Ministry of Health

SANITATION AND HYGIENE POLICY

FORWARD

I am very pleased to present the Vanuatu National Sanitation and Hygiene policy to guide our on-going efforts to protect and promote the health of our people.

Access to improved water and sanitation facilities does not, on its own, necessarily lead to improved health. There is now very clear evidence showing the importance of hygienic behaviour, in particular hand-washing with soap at critical times: after going to the toilet and before eating or preparing food. Clean water, basic toilets and good hygiene practices are essential for the survival and development of our children.

This Sanitation and Hygiene policy outlines 6 priority areas to strengthen the accountability of the institutions necessary to ensure adequate and equitable access to sanitation and hygiene services for all. It also outlines what exist, what does not, and what to do.

The six priority areas include:

1. Chronic Health impact
2. Acute Health impact
3. Hand Hygiene Impact
4. Gender Equity impacts
5. Sanitation and Hygiene markets
6. Provincial By-laws.

I take this opportunity to thank everyone, especially the Ministry of Health's partners (Government & NGOs) in areas of Water Sanitation and Hygiene (WASH) for guiding the development of this policy.

My greatest gratitude to UNICEF for providing Technical and Financial support in the development of this Sanitation and Hygiene policy.

This National Sanitation and Hygiene will guide us in ensuring that the objectives of the National Sustainable Development Plans (ECO 2.2, ENV 4.2, SOC 3.2, SOC 3.3, and SOC 6.5) are met.

Len Tarivonda

Director

Public Health Department

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Definitions and abbreviations.

Acute health impacts	Short-term negative health impacts, often as a result of exposure to a hazardous substance; negative effects normally subside after the exposure stops
Adequate sanitation	Sanitation facilities that prevent that effectively separate excreta from human contact and limit the spread of disease. See also Safely Managed Sanitation and Basic Sanitation.
Basic sanitation	Use of improved facilities which are not shared with other households
Chronic health impacts	Human health conditions or diseases that are persistent or otherwise long-lasting in their effects, or a disease that comes with time
Communicable diseases	An infectious disease transmissible by direct contact with an affected individual or the individual's discharges or by indirect means (as by a vector)
DWSSP	Drinking Water Safety and Security Planning
EED	Environmental Enteric Dysfunction
Hygiene	The conditions and practices that help maintain health and prevent spread of disease including hand washing, menstrual hygiene management and food hygiene
Improved sanitation facilities	Those designed to hygienically separate excreta from human contact. Improved sanitation facilities include flush/pour flush to piped sewer, septic tank or pit latrine; composting toilet or pit latrine with slab.
JMP	Joint Monitoring Programme – the body responsible for monitoring global progress against SDG 6
Limited sanitation	Use of improved facilities shared between two or more households
Malnutrition	A lack of proper nutrition, caused by not having enough to eat, not eating enough of the right things, or being unable to use the food that one does eat
MDGs	Millennium Development Goals – the set of global targets that were established in 2000 for the year 2015
Non-communicable diseases	A non-communicable disease (NCD) is a medical condition or disease that is not caused by infectious agents (non-infectious or non-transmissible). NCDs can refer to chronic diseases that last for long periods of time and progress slowly.
NWRAC	National Water Resources Advisory Committee

Open defecation	Disposal of human faeces in fields, forests, bushes, open bodies of water, beaches and other open spaces or with solid waste
Safe water	Drinking water that is free from contamination
Safely Managed Sanitation	The JMP classification is “Use of improved facilities which are not shared with other households and where excreta are safely disposed in situ or transported and treated off-site
Sanitation	The provision of facilities and services for the safe disposal of human urine and faeces
SDGs	Sustainable Development Goals – the set of global targets for the years 2015-2030. SDG 6 relates to water, sanitation and hygiene
Stunting	Stunting is the impaired growth and development that children experience from poor nutrition, repeated infection, or inadequate psychosocial stimulation. Children are defined as stunted if their height-for-age is more than two standard deviations below the WHO Child Growth Standards median
Undernutrition	A lack of proper nutrition, caused by not having enough food or not eating enough food containing substances necessary for growth and health.
Unimproved sanitation	Use of pit latrines without a slab or platform, hanging latrines or bucket latrines
WASH	Water sanitation and hygiene
Wasting	Low weight for height. As with stunting, wasting is caused by malnutrition. Children are defined as wasted if their weight for height is more than two standard deviations below the WHO Child Growth Standards median
WHO	World Health Organization

The Vanuatu National Sanitation & Hygiene Policy seeks to deliver the policy objectives established by the National Sustainable Development Plan (2016-2030):

- ECO 2.2: Ensure all people have reliable access to safe water and sanitation infrastructure
- ENV 4.2: Strengthen local authorities and municipal planning authorities to enact and enforce land use planning laws and regulations
- SOC 3.2: Reduce the incidence of communicable and non-communicable diseases
- SOC 3.3: Promote healthy lifestyle choices and health seeking behaviour to improve population health and well-being
- SOC 6.5: Strengthen local authorities and municipal institutions to enable decentralised service delivery

And also to achieve the Sustainable Development Goal (SDG) targets for sanitation and hygiene that include:

- SDG 6.1: By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.
- SDG 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.
- SDG 2.2: By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons.

The Vanuatu National Sanitation & Hygiene Policy has established six priority areas to strengthen the accountability of the institutions necessary to ensure adequate and equitable access to sanitation and hygiene services for all:

i. <u>Chronic Health Impacts</u>

Understanding that poor sanitation & hygiene has chronic health impacts (i.e. gut infections & stunting in children) in addition its acute health impacts (i.e. diarrhoea & wasting in children); *the Policy advocates to strengthen routine case-based monitoring and evaluation of child height-for-age and weight-for-age data relative to sanitation & hygiene practices*

ii. <u>Acute Health Impacts</u>

Recognizing that decreases in the acute health impacts of poor sanitation and hygiene (i.e. diarrhoea & wasting in children) maybe offset by increases in chronic health impacts (i.e. gut infections & stunting in children); *the Policy seeks to change the messaging to ensure that the absence of acute symptoms is NOT equated with acceptable sanitation and hygiene practices*

iii. Hand Hygiene Impacts

Relishing the fact that good hygiene practices have additional benefits in reducing the risk of pneumonia, absenteeism in schools and health care associated infections; the Policy prioritizes good hand hygiene in households, schools and health centres (along with the monitoring of child growth, illness related absenteeism from schools / workplace & health-care associated infections).

iv. Gender Equity Impacts

Recognising the particular needs of women and girls and their significant influence on sanitation and hygiene practice; this Policy will focus on the needs and the capabilities of females to reduce the costs and remove the limits that poor sanitation and hygiene practices place on the development of the nation.

v. Sanitation & Hygiene Markets

Realizing that while community mechanisms are powerful in ending open defecation, the movement up the sanitation ladder is more efficiently undertaken by market mechanisms; the Policy supports a shift from community mobilization to prioritize regulated market based service delivery instruments

vi. Provincial Council By-Laws

Understanding that ensuring drinking water services for all has been clearly assigned to the provincial governments; the Policy endeavours to separate the regulation of failure (by the central government) from the licensing of compliance (by the provincial governments)

Background.

This policy aims to address gaps in the current policy framework for sanitation and hygiene in Vanuatu. The following section describes what the strengths and gaps are for the six priority policy areas:

i. Chronic Health Impacts

What exists (strengths): It is well known that poor sanitation and hygiene can lead to acute symptoms such as diarrhoea and a loss of weight. To this end, case based information on the incidence of childhood diarrhoea and undernutrition (i.e. low weight-for-age) has been routinely recorded in the Pikinini Helt Book. It is however less well known that constant exposure to faecal bacteria can lead to gut infections and stunting of the villi in the lower intestine hampering the ability of the gut to absorb nutrients. This subclinical medical condition known as Environmental Enteric Dysfunction (EED) is not associated with acute symptoms like diarrhoea or the loss of weight but it is associated with chronic undernutrition. Chronic undernutrition or stunting evidenced as faltering in the growth of the height of children has irreversible effects on the physical and cognitive development of children that impairs the human and economic potential of a nation. Secondary data analysis has revealed a strong correlation between sanitation (particularly open defecation density) and chronic undernutrition in children (evidenced as stunting or a failure to achieve normal height-for-age). In recent years, there has

been a growing body of evidence linking faecal exposure to chronic undernutrition or growth faltering in children.

What doesn't exist (gaps): While the incidence of wasting (i.e. low weight-for-height) in children under five declined in Vanuatu from 6.8% in 1996 to 4.4% in 2013, the incidence of stunting in children under five increased from 25.7% in 1996 to 28.5% in 2013. This means that the number of stunted children in Vanuatu increased from just fewer than 6,900 in 1996 to 10,050 in 2013. As the case based measurement of height-for-age has not been routinely recorded in Vanuatu there is little local awareness of the extent of chronic undernutrition in children. As a result, most parents and health workers are unaware that a growing number of children suffer from chronic undernutrition and are classified as stunted. Recent global meta-analysis of all known child nutrition interventions explains only 33% of the average height deficit in Asian & African children. The major height growth faltering in children occurring at 9 months of age coinciding with the time when babies become mobile and are more likely to be exposed to faecal bacteria. This lends itself to the argument that the major challenge in addressing chronic undernutrition in children may be environmental.

ii. Acute Health Impacts

What exists (strengths): The under-five mortality rate in Vanuatu has decreased by almost a quarter from 3.6% in 1990 to 2.7% in 2015, while the under 5 mortality rate associated with diarrhoea is estimated to be less than one in every 400 children. This reduction in mortality from diarrhoea is primarily a result of increased uptake of ORS not improved WASH as the incidence of diarrhoea globally has only declined by an estimated half-an-episode per child per year since 1990. While the incidence of severe wasting significantly increases mortality risks for children under five, the low incidence of severe wasting in Vanuatu (1.1%) suggests that severe acute undernutrition is not a major contributor to the under-five mortality rate.

What doesn't exist (gaps): The low and declining acute health impacts associated with poor sanitation and hygiene in Vanuatu appears to have been offset by an increase in the chronic health impacts. Given the low awareness on the chronic health impacts of poor sanitation and hygiene and the complex interaction between the acute and chronic impacts of poor sanitation and hygiene, there is a danger that the absence of acute symptoms may be associated with acceptable sanitation and hygiene practices. For instance, the evolution of a false belief amongst mothers that the exposure of children to some faecal contamination helps them adapt to their environment. There is also little awareness amongst health workers that the chronic impacts associated with constant faecal exposure place limits on the long term physical and intellectual development of individuals and nations, whereas the acute impacts associated with changes in faecal exposure impose a cost burden on individuals and nations.

iii. Hand Hygiene Impacts

What exists (strengths): In general, while knowledge and self-reported behaviour on the washing of hands with soap is high, the observation of hand washing with soap at key moments is low.

1. In 2013, designated places for hand washing were observed in 67% of households however while 90% of these hand washing facilities had water available only 55%

had both soap and water with urban access to soap & water (65%) exceeding rural (32%).

2. In 2014, while approximately 80% of schools (ECE, primary and secondary) have access to an improved water source (with urban schools having approx. 15% higher access than rural schools), only 22% of schools have functional hand washing facilities near the toilets.
3. In 2015, WHO collated data from 54 countries reveals that 38% of health care facilities do not have an improved water source, 19% do not have improved sanitation and 35% do not have water and soap for hand washing.

What doesn't exist (gaps): Good hand hygiene is known to have additional benefits beyond its impact in breaking the faecal-oral route however this data does not exist for Vanuatu.

