Project Overview

Pathogen Contamination Emergency Response Technologies

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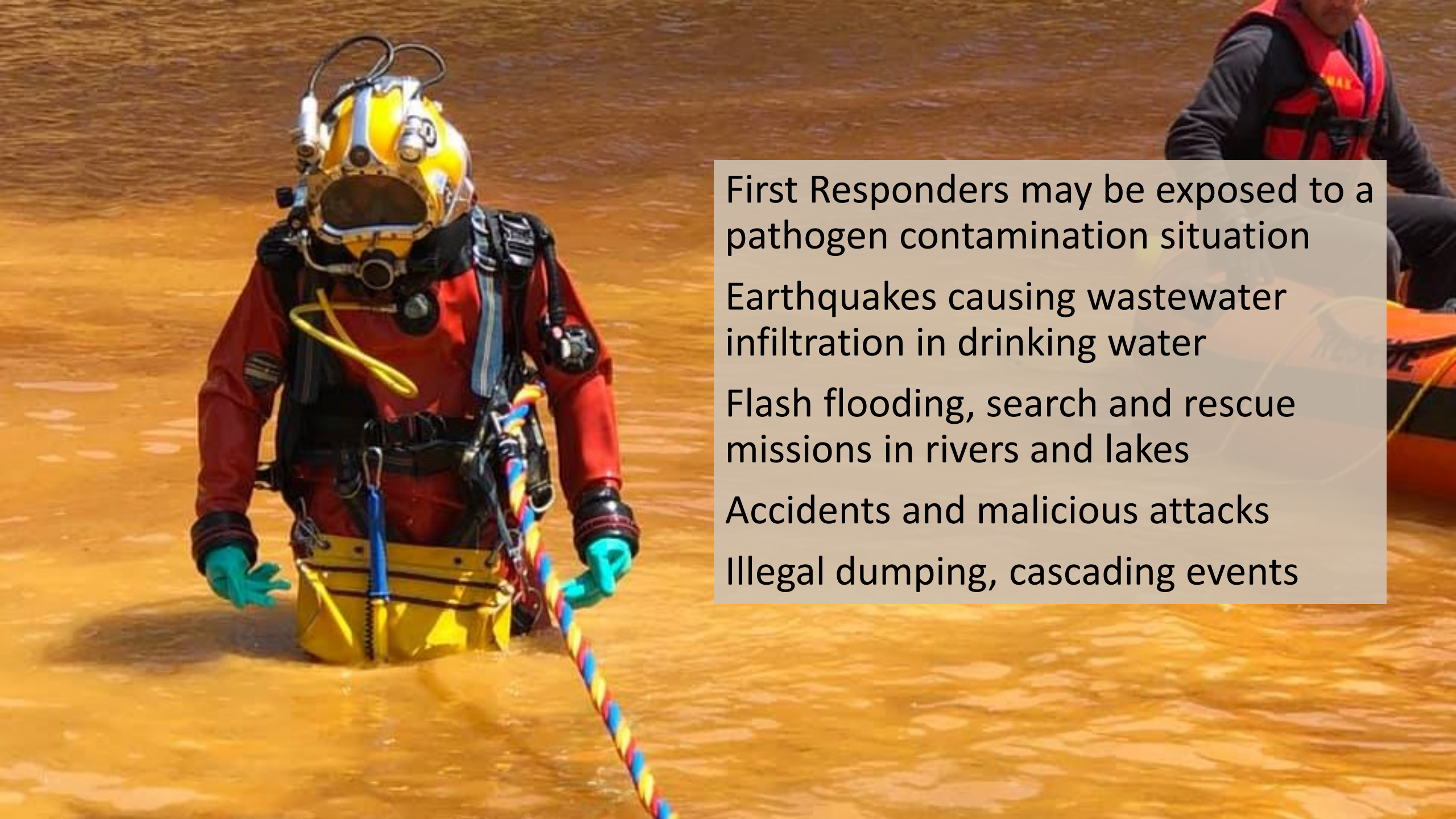
Nicosia Risk Forum (NRF2020)

Nicosia, 26/11/2020

The PathoCERT project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 883484.

