

Priorities of Environment and Health in Pacific Island Countries

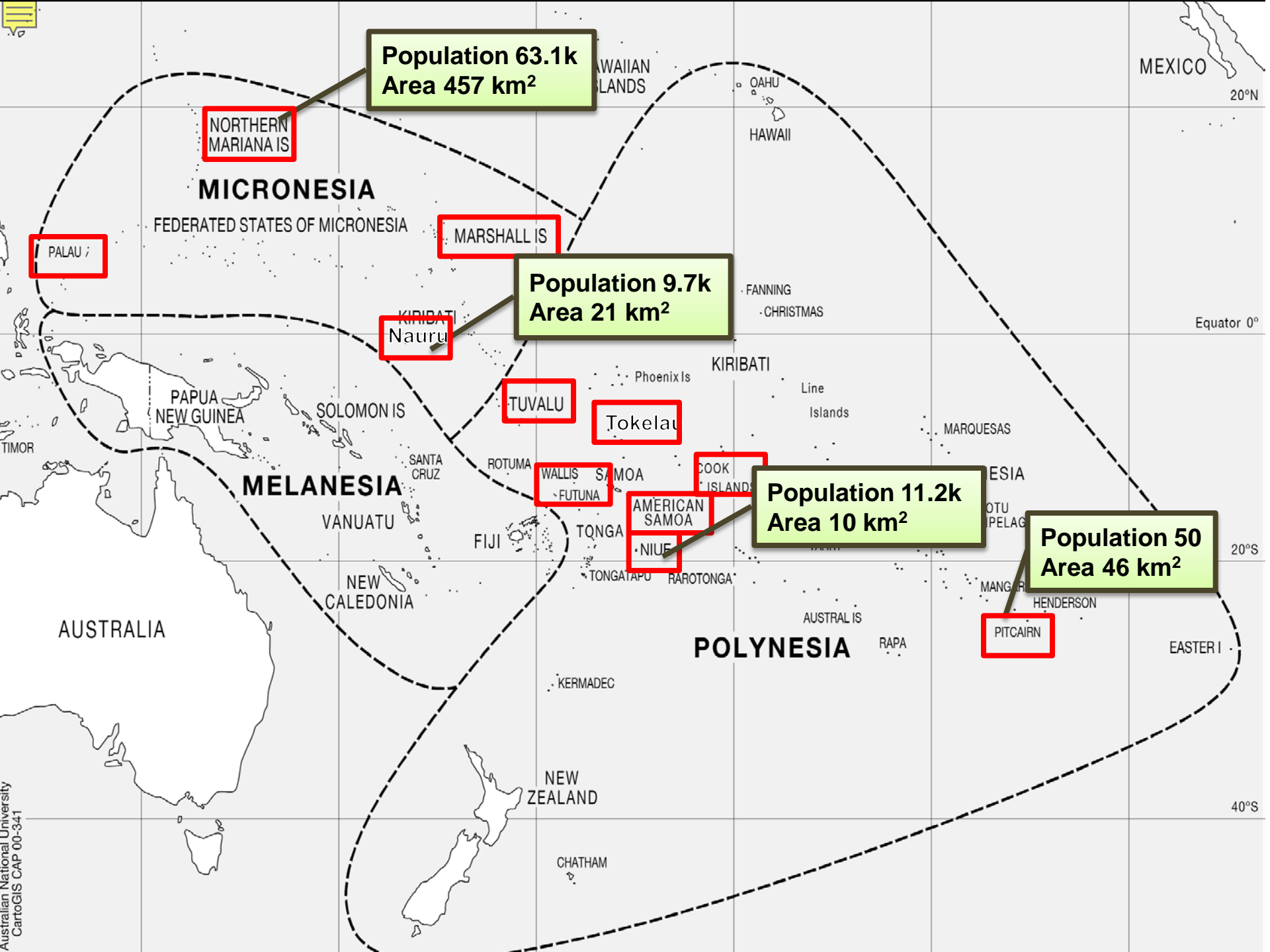
Rokho Kim, MD DrPH

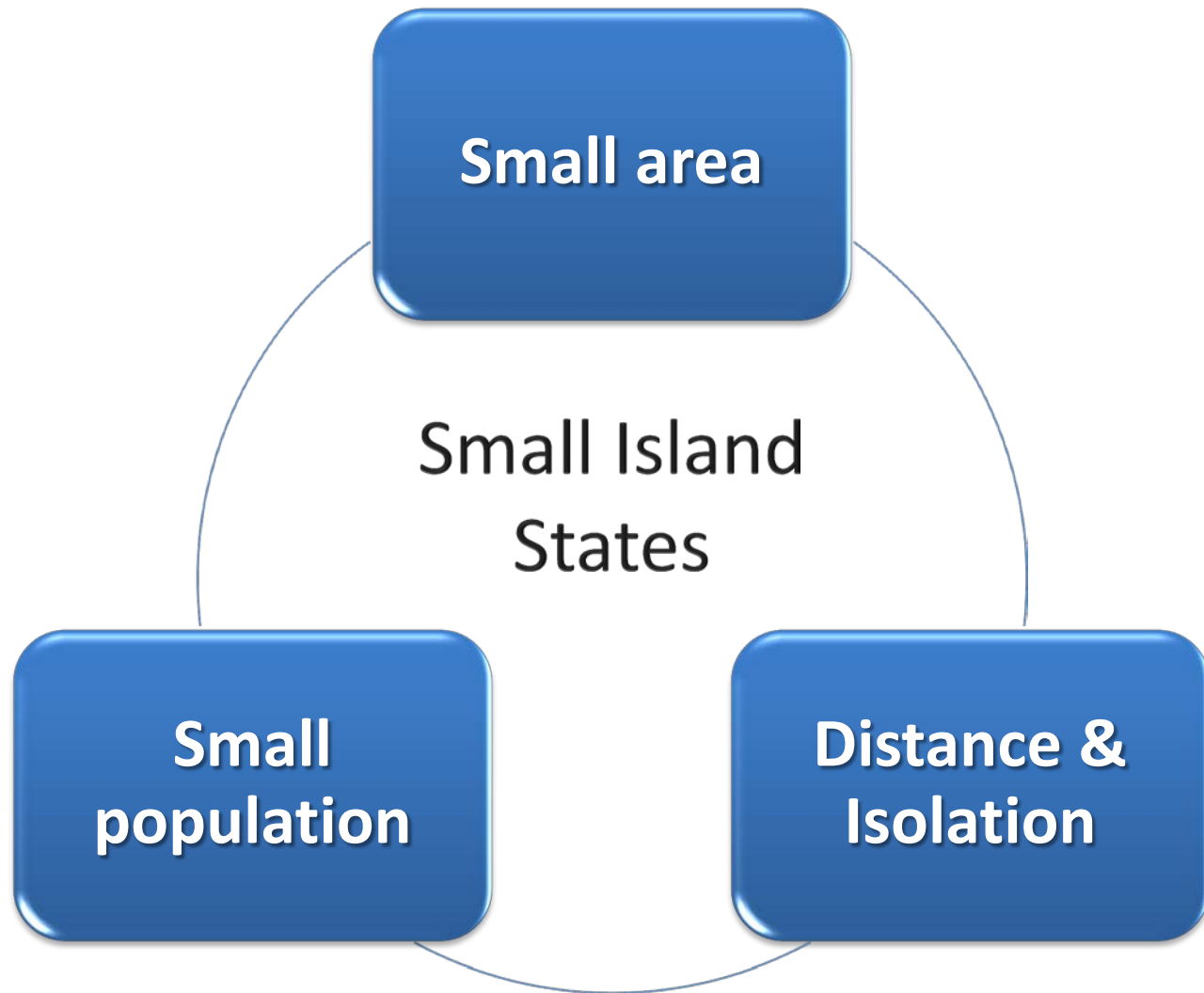
WHO Division of Pacific Technical Support, Suva, Fiji

Outline

- Special situation of Pacific island countries
- Water and sanitation
- Climate change and health
- Other issues of EH
- Conclusion