1. In Pakistan, a randomised control trial in Karachi found children under five in households that received plain soap and hand washing advice had 50% lower incidence of pneumonia. Meta-data analysis suggests a 21% reduction in respiratory illnesses with hand washing.
2. In Egypt, a randomised control trial of an intensive hand hygiene campaign in elementary schools in Cairo in 2009 recorded a reduction in absenteeism from influenza like illnesses by 40%, diarrhea by 30% and conjunctivitis by 67%. Meta-data analysis findings confirm that hand-washing interventions are effective in reducing illness related school absenteeism.
3. In the US, there were 722,000 hospital-acquired infections (1 in 25 patients) resulting in 75,000 deaths at hand washing compliance rates below 40% in 2011. Meta-data analysis has established an association between improved hand hygiene practices and reduced infection rates (including multi-drug resistant organism infections) in hospitals.

iv. Gender Equity Impacts

What exists (strengths): There are some notable gender disparities within Vanuatu that include extremely low political representation of women (i.e. 1.4% of women ever elected to parliament), high prevalence of violence against women (i.e. 60% of women experiencing some form of abuse with 30% of women being sexually abused under the age of 15) and significance of women within the household (i.e. 80% of full time homemakers in Vanuatu are women). While there is a narrowing of the gender literacy gap, with girls being more likely to be literate and attend school than boys, many girls in rural areas of Vanuatu do not attend school during a large portion of their menstrual period. The low quality of sanitation facilities and the absence of convenient well-equipped hand washing and bathing facilities negatively affect the overall health of all members of the household.

What doesn't exist (gaps): While the benefits of increased prioritization and participation of women in sanitation and hygiene is well known, less is known about the unintended consequences and particularly development impact within the Vanuatu context.

1. Given the silence around menstrual hygiene management there is very limited knowledge on existing beliefs and practices (i.e. how do women who don't

traditionally wear knickers manage their menstrual period? What are the different taboos associated with menstrual blood? How do women transport reusable pads in the workplace?).

2. While it is known that improved access to hygiene and sanitation for women and girls can lead to benefits within the household (i.e. increased dignity & self-confidence for women, a reduction in gender based violence) and beyond the household (i.e. improved attendance & educational attainment at school, improved participation & performance in the workforce) there is very little evidence from Vanuatu to support such claims.
3. While it is known that the increased participation of women in sanitation and hygiene can empower women as decision makers and reduces the male gender bias in choice making. However, it has not been established whether this might unfairly increase the unproductive workload on women or whether this delivers more sustainable development impact for all.

v. Sanitation & Hygiene Markets

What exists (strengths): Vanuatu secured 58% access to improved sanitation not quite reaching the 2015 sanitation MDG of 68%. Over the MDG period, improved & shared sanitation increased while unimproved sanitation decreased in both rural and urban areas. Access to dry pit latrines has seen the most growth and is the most popular form of access to sanitation in Vanuatu while access to flush latrines with a water seal remains low and static. The safe disposal of child faeces (either child uses a latrine, or child faeces is disposed of in a latrine, or child faeces is buried) has increased to an estimated 63% in 2013, primarily due to the increase in use of latrines by children. The practice of open defecation and the presence of latrines that flush to open are low in both rural and urban areas. While community based models are efficient in supporting households to move away from open defecation, market based models are more efficient in enabling households to move up the sanitation ladder from unimproved to improved forms of sanitation.

What doesn't exist (gaps): *In urban areas*; where the vast majority of people have water piped onto the premises, almost all of the population also have access to flush latrines however a large percentage of these latrines are shared amongst families. This is probably associated with the high cost of installing septic tanks with leach pits and the rapid growth in peri-urban areas. *In rural areas;* where pit latrines are the most popular form of access, the quality of latrines is extremely low. While access to water piped onto the premises is growing rapidly in rural areas, access to flush latrines is not growing at all. *In both rural and urban settings;* there is limited access to sanitation technology options resulting from negligible market promotion of alternatives and weak aspirational demand for convenient & clean sanitation. There is little focus by entrepreneurs (i.e. hardware shops, builders, plumbers, masons) on the development of the sanitation market and weak knowledge of consumers to segment demand for specific products. As a result, the likelihood of entrepreneurs or consumers to access finance for sanitation or the consumption of sanitation is low. Though the demand for some form of sanitation is high, the absence of an appropriate ladder of sanitation technology options has led to a situation where: rural latrines are characterized by an excessively low quality; while urban latrines are characterized by an excessively high price.

vi. Provincial Council By-Laws

What exists (strengths): The Public Health Amendment Act No. 11 of 2018 assigns the responsibility for owners of buildings to ensure sanitation systems are in place and the Provincial (Municipal) Councils to ensure (enforce) proper and adequate sanitation for all (Division 4, clauses 57-61) and the authority to pass by-laws (clause 116). This Act requires all owners of premises to design and construct compliant sanitation systems (clause 51) to be maintained in a sanitary state by the occupier of the premises (clause 56). This Act also empowers the Minister to establish regulations defining and enforcing minimum standards for sanitation in schools (clause 113). The Decentralization Act (1994) empowers the Provincial Council to pass by-laws establishing the rules and regulations governing hygiene and public health (clause 20). The Municipal Act (CAP 126) requires municipalities to establish and control sanitary services for the removal and disposal of all refuse and effluent (clause 26). The Building Act (2013) empowers the Minister to prescribe a Building Code for the construction of buildings in any municipality or Physical Planning area or any building owned or partly owned by the State.

What doesn't exist (gaps): While legislation assigns Provincial and Municipal Councils the responsibility to ensure proper and adequate sanitation for all, they exercise limited authority over funds or functionaries and play a negligible role in the delivery of sewage and drainage services. While legislation empowers Municipal Councils to enforce sanitation and hygiene standards on all asset owners and occupiers, their enforcement of compliance to building or public health standards is weak. While legislation empowers Provincial Councils to enforce sanitation and hygiene standards on all public buildings and communities, the custom chiefs and church leaders tend to define the rules and exert far greater influence over sanitation and hygiene practices at the community level. A Legislative Review of the Public Health Act (2013) by the Vanuatu Law Commission recommended that changes to Public Health by-laws should enabled local custom to define rules on hygiene and sanitation to strengthen compliance.

Further background information on the status of sanitation and hygiene in Vanuatu can be found in Annex 3.

Applicability and Scoping Statement.

This policy is relevant to the following agencies:

- Ministry of Health
- Department of Public Health
- Ministry of Education
- Department of Water Resources
- Department of Environmental Protection and Conservation (DEPC)
- Provincial Councils
- Municipal Councils
- Area Councils
- National Water Resources Advisory Committee

- Provincial Water Resources Advisory Committees
- Private sector (hygiene and sanitation entrepreneurs)
- Non-governmental organisations (NGOs) and Civil society organisations (CSOs) that are working on sanitation and hygiene

The policy applies to the following sanitation and hygiene activities:

- Promotion of improved monitoring of WASH data
- Monitoring of WASH and health indicators
- Raising awareness of health issues
- Promotion of safe hygiene and sanitation practices and improving access to hygiene products
- Revision and use of “Pikinini Helt Buk” and other guidance materials or advocacy messaging.
- Research into hygiene, sanitation and health issues
- Updating training and education curricula
- Promoting WASH for babies’ practices
- Strengthening the roles of women and girls in hygiene promotion and monitoring
- Accessing finance for sanitation products
- Development of WASH By-laws
- Strengthening of compliance and licensing

A further outline of the applicability and scope of this policy is provided in *Annex 1: Theory of Change* and in *Annex 2: Policy Implementation*.

Effective Date.

This policy will come into force as soon as it has been approved by Cabinet. It will stay in force until 31 December 2020, when it will be reviewed.

Responsibilities Section.

This policy belongs to the Vanuatu Ministry of Health. The individual policy statements will be carried out by the Ministry and any partners that it specifies or nominates. Please see Annex 2 for additional information on Policy Implementation, and Annex 5 for information on accountability of different partners for sanitation and hygiene.

Resources.

Relevant policies and legislations:

Building Act [No 36 of 2013]

Business License Act [CAP 249]
CAP 234 Amendment Bill 2017
Cooperative Societies Act [CAP 152]
Custom Land Management Act [No. 33 of 2013]
Decentralisation Act [CAP 230]
Education Act [No 9 of 2014]
Environmental Health Policy and Strategy
Environmental Management and Conservation Act [CAP 283]
Environmental Impact Assessment Regulations
Food Control Act [CAP 228]
Health Sector Strategy (2010-2016)
Land Acquisition Act [CAP 215]
Land Lease Act [CAP 163]
Land Reform Act [CAP 123]
Meteorology and Geological Hazards and Climate Change Bill
Municipalities Act [CAP 126]
National Disaster Act [CAP 267]
National Policy and Strategy for Healthy Islands (2011-2015)
Pollution Control Act No. 10 of 2013
Physical Planning Act [CAP 193]
Public health Act [CAP 234]
Public Health Amendment Act (No. 11 of 2018)
Utilities Regulatory Authority Act [No 11 of 2007]
Vanuatu Qualifications Authority Act [No 1 of 2014]
Water Supply Act [CAP 24]
Waste Management Act No.24 of 2014
Waste Management Regulation Order No. 15 of 2018
Yanuca Islands Declaration

More details about the content and implications of these Acts please see Annex 4.

This policy was prepared with the support of a UNICEF consultant. For more information or to get in touch, please visit https://www.unicef.org/infobycountry/vanuatu_contact.html.

This policy was guided by information drawn from a number of sources. These sources are listed in Annex 6: References.

i. Chronic Health Impacts

What to do: The recent evolution of knowledge on Environmental Enteric Dysfunction (EED) suggests that reducing the exposure to faecal bacteria could have a significant impact on chronic undernutrition (i.e. stunting) in children. Actions prioritized under the Policy to reduce the chronic effects of exposure to faecal bacteria in water will include:

1. Promotion of routine case-based monitoring of height-for-age and weight-for-age of all children against the normal growth curves.
2. Revision of the Pikinini Helt Buk to include height-for-age (i.e. stunting) and weight-for-height (i.e. wasting) growth curves for boys and girls under five.
3. Raising of awareness on the implications and causes of stunting in children and the testing of sanitation and hygiene actions that reduce stunting in children.
4. Research on methods of detecting chronic levels of faecal exposure (i.e. EED from faecal analysis)
5. Analysis of routine height-for-age and weight-for-height child growth data against normal curves by schools and health clinics to interrogate trends in child wellbeing.

ii. Acute Health Impacts

What to do: The key implication of this more complex understanding of the interchange between acute and chronic impacts of poor sanitation and hygiene is the need to broaden the implications beyond those exhibited by diarrhoea. In particular, hygiene messaging must be clear that the absence of diarrhoea does not imply acceptable sanitation and hygiene behaviours. Hygiene messaging should be clear that identifying all potential faecal ingestion risks and working backwards to break the faecal-oral cycle is likely to be the most effective means of eliminating faecal exposure particularly for children. Actions prioritized under the Policy to ensure a more nuanced understanding of the impact of poor sanitation and hygiene will include:

1. Raising awareness that the absence of diarrhoea does not imply an absence of dangerous levels of faecal exposure
2. Undertaking formative research to understand the myths perpetuating the idea that some faecal exposure makes children more resilient
3. Editing the Pikinini Helt Book messages to ensure that poor hygiene is not only associated with diarrhoea
4. Updating the training curricula for Health Professionals and the hygiene education curricula for schools to nuance the messaging on the symptoms of faecal exposure
5. Reforming behaviour change messaging to separate the acute from the chronic implications of faecal exposure

6. Promoting good 'WASH for Babies' practices working backwards from the multiple points of faecal ingestion by children

iii. Hand Hygiene Impacts

What to do: Given the poor hand hygiene practice despite high levels of awareness on its importance, it is proposed to localize the causal correlation between health impact and good hand hygiene practice. Actions prioritized under this Policy to strengthen the association of hand washing interventions with improved health impact will include:

1. Promoting good hand hygiene & safe food/water handling in the household against the monitoring of child height & weight against age.
2. Introducing school research projects for students to monitor the changes in child height-for-age & weight-for-height, as well as illness related absenteeism, associated with their hand hygiene programmes.
3. Requiring all health clinics to monitor improvements in the hand hygiene behaviour of health practitioners against the prevalence of secondary infections in patients (including mother and neo-natal mortality rates, child growth against height & weight curves).
4. Developing hand hygiene promotional materials emphasizing the links to impact data (i.e. absenteeism from school or work, morbidity & mortality rates, child growth curves).
5. Improving access to hand hygiene products (i.e. soap & detergent, ash & coconut oil, lemon juice in water & towels) & devices (tippy taps, wash basins, saline hand washing devices)

iv. Gender Equity Impacts

What to do: Given the importance of women in the management of sanitation and hygiene services this Policy will utilize the association of data showing improved impact to advocate for gender equity in the prioritization and participation of women in sanitation and hygiene. Actions prioritized under the Policy to strengthen the generation of data on the impact of poor sanitation and hygiene on the contribution of women in society shall include:

1. Research on existing menstrual hygiene management (MHM) knowledge, aptitude & practices to identify appropriate products to capture (i.e. leaves, pads, rags, cups, tampons) & facilities (i.e. to change, to wash, to dry, to transport, to dispose of) menstrual blood.
2. Advocate for the introduction of a budget line in all government departments for the provision of menstrual hygiene services (i.e. bins in toilets, taps for rinsing pads).
3. Strengthen the role of girls and women in monitoring the productivity improvements of improved menstrual hygiene services in the household, schools & workplace.
4. Explore further dimensions of exclusion for women (i.e. remoteness, ethnicity, disability, chronic illness & ageing) in sanitation & hygiene that negatively impact development.

