovations/danube-living-labs-pilot-application-potelu-living-lab-romania	BUSINESS DEVELOPMENT GROUP	Multi-hazards
42	I-REACT	I-REACT (Improving Resilience to Emergencies through Advanced Cyber Technologies) is a Horizon 2020 3-year project (2016-2019) funded by the European Commission under the Secure Society Work Programme (DRS-1-2015). I-REACT aims to develop a solution through the integration and modelling of data coming multiple sources. Information from European monitoring systems, earth observations, historical information, and weather forecasts will be combined with data gathered by new technological developments created by I-REACT. https://www.climateinnovationwindow.eu/innovations/i-react	I-REACT	Multi-hazards
43	SolarDew	SolarDew has developed a unique alternative to solve this problem with an affordable product that is easy to use, robust, extremely low in maintenance and only requires energy from the sun to produce clean water from saline, biological or chemically contaminated water. SolarDew's unique technology eliminates the need to transport water over large distances. https://www.climateinnovationwindow.eu/innovations/solardew	Solar Dew International B.V.	Multi-hazards

Chapter 4: Selected innovations in Cycle 3

This chapter explains the outcomes of the pre-selection procedure, based on a multi-criteria assessment (step 1 of the selection procedure, see Chapter 2).

From the 43 innovations initially registered into the BRIGAID *Climate Innovation Window*, 37 qualified for BRIGAID's support through the "selection questionnaire". These 37 innovations were scored according to the selection procedure described in Chapter 2. This was done in two steps. First, each innovation was evaluated by a 1st evaluator. The scores of the 1st evaluation where reviewed by a second evaluator. Finally, cross-comparisons between similar innovations and in case of doubts were made to ensure consistency among the scores. This process resulted in the scoring presented in Table 8 and

Table 9. In these tables, the innovations are ordered based on the green score from high to low.

Results show that 26 innovations received a grey score higher than 5, and from these only 6 innovations were finally shortlisted for pre-selection after taking into account the following rationale or preconditions (as agreed on beforehand by the BRIGAID Executive Board):

- Maximum two innovations from one country can be selected;
- When innovations are similar, only the highest scoring is chosen to ensure variation among hazards and innovations types.

With these preconditions the following selection criteria were applied:

- Select the 3 to 4 highest ranking nature based solutions.

  Result: We looked at the highest scoring solutions that received a 25% bonus. These are: 1) Leaf.skin (Spain), 2) Alma Raingarden (Norway), 3) Natural water retention through restoration of the sponge function of drained soils (Netherlands), 4) GREENFIX f3 Fire Free Fibres Blankets (Albania).

- Select at least one solution from an eastern European country.

  Result: This criterion has been met in the revious step by pre-selection of “) GREENFIX f3 Fire Free Fibres Blankets (Albania)”.

- Select the remaining innovations based on the highest green score.

  Result: Richwater was pre-selected over the similar but lower scoring Access to sustainable water and SolarDew. With the pre-selection of Alma Raingarden also Polderroof was not eligible anymore. I-React was not selected since it is a running H2020 project and is already well supported by EU funding. Next in line is the innovation “Flood, planting at Erzeni river” (Albania).With this innovation we remark that extra attention is needed for the test plan, as it is not clear entirely clear how the effectiveness of this innovation will be evaluated.

This leads to the following 6 innovations proposed for pre-selection and agreed by the BRIGAID Executive Board:

1) Leaf.skin (Spain), 2) Alma Raingarden (Norway), 3) Natural water retention through restoration of the sponge function of drained soils (Netherlands), 4) GREENFIX f3 Fire Free Fibres Blankets 5) Richwater (Spain) and 6) Flood, planting at Erzeni river (Albania).

There is a good variation over different countries: 2 of the selected innovations are from Spain, 2 from Albania, 1 from Norway, and 1 from the Netherlands.

After the pre-selection, innovators were requested to make a testing plan proposal according to BRIGAID guidelines, and to provide a specified budget. All test plans and budgets were approved.

Table 8. Results of the selection procedure. Selected innovations are shown in orange bold.

Name ***Company***	**TRL**	**Technical**	**Social**	**Market**	**Total**	**Testing feasibility**	**Innovator's vision**	**Promising**	**Total**	**Grey Score**	**Nature-based bonus**	**Green Score**
Leaf.skin ***Singulargreen***	**5**	**4**	**5**	**3**	**4.000**	**3**	**2**	**3**	**2.667**	**6.667**	**1.25**	**8.333**
RichWater ***BIOAZUL***	**6**	**5**	**4**	**3**	**4.250**	**3**	**3**	**2**	**2.667**	**6.917**	**1.1**	**7.608**
Access to sustainable water by unlimited resources *Elemental Watermakers*	6	5	4	4	4.500	2	3	2	2.333	6.833	1.1	7.517
Alma raingarden ***Storm Aqua AS***	**5**	**4**	**4**	**2**	**3.500**	**2**	**2**	**3**	**2.333**	**5.833**	**1.25**	**7.292**
Water retention through restoration of the sponge function of drained soils ***Wetlands International***	**5**	**4**	**4**	**3**	**3.750**	**2**	**2**	**2**	**2.000**	**5.750**	**1.25**	**7.188**
GREENFIX f3 Fire Free Fibres Blankets ***Al-Geosystem***	**6**	**5**	**3**	**2**	**3.750**	**2**	**1**	**3**	**2.000**	**5.750**	**1.25**	**7.188**
Polder Roof (Polderdak) *Polderdak BV*	7	2	4	4	3.000	3	3	2	2.667	5.667	1.25	7.083
SolarDew *Solar Dew International B.V.*	5	4	4	3	3.750	3	3	2	2.667	6.417	1.1	7.058
I-REACT *I-REACT*	6	5	5	2	4.250	3	3	2	2.667	6.917	1	6.917
Flood planting at Erzeni river ***POLIS UNIVERSITY***	**5**	**4**	**4**	**2**	**3.500**	**2**	**2**	**2**	**2.000**	**5.500**	**1.25**	**6.875**
CENTAUR Environmental *Monitoring Solutions Ltd*	6	5	4	3	4.250	3	2	2	2.333	6.583	1	6.583
MyClimateServices.eu *MYCLIMATESERVICES*	4	3	5	3	3.500	3	3	3	3.000	6.500	1	6.5
Helsinki's stormwater filtration unit *City of Helsinki & WSP Finland Ltd*	5	4	4	3	3.750	2	2	3	2.333	6.083	1	6.083
Unified Fire Protection Units and System-*UFPUS* *EXINN TECH CENTER*	5	4	3	4	3.750	3	2	2	2.333	6.083	1	6.083
Useful Wastes *Useful Wastes*	6	5	3	3	4.000	2	2	2	2.000	6.000	1	6
ORF-4R Evaluation for Organic Regenerative Farming *Almendrehesa S.L.*	6	5	4	1	3.750	2	2	1	1.667	5.417	1.1	5.958
Drini Watershed Management in Albania *ALBAFOREST CENTER*	5	4	3	1	3.000	2	2	1	1.667	4.667	1.25	5.833
Danube Living Labs - Pilot application Potelu Living Lab Romania *BUSINESS DEVELOPMENT GROUP*	4	3	5	2	3.250	2	2	2	2.000	5.250	1.1	5.775
Flood forecasting system including levee performance *Neelen Schuurmans*	5	4	5	2	3.750	2	2	2	2.000	5.750	1	5.75
HAZUR DataManager for Climate Change *Opticits*	4	3	3	3	3.000	2	3	2	2.333	5.333	1	5.333

Name ***Company***	**TRL**	**Technical**	**Social**	**Market**	**Total**	**Testing feasibility**	**Innovator's vision**	**Promising**	**Total**	**Grey Score**	**Nature-based bonus**	**Green Score**
SAEx–L (Signal of Atmosphere Extreme Locally) *Meteoalb Ltd*	5	4	3	2	3.250	2	2	2	2.000	5.250	1	5.25
NEFOCAST *Institute of Environmental Engineering, Kaunas University of Technology*	5	4	3	3	3.500	2	1	2	1.667	5.167	1	5.167
SimuRes *Aquobex*	5	4	3	3	3.500	1	2	2	1.667	5.167	1	5.167
Modeling future population's vulnerability to heat waves *Institute of Environmental Engineering, Kaunas University of Technology*	5	4	3	3	3.500	2	1	2	1.667	5.167	1	5.167
A LAM model for regions with complex orography *University of Messina*	6	5	3	1	3.500	2	2	1	1.667	5.167	1	5.167
Permeable Polymer Concrete *Epoka University*	4	3	3	2	2.750	3	2	2	2.333	5.083	1	5.083
Draining pavement to support transit traffic and displace storm peak *INDUSTRIAL BREINCO*	5	4	2	3	3.250	1	1	2	1.333	4.583	1.1	5.042
Floodcasting *City of Antwerp*	4	3	5	1	3.000	2	2	2	2.000	5.000	1	5
Rainwater in kindegarden *Ecomovement Group*	5	4	3	2	3.250	1	2	2	1.667	4.917	1	4.917
SkyDowser *Water Mappers*	4	3	2	4	3.000	1	2	2	1.667	4.667	1	4.667
Low cost Meteorological stations *Epoka University*	4	3	3	2	2.750	3	1	1	1.667	4.417	1	4.417
3D Printed reef balls POLIS University	4	3	1	3	2.500	1	1	2	1.333	3.833	1.1	4.217
ArboDroughtStress *Agricultural University of Tirana*	4	3	2	2	2.500	2	1	1	1.333	3.833	1	3.833
Maptionnaire *Maptionnaire*	4	3	3	2	2.750	1	1	1	1.000	3.750	1	3.75
Pressure Recovery Innovation (PRI) *Osmalia*	2	N/A	3	3	N/A	3	1	2	2.000	N/A	1	0
QoAir: A blockchain-based system for heatwave management in urban areas *Edlira Martiri (IT specialist-freelancer)*	3	N/A	2	2	N/A	1	1	2	1.333	N/A	1	0
Roads for Water *MetaMeta*	6	5	3	0	3.250	0	0	0	N/A	N/A	0	0
HAZ-I *Institute of Environmental Engineering, Kaunas University of Technology*	NS											
EQA-river. Eco-friendly boat mill *EQA-projects*	NS											

Name ***Company***	**TRL**	**Technical**	**Social**	**Market**	**Total**	**Testing feasibility**	**Innovator's vision**	**Promising**	**Total**	**Grey Score**	**Nature-based bonus**	**Green Score**
EQA-tidal. Sophisticated boat mill *EQA-projects*	NS											
FIRECAST *UB, UM, BSC*	NS											
RiskAPP *RiskAPP s.r.l.*	NS											
FlooDrought *UTCB*	NS											

Table 9. Results of the selection procedure. Innovations ordered according to highest Green Score. The six pre-selected innovations are indicated in the collumn "Pre-selected".

Name	Grey Score	Nature-based Bonus	Green Score	Ranking	Pre-Selected
Leaf.skin	6.667	1.25	8.333	1	1
RichWater	6.917	1.1	7.608	2	5
Access to sustainable water by unlimited resources	6.833	1.1	7.517	3	
Alma raingarden	5.833	1.25	7.292	4	2
Water retention through restoration of the sponge function of drained soils	5.750	1.25	7.188	5	3
Fire Free Fibres Blankets updated	5.750	1.25	7.188	6	4
Polder Roof	5.667	1.25	7.083	7	
SolarDew	6.417	1.1	7.058	8	
I-REACT	6.917	1	6.917	9	
Flood planting at Erzeni river	5.500	1.25	6.875	10	6
Centaur	6.583	1	6.583	11	
MyClimateServices.eu updated	6.500	1	6.500	12	
Helsinki's stormwater filtration unit	6.083	1	6.083	13	
Unified Fire Protection Units and System (UFPUS)	6.083	1	6.083	14	
Useful Wastes - Brine transformation to circular economy	6.000	1	6.000	15	
ORF-4R Evaluation for Organic Regenerative Farming new	5.417	1.1	5.958	16	
Drini Watershed Management in Albania	4.667	1.25	5.833	17	
Application for Danube Living Lab Romania	5.250	1.1	5.775	18	
Operational flood forecasting system including levee performance	5.750	1	5.750	19	
HAZUR Data Manager for Climate Change	5.333	1	5.333	20	
SAEx–L (Signal of Atmosphere Extreme Locally)	5.250	1	5.250	21	
NEFOCAST new	5.167	1	5.167	22	
A LAM model for regions with complex orography	5.167	1	5.167	23	
SimuRes	5.167	1	5.167	24	
Permeable Polymer Concrete	5.083	1	5.083	25	
BREINCO (submitted also to cycle 2)	4.583	1.1	5.042	26	
Floodcasting	5.000	1	5.000	27	
Rainwater in kindegarden	4.917	1	4.917	28	
WaterMappers	4.667	1	4.667	29	
Low cost meteorological stations updated	4.417	1	4.417	30	
3D Printing of coastal protection Reefs	3.833	1.1	4.217	31	
Modeling future population's vulnerability to heat waves	4.000	1	4.000	32	
ArboDroughStress	3.833	1	3.833	33	
QoAir	3.833	1	N/A	34	
Maptionnaire	3.750	1	3.750	34	
Roads for Water new			N/A	35	
Pressure recovery innovation (PRI)			N/A	36	
Risk app			N/A	37	
HAZ-I			N/A	38	
FIRECAST			N/A	39	
EQA-river. Eco-friendly boat mill			N/A	40	
FlooDrought			N/A	41	
EQA-tidal. Sophisticated boat mill			N/A	42	

Description of the selected Cycle 3 innovations

A short description of the 6 selected external innovations is given next.

