

WOMEN COUNT

Climate change and gender inequality

June 2024



Photo | UN Women/Montira Narkvichien

Data on the gender-environment nexus



The links between gender-environment are poorly understood and data gaps impede progress

ONLY **20%**

of the data needed to measure the gender-environment related SDG indicators are available, but not FFP



COUNTRY REQUESTS FOR G&E DATA SUPPORT

Solutions:

- **Additional indicators** on gender and the environment
- **Methodological work** with partners (ESCAP, UNEP, IUCN, FAO, UNDRR, ILO, SPC), as well as with inter-agency and expert groups
- Supporting **16 countries** to conduct gender-environment surveys
- **Integrating and reprocessing** existing data, including GIS data, to assess linkages
- **Analyzing big data** to fill data gaps.

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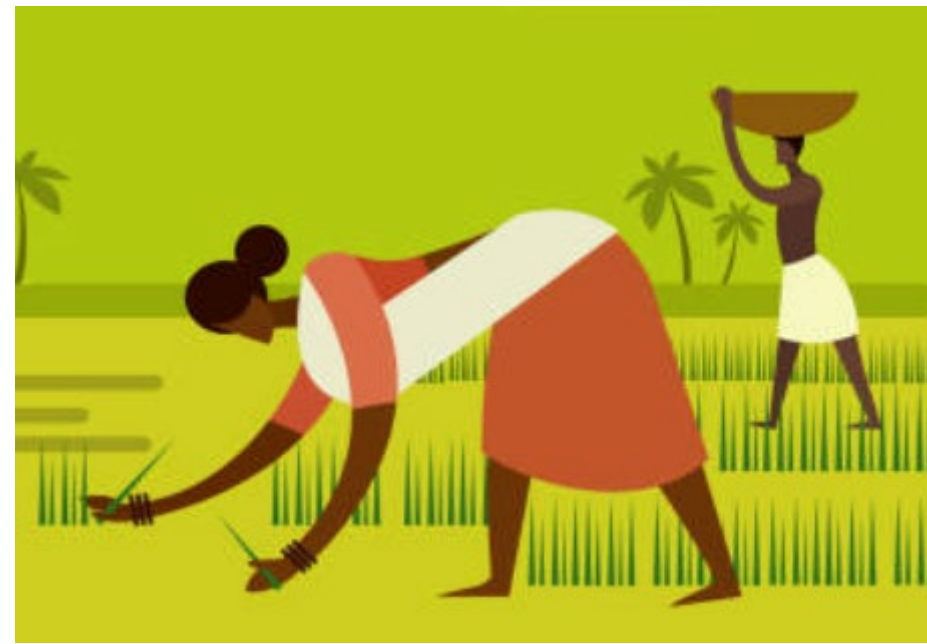
Producing gender and
environment data
through specialized
surveys

What are GES surveys?

Measure all interactions between women, men and the environment



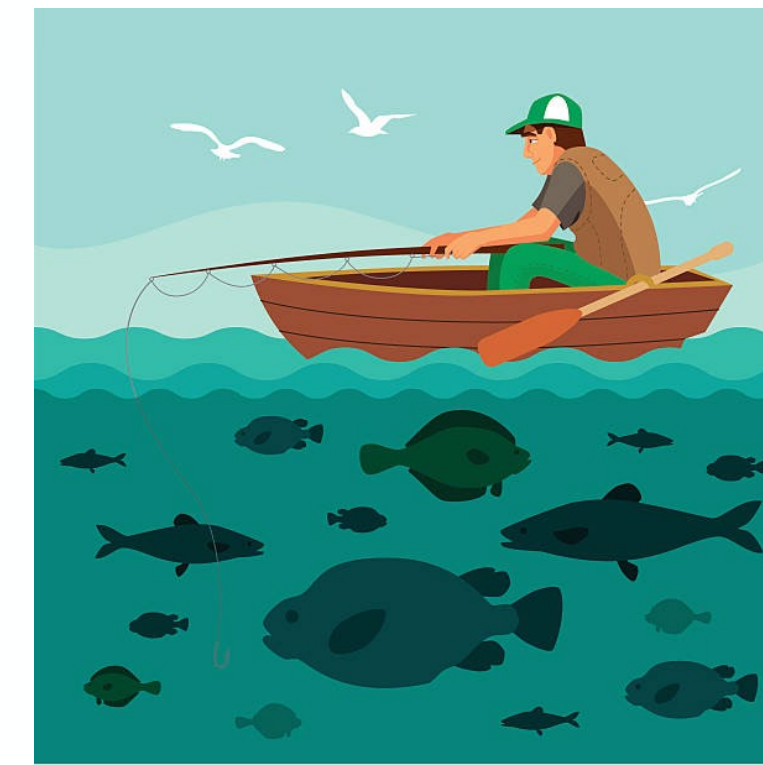
For pay/profit



For subsistence



For tradition













For leisure



For religion

GES: Specificities



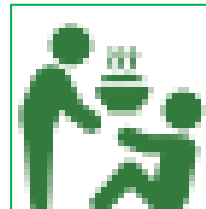
Module number	Module name	Type of module
Module 1	Household roster	Household 
Module 2	Housing characteristics: Location, building materials, fuel, water and sanitation	Household 
Module 3	Individual characteristics	Individual 
Module 4	Disaster exposure, preparedness and consequences	Individual 
Module 5	Exposure to, and preparedness for, climate change related effects	Individual 
Module 6	Employment in the green economy	Individual 
Module 7	Agriculture and land use	Individual 
Module 8	Environment-related livelihoods	Individual 
Module 9	Asset ownership	Individual 
Module 10	Decision making and mobility	Individual 

Gender-Environment Surveys: how are they different?

- The unit of analysis is the **individual** (not the holding)
- They measure **all forms** of engagement with the environment (beyond economic purposes)
- They do **not use proxy respondent**
- **Ecological areas** are used instead of administrative areas
- All information is **geo-tagged** (GIS)
- If the sampled household is displaced, it should be located, and **new coordinates** recorded (we are able to look at movement patterns)

What did the survey reveal in Tonga?

In Tonga, women and men are affected by climate change differently, and they contribute to environmental conservation and degradation differently



Women are more likely to sacrifice their nutrition to cope with climate change

15%

of women with children decreased food intake as a result of climate change, compared to 12 per cent of men*

11%

of women without children decreased food intake as a result of climate change, compared to 7 per cent of men*

Climate change worsened the health of more than one in three people, adding to women's unpaid care burden

62%

of women saw an increase in care work as a result of climate change, compared to 56 per cent of men

54%

of women saw an increase in domestic work as a result of climate change, compared to 52 per cent of men

*Note the figures above are based on double adult household

What did the survey reveal in Tonga?

