



Citizens' Observatories & Crowdsourcing

Novel ways to engage citizens in science and environmental policy-making

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**The views expressed are those of the speaker and do not necessarily reflect the official opinion of the European Commission*



Introduction – Setting the scene

- The participation of citizens in environmental monitoring stands on a long tradition!**
- New technologies have given rise to a high number of citizen science ("citizen cyberscience") initiatives.**
- ICT (social media platforms, smartphones) provide citizens with unique opportunities for massive participation in projects on issues relevant to their local environment.**
- And a general, unprecedented access to vast quantities of data and information (and science!).**



Introduction – Setting the scene

- **The collaborative power of ICT networks can leverage a collective intelligence that:**
 - **Informs decision-making processes**
 - **Helps raise awareness about environmental issues**
 - **Leads to more sustainable individual and collective behaviours and lifestyles.**
 - **Influences (environmental) policy making and increase its acceptance.**
- **But technologies/data alone are not enough to engage citizens in environmental policy making processes!**
 - **There is a need to build trust based on face-to-face contacts and collaborative and co-design approaches**



What is a Citizens' Observatory?



- **Community-based environmental monitoring and information systems**
- **Leverage novel Earth observation technologies and applications**
- **Exploiting capabilities offered by portable devices (e.g. smartphones) and collective intelligence (social media)**
- **To enable participation of citizens in local environmental stewardship in support of both community and policy priorities.**

What is a Citizens' Observatory?



- **They should include data collection, monitoring, interpretation, and information delivery systems.**
- **Allowing citizens to collect data, transmit them to data repositories and exchange their knowledge and experiences amongst them, scientists and authorities.**
- **Complementing official, authoritative observation systems**





Rationale and opportunities

- **The environment governance is in the hands of all citizens (Aarhus Convention, Directive on Public Participation...)**
- **Big potential to inform policy-making – and individual decision making, with a new source of (lay) knowledge.**
- **Can help engage a broader spectrum of society in environment protection, raising awareness about risks and opportunities**
- **We can enhance our in-situ monitoring capability while limiting the charge on the public purse**

It is a WIN-WIN situation!

N.B.: But official baseline in-situ observation networks are vital in Citizens Observatories (e.g. calibration and validation)



EU-funded Citizens' Observatories Projects

Five FP7 projects started in late 2012, covering different thematic areas:

1. **CITI-SENSE** "Development of Sensor-based Citizens' Observatory Community for Improving Quality of Life in Cities",

<http://citi-sense.nilu.no/>



2. **WeSenseIt**: "Citizen Observatory of Water"

<http://www.wesenseit.eu/>



3. **COBWEB**: "Citizen Observatory Web"

<http://cobwebproject.eu/>



4. **Citclops**: "Citizens' Observatory for Coast and Ocean Optical Monitoring" <http://www.citclops.eu/>



5. **OMNISCIENTIS**: "Odour Monitoring and Information System based on Citizen and Technology Innovative Sensors",

<http://www.omniscientis.eu/> **ALREADY FINISHED!!**



Some ideas from workshop's discussions

Data, technology and sensors



- **Citizens' observations are not a second-class type of data, but there is a need to provide info on their quality**
- **Low barrier of entry to mobile apps where delivered data should become quickly visible.**
- **Distributed, modular, flexible, generic, scalable architecture, but capable to face big data challenge.**
- **Aspects to take into account at processing level: Conflation with authoritative data, Validation processes and tools, Quality and data integrity management.**
- **We need interoperable and secure solutions!**

Some ideas from workshop's discussions



Citizens' Engagement

- **Citizens will contribute if they get something in return!**
- **Need to respect roles and responsibilities, manage expectations.**
- **There are no plug-and-play solutions – take into account cultural differences**
- **Dealing with fears of public authorities is a real challenge (and also of scientists!)**
- **Issues of representativeness – avoid imbalances**
- **Co-design approaches as a way to maximise outputs**

Citizens engagement in Horizon 2020

"(...) With the aim of deepening the relationship between science and society and reinforcing public confidence in science, Horizon 2020 should foster the informed engagement of citizens and civil society in research and innovation matters by:

- Promoting science education,***
- Making scientific knowledge more accessible,***
- Developing responsible research and innovation agendas that meet citizens' and civil society's concerns and expectations***
- Facilitating their participation in Horizon 2020 activities***

The engagement of citizens and civil society should be coupled with public outreach activities to generate and sustain public support for Horizon 2020 (...)"

Extract from REGULATION (EU) No 1291/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2013 establishing Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020) and repealing Decision No 1982/2006/EC





Citizen engagement activities across the Commission services – who's doing what?

An incomplete list...

- REGIO
- JUST
- SANCO
DDG1.02 Innovation for Health
- DIGIT
- TAXUD
- Eurostat

- CONNECT**
- 02 Knowledge Sharing
 - C1 eInfrastructures
 - C3 Digital Science
 - D4 Stakeholders
 - E3 Net Innovation
 - F2 Innovation
 - G3 Data Value Chain
 - H2 Digital Social Platforms
 - H3 Public services
 - H5 Smart Cities

MARKT

TRADE

- JRC**
- 01 Econometrics and applied statistics
 - 02 Foresight and Behavioural Insights
 - B7 ICT
 - G6 Digital Citizen Security
 - H6 Digital Earth and Reference Data
 - J3 Information Society

- RTD**
- A6 Science policy, foresight and data
 - B7 Science with and for Society
 - I4 Climate action and Earth observation

EAC
C.1 Youth policy and programme

ECFIN

- ENV**
- F.3 Knowledge, Risks & Urban Environment

HOME

SCIC

EMPL

GROW

With the Citizen in different roles:

- Artist
- Audience
- Consumer
- Curious
- Decision maker
- Funder
- Host
- Observer
- Participant
- Prosumer
- Researcher
- Resident
- Scientist
- Student
- Subject
- Supplier
- Teacher
- Vendor
- Voter
- etc...

active, passive and everything in between!