1. **Leaf.skin by Singulargreen** (Spain): The innovation consists of an ultralight vertical garden system that is composed by an anti-root waterproof membrane, a technical fabric as planting support, adhered substrate and seeds with a thickness of only 5mm. It is a low cost, ultralight and ultra-thin solution, with easy and fast installation. Vertical gardening has several advantages such as mitigating the effects of ***heatwaves*** and improving the air quality. More details: https://climateinnovationwindow.eu/innovations/leafskin

   Testing for BRIGAID will be done at the CARTIF technology centre at Valladolid and the AITEX textile research institute at Alcoy, Alicante, both in Spain. About 50 new species will be evaluated for the percentage of germination and coverage, lack of nutrients, growth rate, and water stress. At the CARTIF technology centre, the effectiveness of Leaf.skin will be evaluated in terms of absorption of pollution and active cooling, as well as the resistance of the construction material, and other options for the material with less carbon footprint. At the AITEX textile research institute, other and better compositions of textile fabrics will be tested to improve the water retention and the reliability of the innovation in case of irrigation failures. Moreover, fire resistance certificates will be obtained.

2. **Alma raingarden, by Storm Aqua AS** (Norway): The innovation consists of a pre-fabricated raingarden that mitigates the negative effects of ***pluvial floods*** as a consequence of runoff water from roofs and open spaces. It is a nature based solution that is flexible, that can be adapted to a local situation, that works during winter time and that can be built with a large detention capacity. It has a predictable function and is easy to install. In addition, it provides growth space for plants and it has internal storage capacity for water which is useful for the plants in dryer periods. More details: https://www.climateinnovationwindow.eu/innovations/alma-raingarden

   Testing for BRIGAID will be done in a controlled environment at a site of the research organization NIBIO at Saerheim in Norway. The requirements for the growth media, the detention and infiltration capacities of the raingarden and the surrounding overflow area will be evaluated.

3. **Natural water retention through restoration of the sponge function of drained soils, by Wetlands International** (The Netherlands): The solution makes use of ‘sponges approach’ to restore natural drainage conditions of soils in the valleys of sub-basins in the middle mountains of a large river basin, in order to mitigate ***floods*** and improve the water quality. It fits a systems approach and contributes to achieve water, agriculture and nature policy objectives as well as delivering societal benefits such as recreation and carbon capture. More details: https://climateinnovationwindow.eu/innovations/water-retention-through-restoration-sponge-function-drained-soils

   Testing for BRIGAID involves a desk study to select and test a customized rainfall runoff model, and a field experiment to measure the effect of natural retention in a drained and undrained valley floor at Trocken / Feucht Wiese, Germany. In addition, stakeholder

consultation is organized to determine the quantitative effect of multiple natural retention sites on (sub)basin level.

4. **GREENFIX f3 Fire Free Fibres Blankets, by Al-Geosystems** (Germany): The innovation stops the unpredictable spread of ***wildfires*** in urban areas such as city parks where it can cause serious damages. This is done by the use of unique natural fibre blankets, which are biodegradable, of European origin and specially treated according to the best environmental practices. Another positive effect is that the blankets help to reduce slope erosion. More details: https://www.climateinnovationwindow.eu/innovations/greenfix-f3

   Testing for BRIGAID will be done in the field in Albania on an attractive, multifunctional entertainment park located in the municipality of Tirana. Both the positive effects on the impacts of fires and on slope erosion, and the use of national Albanian seeds, will be evaluated.

5. **RichWater by BIOAZUL S.L.** (Spain): It is a modular technology reclaiming water from domestic/urban wastewater for combined irrigation and fertilisation purpose, hence to better cope with ***water scarcity and droughts*** in agriculture. The system allows to produce high quality effluent water that meets the regulatory standards for irrigation of crops to be consumed by humans while preserving the content of nutrients relevant for the fertilization of agricultural land. More details: https://climateinnovationwindow.eu/innovations/richwater

   Testing for BRIGAID is address at an already installed prototype located at the wastewater treatment plant of the Algarrobo municipality (Malaga, Spain). The water quality of the treated effluent, its nutrient content, and the effect on crop growth will be evaluated. Moreover, a Decision Support System software for irrigation and nutrient monitoring and provision with reclaimed water will be developed, and the savings of fertilizers quantified.

6. **Flood planting, by Polis University** (Albania): The innovation aims to reduce the frequency of ***river floods*** by planting techniques that are environmentally friendly. This is done through the installation of Coir Logs at the bottom of the river and the planting of three floor vegetation, to enable flood elimination in natural form. More details: https://climateinnovationwindow.eu/innovations/flood-planting-erzeni-river

   Testing for BRIGAID will be done on site along the Erzeni river in Albania. Next to the positive effects on soil erosion and flood reduction, the potential negative effect that overflows and natural debris may have on the instability of the coir logs, will be evaluated, and this depending on the installation method.

Overview of all innovations selected for testing, ongoing and new

Table 10 and Table 11 present the complete overview of internal innovations (Brigaid consortium) and external innovations (stocktaking) that were selected for testing throughout the project (total of the innovation cycles 1, 2 and 3). Note that the internal innovations from the BRIGAID consortium members were not subjected to a selection procedure. BRIGAID partners follow their own planning to test and improve their products throughout the four year project. From all BRIGAID innovations identified in Cycles 1 and 2, nine continue their testing in Cycle 3, and the three new internal innovations will start their testing in Cycle 3. From all external innovations selected in Cycles 1 and 2, six continue testing in Cycle 3, and the six new ones obviously start testing in Cycle 3.

Table 10. All internal innovations tested or being tested in the three project cycles.

Internal Innovation		**TRL**[1]			**Testing activities**															
Nr	**Title**	***Ts***	***Ti***	***Te***	***Overall progress***	***Desk study + Test plan***				***Lab. testing***				***Operat. testing***				***Reporting***			***Remarks***
1	eEM-DAT	5	7	8	**Complete**													C1			
2	MyFlood Risk	4	6	7	**Complete**													C1			
3	ThirdEye	4	5	6	**Complete**													C1			
4	Water+ Furrow Diker	4	7	8	**Complete**													C1			
5	GeoGuard Module for Water vapor monitoring	6	6	8	**Complete**													C1			
6	Active Eco-Wildfire Management System	7	7	8	**Complete**													C1			
7	FireAd	5	5	7	**Complete**													C1			
8	OBREC	5	5	6	Testing ongoing													C1	C2	C3	
9	infoSequia	4	6	7	Testing ongoing													C1		C3	
11	Halophyte Zeolite wetlands (HZW)	4	5	6	Testing ongoing														C2	C3	
12	URBRAIN				**Complete**														C2		

13	Application Framework with Drone system				Testing ongoing													C2	C3	
14	Action plan in case of dike failure				Testing ongoing													C2	C3	
15	Toolkit Method				Testing ongoing														C3	
16	MyFloodRisk (for business)																		C3	
10	Flip-Flap cofferdam	4	4	6	Postponed														C3	Flood proof Romania. Delayed
17	Irriframe – Acqua campus				Postponed														C3	
18	Food vertical farming				Suspended															
19	PAS-WATER				Testing to start in C3														C3	
20	AUDIMOD				Testing to start in C3														C3	
21	FlooDrought				Testing to start in C3														C3	

[1] Ts = start; Ti = interim; Te = end

Table 11. All external innovations tested or being tested in the three project cycles.

External Innovation		**TRL**[1]			**Testing activities**															
Nr	**Title**	***Ts***	***Ti***	***Te***	***Overall progress***	***Desk study +Test plan***				***Lab. testing***				***Operat. testing***				***Reporting***			***Remarks***
1	SCAN	4	6	8	**Complete**													C1			
2	EVAPO-CONTROL	5	6	8	**Complete**													C1	C2		
3	Water from Heaven	5	5	8	**Complete**													C1			
4	ARIEL	5	7	7	**Complete**													C1			
5	HYDROVENTIV	5	5	9	**Complete**													C1			
6	Tubebarrier	5	5	7	Testing ongoing													C1	C2		
14	Blue Bloqs	6	6	7	**Complete**														C2		

10	Multiflexmeter				**Complete**													C2		
8	RECYCLE	4	5	7	Testing ongoing													C2	C3	Water tests suspended. Interim report delivered.
9	MOLE	5	5	7	Testing ongoing													C2	C3	Interim report delivered.
11	The M-NBS*	4	5	8	Testing ongoing													C2	C3	Interim report delivered
7	Self-erecting flood protection system				Delayed														C3	Test facility. Delayed due to administrative process.
12	Paint your city green!	4	4		Testing ongoing														C3	Delayed: Test preparation ongoing
13	Ecological Water Management				Delayed														C3	
14	Leaf.skin				Testing to start in C3														C3	
15	Richwater				Testing to start in C3														C3	
16	Alma raingarden				Testing to start in C3														C3	
17	Water retention through restoration of the sponge function of drained soils				Testing to start in C3														C3	
18	GREENFIX f3 Fire Free Fibres Blankets				Testing to start in C3														C3	
19	Flood planting at Erzeni river				Testing to start in C3														C3	

[1] Ts = start; Ti = interim; Te = end
* The Mobile Natural Biological System

Chapter 5: Innovations in Climate Innovation Window

After the three stocktaking cycles, 99 external innovations and 26 innovations by BRIGAID consotrium partners were uploaded and described in the Climate Innovation Window. Figure 7 shows examples of them; a full overview is provided in Table 12 for the external innovations and in

Table 13 for the internal innovations by BRIGAID consortium partners.

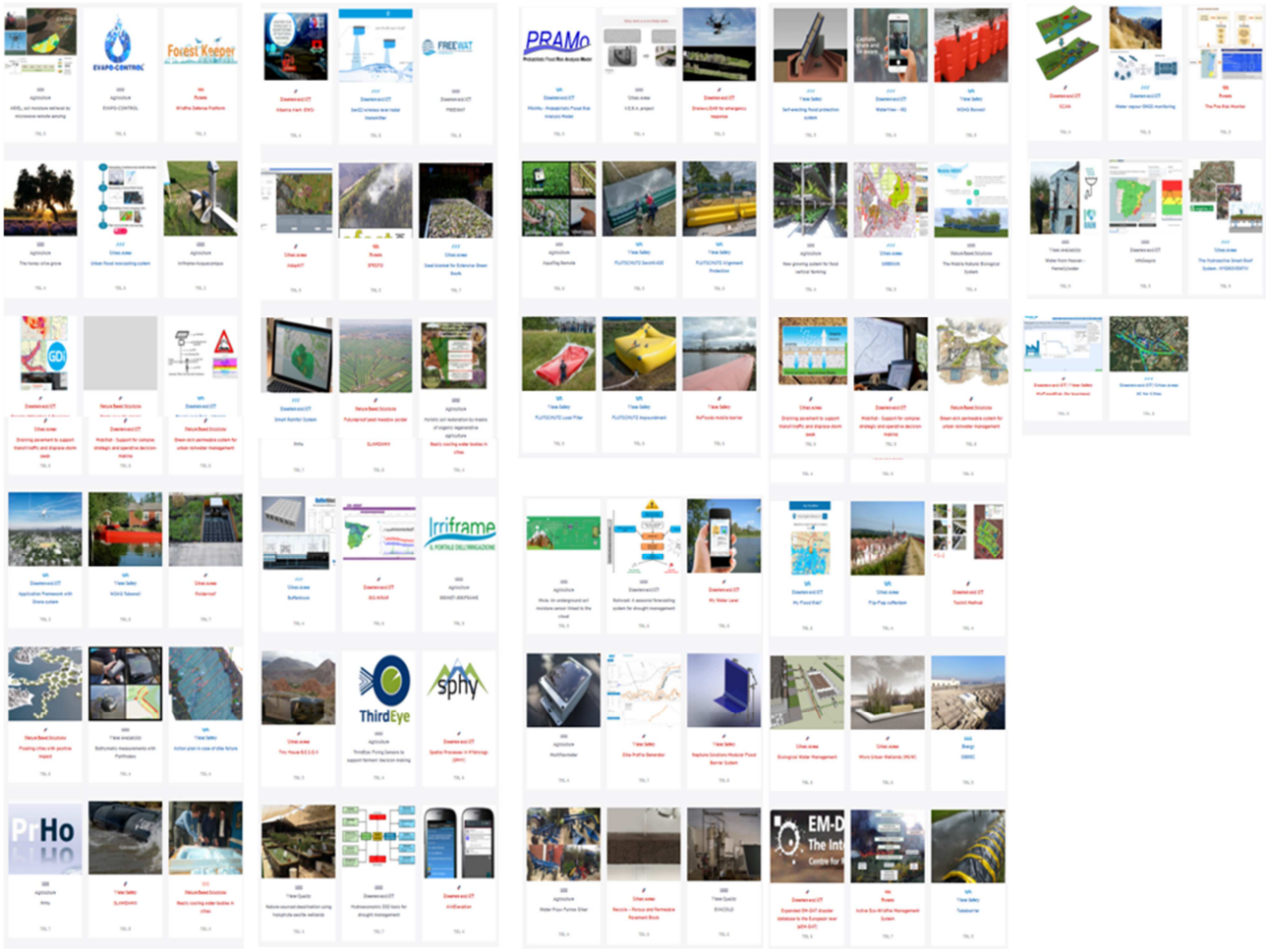


Figure 7. Examples of the innovations registered in the BRIGAID Climate Innovation Window.

Table 12. Full list of innovations uploaded in the Climate Innovation Window: external innovations.

