

Anders Alexander Løcke

Res  **Prac**

PAUWES

**RESEARCH 2 PRACTICE
FORUM 2018**

**ENERGY, WATER SECURITY
AND CLIMATE CHANGE IN AFRICA**

**16th - 18th APRIL, 2018
TLEMEN, ALGERIA**





SAFE WATER
FOR EVERYONE





PROVIDES

4 LITERS OF PURIFIED WATER IN 4 HOURS
CAN BE USED **150** TIMES
TOTAL OF **600 L** WATER

solar SACK



AALBORG UNIVERSITET



NAKAMBNE BIRISKA

KATANGA SLUM, UGANDA

37 YEARS OLD

6 CHILDREN

A HUSBAND

OCCUPATION: HOUSEWIFE AND FRUIT STAND



WATER IS **COLLECTED** FROM A **TAP**

WATER IS TRANSPORTED IN A **20 L JERRYCAN** ON THE HEAD FOR APPROXIMATELY **50-100 METERS**

THE WATER IS **STORED** IN THE JERRYCAN **UNTIL USE**

THE **WATER IS BOILED**

THE WATER IS POURED IN A **NEW CONTAINER**. THE WATER COOLS DOWN BEFORE DRINKING



JOYCE FONI

ADJUMANI REFUGEE SETTLEMENT, UGANDA

25 YEARS OLD

3 CHILDREN, BUT 2 DIED OF CHOLERA

NO HUSBAND

NO OCCUPATION



WATER IS COLLECTED FROM A **SHALLOW WELL**.



WATER IS TRANSPORTED IN A **20 L JERRYCAN** ON THE HEAD FOR APPROXIMATELY **100-500 METERS**.



THE WATER IS **STORED** IN THE JERRYCAN **UNTIL USE**



THE WATER IS **CONSUMED UNPURIFIED** OR PURIFIED USING PURIFICATION TABLETS **SOMETIMES** HANDED OUT BY THE **NGO'S**.



SOURCE

SURFACE WATER CONTAMINATED BY MICRO ORGANISMS

STORAGE

STORED IN OLD CLAY OR PLASTIC CONTAINERS
RESULTING IN RECONTAMINATION

UV-A ACTIVATES **OXYGEN** IN THE WATER,
BURSTING CELL WALLS OF **BACTERIA**

UV-B DIRECTLY DAMAGES **DNA** AND **RNA**
KILLING **BACTERIA** AND **VIRUS**

HEAT WEAKENING THE DEFENCES
ACCELERATING THE UV PROCESSES.

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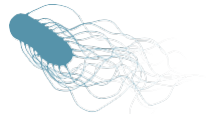


World Health
Organization

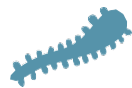
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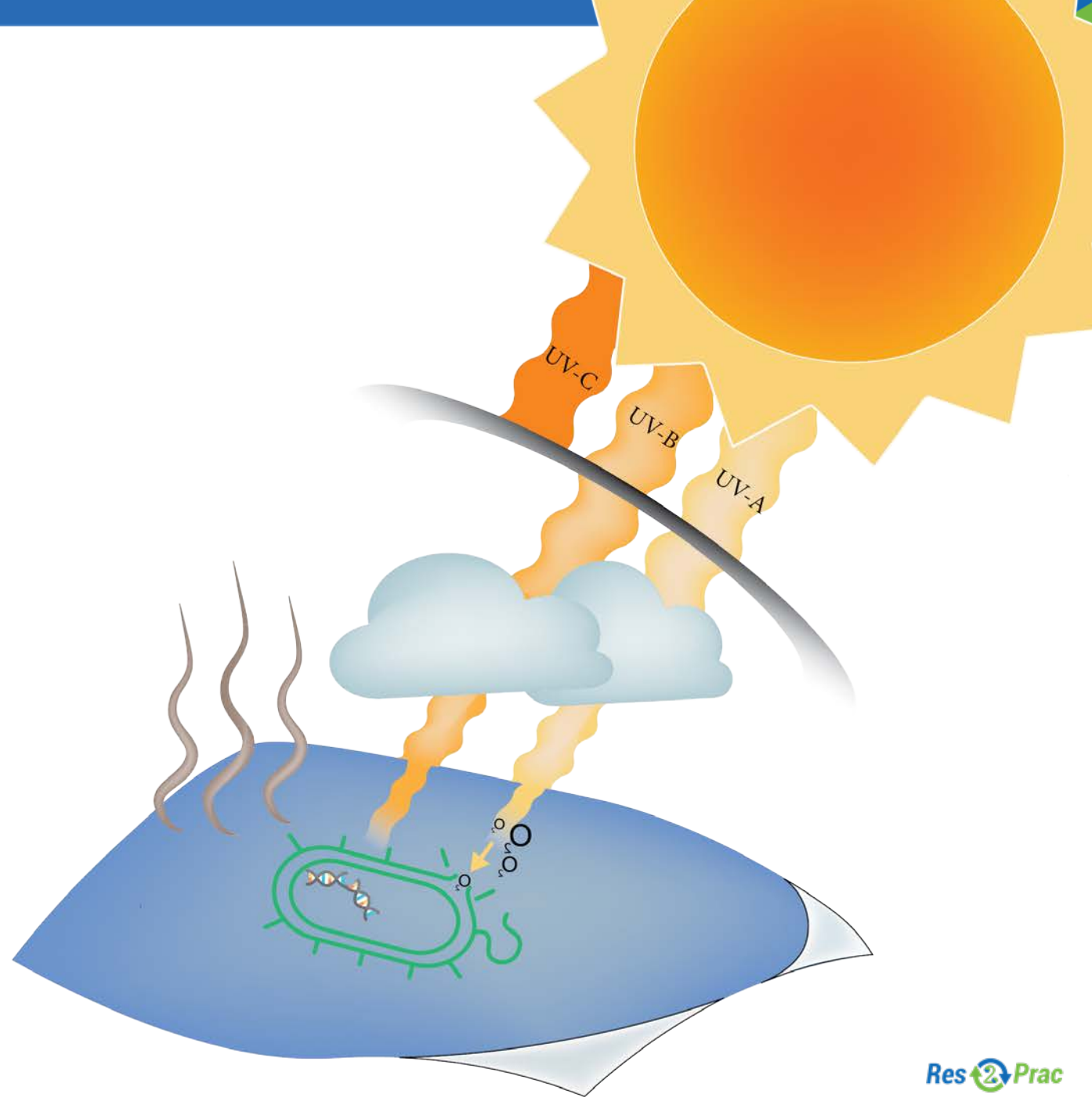
Colera
99,999%