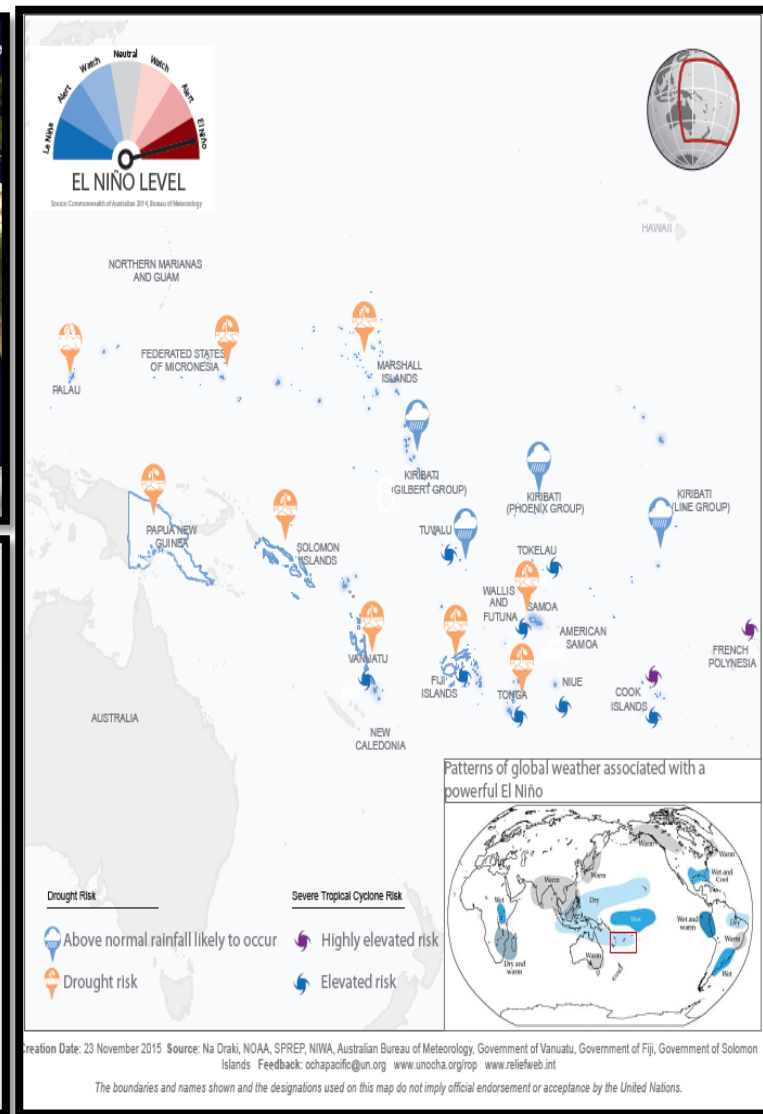
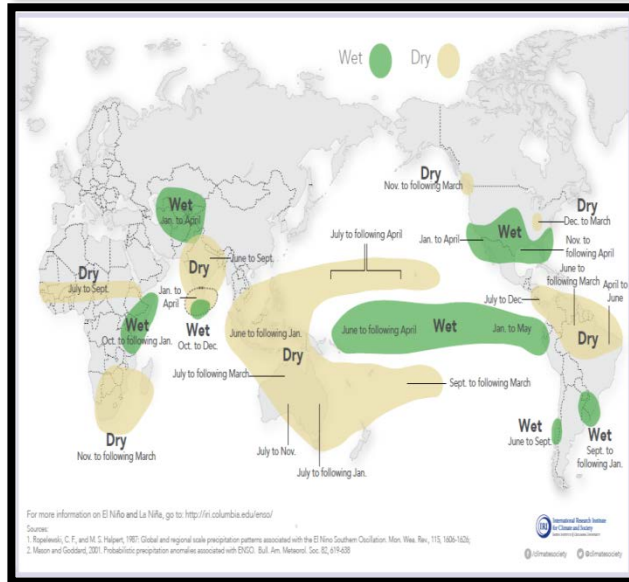
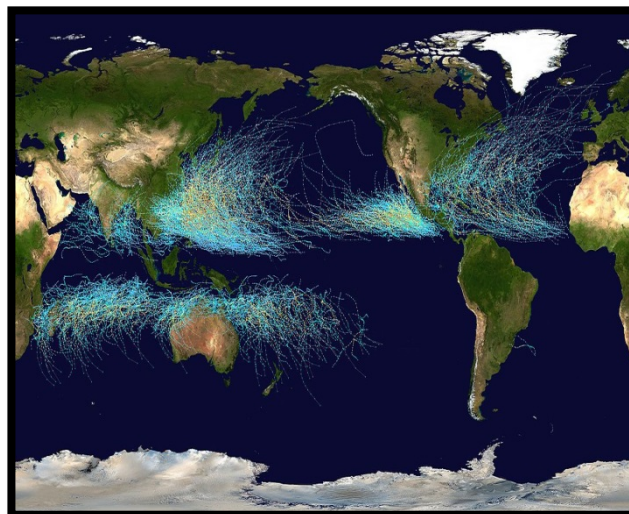




Common issues of Pacific island countries

- Transportation
- Infrastructure
- Economy
- Governance
- Resources
- Vulnerability

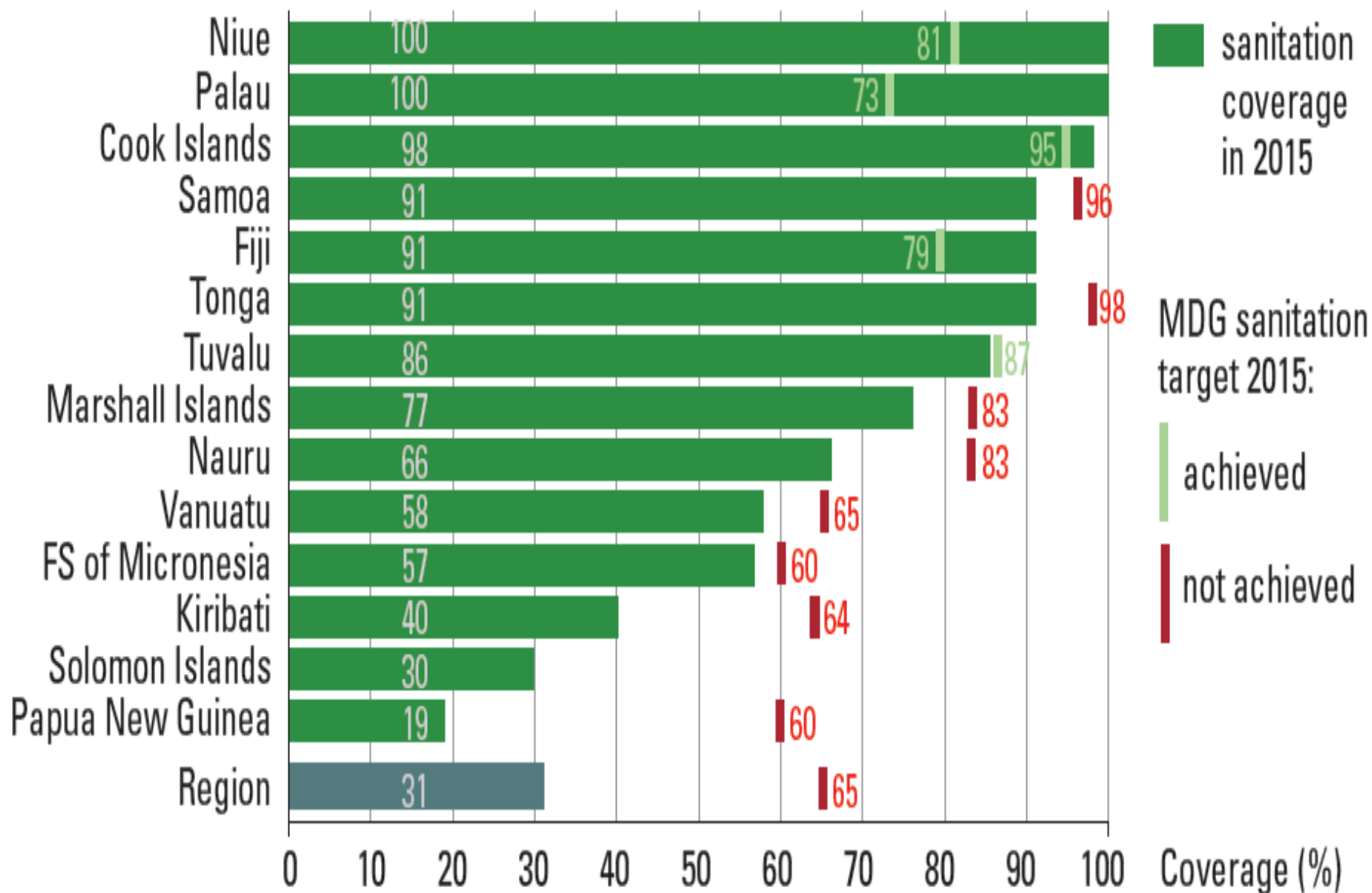
Environmental, climate and disaster vulnerability



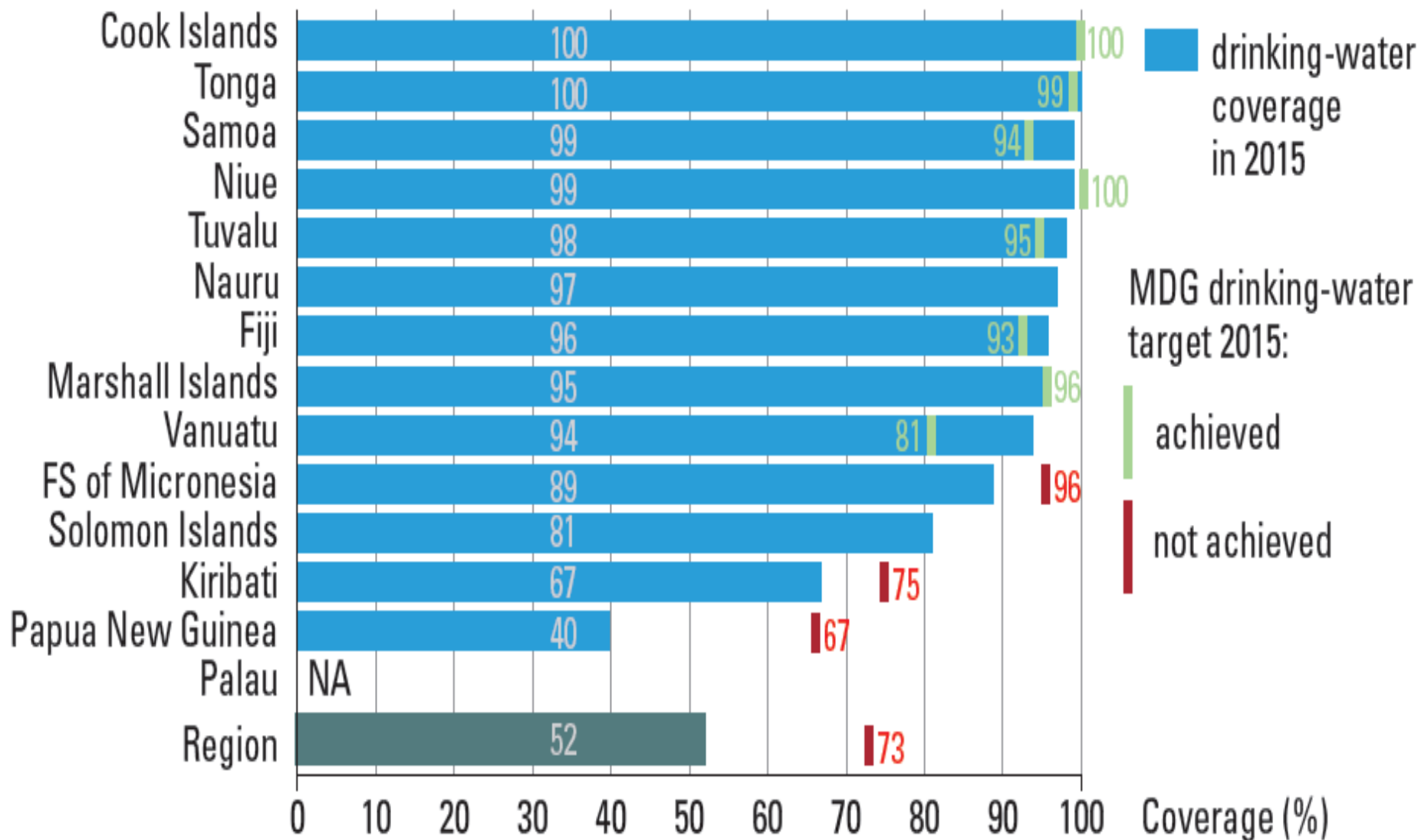
Water, sanitation and hygiene (WASH)

