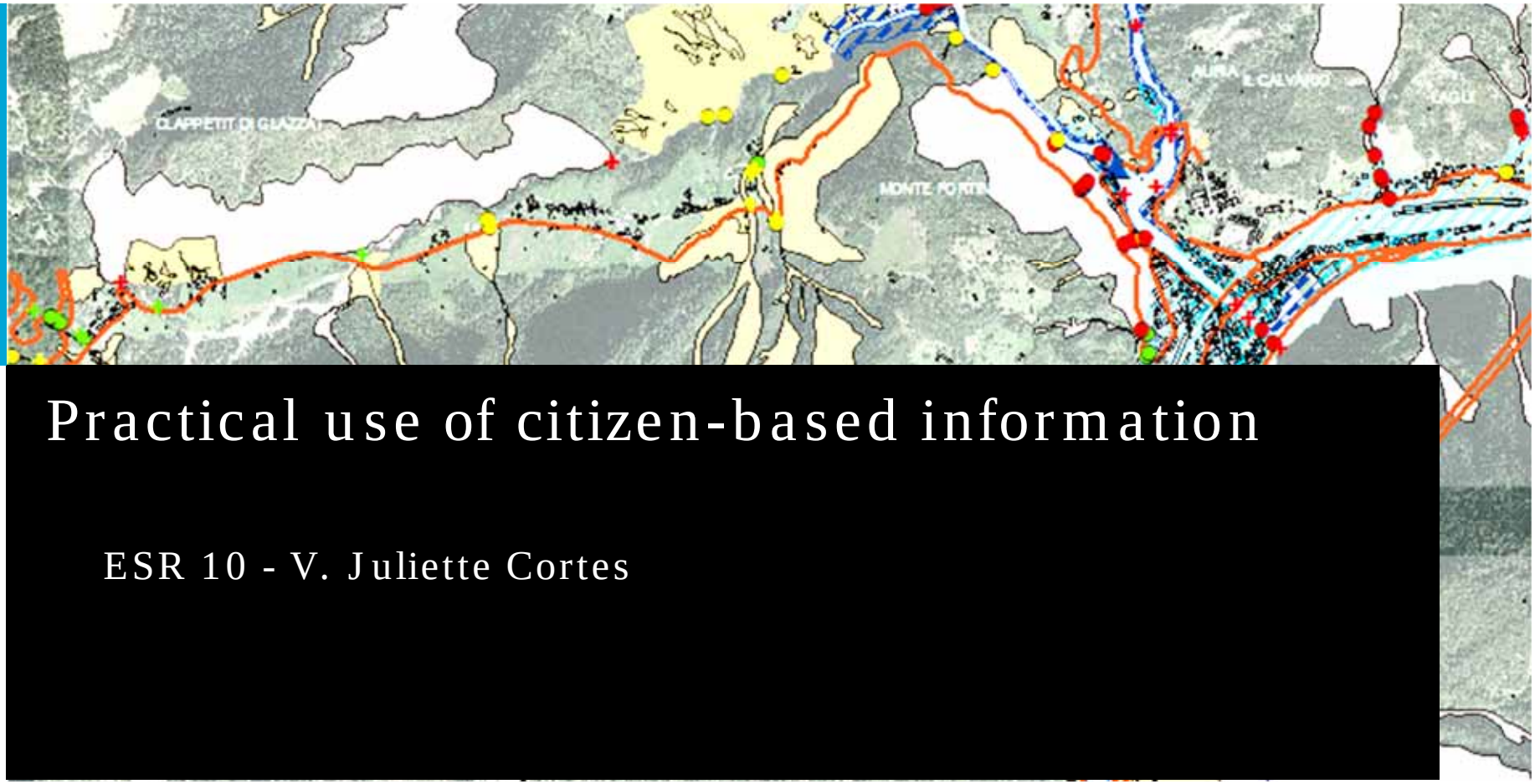


Practical use of citizen-based information

ESR 10 - V. Juliette Cortes

Les Diableretes, April 10th / 2014

Outline

- Objectives & Conceptual framework
- Results Objective 1
- Progress Objective 2
- Potential Collaboration Objective 3
- Contribution to the CHANGES Book
- Overview