5. Evaluate whether increased participation of women in community programs leads to an increased workload that undermines (or strengthens) the desired development impact?

v. Sanitation & Hygiene Markets

What to do: As almost all the population of Vanuatu practice fixed point defecation, the Policy will focus will be on assisting households to access the markets to access the options to move up the sanitation ladder. Actions prioritized under the Policy to strengthen the market based delivery of sanitation services will include:

1. Assisting sanitation entrepreneurs (i.e. plumbers, masons, builders, hardware shops, pharmacies) to make available different sanitary technology options.
2. Improving access to finance for households (i.e. loans, hire purchase) to access quality sanitation products (i.e. commodes, bathrooms).
3. Channeling GoV and NGO sanitation subsidies for the poor via sanitation entrepreneurs as rebates or output-based-aid for compliant quality latrines.
4. Establishing sanitation and hygiene cooperatives that strengthen the demand, supply and compliance of sanitary products.
5. Encouraging Provinces to ensure sanitation entrepreneurs offer compliant sanitary products
6. Developing a ladder of sanitation technology options to strengthen household choice
7.

vi. Provincial Council By-Laws

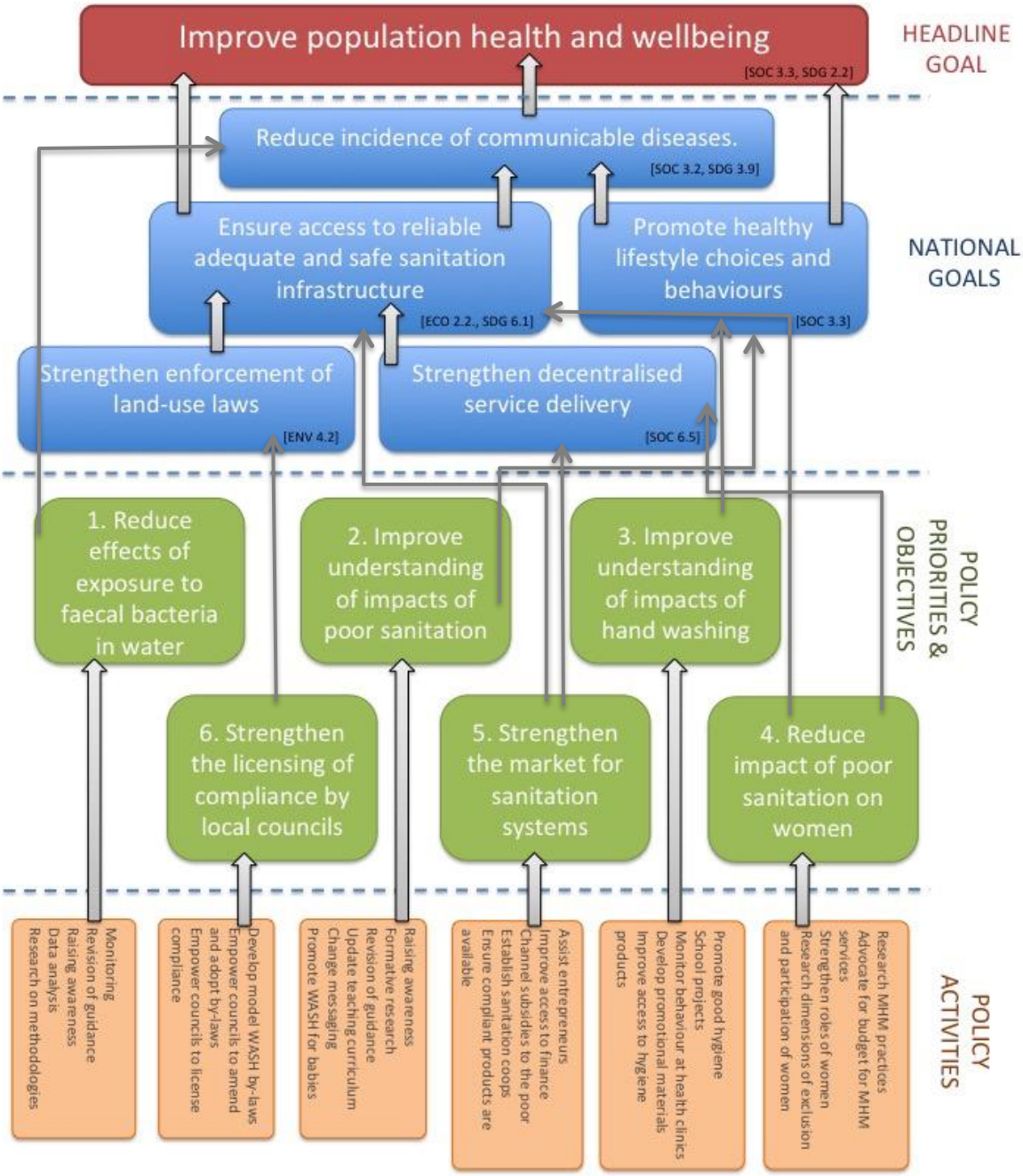
What to do**:** In a context where there is little appetite for fiscal decentralization, there is an opportunity to strengthen a regulatory model of decentralization. This would entail strengthening the role of the Provincial Councils in the passing of sanitation & hygiene by-laws that then strengthen the role of Area Councils to pass rules ensuring compliance. Actions prioritized under the Sanitation and Hygiene Policy to strengthen the licensing of compliance by the Provincial and Municipal Councils include:

1. The Department of Public Health & Department of Water Resources working jointly to develop model WASH by-laws for consideration by Provincial and Municipal Councils
2. Empowering the Provincial and Municipal Councils to amend the model WASH by-laws to reflect their local context and pass them into law
3. Enabling Area Councils to develop spatial zoning rules (including WASH) to be eligible to receive funding for public infrastructure
4. Strengthening Provincial & Municipal Councils to license the sanitary compliance of all land owners against the requirements of the Building Code and Public Health Amendment Bill

5. Strengthening the licensing of the providers of sanitary trades by Provincial & Municipal Councils (i.e. trade licenses to certified hardware shops, builders & plumbers)

Strengthening the licensing of compliance of the occupiers of buildings (i.e. sanitary inspections of restaurants, schools, health centres, public buildings & gatherings)

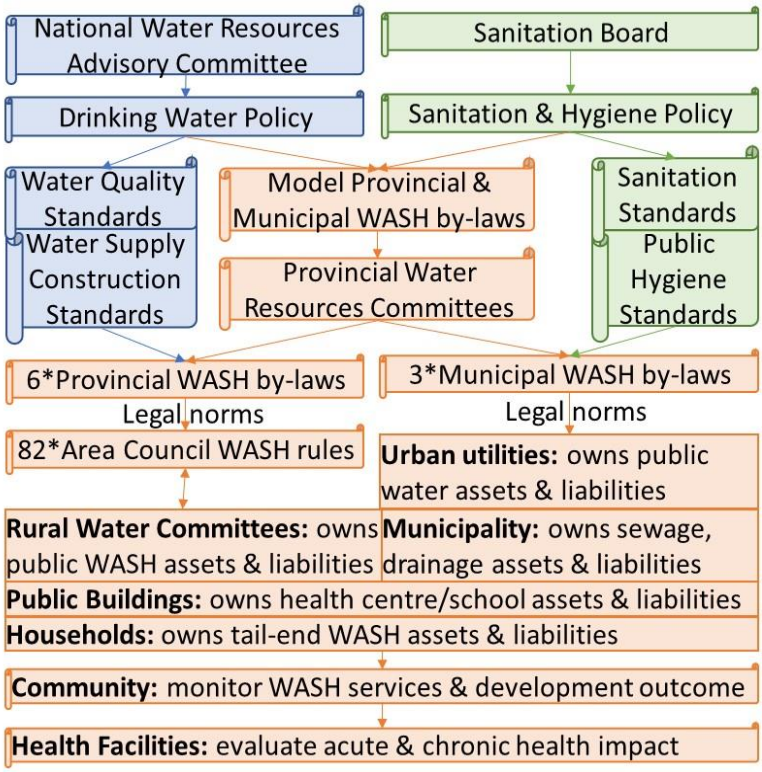
Annex 1: Theory of Change



Sanitation & Hygiene Policy: The Vanuatu National Sanitation and Hygiene Policy (2017 - 2030) has proposed focusing on six priority areas to strengthen the accountability of the institutions necessary to ensure proper and adequate sanitation and hygiene services for all.

Water Policy: The National Water Resources Advisory Committee (NRWAC) has been established under the Water Resources Management Act (2016) to support the Director of the Department of Water Resources (DoWR) in the development of the National Water Policy (2017-2030).

WASH Policy Implementation: Both the National Water Policy and the National Sanitation and Hygiene Policy require Provincial and Municipal Councils to pass water, sanitation and hygiene (WASH) by-laws clearly assigning and defining the consequences for drinking water, sanitation and hygiene failures. The Water Resources Management Act (2016) has established Provincial Water Resources Advisory Committees (PWRAC) with representation from the Department of Public Health to advise Provincial Councils in the preparation of by-laws for water.



WASH Policy Effectiveness: The strong association of water safety, with sanitation and hygiene practices, with spatial planning and infrastructure safety, with improved health outcomes associated with the growth of children suggests that it would be beneficial for the Provinces to develop combined By-Laws and the Area Councils to develop combined Rules for water, sanitation & hygiene (WASH) infrastructure and services.

WASH Policy Support: The significant responsibility assigned to the Provincial and Municipal Councils can be supported by the Department of Public Health and the Department of Water Resources through the issuing of "Model Water, Sanitation & Hygiene (WASH) By-Laws".

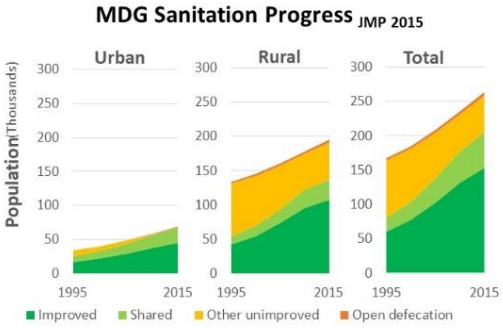
WASH Policy Compliance: is proposed by Provincial By-Laws that require Area Councils to develop enforceable WASH rules. The enforceability of the Area Council Rules will require Chiefs and Area Secretaries to bring together the Provincial by-laws

and the local social norms to enshrine safe and sufficient water, sanitation and hygiene (WASH) services for all.

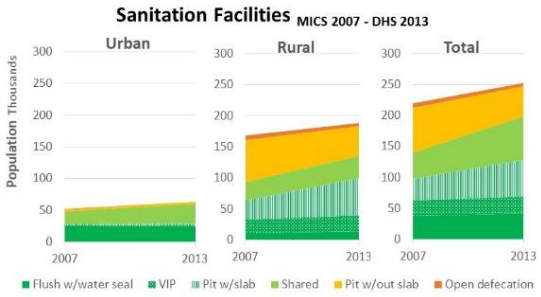
WASH Policy Evaluation: To determine the effectiveness of the policy prioritization of water, sanitation and hygiene, the Department of Water Resources and the Department of Public Health propose to work together generate data on improvements in the average height-for-age and weight-for-height of children against hygiene and sanitation practices, biological water quality compliance and the implementation of drinking water safety and security plans (DWSSP).

Relative Sanitation Progress: At the end of the MDG period, Vanuatu had secured 58% access to improved sanitation not quite reaching the 2015 sanitation MDG of 68%. The percentage of the population accessing improved & shared sanitation increased while the percentage of those accessing unimproved sanitation decreased over the MDG period (JMP 2015).