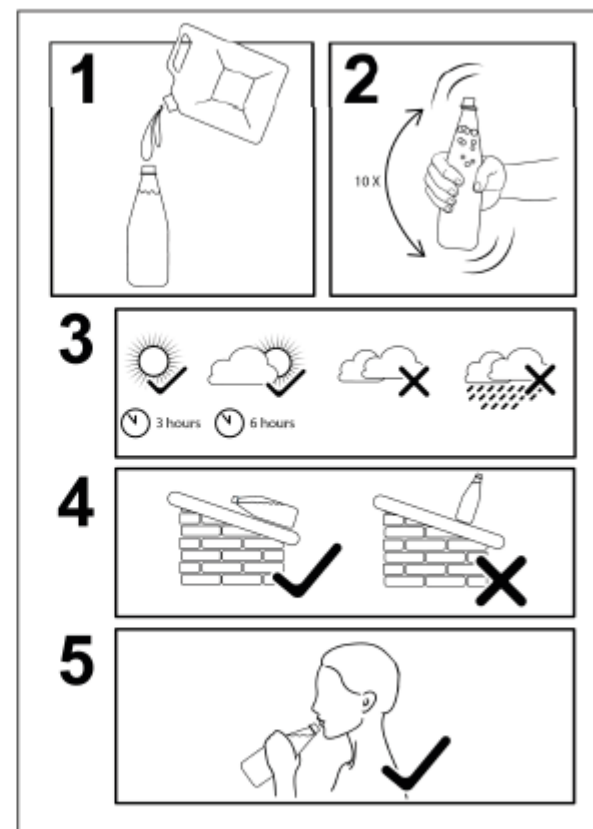
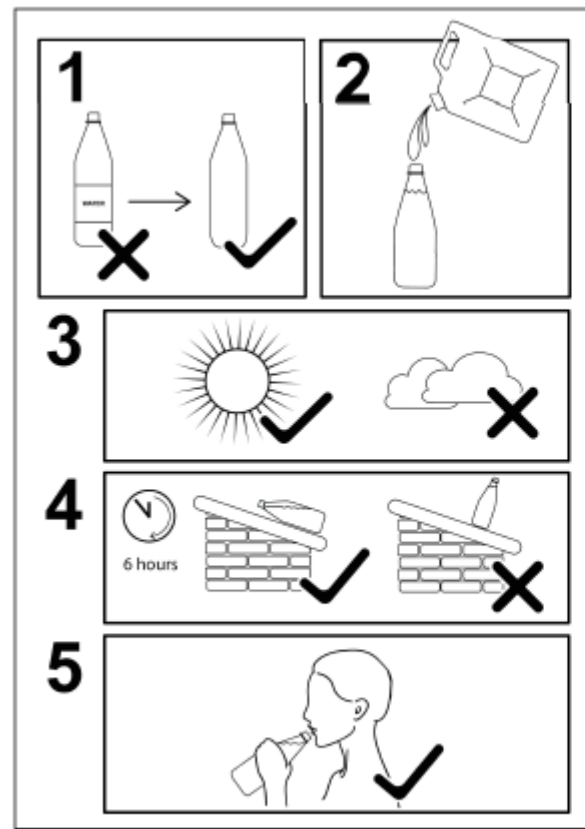
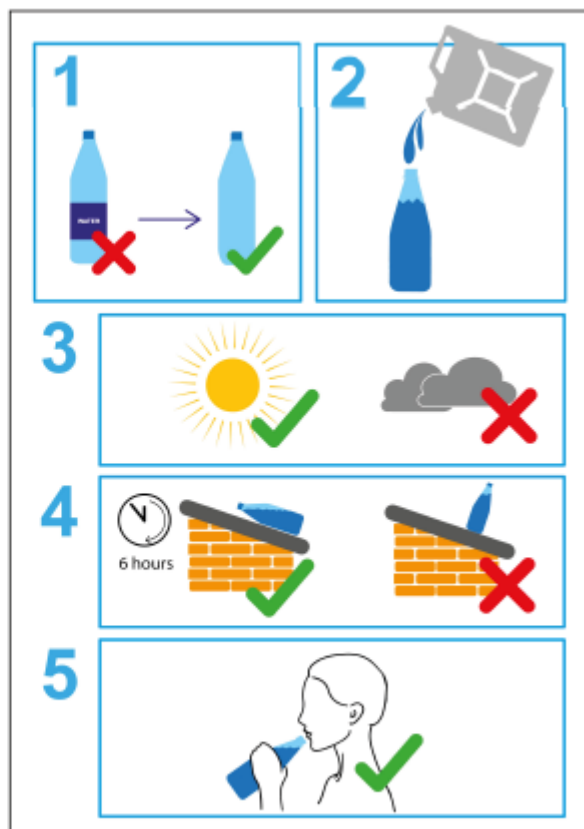
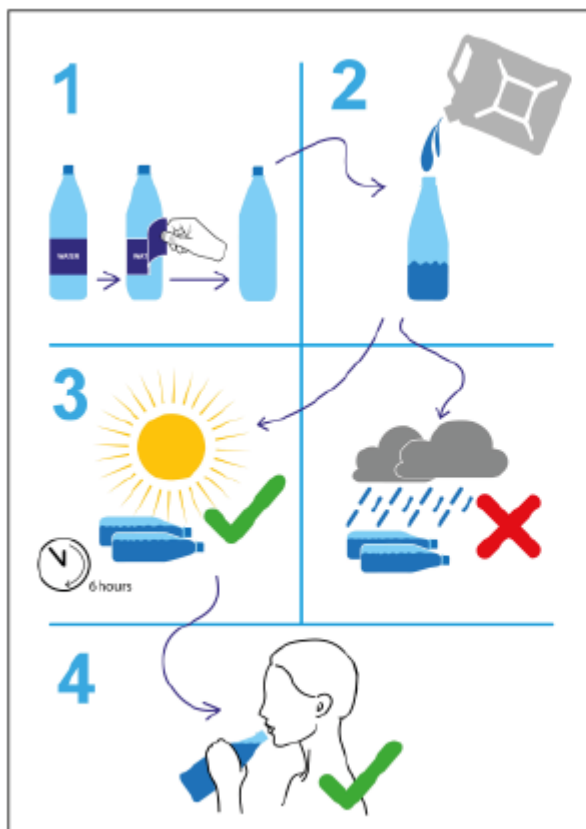
Typhoid
99,99%



