

# **Social Entrepreneurship and Disruptive Innovation: evaluating the use of Rumie's free educational software in seven developing economies.**

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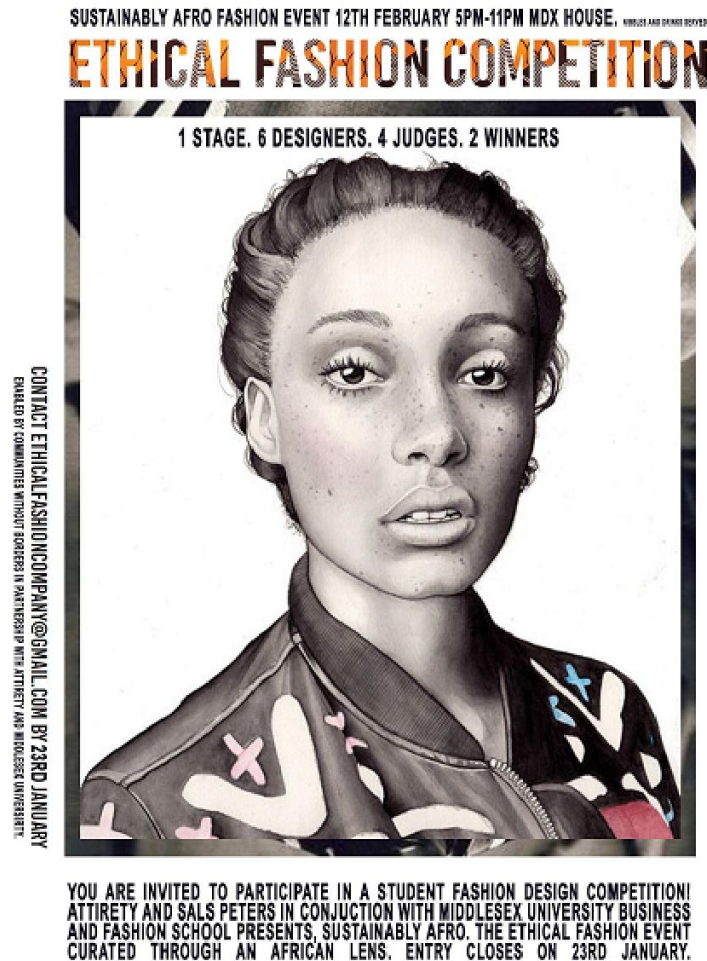
# Objectives of workshop

1. Inform you about the work of Rumie (20 mins).
  - Why 'eduware' in developing economies
  - Overview of theory
  - Examples of standard content
  - Results of field pilots
2. Ask you to discuss ideas for developing bespoke software (40 mins).
  - Health (app)
  - Provide some background
  - Show examples of other projects in developing countries.
  - Consider how to apply to the Gambia.

# Bio – Chris Moon, eco-entrepreneur.



# New eco-business start-ups by students.





# CSR Global

Ethics & Corporate Responsibility Consulting

- ▶ CSR Global, founded 2001, provides a range of services including supply chain verification. [www.csrglobal.co.uk](http://www.csrglobal.co.uk).
- ▶ Dr Christopher Moon FRSA FHEA, founder, has consulted to Pfizer, Reuters, BT and Canary Wharf Group; and a host of SMEs.
- ▶ Chris is a certified and accredited CSR consultant and Social Auditor and has consulted to 23Red (PR company for World Environment Day), GBRW (banking industry consultants) and Carat Computers (supplier to ARM the FTSE listed software company).
- ▶ CSR has acted as 'agent' for Rumie in the Gambia to supply tablets and oversee the field pilot study in school.
- ▶ CSR Global will similarly act as 'agent' to supply Rumie tablets to other schools in west Africa and oversee the verification of the project and evaluation of outcomes.

...one billion children across the world living  
in poverty



“Education is the single best investment in prosperous, healthy and equitable societies.”

– UN Food & Agriculture Organization

# Tablets plus eduware



<https://www.youtube.com/watch?v=eealxbCPPeY>



# Accolades

**“WORLD’S BEST SOCIAL STARTUP”**



**“AN AMAZING STORY”**



**“THE TABLETS ARE INGENIOUS AND IMPRESSIVE.”**



**Forbes**

**FINANCIAL POST**

**Mashable**

THE  
HUFFINGTON  
POST

**INSEAD**  
The Business School  
for the World®

# Business model



CHEAPER:

A \$50 device preloaded with learning materials that used to cost over \$5,000 to produce: innovation that multiplies the value of one dollar by over 100x.



