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Changes in Drinking Water use 2014-2019

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Introduction

Introduction

- Access to safe drinking water is not only **essential** for human life but also an internationally recognized **basic human right**.

- Access to safe drinking water is a **priority** for the **United Nations and Myanmar's government**.

  - *SDG 6.1.1/NIF 5.3.4*: ***Proportion of population using safely managed drinking water services***

- There is a range of **household-level drinking water services** including the one from safely managed drinking water.

- *Note: Safely managed drinking water will be referenced as "safe drinking water" in the rest of this Analytical Brief.*

Introduction

- Measurement of Myanmar **households' access to safe drinking water** has been undertaken on a large scale **for the first time** in the **2019 Intercensal Survey**.

- This MIMU Analytical Brief provides a **unique perspective** by comparing, for the first time, *households' use of drinking water services* **between 2014 and 2019**.

  - *2014 Population and Housing Census,*
  - *2015-16 Myanmar Demographic and Health Survey,*
  - *2017 Myanmar Living Conditions Survey* and
  - *2019 Intercensus Survey.*

Introduction

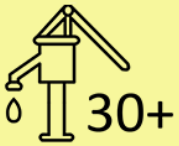
- All results presented are from the **four national level surveys/census** exercises conducted between 2014 and 2019 which **used different calculation methodologies**.

- MIMU has adjusted these using the **calculation methodology of the 2019 Intercensal Survey** to enable the **measurements to be compared**.

- The software used for this Analytical Brief:
  - **Excel** for the Data Analysis and
  - **Tableau** for the Data Visualisations.

- ***Note:*** *All values presented are based on the enumerated population and may not fully reflect non-enumerated groups or certain areas, particularly Rakhine State.*

Introduction

Improved Low contamination risk	 **Safely Managed**	Drinking water from an improved source which is located inside the user's dwelling, plot or yard, available when needed and free of faecal & priority chemical contamination, such as arsenic & fluoride. Only faecal coliforms test was conducted in the Intercensal Survey 2019
	 **Basic**	Drinking water from an improved source and collection time is not more than 30 minutes for a roundtrip including queuing
	 **Limited**	Drinking water from an improved source and collection time is over 30 minutes for a roundtrip including queuing
Unimproved High contamination risk	 **Unimproved**	Drinking water from unprotected dug wells or unprotected springs or any other source where water is not protected from the outside
	 **Surface**	Drinking water from a river, dam, lake, pond, stream, canal or irrigation channel/ditches

- 2019 Intercensus Survey's methodology **close to the global one**.
- We look at the ***Households' use of drinking water by service***.

I. Approach Used

I.A. Different types of drinking water sources

The different **types of drinking water sources** that households use:

Drinking Water Source	Description
Piped	Piped into dwelling; piped into compound, yard or plot; piped to neighbour; public tap/standpipe
Tubewell /borehole	Tubewell; borehole
Protected dug well/spring	Protected well; protected spring
Rain	Rainwater collection, waterfall
Bottled	Bottled water/water from vending machine; home water purifier/filter
Unprotected well/spring	Unprotected well; unprotected spring
Tanker/small cart	Tanker/truck; cart with small tank/drum
Surface	Lake; pond; dam; river; stream; irrigation channel

I.B. Different types of drinking water services

- **Improved** drinking water sources are those that have the **potential to deliver safe water** by nature of their design and construction, and include:
  - Piped,
  - Tubewell /borehole,
  - Protected dug well/spring,
  - Rain, and
  - Bottled.

Drinking Water Source	2014 CS	2015-16 MDHS	2017 MLCS	2019 ICS
Piped	Tap water/Piped	Piped into dwelling	Water pipe into dwelling	Piped into dwelling
		Piped to yard/plot	Water pipe inside compound	Piped into compound, yard or plot
		N/A	Water pipe outside compound	Piped to neighbour
		Public tap/standpipe	N/A	Public tap / standpipe
Tubewell/borehole	Tube well, borehole	Tube well or borehole	Tube well, borehole	Borehole or tubewell
Protected well/spring	Protected well/Spring	Protected well	Protected well/spring	Protected well
		Protected spring		Protected spring
Rain	Waterfall/Rain water	Rainwater	Rainwater collection/tank	Rainwater collection
Bottled	Bottled water/water from vending machine	Bottled water	Bottled water	Home water purifier/filter/Bottled water

I.B. Different types of drinking water services

Unimproved
High contamination risk

- **Unimproved** drinking water sources are those that **do not have the potential to deliver safe water** by nature of their design and construction, and include:
  - Unprotected well/spring,
  - Tanker/small cart,
  - Surface, and
  - Other.