Salmonella
99,99%









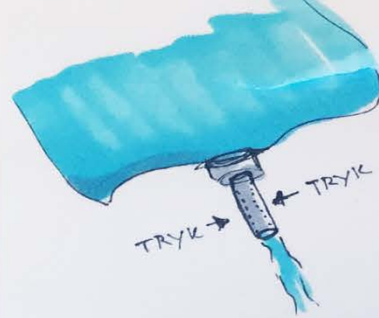
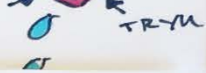


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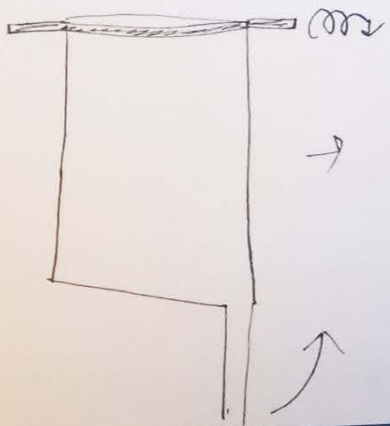
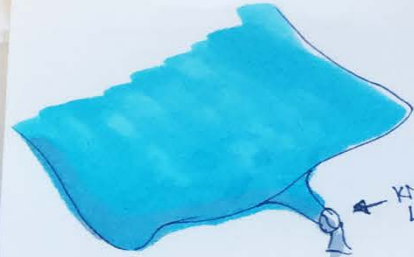
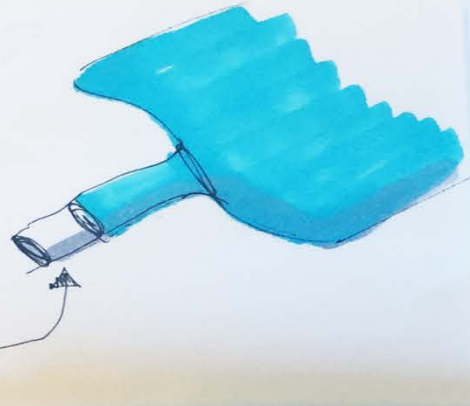
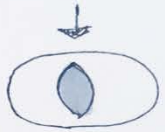
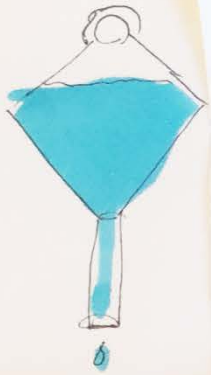
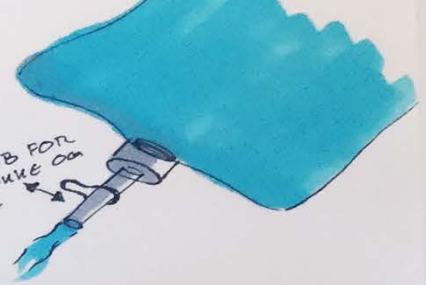
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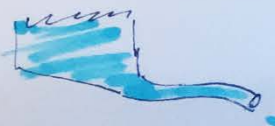
BUND