PhD Research Objectives

1. Evaluating quality of data collected by volunteers (Italian study site)

- Inspection of bridges and checkdams

2. Evaluate volunteer inspections for management of hydraulic structures (Italian study site)

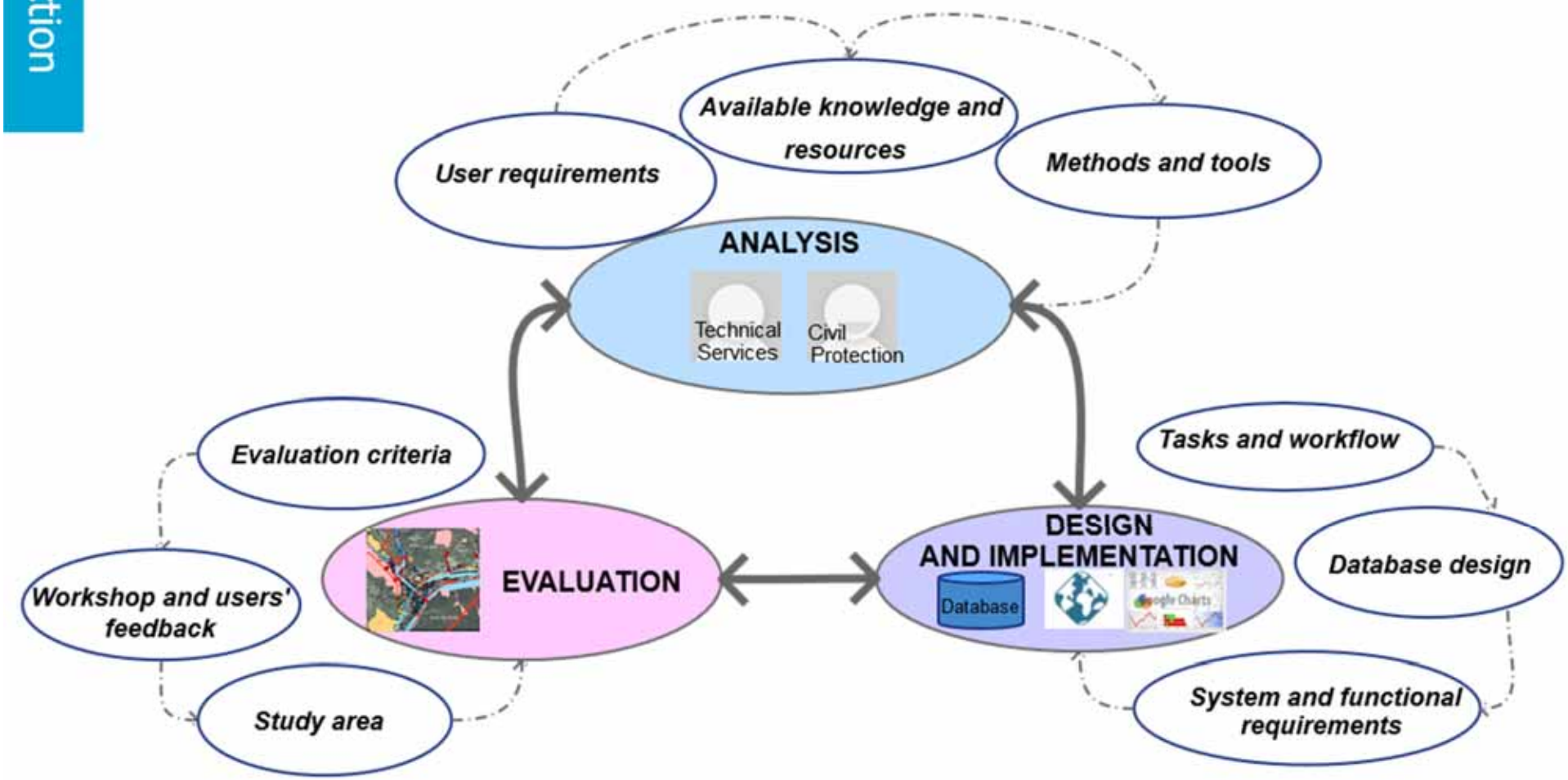
- Decision support methodology to evaluate the functional status

3. Quality of data collected by volunteers using a mobile application (Other study site)

- Advantages for the quality of data-collected

User centered-design approach*

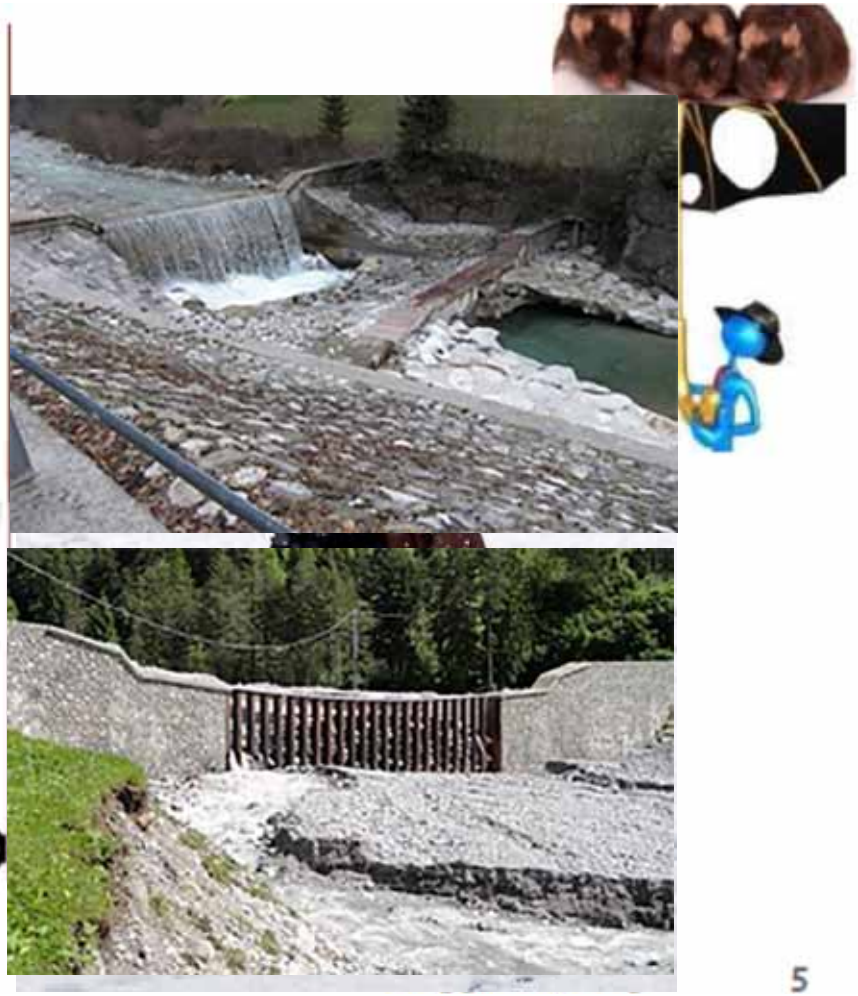
(Citizen based-data for management of hydraulic structures)



*(adapted from Baroni et al. 2010)

Functional status

«Physical conditions of the structure that may affect the function type for which it was designed or built» (Uzielli et al, 2008)



Objective 1

Inspection form & data collection exercise
(bridges and check dams)

A

A1) Deviation of the stream flow in the spillway.

A2) Status of the structure

A3) Visibility of the basis

A4) Status of downstream protection works.

