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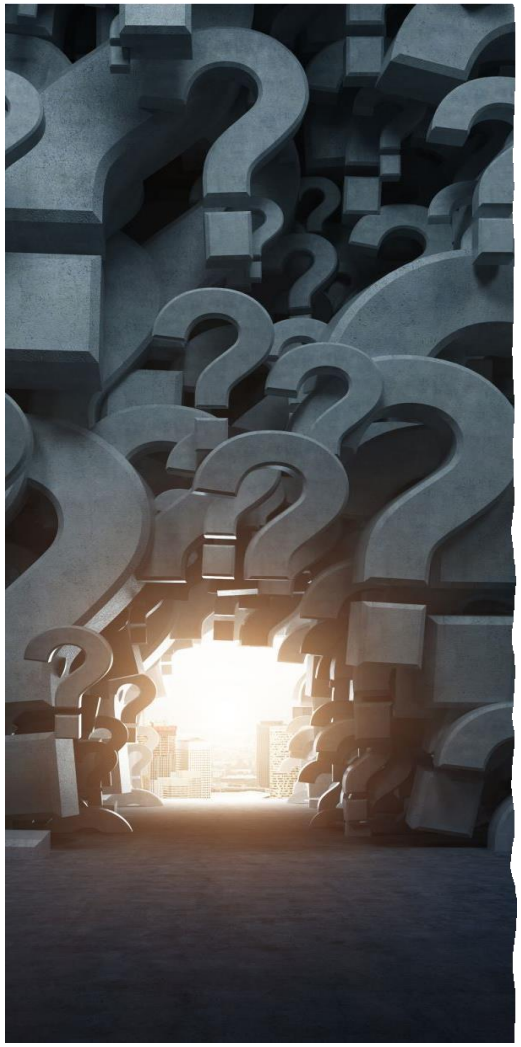
DOCTORS WITHOUT BORDERS

Logistic Challenges of Providing Water, Sanitation & Hygiene during Disasters

Presented by: Dr. Mayur Kale

WatSan manager , Project coordinator and Career manager with MSF



Can you tell me Types of Disasters??

Natural Disasters

Human-Made Disasters

Importance of Water Hygiene & Sanitation (WASH)

Mortality

1.4 million

deaths* could have been prevented with safe WASH in 2019

Morbidity

74 million

DALYs* could have been prevented with safe WASH in 2019

Attributable fraction

69%

of all diarrhoea deaths in 2019 were attributed to unsafe WASH services

Diarrhoea deaths

>1 million

died from diarrhoea due to unsafe WASH in 2019

Acute respiratory infections deaths

356 000

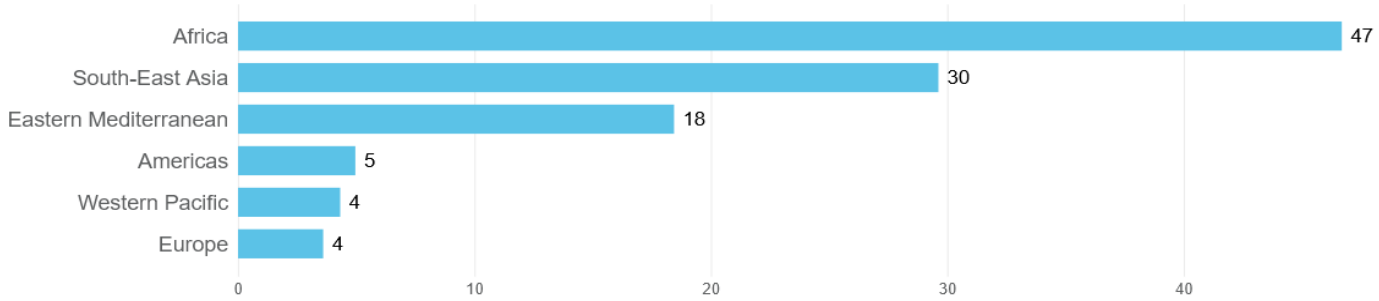
died from acute respiratory infections due to unsafe hand hygiene practices in 2019

FILTERS

Mortality rate attributed to exposure to unsafe WASH services (per 100 000 population) (SDG 3.9.2)

Year: Latest

Disaggregation: Sex

Global value	Regional values
18	

Select region | Distribution by country

https://www.who.int/data/gho/data/themes/topics/water-sanitation-and-hygiene-burden-of-disease