SKUB FOR
PÅ LUKKE OG
ÅBN E



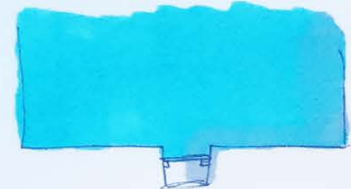
Copy and
Hang up



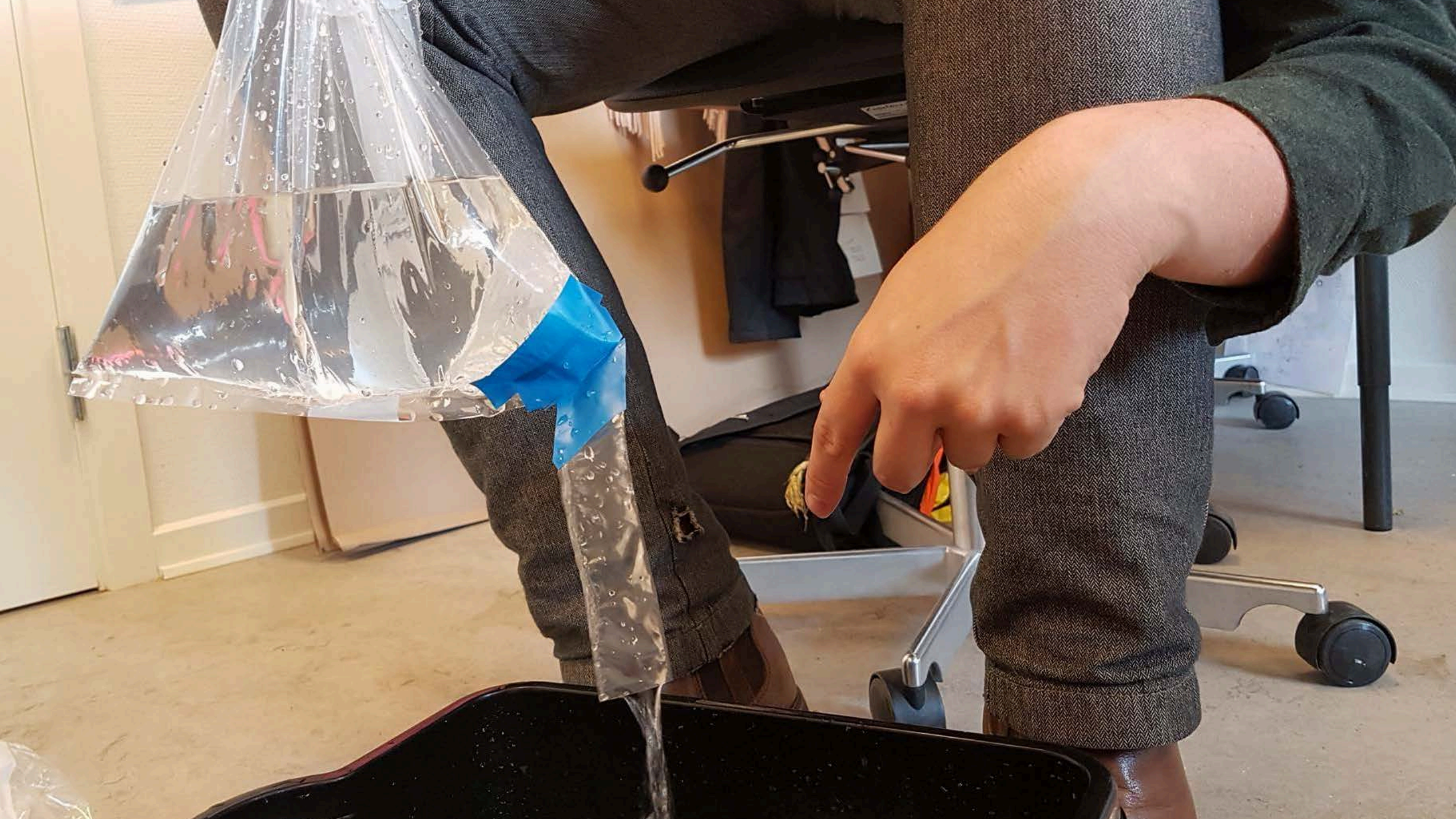
Water
out