- Atoll countries (Kiribati, Tuvalu, Marshall Islands, Tokelau) have very limited supplies of fresh water. They are prone to drought and at high risk of saline intrusion due to sea-level rise, storm surges, etc.
- 69% and 48% of the population do not have access to improved water and sanitation, respectively.
- Open defecation is still common in some PICs.

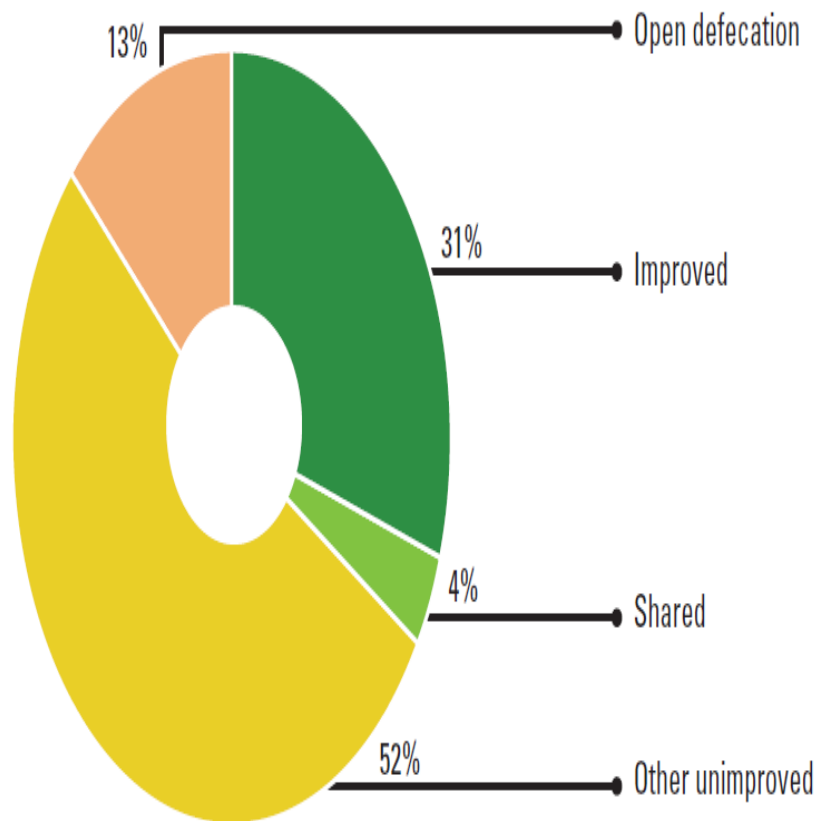
Proportion of people using improved sanitation in 2015 and respective country MDG sanitation target in Pacific island countries



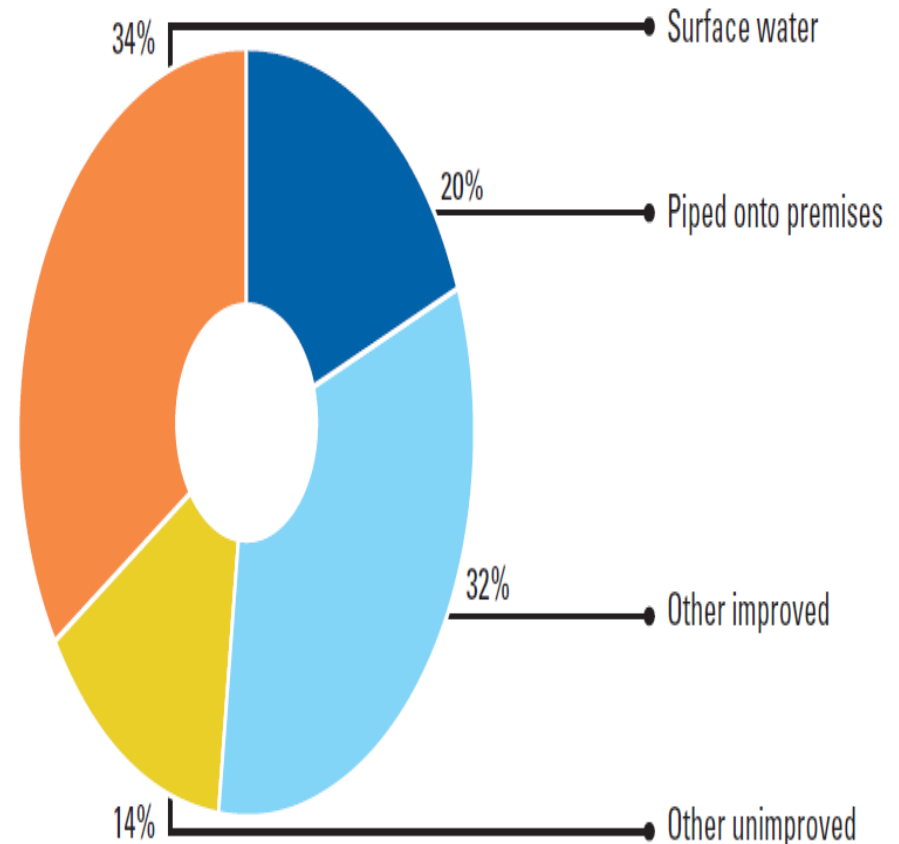
Proportion of people using improved drinking-water in Pacific island countries in 2015 and respective MDG drinking-water targets



Proportion of people using different types of sanitation facilities or practising open defecation, Pacific region, 2015

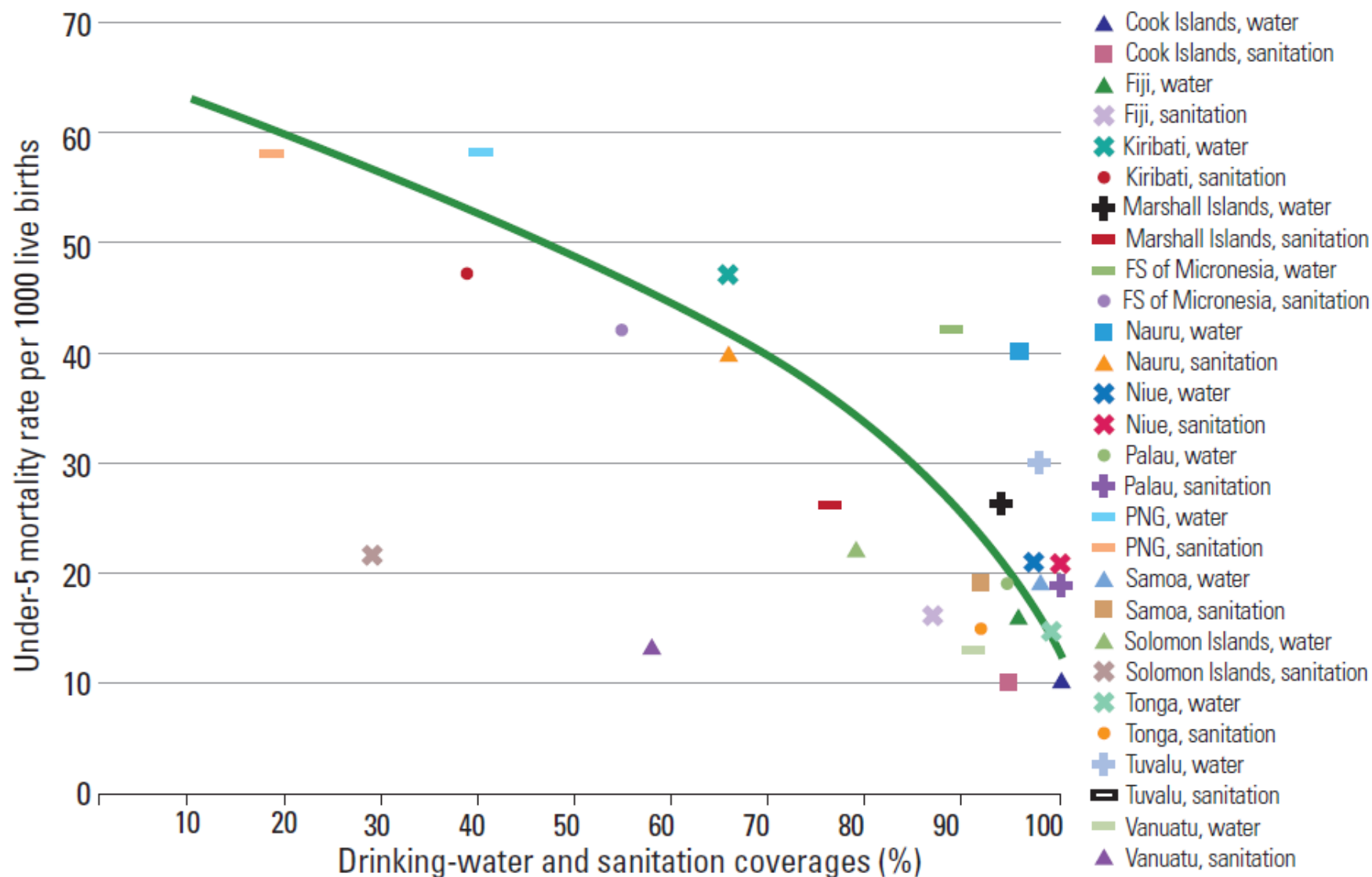


Proportion of people using different types of drinking-water supplies or using surface water, Pacific region, 2015

