

SmartPhones4Water Nepal (S4W-Nepal)

“SmartPhones4Water exists to leverage the power of citizen science, mobile technology, and young researchers to improve lives by strengthening our understanding and management of water.”

Introduction

S4W-Nepal is a non-profit research organization focused on generating, managing, and understanding the hydro-meteorological data necessary to support wise water management decisions. We accomplish this with our three-pronged approach of Research, Education, and Employment.

Water is our most precious resource. Lord Kelvin, a famous Scottish mathematician, once said, “you can’t manage a resource you don’t measure.” S4W-Nepal’s goal is to generate the data necessary to support wise water management decisions. Our first project focuses on the Kathmandu Valley, where extreme population growth has led to extensive stress and degradation of water resources and associated ecosystems. Our efforts are quickly expanding into the rest of the country and beyond.

The standard approach to collecting water data (e.g. rainfall, water flow in streams, groundwater levels, water quality, etc.) requires permanent sensors and is expensive, easily disrupted by corruption and vandalism, is reliant on often unstable political institutions, and simply doesn’t work in many cases. In many places of the world, not least the rapidly developing portions of Africa and South and East Asia, the traditional approach has consistently struggled to produce the information water managers rely on to make good decisions.

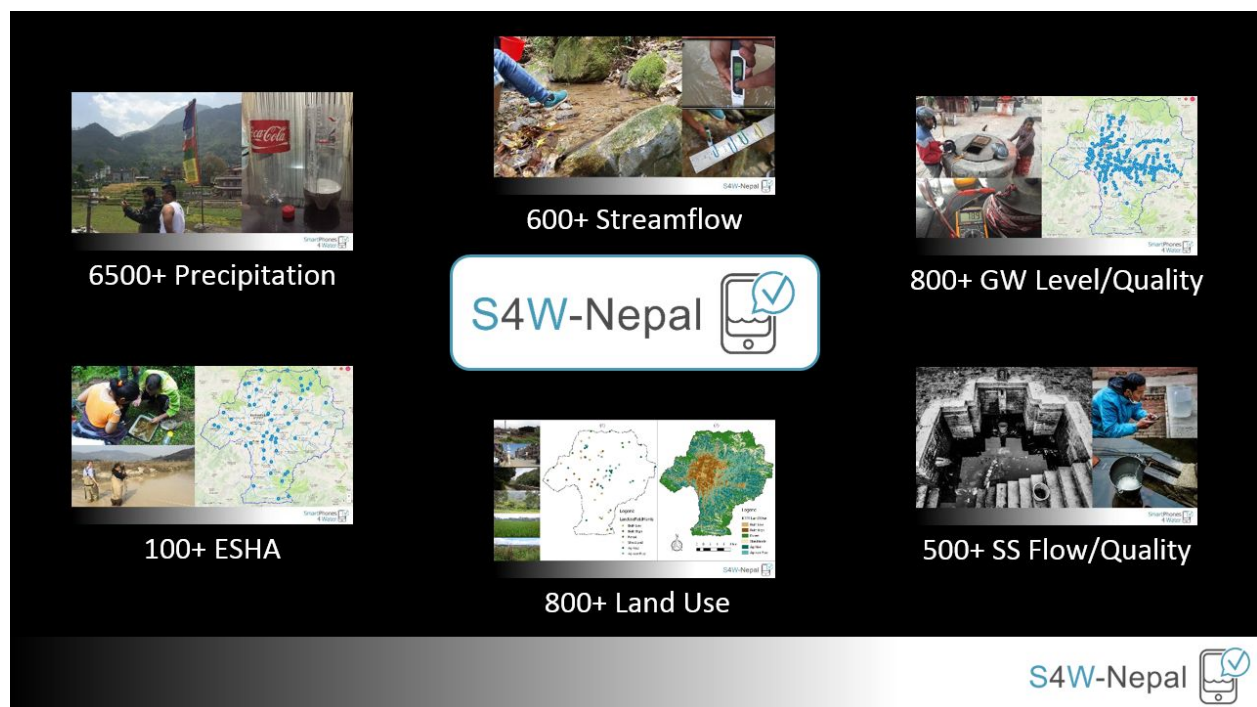
The first step to solving any problem is thoughtfully characterizing it. Once the problem is characterized, a plan can be developed, and then implemented. S4W-Nepal aims to generate the data that are necessary to characterize water issues, so that solutions can be developed, and successfully implemented.