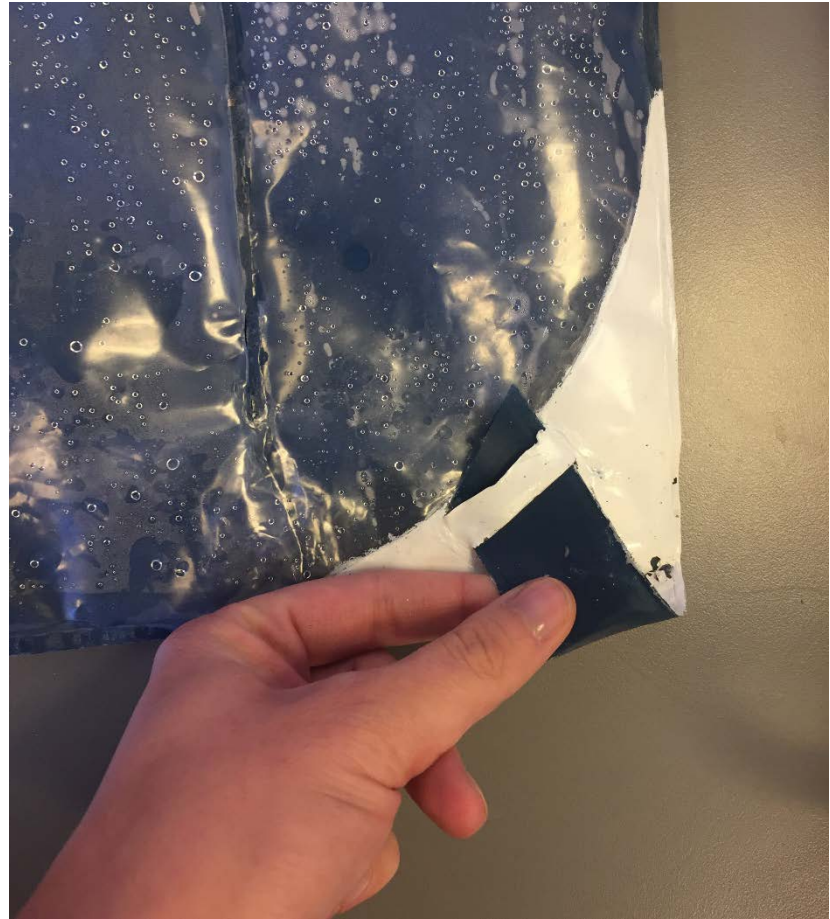


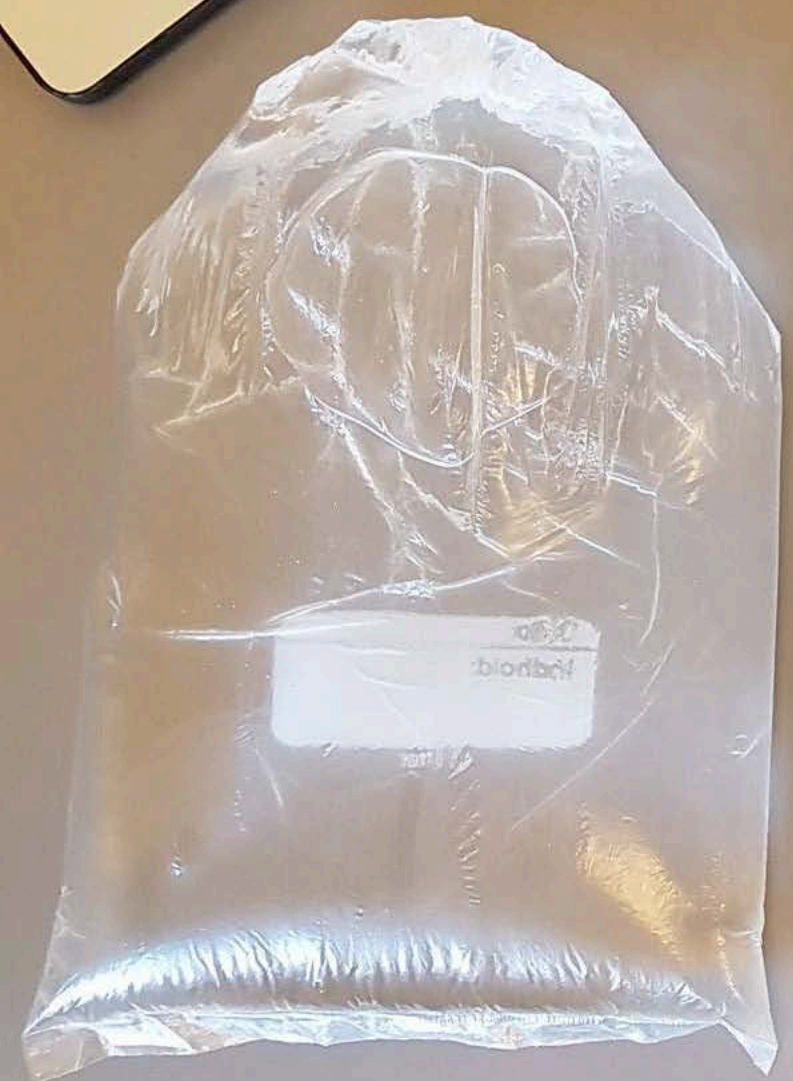
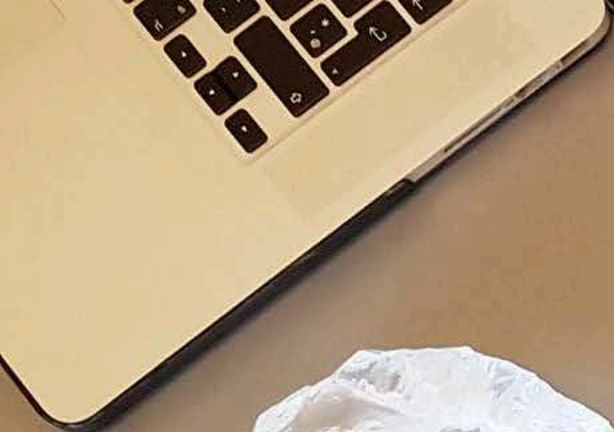
Ice Cube
Bag