BETTER:

Data analytics and diagnostics mean that devices get better, kids learn more, and impact is measured every step of the way.



FASTER:

Periodic synchronizations allow access to the latest, up-to-date digital learning materials.

# Standard content vs. Play section

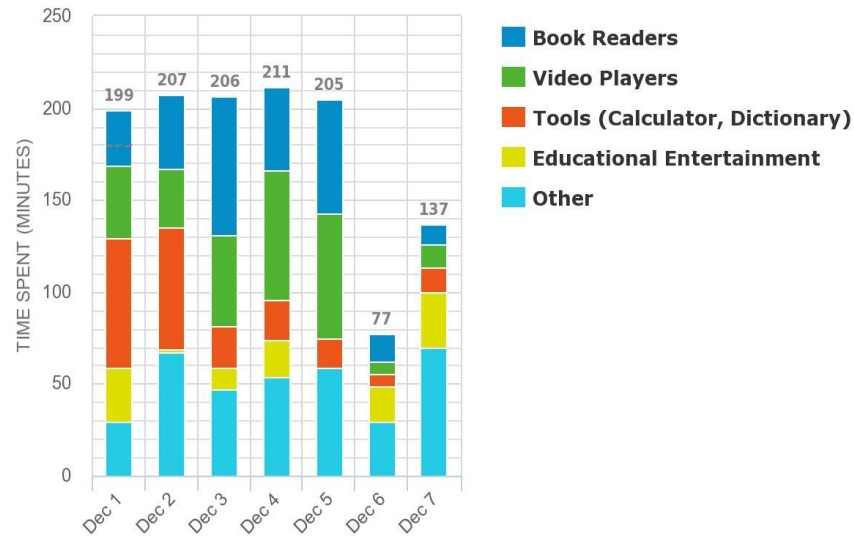
## Learn Section

- **Wikipedia for Schools** - offline version of Wikipedia
- **Merriam-Webster English Dictionary** - includes pronunciation lessons
- **World Map**
- **Calculator** - standard calculator
- **Graphing Calculator** - for trigonometry, functions, and other more advanced math concepts
- **GeoGebra** - mathematics software
- **Periodic Table**
- **ConvertPad - Unit Converter**
- **Chemistry Dictionary**
- **Planets** - 3D guide to solar system
- **Human Anatomy** - guide to human body and sixteen biological systems
- **English Verb Conjugator** - 2000 verbs in 20 tenses
- **My Resume CV** - tool to write, format and create resumes
- **101 HR Interview Questions** - practice questions to help prepare for job interviews
- **Autodesk Sketchbook** - tool for drawing
- **WPS Office** - tool for creating text documents, slide presentations, and spreadsheets
- **Johnny Grammar's Word Challenge** - quizzes on vocabulary, grammar and spelling
- **Words Words Words** - vocabulary quizzes for various levels
- **Word Bucket** - language dictionary, notebook and word-learning game for English speakers for 10 languages (Spanish, German, French, Italian, Portuguese, Chinese, Arabic, Korean, Japanese and Russian)
- **GeoQuiz** - quizzes on human and natural geography
- **English Grammar Book** - grammar rules with practice quizzes

- **Sudoku**
- **Word Search**
- **Solitaire**
- **Temple Run**
- **Candy Crush**

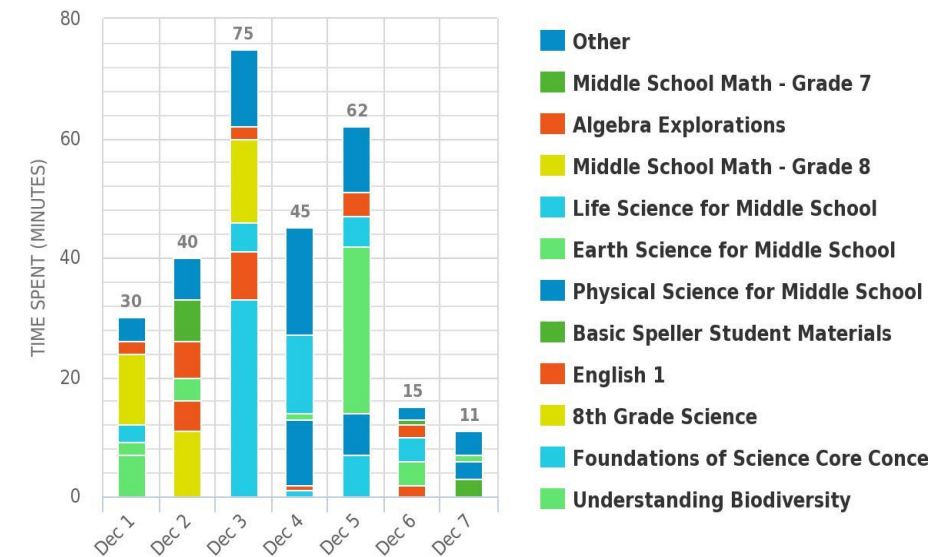
# Results – phase 1.