- Registration questionnaire (Marie Charriere)
- 1 day Training for Learning Group
- 1 day of inspection test for Learning and Control Group (LG & CG)

Objective 1

Evaluating quality of data-collected

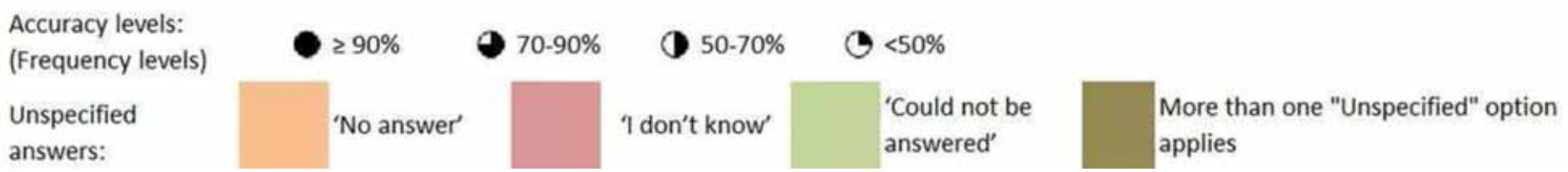
Participant's Groups	All-V	T
CG		
LG		

«True Value»

Inspection tests in 6 structures

Assignation of ordinal scores to the rating scales

Accuarcy, precision & Completeness (EPA, 1997)



Objective 1

Conclusions based on 11 technicians and 25 volunteers

1. Comparable performance but with a pre required range in precision.

→ 1 2 3 4 5 "Un-specified answers (Us)".

2. Ratings should specify when water or sediment did not allow the assessment.

→ Completeness ratio (%)

3. Comments and geo-referenced pictures are still required.

→ 

4. Prescreen potential problems.

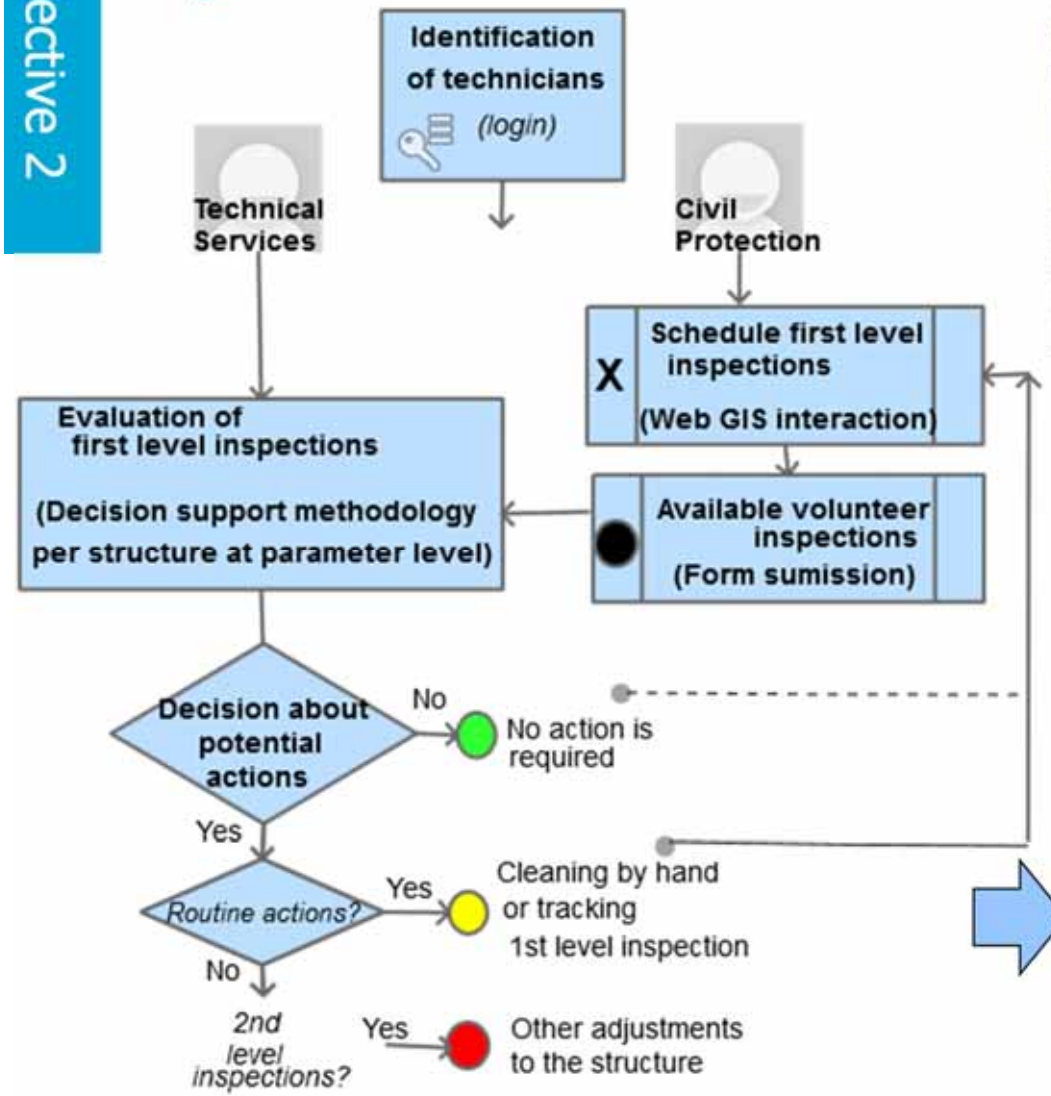
→ Prelimnary Indexes

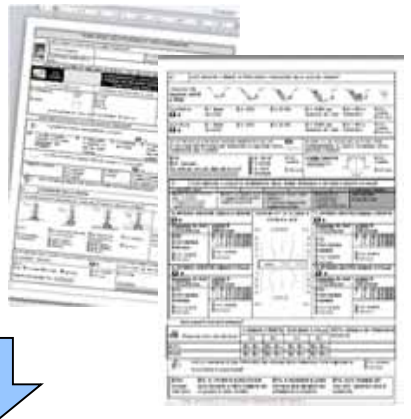
5. Handle subjectivity of volunteers with Fuzzy logic theory.