Citizen Science + Mobile Technology + Young Researchers?

S4W-Nepal = citizen science + mobile technology + young researchers. S4W-Nepal uses an Android application called Open Data Kit (ODK) to collect data about water with citizen scientists and young researchers. Advances in mobile technology (e.g. GPS, cameras, etc.) have drastically improved the accuracy and reliability of citizen science observations. In many cases, our approach is more cost effective than traditional methods, and more rapidly scalable. Citizen Science has the benefit of building the capacity of communities to understand and manage their water resources, which in turn strengthens their connectedness to place. Involving young researchers builds national research capacity and ensures that the improved understanding is locally retained with the academic partner institutions. Data collected by S4W-Nepal is available to the public, with the goal of encouraging the next generation of Nepali water researchers and managers to collaboratively rise to the water management challenges before them.

Research, Education, and Employment

S4W-Nepal aims to perform world class research based on our ever expanding citizen science driven water database through open access peer reviewed publications, participation in conferences and seminars, and workshops at academic institutions. Citizen science offers the benefits of community engagement and knowledge transfer from regional researchers and resource managers to local decision makers. S4W-Nepal has a strong emphasis on educational training of our local citizen scientists and academic partners (primary level through PhD researchers). We have partnerships with dozens of academic institutions spread out across the country and are well connected to the international research community in Europe and the US. In rural areas, with strategic data collection importance, S4W-Nepal offers modest per observation compensation to community citizen scientists through mobile fund transfers.



Sustainable Data Collection

We are keenly aware that data collection efforts must continue sustainably into the future even as funded projects come and go. Our solution to ensuring continuity in data collection efforts is to embed our activities within the context of strong broad-based partnerships with Nepali Academic Institutions. Launching armies of young BSc, MSc, and PhD researchers into the data scarce regions of Nepal equipped with S4W-Nepal's data collection platform has several game-changing benefits. First, there is always a consistent supply of young researchers that need research questions and field experience to fulfill the requirements of their degrees. Second, providing a digital, consistent, and accessible platform for generating water related data helps to ensure that past research is not lost (e.g. dusty hard copy theses) and future research builds on previous efforts. Finally, a cross-cutting organization like S4W-Nepal that links water related research across a swath of Nepali Academic Institutions related to environmental science, engineering, forestry, economics, sociology, etc. encourages young researchers

to invest in relevant and multidisciplinary research topics. These young researchers will then be the champions of engaging community members in citizen science in the places where they grew up, live, research, and work.

Our Team

S4W-Nepal is a young-researcher led collaboration between SmartPhones4Water (S4W), a US based non-profit organization, Himalayan Biodiversity and Climate Center (HimBioCliC), Tribhuvan University Institute of Engineering, Tribhuvan University Institute of Forestry, Kathmandu Institute of Applied Sciences (KIAS), Delft University of Technology, and the Swedish International Development Agency.

S4W-Nepal Links

Web

- [S4W Website](#)
- S4W Public Data Portal - Coming soon...
- [S4W Facebook](#)
- [Twitter](#)

YouTube

- [S4W-Nepal Introduction Video](#)
- [S4W-Nepal Tutorial Videos](#)

Scientific Publications

- [Continuity vs. the Crowd—Tradeoffs Between Continuous and Intermittent Citizen Hydrology Streamflow Observations](#)
- [Quantifying the connections - linkages between land-use and water in the Kathmandu Valley, Nepal](#)

Media Stories

- [I Think I'm Going to Kathmandu: Citizen Science for Freshwater in Nepal \(Cool Green Science\)](#)
- [Nonprofit Kickstarts Water Data Gathering in Nepal Valley \(Environmental Monitor\)](#)
- [Three Generations Near the Banks of the Bagmati \(Onset\)](#)
- [In Pursuit of Data \(Forester Magazine\)](#)

S4W-Nepal Science Stories

- [Developing a Monitoring Network](#)
- [Collecting Data with SmartPhones and Citizen Scientists](#)
- [Data Making a Difference - Flow Measurement at Stone Spouts](#)

S4W-Nepal Citizen Scientist Interviews

- [Meet Sabina Shrestha](#)

- [Meet Suraj Ghimire](#)
- [Meet Pawan Giri](#)
- [Meet Sabina Tamang](#)