AVERAGE APP USE PER STUDENT PER DAY



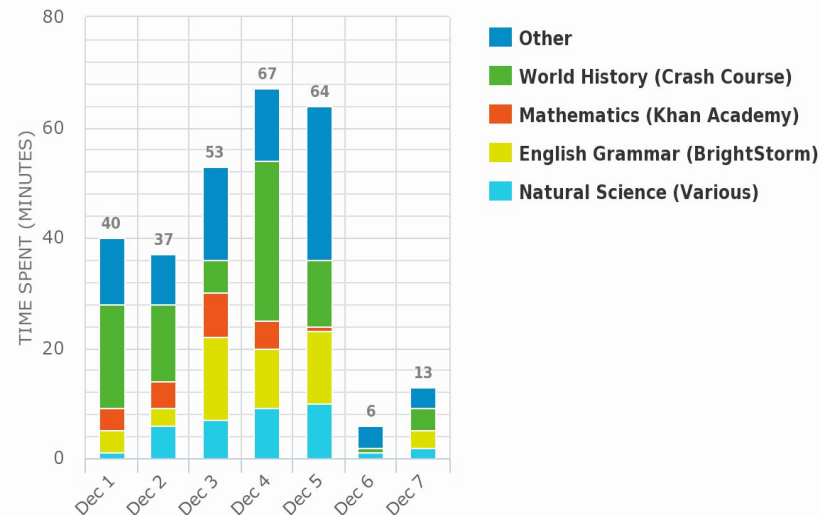
Highcharts.com

BOOKS / PDFS READ



Highcharts.com

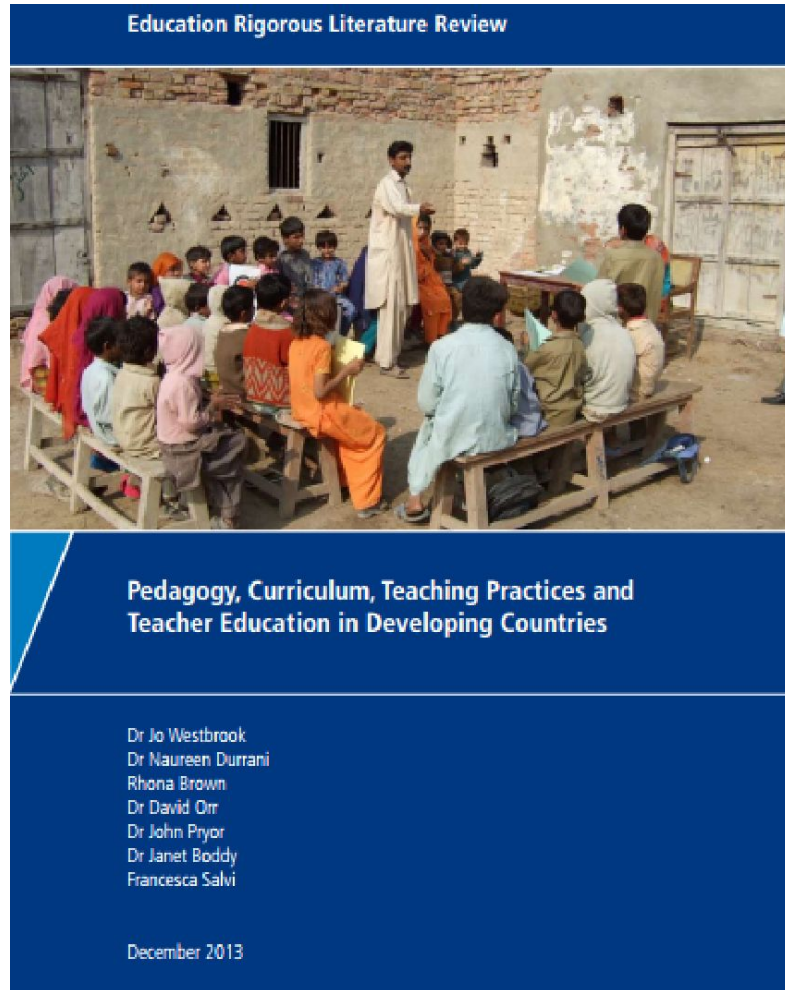
VIDEOS WATCHED



Highcharts.com



# Theoretical background – 2013.



## six effective teaching practices:

- flexible use of whole-class, group and pair work where students discuss a shared task;
- frequent and relevant use of learning materials beyond the textbook;
- open and closed questioning, expanding responses, encouraging student questioning;
- demonstration and explanation, drawing on sound pedagogical content knowledge;
- use of local languages and code switching;
- planning and varying lesson sequences.

although not all of these needed to be simultaneously present.

# Theory building

- Disruptive innovation. Founded on the theories of Harvard professor Clayton M. Christensen (ranked as the #1 management thinker globally in the Thinkers 50 ranking).

cf. Christensen, The Innovator's Dilemma, 1997.

- In May 2015, the Christensen Institute highlighted Rumie as an example of a disruptive technological innovation.

cf. Thomas, The Economics of Educational Nonconsumption in the Developing World, 2015.

