Eleven numbers and six denominators

Everything this course computed, on one page, with the table that says which figures may be compared with which. Six different denominators across eleven indicators, and no layout will warn a reader about that on its own.

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Lesson 8 of 8

WASH Analysis — What the monitoring did not see

What this lesson covers

- Count the denominators before writing anything
- The report
- Four rules the layout has to obey
- What each number is for
- What this course did not cover
- What comes next

Count the denominators before writing anything

Indicator	Denominator	n
At least basic drinking water	All households	2,403
At least basic sanitation	All households	2,403
Basic hygiene service	All households	2,403
Open defecation	All households	2,403
Below 15 L/person/day	All households	2,403
Round trip over 30 minutes	All households	2,403
E. coli risk class	**Households tested**	802
Chlorine at the household	**Households tested**	961

. . .

Count the denominators before writing anything

- Six denominators, and only the first six rows share one — Every horizontal comparison across a boundary in that table...

Count the denominators before writing anything — In Python

```python
import pandas as pd

denominators = pd.DataFrame({
    "indicator": ["basic water", "basic sanitation", "basic hygiene",
                  "E. coli safe", "point functionality", "reliable points"],
    "denominator": ["households", "households", "households",
                    "households tested", "visits made", "water points"],
    "n": [2403, 2403, 2403, 802, 2629, 242],
})
print(denominators)
```

Count the denominators before writing anything — In R

```
# Build this table first, in code, and print it above the results.
```

Count the denominators before writing anything

- Write it as data, not as prose — A denominator table generated by the same script that computed the numbers cannot. . .

The report — Example (cont.)

```
WASH situation, three districts, 2024

ACCESS                                        n = 2,403 households
  At least basic drinking water     56.3%     (82.3% on an improved
                                               source; 25.0 points sit on
                                               limited service for
                                               collection time alone)
  At least basic sanitation         43.2%     (62.0% have an improved
                                               facility; 18.8 points are
                                               shared)
  Basic hygiene service             34.1%     (67.8% have a facility;
                                               soap observed at half)
  Open defecation                   13.3%

  Safely managed not computable: availability was not asked and quality was
  tested on a subsample.
```

The report — Example (cont.)

```
QUANTITY AND TIME                                  n = 2,403 households
  Median                              23.7 L/person/day
  Below Sphere minimum of 15 L        13.4%        323 households
  Round trip over 30 minutes          39.3%        944 households
  Queue time not separated from walking time. Distance not recorded.

WATER QUALITY                                      n = 802 tested (33.4%)
  Free from E. coli                   53.6%
  High risk (>100 CFU/100 mL)          7.5%
  Improved sources                    61.1% safe   n = 625
  Unimproved and surface              27.1% safe   n = 177

  Tested subsample over-represents untreated water: 533 households reporting
  home treatment have no chlorine reading.
```

The report — Example (cont.)

```
WATER POINT FUNCTIONALITY                          242 points, 2,904 visits due
  Visits finding a working point     74.4%         2,629 visits made (90.5%)
  Points working at every visit      33.9%         82 of 242
  Population-weighted                83.3%        ~96,700 users
  Range if every missed visit found a failure: 67.4% - 74.4%

  Failure shapes: 82 never failed, 80 intermittent, 46 seasonal, 34 down at
  year end. Seasonality is confined to protected wells and springs.

  Median days down at the visit: 68 under community committees, 29 under
  private operators.

NOT COMPARABLE
  Water quality figures are on a tested subsample and do not share the access
  denominator. Functionality figures count visits, points and people and are
  three different quantities. Districts are not ranked: Nord-Ouest visited
```

The report — Example (cont.)

```
82.7% of its due rounds against Sud-Est's 96.3%.
```

Four rules the layout has to obey

- Group by denominator, not by theme — The block headings above are denominators wearing topic names
- Put n in the heading, not the footnote — A footnote is read after the comparison has already been made
- State what is not computable — Safely managed drinking water, queue time and distance are all absent, and each is…
- Put the non-comparability in its own block at the end — Not as a caveat under each number, where it becomes noise, and…

What each number is for

Finding	Decision it informs
25 points on limited water for collection time	Where to site new points
18.8 points on shared sanitation	Whether the programme is building or subsidising
Soap at half the facilities that exist	Hygiene promotion against hardware
46 seasonal points	Dry-season alternative, not rehabilitation
34 down at year end	Spare parts and management, not new construction
68 days median downtime under committees	The maintenance model itself
Nord-Ouest at 82.7% coverage	The monitoring plan before the next report

What each number is for

- The last row is the one most reports omit and the one most likely to change next year's numbers — A monitoring system...

What this course did not cover

- **Menstrual hygiene management** needs questions this survey does not ask — private space, materials, disposal — and. . .
- **School and healthcare facility WASH** are separate instruments with their own ladders, and the household ladder does. . .
- **Faecal sludge management** is the second half of safely managed sanitation and needs a containment and emptying. . .
- **Cost per beneficiary and tariff analysis** need financial records; the `fee_collected` field says whether a fee was. . .
- A report that names its gaps is more credible than one that appears complete — and a gap named is the first line of the. . .

What comes next

- Module 4 continues in other sectors — food security and the IPC, protection case management, education attendance — and each brings the same three questions in new vocabulary.

Read the full lesson, with runnable code

https://data-analysis.cassion.dev/courses/wash-analysis/wash-08-the-wash-report