

Non-traditional Water Monitoring through Local Involvement, Key Learnings from the iMoMo Global Initiative

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Abstract

In developing and transitional countries, data on water remain scarce or fragmented despite significant global investments in hydro-meteorology. One key reason is that it is challenging to upscale traditional monitoring technology (e.g. a fixed river gauging station), especially in remote and/or poor regions of the world where high investment costs, vandalism, and difficult operation and maintenance limit the data scalability. Recently, the collection of non-traditional data through local involvement using low-cost, high-tech devices (also referred to as crowd-sensing or citizen-based data collection) has emerged as an interesting alternative for obtaining data at lower costs. In this study, we present results from the iMoMo project in Africa and Central Asia as a possible pathway for Latin American countries facing similar issues on data collection.

Over the past 6 years, the iMoMo project and its multi-national team has worked to develop and deploy crowd-sensing technologies, and to implement data collection campaigns mainly dealing with the acquisition of discharge data (www.imomohub.com). One of the developed technologies was the mobile (Android-based) application discharge.ch, which allows to measure discharge in small to medium-sized rivers and channels using the smartphones' camera and its computational power. Measurements are automatically synchronized with a database on the web, where they can be managed, analyzed, and shared or exported by institutions and academia. Involving local citizens in the monitoring process not only improves their understanding of water resources related issues, but also creates local ownership of the technologies and provides a direct tool to support daily decision-making and management on the very local levels (e.g. throughout large scale irrigation schemes). We found that measuring at predefined locations using well-established collection protocols regulated by contractual relationships (e.g. small salaries for involved citizens) leads to highly valuable information, and it yields better results than strategies based only on voluntary participation.