→ Low-to-very-low

Objective 2

Evaluate volunteers' inspections for management of hydraulic structures

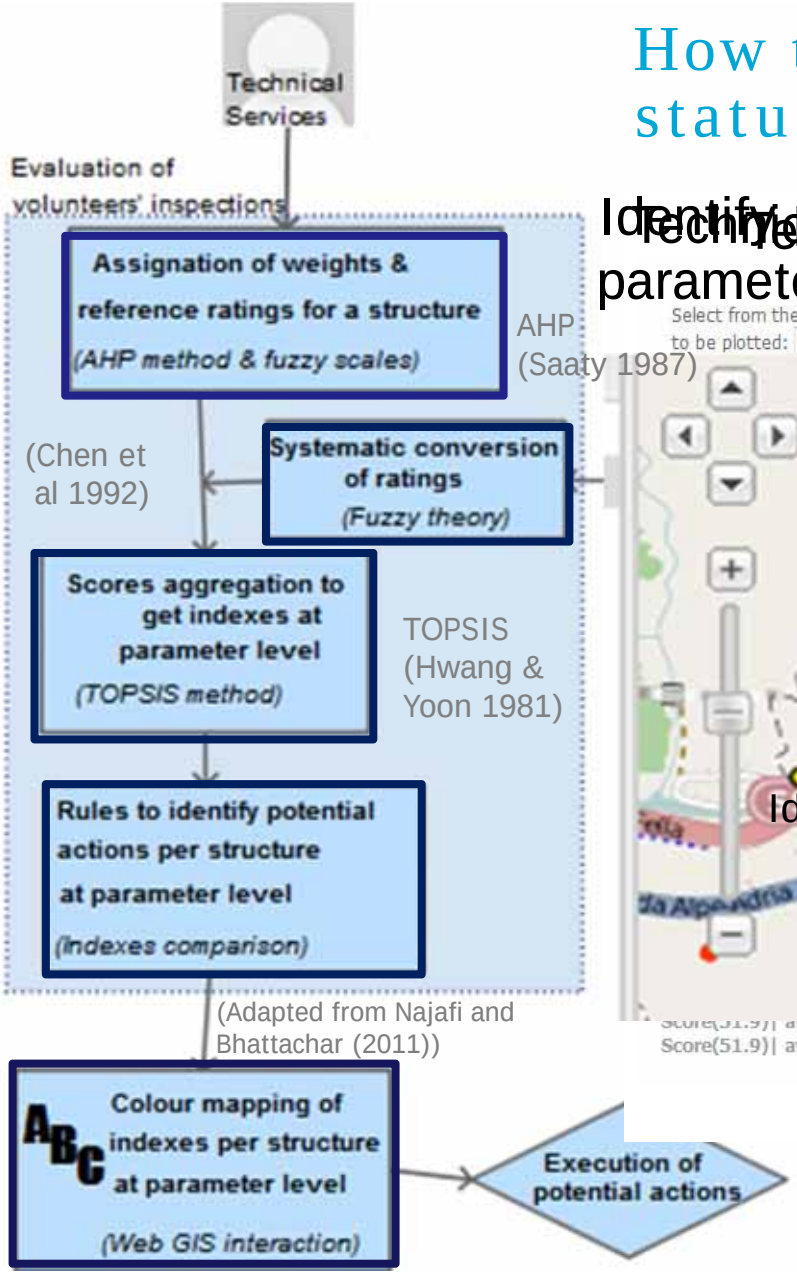


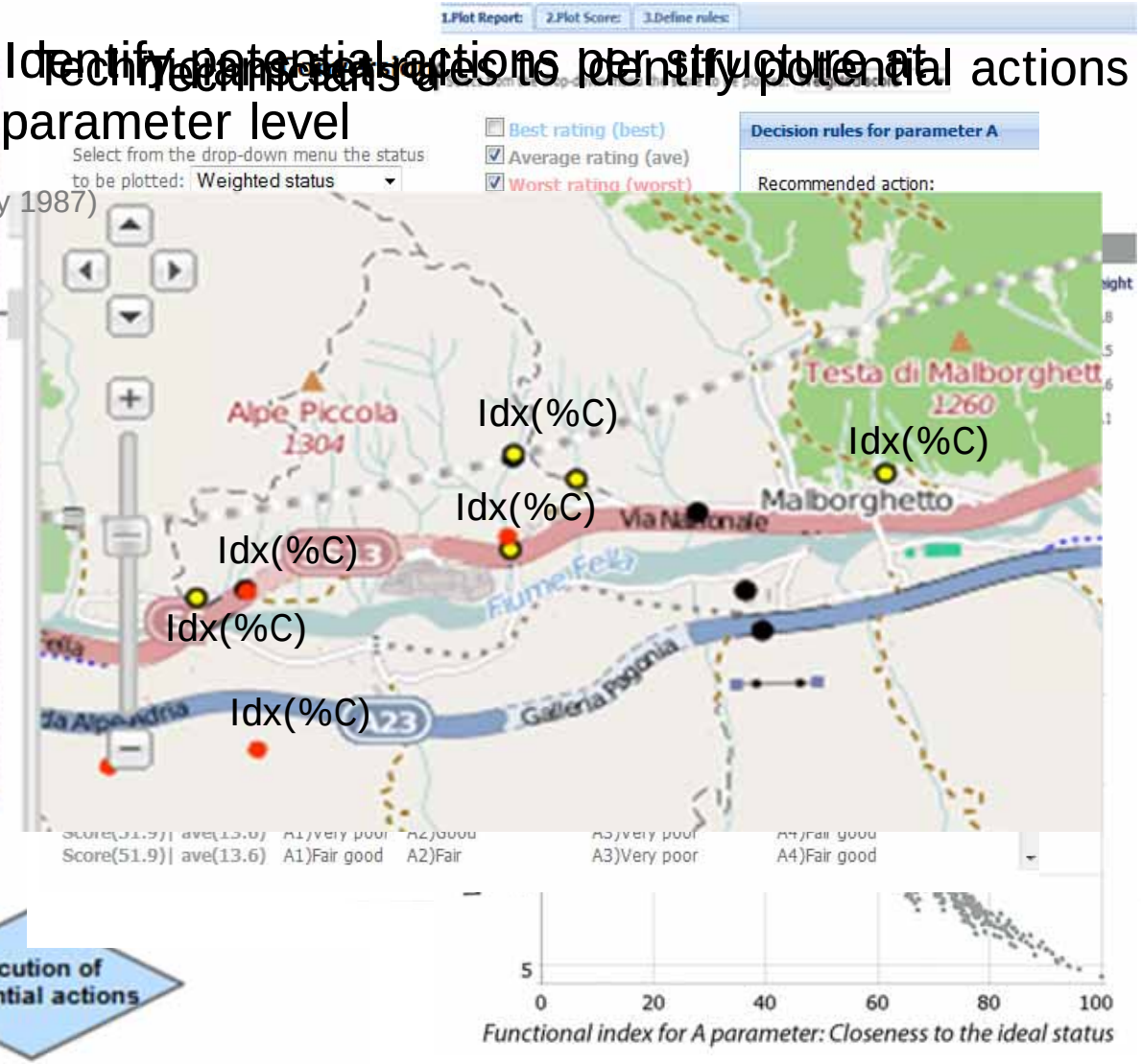