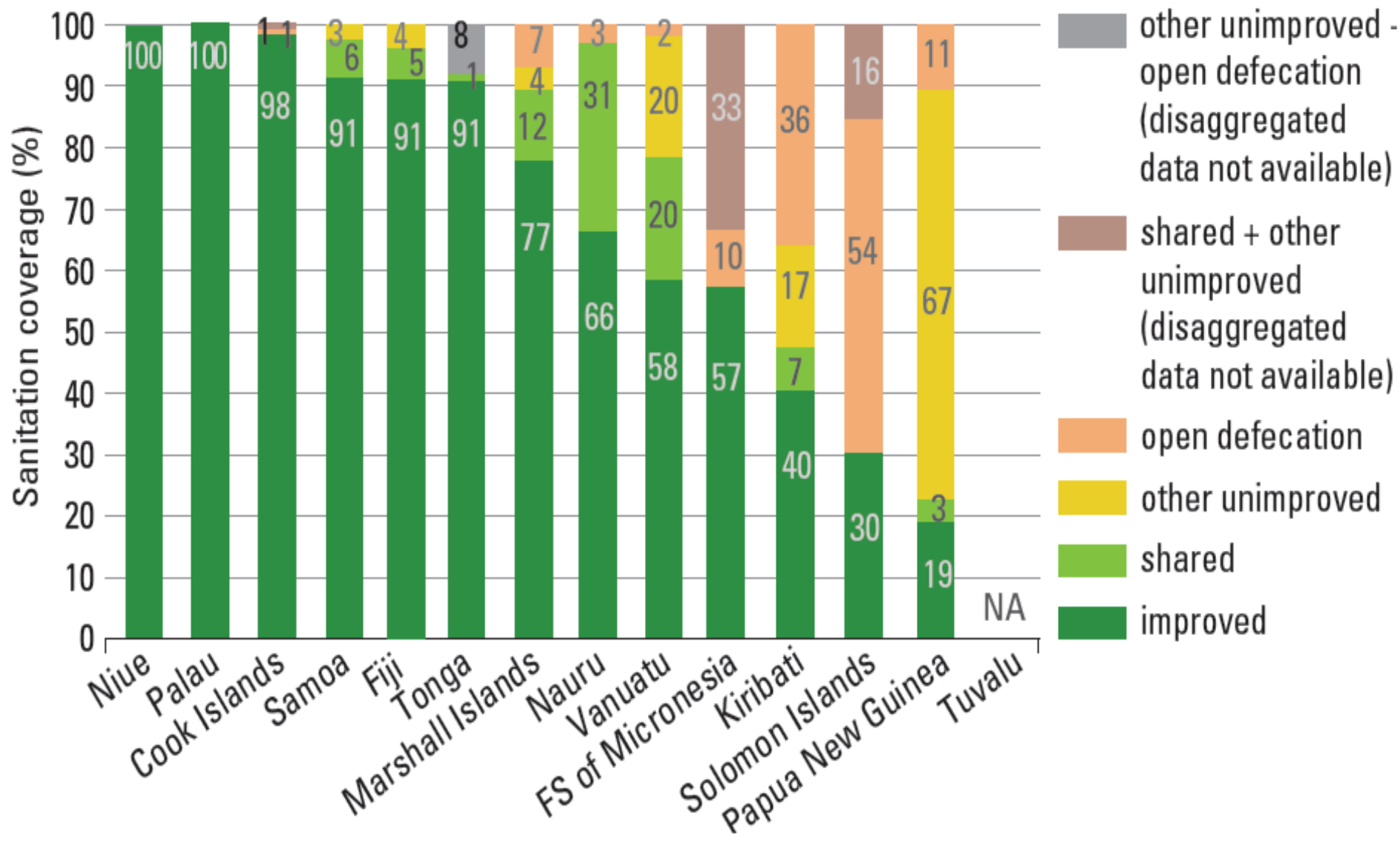


With sanitation coverage of 31% and drinking-water coverage of 52%, the Pacific region lags behind the world in terms of access to these basic services.

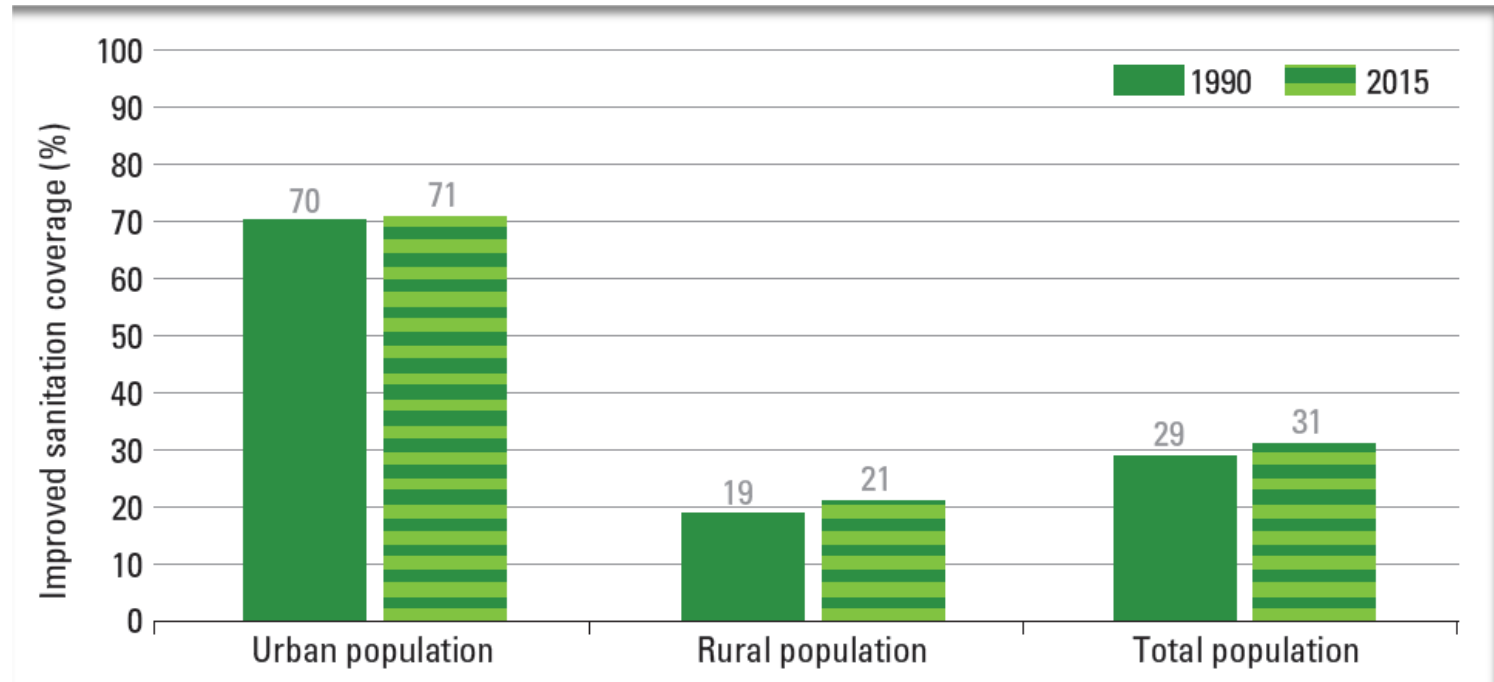
Coverage with improved drinking-water and sanitation compared with under-5 mortality rate per 1000 live births, Pacific island countries, 2012



Proportion of Pacific island countries population using an improved, shared or other unimproved sanitation facility or practising open defecation, 2015

