



# The Household Water Insecurity Experiences (HWISE) Scale

**Dr. Sera L. Young**

Associate Professor  
Northwestern University

[www.serayoung.org](http://www.serayoung.org)

[hwise.org](http://hwise.org)

@profserayoung, @hwise\_rcn



**Household  
Water  
InSecurity  
Experiences**





# Overview

- 1. What is the HWISE Scale?**
2. What has the HWISE Scale told us already?
3. How can we use the HWISE Scale in metropolitan settings?

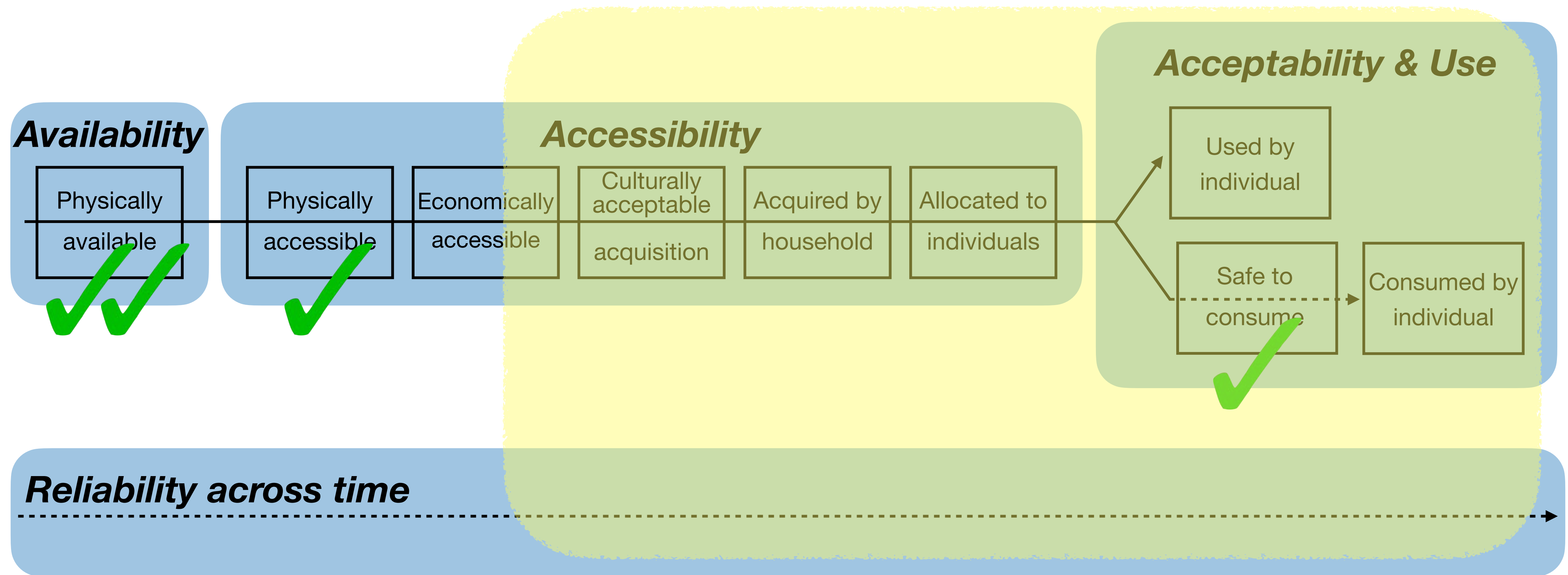


# Formative work for nutrition study in Kenya: *“What shapes how you feed your infant?”*





# Water security experiences have not typically been measured



# 2018 UN panel call for higher-resolution data



## WATER ACTION DECADE

"This is an opportunity to raise awareness, define

a r

Antón

# 1

## Understand Water

The adage "you can't manage what you

“‘You can’t manage what you can’t measure’ is particularly true for water... Yet major gaps exist.”

- United Nations High Level Panel on Water

for water.