Nr	Cycle	Hazard	Topic	Name (CIW)	Company	Link	TIF
1	C1	Floods	Water Safety	Tubebarrier	Tubebarrier	http://climateinnovationwindow.eu/innovations/tubebarrier	Yes
2	C1	Drought	Agriculture	EVAPO-CONTROL	ARANA WATER MANAGEMENT S.L.	http://climateinnovationwindow.eu/innovations/evapo-control	Yes
3	C1	Drought	Agriculture	ARIEL, soil moisture retrieval by microwave remote sensing	Balam Ingeniería de Sistemas SL	http://climateinnovationwindow.eu/innovations/ariel	Yes
4	C1	Extreme weather	Disasters and ICT	SCAN	Sumaqua	http://climateinnovationwindow.eu/innovations/scan	Yes
5	C1	Extreme weather	Water Availability	Water from Heaven - Hemel(s)water	Water Innovation Consulting (WIC)	http://climateinnovationwindow.eu/innovations/water-heaven-hemelswater	Yes
6	C1	Extreme weather	Water Availability	The Hydroactive Smart Roof System : HYDROVENTIV	Le PRIEURE	http://climateinnovationwindow.eu/innovations/hydroactive-smart-roof-system-hydroventiv	Yes
7	C1	Floods	Nature Based Solutions	Floating cities with positive impact	Blue21	http://climateinnovationwindow.eu/innovations/floating-cities-positive-impact	No
8	C1	Floods	Water Safety	SLAMDAM	SLAMdam	http://climateinnovationwindow.eu/innovations/slamdam	No
9	C1	Drought	Agriculture	PrHo	Fundación Cajamar	http://climateinnovationwindow.eu/innovations/prho	No
10	C1	Extreme weather	Disasters and ICT	GIS-WRAP	Meteogrid	http://climateinnovationwindow.eu/innovations/gis-wrap	No
11	C2	Floods	Water Safety	Self-erecting flood protection system	University of Kaiserslautern	http://climateinnovationwindow.eu/innovations/self-erecting-flood-protection-system	Yes
12	C2	Drought	Agriculture	Mole – An underground soil moisture sensor	IDESIO	http://climateinnovationwindow.eu/innovations/mole	Yes

Nr	Cycle	Hazard	Topic	Name (CIW)	Company	Link	TIF
				connected to the cloud			
13	C2	Drought	Agriculture	Multiflexmeter	waterschap Scheldestromen	http://climateinnovationwindow.eu/innovations/multiflexmeter	Yes
14	C2	Drought	Nature Based Solutions	The Mobile Natural Biological System	Ayala Water & Ecology	http://climateinnovationwindow.eu/innovations/mobile-natural-biological-system	Yes
15	C2	Extreme weather	Nature Based Solutions	Paint your city green!	Jan Lauwers & partners	http://climateinnovationwindow.eu/innovations/paint-your-city-green	Yes
16	C2	Multi-hazards	Urban Areas	Bluebloqs	Field Factors	http://climateinnovationwindow.eu/innovations/micro-urban-wetlands-muw	Yes
17	C2	Floods	Disasters and ICT	PRAMo - Probabilistic Flood Risk Analysis Model	alpS GmbH	http://climateinnovationwindow.eu/innovations/pramo	No
18	C2	Floods	Disasters and ICT	Flood Local Tool - Albania	Klodian Zaimi (Freelance)	http://climateinnovationwindow.eu/innovations/flood-local-tool-albania	No
19	C2	Floods	Water Quality	ClariWash Self-Washing Filtration System	WaterReach	0	No
20	C2	Floods	Water Safety	NoFloods mobile barrier PRO	Environment Solutions Aps	http://climateinnovationwindow.eu/innovations/nofloods-mobile-barrier	No
21	C2	Floods	Water Safety	FLUTSCHUTZ Impoundment	Bremen City University of Applied Sciences	http://climateinnovationwindow.eu/innovations/flutschutz-impoundment	No
22	C2	Floods	Water Safety	FLUTSCHUTZ Load Filter	Bremen City University of Applied Sciences	http://climateinnovationwindow.eu/innovations/flutschutz-load-filter	No
23	C2	Floods	Water Safety	FLUTSCHUTZ Alignment Protection	Bremen City University of Applied Sciences	http://climateinnovationwindow.eu/innovations/flutschutz-alignment-protection	No
24	C2	Floods	Water Safety	FLUTSCHUTZ DeichKADE	Bremen City University of Applied Sciences	http://climateinnovationwindow.eu/innovations/flutschutz-deichkade	No
25	C2	Floods	Water	NOAQ Tubewall	NOAQ Flood Protection AB	http://climateinnovationwindow.eu/innovations/	No

Nr	Cycle	Hazard	Topic	Name (CIW)	Company	Link	TIF
			Safety			noaq-tubewall	
26	C2	Drought	Agriculture	The honey olive grove	Javier Dominguez (freelance landscaper)	http://climateinnovationwindow.eu/innovation/honey-olive-grove	No
27	C2	Drought	Agriculture	AquaTag Remote	AquaTag Remote	http://www.climateinnovationwindow.eu/innovations/aquatag-remote	No
28	C2	Drought	Agriculture	Holistic soil restoration by means of organic regenerative agriculture	Almendrehesa S.L.(in collaboration with Commonland and Alvelal Asociation)	http://climateinnovationwindow.eu/innovations/holistic-soil-restoration-means-organic-regenerative-agriculture	No
29	C2	Drought	Disasters and ICT	Hydroeconomic DSS tools for drought management	Universidad Politecnica de Valencia	http://climateinnovationwindow.eu/innovations/hydroeconomic-dss-tools-drought-management	No
30	C2	Drought	Disasters and ICT	FREEWAT	Scuola Superiore Sant'Anna (in collaboration with other institutions)	http://climateinnovationwindow.eu/innovations/freewat	No
31	C2	Drought	Disasters and ICT	Raincast: A seasonal forecasting system for drought management	Meteobit	http://climateinnovationwindow.eu/innovations/raincast	No
32	C2	Drought	Energy	Pressure Recovery Innovation (PRI)	Osmolia	Not published	No
33	C2	Drought	Urban Areas	V.E.R.A. project	Vera Project	http://climateinnovationwindow.eu/innovations/vera	No
34	C2	Drought	Water Quality	EVACOLD	Cobet Tratamientos del Agua SL	http://climateinnovationwindow.eu/innovations/evacold	No
35	C2	Extreme weather	Disasters and ICT	Smart Rainfall System	Artys srl	http://climateinnovationwindow.eu/innovations/smart-rainfall-system	No
36	C2	Extreme weather	Disasters and ICT	WaterView - IR2	WaterView srl	http://climateinnovationwindow.eu/innovations/waterview-ir2	No
37	C2	Extreme weather	Disasters and ICT	SenZ2 Wireless Level Radar	SenZ2 BV	http://climateinnovationwindow.eu/innovations/senz2-wireless-level-radar	No

Nr	Cycle	Hazard	Topic	Name (CIW)	Company	Link	TIF
38	C2	Extreme weather	Forests	EFESTO	Heli-lab	http://climateinnovationwindow.eu/innovations/efesto	No
39	C2	Extreme weather	Forests	Wildfire Defense Platform	Hugo Filipe Esteves (Freelancer)	http://climateinnovationwindow.eu/innovations/wildfire-defense-platform	No
40	C2	Extreme weather	Nature Based Solutions	Really cooling water bodies in cities	Wageningen University	http://climateinnovationwindow.eu/innovations/really-cooling-water-bodies-cities	No
41	C2	Extreme weather	Urban Areas	Recycle – Porous and Permeable Pavement Block	Favaro1	http://climateinnovationwindow.eu/innovations/recycle	No
42	C2	Extreme weather	Urban Areas	Bufferblock	Hillblock BV	http://climateinnovationwindow.eu/innovations/bufferblock	No
43	C2	Extreme weather	Urban Areas	Seed blanket for Extensive Green Roofs	De Boer Green	http://climateinnovationwindow.eu/innovations/seed-blanket-extensive-green-roofs	No
44	C2	Multi-hazards	Disasters and ICT	All4Elevation	All4Elevation B.V.	http://climateinnovationwindow.eu/innovations/all4elevation	No
45	C2	Multi-hazards	Disasters and ICT	MobiKat - Support for complex strategic and operative decision-making	Fraunhofer IVI - Department of Strategy and Optimisation	http://climateinnovationwindow.eu/innovations/mobikat-support-complex-strategic-and-operative-decision-making	No
46	C2	Multi-hazards	Disasters and ICT	Drone+LiDAR for Emergency Response	Shore Monitoring & Research	http://climateinnovationwindow.eu/innovations/dronelidar-emergency-response	No
47	C2	Multi-hazards	Disasters and ICT	Disaster Mitigation & Response Information System - DMRIS	GDi	http://climateinnovationwindow.eu/innovations/disaster-mitigation-response-information-system	No
48	C2	Multi-hazards	Disasters and ICT	Albania Alert (EWS)	Klodian Zaimi (Freelance)	http://climateinnovationwindow.eu/innovations/albania-alert-ews	No
49	C2	Multi-hazards	Nature Based	Green-skin permeable system for urban	Sistemas Urbanos Drenaje Sostenible S.L.	http://climateinnovationwindow.eu/innovations/suds	No

Nr	Cycle	Hazard	Topic	Name (CIW)	Company	Link	TIF
			Solutions	rainwater management			
50	C2	Multi-hazards	Nature Based Solutions	Futureproof peat meadow polder	Veenweiden Innovatiecentrum	http://climateinnovationwindow.eu/innovations/futureproof-peat-meadow-polder	No
51	C2	Multi-hazards	Urban Areas	Tiny House B.E.S.D.®	Area Engineering S.r.l.	http://climateinnovationwindow.eu/innovations/tiny-house-besd	No
52	C2	Multi-hazards	Urban Areas	EWB Fire Water	Ecological Water Management	http://climateinnovationwindow.eu/innovations/ewb-fire-water	No
53	C2	Multi-hazards	Urban Areas	Draining pavement to support transit traffic and displace storm peak	INDUSTRIAL BREINCO	http://climateinnovationwindow.eu/innovations/urban-draining-pavement	No
54	C2	Multi-hazards	Urban Areas	Polderroof	De Dakdokters BV	http://climateinnovationwindow.eu/innovations/polderroof	No
55	C2	Multi-hazards	Urban Areas	AdapKIT	GeoAdaptive	http://climateinnovationwindow.eu/innovations/adapkit	No
56	C2	Multi-hazards	Water Safety	Neptune Solutions Modular Flood Barrier System	Neptune Solutions Ltd	http://climateinnovationwindow.eu/innovations/neptune-solutions-modular-flood-barrier-system	No
57	C3	Floods	Nature Based Solutions	Water retention through restoration of the sponge function of drained soils	Wetlands International	http://climateinnovationwindow.eu/innovations/water-retention-through-restoration-sponge-function-drained-soils	Yes
58	C3	Floods	Nature Based Solutions	Flood planting at Erzeni river	POLIS UNIVERSITY	http://climateinnovationwindow.eu/innovations/flood-planting-erzeni-river	Yes
59	C3	Drought	Water Quality	RichWater	BIOAZUL	http://climateinnovationwindow.eu/innovations/richwater	Yes
60	C3	Extreme weather	Nature Based	Alma raingarden	Storm Aqua AS	http://climateinnovationwindow.eu/innovations/alma-raingarden	Yes

Nr	Cycle	Hazard	Topic	Name (CIW)	Company	Link	TIF
			Solutions				
61	C3	Extreme weather	Nature Based Solutions	GREENFIX f3 Fire Free Fibres Blankets	Al-Geosystem	http://climateinnovationwindow.eu/innovations/fire-free-fibres-blankets	Yes
62	C3	Extreme weather	Nature Based Solutions	Leaf.skin	Singulargreen	http://climateinnovationwindow.eu/innovations/leafskin	Yes
63	C3	Floods	Disasters and ICT	SimuRes	Aquobex	http://climateinnovationwindow.eu/innovations/simures	No
64	C3	Floods	Disasters and ICT	HAZ-I	Institute of Environmental Engineering, Kaunas University of Technology	http://climateinnovationwindow.eu/innovations/haz-i	No
65	C3	Floods	Disasters and ICT	CENTAUR	Environmental Monitoring Solutions Ltd	http://climateinnovationwindow.eu/innovations/centaur	No
66	C3	Floods	Disasters and ICT	3D Printed reef balls	POLIS University	http://climateinnovationwindow.eu/innovations/3d-printing-coastal-protection-reefs	No
67	C3	Floods	Disasters and ICT	Flood forecasting system including levee performance	Neelen Schuurmans	http://climateinnovationwindow.eu/innovations/operational-flood-forecasting-system-including-levee-performance	No
68	C3	Floods	Disasters and ICT	Floodcasting	City of Antwerp	http://climateinnovationwindow.eu/innovations/floodcasting	No
69	C3	Floods	Disasters and ICT	MSN_Flood: an ultra-high resolution flood modelling system	NUIGalway	[Not published]	No
70	C3	Floods	Disasters and ICT	Maptionnaire	Maptionnaire	http://climateinnovationwindow.eu/innovations/maptionnaire-albania	No
71	C3	Floods	Water Safety	Drini Watershed Management in Albania	ALBAFOREST CENTER	http://climateinnovationwindow.eu/innovations/drini-watershed-management-albania	No
72	C3	Drought	Agriculture	ORF-4R Evaluation for	Almendrehesa S.L.	http://climateinnovationwindow.eu/innovations/	No

Nr	Cycle	Hazard	Topic	Name (CIW)	Company	Link	TIF
				Organic Regenerative Farming		holistic-soil-restoration-means-organic-regenerative-agriculture	
73	C3	Drought	Disasters and ICT	SkyDowser	Water Mappers	http://climateinnovationwindow.eu/innovations/skydowser	No
74	C3	Drought	Disasters and ICT	ArboDroughtStress	Agricultural University of Tirana	http://climateinnovationwindow.eu/innovations/arbodroughtstress	No
75	C3	Drought	Energy	Pressure Recovery Innovation (PRI)	Osmalia	[Not published]	No
76	C3	Drought	Water Quality	Useful Wastes	Useful Wastes	http://climateinnovationwindow.eu/innovations/useful-wastes	No
77	C3	Drought	Water Quality	Access to sustainable water by unlimited resources	Elemental Watermakers	http://climateinnovationwindow.eu/innovations/access-sustainable-water-unlimited-resources	No
78	C3	Extreme weather	Disasters and ICT	Modeling future population's vulnerability to heat waves	Institute of Environmental Engineering, Kaunas University of Technology	http://climateinnovationwindow.eu/innovations/modeling-future-populations-vulnerability-heat-waves	No
79	C3	Extreme weather	Disasters and ICT	Modeling future population's vulnerability to heat waves	Institute of Environmental Engineering, Kaunas University of Technology	http://climateinnovationwindow.eu/innovations/modeling-future-populations-vulnerability-heat-waves	No
80	C3	Extreme weather	Disasters and ICT	FIRECAST	UB, UM, BSC	http://climateinnovationwindow.eu/innovations/firecast	No
81	C3	Extreme weather	Disasters and ICT	A LAM model for regions with complex orography	University of Messina	http://climateinnovationwindow.eu/innovations/lam-model-regions-complex-orography	No
82	C3	Extreme weather	Disasters and ICT	QoAir: A blockchain-based system for heatwave management in urban	Edlira Martiri (IT specialist-freelancer)	http://climateinnovationwindow.eu/innovations/goair	No