Objective 2

How to evaluate the functional status* of the structures?

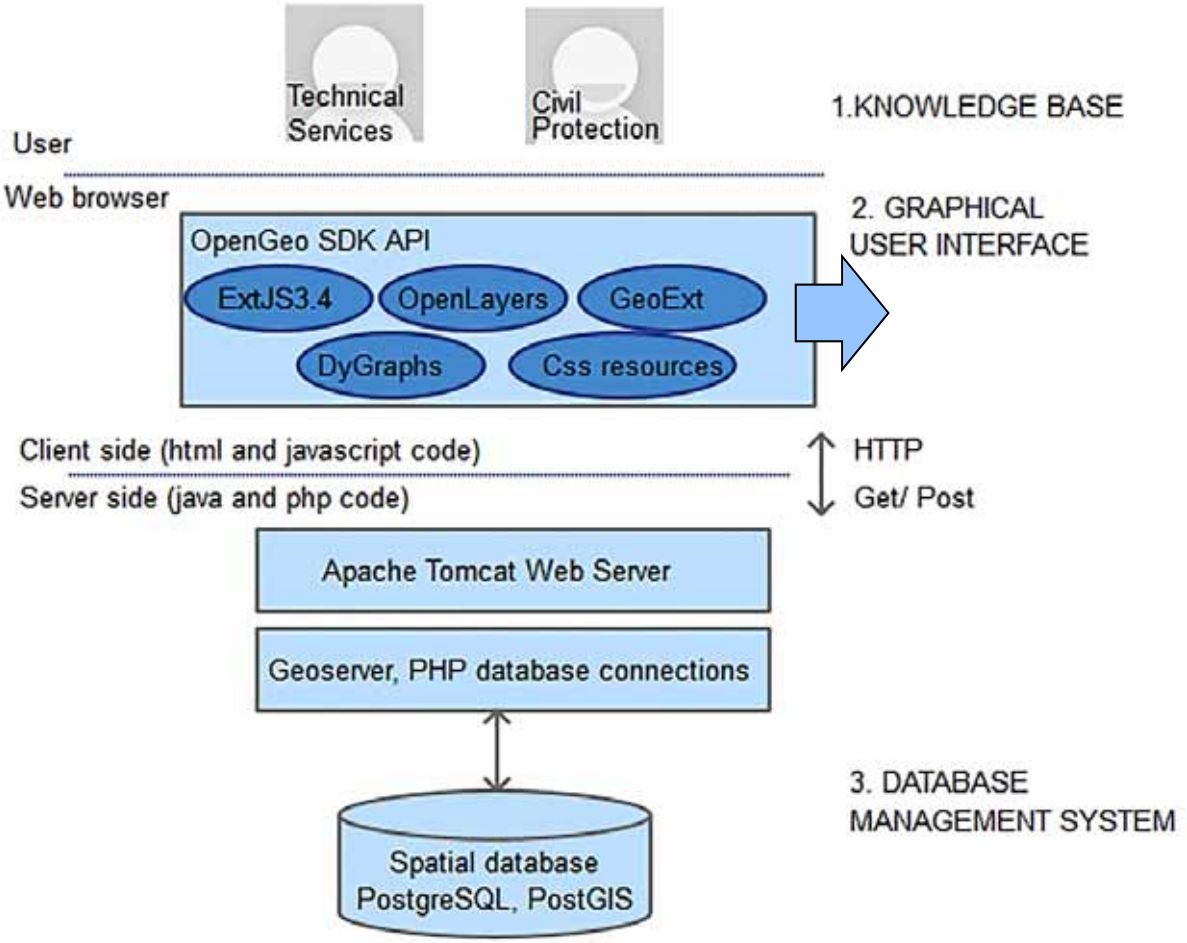
Identify potential actions per structure at parameter level