Drinking Water Source	2014 CS	2015-16 MDHS	2017 MLCS	2019 ICS
Unprotected well/spring	Unprotected well/Spring	Unprotected well	Unprotected well/spring	Unprotected well
		Unprotected spring		Unprotected spring
Tanker/small cart	Tanker/Truck	Tanker truck	Tanker/Truck	Tanker-truck
	N/A	Cart with small tank/drum	N/A	Cart with small tank / drum
Surface	Pool/Pond/Lake	Surface water (river/dam/lake/pond/stream/ canal/irrigation channel)	Pool/pond/lake/dam/stagnant water	Surface water (river, stream, dam, lake, pond, canal, irrigation channel)
	River/Stream/Canal		River/stream/canal	
Other	Other	Other	Other	Other

I.B. Different types of drinking water services

- **Safe** drinking water is drinking water from an **improved source** which is **located inside the user's dwelling, plot or yard**, **available when needed** and **free of faecal and priority chemical contaminants (such as arsenic and fluoride)**. It includes:

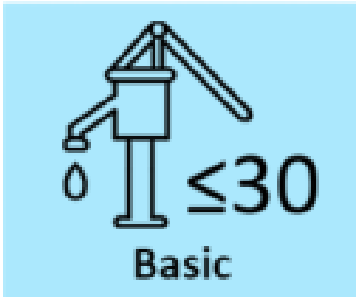
  - Piped,
  - Tubewell /borehole,
  - Protected dug well/spring,
  - Rain,
  - Bottled,

  } Drinking water from improved sources

  - Located on premises,
  - Available when needed, and
  - Free from faecal and priority chemical contaminants.

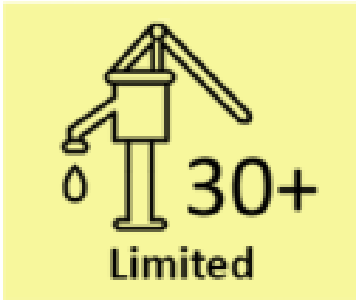
Note: *The indicator of* Households' use of safe drinking water *in the 2019 ICS does not test chemical contaminants.*

I.B. Different types of drinking water services



- Drinking water from **basic** services is drinking water from an **improved source** and collection time is **not more than 30 minutes** for a roundtrip including queuing. It includes:
  - Piped,
  - Tubewell /borehole,
  - Protected dug well/spring,
  - Rain,
  - Bottled, and

  } Drinking water from improved sources
  - Not more than 30 minutes for a roundtrip including queuing.



- Drinking water from **limited** services is drinking water from an **improved source** and collection time is **over 30 minutes** for a roundtrip including queuing. It includes:
  - Piped,
  - Tubewell /borehole,
  - Protected dug well/spring,
  - Rain,
  - Bottled, and

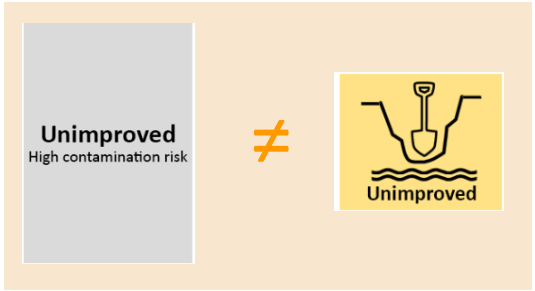
  } Drinking water from improved sources
  - Exceeds 30 minutes for a roundtrip including queuing.

I.B. Different types of drinking water services

- Drinking water from **unimproved** sources **(well/spring)** is drinking water from **unprotected dug wells** or **unprotected springs** or any **other source** where water is not protected from the outside. It includes:
  - Unprotected well/spring,
  - Tanker/small cart, and
  - Other.

Note: *This indicator is different from the one of drinking water from unimproved sources. This latter contains both:*

- *Drinking water from unimproved sources (well/spring) and*
- *Surface.*



- **Surface** water is drinking water from a **river, dam, lake, pond, stream, canal or irrigation, channel/ditches**.

I.C. Calculation of drinking water services by survey/census

2014 Population and Housing Census

- **Source:** Redatam website: http://www.dopredatam.gov.mm.

- **Calculation methodology:** built the indicators using the different types of drinking water sources indicators (bottled, piped, rain, etc.).

- **Levels:**
  - Countrywide, State/Region, District and Township levels and
  - Union, Urban and Rural levels.

- **Indicators:**
  - *Households' use of drinking water from improved sources*,
  - *Households' use of drinking water from unimproved sources*,
  - *Households' use of drinking water from unimproved sources (well/spring)* and
  - *Households' use of surface water*.

I.C. Calculation of drinking water services by survey/census

2015-16 Myanmar Demographic and Health Survey

- **Source:** UNICEF's dataset.
- **Calculation methodology:** built the indicators using the different types of drinking water sources indicators (bottled, piped, rain, etc.).
- **Levels:**
  - Countrywide and State/Region levels and
  - Union, Urban and Rural levels.
- **Indicators:**
  - *Households' use of drinking water from improved sources*,
  - *Households' use of drinking water from unimproved sources*,
  - *Households' use of drinking water from basic services*,
  - *Households' use of drinking water from limited services*,
  - *Households' use of drinking water from unimproved sources (well/spring)* and
  - *Households' use of surface water*.