Nr	Cycle	Hazard	Topic	Name (CIW)	Company	Link	TIF
				areas			
83	C3	Extreme weather	Disasters and ICT	Unified Fire Protection Units and System-UFPUS	EXINN TECH CENTER	http://climateinnovationwindow.eu/innovations/ufpus	No
84	C3	Extreme weather	Urban Areas	Draining pavement to support transit traffic and displace storm peak	INDUSTRIAL BREINCO	http://climateinnovationwindow.eu/innovations/urban-draining-pavement	No
85	C3	Extreme weather	Urban Areas	Helsinki's stormwater filtration unit	City of Helsinki & WSP Finland Ltd	http://climateinnovationwindow.eu/innovations/helsinki-stormwater-filtration-unit	No
86	C3	Extreme weather	Urban Areas	Permeable Polymer Concrete	Epoka University	http://climateinnovationwindow.eu/innovations/permeable-polymer-concrete	No
87	C3	Extreme weather	Water Availability	Roads for Water	MetaMeta	http://climateinnovationwindow.eu/innovations/roads-water	No
88	C3	Extreme weather	Water Availability	Polder Roof (Polderdak)	Polderdak BV	http://climateinnovationwindow.eu/innovations/polder-roof-polderdak	No
89	C3	Multi-hazards	Disasters and ICT	RiskAPP	RiskAPP s.r.l.	[Not published]	No
90	C3	Multi-hazards	Disasters and ICT	HAZUR DataManager for Climate Change	Opticits	http://climateinnovationwindow.eu/innovations/hazur-dmcc	No
91	C3	Multi-hazards	Disasters and ICT	Low cost meteorological stations	Epoka University	http://climateinnovationwindow.eu/innovations/low-cost-meteorological-stations	No
92	C3	Multi-hazards	Disasters and ICT	MyClimateServices.eu	MYCLIMATESERVICES	http://climateinnovationwindow.eu/innovations/myclimateserviceseu	No
93	C3	Multi-hazards	Disasters and ICT	SAEx–L (Signal of Atmosphere Extreme Locally)	Meteoalb Ltd	http://climateinnovationwindow.eu/innovations/saex-l	No
94	C3	Multi-hazards	Disasters and ICT	I-REACT	I-REACT	http://climateinnovationwindow.eu/innovations/i-react	No
95	C3	Multi-	Energy	EQA-river. Eco-friendly	EQA-projects	http://climateinnovationwindow.eu/innovations/	No

Nr	Cycle	Hazard	Topic	Name (CIW)	Company	Link	TIF
		hazards		boat mill		**eqa-river-eco-friendly-boat-mill**	
96	C3	Multi-hazards	Energy	EQA-tidal. Sophisticated boat mill	EQA-projects	**http://climateinnovationwindow.eu/innovations/eqa-tidal-sophisticated-boat-mill**	No
97	C3	Multi-hazards	Water Availability	Rainwater in kindegarden	Ecomovement Group	**http://climateinnovationwindow.eu/innovations/rainwater-kindergarten**	No
98	C3	Multi-hazards	Water Quality	SolarDew	Solar Dew International B.V.	**http://climateinnovationwindow.eu/innovations/solardew**	No
99	C3	Multi-hazards	Water Safety	Danube Living Labs - Pilot application Potelu Living Lab Romania	BUSINESS DEVELOPMENT GROUP	**http://climateinnovationwindow.eu/innovations/danube-living-labs-pilot-application-potelu-living-lab-romania**	No

Table 13. Full list of innovations uploaded in the Climate Innovation Window: innovations by BRIGAID consortium partners.

Nr	Cycle	Hazard	Topic	Name (CIW)	Company	Link	TIF
1	C1	Floods	Disasters and ICT	My Flood Risk	HKV Consultants	http://climateinnovationwindow.eu/innovations/my-flood-risk	Yes
2	C1	Floods	Disasters and ICT	Application Framework with Drone system	RINA Consulting	http://climateinnovationwindow.eu/innovations/application-framework-drone-system	Yes
3	C1	Floods	Disasters and ICT	Toolkit Method	Thetis S.p.A.	http://climateinnovationwindow.eu/innovations/toolkit-method	Yes
4	C1	Floods	Energy	OBREC	Università degli Studi della Campania & Università di Bologna	http://climateinnovationwindow.eu/innovations/obrec	Yes
5	C1	Floods	Urban Areas	Flip-Flap cofferdam	Spectrum Construct SRL	http://climateinnovationwindow.eu/innovations/flip-flap-cofferdam	Yes
6	C1	Floods	Water Safety	Action plan in case of dike failure	Aquaproiect S.A.	http://climateinnovationwindow.eu/innovations/action-plan-case-dike-failure	Yes
7	C1	Drought	Agriculture	ThirdEye: Flying Sensors to support farmers' decision making	FutureWater	http://climateinnovationwindow.eu/innovations/thirdeye	Yes
8	C1	Drought	Agriculture	Water+ Furrow Diker	S.C. AQUAPROIECT S.A.	http://climateinnovationwindow.eu/innovations/water-plus-furrow-diker	Yes
9	C1	Drought	Disasters and ICT	infoSequia	FutureWater	http://climateinnovationwindow.eu/innovations/infosequia	Yes
10	C1	Drought	Water Quality	Halophyte Zeolite Wetlands (HZW)	MIGAL - Galilee Research Institute	http://climateinnovationwindow.eu/innovations/halophyte-zeolite-wetlands	Yes
11	C1	Extreme weather	Disasters and ICT	GM4W - GeoGuard Module for Water vapor monitoring	Geomatics Research & Development (GReD) srl	http://climateinnovationwindow.eu/innovations/gm4w	Yes

Nr	Cycle	Hazard	Topic	Name (CIW)	Company	Link	TIF
12	C1	Extreme weather	Forests	Active Eco-Wildfire Management System	GIFF Lda	http://climateinnovationwindow.eu/innovations/active-eco-wildfire-management-system	Yes
13	C1	Extreme weather	Forests	FireAd (Fire Risk Monitor Advisor)	Centro de Ecologia Aplicada "prof. Baeta Neves"	http://climateinnovationwindow.eu/innovations/fire-risk-monitor	Yes
14	C1	Extreme weather	Urban Areas	URBRAIN	University of Architecture & Urban Planning "Ion Mincu", Bucharest (UAUIM – UTCB)	http://climateinnovationwindow.eu/innovations/urbrain	Yes
15	C1	Multi-hazards	Disasters and ICT	Expanded EM-DAT disaster database to the European level (eEM-DAT)	UCL	http://climateinnovationwindow.eu/innovations/eEM-DAT	Yes
16	C1	Drought	Agriculture	IRRINET-IRRIFRAME	Consorzio di Bonifica – CER	http://climateinnovationwindow.eu/innovations/irrinet-irriframe	No
17	C1	Drought	Agriculture	New growing system for food vertical farming	RINA Consulting	http://climateinnovationwindow.eu/innovations/new-vertical-farming	No
18	C1	Drought	Water Availability	Bathymetry measurements with Fishfinders	HKV Consultants	http://climateinnovationwindow.eu/innovations/bathymetry-measurements-fishfinders	No
19	C2	Drought	Agriculture	Irriframe - Acquacampus	University of Bologna & Consorzio CER	http://climateinnovationwindow.eu/innovations/irriframe-acquacampus	Yes
20	C2	Multi-hazards	Disasters and ICT	My Water Level	HKV Consultants	http://climateinnovationwindow.eu/innovations/my-water-level	No
21	C2	Multi-hazards	Disasters and ICT	Spatial Processes in HYdrology (SPHY)	FutureWater	http://climateinnovationwindow.eu/innovations/sphy	No
22	C2	Multi-hazards	Disasters and ICT	MyFloodRiskProfile	HKV Consultants	http://climateinnovationwindow.eu/innovations/myfloodrisk-business	No

Nr	Cycle	Hazard	Topic	Name (CIW)	Company	Link	TIF
23	C2	Multi-hazards	Water Safety	Dike Profile Generator	HKV Consultants	http://climateinnovationwindow.eu/innovations/dike-profile-generator	No
24	C3	Drought	Disasters and ICT	PAS-WATER	Icatalist	http://climateinnovationwindow.eu/innovations/pas-water	Yes
25	C3	Drought	Disasters and ICT	AUDIMOD	Icatalist	http://climateinnovationwindow.eu/innovations/audimod	Yes
26	C3	Multi-hazards	Water Availability	FlooDrought	UTCB	http://climateinnovationwindow.eu/innovations/floodrought	No

Chapter 6: Lessons learned

Lessons learned

The points below highlight the main issues addressed during the three stocktaking cycles, difficulties found and lessons learned.

Stocktaking strategy. A larger number of external innovations were effectively recruited after a combined strategy which included the activation of the BRIGAID's network, the use of BRIGAID's marketing material (video, welcome package for innovators, web and social network means), and the publication of a specific open call launched at the beginning of the innovation cycle. This integrated strategy captured a larger spectrum of target groups and innovations (technological centres and incubators, partnerships and clusters). From the lessons learned in the Cycles 1 and 2, extra efforts were taken in Cycle 3 in order to:

- Get a wider coverage and representativeness at the country level. This was achieved by reinforcing the role of the BRIGAID partners, that played an important role as the main contact points at the national level. Special attention was given to Albania, Poland, Greece and Portugal.
- Recruit a higher number of nature-based solutions and innovations in other hazard-topics that were not well captured (e.g. solutions for mitigating heat weaves and wind storms). This was addressed by strenghtening the synergies with other major EU innitiatives and projects within the domain (LIFE, H2020, CLIMATE-KIC programmes), and specially those that promote the development and adoption of nature-based solutions (e.g. UNaLAB, Connecting Nature, Urban Green Up, Grow Green, Nature4Cities, Naturvation).
- Cover a wider audience using social media tools (Twitter, Facebook, Linkedin) and disseminating the BRIGAID's material and calls to pan-European networks and innovation platforms (EASME, WsTTP, Oppla, ThinkNature).

Description of the innovations. After initial experience from Cycle 1, BRIGAID adopted a two-stage approach in Cycles 2 and 3 in order to collect the information required for the description and assessment of submitted innovations. The two stage strategy comprised:

- step 1, innovators registered and published their innovation in the Climate Innovation Window;
- step 2, thereafter innovators were asked whether they would be interested in support for further testing.

The two-stage approach was less time-consuming and optimized the efforts invested by innovators for describing their innovations, and by the BRIGAID reviewers to score them.

Pre-selection of external innovations. 37 innovations were in-depth assessed during Cycle 3. Due to the high number of innovations positively evaluated (26 solutions with a grey score higher than 5), other criteria had to be considered to maximize the BRIGAID impact. These criteria included:

- Budget, to get a right balance between the budget already available and the innovator's requirements.

- Representativeness at the country level, in order to avoid an overcoverage of innovations at the country level.
- Topic, to minimize the support to similar solutions but maximizing the opportunitites of synergies among innovations and the generation of potential clusters of innovators with similar interests.

To cope with the new objectives stated for Cycles 2 and 3, other extra (bonus) criteria were adopted and agreed before starting the last stocktaking cycle.

Refused innovators. A large number of innovators from countries outside EU (DRC, Tanzania, Kenya, Ghana, Sudan, Uganda, Thailand, US, Australia, Bolivia,…) showed interest in registering their innovations and receiving support. Despite the fact that these submissions are considered a positive signal of the dissemination strategy effectiveness, WP2-4 had to refuse those innovators. The call in Cycle 3 aimed to prevent the incoming of innovators outside the EU (and associated countries) by claryfing BRIGAID's coverage, which partially worked out.

Failed recruitments. In Cycle 3, none of the selected innovators failed to deliver a valid test plan. This was different from Cycle 2, where two innovators failed to deliver their test plan during the preparation of the testing plan proposal (Table 14). In one case the innovator was unable to meet BRIGAID's requirements for submitting a test plan whereas in the other case the innovator decided to withdraw because BRIGAID only financially supports equipment whereas the innovator required coverage of labour costs.

This two-stage procedure for submiiting and evaluating innovations (described above) likely reduced the number of failed recruitments because there were some innovators that were interested in registration in the CIW but finally not in testing under BRIGAID.

Table 14. Failed innovations detected, and actions adopted.

Company/Institution (Country)	Innovation	Reason of decline or failure	Action
Several (outside EU countries)	Several	Out of the BRIGAID coverage	Declined and inform about the BRIGAID coverage
BREINCO (Spain)	Draining pavement to support transit traffic and displace storm peak	Testing plan with no enough quality or justified. Innovator declined to submit an improved plan.	A new submission deadline was proposed. A similar innovation was proposed as alternative (Recycle by Favaro1) and innovator was encouraged to submit a testing plan
Shore Monitoring & Research (The Netherlands)	Drone+LiDAR for Emergency Response	Innovator declined to withdraw due to the high testing costs and the lack of additional funds.	A similar innovation was proposed as alternative (Ecological Water Management by Ecological Water Management consortium) and innovator was encouraged to submit a testing plan

Appendix 1: TRL scale

TRL	Main	Description
1	Basic principles observed.	Scientific research begins to be translated into applied research and development (R&D). Examples might include paper studies of a technology's basic properties.
2	Technology concept formulated.	Invention begins. Once basic principles are observed, practical applications can be invented. Applications are speculative, and there may be no proof or detailed analysis to support the assumptions. Examples are limited to analytic studies.
3	Experimental proof of concept.	Active R&D is initiated. This includes analytical studies and laboratory studies to physically validate the analytical predictions of separate elements of the technology. Examples include components that are not yet integrated or representative.
4	Technology validated in lab.	Basic technological components are integrated to establish that they will work together. This is relatively "low fidelity" compared with the eventual system. Examples include integration of "ad hoc" hardware in the laboratory.
5	Technology validated in relevant environment.	Fidelity of breadboard technology increases significantly. The basic technological components are integrated with reasonably realistic supporting elements so they can be tested in a simulated environment. Examples include "high-fidelity" laboratory integration of components.
6	Technology demonstrated in relevant environment.	Representative model or prototype system, which is well beyond that of TRL 5, is tested in a relevant environment. Represents a major step up in a technology's demonstrated readiness. Examples include testing a prototype in a high-fidelity laboratory environment or in a simulated operational environment.
7	System prototype demonstration in operational environment.	Prototype near or at planned operational system. Represents a major step up from TRL 6 by requiring demonstration of an actual system prototype in an operational environment (e.g., in an aircraft, in a vehicle, or in space).
8	System complete and qualified.	Technology has been proven to work in its final form and under expected conditions. In almost all cases, this TRL represents the end of true system development. Examples include developmental test and evaluation (DT&E) of the system in its intended weapon system to determine if it meets design specifications.
9	Actual system proven in operational environment (competitive manufacturing).	The solution is used successfully in a structurally operational environment. The user can and wants to recommend the solution to other water managers.