PathoCERT Identity

- Title: Pathogen Contamination Emergency Response Technologies
- Type of action: RIA
- Topic: SU-DRS02-2019
- Grant Number: 883484
- Total Cost: € 7.158.393,75
- EC Contribution: € 6.905.018,75
- Start Date: 1/9/2020
- End date: 31/8/2023
- Duration: 36 Months
- Project Web Site: www.pathocert.eu



First Responders may be exposed to a pathogen contamination situation

Earthquakes causing wastewater infiltration in drinking water

Flash flooding, search and rescue missions in rivers and lakes

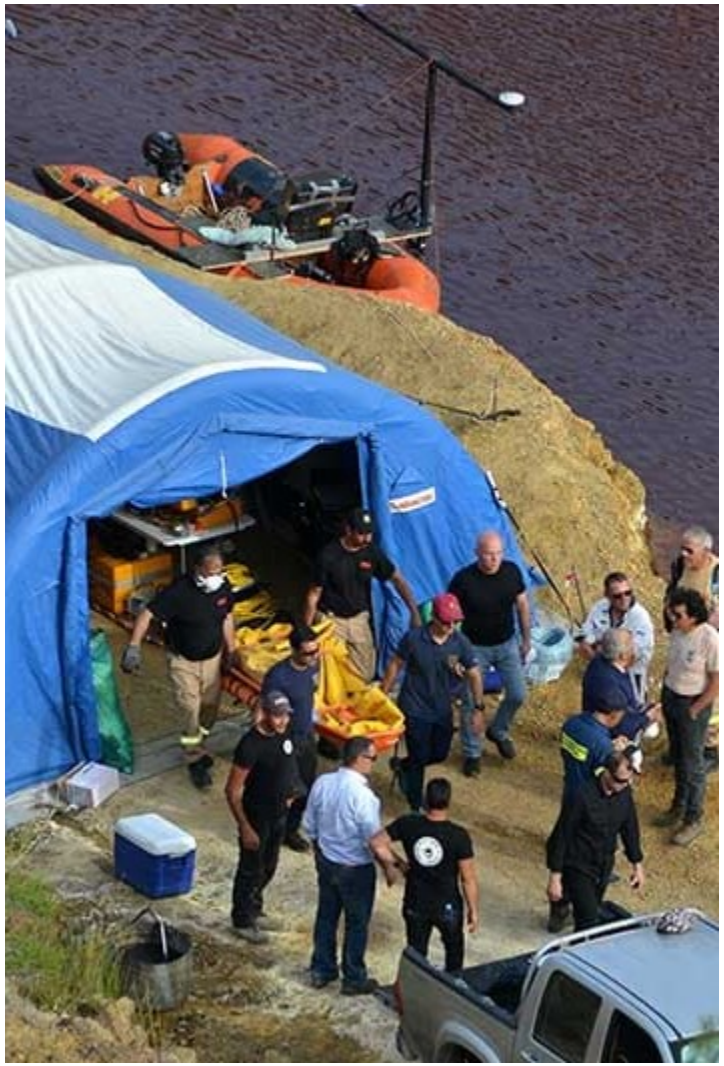
Accidents and malicious attacks

Illegal dumping, cascading events

PathoCERT Objectives

Overall Objectives

Project Objectives

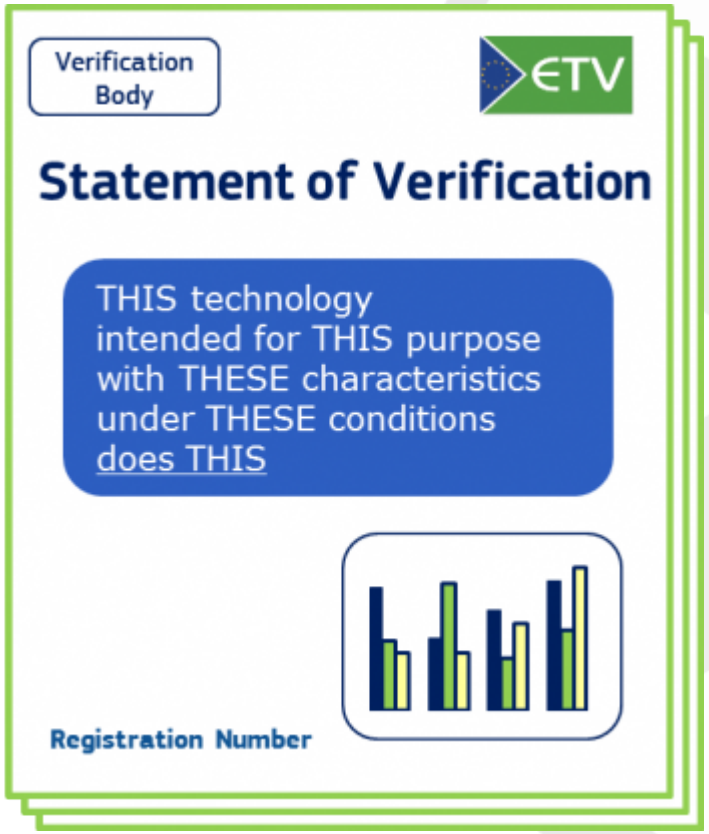


- Strengthen the coordination of the First Responders in responding to pathogen contamination events
- Increase FR capabilities:
  - Rapid and accurate detection of pathogens
  - Situation awareness
  - Ability to control and mitigate the event
- **Research** and **Demonstrate** *of Pathogen Contamination Emergency Response Technologies* (PathoCERT)
- **Novel**, **cost-effective**, **easy-to-use**, **acceptable technologies**, **tools** & **guidelines**
- **Field validated technologies**