, quality,

is essential

ether by

a process,

ell or basin

major gaps

g systems

ailure to

orological

(‘hydromet’) equipment and other water



[HOME](#)[SCALE MATERIALS](#)[BACKSTORY](#)[PUBLICATIONS](#)[COLLABORATORS](#)[HWISE NETWORK](#)

# Household Water Insecurity Experiences (HWISE) Scale

a cross-culturally validated scale to measure water insecurity at the household level

[www.hwise.org](http://www.hwise.org)



Household  
Water  
InSecurity  
Experiences

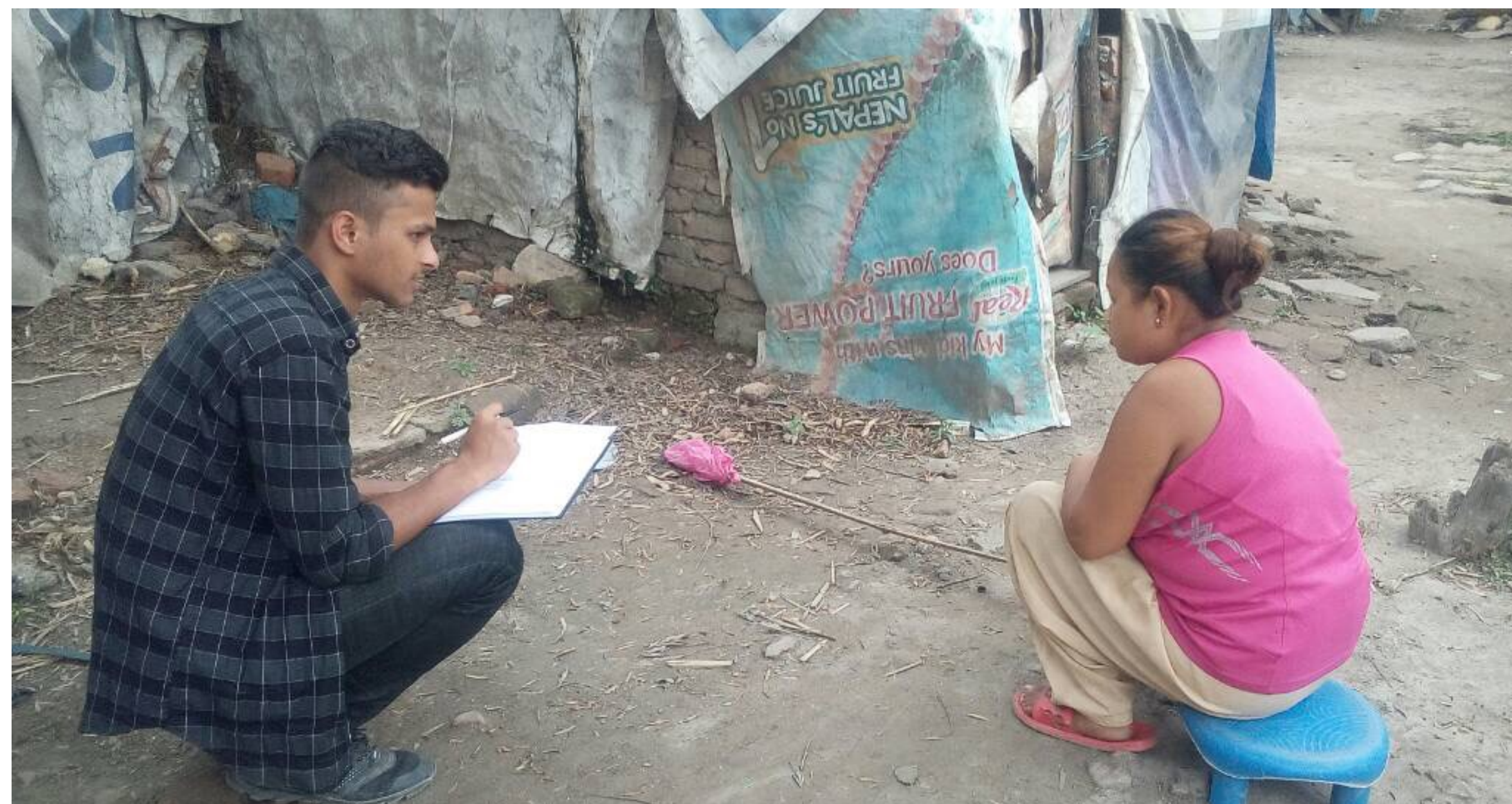




# Assimilated items from site-specific WI scales + ethnography



Colombia



Nepal



Nigeria



# Survey implemented in 28 sites, across 8,127 households



*HWISE **sites** were selected for maximal heterogeneity in **region** of the world, **infrastructure**, and **problems with water***





Advanced Review

## Progress in household water insecurity metrics: a cross-disciplinary approach

Wendy E. Jepson,<sup>1\*</sup> Amber Wutich,<sup>2</sup> Shalean M. Collins,<sup>3</sup> Godfred O. Boateng<sup>3</sup> and Sera L. Young<sup>4</sup>