Appendix 2: Questionnaires

Climate Innovation Window questionnaire

1. What is the name of the Innovation?

2. Please add a short explanatory title for your innovation

3. Briefly describe the specific issue/problem that your innovation offers a solution for:

4. Briefly describe your innovation:

5. Contact information

6. Which of the following hazards apply to your innovation?
   - N/A
   - Coastal Floods
   - Droughts
   - Heatwaves
   - Heavy Precipitation
   - Multi-hazard
   - River Floods
   - Storms
   - Wildfires

7. Which of the following topics apply to your innovation? (Please select up to three topics)
   - Agriculture
   - Disasters and ICT
   - Energy
   - Forests
   - Nature Based Solutions
   - Urban Areas
   - Water Availability
   - Water Quality
   - Water Safety

8. Please provide a short summary of how your innovation works:

9. What do you think is the added value and/or main differentiating element of your innovation ?

10. Are there any limitations/conditions under which your innovation does not work or is less effective ?

11. Please indicate the current Technology Readiness Level (TRL) of the innovation:
    - N/A
    - TRL 1
    - TRL 2
    - TRL 3
    - TRL 4
    - TRL 5
    - TRL 6
    - TRL 7
    - TRL 8
    - TRL 9

12. Briefly explain why your innovation is at the indicated TRL and the extent to which your innovation has been tested:

13. Have you already established a price for your innovation? If so, can you provide the purchase price?

14. Can you provide the rental price?

15. Please, upload a clear and informative picture of the innovation:

16. Please, upload a company logo:

17. Please upload additional materials about your innovation

Selection questionnaire

1. What is the name of the innovation?

2. Please provide your contact details at which we can reach you for follow-up.

3. Which part of the (technical) design of your innovation would you like to test and optimize?

4. Please describe the tests that you would like to perform in about 500 words. Explain these tests as well as to what extent these will improve your innovation. Be as clear and concrete as possible. If you will be selected this will serve as the draft test plan. Major changes after selection are not accepted, so the test plan may be ambitious but also has to be feasible. Please note that BRIGAID can financially support up to 25.000 euro incl. VAT. Tests have to be completed and reported in September 2018.

5. What is your preferred test location(s) or facility(ies), and what needs to be arranged to get access (e.g., rental contract, technical support and staff)?
   - Name
   - Location
   - Arrangement

6. Please explain the following with regard to the costs of testing:
   - What are the estimated total costs of your testing plan?
   - If the estimated costs exceed 25.000 incl. VAT, which additional sources do you have available?

7. Please check the boxes that apply to your innovation
   I have contacted end users for my innovation
   End users have provided feedback on the design and usefulness of my innovation
   End user feedback has been incorporated in the design of my innovation
   I can arrange a support letter from an end user to be involved in the test phase

8. Which challenges/barriers/requirements have you identified for the adoption of your innovation among end users?

9. What have you done/will you do to deal with these challenges challenges/barriers/requirements?

10. Who is or are your (potential) customer(s) / end user(s)? (please select all that apply)
    Government
    Commercial companies (business to business)
    Consumers (business to consumer)
    Institutes (such as universities or research institutes)

11. What is the scope of your (potential) customers / end users?
    One actor (such as one governmental agency)
    A few (less than 20) actors
    One specific region with multiple actors
    One country with multiple actors
    International with multiple actors

12. Do you want to commercialise your innovation?
    o No

- Yes, to break-even (profit is not the goal)
- Yes, internally in an existing company
- Yes, internally in an institute
- Yes, as a spin-off or start-up
- Yes, by selling the idea/Intellectual Property

13. How will you cover the development costs? (please select all that apply)
    Internally
    An institute covers the costs
    An investor covers the costs
    One or multiple grants have been used
    (Additional) funding is required to continue development

14. How will you cover the costs of commercialisation? (please select all that apply)
    N/A
    An institute will cover the costs
    An investor will covers the costs
    By use of one or multiple grants
    (Additional) funding is required for commercialisation

15. What is the potential for further development after commercialisation? (please select all that apply)
    N/A
    No further development potential (when the product is finished, it's done)
    Potential for incremental upgrades
    Potential for other regions
    Potential for other sectors/markets
    Potential for other types of customers

16. To what extent have you developed a market strategy which includes a description of target markets, market size, potential customers, competitors, and a strategy to achieve short and long term goals.
    A market strategy has not been thought about yet
    A market stratregy has been thought about but not been put on paper yet
    A rough market strategy has been put on paper
    A detailed market strategy has been put on paper using etsblished methods (e.g., CANVAS)
    A detailed market strategy has been put on paper and is currently being executed
    Please explain your answer

17. Next to support in testing, BRIGAID also offers one-on-one and online business development and market analysis support. How interested are you in carrying out a market analysis for your innovation and developing a business plan?
    Not interested
    Somewhat interested
    Interested but not a current priority
    Very interested
    Top priority
18. What is the added value and main differentiating element of your innovation?

19. Do you know of any competing products/services?
    No
    Yes (please provide further details):

20. What kind of positive and/or negative impacts might your innovation have over its lifecycle?

21. Is your innovation (or has been) part of an incubator or accelerator programme or initiative?
    No
    Yes (please specify which one, and provide further details):

22. Briefly explain your vision / strategy for the future (e.g., When do you regard your innovation as 'successful'? Which steps are needed to reach that success, and how will these steps be taken?)

Appendix 3: Initial test plan and budget request template for pre-selected innovations

The purpose of this template is to have a clear picture of:

- *the tests that will be performed and to what extent these test help to improve the innovation (e.g., in terms of TRL)*
- *the technical feasibility of these test given the test facilities and equipment*
- *the financial feasibility given the estimated costs and the available budget from BRIGAID and other sources*

In BRIGAID, the following costs are eligible:

- ***Testing****: eligible costs include the purchase of specific equipment, renting of test facilities, logistics for moving innovations to the test sites, etc.;*
- ***Improving innovations****: include material costs related to repairing or improving prototypes.*

In BRIGAID, the following costs are <u>not</u> eligible*:*

- ***labour costs*** *of the owner or developer team (e.g. compensation for time spent on improvements);*
- ***travel costs*** *of the owner or developer team (e.g. compensation for train/plane/hotel costs).*

The total budget requested should be as low as possible and fully transparent.

Disclaimer: *Filling in this template does not entitle the subscriber to allocation of any budget from BRIGAID. Budget allocation of BRIGAID will depend on the quality and cost of the requests submitted for the selected innovations.*

Innovation Name

Company (Innovator Name) & Contact Information

Estimated total cost for testing the prototype (in €)

BRIGAID's budget requested (max. 25 k€)

% BRIGAID's budget vs total cost

Own financial resources (in €)

Other external sources (in €)

1. Test Plan

Describe the main goal of testing and what part(s) of the design of the innovation will be optimized and/or improved through testing and which performance indicators will be analyzed during testing. For example, which governing failure modes will you assess? Is there a particular component of the design that will be tested?

Test #1

Rational
Describe the rational for this test and which social and/or technical performance indicators will be optmized/improved through this test. From the information provided, it should be clear to what extent the innovation will be improved and to what extent the tests are technically feasible.
Facility
Where will the tests be performed (e.g., facility, operational environment)?
Equipment
What measurement devices are needed? Where will they be placed during testing?
Protocol
Describe the testing protocol and any measurements that will be made in as much detail as possible.
Expected Results
Describe the expected results of testing and how these pertain to improving the design of the innovation.
Test Plan Schedule

2. Budget Request

Please specify the *eligible costs* for which budget is requested from BRIGAID.
The following costs are considered *eligible*: • *Testing*: eligible costs include the purchase of specific equipment, renting of test facilities, logistics for moving innovations to the test sites, etc.; • *Innovation Improvement*: eligible costs include material costs related to repairing or improving prototypes.
If applicable, please describe any resources that have already been acquired or additional external budget that is available (or being requested from other sources) for testing.

Any other comments:

3. Ethics Evaluation

Contact person (complete contact details; including email address):
Brief description of innovation, including impact on the surroundings (250-500 words):
Please list the potential safety, health and environmental risks, including negative impacts identified under WP5. Do these risks include irreversible consequences (e.g., severe bodily injury or death, irreparable environmental damage, etc.)? Mention any relevant impact evaluation results performed under WP5.
What measures are taken to reduce risks and reduce potentially negative consequences?
Does the innovation violate any regulation or infringe on private (property) rights, including privacy and? If so, please indicate how permission will be sought to continue with the innovation.
Does the innovation include any collection, storage, processing, retention and destruction of personal data. If so, please include the relevant documents mentioned below and briefly describe how informed consent and privacy are secured.
Does the innovation comply with Article 34 (Ethics) of the Grant Agreement. If not, explain why not (see backside for description of Article 34).

Please include the following documents when applicable:	
Templates of the Informed Consent forms and Information Sheets for the participation of humans in the research.	
Copies of ethics approvals covering work with human participants.	
Copies of test sites' authorisations before the start of field tests	
Statement from the designated Data Protection Officer that all personal data collection and processing will be carried out according to EU and national legislation or authorisation/notification by the national Data Protection Authority	

Please include a copy of (a) any other ethics committee opinion required under national law; and (b) any other notification or authorisation for activities raising ethical issues required under national law not listed in the table above.

Appendix 4: Selection strategy

In the GA (Annex 1, DoA Part B, page 14) and in the Internal Report “Stockaking Process” the following selection procedure has been proposed:

1. Based on preliminary data, a technical and social score is assigned to each innovation.
2. A overall score is computed as the product of technical and social scores;
3. The overall score is divided by the reported development costs to arrive at a total score;
4. Innovations are ranked based on their total score (a higher score is better than a lower score) and other qualitative criteria regarding: a) business potential and impact on economy, b) testing feasiblity, c) ethical issues, d) innovator enthusiasm, e) ‘green’ solutions and internal balance between innovation typologies and hazards covered
5. Advice from the Advisory Board (only if it is required)

The selection procedure – especially steps 1 to 4 – is being further improved in each of the three rounds of stocktaking (M1-12; M16-22; M27-33). The improvement of the description questionnaire from which quantitative information is retrieved will go hand in hand with the development of the TIF. In the first round of stocktaking the TIF is not expected to be ready for a complete, quantitative assessment. Prioritizing and selecting innovations therefore will be done based on expert judgment, while in the second and third round more detailed, quantitative procedures will be available.

This section further details the criteria, their scoring and the calculation of an overall score. The scoring and calculation procedure slightly deviates from the procedure initially proposed in the DoA/Stocktaking Process report, due to ongoing insights while detailing the procedure.

The procedure is applied to rank innovations, as a basis for the selection of the most attractive innovations for BRIGAID. The procedure will be evaluated after each round of stocktaking and will be updated before the next stocktaking round, based on ongoing work in the project.

Criteria for assessment of innovations

All criteria are scored on Likert-type scales, based on expert judgment. Expert judgment is performed by the WP2-4 leaders based on information that innovators provided through the Innovation Description Questionnaire, and through direct contacts (email, phone,meetings, etc.) with the innovators. Appendix 2 provides insight in the IDQ questions that were used in scoring the innovations on the criteria. Assigning higher scores means that an innovation fits better with BRIGAID’s goals. In this paragraph the scoring of the following criteria is explained in detail:

1. Three types of Readiness: Technical, Social and Market Readiness
2. Other qulitative criteria: testing feasibility, innovator vision and promising innovations
3. Nature-based innovations

1. Readiness indicators

BRIGAID defines three types of readiness that are important for the succesful development and market introduction of an innovation: technical, social and market readiness. These readiness types are therefore applied in the selection of innovations.

Technical readiness

Technology Readiness Levels (TRLs) are a metric used to assess the maturity of an innovation. In BRIGAID, Technical readiness is defined as the performance of an innovation to reduce climate-related risks, as shown in field tests and operational environments. To evaluate the technical readiness of an innovation, we focus here on its technical reliability. Technical reliability describes the likelihood that an innovation fulfills its intended functionality during its intended lifetime. By definition, reliability is the probability of successful operation, which can also be expressed as the complement of the probability of failure during operation. For example, the reliability of a temporary flood barrier (TFB) is evaluated by determining the probability that the TFB fails to retain water levels to its design height (and safety level); or, the reliability of a flood warning system (FWS) is evaluated by determining probability that the FWS fails to predict flooding or to achieve the intended lead time prior to a flood. As relibability of an innovation increases, aslo its TRL increases.

BRIGAID supports innovations that are at TRL4 or higher and require further improvement in terms of technical, social and market readiness. For the selection of innovations we assign a score on 1-5 scale based on the TRL. Innovations with TRL 4-6 receive the highest scores as they match best with BRIGAID's ambitions, i.e., to support testing in the lab, in a relevant environment or in a simulated operational environment.