# Theory testing

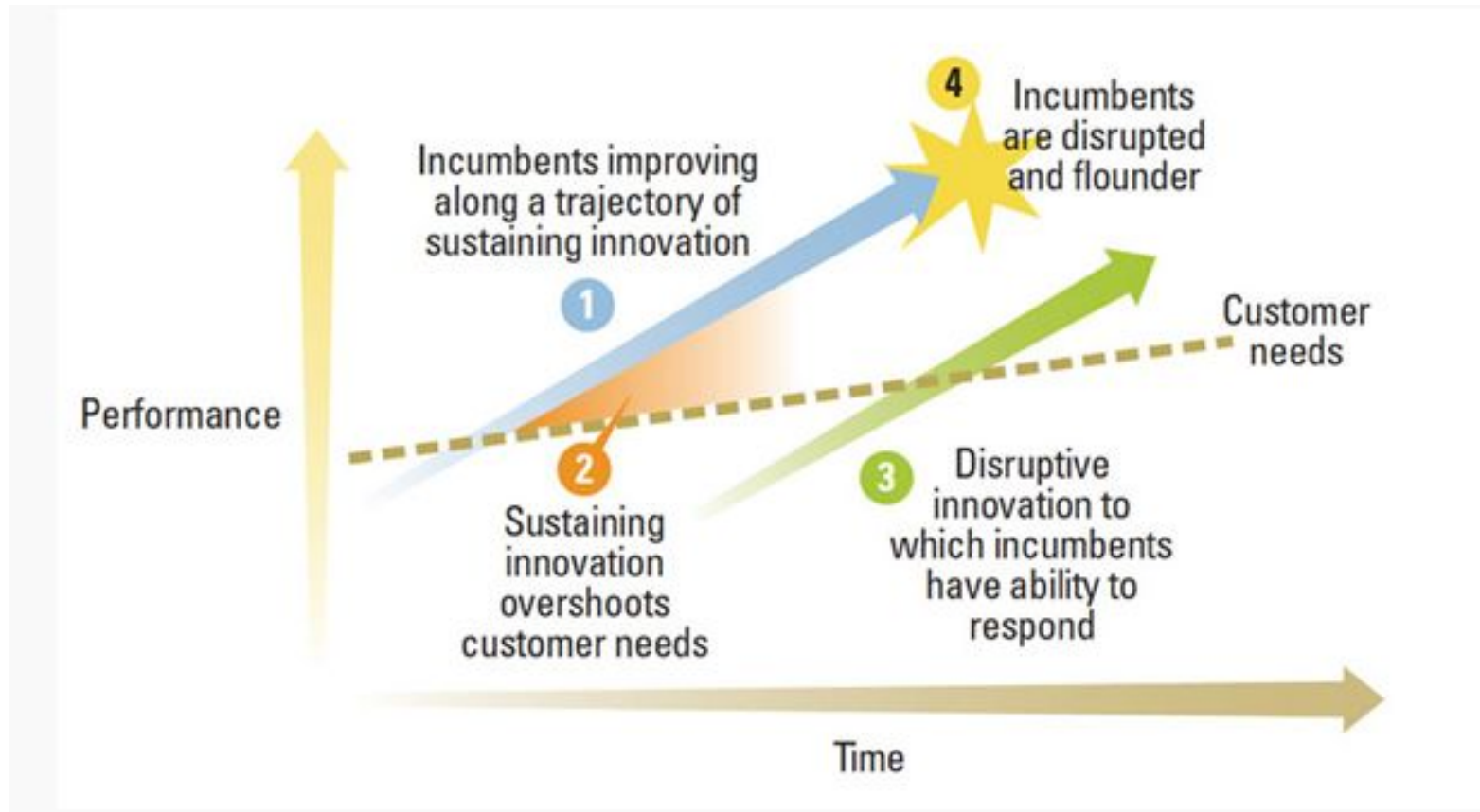
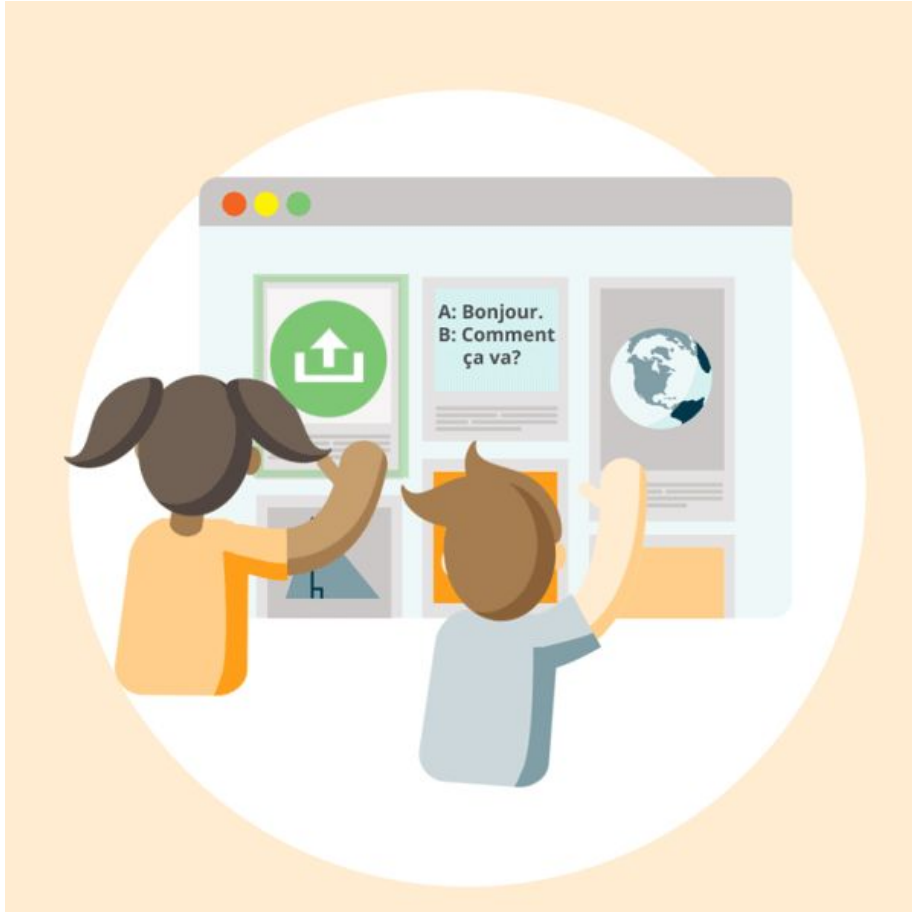


Figure 1. Four Elements of the Theory of Disruptive Innovation, King and Baatartogtokh, 2015.

# The future of learning?





# LearnCloud



...the Rumie LearnCloud:  
the world's largest  
crowdsourced open  
repository of free learning  
content.

Phase 2. Developing bespoke content e.g. an App (Health).

# WHO – school health and youth health promotion

WHO/NMH/HPS/00.3  
WHO/SCHOOL/00.2  
Dist.: General  
Original: English

The World Health Organization's  
**INFORMATION SERIES ON SCHOOL HEALTH**

## **Local Action Creating Health Promoting Schools**

WHO gratefully acknowledges the generous financial contributions to support the printing of this document from: the Division of Adolescent and School Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, Atlanta, Georgia, USA.