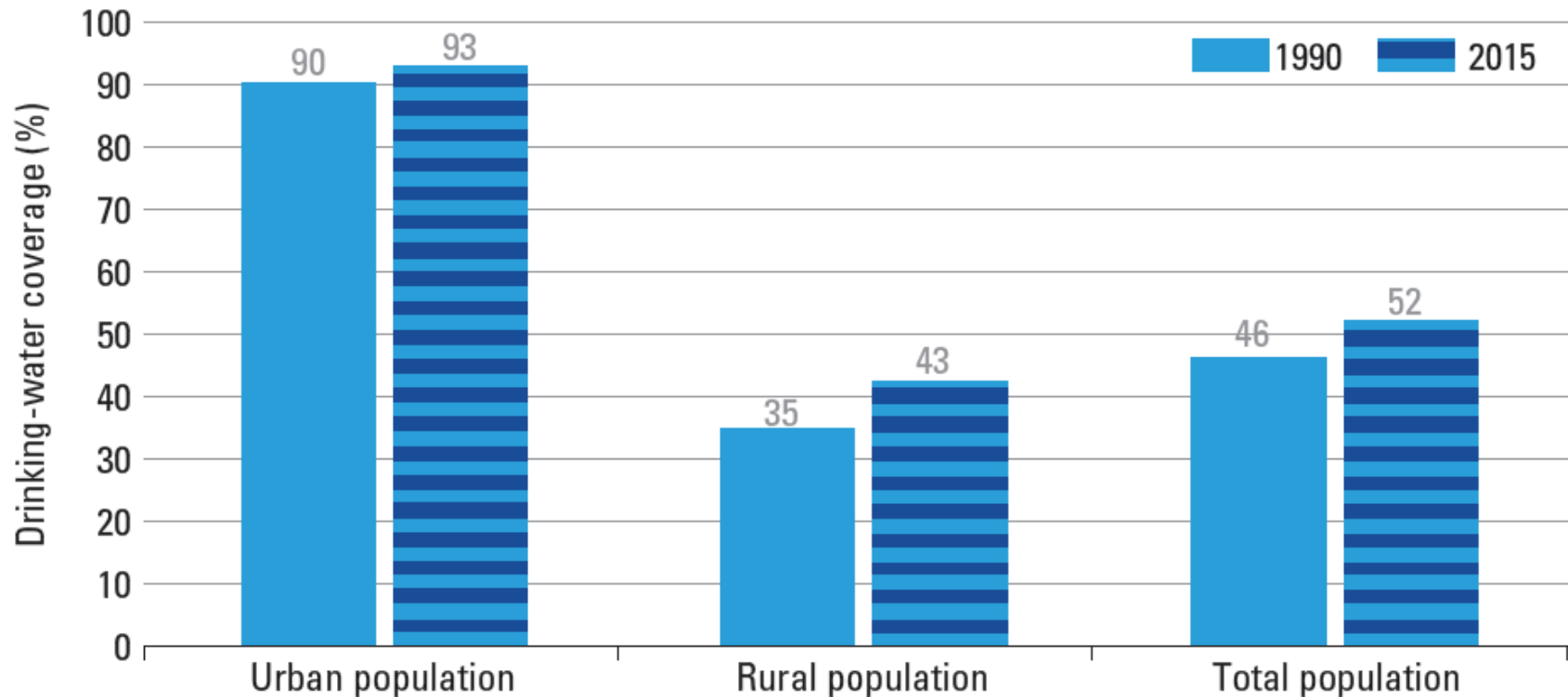


Proportion of urban, rural and total population in the Pacific region using improved sanitation, 1990-2015



In urban areas of the Pacific region, about 3 in every 10 people do not use improved sanitation. In rural areas, 8 in every 10 people do not use improved sanitation.

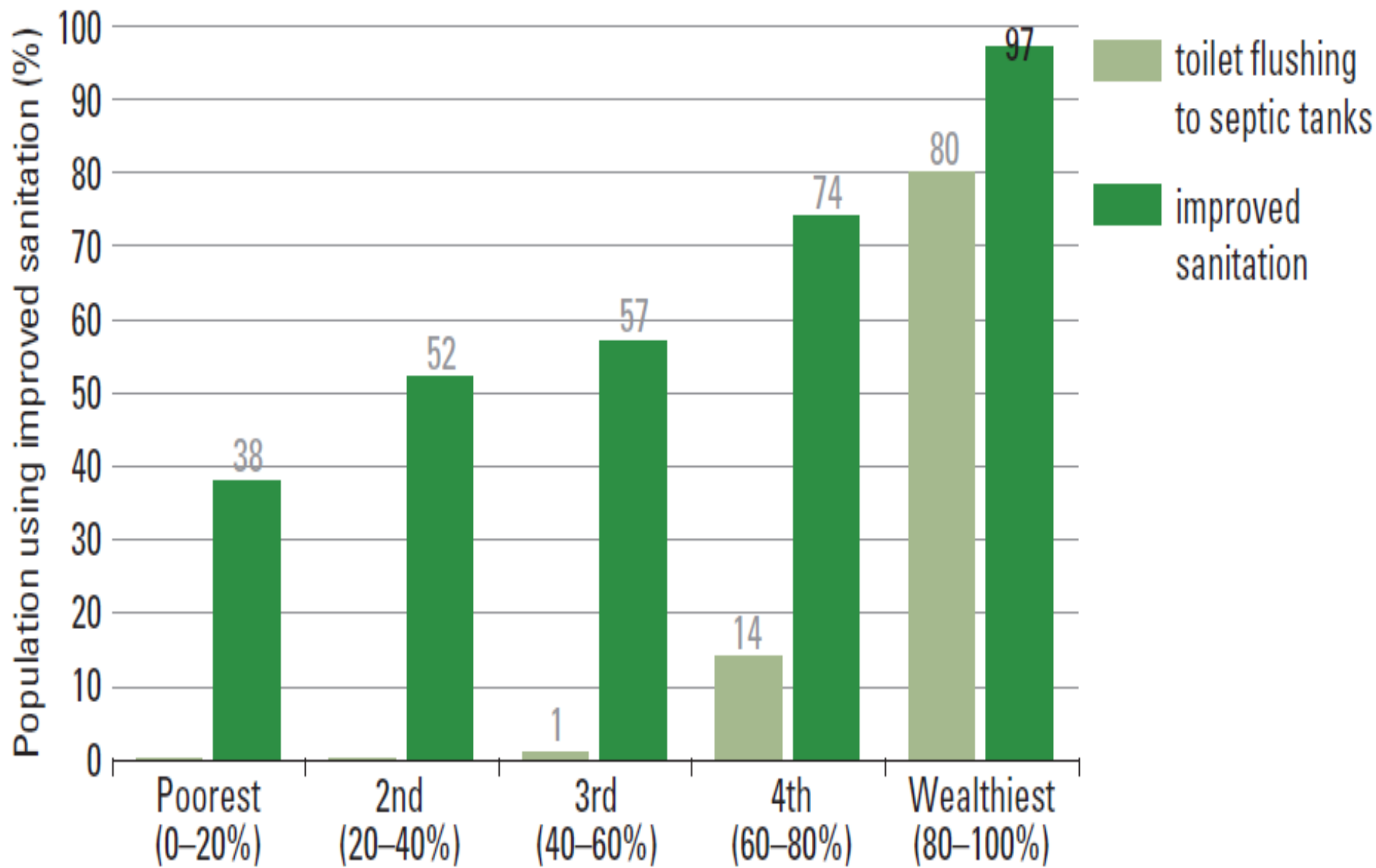
Proportion of urban, rural and total population in the Pacific region using improved drinking-water sources, 1990-2015



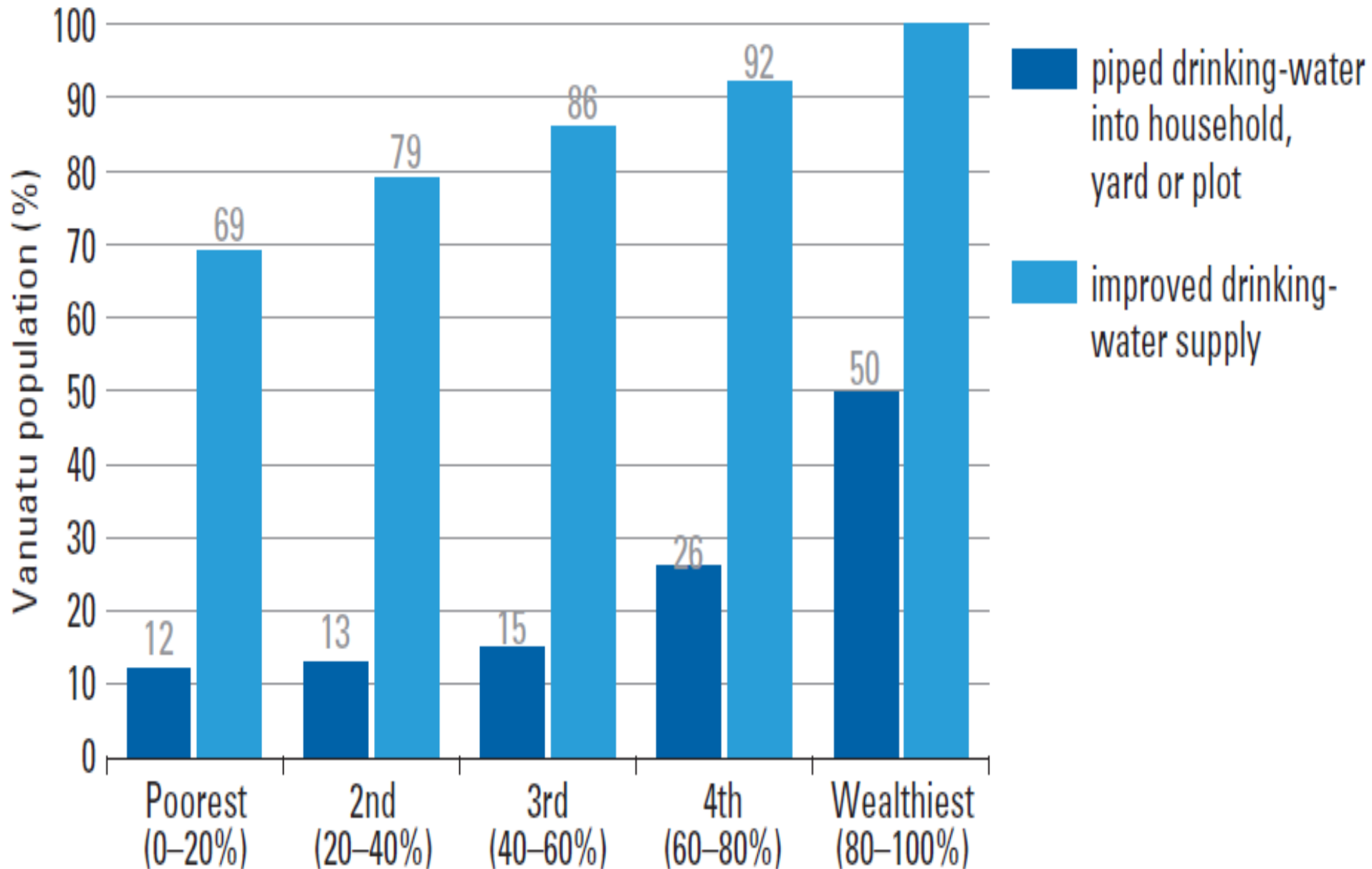
Half of the population in the Pacific region does not use improved drinking-water sources.