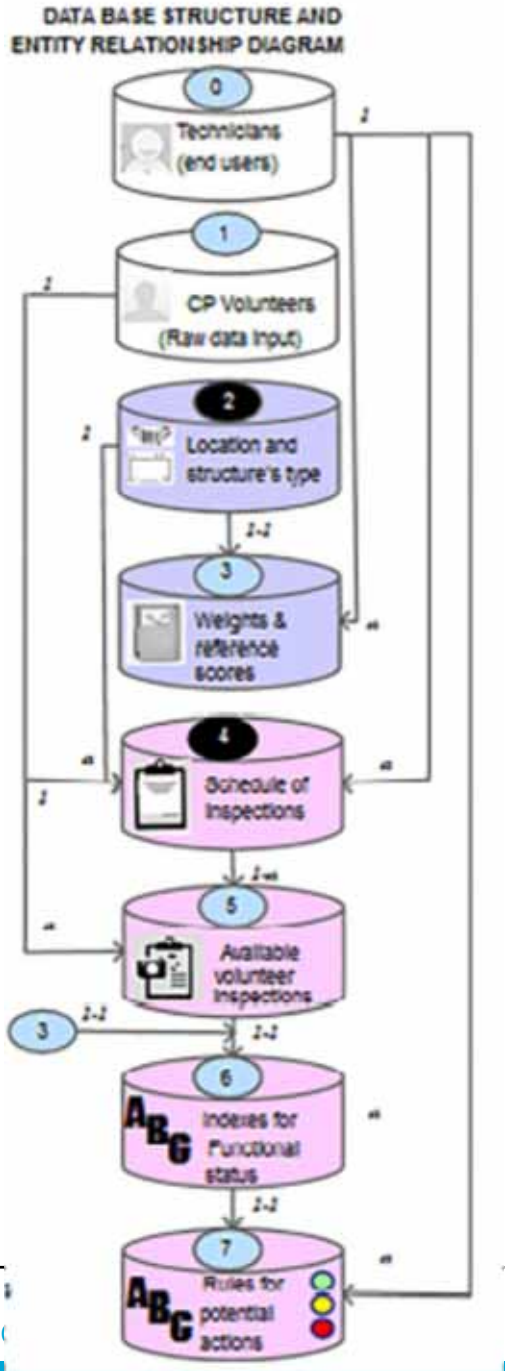




Objective 2

Prototype web-based tool





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