740,746

ROHINGYA ARRIVED IN COX'S BAZAR, AUG 17 – JAN 19*

909,235

TOTAL NUMBER OF ROHINGYA LIVING IN COX'S BAZAR AS AT END JAN 19*

1,050,000

CONSULTATIONS PROVIDED BY MSF, AUG 17 – DEC 18

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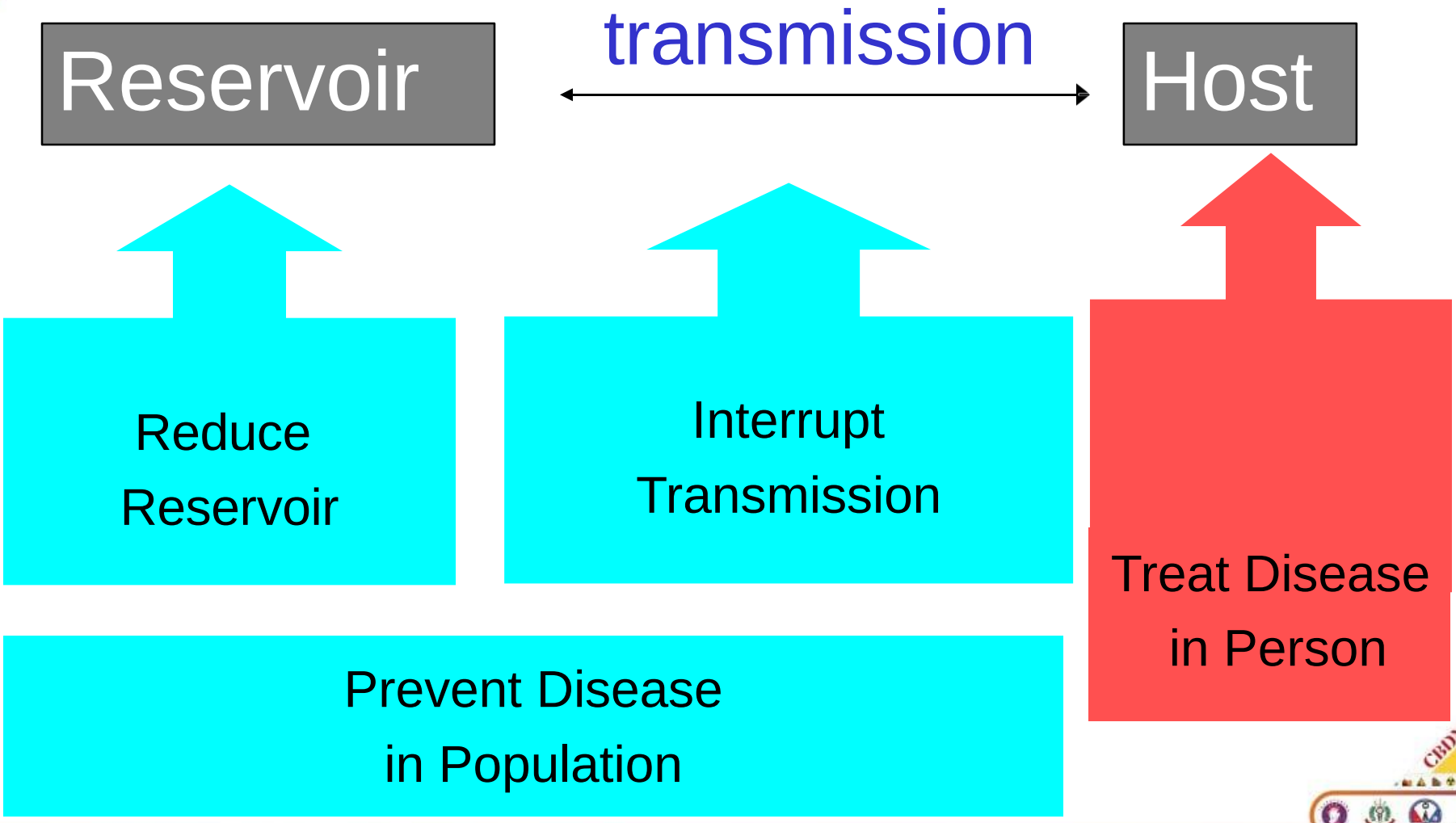
Impact of Lack of WASH is exacerbated in emergencies or refugee/displaced crisis

