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<th><strong>Title</strong></th>
<th>Global Visibility and Local Accountability - Making Sense Out Of (Human) Sensors</th>
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<td><strong>Authors(s)</strong></td>
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GLOBAL VISIBILITY AND LOCAL ACCOUNTABILITY
MAKING SENSE OUT OF SENSORS

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UNIVERSITY OF TWENTE, NETHERLANDS

NORTH AND SOUTH CONFERENCE
ETH ZURICH, SWITZERLAND
NOVEMBER 10TH, 2011
OVERVIEW

1. What problems addressed?
2. Human sensor web as solution
3. Findings
4. Making sense of sensors
5. So what?
6. Recent developments
TANZANIA BACKGROUND

Two concurrent changes

- transition to a market economy makes ➔ free public service only one of the options for people to satisfy their needs
- Eastern Africa uptake of mobile applications:
  - banking M-Pesa,
  - texting on the quality of water services Daraja.org,
  - report on humanitarian crises like Ushahidi and human rights violations FrontlineSMS
WHAT PROBLEMS ADDRESSED?

- Water provision (not just water management)
- Millennium Development Goals as indicators
WATER IN ZANZIBAR

Most of the island is only suitable for small developments (little spring water)

Population grows steadily

Water distribution via a 40 years old system (5x population now)
Water has to travel differently…

…unexpected actors
MILLENNIUM DEVELOPMENT GOALS LIMITATIONS

1. Are MDG data reliable? Many countries have problems in producing adequate statistics.

2. What do MDGs measure?
Example: is a water point in 100m radio a proxy for adequate water provision?
HUMAN SENSOR WEB AS SOLUTION

Inform and empower
Citizens monitor and report about service provision
➔ bottom-up social indicator

HSW is funded and executed (2009-2010) under the h2.0 initiative (www.h20initiative.org)
Google.org and UN-habitat
SIMPLE SOLUTION: BILLBOARDS AND A SERVER
H2.0 – Human Sensor Web

Developed by ITC, WMC, 52'North with the support of ZAWA and Zontcl. Funded by google.org and UN-HABITAT.

Distributed by ITC, WMC, 52'North with the support of ZAWA and Zontcl. Funded by google.org and UN-HABITAT.

Data Anonymized and Public
CLOUD AND CROWD - INTERNET SERVICES AND PLATFORMS

- Remote sensing (about natural resources)
- Participatory sensing (about people’s needs and perceptions)
- Opportunistic sensing (next?)

Ex: Google flu trends
A MIRROR OF E-GOV
FINDINGS

Designed sequence of HSW use steps:
1. Individual reports problem
2. System logs the report
3. System responds to individual about message reception
4. System assesses validity of report
5. Valid report is visualized on HSW website
6. System broadcasts (sms) a warning about service problem to subscribers and the service provider

How is it in practice?
UNFORESEEN STAKEHOLDERS AND UNPLANNED CONSEQUENCES

- Mismatch water collection / phone ownership
- Delays
- Difficult to remember geo-codes
- Low trust in the water authority
- Concern in exposing phone number (fix water fees not paid)
- Articulate SMS vs. machine readable ones
- Shehas as community gatekeepers
- Costs
# MAKING SENSE OF SENSORS

## Monitoring what?

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<tr>
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<th>Humans inactive on report</th>
<th>Humans actives on report (human sensors)</th>
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<tbody>
<tr>
<td>Humans inactive</td>
<td>Water availability</td>
<td>Disaster management (for example in case of floods)</td>
</tr>
<tr>
<td>on water usages</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humans active</td>
<td>Water consumption</td>
<td>Water needs (actual stage)</td>
</tr>
<tr>
<td>on water usages</td>
<td>(water meter)</td>
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HSW data is NOT a proxy for water availability

➡️ Validation of what?

Depends on stakeholders and actual uses
## ORGANIZATIONAL MISMATCH MATRIX

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<th>Basis for action</th>
<th>Expected outcomes</th>
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<tr>
<td>Public sector</td>
<td>Formal legitimation and duty of service delivery</td>
<td>Gaining/keeping consensus</td>
</tr>
<tr>
<td>Human sensor web designers</td>
<td>Local and immediate people’s need (lack of water here and now)</td>
<td>Policy changes (water management)</td>
</tr>
<tr>
<td>People and HSW users</td>
<td>Complex interrelated problems (work, family relations, rights...)</td>
<td>Local and immediate</td>
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Gianluca Miscione on HSW
SO WHAT?

The main functionality of HSW is

assessment of public service needs

rather than an assessment of service functionality
NEW DOMAINS FOR RESEARCH AND PRACTICE

Needs and perceptions ➔ IT4D beyond natural resources

Relevance for:
- urban planning (sensing citizens)
- Infrastructures management (better grasp on actual use)
OPEN QUESTIONS

- Do HSWs bring more universalism in service provision on empowerment of who speaks louder?

- New domains and agenda setting effects?
RECENT DEVELOPMENTS

SENSING, interesting for:

- Heterogeneity of data ➔ need to be context specific
- Actual situations of globalization

- “Sensors Empowerment and Accountability” (NWO funded project)
- Citizens Observatories (FP7 proposal)
- FET / complexity, FP7?

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Gianluca Miscione on HSW
Scaling as:

- Outreach (national?)

- Cross domain (public health - Medicine provision)
TRUST

Via IT

How does HSW intersect trustworthy relations? How to manage it?

- Selfregulation
- Formal organizations
- Automatic ranking

In IT

Does (mis)trust in orgs (WA, mobie carrier...) translate to the HSW?
THANK YOU

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