Absolute Sanitation Progress: The number of people gaining improved sanitation across the MDG period was greatest in rural areas but this progress has flattened since 2010. With extremely low rates of open defecation at the end of the MDG period, the major challenge lies in the rural areas primarily in reducing the reliance on unimproved sanitation. The secondary challenge lies in urban areas in reducing the reliance on shared sanitation (JMP 2015).



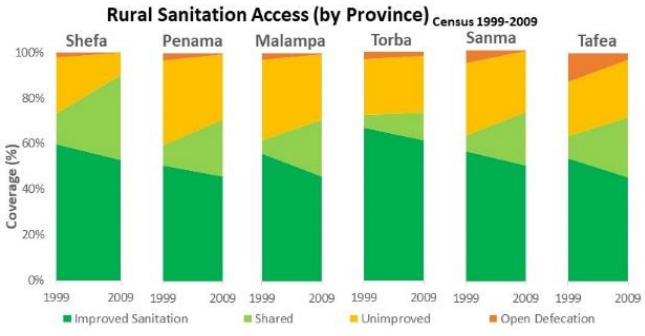
Form of Sanitation Access: Access to a dry pit latrine (either VIP or pit with a slab) was the most popular form of sanitation accessed by people at the end of the MDG period. Access to a dry pit latrine was the major area of progress between 2007 and 2013, while access to a pit without a slab declined over this period. Though there was a slight increase in the percentage of the population accessing shared sanitation over this period, the percentage of flush toilets with a water seal did not grow and declined relative to population growth. The percentage of the population that rely on flush toilets that discharge to the open was negligible (MICS 2007, DHS 2013).

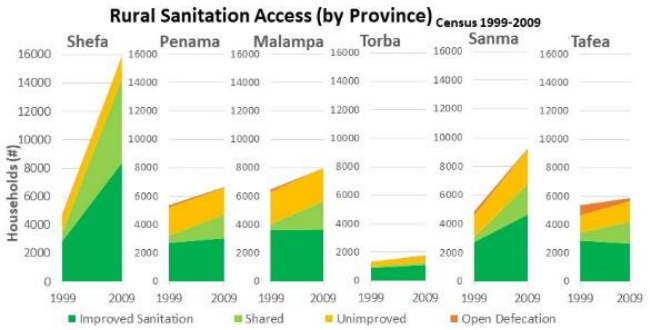


Equity of Access to Sanitation: Provincial data on relative progress in access to rural sanitation across the middle of the MDG period (1999 – 2009) revealed that:

1. Access to improved sanitation dropped by 5%-20% across all provinces from 50%-67% to 45%-61%
2. Access to improved sanitation (including shared by 2 or more households) increased by 1-17% across all provinces from 60-73% to 71-90%.

(Data from Census 1999, 2009)





All policies are subject to amendment. Please refer t
for the official, most recent version.

Provincial data on the absolute progress in access to rural sanitation across the middle of the MDG period (1999-2009) showed that:

1. Shefa reached more households with improved sanitation (5,600 HH) than the rest of the Provinces combined (2,245 HH).
2. Shefa reached more households with improved sanitation including shared (10,900 HH) than the rest of the Provinces combined (7,950 HH)

The rapid population growth in rural Shefa accounts for much of the progress in access to improved and shared sanitation in rural Vanuatu.

Sanitation Sustainable Development Goal (SDG): The SDG for sanitation is contained in Target 6.2 *"By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations".*

By 2030, achieve	**NORMATIVE INTERPRETATION OF SDG TARGET 6.2**
access	Implies facilities close to home that can be easily reached and used when needed
to ***adequate***	Implies a system which hygienically separates excreta from human contact as well as safe reuse/treatment of excreta in situ, or safe transport and treatment off-site
and ***equitable***	Implies progressive reduction and elimination of inequalities among population subgroups
sanitation	The provision of facilities and services for safe management and disposal of human urine and faeces
and ***hygiene***	The conditions and practices that help maintain health and prevent spread of disease including hand washing, menstrual hygiene management and food hygiene
for all	Suitable for use by men, women, girls and boys of all ages including people living with disabilities
and ***end open defecation***	Excreta of adults or children are: deposited (directly or after being covered by a layer of earth) in the bush, a field, a beach, or other open area; discharged directly into a drainage channel, river, sea, or other water body; or are wrapped in temporary material and discarded
paying special attention to the ***needs of women and girls***	Implies reducing the burden of water collection and enabling women and girls to manage sanitation and hygiene needs with dignity. Special attention should be given to the needs of women and girls in 'high use' settings such as schools and workplaces, and 'high risk' settings such as health care facilities and detention centres
and ***those in vulnerable situations***	Implies attention to specific WASH needs found in 'special cases' including refugee camps, detention centres, mass gatherings and pilgrimages

Specifically, the SDGs have prioritised the eradication of open defecation, where the MDGs did not have any target for open defecation. The shift in the SDGs towards universal access also reflects the learning that halving the numbers of those without access can leave the poorest and most vulnerable behind. The SDGs have also prioritised the progressive elimination of inequalities in all population sub-groups and prioritised the needs of women and girls. A safely managed category has also been introduced to ensure that faecal waste from improved latrines is safely emptied, transported, treated, disposed of and/or re-used. Hygiene has also given priority through hand washing, food hygiene and menstrual hygiene management practices.

SDG Sanitation Status: Moving beyond the eradication of open defecation towards safely managed sanitation has been conceptualised with a ladder progressing from lower-cost sanitation options with lower health benefits to higher-cost options with higher health benefits. The sanitation ladder seeks to capture the progress towards enabling everyone to access a 'safely managed' sanitation service. *"Safely managed sanitation"* is defined as the use of an improved sanitation facility which is not shared with other households and where excreta is safely disposed in situ or transported and treated off-site and where a hand washing facility is present with soap and water.

In Vanuatu, only 2% of the population are practice open defecation (classified as having no service), while 20% have access to pit latrines without a slab or platform (classified as unimproved). While the remaining 78% have access to a water seal latrine connected to a pit, septic tank or sewer (classified as an improved facility), 20% of these latrines are shared with two households or more (classified as limited). Therefore, while we know that 58% of the population have access to an improved and not shared sanitation facility, we don't know how many of these have their waste safely treated or how many of these have a hand washing facility with soap and water.

Disposal of Child Faeces: In 2007, 60% of households safely disposed of child faeces in all of the Provinces except for Shefa where only 40% of households safely disposed of child faeces (MICS 2007).

In 2013, the safe disposal of child faeces (either child uses a latrine, or child faeces is disposed of in a latrine or buried) increased to an average of 63% in 2013 from 52% in 2007. This improvement was primarily a result of the increase in the use of latrines by children.

All unsafe forms of disposal of child faeces decreased over the period from 2007 to 2013 except for the disposal of child faeces in the garbage, which increased in both rural and urban areas (MICS 2007, DHS 2013).

Urban sanitation: The sanitation system in urban centres is decentralized consisting of privately managed household and commercial septic tanks. Faecal sludge is periodically removed by private sludge tankers and disposed of at a settling pond maintained by the Port Vila Municipality. While urban sanitation is the responsibility of municipalities, the national level it is not prioritised by either the Environmental Health Unit or the Department of Water Resources.

Hand washing with Soap:

In 2013, a designated place for hand washing was observed in 67% of households, with a noticeable difference between urban (80%) and rural (62%) households. Among those households where a hand washing places was observed:

1. 90% had water only
2. 55% had soap and water,
3. 5% had other cleansing agents (ash, mud, sand)

There is a significant difference in the effectiveness of hand washing facilities between urban and rural, with 74% of urban households having soap and water with a hand washing facility as compared with 45% of rural households. The DHS also identified that households in remote rural areas have lower access to soap (42%) as compared with households in other rural areas (57%).

The presence of soap and water at a hand-washing place increases significantly with household wealth, from 20% for households in the poorest wealth quintile to 81% for households in the richest quintile (DHS 2013).

Hand washing Awareness: While the knowledge of good hand washing behaviour is generally very high and the self-reported practice of hand washing with soap is also high however the observed practice of hand washing with soap is low. This implies that the major challenge is NOT hand washing awareness NOR access to hand washing facilities NOR access to soap and water BUT rather a belief that hand washing is not an essential practice. While opinions are deeply divided on whether health is a significant motivating factor, there is still a need to find a way to enable people to perceive that hand washing is beneficial from both an individual and a public perspective.

Menstrual Hygiene Management: There is very little formal knowledge on the knowledge, aptitude and practices related to menstrual hygiene management in Vanuatu. A case study in the Solomon Islands[1] highlighted a range social, environmental, interpersonal, personal and biological factors inhibiting the management of menstrual hygiene in school. The most significant determinants of menstruation-related challenges in schools that were identified by girls and their teachers were:

1. Social factors inhibiting open discussion of menstruation-related challenges
2. Poor quality of school WASH facilities
3. Limited availability of hygiene materials
4. Limited access to accurate information about menstruation
5. Variable support from school managers and teachers

In the context of Vanuatu, undertaking formative research to better understand the beliefs and practices associated with menstrual hygiene management at home, at school and in the workplace to address some of the following questions could foster more meaningful MHM interventions:

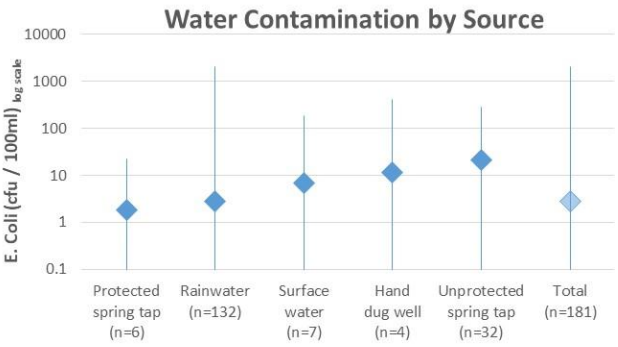
1. How have women traditionally managed their menstrual period?
2. Do menstruating women & girls sleep in their own bed, in another room or in another house?

1 Government of Solomon Islands (Ministry of Health & Education (2014) Case Study of Menstrual Hygiene Management in Schools in Honiara and Guadalcanal Province

3. Are women & girls allowed to touch food or are they even allowed in the kitchen?
4. What are the preferred options for managing menstrual flows? i.e. banana leaves, sari strips, strap holders, rags & pads w/knickers, menstrual knickers, tampons, cups, sea sponges
5. How do women manage their menstrual period when they don't wear knickers?
6. Where are reusable pads washed & dried? How are reusable pads transported and stored?
7. How are new disposable pads bought, transported & disposed of?
8. Why do schools allow white school uniforms for girls?
9. Do toilet facilities for women / girls have a bin with a sealed lid for disposable pads?
10. Do toilet facilities have a water tap (in addition to the basin) for cleaning reusable pads & self?
11. Does the school administration have back-up knickers (& pads) for emergencies?
12. Do school canteens sell menstrual pads?
13. Do girls know that blood turns black when it dries?

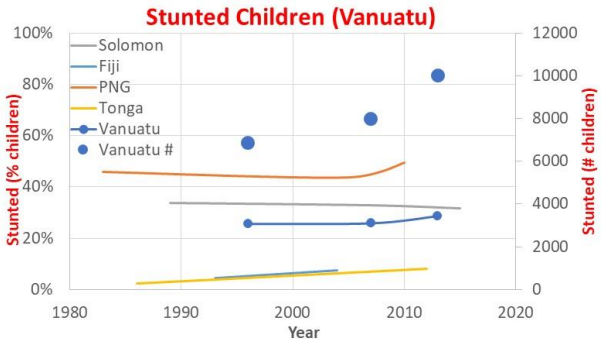
Drinking Water Treatment: Over the period from 2007 - 2013, the percentage of households undertaking safe drinking water treatment practices increased from 14% to 20%. This was primarily associated with an increase in the practice of boiling water primarily in the urban areas. This suggests a growing awareness of unsafe drinking water particularly in urban areas. In the absence of any significant surveys of drinking water quality, it is hard to estimate the level of exposure to water quality risks at the point of consumption (MICS 2007, DHS 2013).
Provincial rural: Analysis of 2007 data revealed that safe drinking water treatment practices by households were the lowest in Sanma, Tafea and Torba at around 4% - 5% of households. Household safe drinking water treatment practices are highest in Shefa, Melampa and Penama but still relatively low ranging from just 15% - 20% of households (MICS 2007).