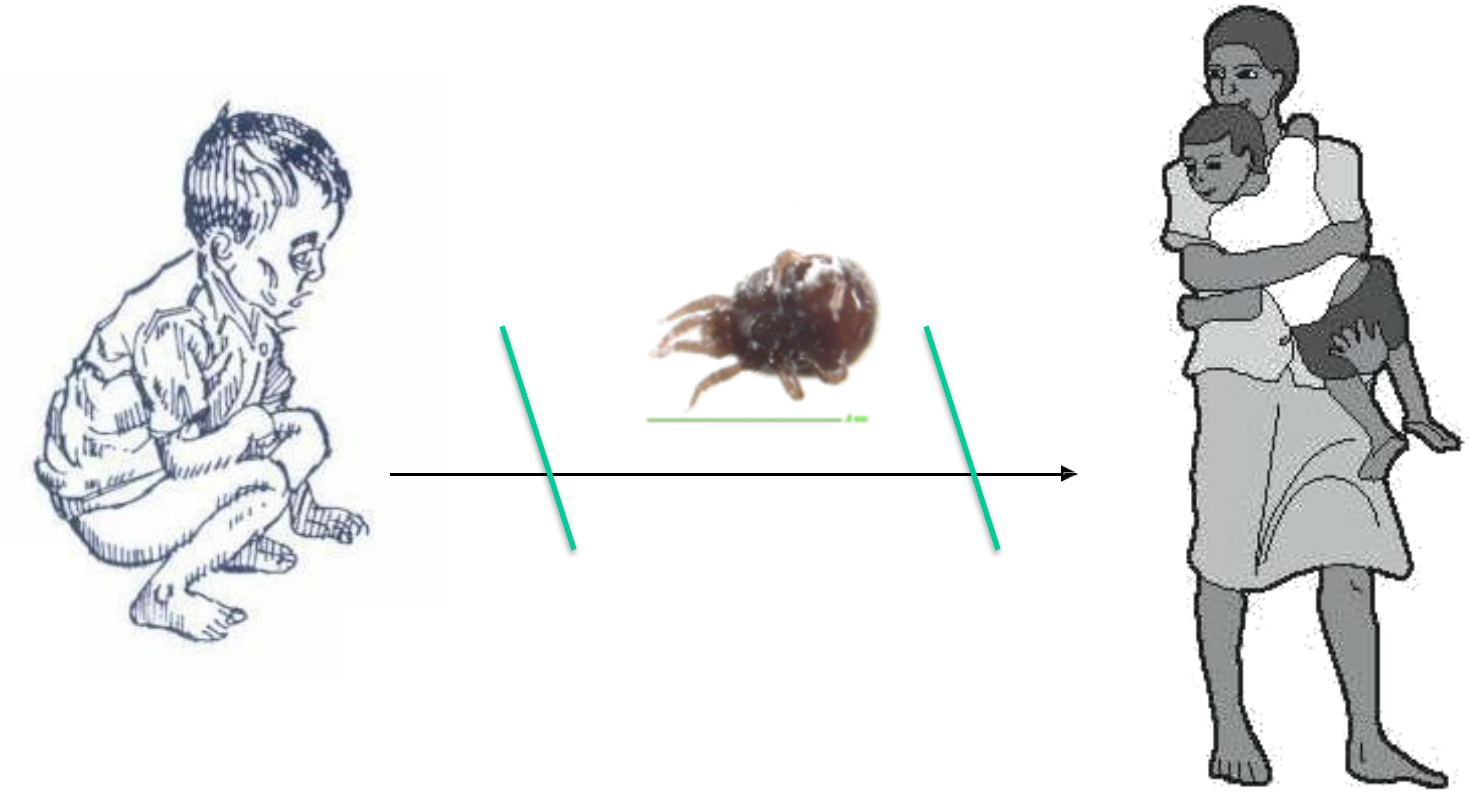
(Bangladesh 2017-18)

Importance of Water Hygiene & Sanitation (WASH)