Air Madress







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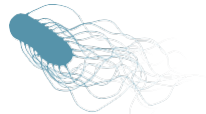


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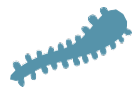
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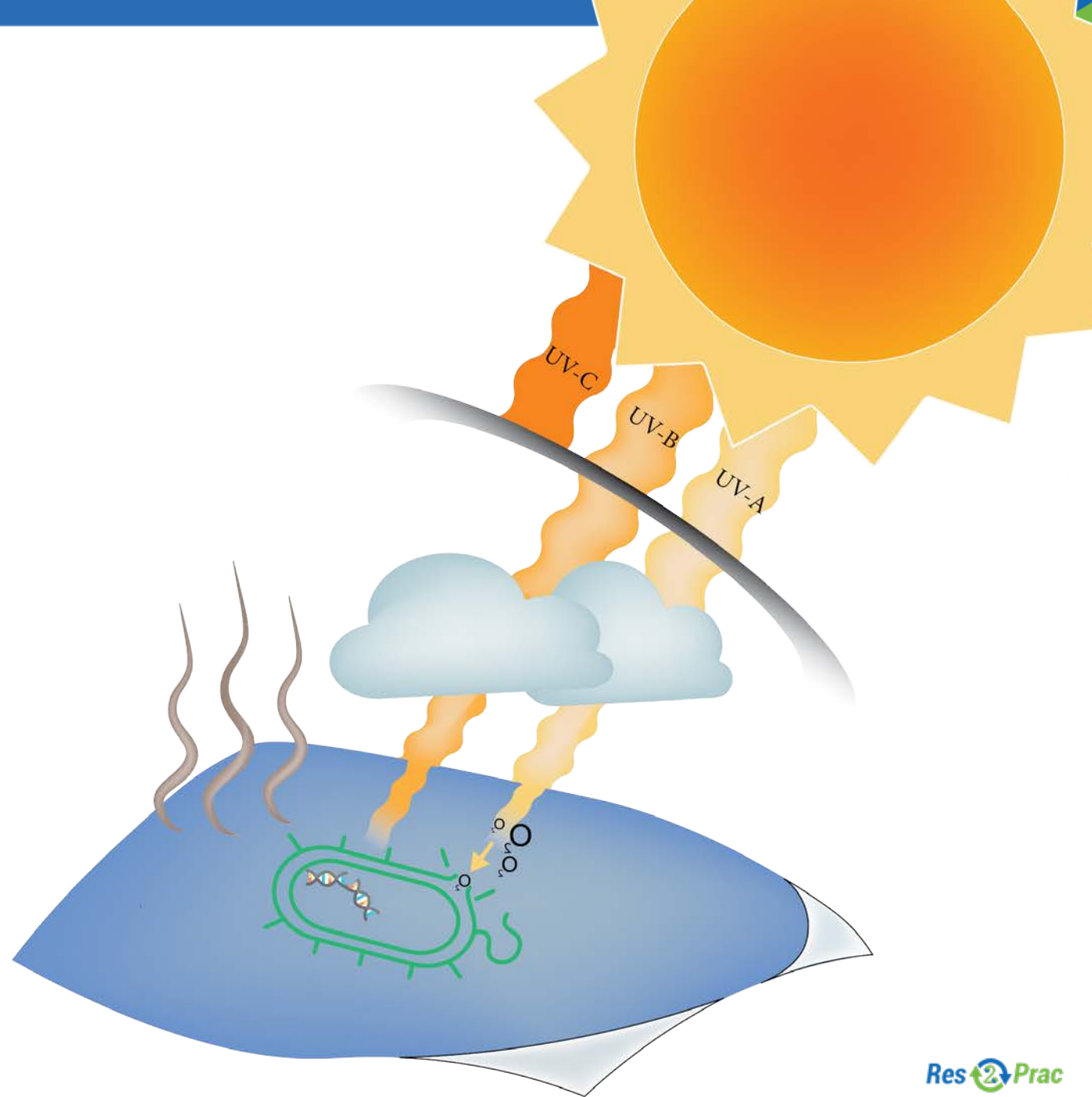
Colera
99,999%