Water Quality: There are no national surveys or database establishing the biological safety of drinking water against the National Drinking Water Quality Standards of <1 E. Coli colony forming unit per 100ml. A water quality assessment by UNICEF found 51% and 45% of water at source and point of use in conformance with the national water quality standards. Protected springs and rainwater were less contaminated at source as compared to surface water, hand dug wells and unprotected springs (UNICEF 2017).



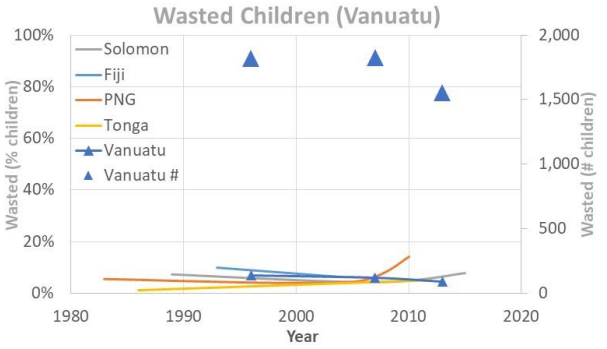
IMPACT ANALYSIS

Nutrition: Over the period from 1996 to 2013, progress in reducing child undernutrition in Vanuatu has been static. While chronic undernutrition is high and growing (i.e.



stunting increased from 25.7% to 28.5%), acute undernutrition is low and reducing (i.e. wasting decreased from 6.8% to 4.4%) the percentage of underweight children remained the same (i.e. underweight went from 10.6% to 10.7%). With population growth, this means that:

1. The number of stunted children almost doubled from 6,900 in 1996 to 10,500 in 2013.
2. The number of wasted children decreased by 271 from 1,822 in 1996 to 1,551 in 2013.

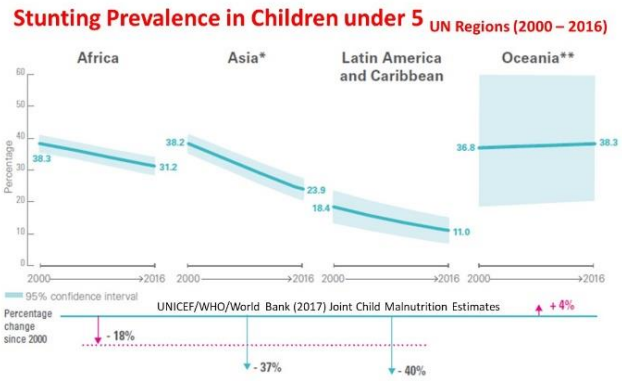


In 2013, there are more than are twice as many stunted children (10,050) as underweight children (3,750) as wasted children (1,550). The low and decreasing problem of acute undernutrition being offset by a significant and increasing problem of chronic undernutrition (UNICEF-WHO-World Bank, 2017 Dataset).

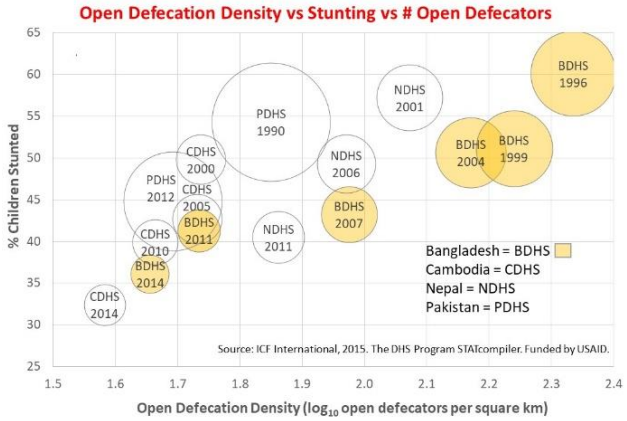
UNICEF-WHO-World Bank: Joint child malnutrition estimates (May 2017)

CHRONIC

Chronic Symptoms: Joint Child Malnutrition Estimates by UNICEF/WHO/World Bank Group summarize global progress on undernutrition between 2000 and 2016. Analysis of the data by Regions shows that the Oceania Region has the highest rate of stunting and is the only Region where the prevalence of stunting has increased since 2000. Accounting for population growth, the number of stunted children has increased slightly in Africa Region and almost doubled in the Oceania Region since the year 2000 (UNICEF-WHO-World Bank, 2017 Levels and Trends).

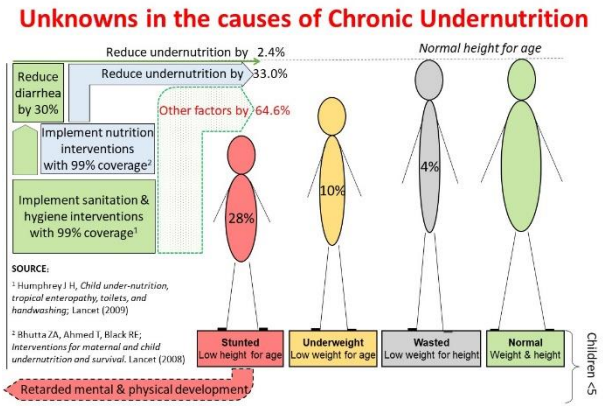


Open Defecation Density: DHS data shows a striking correlation between the reduction in the number of open defecators and the reduction in stunting. Analysis for countries for which we have data in Asia show this association with Bangladesh being probably the best example. This shows the number of open defecators (represented by the size of the circles) getting smaller, resulting in a reduction in the density of open defecation (moving to the left) correlated with a reduction in stunting percentage (ICF International, 2015 DHS Dataset).



Addressing Chronic Undernutrition: Meta-analysis of all the randomized control trials on interventions addressing chronic undernutrition (stunting) in children under 5 concluded that:

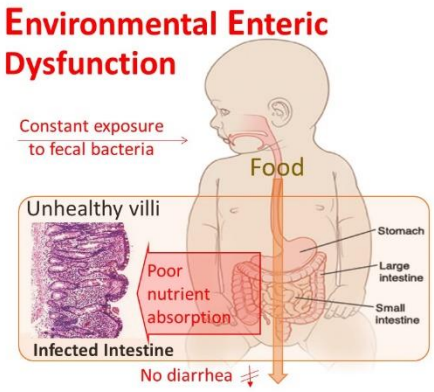
1. All nutrition interventions – incl. vitamin A and zinc and energy protein supplements, complementary feeding, breastfeeding promotion & micronutrient supplements in pregnancy – implemented with 99% effectiveness would decrease the average height deficit of Asian & African children by 33% (Humphrey, 2009).
2. All sanitation and hygiene interventions implemented with 99% effectiveness would reduce diarrhea incidence by 30%, which would in turn decrease the prevalence of stunting by only 2·4% (Bhutta 2008).



This meta-analysis implies that 65% of interventions to address the causes of chronic undernutrition (stunting) have not yet been quantified.

Environmental Enteric Dysfunction: One such gap is the knowledge of a sub-clinical condition known as environmental enteric dysfunction (EED) where constant ingestion of faecal bacteria can lead to the blunting of intestinal villi resulting in the malabsorption of nutrients without diarrhea symptoms (Mbuya, 2016). This potentially explains:

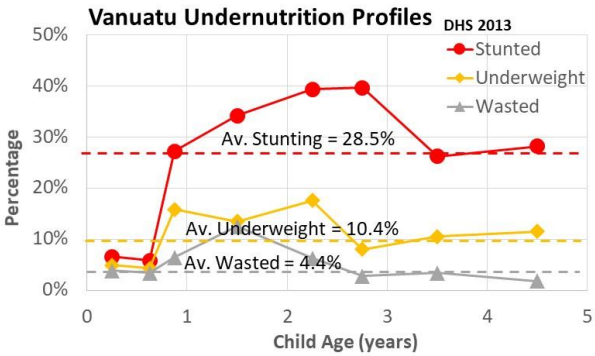
1. The positive association of chronic undernutrition in children with increased faecal exposure
2. Reduced diarrhoea over time in high faecal load environments
3. Tropical enteropathy discovered in Peace Corp Volunteers following exposure in Low Income Country (LIC) settings
4. Lower effectiveness of oral vaccines in Low Income Countries



Nutrition Profile: Analysis of the DHS 2013 height and weight data for age that fall more than two standard deviations below the WHO normal curves reveals that:

Stunting (chronic undernutrition): averaged 28.5% but while only 6% of children aged 6 months were stunted this increased to 40% of children aged 2½ years old.

Wasting (acute undernutrition): averaged 4.4% but peaked at 13% of children aged 1½ years old.



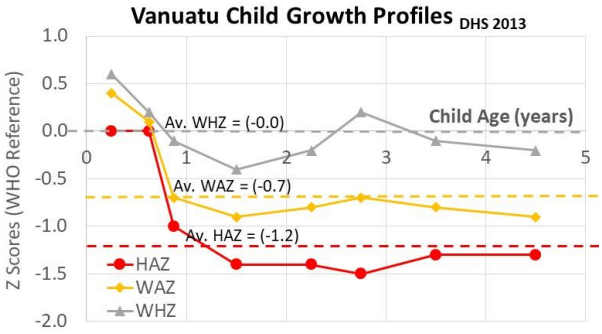
Underweight (chronic + acute undernutrition): averaged 10.4% but peaked at 18% for children aged 2 years old.

Growth Profiles: Analysis of the Vanuatu DHS 2013 average height-for-age, weight-for-height and weight-for-age data against the WHO normal curves against age reveals that:

Average HAZ (height-for-age): overall was 1.2 SD below normal but av. HAZ was normal at 6 months of age this increased to 1.5 SD below normal by 2½ years of age.

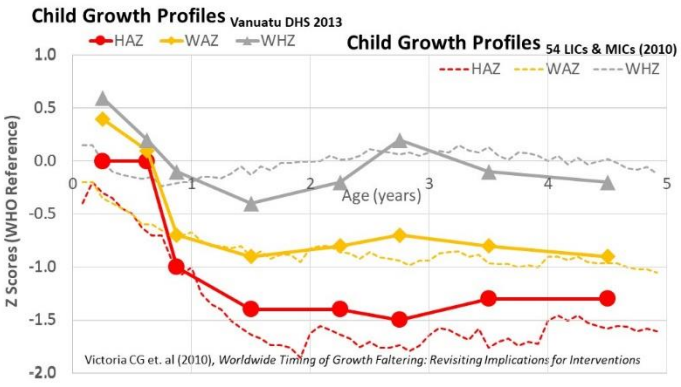
Average WHZ (weight-for-height): overall was normal but while av. WHZ was 0.6 SD above normal amongst new born children this fell to 0.4 SD below normal at 1½ years of age.

Average WAZ (weight-for-age): overall was 0.7 SD below normal but av. WAZ was 0.4 SD above normal for new born children but fell to 0.9 SD below normal at 1.5 years of age.



Comparison of the DHS 2013 child growth data for Vanuatu against data for 54 low-income & middle-income countries (Victoria, 2010) reveals that:

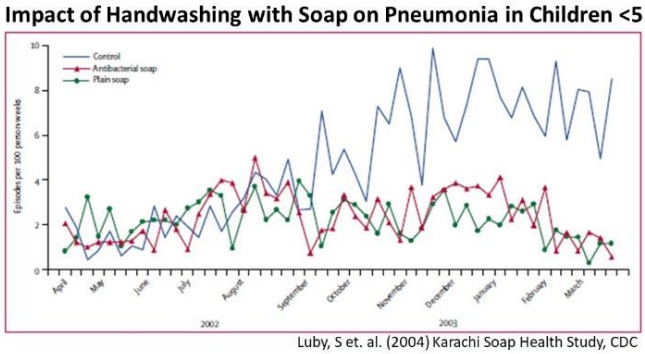
1. Children in Vanuatu are born heavier & taller on average than other developing countries suggesting that mother's nutrition is better
2. Major height faltering occurs at 9 months of age when children become mobile enabling them greater faecal exposure to the environment.
3. A decrease in WHZ precedes the decrease in HAZ, which is consistent with adaption to the acute symptoms being replaced by chronic symptoms.