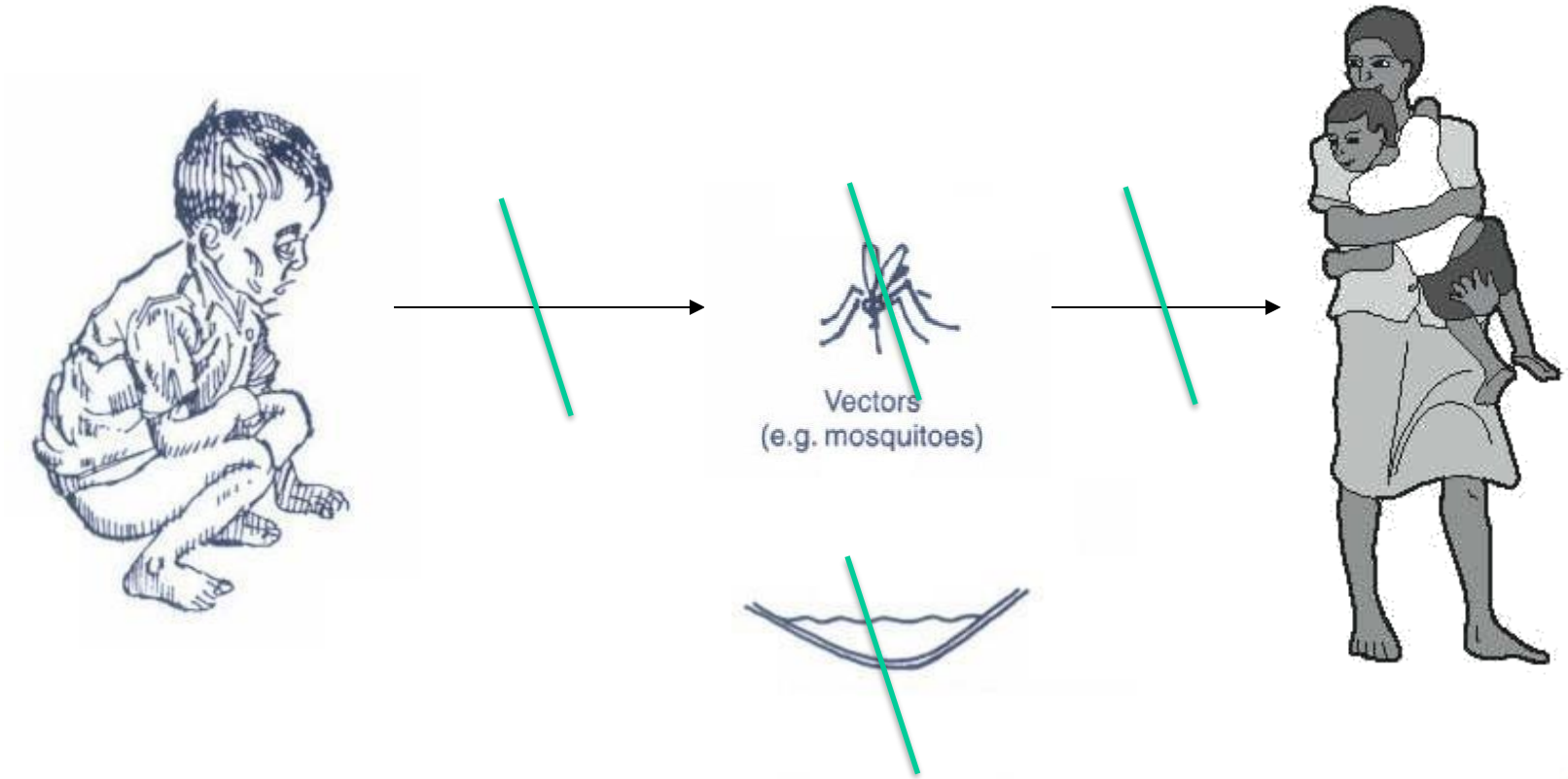
DISEASE CONTROL



Scabies transmission route



Malaria transmission route

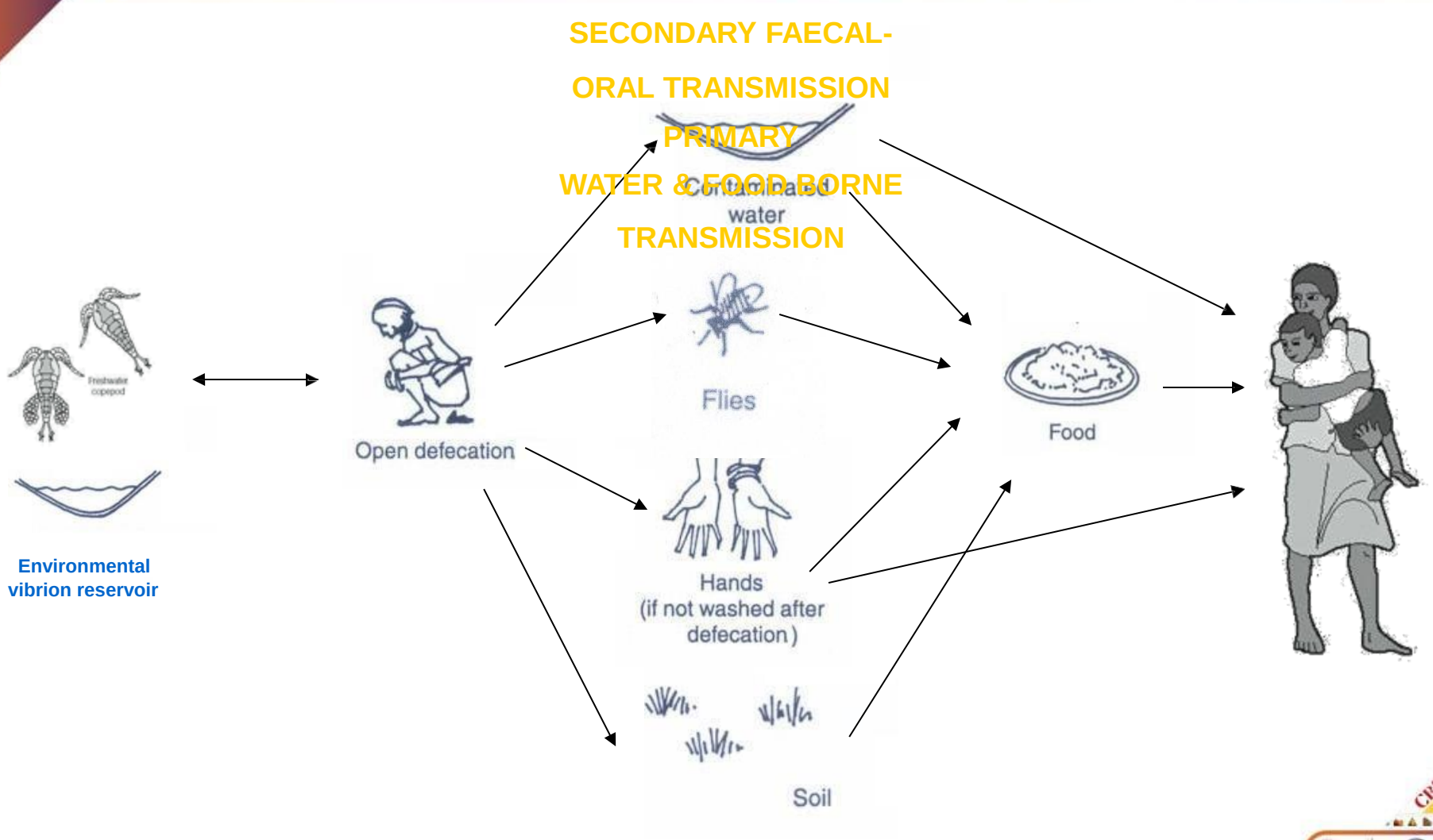


Diseases related to water	Classification according to Transmission Routes
Cholera	Water Borne & Water Washed Disease
Scabies	Water Washed Disease
Bilharzias	Water Based Disease
Malaria	Water Related Vector Disease

TRANSMISSION ROUTE	PREVENTIVE or CONTROL STRATEGIES
Water Borne (Faecal Oral)	•Improve quality of drinking water •Prevent casual use of unimproved sources
Water Washed (Scabies, Trachoma, Faecal Oral)	•Increase water quantity used • Improve accessibility and reliability of domestic water supply •Improve hygiene
Water Based (Bilharzias, Guinea Worm)	•Decrease need for contact with infected water •Control snail population •Reduce contamination of surface waters by excreta
Water Related Insect Vector (Malaria, Dengue, Yellow fever)	•Improve surface water management •Control breeding sites of insects • Use (impregnated) mosquito net or other material •Use Indoor Residual Spraying or space spraying