Many Tongans are dependent on natural resources, highlighting that environmental degradation could have devastating effects

Wild forests play a critical role in people's livelihoods, especially as a main source of income



of women use wild forests **to harvest edible plants** as a main source of income



of women use wild forests **to collect firewood** as a main source of income

More women than men are noticing deforestation and related biodiversity loss



of women **saw degradation of the forest area used** compared to 39 per cent of men

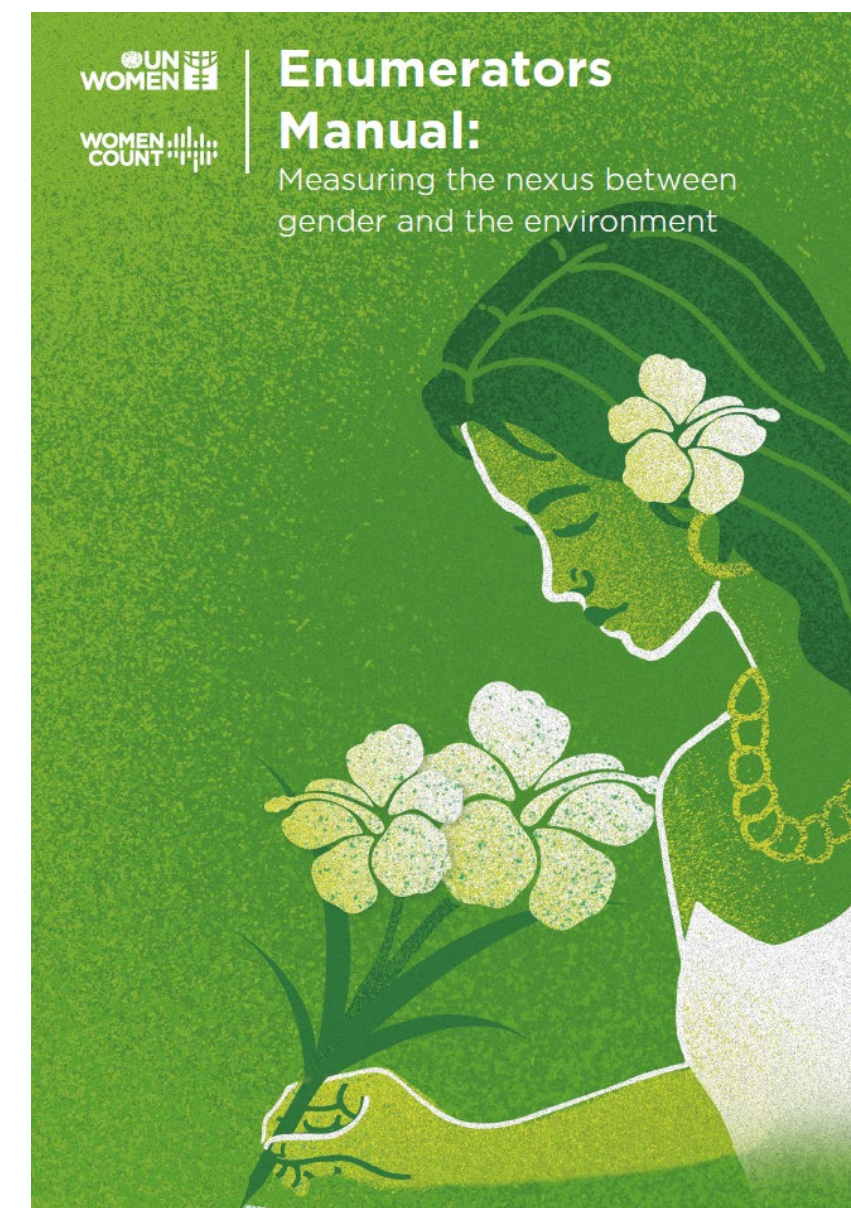
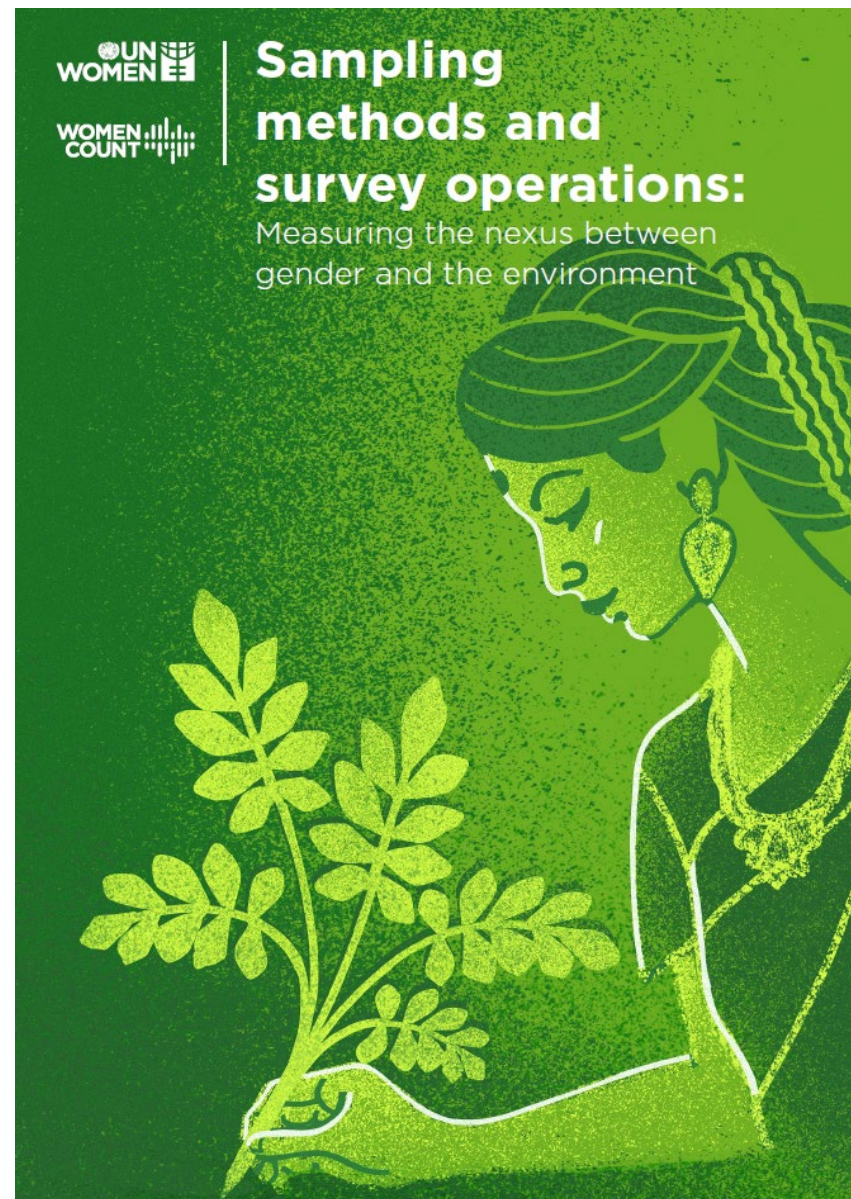
Fewer than 1 in 3 people in Tonga use sustainable practices in wild forests