I.C. Calculation of drinking water services by survey/census

2017 Myanmar Living Conditions Survey

- **Source:** Key Indicators Report of 2017 MLCS Report.

- **Calculation methodology:** built the indicators using the different drinking water services indicators publicly available in the report.

- **Levels:**
  - Countrywide and State/Region levels and
  - Union (Countrywide and State/Region levels), Urban and Rural level (only Countrywide level).

- **Indicators:**
  - *Households' use of drinking water from improved sources,*
  - *Households' use of drinking water from unimproved sources,*
  - *Households' use of drinking water from basic services,*
  - *Households' use of drinking water from limited services,*
  - *Households' use of drinking water from unimproved sources (well/spring)* and
  - *Households' use of surface water.*

I.C. Calculation of drinking water services by survey/census

2019 Intercensus Survey

- **Source:** Department of Population: https://dop.gov.mm/en/data-and-maps-category/main-report-1.
- **Calculation methodology:** from the website.
- **Levels:**
  - Countrywide, State/Region and District levels and
  - Union, Urban and Rural level.
- **Indicators:**
  - *Households' use of drinking water from improved sources,*
  - *Households' use of drinking water from unimproved sources,*
  - *Households' use of safe drinking water,*
  - *Households' use of drinking water from basic services,*
  - *Households' use of drinking water from limited services,*
  - *Households' use of drinking water from unimproved sources (well/spring)* and
  - *Households' use of surface water.*

I.D. Data Limitations

- **Levels:**

It is not possible to have:

- State/Region (Urban & Rural)
  - 2017 Myanmar Living Conditions Survey
- District
  - 2015-16 Myanmar Demographic and Health Survey
  - 2017 Myanmar Living Conditions Survey
- Township
  - 2017 Myanmar Living Conditions Survey
  - 2015-16 Myanmar Demographic and Health Survey
  - 2019 Intercensus Survey

- **Indicators:**

It is not possible to calculate:

- *Households' use of safe drinking water*
  - 2014 Population and Housing Census
  - 2015-16 Myanmar Demographic and Health Survey
  - 2017 Myanmar Living Conditions Survey
- *Households' use of drinking water from basic services*
  - 2014 Population and Housing Census
- *Households' use of drinking water from limited services*
  - 2014 Population and Housing Census

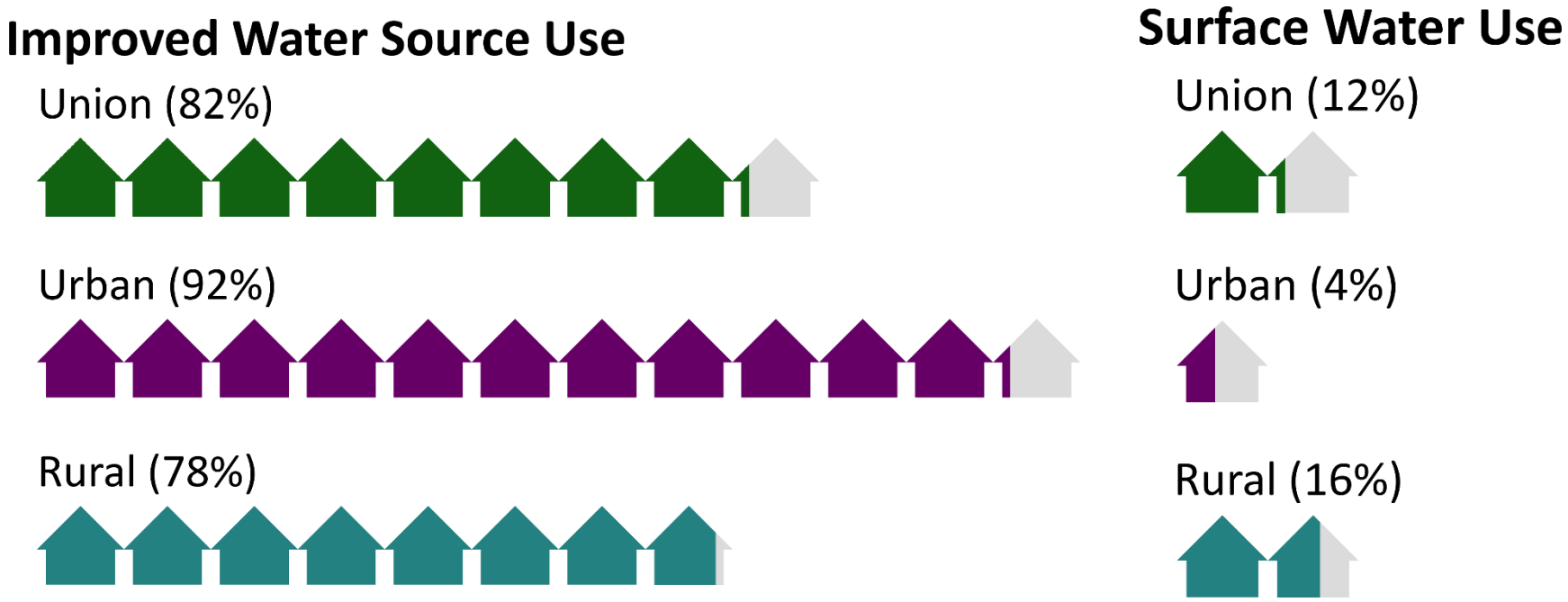
I.D. Data Limitations

- **2017 Myanmar Living Conditions Survey**
  - Dry and wet season indicators
  - Public report did not provide households' level indicators about drinking water source (piped, bottled, rain, etc.)
  - Category “tanker truck” was counted as *drinking water from improved sources.*
  - Category “other” was counted as *surface water*.