Story of Cholera

Cholera transmission routes



Yemen: War zone and Cholera outbreak


RESPONDING TO
AN OUTBREAK
CHOLERA

In emergencies: need for staged intervention strategy

Starting with emergency and rapid response (MSF, first 3 months?)

Gradually shifting to longer term solutions and interventions for stable situations (usually other NGOs)

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Water needs in emergencies example: 10.000 people

First phase 3 to 5 lt/p/day

30.000 to 50.000 lt/day

Stabilised phase 15 to 20 lt/p/day

150.000 to 200.000 lt/day

Average daily use in India or Netherlands: 128 lt/p/day

1.280.000 lt/day

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MSF Field Report: Clean water for Refugees in Uganda

Emergency response:
Bangladesh:
Deep Bore well

Emergency response: Bangladesh

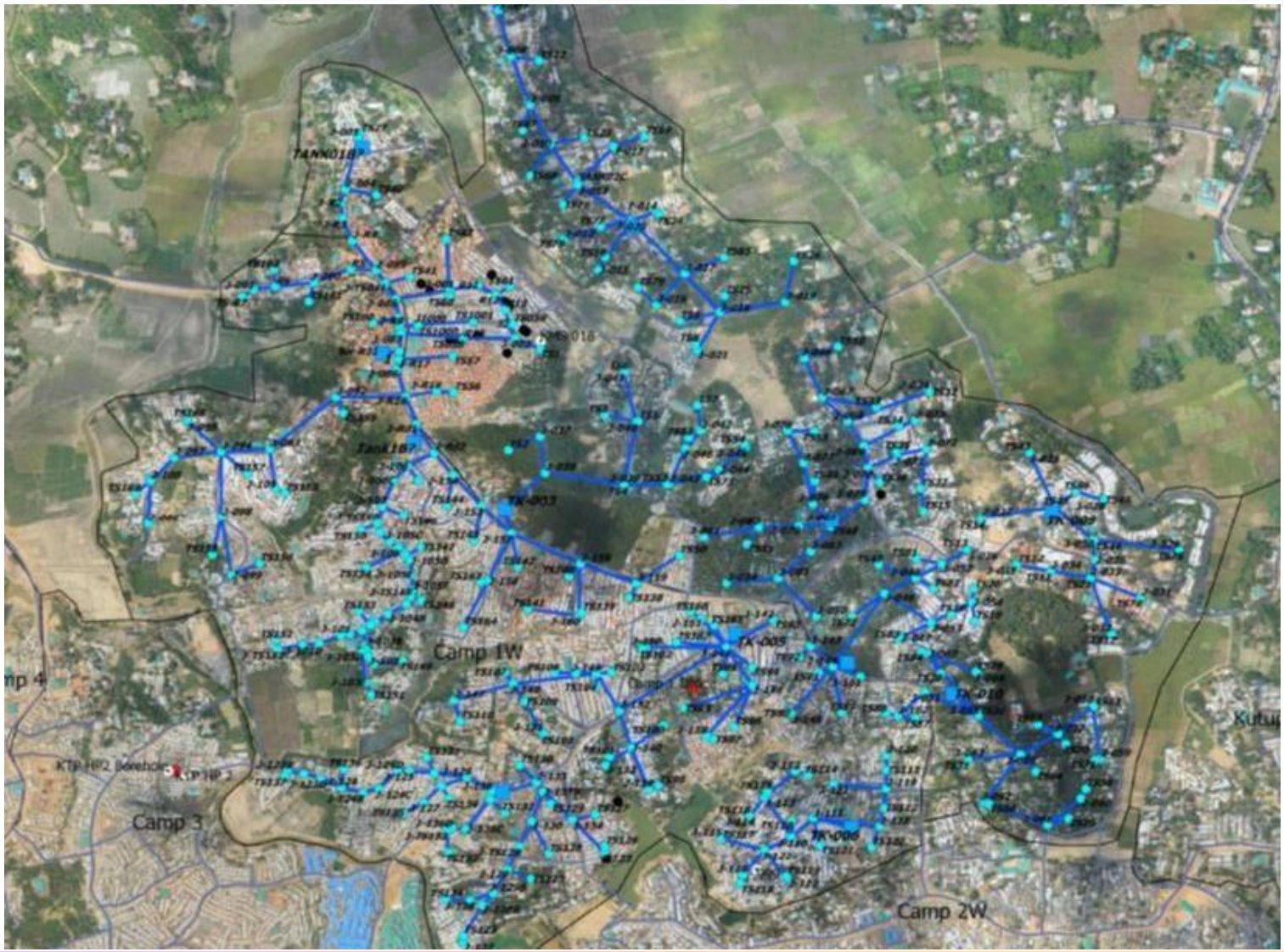
From emergency public health to public health engineering