replant and repopulate forest areas after harvesting

Source: Figures 33, 34 and 53 respectively, from the survey report

GES: Resources



CAPI SCRIPT

TRAINING MATERIALS

LIST OF 100 INDICATORS

<https://data.unwomen.org/environment-resources>

2

Data Integration and reprocessing

Objective: explore associations between climate change and gender equality

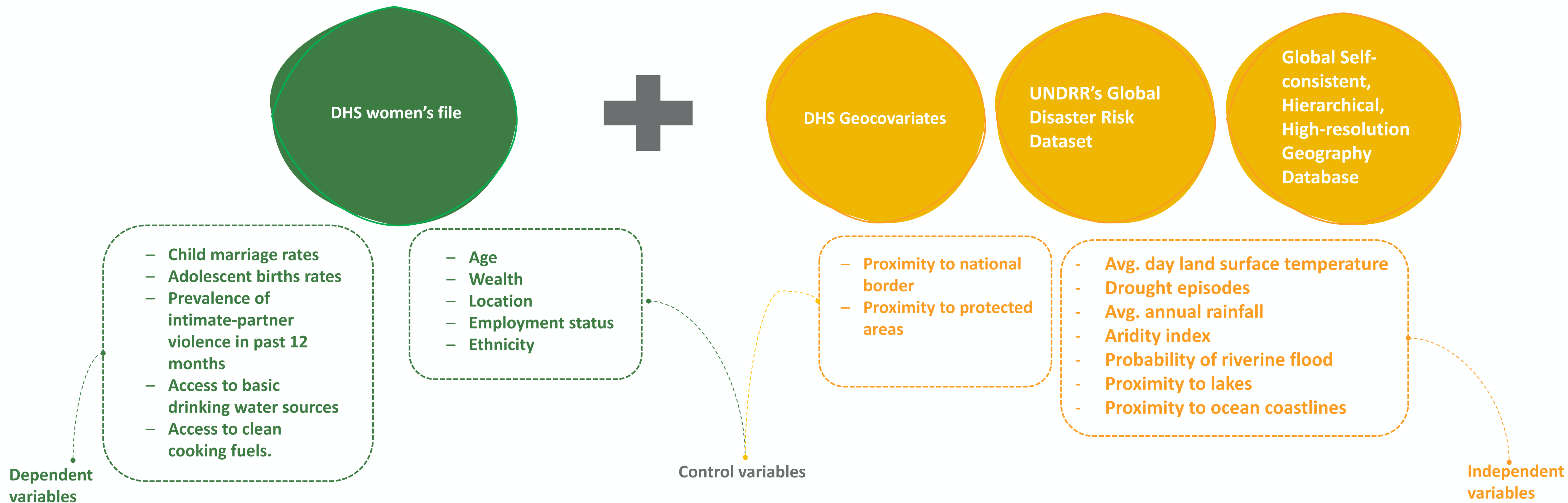
- Hypothesis: Changes in climate-related variables are associated with changes in gender outcomes in Asian countries, as measured by five development indicators that affect women especially: child marriage rates, adolescent births rates, prevalence of intimate-partner violence, access to basic drinking water sources, and access to clean cooking fuels.



- Countries: Bangladesh, Cambodia, Nepal, Timor-Leste, Philippines

Data: Integrating pre-existing datasets

- Merge pre-existing datasets using unique identifiers (e.g. primary sampling unit/cluster no. , latitude, longitude)
- Merge DHS data with Geospatial information
- Latest available estimates for both GIS and DHS data



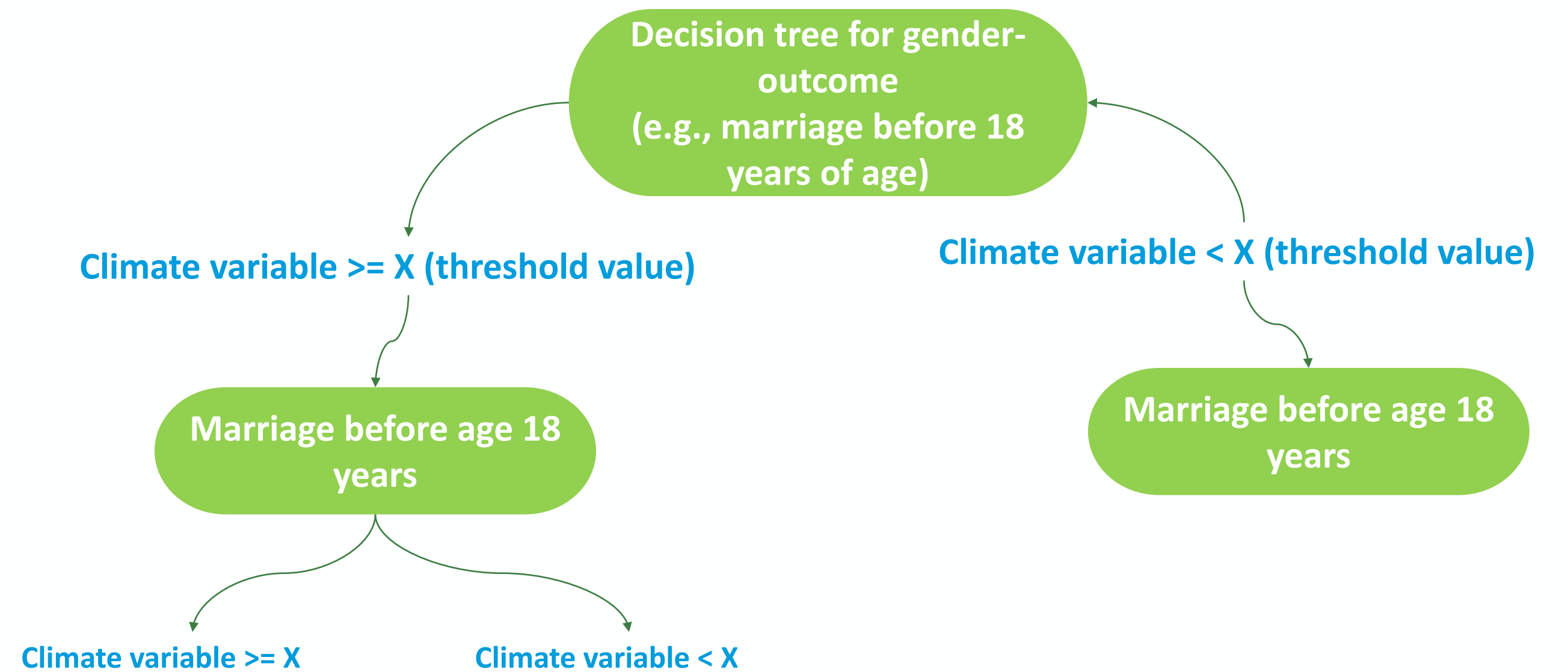
Statistical analysis: 2-pronged approach