Despite the central importance of water for human wellbeing and development, researchers and practitioners have few tools to quantitatively measure, assess, and compare the scope and scale of household and individual water insecurity across cultural and climatic variations. There are multiple definitions of water insecurity, and the analytical tools for measuring household-level water insecurity are in their infancy. This paper provides an overview and systematic evaluation of current household and individual water insecurity metrics for human development. We seek to advance micro-level metrics—attending to the considerations of dimensionality, temporality, unit of analysis, and comparability—because they will provide the research community with necessary tools to untangle the complex determinants and outcomes of water insecurity. Moreover, such metrics will support the translation of research outcomes into meaningful and useful products and results for stakeholders, communities, and decision-makers.

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BMJ Global Health

## The Household Water InSecurity Experiences (HWISE) Scale: development and validation of a household water insecurity measure for low-income and middle-income countries

Sera L. Young <sup>1</sup>, Godfred O. Boateng <sup>1,2</sup>, Zeina Jamaluddine <sup>3</sup>, Joshua D. Miller <sup>1</sup>, Edward A. Frongillo <sup>4</sup>, Torsten B. Neilands <sup>5</sup>, Shalean M. Collins <sup>1</sup>, Amber Wutich,<sup>6</sup> Wendy E. Jepson <sup>7</sup>, Justin Stoler,<sup>8</sup> On behalf of the HWISE Research Coordination Network



## Best Practices for Developing and Validating Scales for Health, Social, and Behavioral Research: A Primer

Godfred O. Boateng<sup>1\*</sup>, Torsten B. Neilands<sup>2</sup>, Edward A. Frongillo<sup>3</sup>, Hugo R. Melgar-Quinonez<sup>4</sup> and Sera L. Young<sup>1,5</sup>

Protocol

## Development and validation protocol for an instrument to measure household water insecurity across cultures and ecologies: the Household Water InSecurity Experiences (HWISE) Scale

Sera L. Young,<sup>1</sup> Shalean M. Collins,<sup>2</sup> Godfred O. Boateng,<sup>2</sup> Torsten B. Neilands,<sup>3</sup> Zeina Jamaluddine,<sup>4</sup> Joshua D. Miller,<sup>2</sup> Alexandra A. Brewis,<sup>5</sup> Edward A. Frongillo,<sup>6</sup> Wendy E. Jepson,<sup>7</sup> Hugo Melgar-Quinonez,<sup>8</sup> Roseanne C. Schuster,<sup>5</sup> Justin B. Stoler,<sup>9</sup> Amber Wutich,<sup>5</sup> on behalf of the HWISE Research Coordination Network



From 32 items...



Site PI meeting (June 2018)

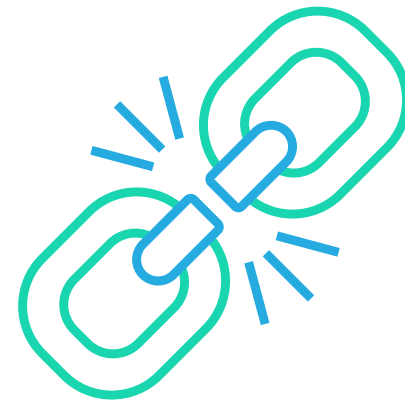


# 12 HWISE Scale items

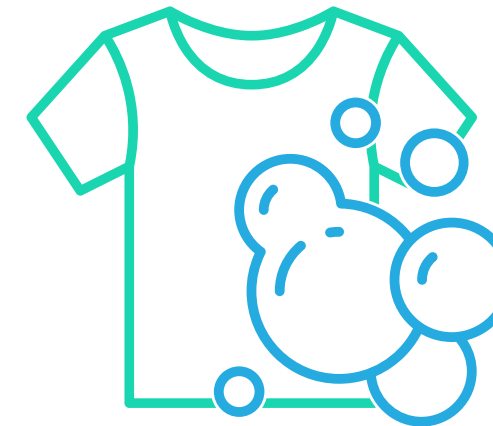
*How often in the last 4 weeks have you...*