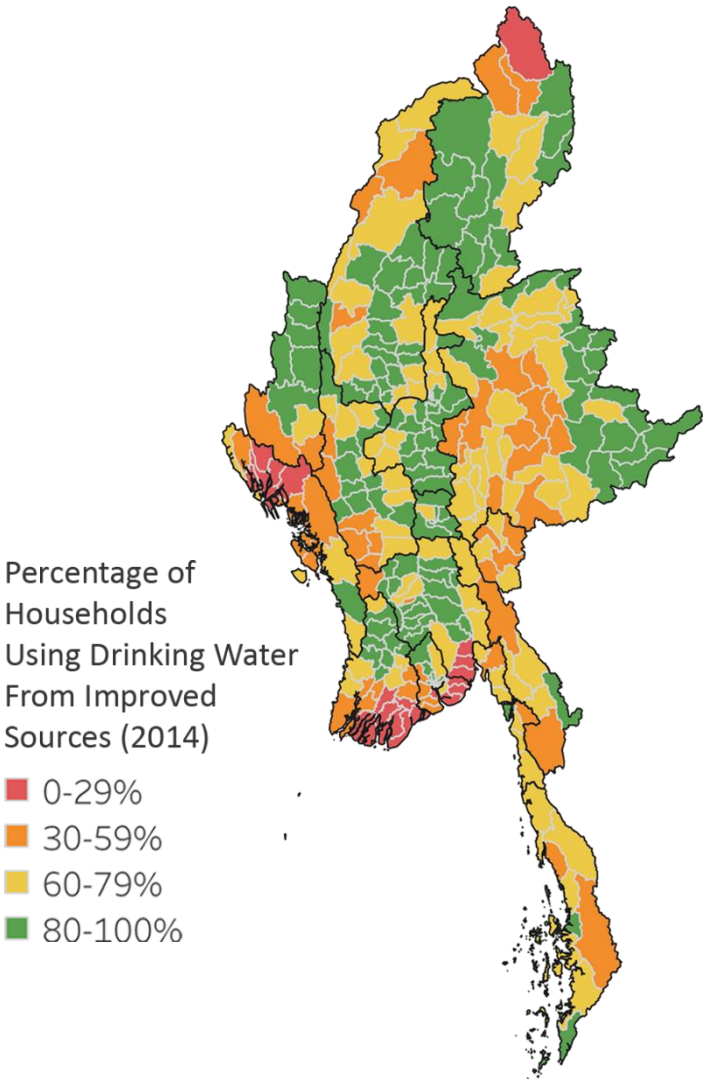
II. Key Findings

II.A. Countrywide Situation

- In 2019, **82% of households** countrywide were using drinking water from **improved sources**, and **12% used surface water** (rivers, lakes, ponds, etc.), with significant differences between urban and rural areas.