1. Random Forest : Used to identify key variables

- Machine learning technique
- Uses a collection of decision trees to perform classification tasks
- Provides intuitive ways of identifying key variables (mean decrease in accuracy)
- Offers high classification accuracy
- Can be applied to complex, non-linear associations
- Performs with robustness and higher accuracy than vector machines
- Lower root mean squared errors compared to Xgboost algorithm

2. Binary logistic regression : Used to explore nature of association

- Gender outcomes are constructed as binary categorical variables
- Used to measure the strength and direction of association between climate and gender variables
- Odds ratios used as metric for interpretation

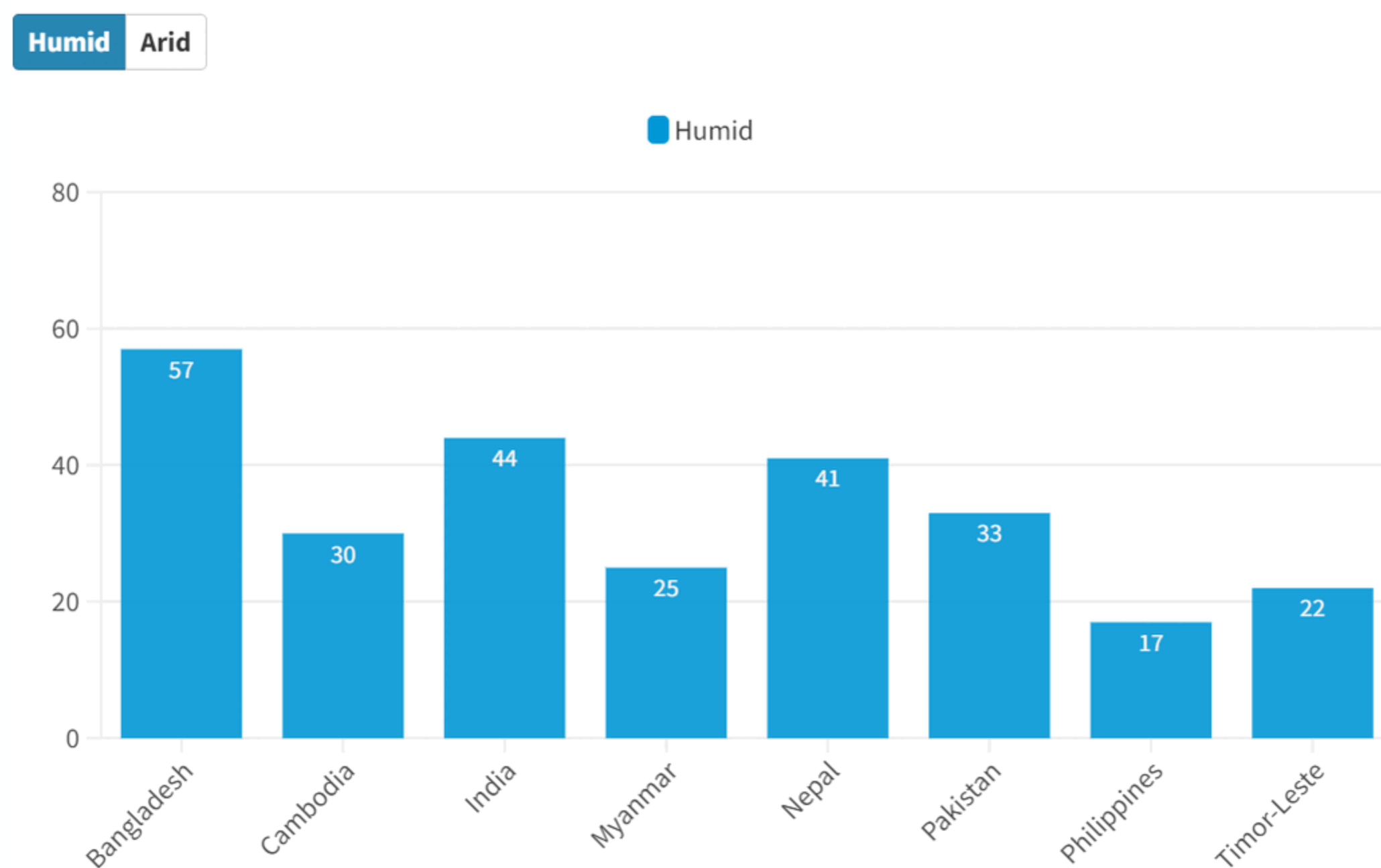


Findings

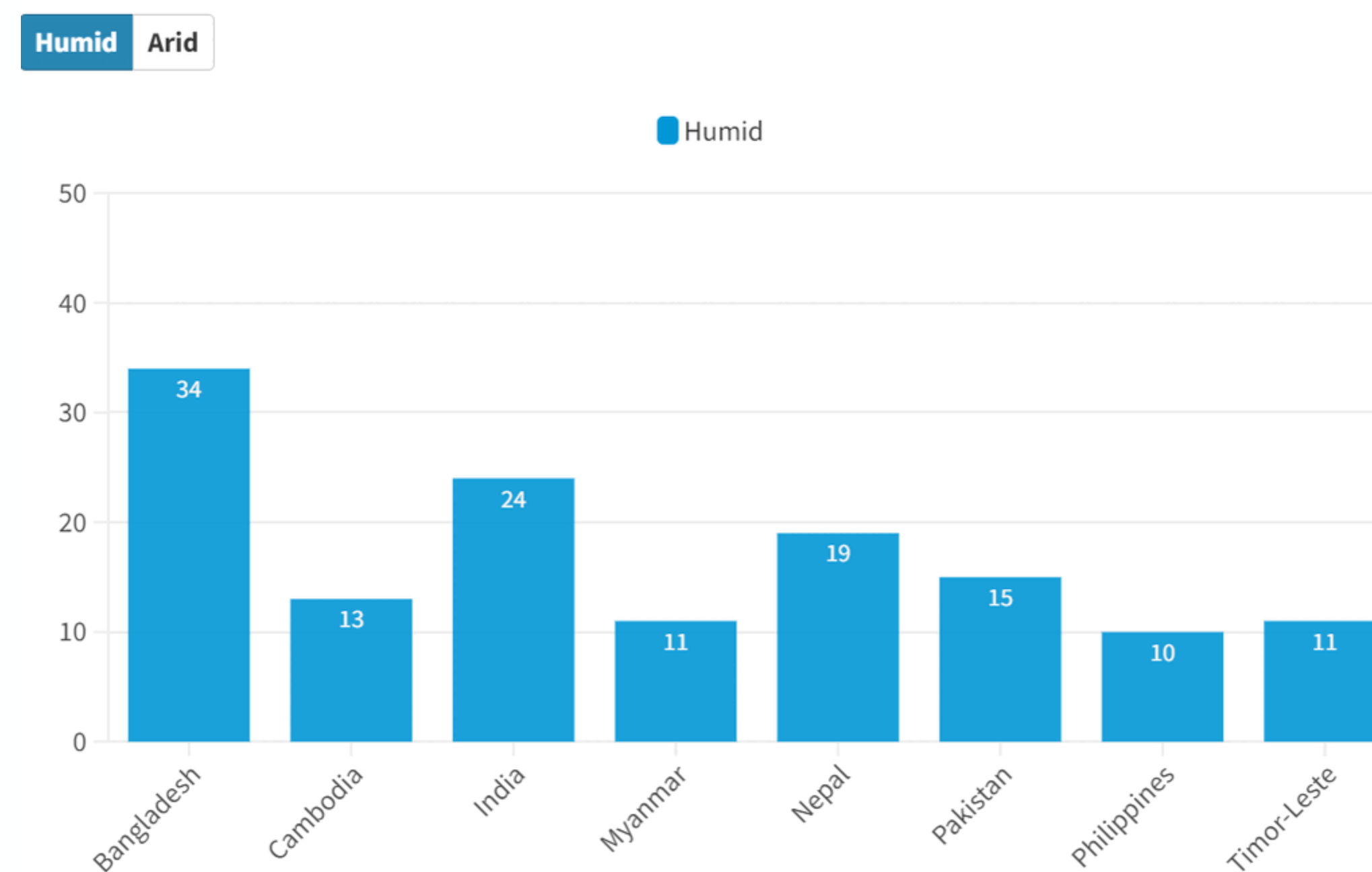