The TRL specifies which activities are undertaken at the stated level.	**TRL**	**Score**
TRL 1. Basic principles observed. **TRL 2.** Technology concept formulated. **TRL 3.** Experimental proof of concept. *BRIGAID does not support innovations that are at TRL1-3.*	1-3	n.a.
TRL 4. Technology validated in lab. Laboratory testing of prototype component or process. Design, development and lab testing of innovation components are performed. Here, basic innovation components are integrated to establish that they will work together. This is a relatively "low fidelity" prototype in comparison with the eventual system.	4	3
TRL 5. Technology validated in relevant environment. Laboratory testing of integrated system. The basic innovation components are integrated together with realistic supporting elements to be tested in a simulated environment. This is a "high fidelity" prototype compared to the eventual system.	5	4
TRL 6. Technology demonstrated in relevant environment. Representative model or prototype system, which is well beyond that of TRL 5, is tested in a relevant environment. Represents a major step up in a technology's demonstrated readiness. Examples include testing a prototype in a high-fidelity laboratory environment or in a simulated operational environment.	6	5
TRL 7. System prototype demonstration in operational environment. Integrated pilot system demonstrated. Prototype is near, or at, planned operational system level. The final design is virtually complete. The goal of this stage is to remove engineering and manufacturing risk.	7	2
TRL 8. System complete and qualified. System incorporated in commercial design. Innovation has been proven to work in its final form under the expected conditions. In most of the cases, this level represents the end of true system development.	8	1
TRL 9. Actual system proven in operational environment (competitive manufacturing). System ready for full scale deployment. Here, the innovation in its final form is ready for commercial deployment.	9	n.a.

Social Readiness

Social readiness is the extent to which the innovation is accepted by direct end users and end beneficiaries. Acceptance may be hampered due to a mismatch between the innovation and the requirements of direct

users (maintenance, training/user support, embedment in policy, etc.), due to existing positive attitudes towards current practice and lack of confidence in the new technology (e.g., because the innovation is new and has not been proven yet) or due to concerns in the sector and/or in society especially when the innovation has (perceived) negative side effects on health, ecology, or spatial quality.

Ideally, an innovation's technical, social and market readiness are improved simultaneously. If this is not the case, one risks that additional requirements need to be incorporated ad hoc in the technical design. This means that all social readiness requirements that influence the technical design need to have been incorporated at TRL6, and need to be identified and addressed beforehand, at TRL4-5. In the selection of innovations, stronger past efforts to identify, document and improve social readiness are positively rewarded. We assign a score on 1-5 scale as follows:

Social Readiness	Score
Potential social readiness requirements not identified	1
Potential social readiness requirements identified (desk study)	2
Potential social readiness requirements validated among direct users (interviews, survey)	3
Potential solutions to social readiness requirements (if any) identified and designed.	4
Potential solutions to social readiness requirements (if any) tested and validated with direct end-users / beneficiaries.	5

Market Readiness

Market Readiness is the potential of an innovation to develop a solid business case and to attract clients and investors. Market Readiness can be defined in four underlying dimensions[3]:

- Technical: the extent to which the innovation is technically ready. This has been considered separately under Technical Readiness.
- Social: the extent to which the innovation is socially ready. This has been considered separately under Social Readiness.
- Strategy: the extent to which a market strategy has been defined. This includes several items such as identification of target customers, market, competitors.
- Finance: the extent to which a financial strategy has been defined. This includes several items such as price, revenue and profit forecast, and funding of development and scaling up.

Since Technical and Social Readiness are dealt with separately, we use Market Strategy and Financial Strategy as indicators of Market Readiness. Market Readiness is calculated as the average of Market Strategy and Financial Strategy.

Market Strategy: extent to which innovator has developed a market strategy which includes a description of target markets, market size, potential customers, competitors, and a strategy to achieve short and long term goals.	Score
A market strategy has not been thought about yet.	1

[3] See the Market Readiness Scan that was applied to the Frontrunner Innovations, developed by TFC (acronim?).

A market stratregy has been thought about but not been put on paper yet.	2
A rough market strategy has been put on paper.	3
A detailed market strategy has been put on paper using etsblished methods (e.g., CANVAS).	4
A detailed market strategy has been put on paper and is currently being executed.	5

Financial Strategy: extent to which innovator has developed a financial strategy which includes having a product price strategy, price, revenue and profit forecasts, and having arranged capital/funds for the further development, testing and scaling-up of the project.	Score
A financial strategy has not been thought about yet.	1
A financial stratregy has been thought about but not been put on paper yet.	2
A rough financial strategy has been put on paper.	3
A detailed financial strategy has been put on paper	4
A detailed financial strategy has been put on paper and is currently being executed.	5

2. Other qualitative criteria

Other criteria include the business potential, feasibility if testing, the innovator's vision and the extent to which an innovation is seen as 'promising'. The background for these criteria is as follows:

- Testing feasibility: BRIGAID focuses in particular on TRL4-6 and therefore testing feasibility is regarded an important criterion. Testing feasibility is the extent to which testing and improvement of the innovation to reach the next Technical and Social Readiness levels is feasible, given the required resources such as expertise, test facilities, equipment, funds and network.

- Innovator's vision: BRIGAID supports innovators but the innovator is responsible for pushing the innovation towards the market. Vision is understood as the extent to which the innovator has a clear strategy to improve the innovation and push it forward in and beyond BRIGAID to reach the market.

- Promising value: some innovations catch attention immediately, because they are completely new, inspiring, unorthodox and seem 'spot on' because of their high potential to reduce climate related risk (i.e., high effectivess). Such innovations may be less easy to develop because there are no similar examples that have straightened the development path before them. BRIGAID aims to support those promising innovations and scores them higher to increase their chance of being selected.

Each of these criteria is assessed on a 1-3 scale, as indicated below. The overall score for qualitative aspects is calculated as the average of the three criteria.

Testing feasibility	Score
No detailed test plan for further improvements is made, but it seems reasonable to expect that test resources are in reach of the innovator and BRIGAID	1
A rough test plan is made and documented including rough estimations of required resources; required resources are in reach of the innovator and	2

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A full test plan is available, with detailed requirements and arrangements; BRIGAID only has to review the test plan, allign details with the TIF and provide (co)funding.	3

Innovator vision	Score
Innovator hardly expresssed a vision to develop the innovation into a market ready product; next steps are taken ad hoc and in an opportunisticly.	1
Innovator has a rough vision to develop the innovation into a market ready product; next steps for impovement are roughly known but not planned and acted upon.	2
Innovator has a clear vision to develop the innovation into a market ready product; next steps for impovement are known in detail and carefully planned and acted upon.	3

Promising value	Score
Innovation is a variation on other, previously established, innovations and not particularly new or more effective than others..	1
Innovation has some new and inspiring aspects, and seems to have greater potential than its competitors to reduce climate related risk.	2
Innovation is totally new, unorthodox and inspiring and seems to have great potential to reduce risk.	3

3. Nature-based aspects

Nature-based solutions to societal challenges are solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions. See https://ec.europa.eu/research/environment/index.cfm?pg=nbs

BRIGAID rewards innovations that are ‘nature-based’. The EU strives for solutions that are sustainable and nature-based. In particular, the EU Research and Innovation policy agenda on Nature-Based Solutions and Re-Naturing Cities aims to position the EU as leader in ‘Innovating with nature’ for more sustainable and resilient societies. To stimulate the development of such solutions, BRIGAID gives a bonus to innovations that are sustainable and nature-based.

Nature-based aspects	**Score**
Solution is not nature-based and does not explicitly incorporate sustainibility or eco-friendly aspects	1
Solution incorporates some sustainable / eco-friendly aspects	2
Solution is nature-based and/or focuses explcitly on sustainable / eco-friendly aspects (e.g., re-use of water, production of green energy)	3

Innovations in category 1 receive no bonus on their total score, while innovations in categories 2 and 3 receive a 10% and 25% bonus on their total score, respectively.

Calculation of overall score for selection of innovations

Based on the scores on individual criteria, a 'Grey Score' and 'Green Score' are computed, as follows:

Grey Score = Average (Readiness Score, Qualitative score)
with
Readiness Score = 0,50*Technical Readiness Score +
0,25*Social Readiness Score +
0,25*Market Readiness Score
Qualitative Score = (0,33*Testing Feasibility Score +
0,33*Innovator Vision Score +
0,33*Promising Innovation Score)

Green Score = Grey Score * Nature-Based Bonus
With
(1) No nature-based aspects: Grey score*1,00 (No bonus)
(2) Some nature-based aspects: Grey score*1,10 (10% Bonus)
(3) Nature-based / strong focus on green aspects: Grey Score*1,25 (25% Bonus)

The Readiness score is scaled 1-5 (min-max) and the Qualitative Score 1-3 (min-max). So the Grey Score is scaled 2-8. Including the Nature-based Bonus the highest score is therefore 10 points.

Further note:

- The Readiness indicators weight heavier than the Qualitative indicators because the three types of Readiness are regarded is the fundamental pillars for sucessful market introduction.
- Technical Readiness is weighted higher (0,50) than Social and Maket Readiness (0,25) because in the current phase of BRIGAID Social and Market Readiness indicators are not fully developed yet. These weights may be update in Cycle 2 and 3. The weights do not mean that Social and Market Readiness are less important.
- The qualitative criteria are weighted evenly, so each of these three indicators is regarded of equal importance.

Selection of innovations

Next step is to select the innovations that are considered for inclusion in BRIGAID. This is done in a 3-step procedure:

1. Cut-off score: innovations that received a Grey-score of 5 or higher are shortlisted;
2. Test proposal: shortlisted innovations are requested to write a proposal describing the tests they want to perform and to specify the required funds;
3. EB-decision: based on the Green-score and the test proposal / required funds the BRIGAID Executive Board decides which of the shortlisted innovations will be included in BRIGAID.

Cut-off score
All innovations below the cut-off score '5' will not be considered for inclusion. This means that the Grey Score needs to reach at least 5 points out of 8 on the Readiness / Qualitative criteria.

Test proposal
Shortlisted innovations are requested to make test proposal (format provided by BRIGAID) and specify the required budget/needs. BRIGAID provides a template (see Appendix 3).

Test plans need to show that tests will lead to a significant improvement of the innovation's technical and social readiness, and is practically feasible (test location, required budget, complexity, etc). BRIGAID offers external innovators a small budget for testing and improving their innovations. About 450.000 euro is available over three innovation cycles; about 150.000 euro per cycle. Since BRIGAID aims to improve 35-50 innovations including about 25 from within the consortium, BRIGAID aims to stocktake and improve roughly 10-25 innovations from external innovators.

BRIGAID will evaluate the test plan and requested budget. The following will be considered herein:

- Best Value: BRIGAID may act as the sole funder or as a cofunder. Acting as cofunder has the advantage that a larger budget is available. In some cases this is a necessity due to expensive tests that BRIGAID cannot support on its own. In other cases this is a luxury because it enables to perform more extensive testing and to make larger steps forward (e.g. from TRL4 to 7). Being a co-funder may have the disadvantage that BRIGAID has less influence and control over the steps that are taken.

- Maximum Grant: A conservative estimation is that about 15-20 keuro euro is available per innovation. The total amount of money that is granted to innovators needs to be evaluated against the number of innovations that BRIGAID requires to meet its own objectives (testing and improving 35-50 innovations) throughout the project lifetime. A maximum grant for innovations depends on these evaluations.

EB-decision
Based on the Green Score and the 2-page Test Plan the Executive Board will decide which of the innovations will be included in the project. This could be all shortlisted innovations are a sub-set. If needed the Advisory Board will be asked for advice. The budget allocation is specified in a contract to be signed by the BRIGAID budget holder and the innovator. A standardized contract is developed by TU Delft.

Appendix 5: Innovator Welcome Pack

BRIGAID

BRIDGING THE GAP FOR INNOVATIONS
IN DISASTER RESILIENCE

INNOVATOR WELCOME PACK

You are an innovator we are interested in working with!

That is why you received this welcome pack

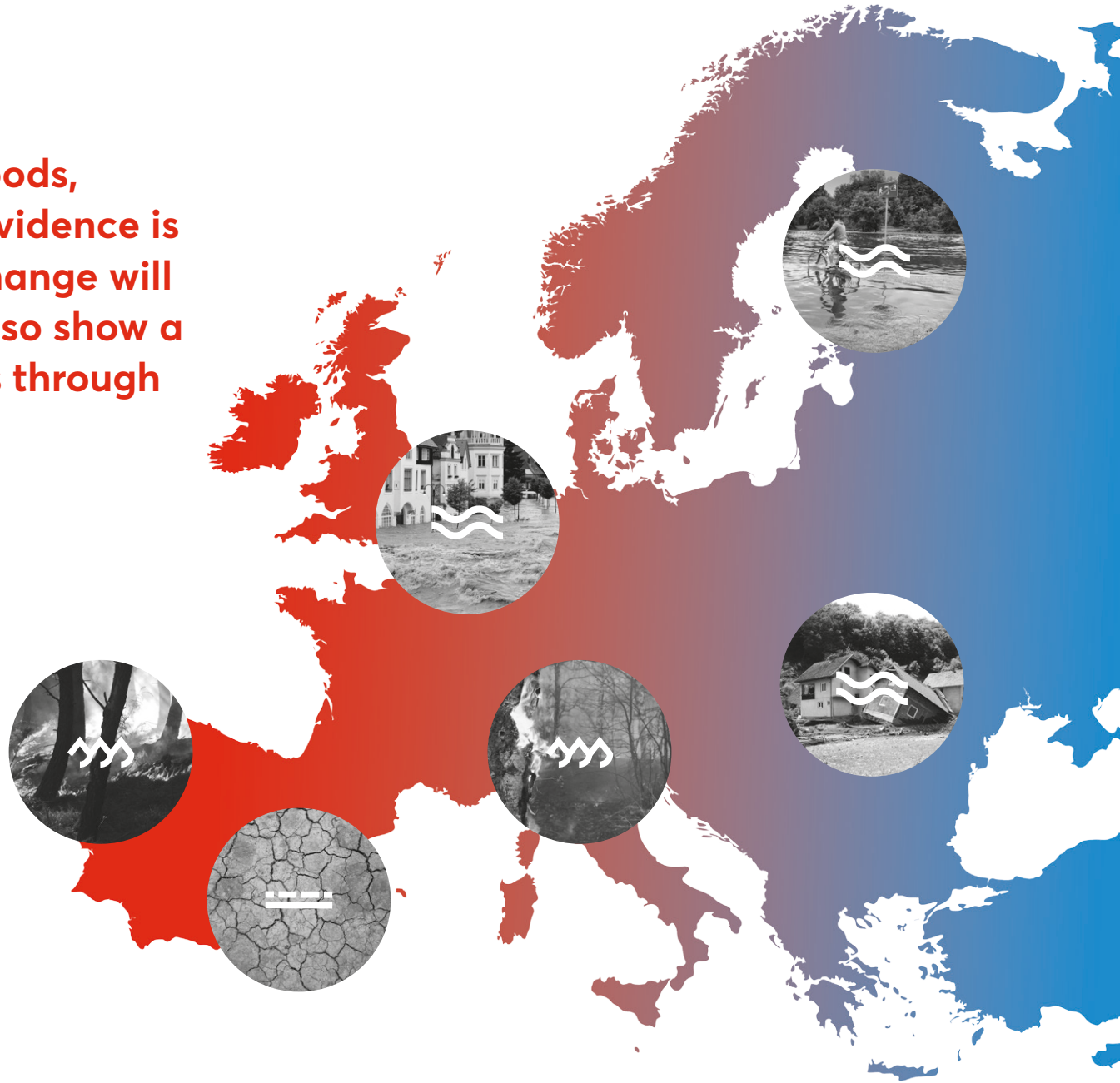
BACKGROUND

Europe is particularly prone to floods, droughts and extreme weather. Evidence is now ever stronger that climate change will increase damages. Evaluations also show a huge potential to reduce the risks through adaptation strategies.