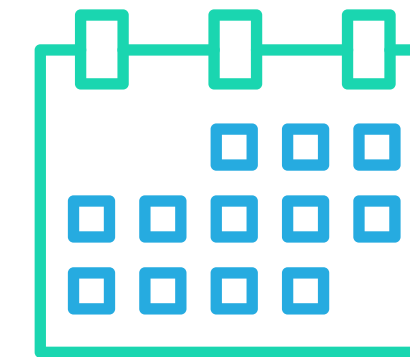
WORRY



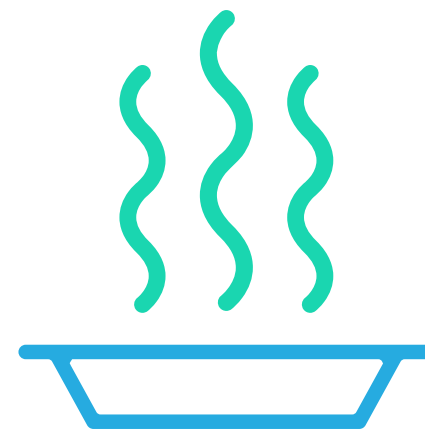
INTERRUPT



CLOTHES



PLANS



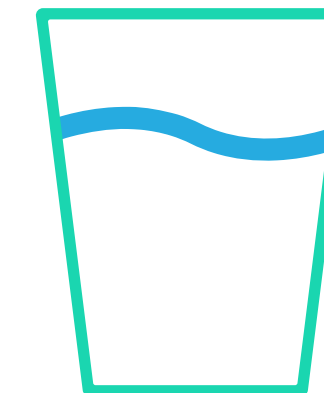
FOOD



HANDS



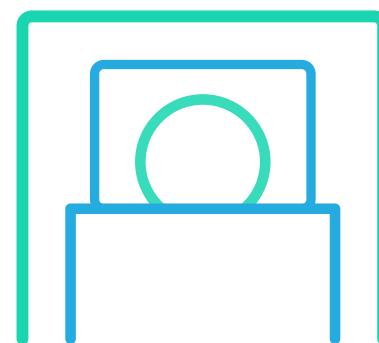
BODY



DRINK



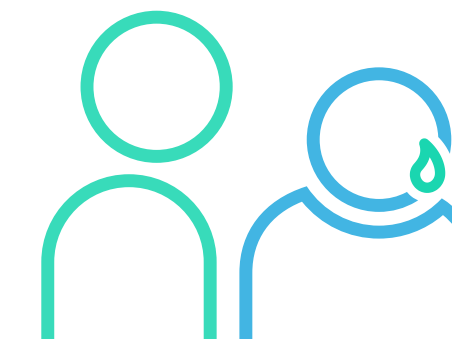
ANGRY



SLEEP



NONE



SHAME