- RF: climate related variables have substantial power explaining gender outcomes.
 - Other variables (wealth, education) matter a lot for some outcomes
- Bangladesh most affected country in most cases
- LR: direction of associations often similar across countries, but not always
 - Capacity to cope (socio-demographic characteristics), social norms (not controlled for) and infrastructure (not controlled for) affect findings differently in different locations within the same country.

Aridity explains changes in child marriage and adolescent birth rates

Proportion of women ages 18-49 who were married before age 18, by aridity index, latest available year (percentage)

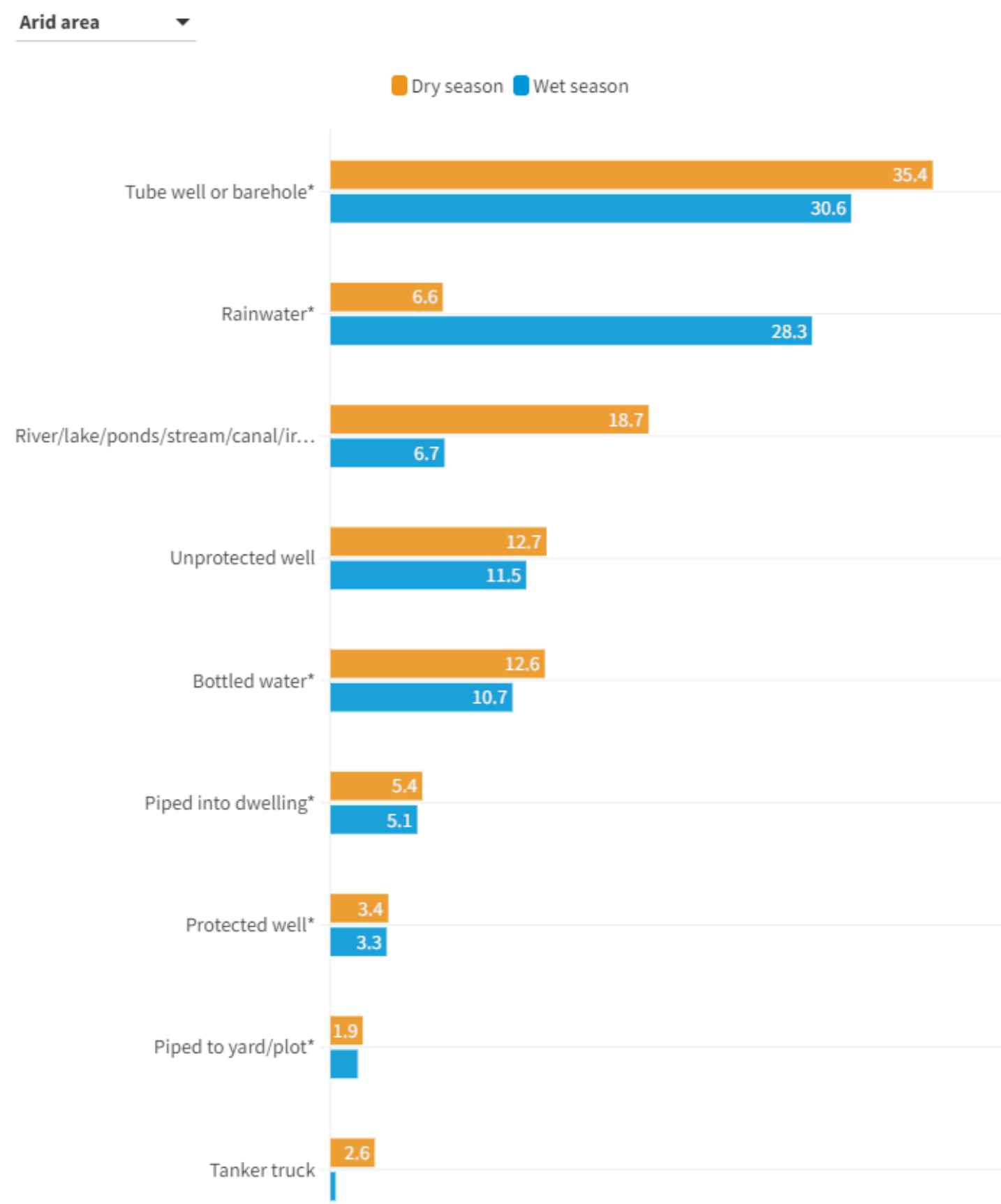


Proportion of women ages 18-49 who gave birth for the first time before age 18, by aridity index, latest available year (percentage)

