



M.C. MacDonald, M. Elliott, W.L. Hadwen, T. Chan, A. Kearton, K. Shields

Investigating multiple household water sources and uses through tablet-based, computer assisted personal interviews (CAPI)



Australian Rivers Institute



Pathways to universal and sustained water, sanitation and hygiene



Rationale

- Many households in developing countries use multiple sources for daily water needs (e.g., one for drinking, another for bathing, etc.)
- Drinking water data in global surveys (e.g., DHS) and data sources (e.g., JMP) focus almost exclusively on primary drinking water source

Rationale

- Knowledge gaps on multiple sources have been recognized by WaSH researchers (e.g., Evans et al., 2013; Shaheed et al., 2014)
 - Not addressed/no solution offered
 - One reason: data collection is complicated
- Filling these knowledge gaps around HH water management is essential to understand or model the impacts of water on:
 - Health/hygiene
 - livelihoods
 - climate change resilience and adaptation

Methods – Household Surveys

- This presentation reports on household surveys in:
 - Eight RMI communities (n=299) and five SI communities (n=106)
 - August 2014 to Nov 2015.

Country	Community	Households
RMI	Jenrok	33
RMI	Laura	34
RMI	Arno	33
RMI	Lae	41
RMI	Ujae	43
RMI	Likiep	35
RMI	Wotje	40
RMI	Ailuk	40
SI	Suaghi	20
SI	Verahue	24
SI	Aifera	24
SI	Radefasu	21
SI	California	17



Methods – Household Survey

- Initial surveys conducted on paper in SI
 - Pen and Paper Interview (PAPI)
 - Based on survey instrument developed by Dale Whittington and colleagues (UNC)
 - Gold standard for surveys of HH use of multiple water sources
 - Complicated, time-consuming to deliver, and error-prone



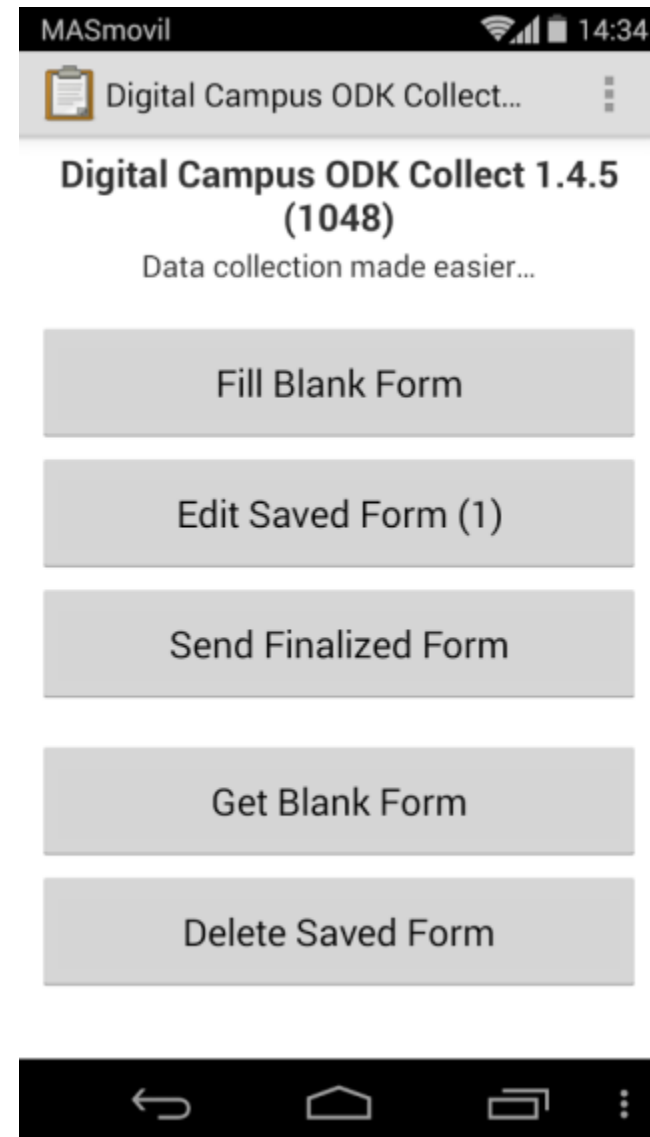
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 - Gold standard for surveys of HH use of multiple water sources
 - Complicated, time-consuming to deliver, and error-prone
- Transitioned to a tablet-based Computer-Assisted Personal Interview (CAPI) tool
 - Numerous advantages