# 3 minutes to administer

## *Response options*

0	= never
1	= rarely
2	= sometimes
3	= often/always

## *Sample response*

3 WORRY	1 INTERRUPT	2 CLOTHES	0 PLANS
0 FOOD	0 HANDS	2 BODY	2 DRINK
3 ANGRY	0 SLEEP	0 NONE	1 SHAME

## *Simple sum to score*



Household  
Water  
InSecurity  
Experiences

score = 14



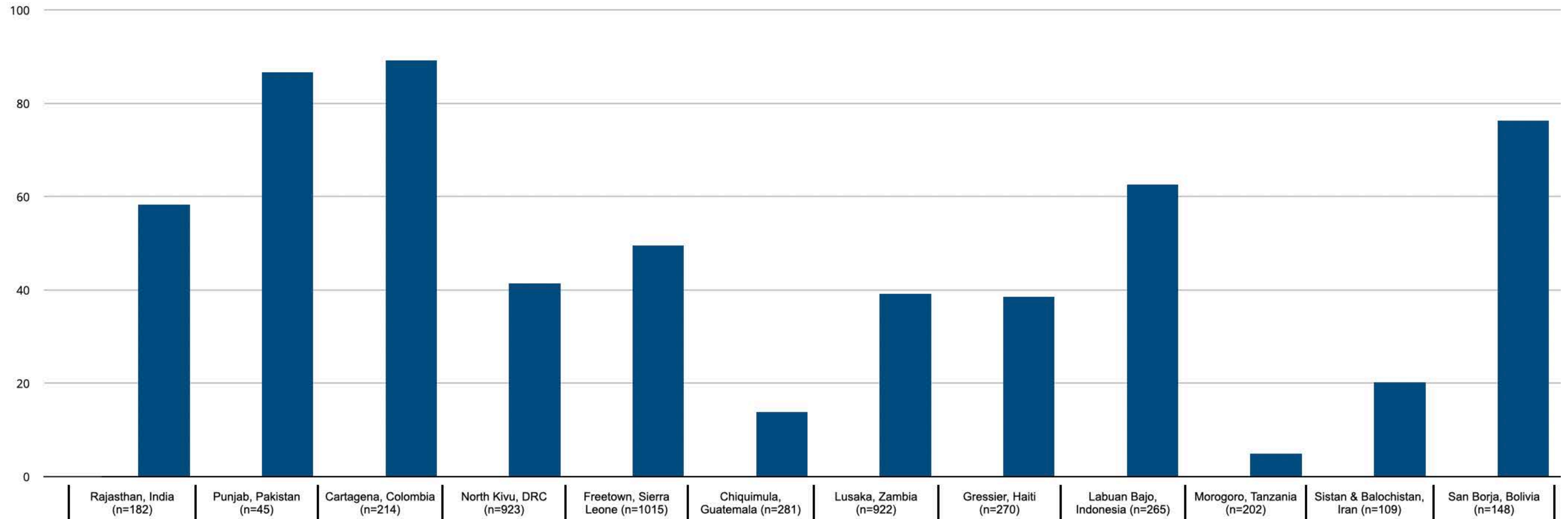