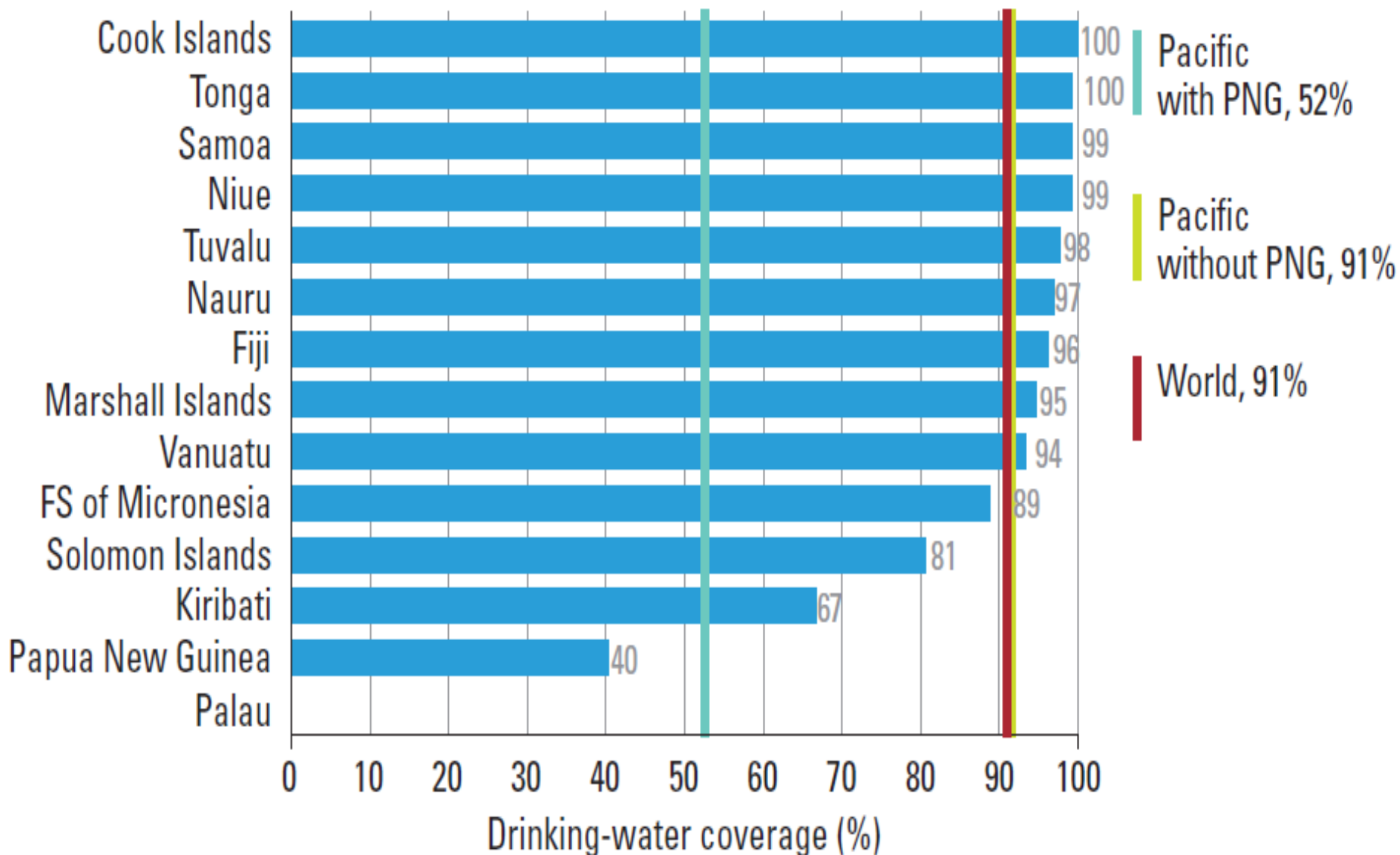
Population of Vanuatu using improved sanitation by wealth quintile, 2007



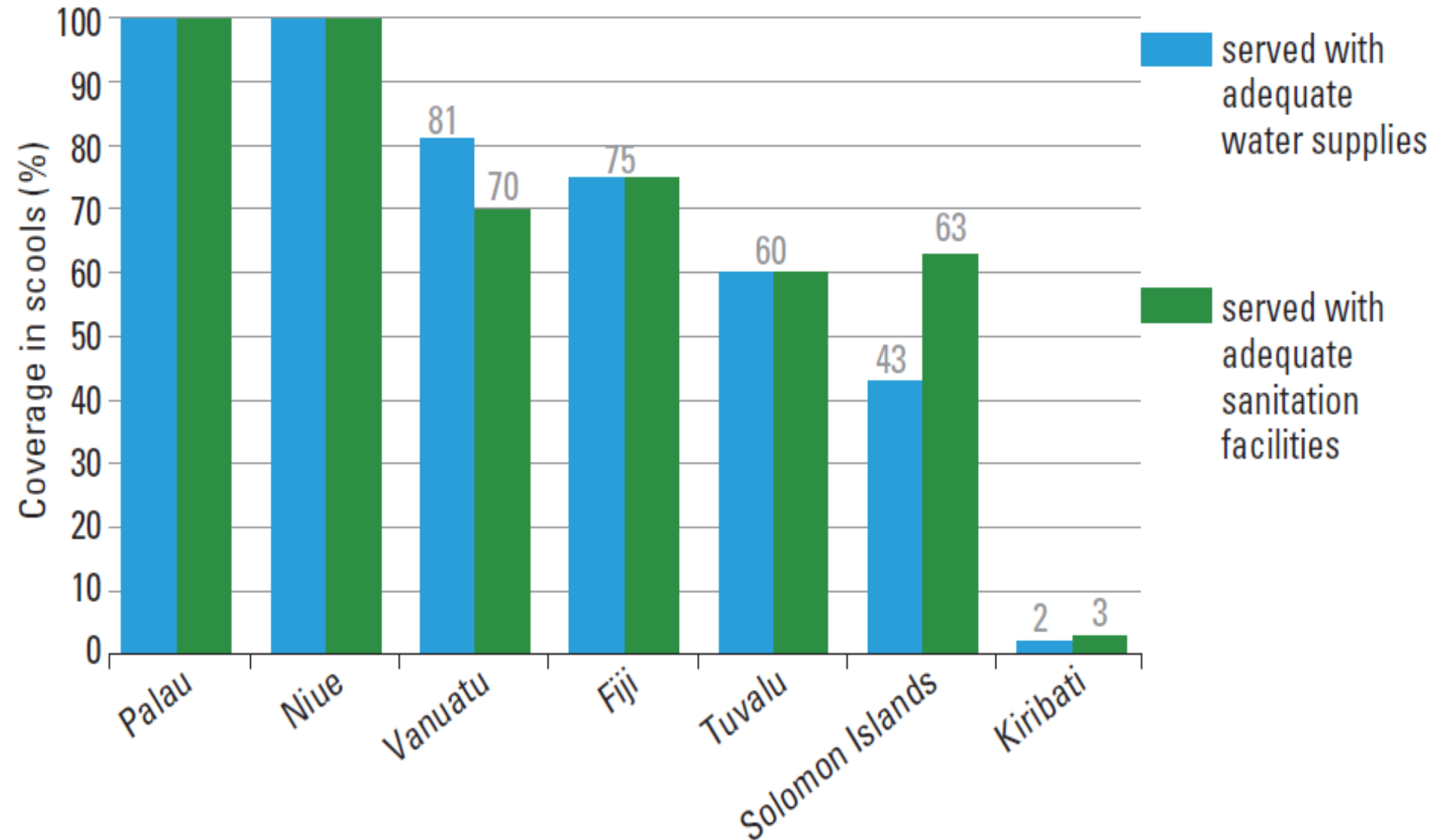
Vanuatu population using improved drinking-water and piped drinking-water into the household by wealth quintile, 2007



Proportion of population using improved drinking-water in Pacific island countries and averages for region – with and without Papua New Guinea – and the world, 2015