ACUTE

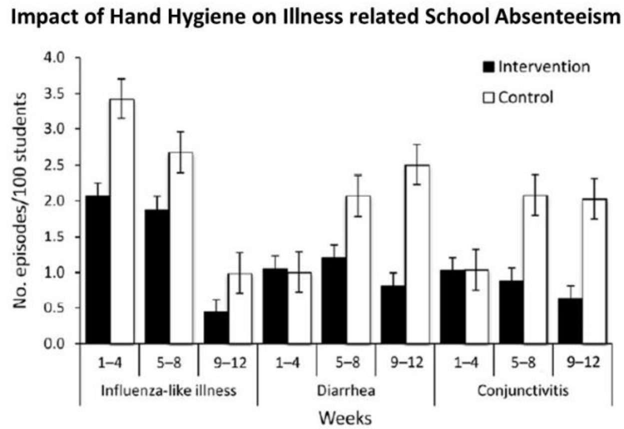
Hand Hygiene & ARI: While acute undernutrition in children is known to increase the risk of ARI conversely ARI is associated with higher rates of wasting in children. While ARI in wasted children is associated with dramatically increased mortality risks, the effectiveness of antibiotic treatment of ARI in is lower amongst children that are stunted.

Poor hygiene practices are also associated with an increased risk of acute respiratory infections in children. A on urban Katchi Abadis in Karachi (Luby, 2005) showed that children younger than 5 years in households that received plain soap and hand washing promotion had a 50% lower incidence of ARI. Children under 15 years in households provided with plain soap also had a 53% lower incidence of diarrhoea (Luby, 2004). Meta-data analysis on various hand washing



interventions (Curtis, 2003) estimated a 16% reduction in the risk of acute respiratory infections but noted that more rigorous trials of the impact of hand washing on ARI associated morbidity and mortality are needed, especially in developing countries.

Hand Hygiene & Absenteeism: Good hand washing practices are associated with a reduction in the transmission of bacteria and viruses in the workplace and at school. A Study in Cairo, Egypt (Talaat M, 2011) showed a significant reduction in influenza, diarrhoea and conjunctivitis related absenteeism amongst children following the introduction of an intensive hand hygiene campaign in 60 elementary schools. Meta-data analysis (Mbakaya BC, 2017) has confirmed that hand-washing interventions can reduce the incidence of diarrhoea, respiratory infections, and school absenteeism but noted that further evidence-based studies with improved rigour are needed in developing countries to inform policy in this area.

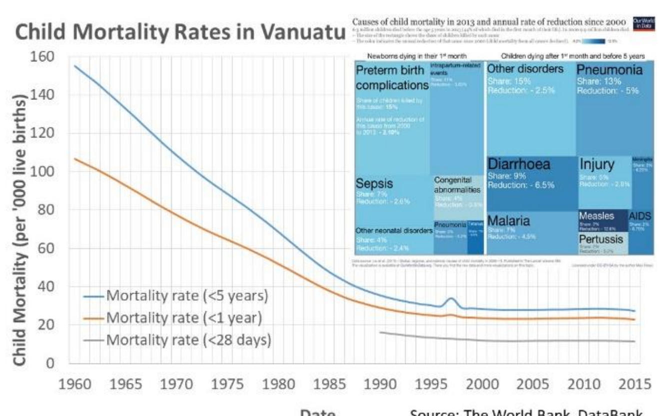


Talaat, M (2011) Handwashing Study in Egypt, NAMRU-3

Hand Hygiene & HAIs: Hospital acquired infections (HAIs) present a significant challenge for health care providers in both high-income and low-income countries with 7% to 10% respectively of every hospitalized patient acquiring at least one HAI (WHO)2. An estimated 25% of the HAIs in long-term acute care are caused by antibiotic resistant bacteria and in the United States one in every 20 people that contacts a HAI will die of that infection. Improved hand hygiene of health professionals can reduce HAIs by 26-45%3.

This has led to the prioritization of the 5 moments for hand hygiene (before touching a patient, before a procedure, after a procedure, after touching a patient, after touching a patients' surroundings) by WHO4. The Australian hand hygiene benchmark for the 5 hand hygiene moments has been set at 80% of all possible moments in 2017, monitored by independent auditors reporting to the Australian Health Ministers' Advisory Council (AHMAC).

Child Mortality & Diarrhoea: Since 1960 the under five mortality rate in Vanuatu has decreased from 155.2 children per '000 live births to 27.5 children per '000 live births in 2015 (WB Data Bank, 2017). While the U5MR has significantly reduced and the number of deaths due to diarrhoea related causes has declined (Roser M, 2017) to less than 1 in every 400 children born in Vanuatu,

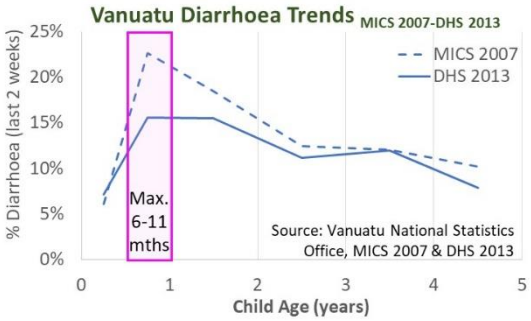


2 https://reflectionsipc.files.wordpress.com/2017/01/who-guidelines-ha...
3 https://i.pinimg.com/originals/28/93/1e/28931e793974ff085bde83c5710dbe38.jpg
4 http://www.who.int/gpsc/5may/background/5moments/en/

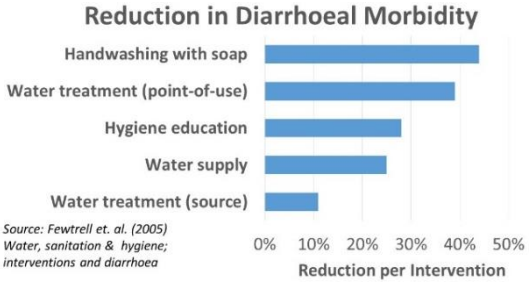
there is little to suggest that this is a result of improved WASH services. This is because the incidence of diarrhoea in <5 children has been static (decreased slightly from 14% children having diarrhoea in the 2 weeks preceding the MICS 2007 to 12% in the DHS 2013) and the rates of wasting in <5 children have also been static (decreased slightly from 6.8% in 2007 to 4.4% in 2013).

While the mortality risk associated with severe acute undernutrition (i.e. severe wasting) is more than double the mortality risk associated with severe chronic undernutrition (i.e. severe stunting) according to data from USAID, however only one in a hundred children were severely wasted according to the VDHS 2013. With 62% of children with diarrhoea receiving ORT (oral rehydration therapy) according to the DHS 2013, the reduction in deaths from diarrhoea is most likely to be associated with the expanded use of ORT rather than a reduction in faecal exposure from improved sanitation & hygiene.

Child Morbidity & Diarrhoea: Diarrhoea affected 12% of children in the 2 weeks preceding the 2013 DHS. Diarrhoea prevalence was lowest in children aged less than 6 months, peaking at 6-11 months and then declining thereafter. This is consistent with global data on diarrhoeal incidence of children in Developing Countries. Surprisingly, diarrhoea prevalence was higher amongst children with an improved source of drinking water and children with mothers in the highest wealth quintile (DHS 2013).



Hygiene & Diarrhoea: Meta-analysis (Fewtrell & Colford, 2004) of all known WASH studies in developing countries dated prior to 2003 identified Hygiene (hand washing with soap and hygiene education) and the treatment of water (at the point of use) as the most effective interventions in reducing diarrhoea. They specifically noted that hygiene interventions were effective whatever the baseline scenario but more so where the water and/or sanitation facilities were poorer and hand washing was more effective than hygiene education. They also noted that the contamination of stored water is common and the household treatment of drinking water to be highly effective.



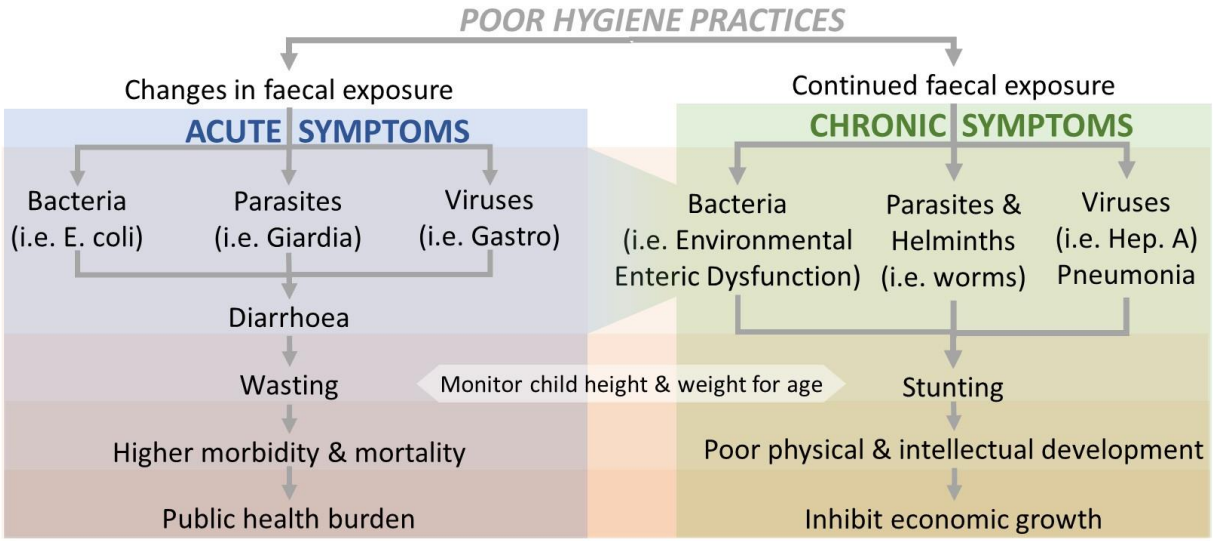
ACUTE & CHRONIC SYMPTOMS

Acute & Chronic Symptoms of Poor Hygiene: Given the low awareness on the chronic health impacts of poor hygiene and the complex interaction between the acute

and chronic impacts of poor hygiene, there is a danger that the absence of acute symptoms may be associated with acceptable levels of exposure to faecal bacteria. On the contrary, the absence of acute symptoms in the presence of poor hygiene behaviours may be associated with an increase in chronic symptoms.

Therefore, in changing hygiene behaviour it is important to recognise that while poor hygiene behaviour can have both acute and chronic symptoms, the causes and the effects are slightly different. Health professionals and parents will therefore need to be aware that:

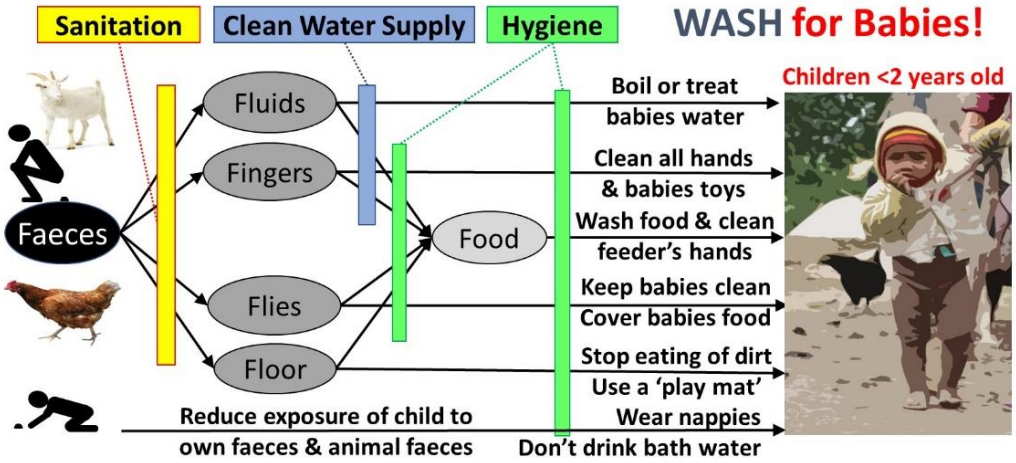
1. While chronic symptoms of poor hygiene tend to be associated with constant faecal exposure, acute symptoms will generally be associated with changes (i.e. increases) in faecal exposure
2. While acute symptoms (i.e. diarrhoea & wasting) of poor hygiene are generally obvious, chronic symptoms (i.e. EED & stunting) are generally not obvious
3. The absence of obvious acute symptoms (i.e. diarrhoea & wasting) does not imply safe faecal exposure levels as the risks could be borne as unobvious chronic symptoms (i.e. EED & stunting).
4. While the acute effects of poor hygiene tend to be borne as costs by households and the public health system, chronic effects are generally borne in the form of a failure of individuals and nations to achieve their intellectual and physical potential.