# HWISE Scale scores range from 0-36

Number of households with  
**HWISE scores  $\geq 12$**

Total number of households

=

Proportion of  
water-insecure  
households





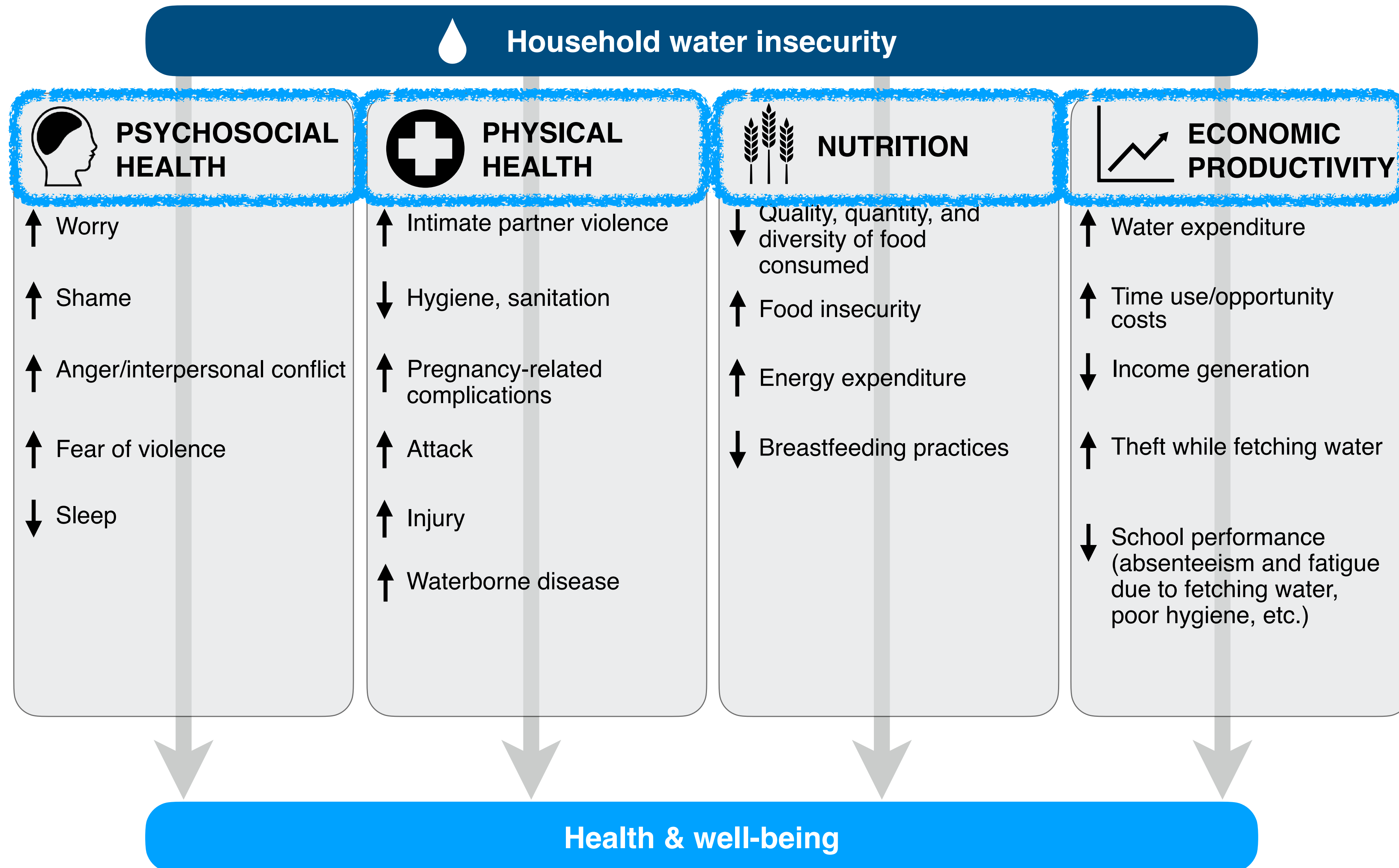


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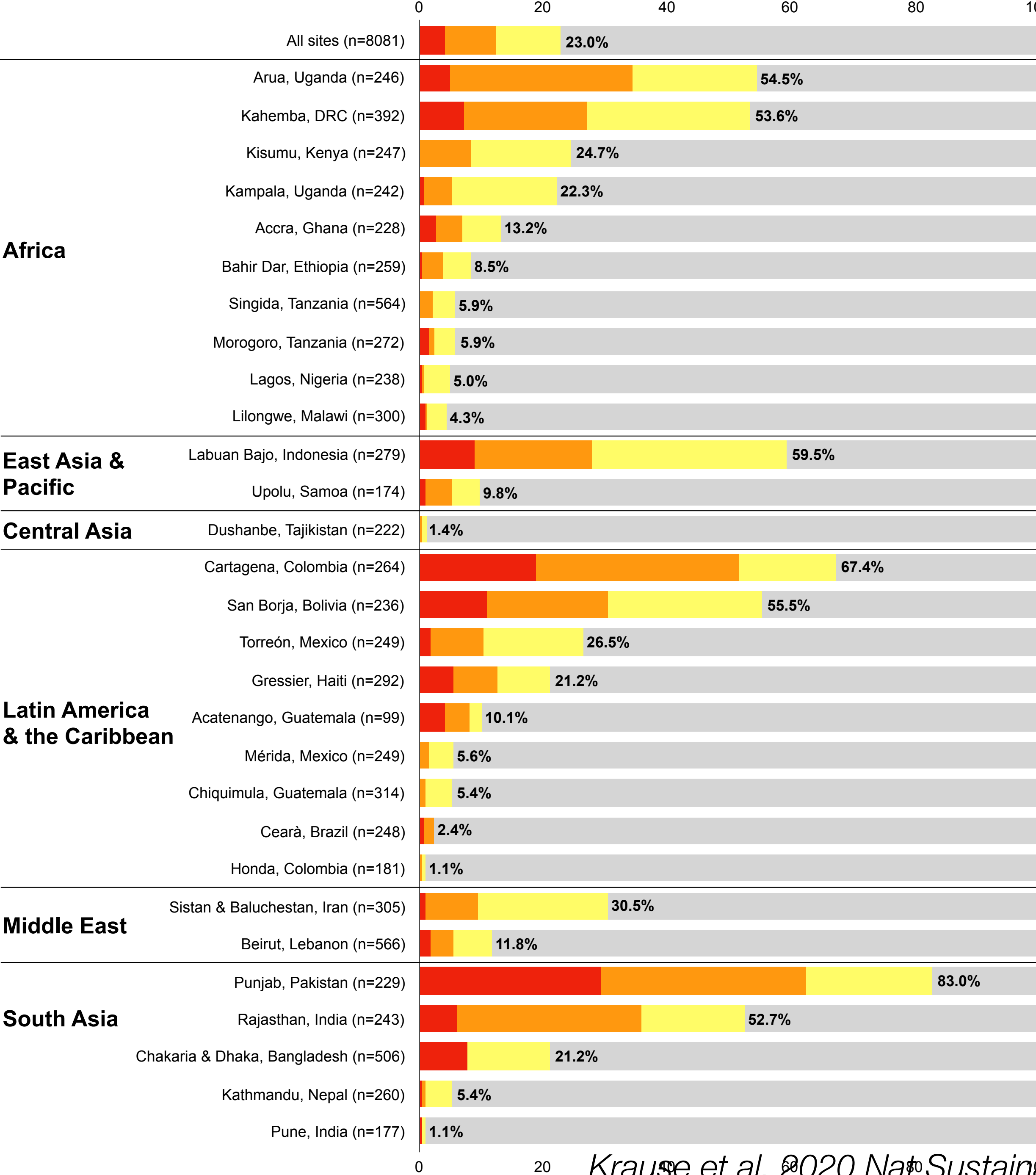