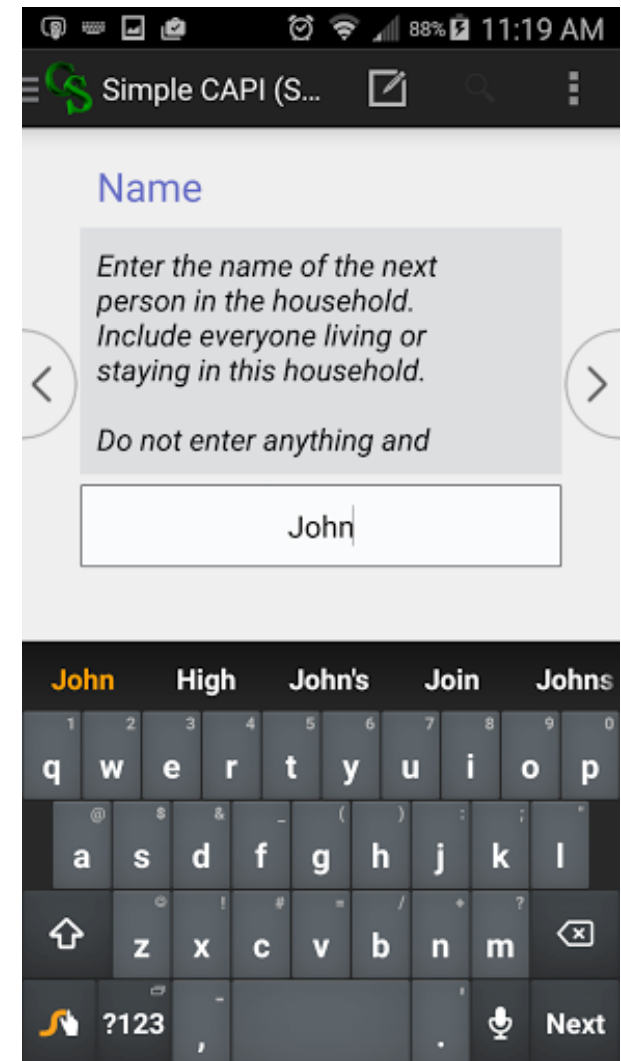
Methods – SurveyCTO Android App

- SurveyCTO (Android app) for tablet-based surveys
 - Some leg work up front
 - Code survey in Excel
- Major improvement over paper-based surveys for complicated survey designs
 - Time savings: surveys themselves take <half as long to deliver
 - No need for parallel data entry for quality control
 - Less errors: skip patterns integrated into code