Implications on Sanitation & Hygiene Programming: A nuanced understanding of the complex interplay between the chronic and acute symptoms associated with faecal exposure has several implications for the development of sanitation and hygiene policies and programs.

1. Understanding that faecal exposure has chronic symptoms which include growth faltering in children, the time series monitoring of child growth should be given greater priority
2. Recognizing the numerous complex faecal ingestion pathways especially for children, hygiene interventions closer to the point of faecal ingestion for children should be given greater priority

3. Knowing that the absence of acute symptoms (i.e. diarrhoea) does not imply safe levels of faecal exposure, awareness of the trade-off between acute and chronic symptoms of faecal exposure should be given greater priority in hygiene messaging
4. Believing that hand washing has multiple benefits in preventing the spread of disease (beyond that of reducing diarrhoea), hand washing promotion should also prioritize the local monitoring of impact on child growth, illness related absenteeism, hospital acquired infections, ARI etc.



Annex 4: Legislation and Institutions

The following assignment of responsibilities for water gives precedence to legislation passed by national and local councils over the standards, rules and strategies developed for their execution.

Public Health Act [CAP 234]: establishes the responsibility of provincial councils to ensure and municipal councils to enforce proper and adequate sanitation for all. The Act requires all owners of all premises to design and construct sanitation systems in compliance with relevant public health standards. Requires all sanitation systems to be kept clean by the occupier of the premises (to the satisfaction of the environmental health officer). Provides for enforcement by environmental health officers and the imposition of penalties or closure of polluted facilities. R requires municipal councils to ensure the safe and sufficient provision of public toilets. The 2013 Law Commission review of the Public Health Act has proposed a greater role for Area Councils in developing public health rules to strengthen the compliance of sanitation facilities & their management.

Public Health Amendment Act No. 11 of 2018: provides for owners of buildings to install standards sanitation systems both in urban areas and areas declared by the Minister of Health. The amendment also encourages central reticulated systems and treatment plants to be in place in urban areas.

CAP 234 Amendment Bill (2017): increases the requirements of 'asset owners' to comply with sanitation standards & the building code, as well as increase the scope for sanitary compliance to include urban, physical planning & declared rural areas, all public gatherings and buildings. Expressly prohibits the discharge of sewage effluent into the public drainage systems and introduce processes for the installation & connection to reticulated sewage systems. Strengthens the regulatory role of the Director of Environment for reticulated sewage systems and establishes a Sanitation Board to advise the Minister on standards for sanitation systems, devices, service providers & actions for non-compliance.

Food Control Act [CAP 228]: empowers local authorities to regulate the regulate hygiene standards in the preparation, storage, sale and use of food (& water) to ensure public health and safety. This includes the safety of water for direct consumption, as well as for food and hand hygiene, as well as for the sterilization of food processing equipment.

Decentralization Act [CAP 230]: establishes local government councils as a body corporate (i.e. with perpetual succession and power to sue and be sued and own assets) in local government regions as defined by the Minister of Internal Affairs. The Act empowers Provincial Councils to pass (and notify sub-committees to draft) by-laws for sanitation, hygiene and other public health services to be gazetted into law by the Minister of Internal Affairs after a complaint redressal period. The Act empowers Provincial Councils to issue licenses, contracts & set rates for sanitation service delivery. Provincial Councils are required to approve their annual budget and are permitted to incur debt from donors.

Municipalities Act [CAP 126]: establishes municipal councils as a body corporate (i.e. with perpetual succession and power to sue and be sued and own assets) in regions defined by the Minister of Internal Affairs. Municipal councils exercise control over and care for all roads, their drainage (including the right of way for public pipes, sewers & cables) and public open spaces within a municipal area. If necessary, the municipality may carry sewers, drains and pipes through and across any land after notifying the owner. The municipal council is responsible to control, manage and administer the municipality to safeguard public health. Municipalities are empowered to pass By-Laws to protect the safety or maintain the health or suppress nuisances for the inhabitants within the municipality.

Environmental Management and Conservation Act [CAP 283]: provides for the conservation, sustainable development and management of the land, air and waters of Vanuatu. All projects, proposals and activities that cause or are likely to cause significant environmental, social and/or custom impacts are required to undergo an Environmental Impact Assessment (EIA). The Act requires the Minister of Environment to issue wastewater standards and regulations governing water pollution.

Waste Management Act No.24 of 2014: provides for the protection of the environment through encouragement of effective waste services and operations through the local authorities and municipal councils.

Pollution Control Act No.10 of 2003: provides for all owners or occupiers of premises to comply with any prescribed standards for pollution and Waste water.

Physical Planning Act [CAP 193]: enables any Municipal or Local Government Council to declare any area within its jurisdiction a Physical Planning Area requiring the preparation and gazetting of a physical (zoning) plan for that area by the Minister for Internal Affairs. No person shall carry on development in a Physical Planning Area without the approval of the Council.

- *Municipal Building Permits:* limits the construction of any works subject to an environmental impact assessment (Department of Environment) and compliance with zoning requirements (Municipal Town Planning & Building Division), rights to develop the land enshrined in the land title or lease (Department of Land, Survey & Registry), building safety (Public Works Department), fire safety (Fire Department), approval for a water connection (DoWR or its concessionaire) and inspection (Municipal Town Planning & Building Division).

Building Act [No. 36 of 2013]: Empowers the Minister of Infrastructure and Public Works Utilities to prescribe a Building Code for the construction of buildings in any municipality or Physical Planning area or any building owned or partly owned by the State. This requires that no person may construct a building without first obtaining a building permit from the Authority. No building or any part of a building may be occupied or reoccupied unless the Authority has issued a fitness to occupy certificate (based on an inspection against the terms of the building permit).

- *Vanuatu National Building Code (2000):* Specifies compliance with AS 3500 Plumbing and Drainage Code and AS 2179/80 Metal Rainwater Goods Standard

(Specification, Selection & Installation). The code includes sanitary plumbing and drainage specifications for any buildings (DF6) and public buildings (NF6) containing significant provisions for schools & early childhood learning centres, shopping centres and restaurants, sporting venues and health care facilities.

Water Supply Act [CAP 24]: establishes the responsibilities for urban water supply schemes up to the water meter (but not service failures) with the government (or its concessionaire) and beyond the meter with the customers. The Act empowers the Minister in consultation with the Director from the Ministry of Health to issue water quality standards and penalize compliance failures.

- *Vanuatu National Drinking Water Quality Standards (2016):* Establishes a standard set of physical / chemical parameters as well as a free chlorine residual of ≥0.2 mg/L (or < 0 e. Coli CFU/ 100 ml) or urban chlorinated systems. Establishes a basic set of physical / chemical parameters as well as a water safety plan & risk assessment (or < 0 e. Coli CFU/ 100 ml) for rural unchlorinated systems.

Cooperative Societies Act [CAP 152]: provides for the incorporation of a society comprising at least seven members with the Registrar of Cooperative & Business Development Services as a body corporate having perpetual succession, the power to hold property, to enter into contracts, to sue and be sued and distribute benefits amongst member. Cooperatives are required to enshrine one vote per shareholder even if some shareholders possess more shares than others.

Custom Land Management Act [No. 33 of 2013]: provides for the determination of custom owners and the resolution of disputes over ownership of custom land by customary institutions. Formalises the recognition of customary institutions termed ‘nakamals’ and ‘custom area land tribunals’ to determine the rules of custom which form the basis of ownership and use of land in Vanuatu.

Land Reform Act [CAP 123]: vests all state land and all public roads at the day of Independence with the Government of Vanuatu.

Land Acquisition Act [CAP 215]: provides for the acquisition of land and easements in the public interest including systems for determining appropriate compensation, appeal and resolution.

Land Lease Act [CAP 163]: provides for the registration of the rights and responsibilities of a lessee (Individual or body corporate) to land, water and air and the development of those resources.

Business License Act [CAP 249]: requires anyone undertaking “Water Works, Distribution and Supply Companies and Providers” for the “collection purification distribution, supply and sale of water to household, industrial and commercial users” to obtain a license from the Minister or Local Council.

Vanuatu Qualifications Authority Act [No. 1 of 2014]: establishes the Vanuatu Qualifications Authority to strengthen the post-school education skills training (i.e.

plumbing), regulate the issuing of qualifications and ensure the maintenance of quality standards in associated trades.

Education Act [No. 9 of 2014]: Requires any registered government and non-government schools to comply with reasonable standards of health and safety.

- *Minimum Quality Standards for Primary Schools:* requires each school to have a water source and/or storage unit providing at least 2 litres of potable water for every teacher and student.

National Disaster Act [CAP 267]: Establishes the National Disaster Management Office (NDMO) to implement the strategies and policies of the National Disaster Management Committee. Requires the Director to activate the National Disaster Operations Centre and coordinate government departments in the event of the declaration of a state of Emergency by the President on the advice of the Council of Ministers.

Meteorology and Geological Hazards and Climate Change Bill: Assigns the coordination of climate change activities to the National Advisory Council on Climate Change (NACCC). The NACCC being formally recognized by the Vanuatu Council of Ministers to implement Multilateral Environmental Agreements for the Government. The Climate Change Unit in the Vanuatu Department of Meteorological Services (VMS) functions as the Secretariat of the NACCC.

Utilities Regulatory Authority Act [No. 11 of 2007]: Establishes the Utilities Regulatory Authority (URA) to promote consumers long-term interest in access to safe, reliable and affordable electricity and water services throughout Vanuatu. URA approves tariffs for electricity and water services for State-Owned Public water enterprises and private providers under Concessions Contracts. URA is mandated to assist in resolving consumer complaints and advises the Government on policy and legislative matters related to electricity and water.

- *Customer Complaints and Dispute Resolution Rules (2015):* provide a clear and transparent understanding of the consumers' and utilities' respective rights and obligations. The process defined in the rules establishes the powers and obligations of the URA to ensure a fair, impartial, transparent and consistent resolution of consumer complaints.

Yanuca Island Declaration: Vanuatu is signatory to the 1995 Yacuna Island Declaration committing to the Healthy Islands vision as places where:

- children are nurtured in body and mind;
- environments invite learning and leisure;
- people work and age with dignity;
- ecological balance is a source of pride; and
- the ocean which sustains us is protected

Ministerial actions proposed in the April 2016 update to the Yanuca Island Declaration are:
1) Strengthening leadership, governance and accountability;
2) Nurturing children in body and mind;
3) Reducing avoidable disease burden and premature deaths;
4) Promoting ecological balance

National Policy & Strategy for Healthy Islands (2018 – 2020): The driving agent for the Healthy Islands policy is the Health Promotion Unit but implementation is:

- multi-level involving the national, Provincial, Area Council and Community levels
- multi-sectorial requiring participation of other donors, departments, NGOs and the private sector

The contribution and participation of all being necessary to stage a ***whole-of-society approach*** to address the social and environmental determinants of health. Strategies prioritized for the implementation of the National Policy for Healthy Islands were:
STRATEGY 1: National Leadership & Governance in PHC
STRATEGY 2: Provincial Leadership/Governance in PHC
STRATEGY 3: Access to PHC services
STRATEGY 4: PHC Financing
STRATEGY 5: Health workforce for PHC
STRATEGY 6: Health Information

Health Sector Strategy (2017-2020): The vision was to have an *integrated* and *decentralized* health system that promotes an *effective*, *efficient* and *equitable* health services for the good health and general well-being of all people in Vanuatu. Broad objectives for the sector were to:

- Improve the health status of the population
- Ensure equitable access to health services at all levels of services
- Improve the quality of services delivered at all levels
- Promote good management and the effective and efficient use of resources.