Bangladesh Rohingya Emergency Response – WatSan Strategy 2018





Ref: Matt Arnold, WatSan Advisor, MSF-OCA – Cox's Bazaar, 06-12-2017

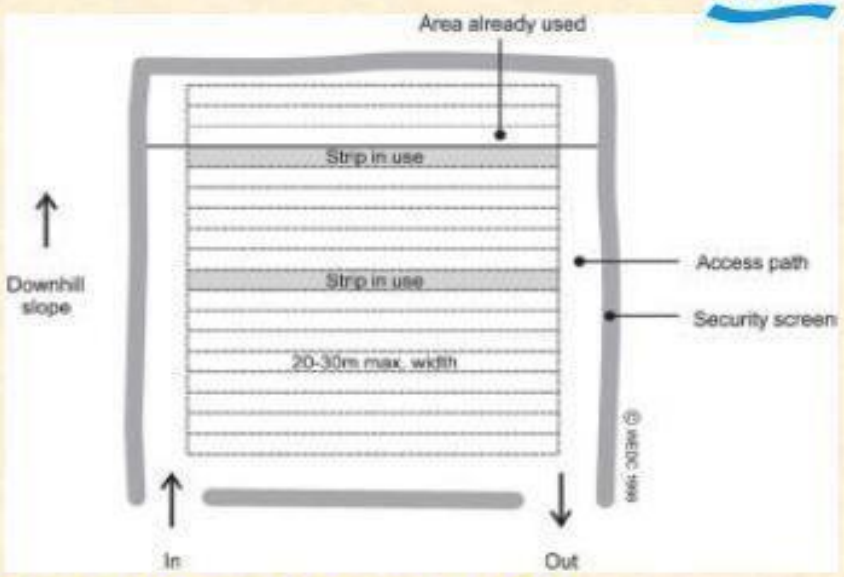

Camp 1W
Camp 2W
Camp 3
TK-033
TK-005
TK-006
TK-018

Long term response

"Sanitation is like WiFi—no one notices it until it stops working!"

Immediate action

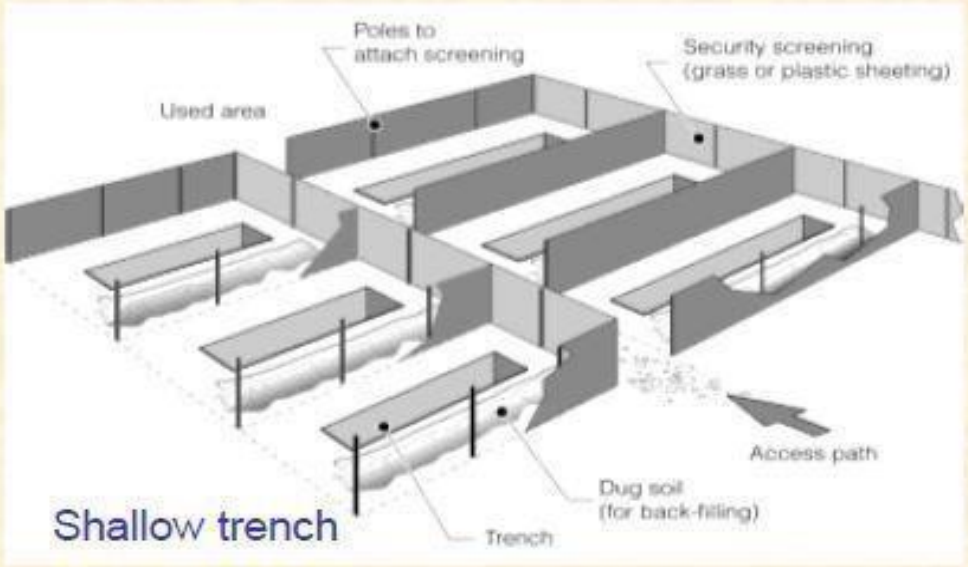
WEDC



- **Very limited situations where this may be acceptable …**
- far from water storage/treatment facilities, food storage/preparation, public buildings, roads
- at least 50m from water sources
- downhill of settlements and water sources
- not in field crops grown for human consumption

Avoid where possible – and replace urgently!!