Typhoid
99,99%



Salmonella
99,99%









4 LITERS IN 4 HOURS
150 TIMES USE
TOTAL OF 600 L WATER



FILLING WITH WATER



CLOSING THE TOP



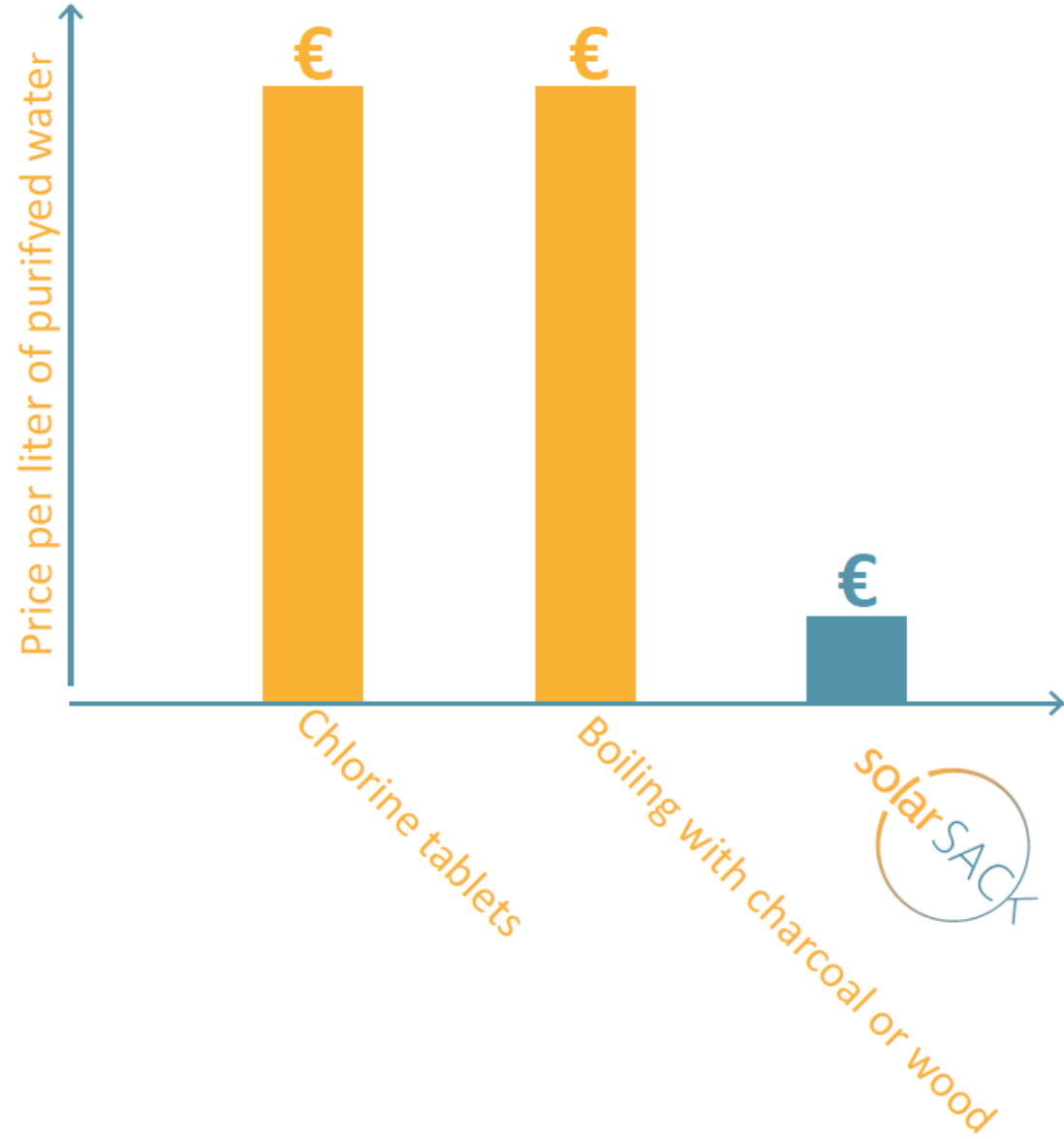
PLACING IN SUN



LEAVING FOR 4 HOURS



SAFE WATER FOR DRINKING

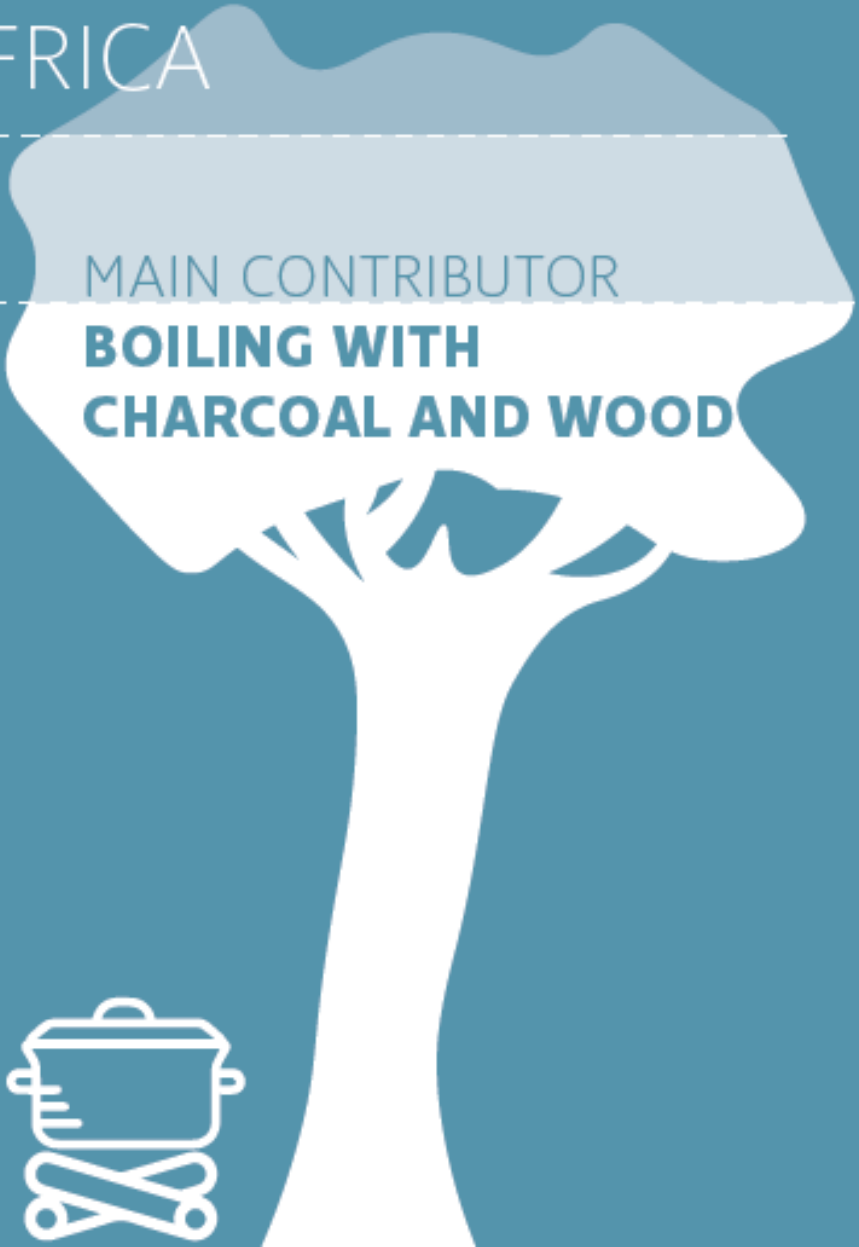


DEFORESTATION

IN EAST AFRICA

1990-2000
9%

2000-2010
13%



MAIN CONTRIBUTOR
**BOILING WITH
CHARCOAL AND WOOD**



Purify with SolarSack



Boiling with charcoal

350 TIMES MORE

CO₂



NOW

**MATERIAL
KNOWLEDGE**

**PROCESS
KNOWLEDGE**

**SOLARSACK
CONCEPT**

**USER
KNOWLEDGE**

**MATERIAL
MECHANICAL & UV TESTING**

**PURIFICATIONS PROCESS
LAB TESTING**

**TEST PRODUCTION
SOLARSACK**

**USER MANUAL
DEVELOPMENT**

**MID
2018**

**MATERIAL
MECHANICAL & UV TESTING**

**PURIFICATIONS PROCESS
CONTEXT TESTING**

PRODUCTION

**USER STUDIES
AND MANUAL DEVELOPMENT**

**END
2018**

**PRODUCT
RELEASE**

**CONTINUOUS
TESTING**

**CONTINUOUS
IMPROVEMENTS**

**NEW
PROJECTS**

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COLLABORATION

IMPROVEMENTS

TESTING