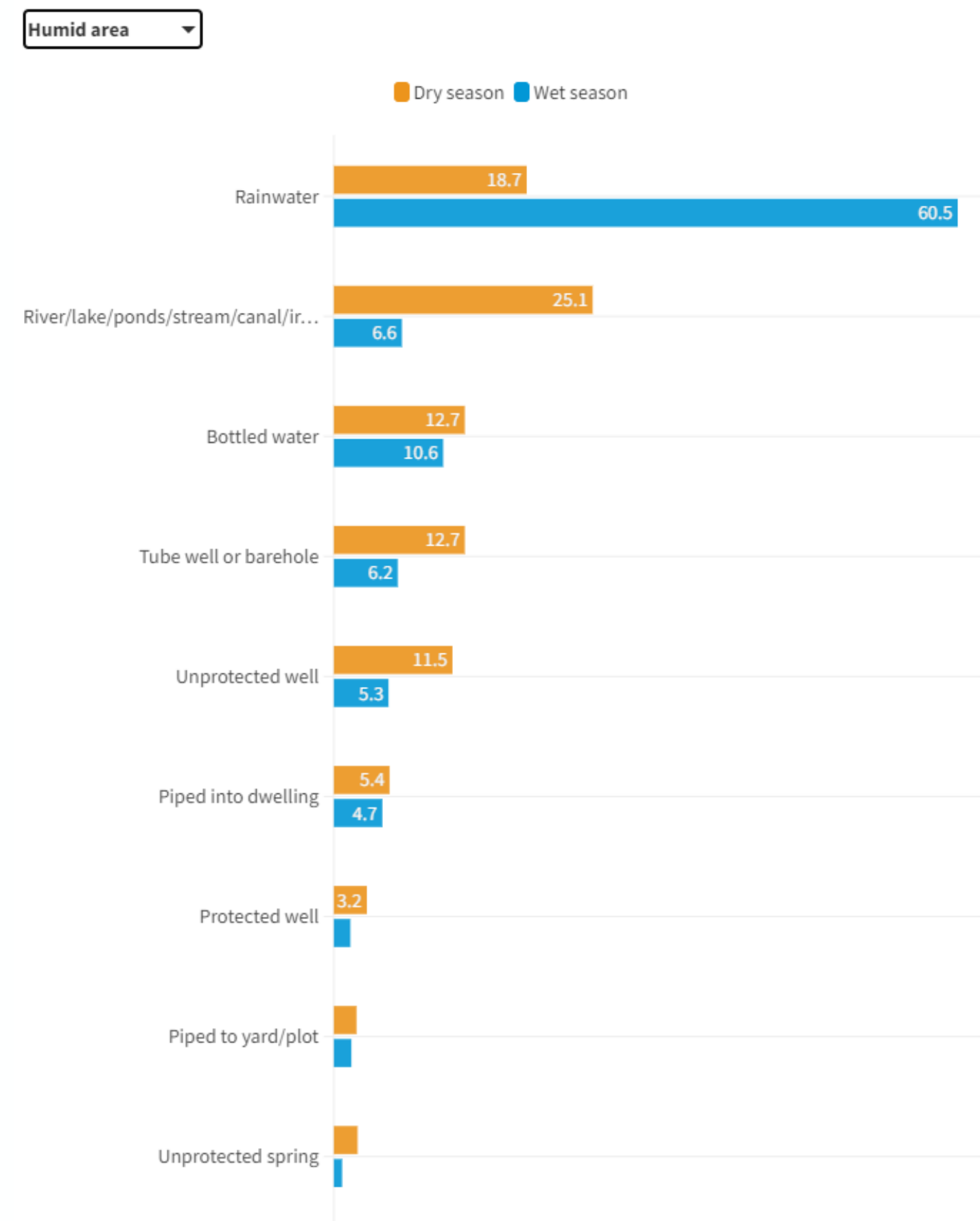


Aridity matters for access to clean drinking water, especially in humid areas

Main sources of drinking water among women living in humid and arid areas, Cambodia, dry and wet season (percentage)

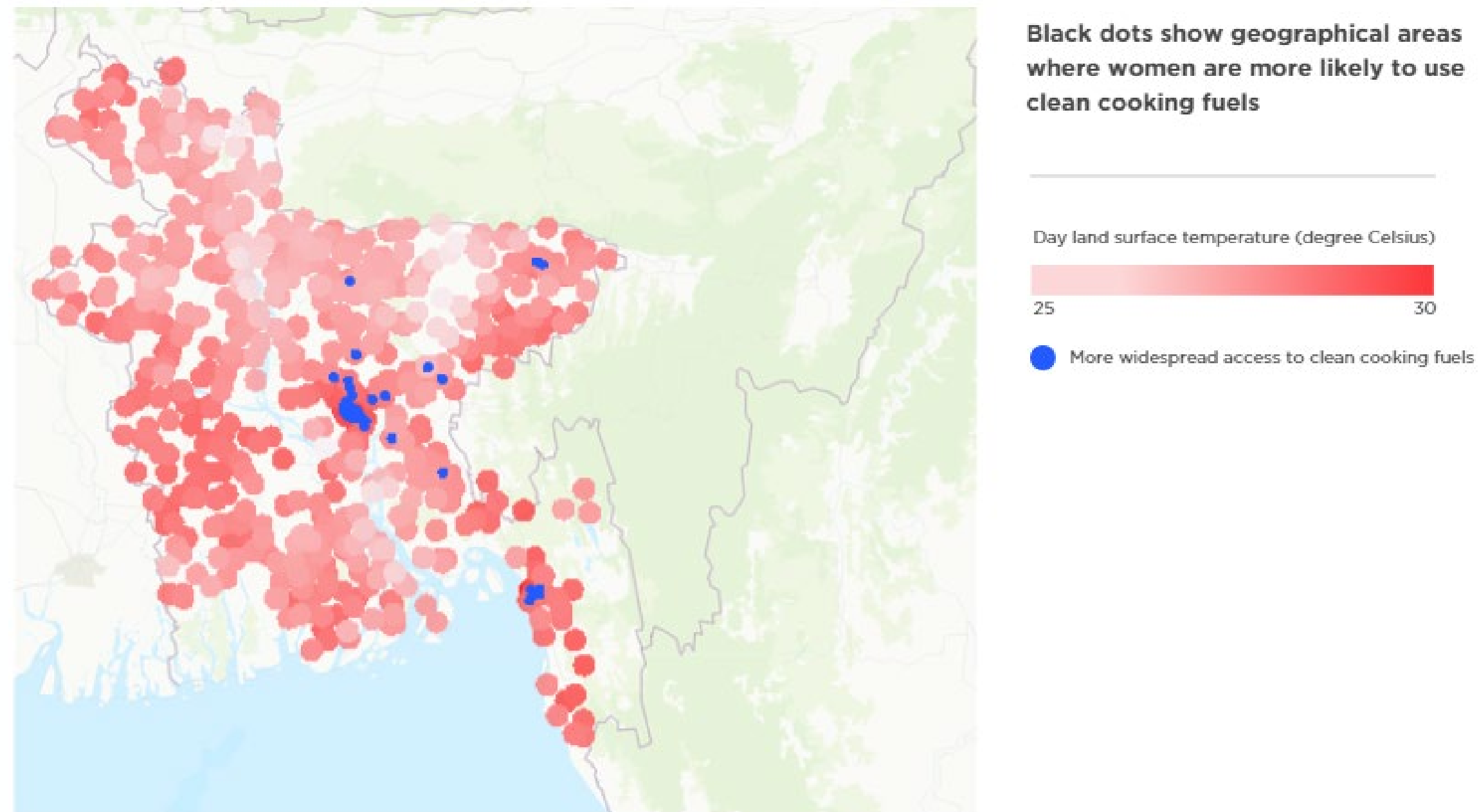


Main sources of drinking water among women living in humid and arid areas, Cambodia, dry and wet season (percentage)