Although there is no lack of entrepreneurs that develop innovative solutions, only 6% of the European companies are capable of testing and demonstrating their innovations.

This is often related to a lack of:

- Resources for testing and improving innovations
- Incorporation of end user requirements in the design and business model
- Capacities to identify and engage with wide spread network of potential customers



BRIGAID

WHAT IS BRIGAID?

BRIGAID is a 4-year project (2016-2020) under EU Horizon2020.
We aim to effectively bridge the gap between innovators and end-users in resilience to floods, droughts and extreme weather.

INNOVATION PROCESS
Plan, Test and Market

PROTOTYPE

Stocktaking of innovations
Innovator Incubator

VALLEY OF DEATH

END USERS

Market Ready Innovations
Large Scale Market Uptake

BRIGAID

WHY YOU?

DO YOU HAVE AN INNOVATION that has the potential to reduce risks from natural hazards such as floods, droughts, storms, rain or wildfires?

ARE YOU EAGER TO IMPROVE YOUR INNOVATION, make it fit with needs of end users, and meet with prospective clients?

If so, you could be interested in getting involved in our initiative.

BRIGAID!

BRIGAID

BRIGAID FOR INNOVATORS

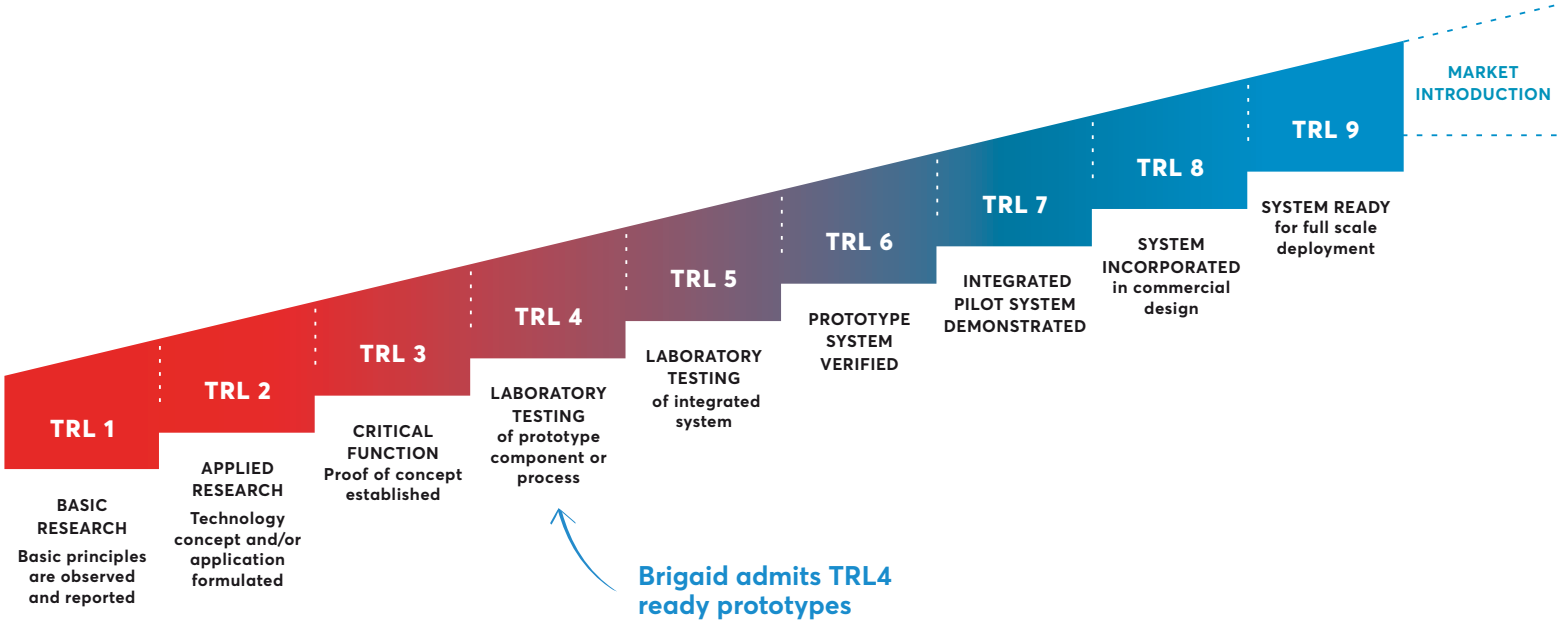
What BRIGAID basically expects from innovators is passion to push their innovation to the market!

BRIGAID supports start-ups and SME's who have:

- **Physical solutions:** Structural, software-IT, etc.
- **Social solutions:** Educational, behavioural, etc.
- **Institutional solutions:** Economic, governance, etc.

BRIGAID seeks solutions that:

- **are aimed to reduce risks** of floods, drought & extreme weather
- **are at least TRL4** (prototype ready for testing)
- **require** further testing and improvement



BRIGAID

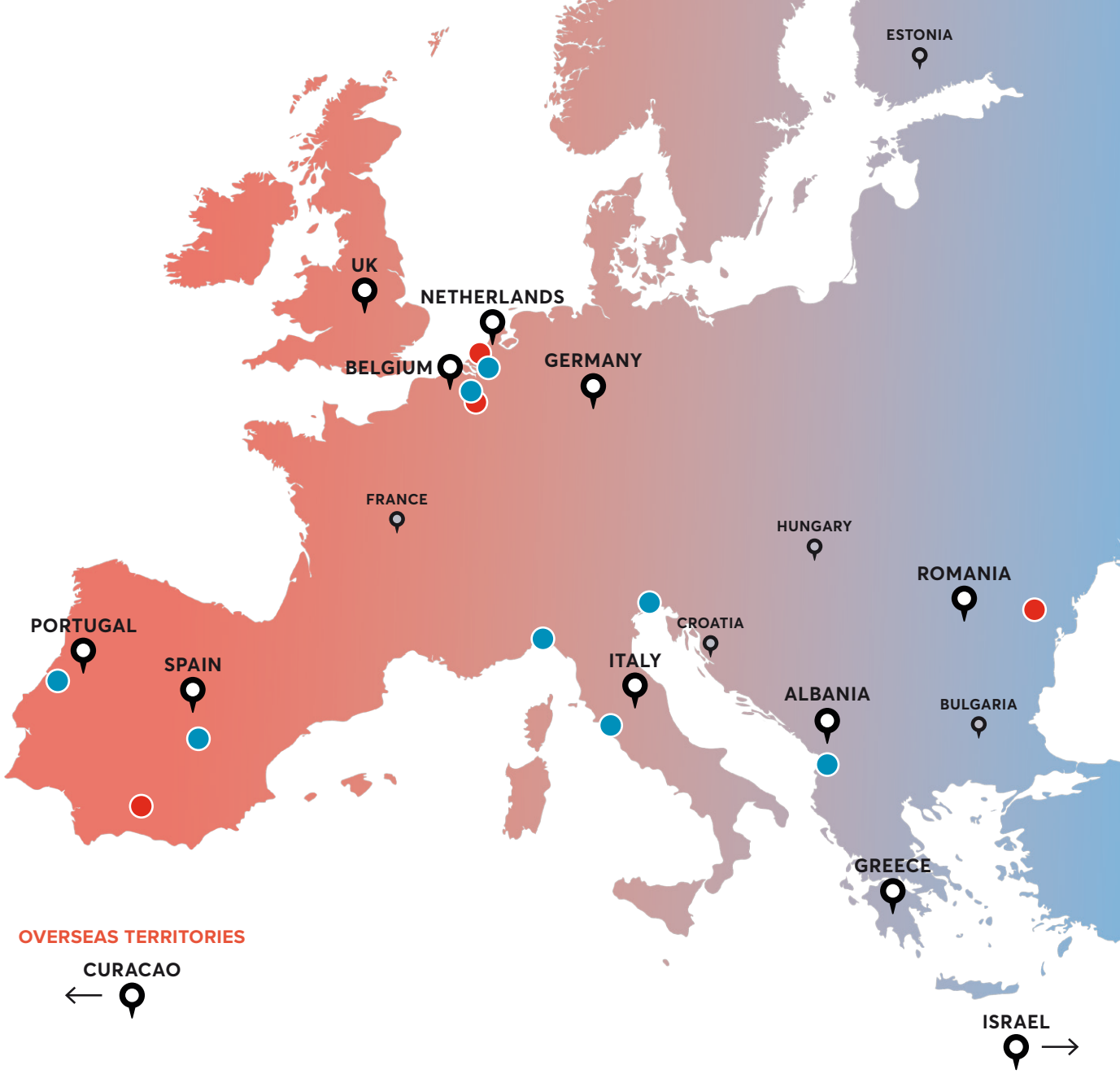

BRIGAID aims to become the quality label for the development of innovations for climate adaptation and risk reduction from climate-related disaster impacts in Europe and beyond.

BRIGAID

WHAT IS OUR ADDED VALUE?

BRIGAID offers state of the art knowledge of climate risk, science-based methods and funding opportunities to improve innovations by:

- Performing tests, evaluating results and making improvements.
- Incorporating needs of clients in the design and business model.
- Putting innovations in the spotlight



BRIGAID

BRIGAID TEST SITES

- Controled Test & Demonstration Sites
- Operational Test & Demonstration Sites

BRIGAID PARTNERS

- Home Country Partner

BRIGAID SUPPORTING PARTNERS

- Home Country Partner Support Letter

WHAT DOES BRIGAID?

The goal is to advance the technical, social and market readiness of innovations simultaneously. This smoothens the development path, because technical, social and market requirements can be incorporated in the design, business model and market approach early on.

LEVEL	DESCRIPTION OF TECHNICAL READINESS	TECHNICAL	SOCIAL	MARKET
Level 1	Basic Research	✓	✓	✓
Level 2	Applied Research	✓	✓	✓
Level 3	Critical function, proof of concept established	✓	✓	✓
Level 4	Laboratory testing of prototype component or process	✓	✓	✓
Level 5	Laboratory testing of integrated system	✓	○	✓
Level 6	Prototype system verified	✓	○	○
Level 7	Integrated pilot system demonstrated	✓	○	○
Level 8	System incorporated in commercial design	○	○	○
Level 9	System ready for full scale deployment	●	●	●
> Level 9	Market Introduction	●	●	●

BRIGAID supports innovations from TRL 4 to 8:

- **TECHNICAL READINESS:** resources (knowledge, small funds) for testing and improving innovations
- **SOCIAL READINESS:** indentifying end user requirements, potential social acceptance barriers
- **MARKET READINESS:** developing a solid business case, putting innovations in the spotlight to attract clients and investors

BRIGAID

TECHNICAL READINESS

Technical readiness is the performance and effectiveness of an innovation to reduce climate-related risks, as shown in field tests and operational environments. BRIGAID assists in defining and performing the required tests to improve an innovation.

We provide test guidelines to innovators to identify and advance an innovation's Technical Readiness:

REUSABILITY

The temporary- or permanent-nature of the innovation, measured by whether (parts of) an innovation is designed for single or repetitive use and how durable the structural components of the innovation are. It also provides information about the long-term operation and maintenance requirements over the lifetime of the innovation.

RELIABILITY

The performance of an innovation during a hazard event, related to failure of either:

- **The technical components:** e.g., failure of a structure.
- **or human / behavioral activities:** e.g., installing mobile parts.

Reliability is identified through fault tries and evaluated in tests.

TECHNICAL EFFECTIVENESS

The (designed) risk reduction potential of an innovation. In BRIGAID, risk is defined as a function of probability, exposure, and vulnerability.