Citizen Science @ Joint Research Centre

- **Large scale experiment at JRC to assess quality of social network data 2010-12** (comparison with official data from EFFIS)
- **Citizen Science and Smart Cities Summit** (Feb 2014) with 27 different projects in both fields.
- Develop **typology of Citizen Science**, set up facilities for social media data analysis, develop analytical tools
- Set-up a framework for **hosting citizen science projects data** (Cit Obs, EveryAware), websites and code after the end of project.
- Develop **interoperability protocols** and integration with official data sources (INSPIRE, Copernicus)
- Develop **partnerships** with relevant stakeholders (e.g. ECSA)
- Explored use of citizen-generated content to develop **new indicators of quality of Life in urban areas**, comparison with official sources (Eurobarometer)
- **MyGEOSS** (see next slide)





MyGEOSS (EC in house project 2015-2016)

Developing GEOSS-based smart internet applications to inform European citizens on the changes affecting their local environment

- **Apps should use crowd sourcing and/or geospatial open data sources (in-house and through open calls)**
- **First open call for innovative ideas (March-April)**
 - **Results already available: 58 applications received from 13 European countries, mainly SMEs (67%), universities and research centres.**
 - **The 10 winning applications will be awarded contracts by the JRC for 13500 € to develop the applications further.**
 - **To be presented at a Side Event to the GEO Ministerial in Mexico (Nov '15).**
 - **More info on <https://ec.europa.eu/jrc/en/news/first-call-innovative-apps-environmental-and-social-domains?search>**
- **Two additional competitions will be launched in November 2015 and March 2016.**





Support for Citizens Observatories in H2020

- **Topic in SC5 Work Programme 2014-2015:
SC5-17-2015: Demonstrating the concept of 'Citizens' Observatories'**
 - **It calls for further development and testing in real conditions, wider deployment and commercialisation by the private sector and greater user acceptance.**
 - **Focus on the domain of land cover/land use management (rural and urban areas), complementing existing systems (Copernicus) and national surveys.**
 - **Strong involvement of citizens and citizens' associations and SMEs.**
 - **One or more Innovation Actions (suggested size: 3-5M€, total budget ~20M€)**
- Currently under evaluation – successful projects to start by early 2016***





Some thoughts for H2020 SCh5 WP 2016-2017

1) Coordination of Citizens' Observatories initiatives (CSA - 2017)

- Bring Citizens' Observatories and related communities together
- Identification of barriers and synergies, promotion of best practices and standards.
- Stimulation of a gradual uptake of the solutions by public authorities
- Coherent approach to GEOSS and Copernicus

2) Novel in-situ observation systems (RIA - 2017)

- Developments taking advantage the latest developments in sensor science.
- May take into account citizens' observatories concept, disposable sensor and UAVs.
- Necessary links to GEO and Copernicus

N.B.: These ideas are now under discussion with Member States and Associated Countries and should not be considered as definitive. WP 16-17 is expected to be published in Autumn 2015.





Other related funding opportunities in H2020

1) CAPS - Collective Awareness Platforms for Sustainability and Social Innovation (ICT Calls)

- To harness ICT networks and collective intelligence in key sustainability areas, leveraging on open data, IoT, open source and open knowledge.
- To create awareness on sustainability challenges and bottom-up solutions grounded on real communities of people.
- In 2015, CAPS had four subtopics and a total budget of 36 M €
- In 2016-2017, Pilots and Coordination and Support Actions are foreseen, 10 M€ budget.

2) Integrating Society in Science and Innovation (RRI)

- In 2015, ISSI calls have four related topics and a total budget of 22 M € (deadline September 2015)

N.B.: Topics related to WP 2016-2017 are now under discussion with Member States and Associated Countries and should not be considered as definitive. WP is expected to be published in Autumn 2015





Concluding remarks

- **Citizens Observatories represent powerful and low-cost solutions to address existing gaps in environmental (*in-situ*) systems.**
- **These platforms can allow authorities to obtain evidence, providing citizens with opportunities to address environmental concerns.**
- **Citizens Observatories are also about social innovation, involving novel partnerships and creating opportunities for SMEs.**
- **Initiatives still at an early stage - an honest discussion about risks and opportunities is needed, in order to determine full potential and areas of application.**



Concluding remarks

- **There is a need for more cross-cutting activities to create synergies and avoid overlaps, facilitating interoperability, integration and coordination.**
- **Sustainability is a pressing issue – engaging public authorities from the start is a success factor.**
- **They hold a strong potential to bridge the gap between civil society, science and policy making.**
- **Engaging citizens in a co-designed approach (working *with* rather than working *for*, exploiting local knowledge) remains a challenge but also an opportunity.**

9TH GEO EUROPEAN PROJECTS WORKSHOP

Copenhagen 15-16 June 2015

- **When?** 15th and 16th June. **Where?** Copenhagen (DK)
- **GEPW** brings together European players interested in and contributing to the GEOSS.

Please register your attendance on:

<http://geo.pbe.eea.europa.eu/>

- **Splinter sessions around different topics: Capacity Building and SD, Marine Ecosystems, Food security and Agriculture, Citizens Observatories, GEO Infrastructures and Data, Copernicus...**



Dmi
Danish Meteorological Institute

GEO GROUP ON
EARTH OBSERVATIONS



European Environment Agency





Thanks for your attention