Sanitation and water in schools in selected Pacific island countries

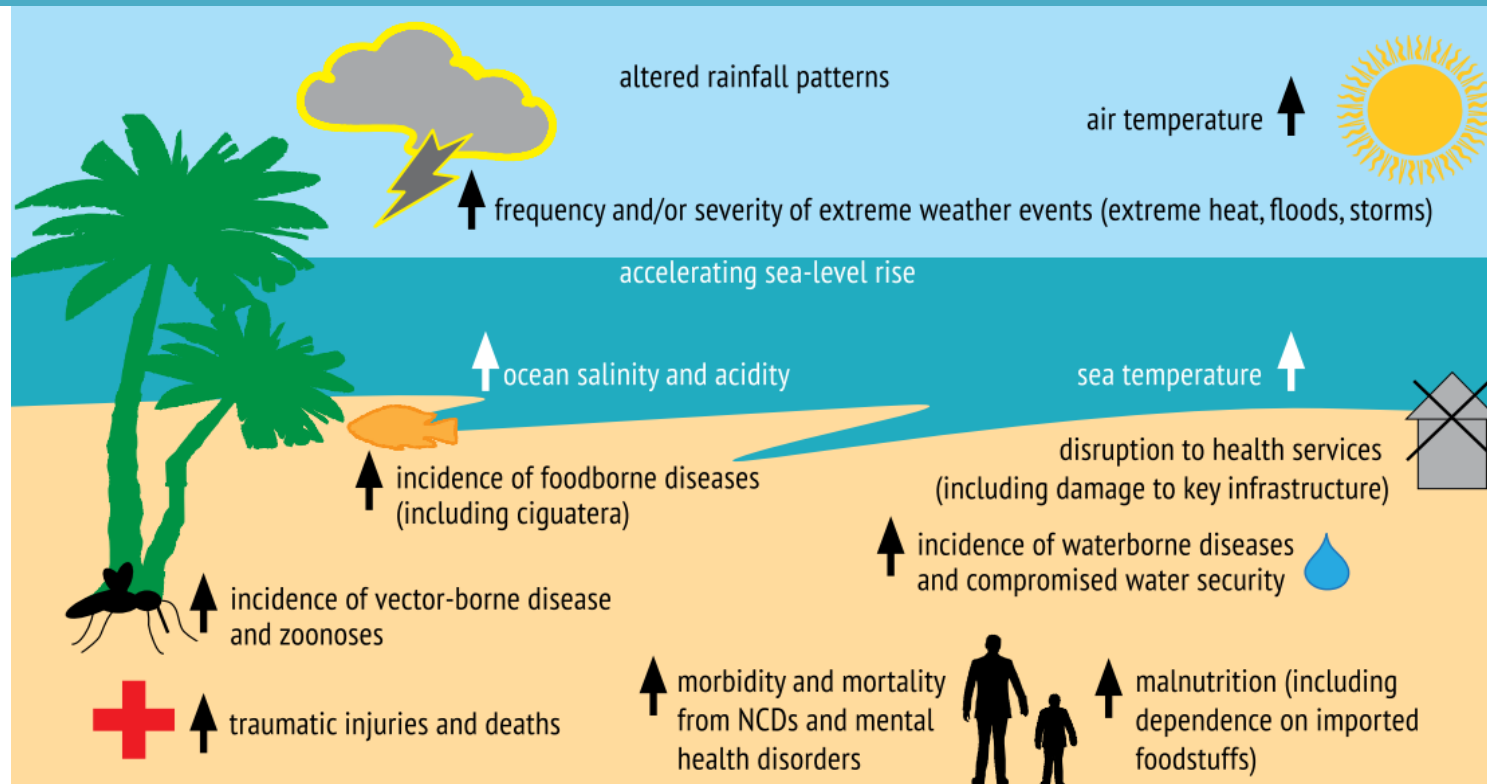


Source: statistics from UNICEF Fiji (unpublished)

Climate change and health (CC&H)

- Atoll countries (Tuvalu, Kiribati, Marshall Islands, Tokelau) are extremely vulnerable.
- Food-, water- and vector-borne diseases, injuries/deaths from extreme weather events, mental illnesses and NCDs are sensitive to climate.
- Most PICs have National CC&H Action Plans (NCCHAPs) or equivalent with WHO support.
- Least Developed Countries (LDCs) need WHO support for building climate-resilient health systems
 - Kiribati, Solomon Islands, Tuvalu, Vanuatu

Climate Change & Health Pathways in PICs



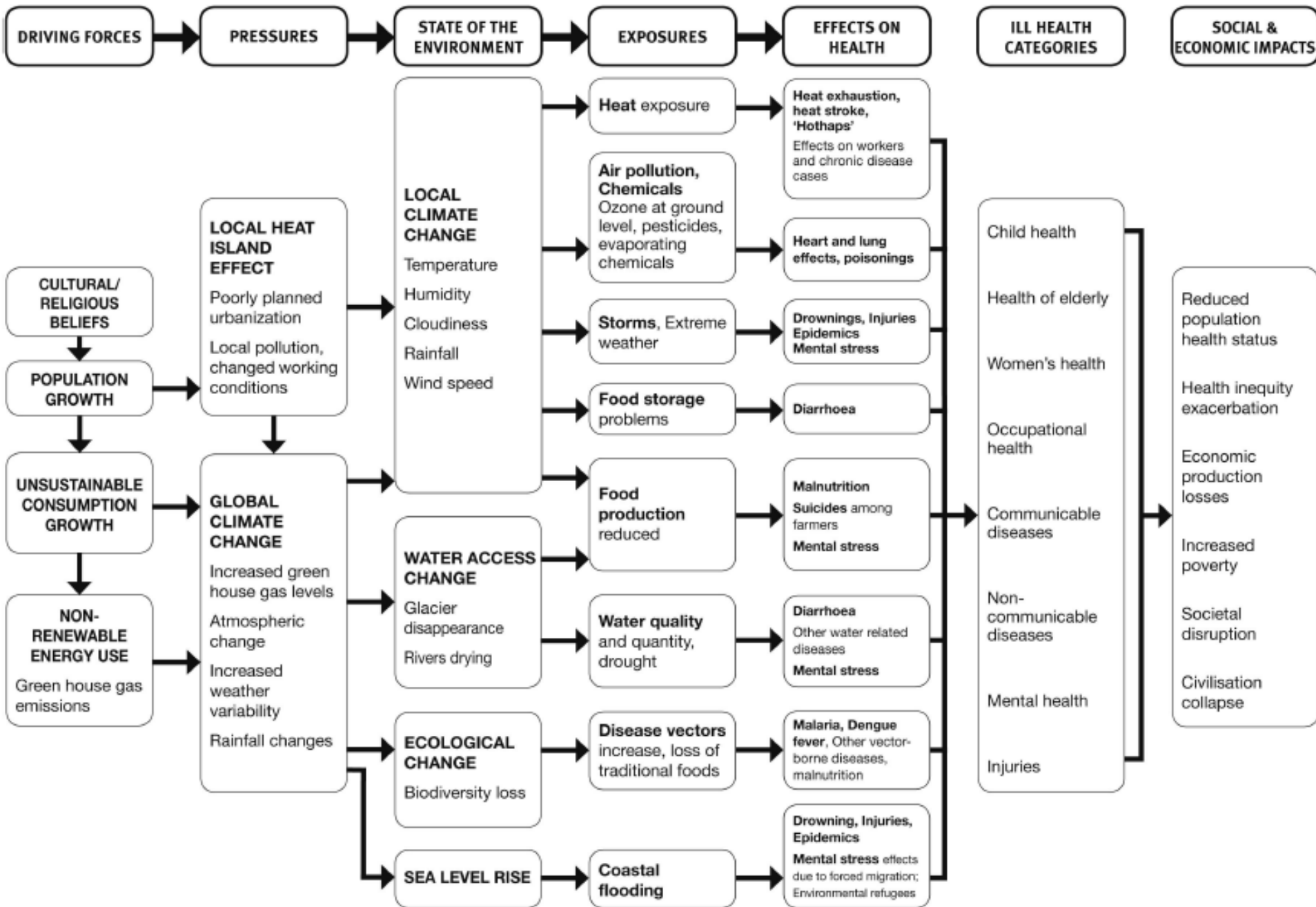
Pathways for health impacts

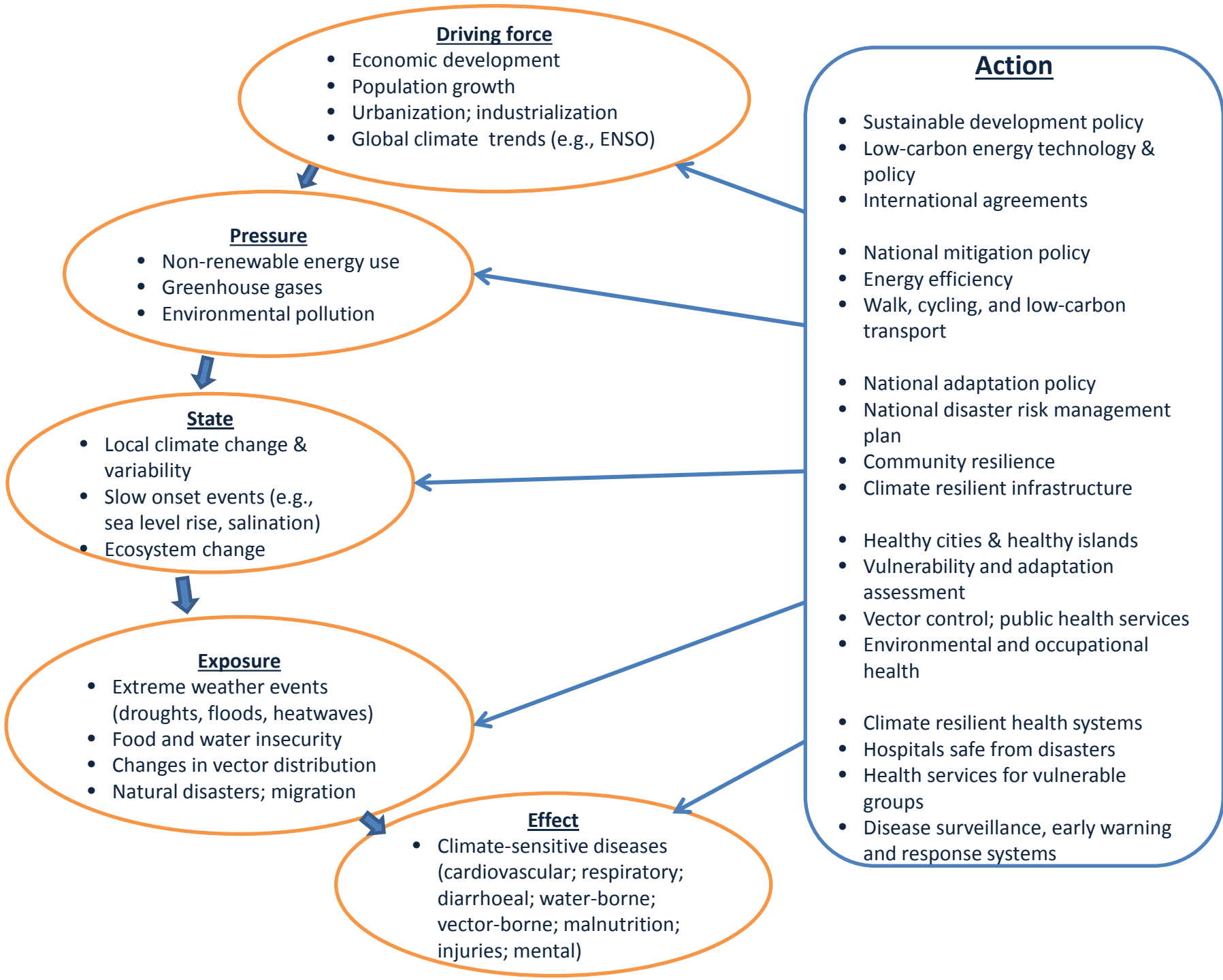
- direct and indirect exposures
- social disruption
- detrimental impacts on economic and human developments