New Sensing Technologies

Project Objectives

- Validate new sensing technologies in the laboratory, for fast in-situ detection, following the EU Environmental Technology Verification Procedures by February 2022
- Demonstration of water sampling guidelines and physical toolkit for First Responders by December 2022



New Situation Awareness Technologies

Project Objectives

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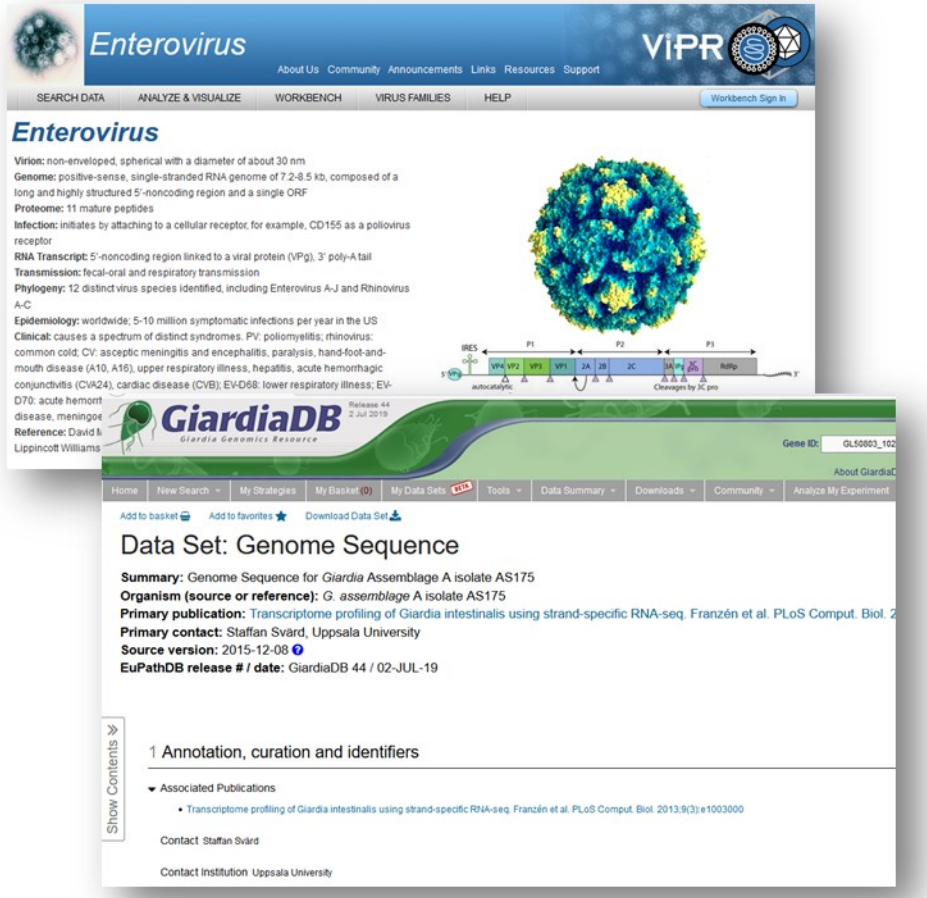
- Autonomous drones for situational awareness and water sampling demonstrated in the field by February 2023
- Laboratory validation of satellite-based pathogen monitoring and field demonstration by February 2023
- Demonstrate use of social media for situation awareness in small-scale study by February 2023

New tools for epi, criminal treat and risk assessment

Project Objectives



- Validation of threat and risk assessment tool which uses AI for mining pathogen knowledge by August 2023
- Validation of methods and tools in simulated events for epidemiological and criminal investigation tools by August 2022
- Complete societal study of the impact of the events, and technology acceptance, in 3 communities by February 2023