Risk reduction can be obtained by reducing either:

- **The probability of exposure.**
- **or the consequences of a hazard.**

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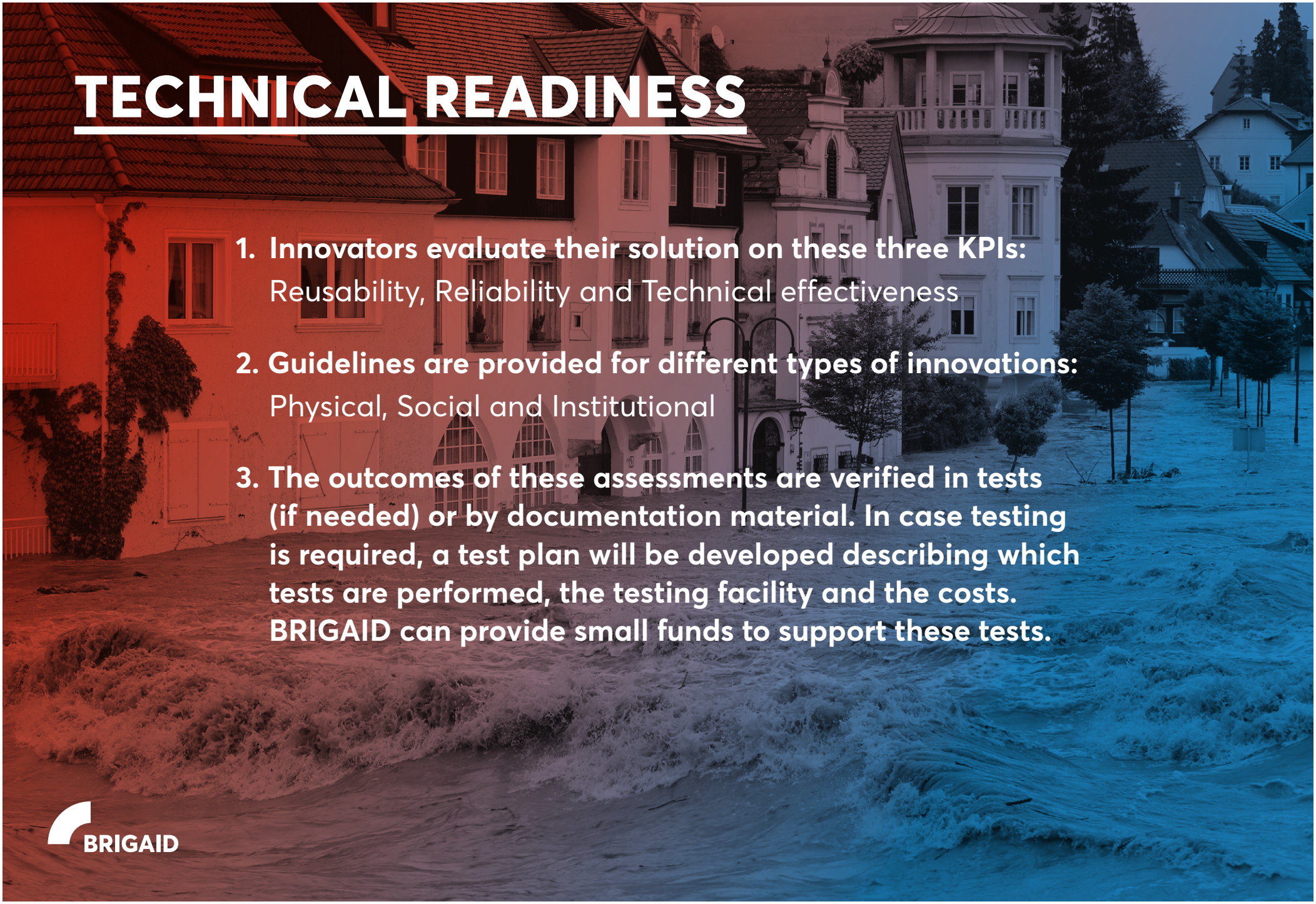

TECHNICAL READINESS

1. **Innovators evaluate their solution on these three KPIs:**
   Reusability, Reliability and Technical effectiveness

2. **Guidelines are provided for different types of innovations:**
   Physical, Social and Institutional

3. **The outcomes of these assessments are verified in tests (if needed) or by documentation material. In case testing is required, a test plan will be developed describing which tests are performed, the testing facility and the costs. BRIGAID can provide small funds to support these tests.**

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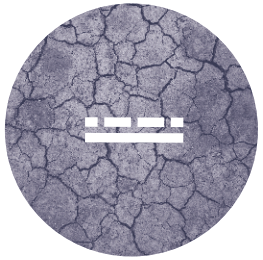
SOCIAL READINESS

Social Readiness is the extent to which an innovation complies with public and private end users' priorities and needs, as well as the organizational and governance requirements.

The uptake of innovative solutions is often hampered due to a lack of attention in the innovation cycle for the degree to which institutions (policy and decision makers) and societies would want to implement an innovation. Hence, social evaluation is best not left as a filter at the end of the development of a technology, but should accompany and provide input to the choices made along the way, and be accounted for in defining the organizational and institutional needs.



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MARKET READINESS

Market Readiness is the potential of an innovation to develop a solid business case and attract investors.

BRIGAID performs an assessment of the different geographical regions within Europe on the basis of their vulnerability to climate change and the willingness of their societies to implement (innovative) adaptation measures with you.

Based on this information, innovators will be guided in developing their business case:

MARKET ANALYSIS

Innovators will be supported in applying a structured suite of market analysis tools (the web based tool box "MAF+") to further define and segment the market for their innovation.

This will endorse the innovator with the necessary know-how to evaluate the attractiveness of each target segment on the basis of, inter alia, market size and growth rate calculation and competitive analysis.

FUNDING

To make a financially solid business case, BRIGAID will assist the innovator in identifying additional funds for further development of the innovation and guide the submission of funding applications, if required.

MARKET OUTREACH

BRIGAID will support the market outreach of innovations through the specific involvement of end-users and the creation of the online platform: BRIGAID WINDOW.

This climate innovation sharing platform will be the meeting place and "virtual" shopwindow for innovations and investors, and will be released in May 2017. Additionally, BRIGAID will develop marketing material (e.g., pitch decks) and disseminate this material to target groups.

BRIGAID

WHAT HAPPENS WHEN YOU ENGAGE WITH BRIGAID?

1. REGISTRATION

You will be offered to register your innovation in the online platform BRIGAID Climate Innovation Window.

BRIGAID will actively bring this platform to the attention of potential end users and investors across Europe. Registering your innovation means you will fill out a short questionnaire to describe your innovation.

2. SUPPORT

BRIGAID will ask registered innovators if they are interested in support for further testing and marketing their innovations.

Innovations will be selected at three points in time (jan '17, dec '17, nov '18). In this selection procedure we will ask additional questions to identify the potential impacts of the innovation (e.g., damage reduction)

3. TEST PLAN

Selected innovators will be asked to develop a test plan, under the guidance of BRIGAID partners.

The test plan follows a format to make sure that all required tests are performed in order to improve the technical, social and market readiness simultaneously.

4. EVALUATION AND GUIDANCE

Test results will be evaluated, further needs will be identified and guided if possible:

Submitting funding applications, improving the business plan, etc. Under the guidance of BRIGAID partners, updates to the innovation may be proposed and support provided to the re-evaluation of the extended innovation.
The innovation will be promoted at EU level.

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BRIGAID'S WORKFLOW

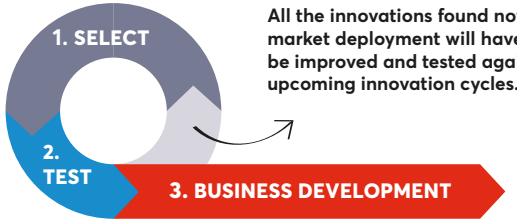
Brigaid's planned cycles

2016

2017

2018

Cycle's Process



All the innovations found not to be ready for market deployment will have the chance to be improved and tested again in the upcoming innovation cycles.

Cycle's Phases

IDENTIFICATION & SELECTION

Solution's Standard Description

- Technical Readiness
- Social Readiness
- Market Readiness

Developed Solutions (TRL4-5) by Brigaid partners and by external innovators

25-34
SELECTED & DESCRIBED INNOVATIONS

All solutions featured on the online climate sharing platform: BRIGAID Window

TESTING

Test and implementation framework

- Improvements (testing budget)
- Physical implementation at testing facilities
- Overall performance

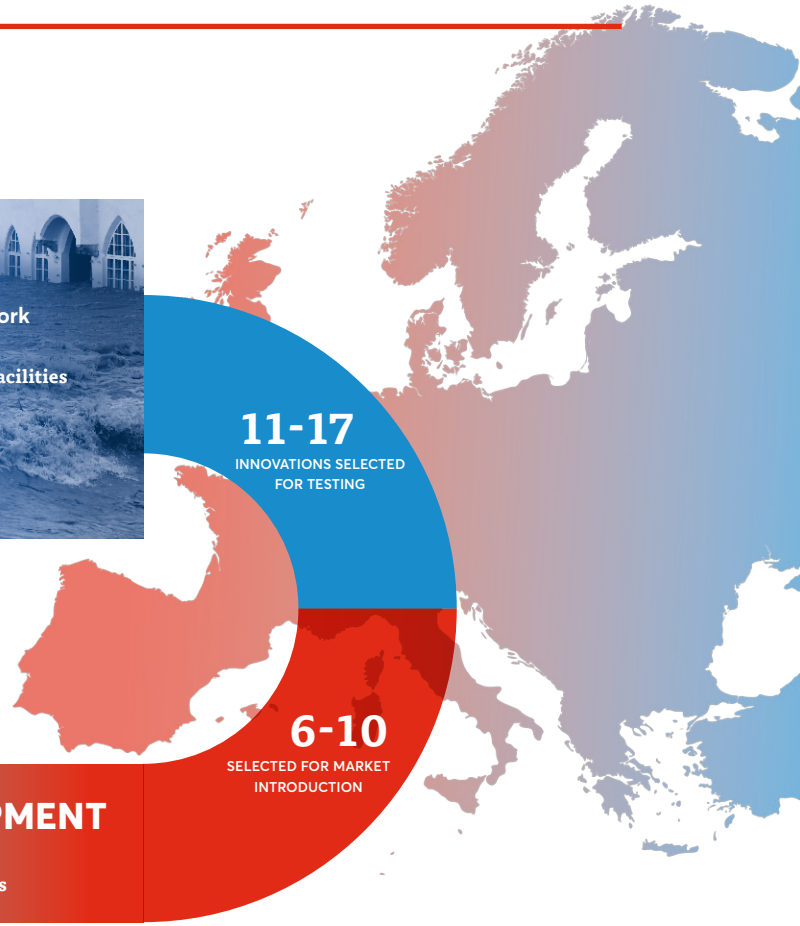
11-17
INNOVATIONS SELECTED FOR TESTING

Market Analysis
Investment and Financing
Marketing and Dissemination
(TRL8-9)

BUSINESS DEVELOPMENT

- Individual business models
- Funding and investment opportunities

6-10
SELECTED FOR MARKET INTRODUCTION



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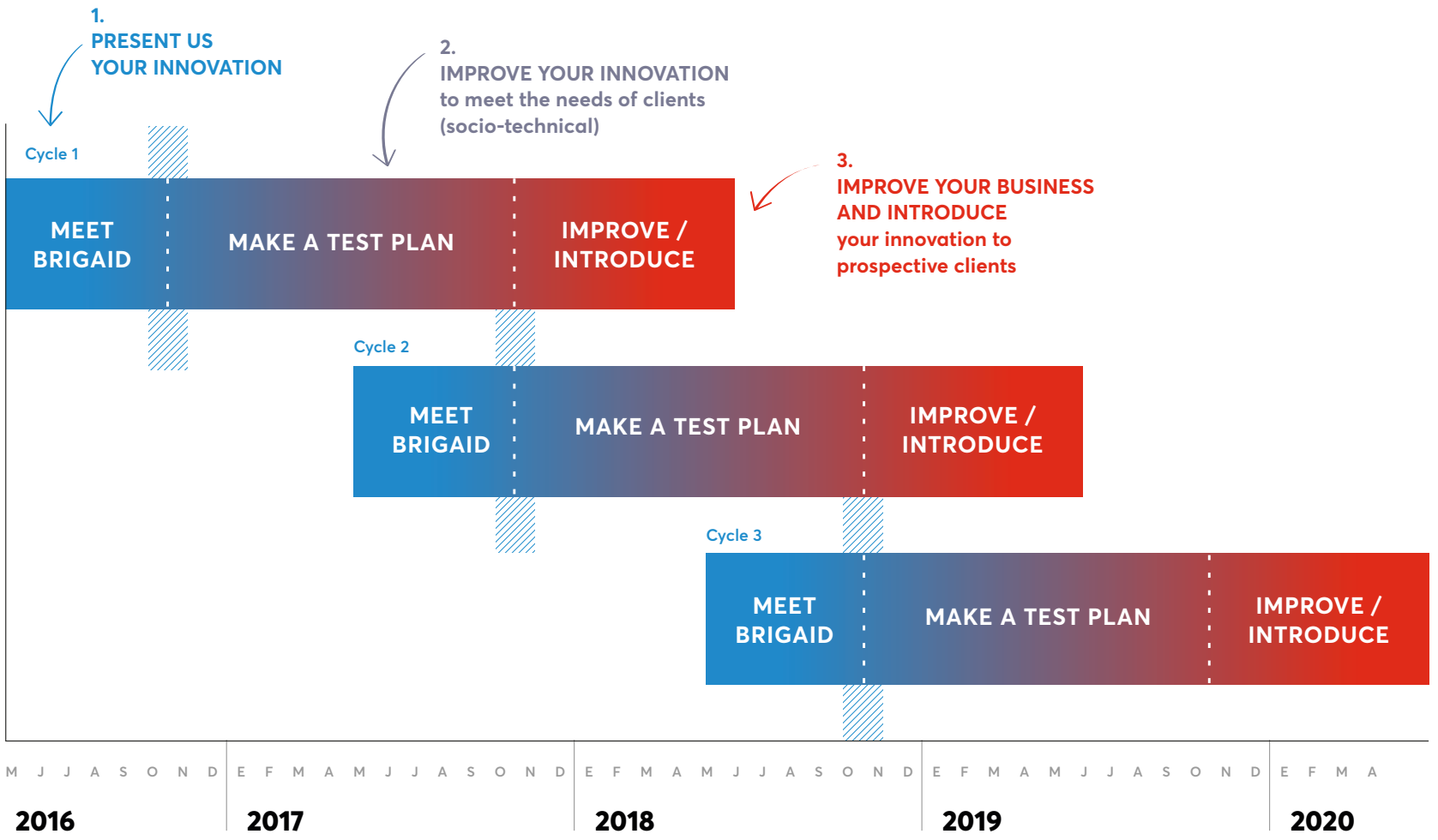
BRIGAID'S TIMELINE



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BRIDGING THE GAP FOR INNOVATIONS IN DISASTER RESILIENCE

www.brigaid.eu

#brigaid #H2020 #EASME

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