# Household Water Insecurity shapes many aspects of life





# Germane to COVID-19: 1/4 households unable to wash hands due to problems with water







# Overview

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# The HWISE Scale can be used at multiple levels





GALLUP BLOG JANUARY 9, 2020

# Benchmarking Household Water Insecurity in Africa and India ... and China, Brazil, Bangladesh

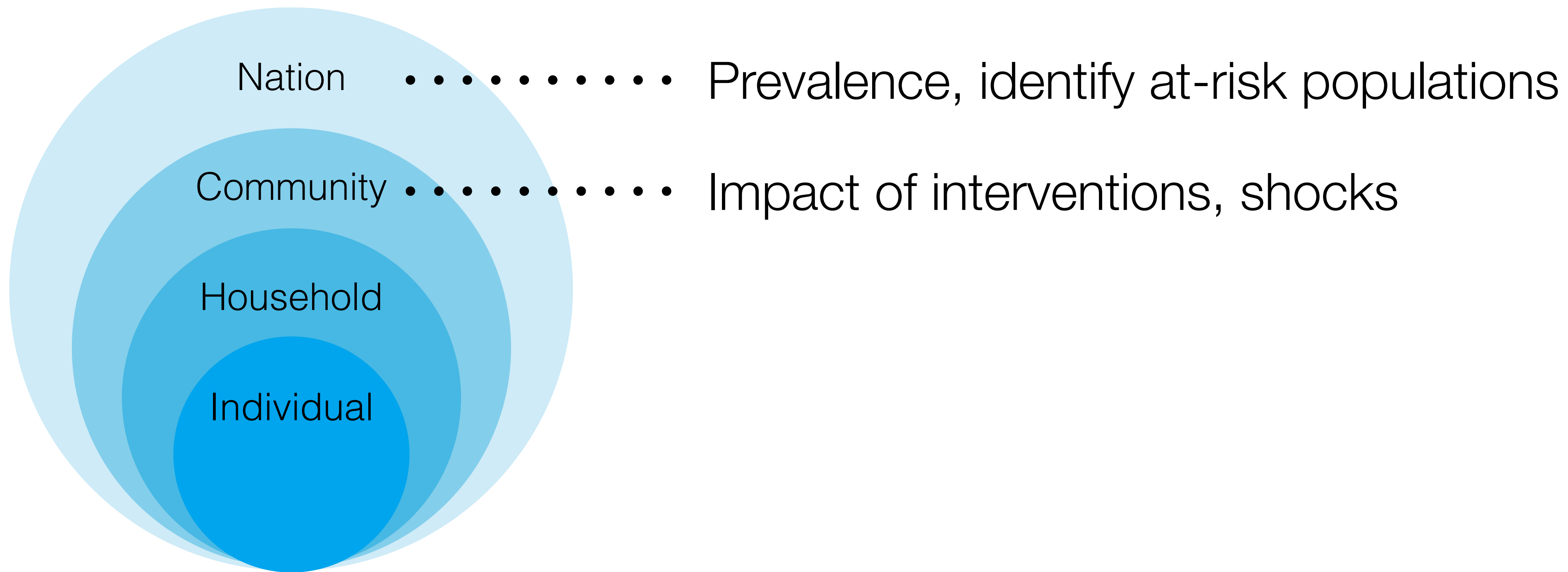
BY ANDREW RZEPA, SERA L. YOUNG AND ALEXANDROS MAKARIGAKIS



GALLUP POLL  
World Poll



# HWISE Scale can be used at multiple levels



OXFAM

LAST  
MILE  
HEALTH

WATER  
WITNESS  
INTERNATIONAL



WaterAid



# HWISE Scale can be used at multiple levels



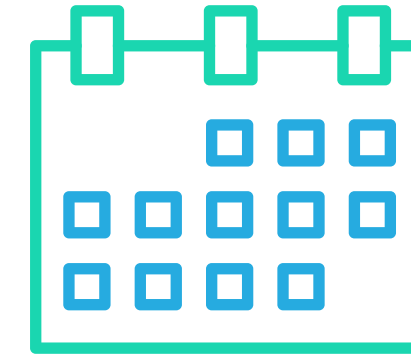


# 4-item HWISE Short Form developed

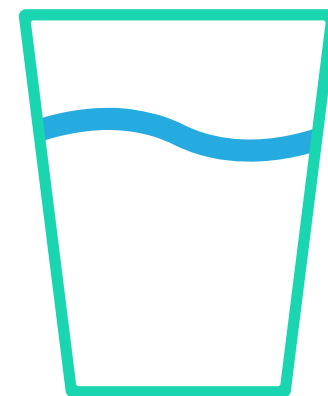
*How often in the last 4 weeks have you...*