Immediate action

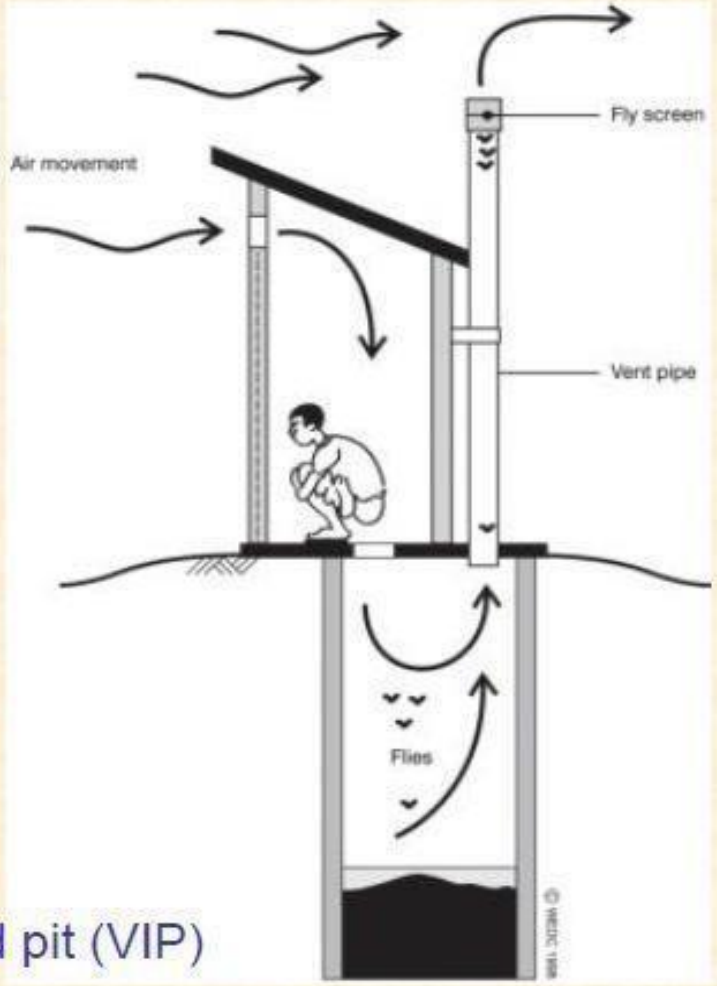


Maximum of 100 people per 3.5m length of trench

150mm deep and 200-300mm wide

Allow 0.25m² of land per person per day

Longer term



Ventilated, improved pit (VIP)

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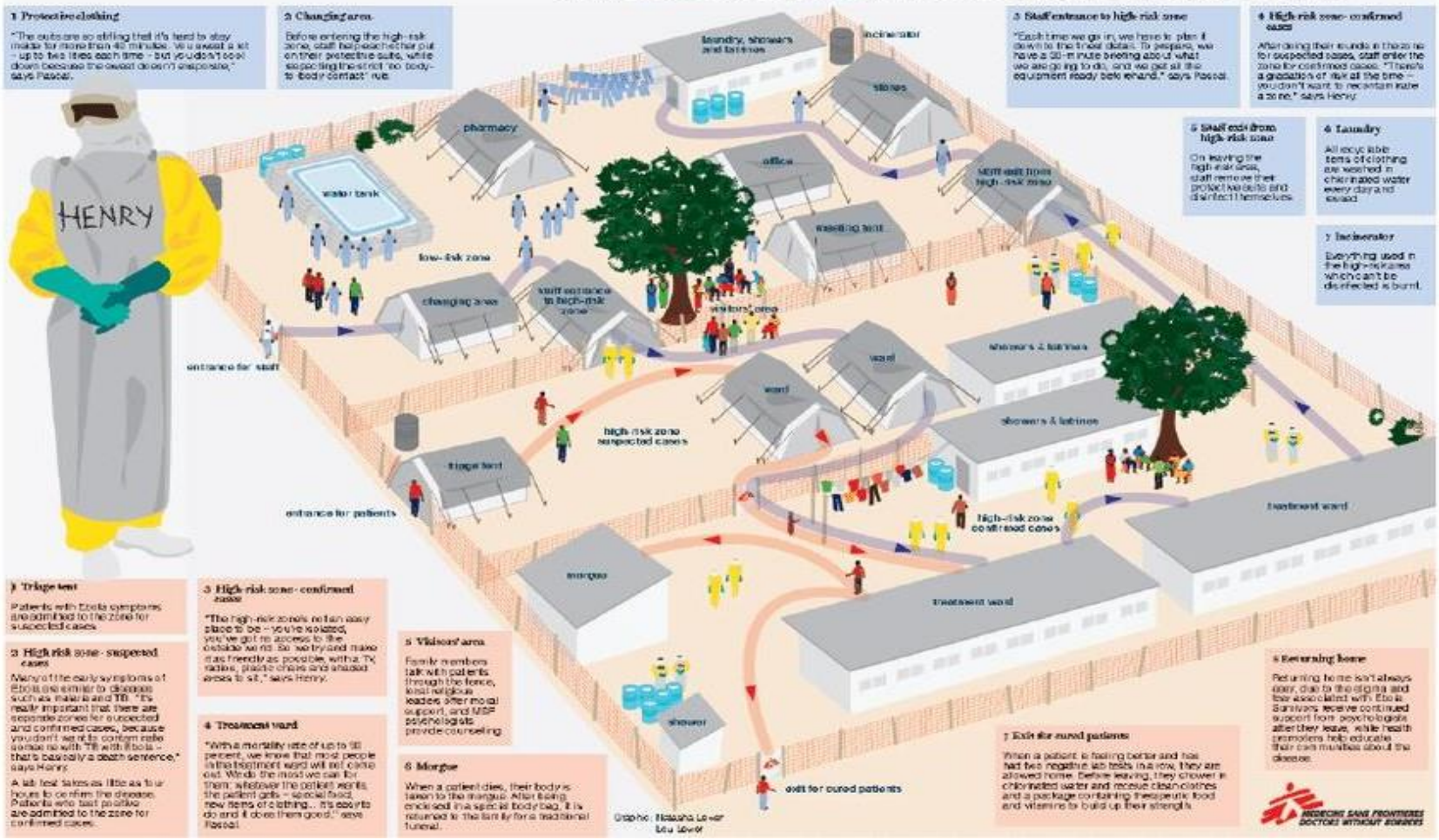
MSF Scientific days 2020: https://f1000research.com/videos/9-949