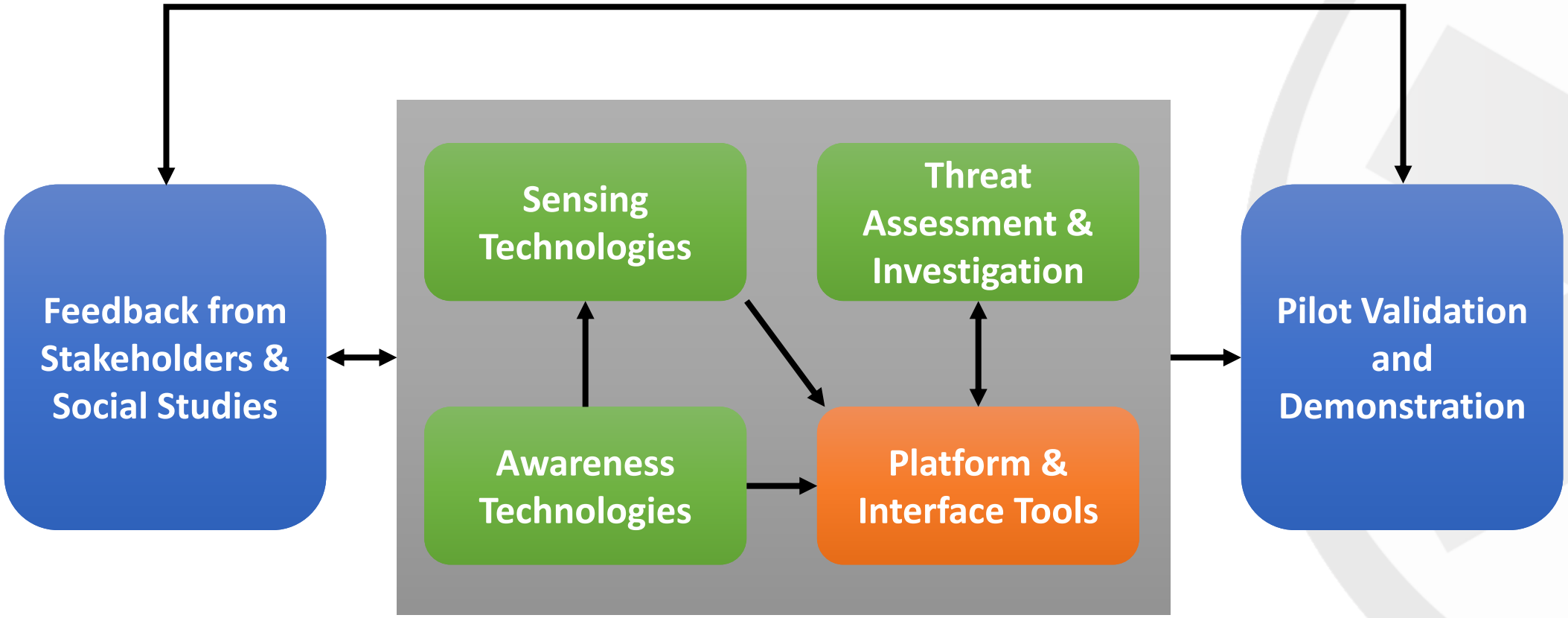
New tools for data integration and interfaces

Project Objectives

- Validate new mobile and wearable interfaces specifically designed for the FRs, by August 2022
- Validate the technical requirements and use-cases of the PathoCERT platform by October 2022
- Demonstrate the Incident Management System for handling contamination events by August 2023