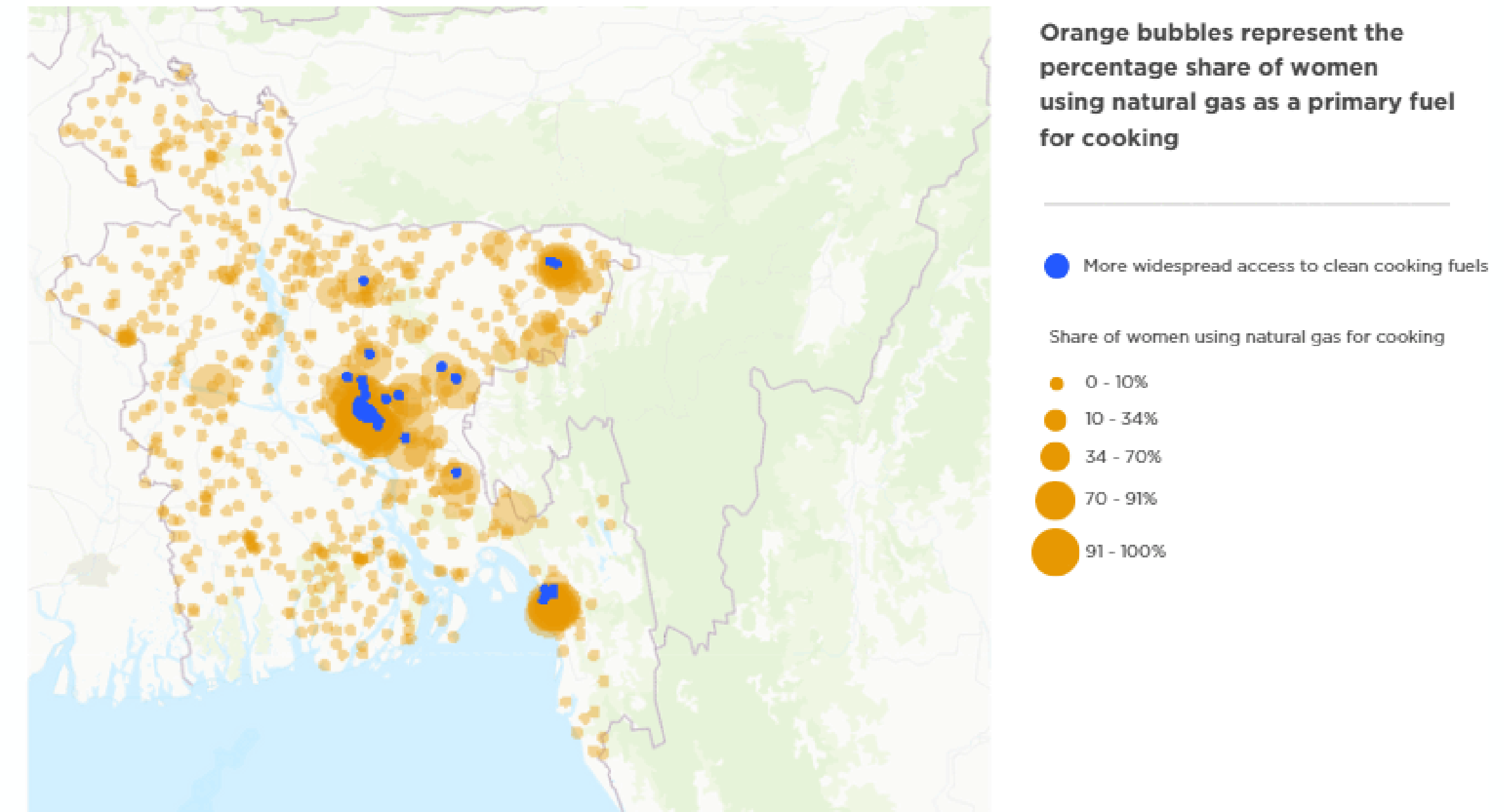


Temperatures are associated with the use of clean fuels, as is infrastructure

Geographical distribution of clusters where women have more widespread access to clean cooking fuels, by average day land surface temperature, Bangladesh



Geographical distribution of clusters where women have more widespread access to clean cooking fuels, by average day land surface temperature, Bangladesh



3

Big data analysis from
online searches and
social media posts

Data: Analyzing big data

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- Using Google search data
- Indexation of VAW related wording & translation
- Search classification:
 - General searches
 - Victim searches
 - Help-seeking searches
- Comparing with real time events