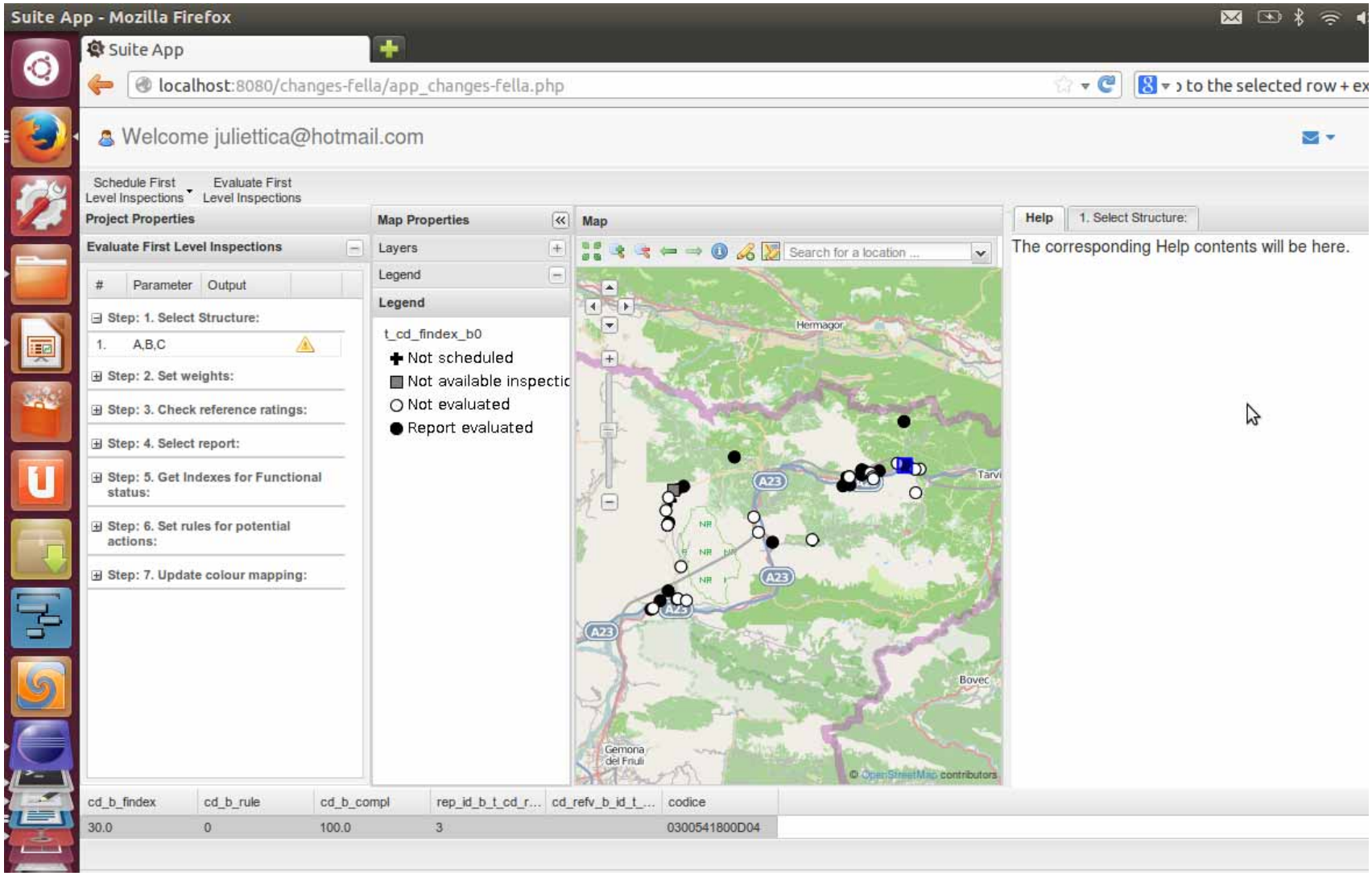
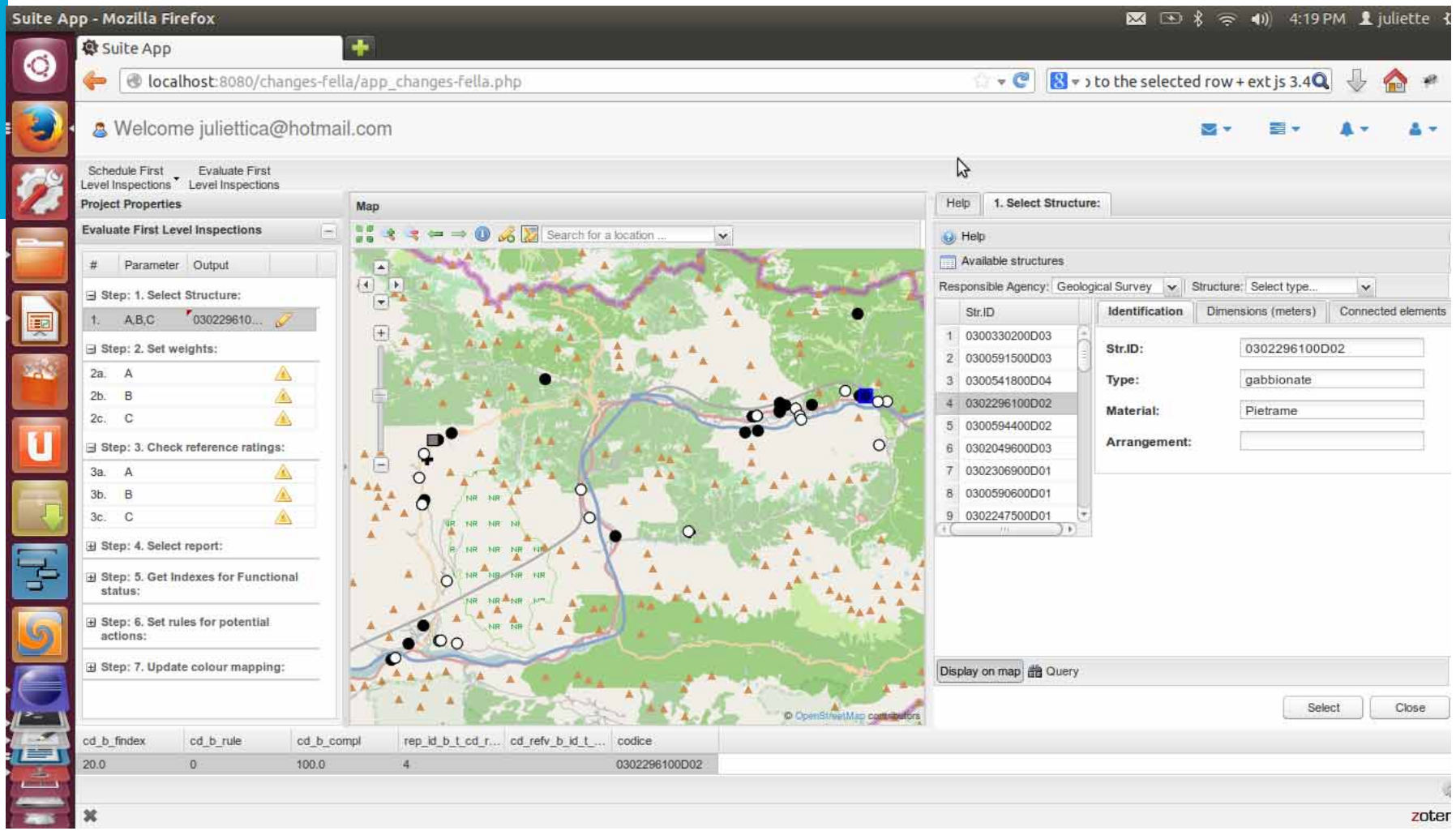
Objective 2