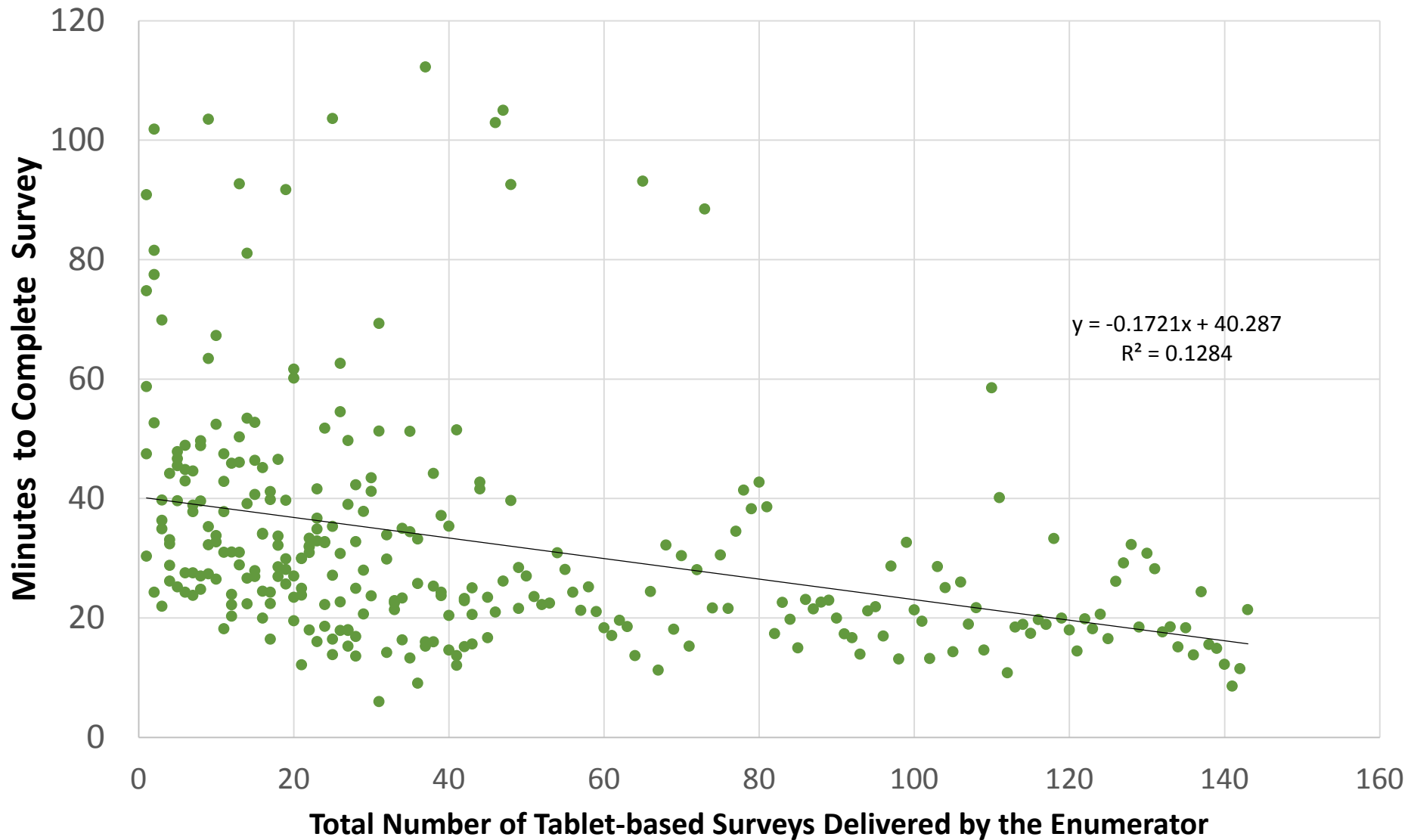


Methods – SurveyCTO Android App

- SurveyCTO software screenshots
 - There are many other competing products for tablets and smart phones