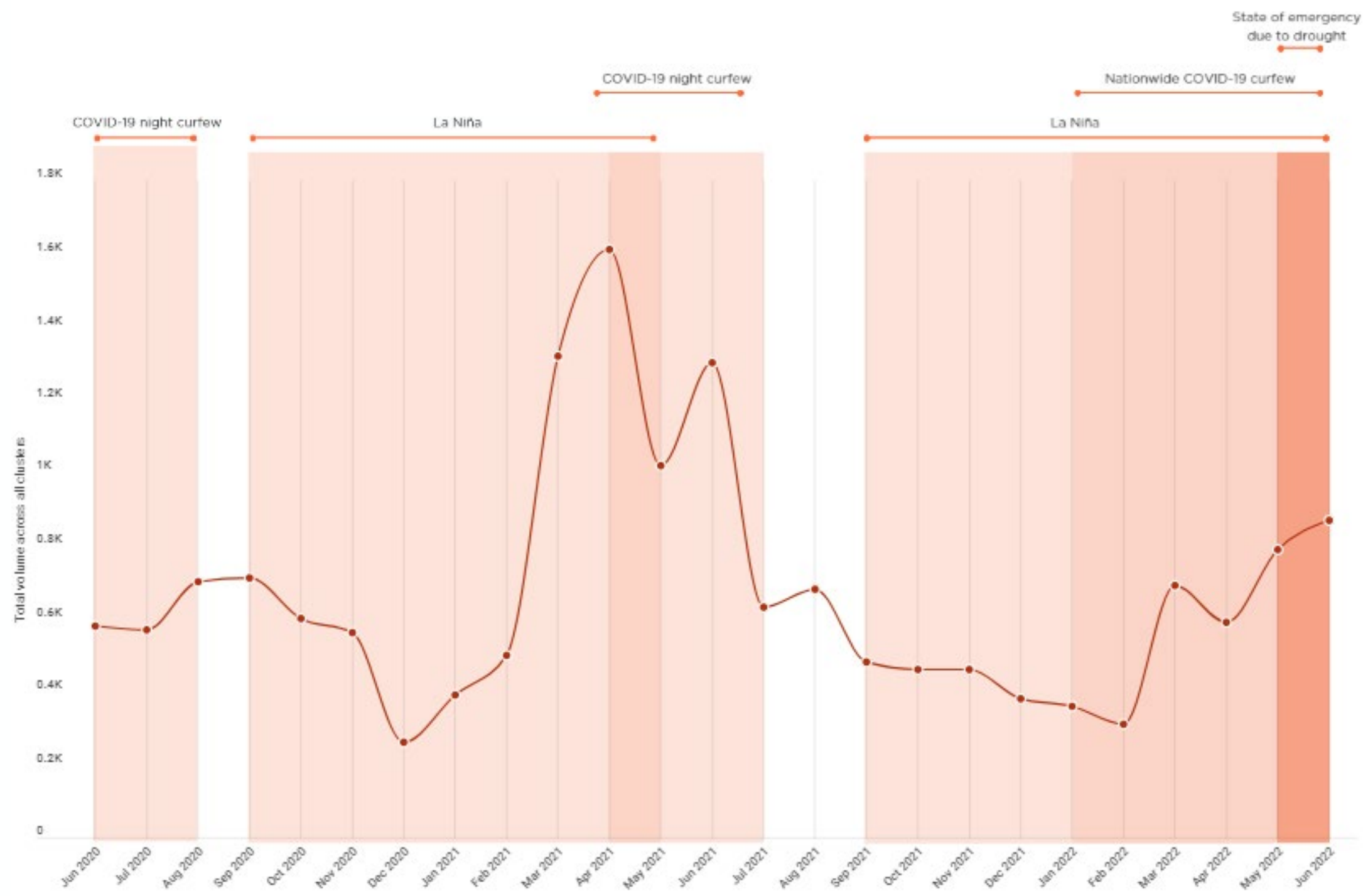
2

- Using posts on twitter, facebook, instagram, reddit
- Data engineering: keywords and key organizations, user engagement
- Sphere for sentiment analysis



Women are more likely to seek VAW related help on-line during crises

Total Violence against women-related search volume, Kiribati



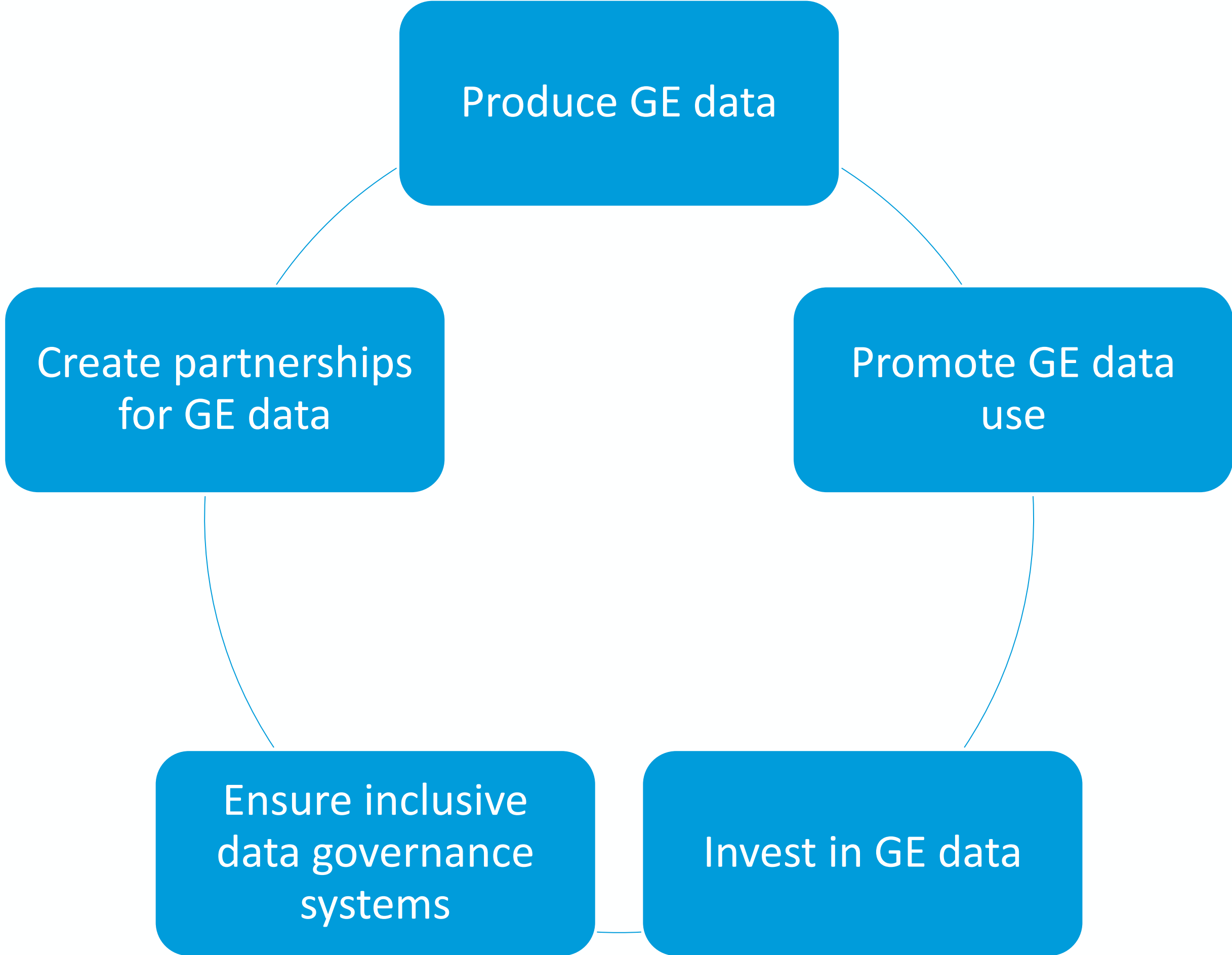
Total Violence against women-related search volume, Tonga



4

A call to action on
gender and
environment data

Global conference on gender and environment data: Call to action



Thank you

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<https://data.unwomen.org/>