II.A. Countrywide Situation

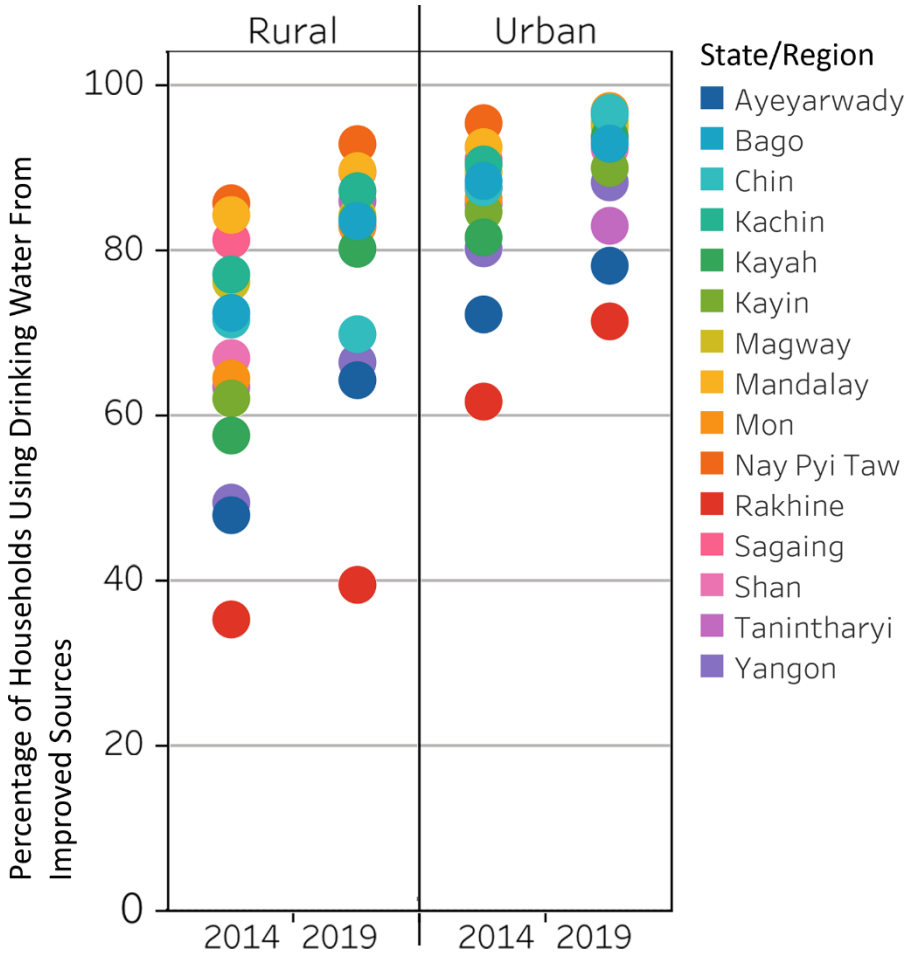


- **Half of Myanmar's townships** had over 80% of households using drinking water from **improved sources** in 2014.

Improved drinking water sources present lower risk of contamination than surface water. However,

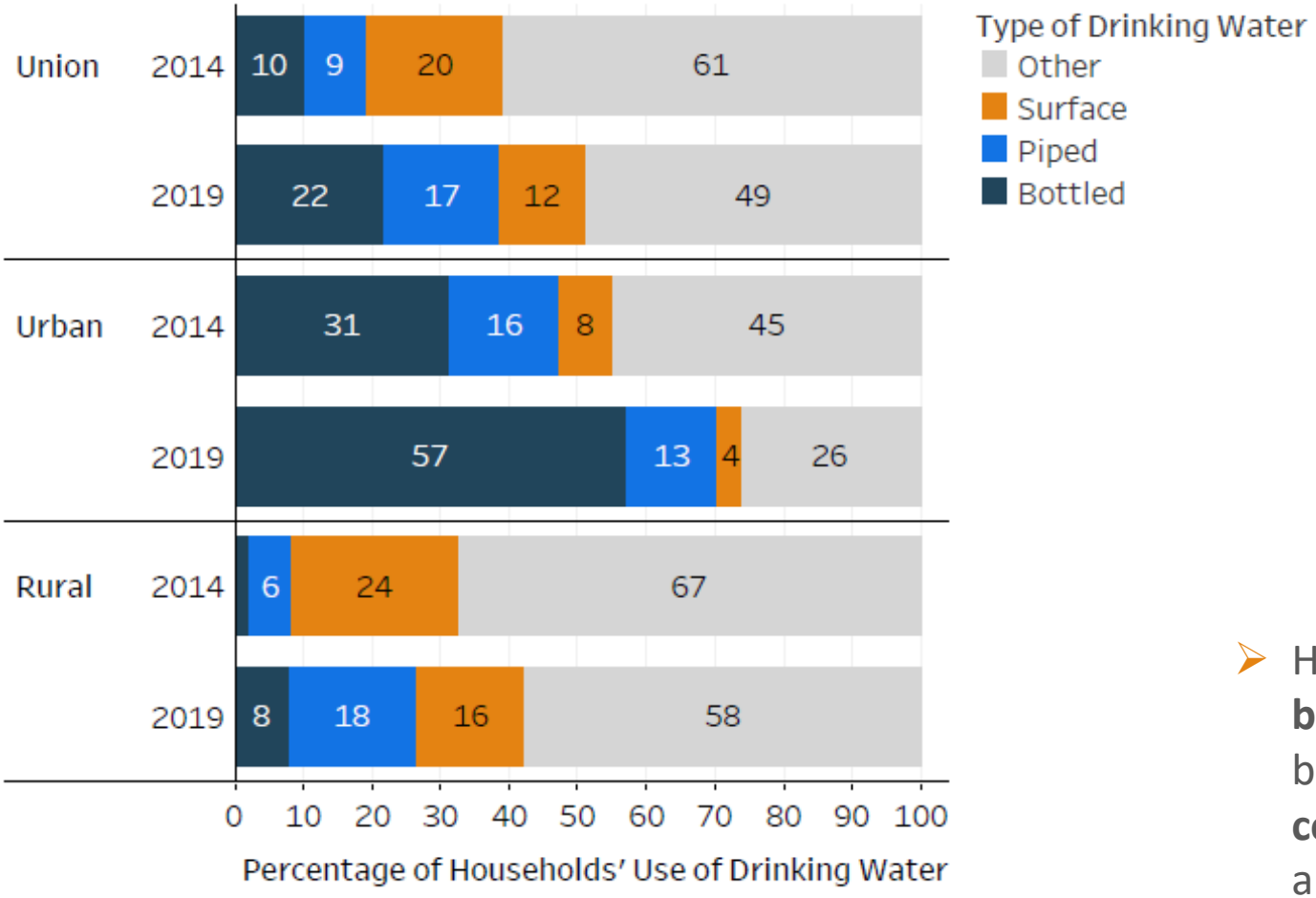
Drinking water from IMPROVED sources
≠
SAFE drinking water