When Ebola haemorrhagic fever broke out recently in Guinea, west Africa, MSF set up three specialised treatment centres in the worst-hit areas. Ebola is so infectious – and so deadly – that patients need to be treated in isolation by staff wearing special protective clothing. Emergency coordinator Henry Gray and logistician Pascal Piguet, both just back from Guinea, explain why, with Ebola, every little detail counts.



WASH in Health Structures

How many liters of water are required per person for a surgical procedure →**60 l/p/day**

Water Supply – Safe drinking water & medical use **Sanitation** – Waste management & infection control **Hygiene Promotion** – Handwashing & disease prevention. **Infection Control** – Disinfection & medical waste disposal.

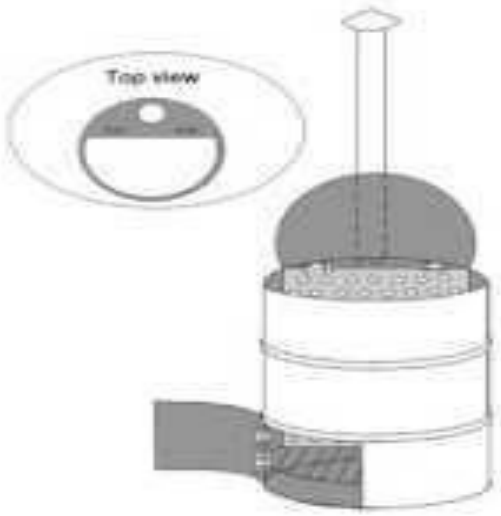
Wash in health structure: foundation for infection prevention and control (IPC). MSF (also WHO) essential requirements for health structures. Fundamental for quality of care and antimicrobial resistance strategies.

Emergency Response – Outbreaks, cholera, and refugee camps. Monitoring and improvement plans

Goal: Ensure a safe, clean, and functional healthcare environment!

Medical waste management

Treatment



waste reducer

Providing water and excreta disposal is not enough

Sanitation

- Waste water disposal
- Waste management

Wash + epidemiology = strong advocacy

Hygiene

- Promotion
- Non Food Items: soap, water containers, menstrual hygiene etc.

Vector control

- Mosquito nets, Indoor Residual Spraying (IRS), space spraying etc.

Also think about:

- Disease surveillance
- Food, shelter, medical and social services etc.
- Coordination

WASH in near future

WASH with Climate & Environmental health = adaptation

WASH with Climate = mitigation (reducing carbon footprint)

Adaptation: drought and floods, water scarcity and quality, heat and health, vector borne and climate sensitive infections.

Mitigation: solid waste management (especially hazardous waste), management of waste water from health care.

- Topics under development: water scarcity and quality, solid waste management (especially hazardous waste), heat and health, climate sensitive infections, management of waste water from health care.

References

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- WEDC Emergency Publications https://www.lboro.ac.uk/media/wwwlboroacuk/external/content/research/wedc/pdfs/wedcpublicationscatalogue/WEDC-Publications-Catalogue.pdf
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Thanks for Listening Questions??