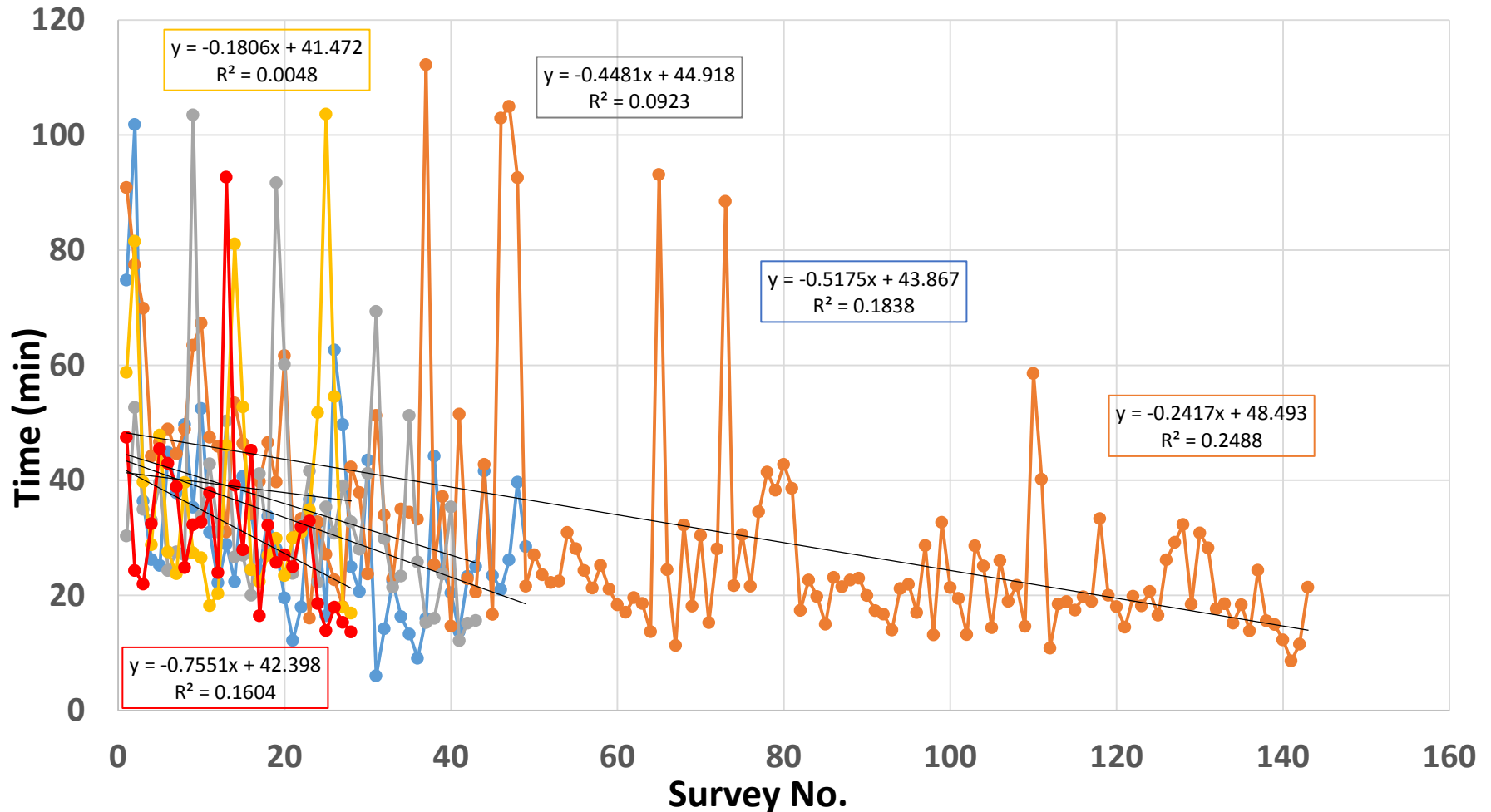


Survey duration



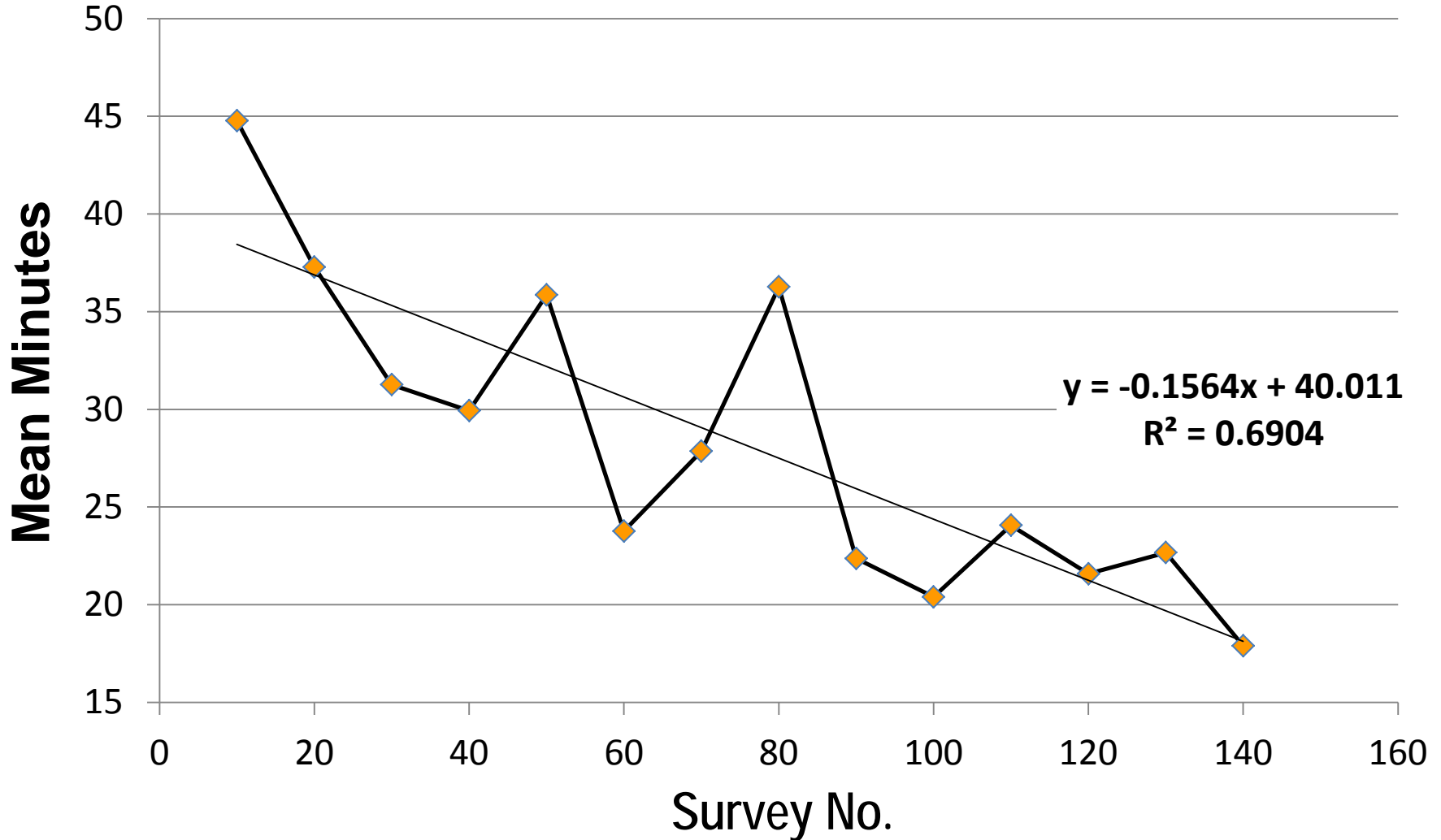