Interdependencies

PathoCERT



PathoCERT Technologies

Technologies for the whole FR chain

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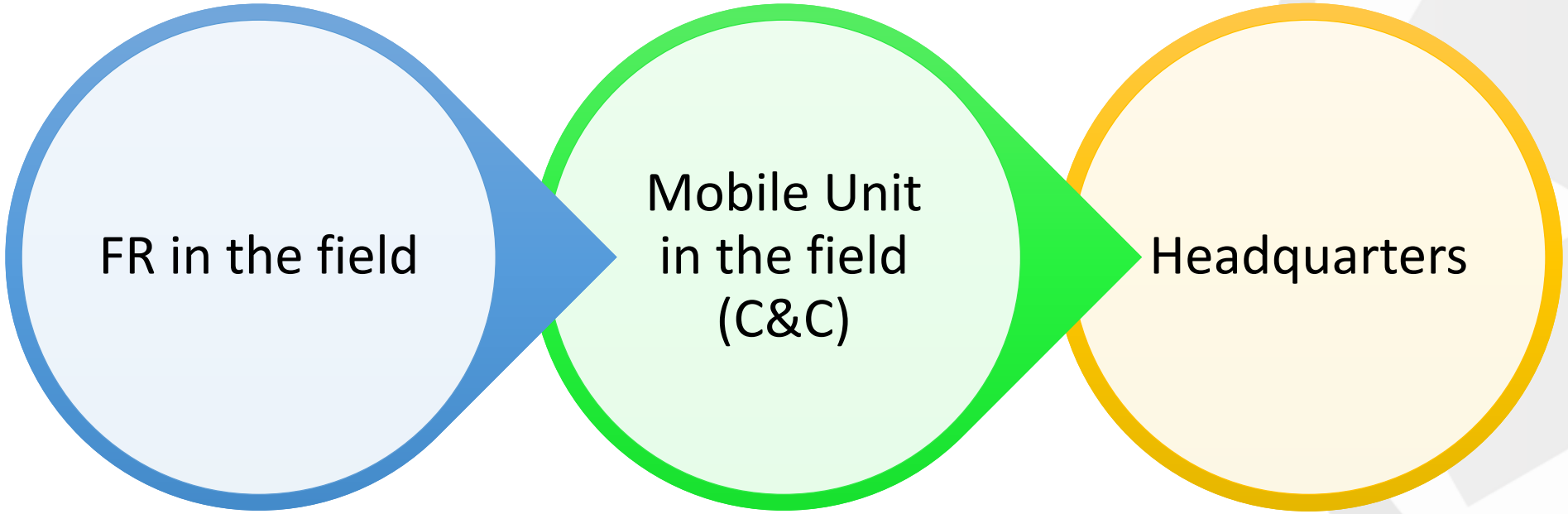


FR Protection in the field

PathoCERT

- PathoVIEW
  - Smart interfaces (AR/Tactile)
  - Communicates with PathoWARE
  - Alerts the FR on the contaminant spread
  - Communicates with PathoWARE/SENSE
- PathoGLOVE
  - Pathogen sensors embedded on a glove or wristband of the FR
  - Easy to use, alerts for dangers

Mobile Unit

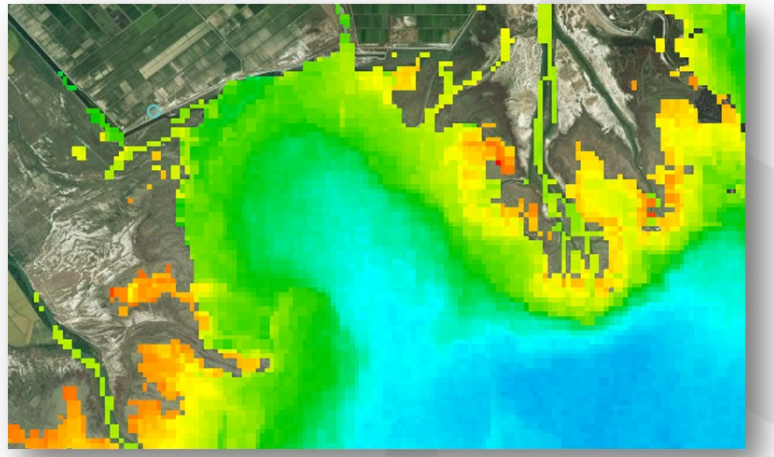
PathoCERT

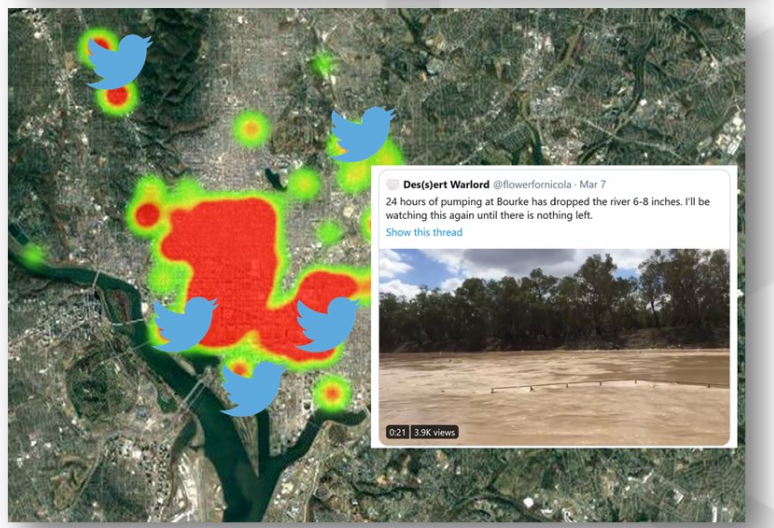
- PathoSENSE
  - portable (physical) toolbox
  - communication capabilities
  - connected with sensors
  - Sampling guidelines for FR
  - User guides (AR)
  - Communicates with PathoWARE
- PathoDRONE
  - Autonomous swarm
  - Video analysis, hyperspectral cameras
  - Water sampling mechanism
  - Communicates with PathoWARE
- PathoIMS
  - Complete view for the Incident Commander
  - Maps, guidelines, options, forecasts
  - Communicates with PathoWARE