II.A. Countrywide Situation



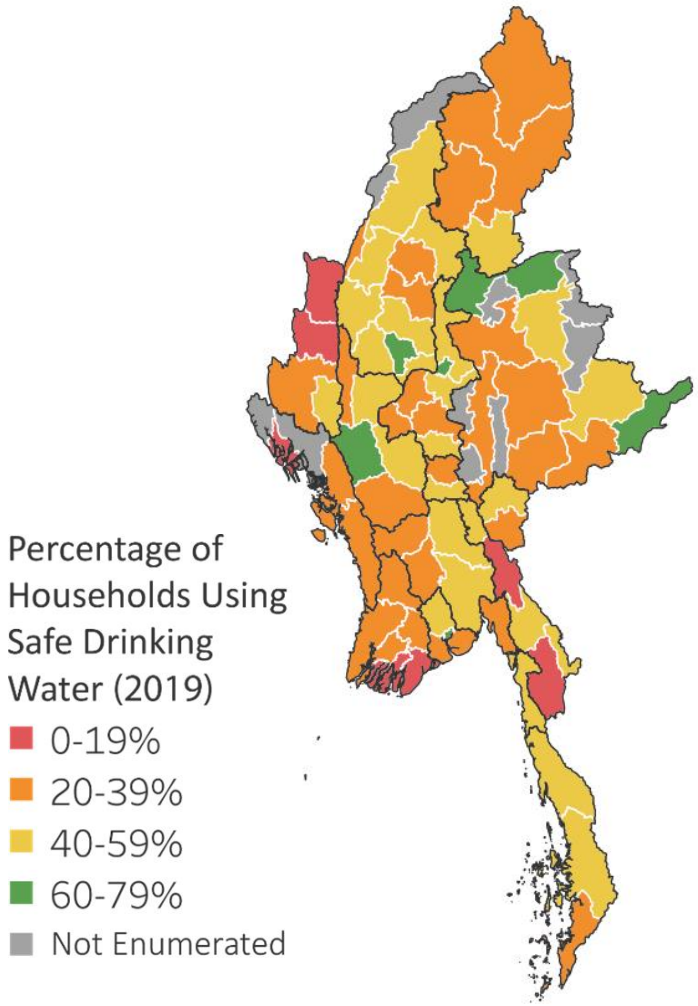
- Households in **rural areas** are **increasingly using improved water sources** as a mean of accessing safer water.

II.B. Unprotected water supplies are being replaced by piped and bottled water



- However, **piped and bottled water** may also be drawn from **contaminated sources** and be poorly treated.

II.C. Only 41% of households used safe drinking water in 2019 – the global level was 71% in 2017

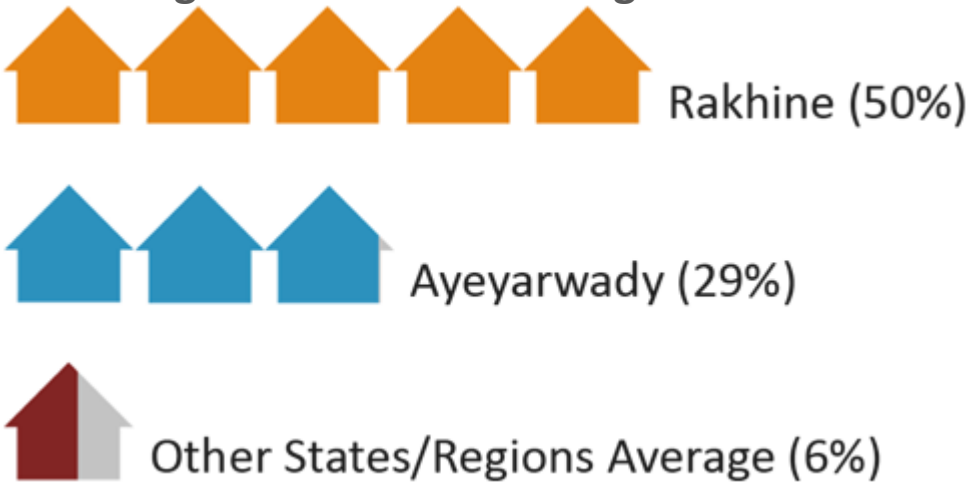


- Only **Mandalay and west Yangon districts** had levels of use of safe drinking water **close to the global level**.

II.D. Rakhine and Ayeyarwady have the highest use of contaminated drinking water.

- Households in Rakhine and Ayeyarwady had the highest reliance on surface water in 2019, and also the lowest levels of safe drinking water use countryside.

