

Developing Mobile Services for In-Situ Monitoring, Data Storing and Sharing (HALI-Project)

New Tools for Monitoring and Assessment of Ecological Status in Large Lakes

Introduction

The goal of the HALI-project (2014–2015) is to improve the flow of environmental monitoring data and give up on paper forms used in field observations.

This is achieved by giving up on paper forms used in field observations: requirements for a common mobile data collection and open data service are defined and piloted with professional observers and volunteer. Before piloting, water quality monitoring tools suitable for volunteers and professionals are tested.

The project supports the objectives of the Finnish national environmental monitoring strategy implemented by the development program Monitor2020.

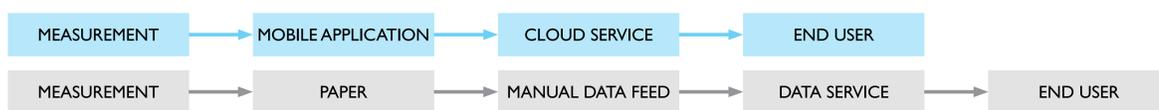


Fig. 1. Future value chain (upper one) is shorter and improves efficiency of data usability.



Kuva?

Methods

To test professional water quality sensors and data management tools, comparative measurements in the field and laboratory experiments were performed. During a 2-day field measurement campaign, 19 participants performed four to a database. The participants tested two different mobile data collection platforms for saving the metadata of the measurements. The uncertainties of some of the sensors were calculated with the MUKIT software.

To evaluate the readiness of volunteers to perform water quality measurements, an internet questionnaire was sent to interest groups related to water management.



Fig. 2. Field measurement campaign at Lammi.

Results and Conclusions

The results of the field measurement campaign indicated that field meters are suitable for measuring oxygen, conductivity, turbidity, temperature and pH in Finnish surface waters when the equipment is properly maintained and calibrated.

Results of the survey (n=128) revealed that only a few individual citizens are willing to pay more than 100 euros for a measurement kit. This limits the possibilities for extensive citizen participation to simple measurements, like Secchi depth, temperature and use of low-cost test strips.

Based on the results of the field measurement campaign and the survey for citizens water quality measurement kit was developed for volunteers and professionals.

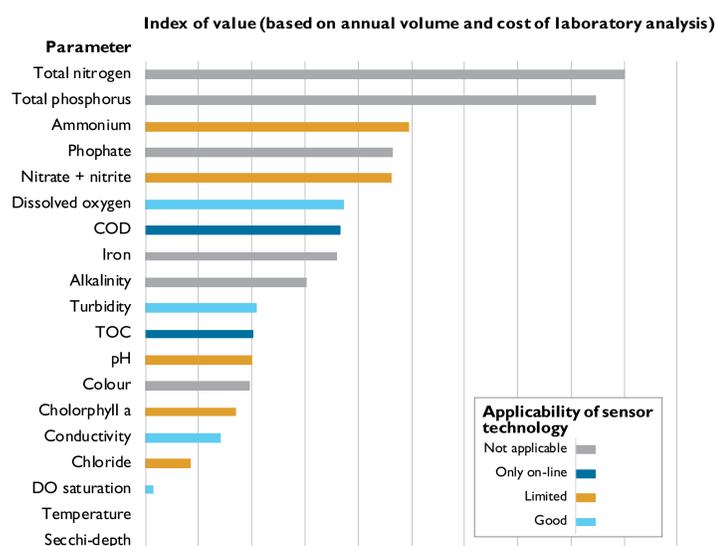


Fig. 3. Applicability of sensor technology to water quality measurements of Finnish inland and coastal water bodies, in relation to the analysis needs of different parameters.

In summer 2015 the measurement kits for citizen were test used in the field by volunteers. Package contained simple measurement tools for pH, temperature and Secchi depth and a mobile application for typing in and saving the data of the measurements.

Professional observers were also piloting mobile data collection by participating in a roadshow-like field measurement campaign. Results from the pilot are expected in September 2015.

References

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- Koivuniemi J, Vartiainen M, Mäki E & Estrada P 2015, Jokamiehen vedenlaadun mittausreppu, (Everyman's water quality field measurement kit), Final project report, Savonia University of Applied Sciences, Kuopio.

Further information:

www.syke.fi/hankeet/hali