An effective school health programme can be one of the most cost effective investments a nation can make to simultaneously improve education and health. WHO promotes school health programmes as a strategic means to prevent important health risks among youth and to engage the education sector in efforts to change the educational, social, economic and political conditions that affect risk.

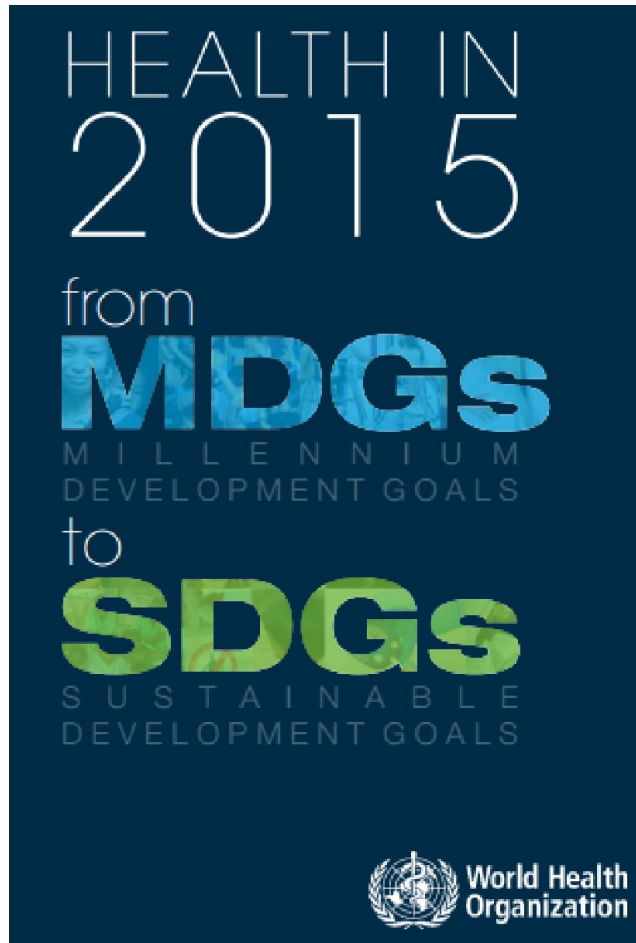


World Health Organization



Education Development Center, Inc.

# Phase 2. Developing bespoke content. App (Health), cont'd.





# RABIES: THE FACTS



## VIRUS TRANSMISSION



Saliva of infected animals



of human cases are caused by **dog bites**

The virus attacks the brain  
Rabies is **fatal** once symptoms appear



## FATALITIES

Rabies affects **poor rural communities** mostly in Asia and Africa



## TREATMENT



Thorough washing of the wound with soap, and, vaccine injections can avoid symptoms and **save lives**.

**Seek immediate** medical care if bitten.



**One death every:**



**40%** of the victims are children younger than 15

## HOW TO PREVENT RABIES TRANSMISSION FROM DOGS?



Raise public **awareness**

Learn **dog body language**



**NO DOG BITE = NO RABIES**

## VACCINATING DOGS SAVES HUMAN LIVES

**Rabies is 100% preventable**



Vaccinating **70%** of dogs **breaks rabies transmission cycle** in an area at risk

Every dog owner is concerned



# Water, Sanitation and Hygiene (WASH)

for accelerating and sustaining progress on Neglected Tropical Diseases



Neglected  
Tropical  
Diseases

affect more than 1 billion  
of the world's poorest  
people in 149 countries



2.4 billion  
people  
lack access  
to improved sanitation  
facilities



663 million  
people  
lack access  
to improved water  
sources

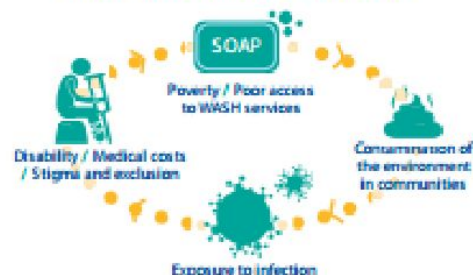


946 million  
people  
practice  
open defecation

## WASH is critical in the fight against Neglected Tropical Diseases

NTDs and poor water, sanitation and hygiene conditions  
contribute to a

vicious cycle of disease and poverty



WASH play a critical role in preventing  
and caring for NTDs

### Prevention

- ✓ sanitation to reduce contamination of the environment
- ✓ safe water supply for consumption, enabling hygiene practices, and reducing contact with surface water
- ✓ water resource and waste management for vector control and contact prevention
- ✓ hygiene practices

### Treatment and care

- ✓ water for treatment and care at home and in healthcare facilities
- ✓ accessible WASH services for individuals with physical impairments
- ✓ prevention of stigma-based exclusion from WASH services

## A Global Strategy 2015 - 2020



Improve  
awareness  
of the co-benefits  
of joint WASH  
and NTDs action by sharing  
experience and evidence  
from improved delivery.