Percentage of Households Using Surface Water

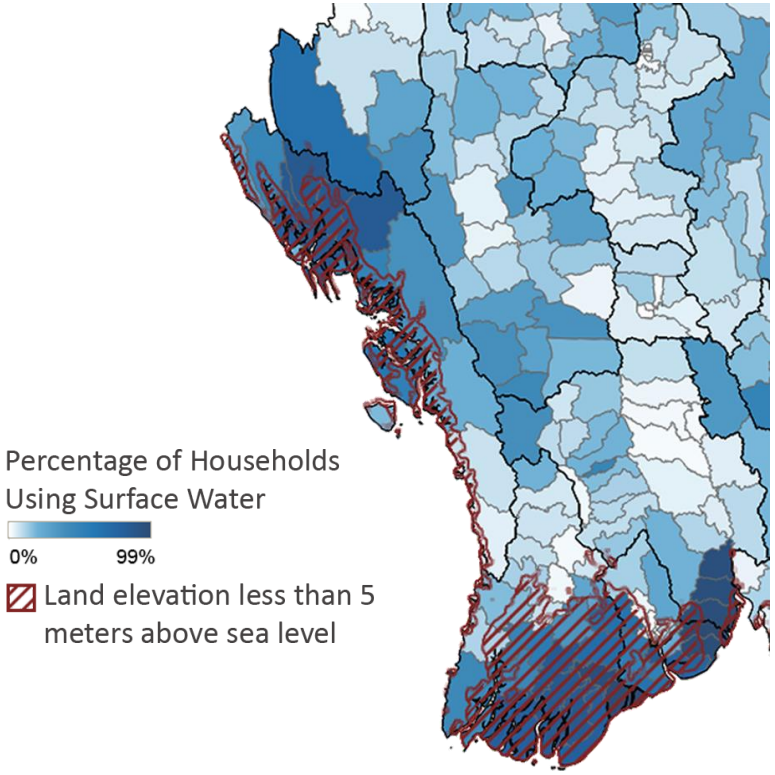


Surface sources of drinking water pose a greater risk of contamination.
Levels of contamination can only be verified by **regular testing**.

II.D. Rakhine and Ayeyarwady have the highest use of contaminated drinking water.

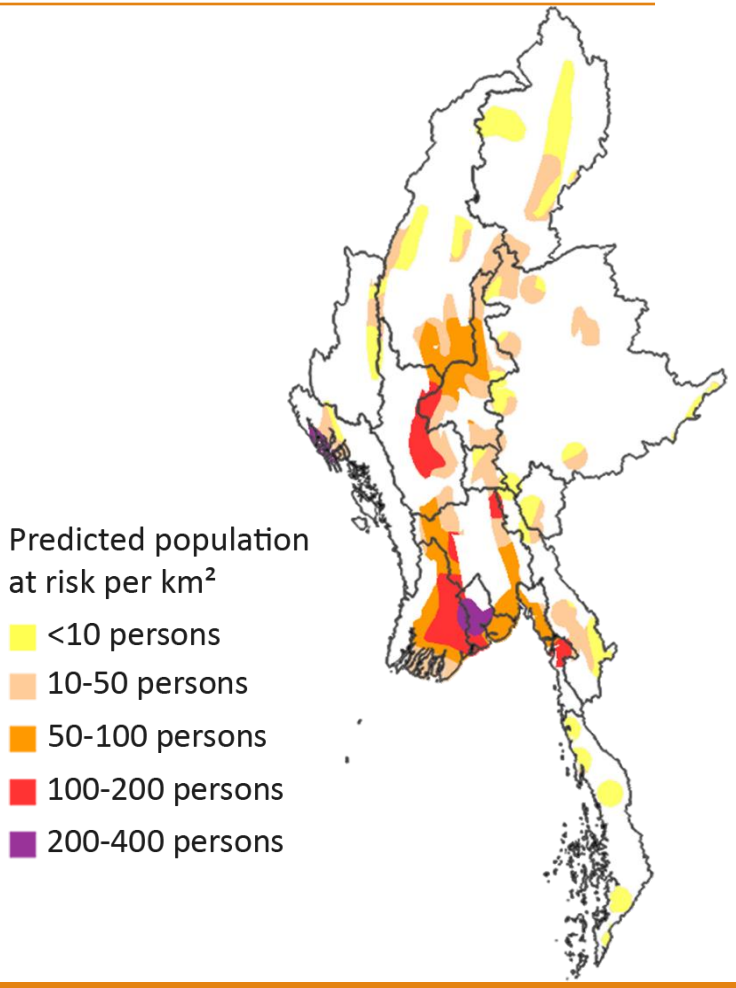
- The quality of water in Rakhine and Ayeyarwady is affected by **climate change-induced issues**.

- **Infiltration of saltwater** in underground sources and **evaporation from shallow ponds** used in these low-lying areas further **reduce the quality and availability** of drinking water.