Prototype web-based tool



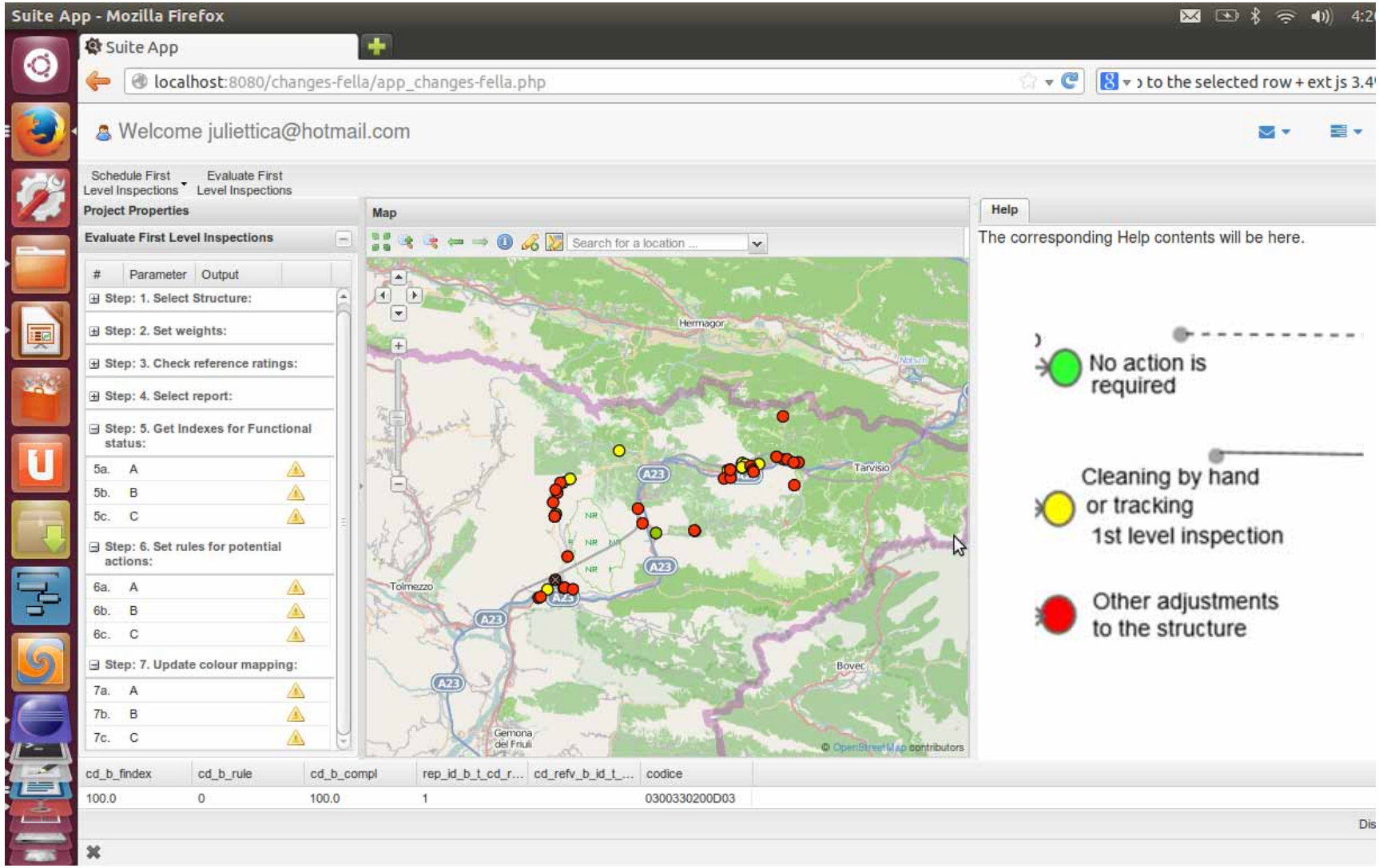
Objective 2

Prototype web-based tool



Objective 2

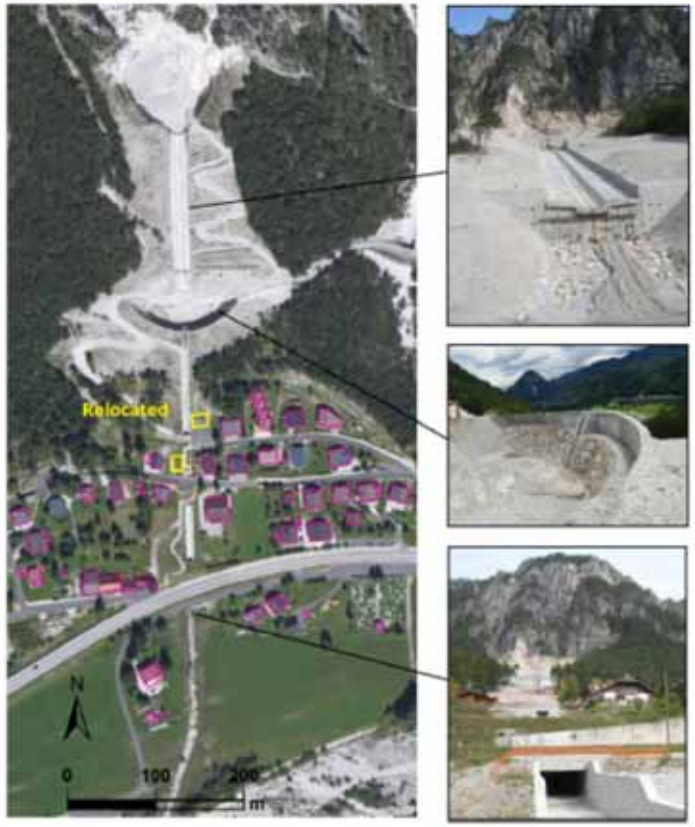
Prototype web-based tool



Objective 2

Evaluation workshop: (Inspection tests in 6 structures)*

(Abitato Cucco, Malborghetto)



*(Hussin et al. 2014)

** To be confirmed

Participants' Groups

CG x 5 | LG x 10 | Day 1: Inspection Day 2: Web-tool

1 day | 2 days of involvement

**

IdxA — **Expectation's questionare**

IdxB

IdxC

WEB-TOOL

IdxA	IdxA
IdxB	IdxB
IdxC	IdxC

Same weights/ structure

Expectation's questionare — **Satisfaction's questionare**

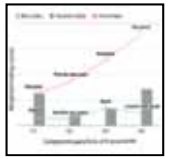
Objective 2

Evaluation criteria

1) How effective are the indexes to represent the functional status of the structure?

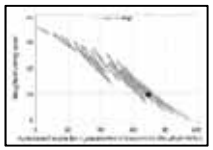
- Transparency:

Information about decisions and decision-making procedures.
(de Fine Licht 2014)



- Uncertainty*:

Changes in the indexes induced by changes in rating scores.



- Sensitivity*:

X changes in the rating scores that are required to get a *Y* index.

2) How can the methodology and the tools being improved?

Use feedback of participants to:

- Intepret results
- Improve methodology and tools

**DEFINITE tutorials

Objective 3

Advantages on quality of data-collected using a mobile applications*

- Accuracy & Precision:
linguistic rating scales.

- Completeness:
% unspecified answers

- Representativness & Comparability:
Embedded glossary and tag of pictures

* Looking for internship funding & ICT support.
Potential collaboration WeSenseIt Project to inspect dikes in NL.

Ch 05: Adapting risk management strategies to future changes

1. Emergency preparedness and response strategies in Europe – an overview: assessment of organizational capacity*

- Theoretical & Lit. Rev.

2. The role citizen of science projects to support risk management strategies (5 pages)

- Theoretical & Lit. Rev.
- Example Italian case study.

3. The role of ICT- and mobile-based tools to coordinate prevention and preparedness activities (10 pages)

- Theoretical & Lit. Rev: Need for User – centered design approach
- ICT tools CHANGES study sites (e.g. PETER, SIDS, ARCUS)
- Examples Italian case study and other study sites for coordination and support of ICT

So far..

Achievements

- Conference Papers:

  - FloodRisk 2012
  - Hydroinformatics 2014

- Journal Papers:

  - Submitted Quality of volunteers' data
  - On progress DSS methodology
  - Co-Submitted on Coordination preparedness & prevention

Challenges

- Stakeholer involvement is a time consuming approach.
- Socio-technical approach required volunteers involvement & support of ICT tools.
- Replicate the methodology in other study site/hydraulic structure.

Thanks for your attention!