Survey duration

Survey Duration by Enumerator

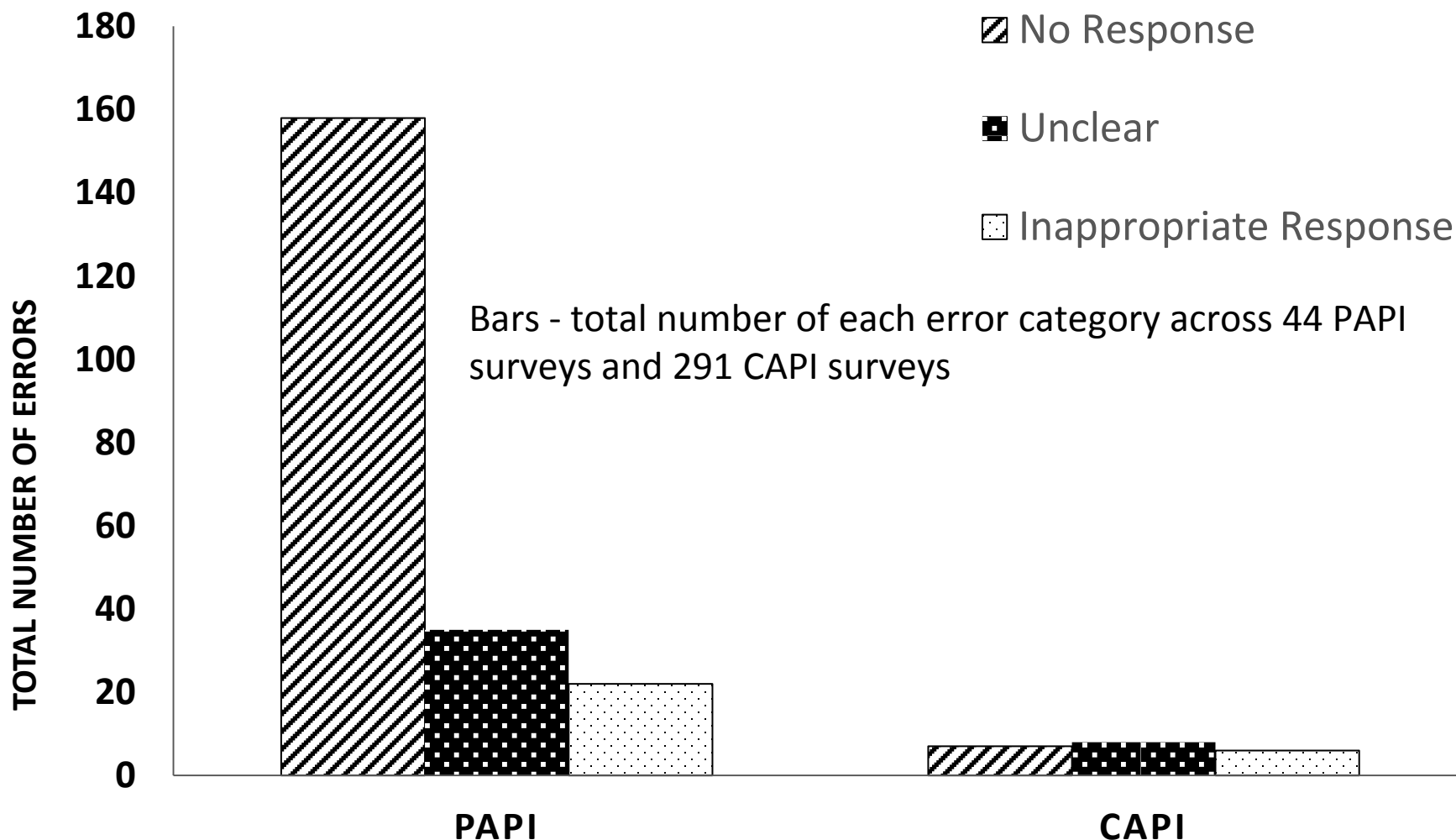


Faster, cleaner, cheaper...