II.E. Despite improvement, there are many unknowns, such as chemical contaminants in drinking water

- An estimated **3.4 million people** in Myanmar may be exposed to higher than recommended levels of arsenic in their drinking water supplies (2019).*



* WHO guidelines recommend arsenic levels under 10 µg/L.

Conclusion

Conclusion

- The last five years have seen a switch by households in Myanmar **toward improved water sources** – such as piped and bottled water, over unprotected water supplies such as surface water with its higher risks of contamination.

- The 2019 Intercensal Survey showed that **41% of households used safe drinking water** countrywide which is behind **global use (71%** of the population).

- As highlighted in this MIMU Analytical Brief, a **targeted approach** that considers the wide diversity of drinking water sources will be needed to allow all of Myanmar's people access safer drinking water.

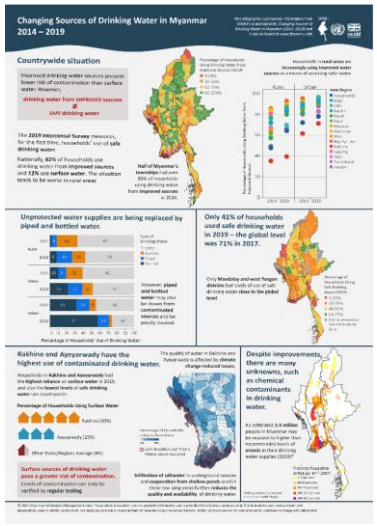
Products released

Products released

Analytical Brief

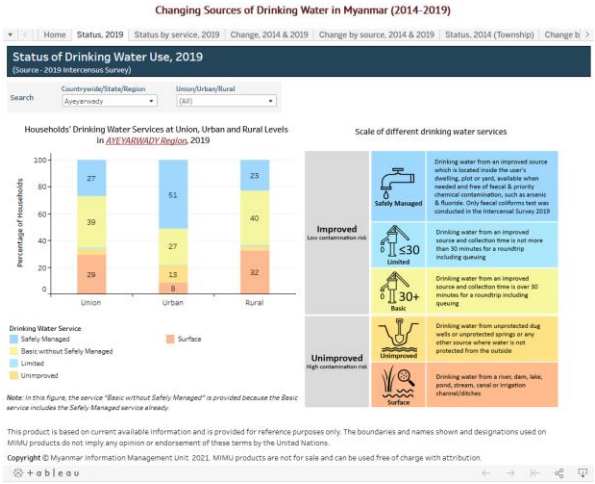
Nine-page document

Infographic



One A3 page infographic

Dashboard



Six-tab dashboard

Dataset

Indicator Type									
Unit									
Union/Urban/Rural	State/Region P-Code	State/Region Name	Households' use of surface water (Estimated # Pop)	Population's use of surface water (# Pop)	Households' use of surface water (Estimated # Pop)	Households' use of other source of water (Estimated # Pop)	Households' use of other source of water (Estimated # Pop)	Population's use of other source of water (# Pop)	Households' use of other source of water (Estimated # Pop)
Year			2015-16	2017	2019	2014	2015-16	2017	2019
Source			2015-16 Myanmar Demographic and Health Survey	2017 Myanmar Living Conditions Survey	2019 Intercensal Survey	2014 Population and Housing Census	2015-16 Myanmar Demographic and Health Survey	2017 Myanmar Living Conditions Survey	2019 Intercensal Survey
Union	X	All - Countrywi	3457393	7642545	6357275	918189	100035	351959	153434
Union	MMR001	Kachin	48707	60785	68920	26482	1924	3286	11408
Union	MMR002	Kayah	29180	19777	36657	12446	0	2293	2180
Union	MMR003	Kayin	70268	70703	54168	36666	1459	0	1557
Union	MMR004	Chin	86860	105815	20820	3226	2132	0	110003
Union	MMR005	Sagaing	515683	399401	340896	87222	0	15976	5841
Union	MMR006	Tanintharyi	27546	56336	42365	32248	15366	5634	6134
Union	MMR111	Bago	259913	584085	474236	91648	8940	73011	4333
Union	MMR009	Magway	365003	364286	323443	81784	0	0	1142
Union	MMR010	Mandalay	28951	468595	291757	99532	6583	6166	4935
Union	MMR011	Mon	5427	67795	72548	85017	2687	0	5101
Union	MMR012	Rakhine	69729	1068293	1609596	14179	6832	4198	0
Union	MMR013	Yangon	8684	839120	905360	55763	0	206100	2350
Union	MMR222	Shan	396436	460130	263828	232829	48621	17473	12384
Union	MMR017	Ayeyarwady	1367213	2690401	1789196	50289	7115	6185	3684
Union	MMR018	Nay Pyi Taw	30547	48730	23193	25288	1559	0	4615
Urban	X	All - Countrywi	1111611	2111756	1892350	225792	46822	754199	97175
Urban	MMR001	Kachin	6020	N/A	15527	7361	0	N/A	6021
Urban	MMR002	Kayah	0	N/A	10153	1606	0	N/A	3706

Thank you for your attention

Questions?

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