Use WASH  
and NTDs  
monitoring  
to highlight  
inequalities, target  
investment, and track  
progress.



Strengthen  
evidence  
on how to  
deliver effective  
WASH interventions for NTD  
control and elimination and  
embed findings in guidance  
and practice.



Plan, deliver  
and evaluate  
WASH and NTDs  
programmes  
with mutual inputs from  
WASH, health and NTDs  
stakeholders at all levels.



World Health  
Organization

## VECTOR-BORNE DISEASES

VECTORS MAY BE A THREAT TO YOU, AT HOME AND WHEN TRAVELLING

**VECTORS** ARE SMALL  
ORGANISMS  
THAT CARRY SERIOUS DISEASES



COMMON  
VECTORS



**WITH JUST 1 BITE** they can transmit  
diseases such as:

- Malaria
- Leishmaniasis
- Yellow fever
- Dengue
- Lyme disease
- Japanese encephalitis



**Diseases** spread by vectors **kill a million people** every year and  
**more than half of the world's population is at risk**

## TAKE SIMPLE MEASURES TO PROTECT YOURSELF AND YOUR FAMILY

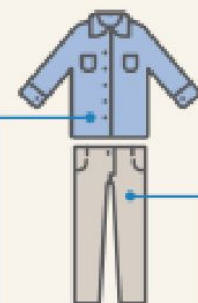
Get vaccinated against  
yellow fever and  
Japanese encephalitis



Install



window screens



Wear light-coloured,  
long-sleeved shirts  
and trousers



Use insect  
repellent

Sleep under an  
insecticide-  
treated  
bed net



Get rid of stagnant water  
from places where  
mosquitoes breed,  
such as in old containers,  
flower pots and used tyres



For more information, contact your health-care professional  
[www.who.int/world-health-day](http://www.who.int/world-health-day)



World Health  
Organization

# App (Health) content or process? Case example 1.

## Children Solving Problems: Participatory Epidemiology in Bolivia

Bolivian students aged 8–12 are often caretakers for their younger brothers and sisters. To develop their understanding of health issues, third-grade teachers asked students to make a calendar and record for 30 days the health of a sibling, cousin, or neighbour who was under five years old. If the child was well, they drew a smiling face. If the child was ill, they drew a frown and wrote underneath why the child was ill. At the end of 30 days, the teacher reviewed the calendars, analyzed the information, and invited district personnel into the classroom to discuss ways in which older children, families, and schools could respond. These activities built children's skills in gathering information and applying math and reasoning skills, as well as their perception of themselves as active participants in their family's health status.

# Case example 2.

## Children Versus Mosquitoes

Mosquitoes that transmit dengue thrive in rubbish dumps. So leaders at the Lawrence T. Gay Memorial Primary School in St. Michael, Barbados, set this goal: Reduce the amount of garbage left for daily collection. Adopting the theme “Reduce, Recycle, and Reuse”, the school set apart plastics, paper, and non combustibles. Combustible materials were incinerated and the ashes were applied to the garden beds as fertiliser. Plastic drink bottles were reused as vases, aquaria, candle holders in the crafts programme, and funnels in the school garden.

Students assumed the role of health inspector, searching their surroundings and looking for mosquito-breeding places, collecting larvae for study, informing the local authorities, and eliminating breeding sites. Parents reported that their children had taught them some new habits at home. District public health inspectors arranged visits to the local neighbourhood. They gave the students first hand knowledge of healthy practices and instructed the janitor and school-meals staff about vector control and safe food-handling methods. In addition, the school integrated health concepts and strategies with social studies, mathematics, and agricultural science, and encouraged pupils to express themselves through art, poetry, composition, and craft.



# Health issues on the ground in the Gambia

- Malaria and Anaemia big issues in the Gambia so anything around water and food would be fab. Self-employment also a big issue as is food security and growth
- The food stuff would need to be sensitive to what exists in the local diet as money is tight.