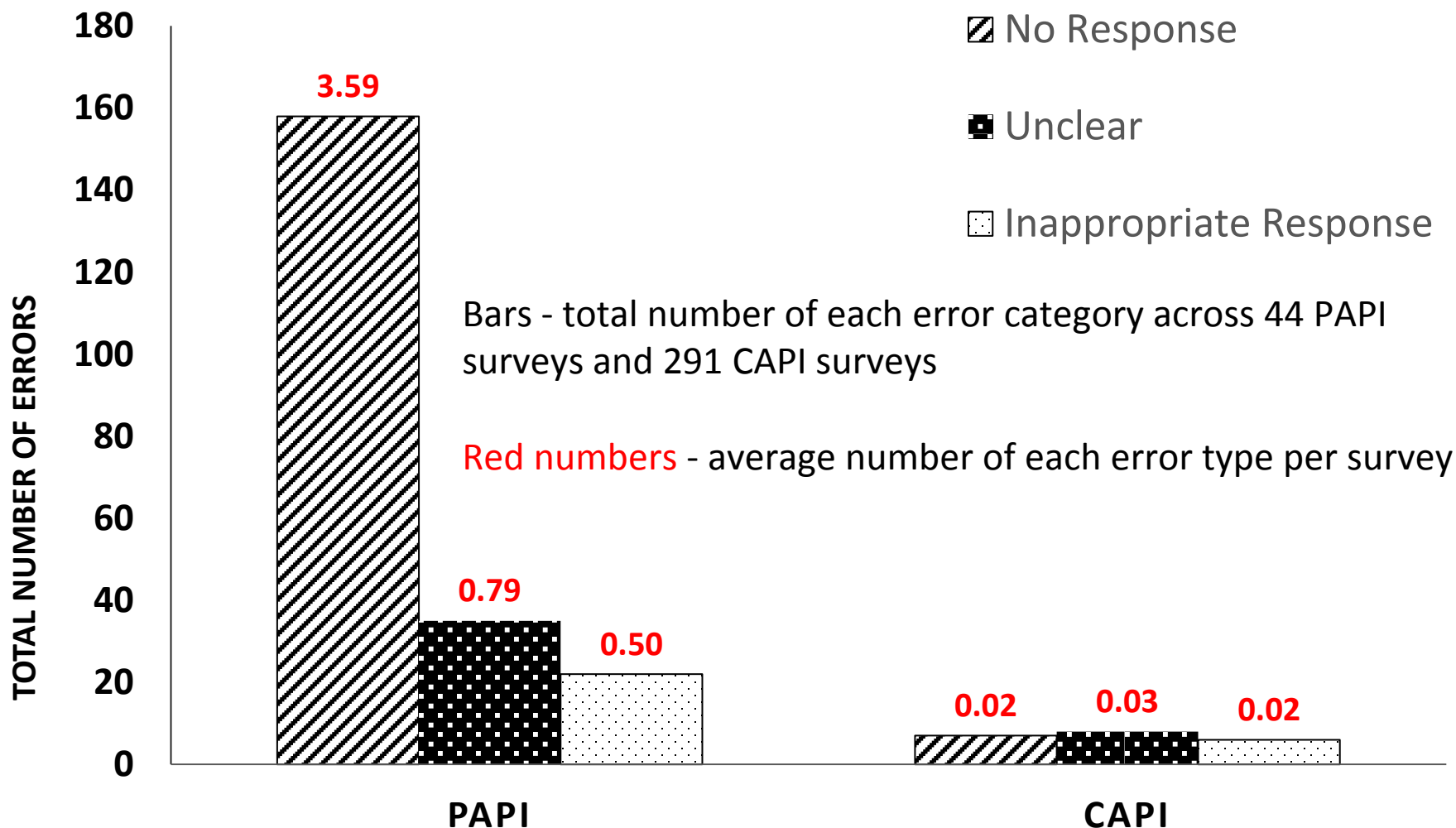
Average Survey Duration (bins of 10)