WORRY



PLANS



DRINK



HANDS

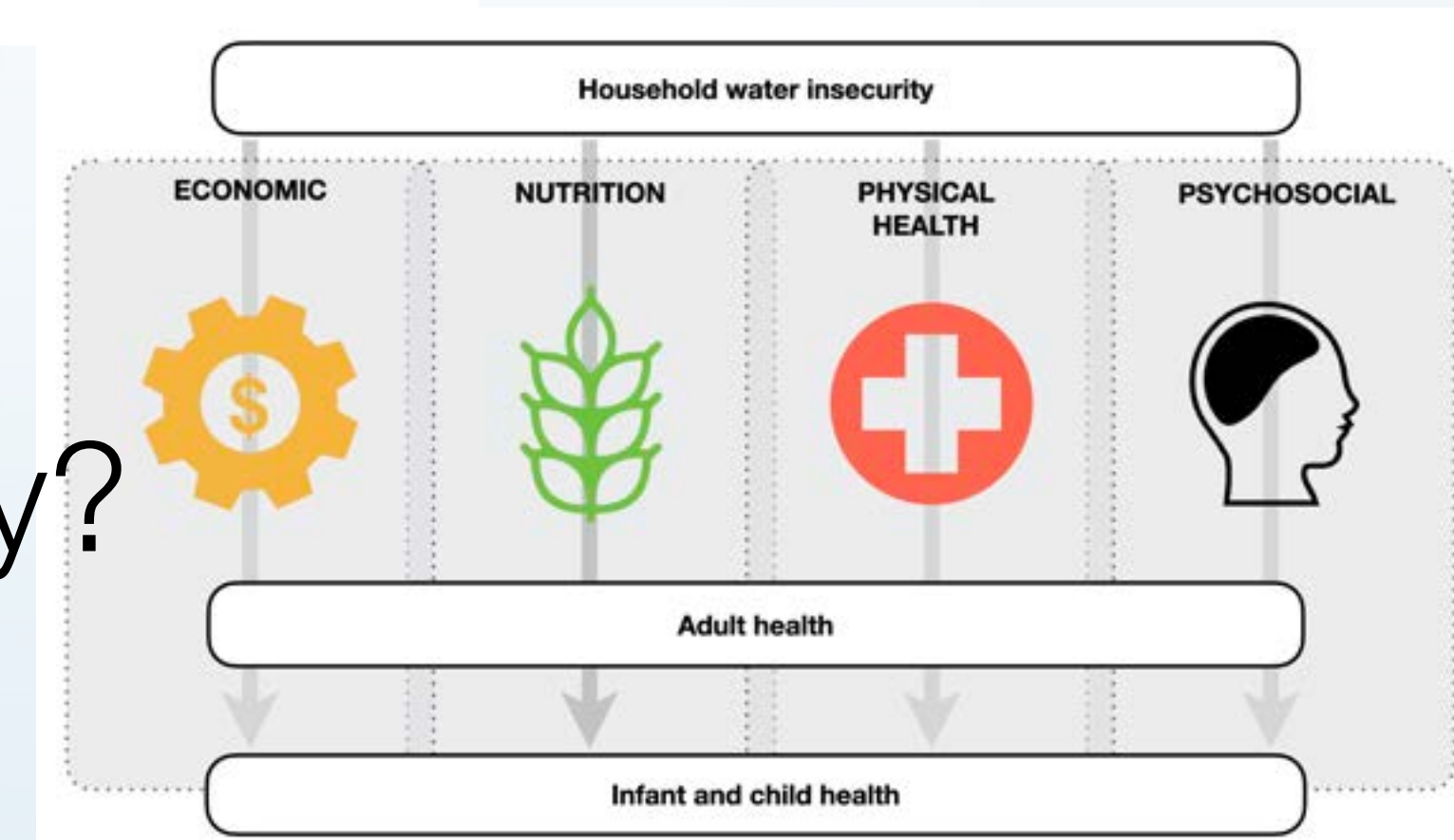




1. What is the HWISE Scale?



2. What has HWISE told us already?



3. Possible uses?





# Funders & Collaborators



Innovative Methods and Metrics for  
Agriculture and Nutrition Actions







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