Environmental Health Policy & Strategy: Prioritises preventative health activities particularly

- Safe Water & Sanitation
- Food Safety
- Occupational Health & Safety
- Waste Management
- Public Health Legislations
- Communicable Disease Surveillance
- Development Control
- Public Health Emergencies and Disasters

Annex 5: Accountabilities for Sanitation and Hygiene in Vanuatu

While the legislation tends to assign responsibilities vertically, the following summary seeks to understand the horizontal assignment of responsibilities for sanitation, hygiene and related sectors.

Who	How	What	Reference	Directive	Other
Central Government	Regulate WASH service failures	Safe sanitation & hygiene for all	Public Health Act (1994), Cl. 5 & 6	Director (Public Health) to set water, sanitation & hygiene safety standards	Duty of every Local Authority to safeguard public health under the Act
		Urban Water Supply	Water Supply Act (1955), cl. 22	Director (Department of Water) to set urban water standards. Minister may delegate management to concessionaire	Minister (Land & Natural Resources) & Minister (Health) to jointly establish drinking water safety standards
		Local Council By-Laws	Decentralization Act (1988), cl. 3 & 4	Minister (Local Government) may define Local Council Regions, appoint members & define Local Area Councils	Minister (Internal Affairs) to gazette Local Council by-laws if no complaints
		Planning	Physical Planning Act (1988)	Minister (Land & Natural Resources) to resolve appeals if applications are rejected by provincial/municipal councils	Zoning / physical planning to be undertaken by the provinces.
		Safe infrastructure	Building Act (2013), Cl.	DG (Infrastructure & Public Works) to establish building codes / standards	Codes to include plumbing standards & registration of plumbers
		Manage asset ownership risk	Cooperative Societies Act (1982)	Minister (Business Development) to appoint Registrar of Cooperatives	
		Certified services	Vanuatu Qualifications Authority Act (2014)	Registration of training providers & accredit engineers /plumbers' courses	
		Water pollution	Environmental & Conservation Act (2002)	Minister (Environment) make regulations governing water pollution standards	EIA required for all projects which may deplete or contaminate water resources

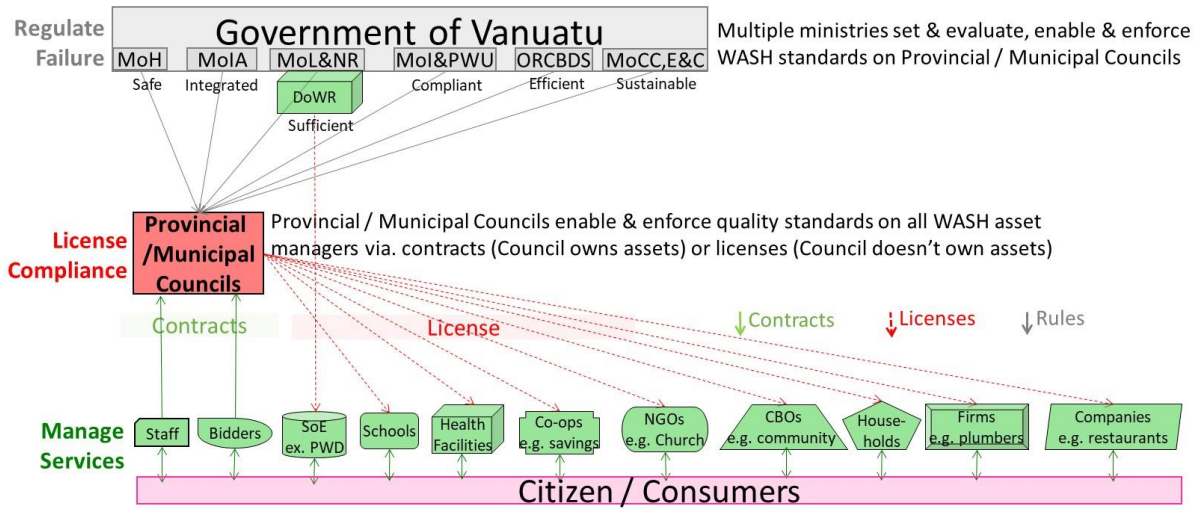
Who	How	What	Reference	Directive	Other
Arbitrate		Cost of quality services	Utilities Regulatory Authority Act (2007)	URA to ascertain the tariffs to maximise the provision of safe, reliable and affordable urban water (& sewage) services for all	To consult, investigate, share public information & resolve grievances. To give advice to the government.

Provincial / Municipal Governments	License WASH service compliance	Local Government Authorities	Constitution of Vanuatu (1980), Cl. 82	Decentralization legislation to be enacted to enable people's participation	Local government councils to include representation by custom chiefs
		Provincial Government	Decentralization Act (1994), cl. 20	Council to pass by-laws for water, hygiene & public health services. Can notify Sub-Committees to draft by-laws.	Council has the power to issue licenses, contracts & set rates for water & sanitation service delivery
		Municipal Government	Municipalities Act (2006), cl. 25, Schedule	Council to pass by-laws to safeguard public health, provide sanitation services & regulate / license municipal services.	No mention of any exercise of authority of the municipalities over the provision of drinking water supply
		Water & sanitation service provision	Public Health Act (1994), 42, 43 & 44	Councils to ensure (enforce) sufficient & safe water for all in rural (urban) areas	Local Council has powers to enforce on behalf of environmental health officers
			Public Health Act (1994), 49, 50 & 51	Councils to ensure (enforce) sufficient & safe sanitation for all in rural (urban) area	Local Councils may pass by-laws to address public health concerns
		Water resource management	Water Resources Management Act (2016)	Provincial water resources committee to advise the Province & rural committees	Rural water committees to sign formal agreements with provincial councils
		Planning approvals	Physical Planning Act (1988), Cl. 1 & 2	Councils to approve the development of any WSS assets in notified planning areas	No exemption for public authorities (except for maintenance)
		Building certification	Building Act (2013), Cl. 7, 14 & 22	Councils to provide building, completion & fitness to occupy permits for buildings in urban & notified planning areas	Councils empowered to make building by-laws to give effect to the Act
		Trade Licence Approvals	Business Licence Act (1998), Cl. 2	Provincial councils to issue trade licenses for all builders (incl. plumbers & masons)	Revenues from the licence shall incur to the provincial council
		Custom Rules for Sanitation	Public Health Act Legislative Review	Support chiefs to develop and enforce community WASH rules & standards	Need to link the enforcement of WASH standards to public health outcomes

Who	How	What	Reference	Directive	Other
Arbitrate		Dispute resolution	Custom Land Management Act (2013)	Mediation of land disputes by nakamal, land tribunal & island court	
		Dispute resolution	Co-operative Societies Act (1982)	Arbitration of disputes to be referred to the Registrar	
Asset Manager	Manage the provision of WASH Services	Land ownership	Constitution of Vanuatu (1980), cl. 73	All land belongs to customary owners (incl. rights to water for customary use)	The government owns water & may purchase land from customary owners
			Custom Land Management Act (2013)	Custom owners of land to be confirmed by customary institutions	
		Urban Water Supply	Water Supply Act (1955), cl. 22	DoWR (asset owner on behalf of gov't) can delegate water (& sewage) network management to a concessionaire	Liability for urban water connections is with consumers up to the point of discharge from the water meter
		Drinking water management	Water Resources Management Act (2016)	Water assets and their management can be transferred to rural water committees	Need to clarify if service delivery liabilities are transferred also!
		Safe food	Food Control Act (2007) Cl. 32, 33, 35,	All food premises to be fitted with water, sanitation & hand washing facilities	All water for sale must comply with WHO safety standards
		WASH in Schools	Education Act (2014), Cl. 15	To register all schools so they meet prescribed health and safety standards	All gov't & non-gov't kindergartens & schools must have a governing council
		WASH Cooperatives	Cooperative Societies Act (1982)	Can own assets, raise capital and distribute benefits among shareholders	Can invest in WASH asset upgrades and be held liable for WASH failures
		Private providers	Business Licence Act (1998), Cl. 2	No person shall carry out any business activity without a license	

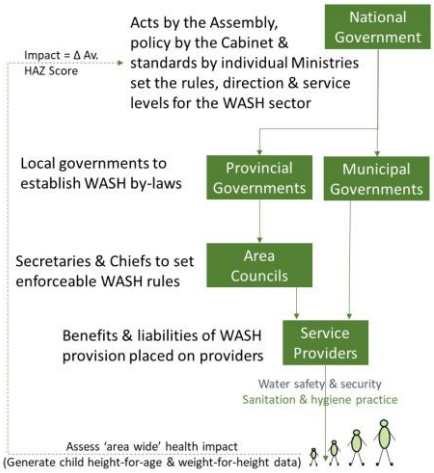
Accountability

Within a decentralized service delivery environment there is a need to make a distinction separating the regulation of failure by the central government, from the licensing of compliance by local governments, from the management of services by water asset owners.



MoH: Ministry of Health; MoIA: Ministry of Internal Affairs; MoI&PWU: Ministry of Industry & Public Works Utilities; MoL&NR: Ministry of Lands & Natural Resources; ORCBDS: Office of the Registrar of Cooperatives and Business Development Services; MoCC,E&C: Ministry of Climate Change, Environment and Conservation;

The legislative assignment of responsibilities suggests that the responsibility for ensuring safe and secure water for all lies with the Local Governments (Provinces & Municipalities). Provincial / municipal councils being empowered to issue by-laws assigning (and defining) the consequences for water safety and security failures. For public assets and in notified planning areas, local governments are already empowered to issue building permits and right-to-occupy certificates). Local governments are also empowered to issue trade licenses for plumbers, builders and rural water committees while Area Councils are well positioned to develop rules to ensure the effectiveness of sanitation and hygiene services for all.



The People	CONSTITUTION OF THE REPUBLIC OF VANUATU													
Assembly	Decentralization Act; Municipalities Act; Physical Planning Act	Public Health Act; Food Control Act; Health Committees Act		Water Resources Management Act; Utilities Regulatory Act; Building Act		Water Supply Act	Custom Land Management Act; Land Leases Act; Land Acquisition Act	Land Reform Act	Education Act; Environmental Protection Act; *Meteorology and Geological Hazards and Climate Change Bill*		Cooperative Societies Act; Qualifications Authority Act; Business Licence Act			
	National Budget (Annual)													
Cabinet	Land Use Planning & Zoning Policy (2012); Environmental Health Policy (2012-16)								Climate change and disaster risk reduction policy (2016-30)		Inclusive Education Policy (2010- 20)		Cooperatives Policy (2017)	
	National Sustainable Development Plan (2016 - 2030)													
Ministry	Department of Local Authorities: Zoning guidelines	Public Health Directorate (PHD): Rural sanitation standards; Pikinini Helt Book		Public Works Department: National Building Code	Utilities Regulatory Authority: URA Code of Practice; Urban tariff decisions; Small provider rules	Department of Water: Establish NWRAC; Water strategy (2008-18); Drinking water quality standard; Rural water supply standard	Department of Lands: Land transfer rules / fees; Land lease rules; Mandatory land acquisition rules; Land easement rules	National Disaster Management Office: Standard Operating Procedures (SOP)	Department of Environmental Protection & Conservation: Environmental Impact Assess-ment (EIA); Effluent / wastewater standards		Department of Education: Minimum quality standards for schools	Technical Vocational Education and Training: Plumbers certification	Registrar of Cooperatives: Cooperative Rules; Consumer Cooperative By-laws	Inland Revenue Department: Business Licence Rules
Provincial Council	Notify Physical Planning Areas; Pass By-Laws; Gazette physical plan (zoning)	Water & sanitation By-Laws		Building Bye-Laws										
	Provincial Budget (Annual)													
Provincial Admin	Planning approvals			Building & completion certificate		Establish PWRAC; License water committees			Approve EIA		Provincial Education Board (PEB)			Issue trade licenses
Area Council		Public Health Rules					Nakamal form; Mediation form							
Municipal Council	Notify Physical Planning Areas; Pass By-Laws; Gazette physical plan (zoning)	Sanitation By-Laws		Building Bye-Laws										
	Municipal Budget (Annual)													
Municipal Admin	Planning approvals			Building & completion certificate					Approve EIA		Municipal Education Board(MEB)			Issue trade licenses

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