Lower Error Rates

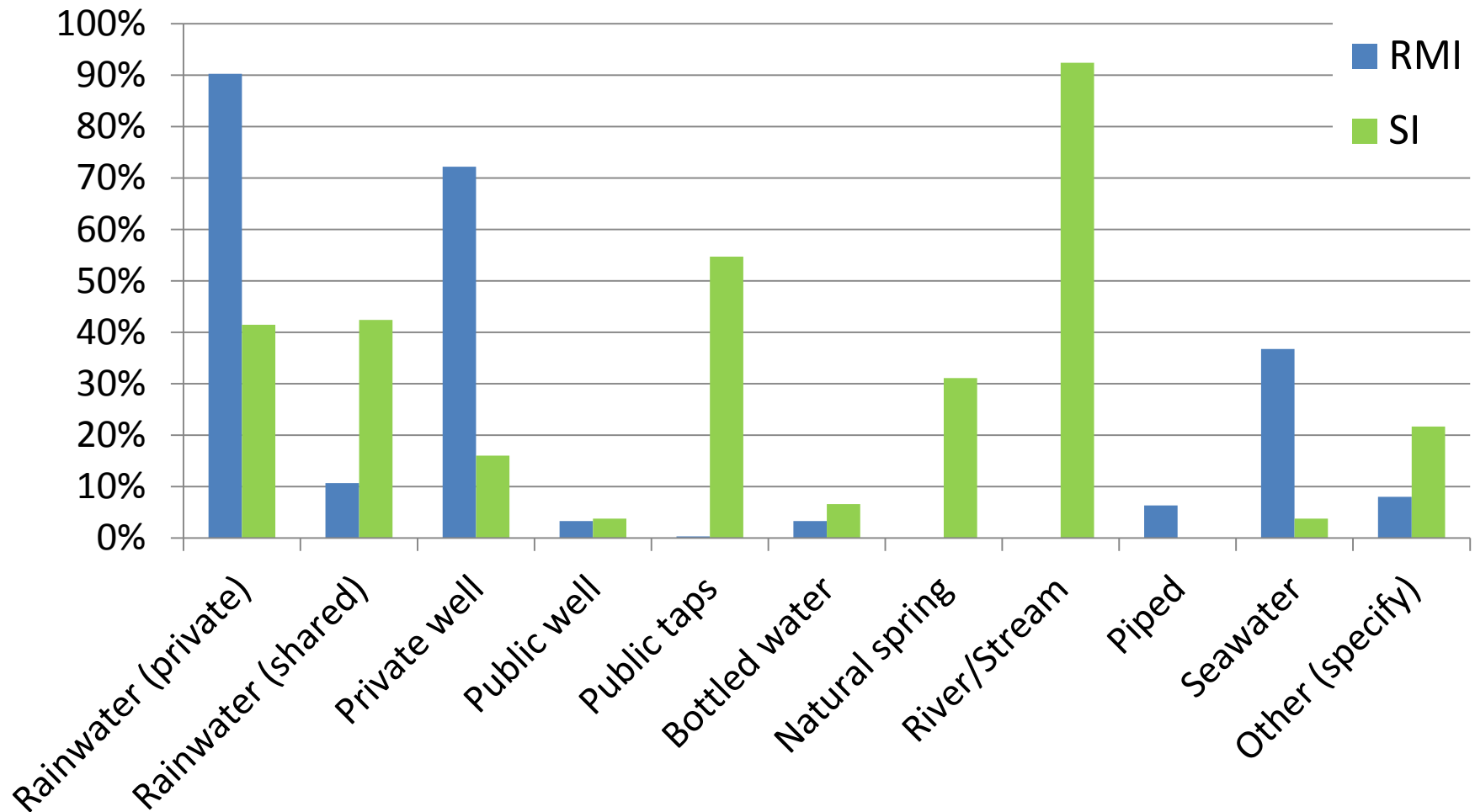


Lower Error Rates



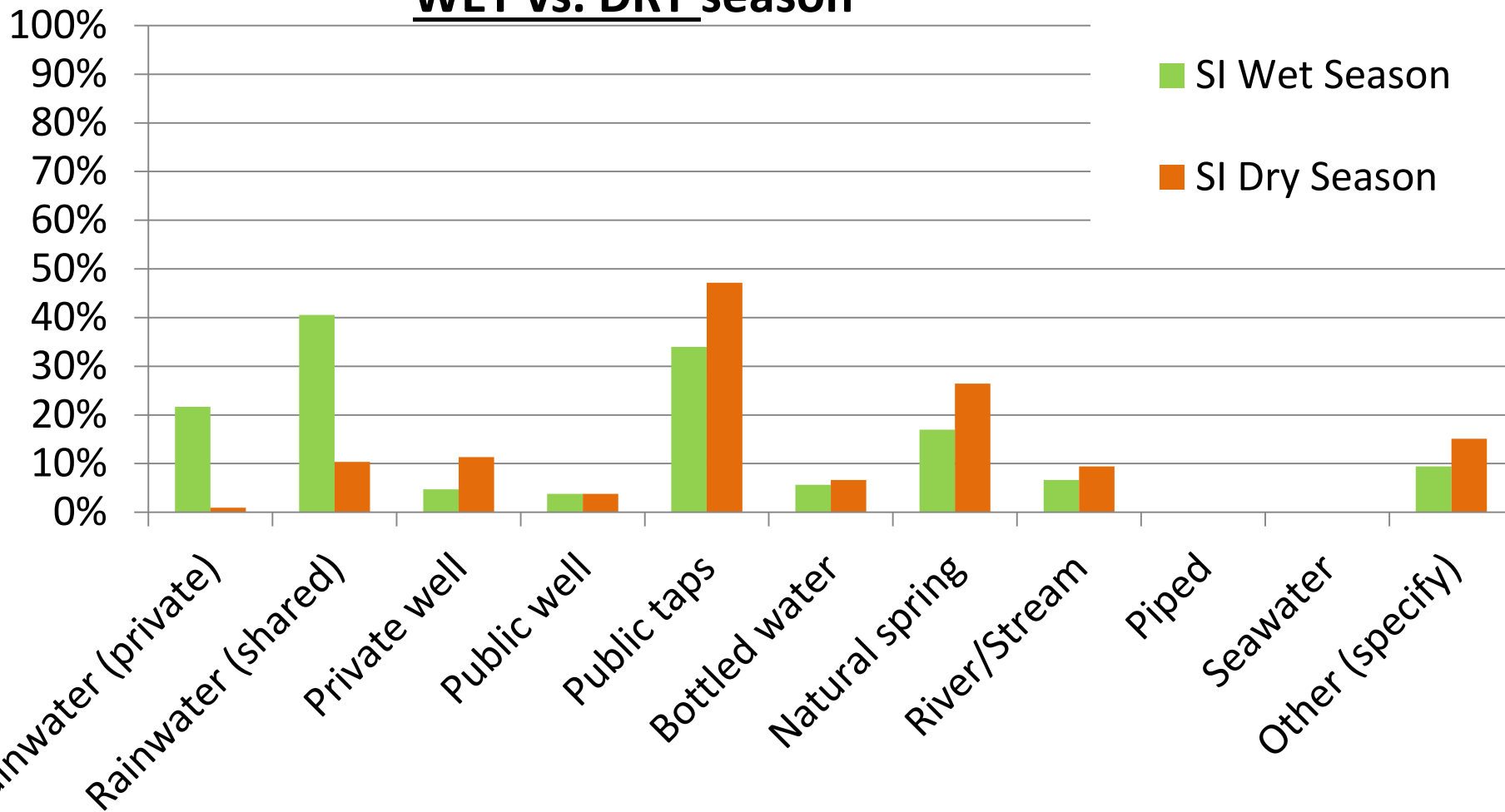
Examples – collected data

% HHs using each of these in non-emergency conditions



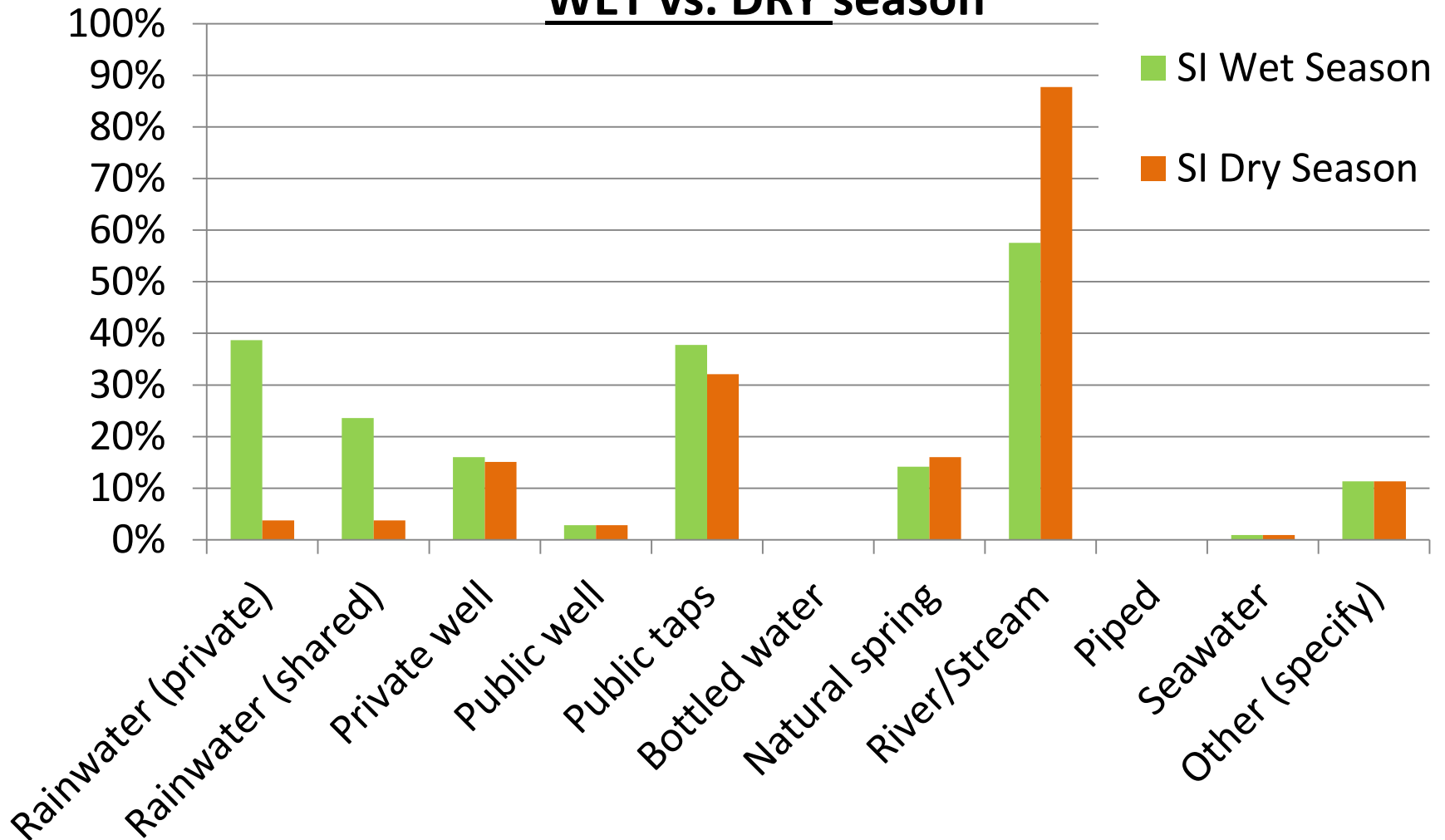
Examples – collected data

% HHs drinking each of these in SI during WET vs. DRY season



Examples – collected data

% HHs handwashing with each of these in SI in WET vs. DRY season



Summary

- Tablet-based CAPI approaches :
 - enable surveys that characterize multiple water sources that
 - generate more complete data on water use
- Better equipped to
 - inform water, climate change and development policy
 - a more accurate depiction of the actual household water budget
 - provide insight important health-related practices (e.g., drinking water quality, hygiene behavior)

Acknowledgements

Funding: Australian Department of Foreign Affairs and Trade (DFAT)

Research assistants: Dustin Langidrik, Adelma Louis, Malyne Joseph, Trevor Bruce Palusi, Hilda Rade, Patricia Kennedy

Local organizations in RMI (WUTMI, USP, MWSC) and SI (SPC, MoH)

Study participants



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Questions?



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