Headquarters

PathoCERT

- PathoSAT
  - Surface water contamination analysis
  - Communicates with PathoWARE
- PathoTWEET
  - Social media analysis
  - Fake alerts
  - Communicates with PathoWARE
- PathoWARE
  - Centralized platform to collect data
  - Analyze streaming data
  - Communicate data and information
  - Link to open data, SCADA

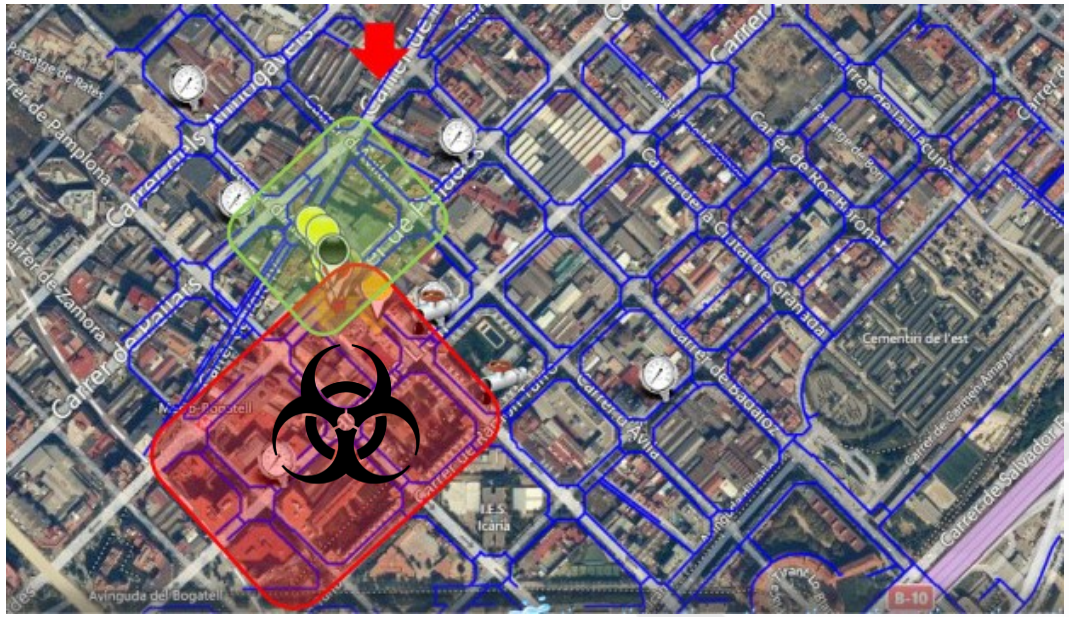


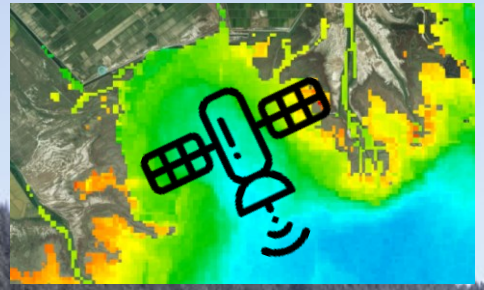


Headquarters

PathoCERT

- PathoTHREAT
  - As the event progresses, get as much information as possible regarding the pathogens
  - Suggestions on how to handle the situation
  - Links to PathoWARE
- PathoINVEST
  - “Digital twin” of the situation using real measurements and GIS
  - Forecast the evolution of the event
  - Create maps
  - Isolate source, estimate risk
  - Sampling suggestions






Des(s)ert Warlord @flowerfornicola · Mar 7
24 hours of pumping at Bourke has dropped the river 6-8 inches. I'll be watching this again until there is nothing left.
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PathoCERT

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