Mediators of health impacts

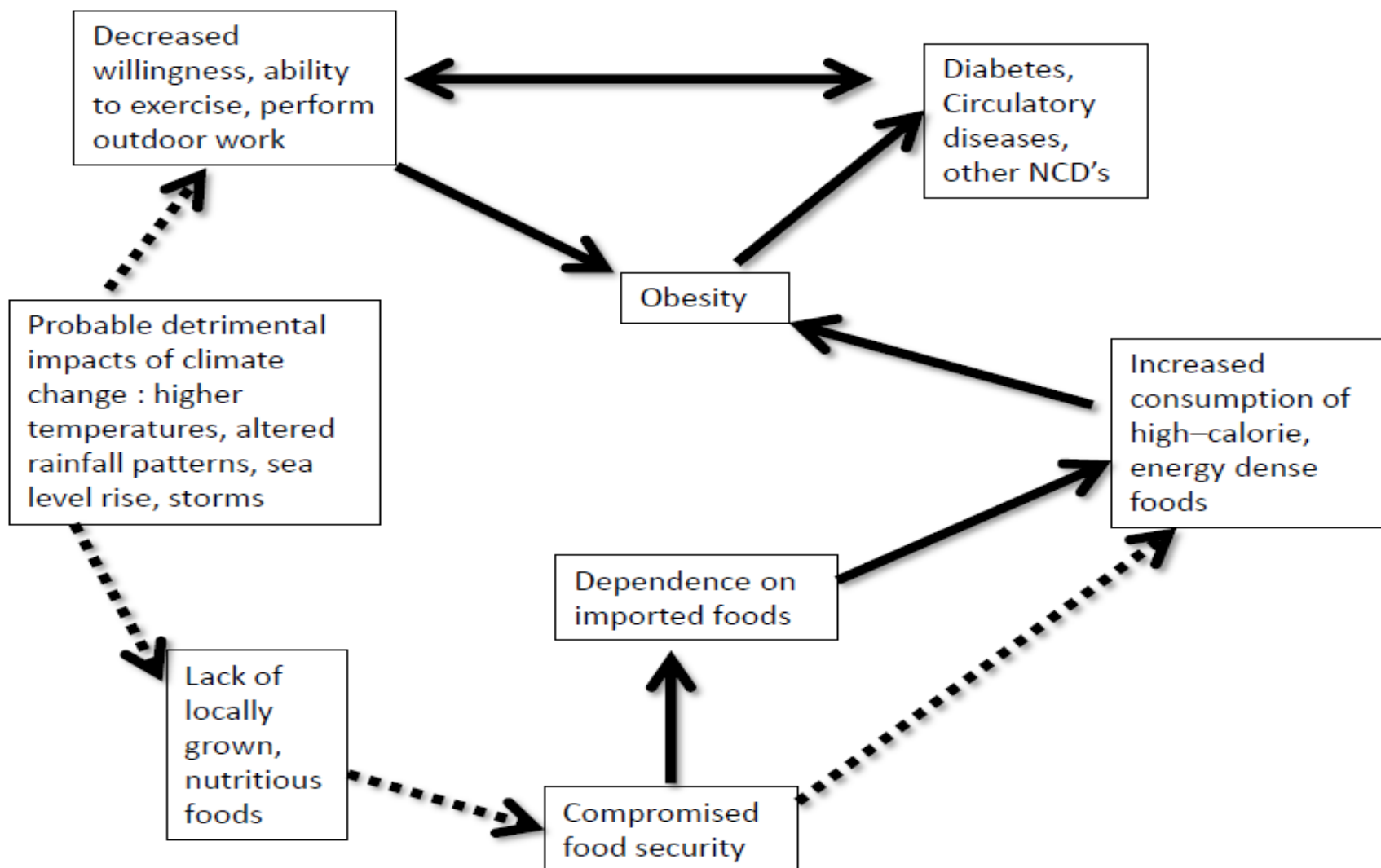
- sociopolitical strategies
- environmental measures
- health systems resilience
- economic development

DPSEEA Framework for CC&H (Kjellstrom and McMichael, 2013)





Climate Change and NCDs



Climate-related health risks in PICs:

Direct effects

CLIMATE-SENSITIVE HEALTH RISK	COUNTRY												
	Cook Islands	Fiji	Kiribati	Marshall Islands	Micronesia (Federated States)	Nauru	Niue	Palau	Samoa	Solomon Islands	Tonga	Tuvalu	Vanuatu
Direct effects													
Health impacts of extreme weather events ¹	x	x		x	x	x	x	x	x	x	x	x	x
Heat-related illness ²	x					x	x			x			x

* Heat-related illness: occupational exposure to hotter working conditions.

Climate-related health risks in PICs:

Indirect effects

CLIMATE-SENSITIVE HEALTH RISK	COUNTRY												
	Cook Islands	Fiji	Kiribati	Marshall Islands	Micronesia (Federated States)	Nauru	Niue	Palau	Samoa	Solomon Islands	Tonga	Tuvalu	Vanuatu
Indirect effects													
Water security & safety (including waterborne diseases) ³	x	x	x	x	x	x	x	x	x	x	x	x	x
Food security & safety (including malnutrition & foodborne diseases) ⁴	x	x	x	x	x	x	x		x	x	x	x	x
Vector-borne diseases ⁵	x	x	x	x	x	x	x	x	x	x	x	x	x
Zoonoses ⁶		x			x			x					
Respiratory illness ⁷	x			x	x	x	x	x		x		x	x
Disorders of the eyes, ears, skin and other body systems ⁸		x		x			x			x		x	x

Climate-related health risks in PICs:

Diffuse effects

CLIMATE-SENSITIVE HEALTH RISK	COUNTRY												
	Cook Islands	Fiji	Kiribati	Marshall Islands	Micronesia (Federated States)	Nauru	Niue	Palau	Samoa	Solomon Islands	Tonga	Tuvalu	Vanuatu
Diffuse effects													
Disorders of mental/ psychosocial health ^{a,9}		x		x	x	x		x		x		x	x
Noncommunicable diseases (NCDs) ^{a,10}		x		x	x		x	x		x	x	x	x
Health systems problems ^{a,11}		x	x										
Population pressures ¹²			x										

* Population pressures: possibility of climate change-induced resettlement, and the effect of climate change-induced sea-level rise in exacerbating overcrowding.

Other issues of EH

- Some Northern PICs completed asbestos profiles – needs updating and expansion to Southern PICs
- Waste management: healthcare and municipal
- Occupational Health is an unexplored territory for most PICs – needs to join the WPRO initiative in OH
- Chemical safety - Pacific Poisons Information Network piloted in four PICs
- Air pollution – indoor and outdoor
- EH impacts of natural disasters

THE STATE OF ASBESTOS IN THE PACIFIC

13

Number of Pacific island countries surveyed for asbestos by the PacWaste project.

187,191 m²

Quantity of confirmed non-residential asbestos identified in the survey. Of this, 83% was found in just four countries.

78%

Percentage of confirmed non-residential asbestos that poses a high or moderate risk to human health.

73

Number of proposed PacWaste asbestos interventions to remove asbestos materials and waste.

56

Number of countries that have banned asbestos globally.

0

Number of Pacific island countries where asbestos is banned.



Asbestos in residential and industrial buildings in PICs



Coastal erosion at the National Referral Hospital, SOL



World Risk Index, 2011-2013

YEAR	2013	2012	2011
Fiji	13.56%	13.69%	13.57%
Japan	14.10%	13.53%	11.13%
Nicaragua	14.89%	15.36%	15.74%
Mauritius	15.18%	15.39%	11.91%
Brunei Darussalam	15.58%	15.92%	14.08%
Papua New Guinea	15.90%	15.81%	15.45%
Timor-Leste	16.37%	17.13%	17.45%
El Salvador	16.85%	16.89%	16.49%
Cambodia	16.90%	17.17%	16.58%
Costa Rica	16.94%	17.38%	16.74%
Solomon Islands	18.11%	18.15%	23.51%
Bangladesh	19.81%	20.22%	17.45%
Guatemala	20.88%	20.75%	20.88%
Philippines	27.52%	27.98%	24.32%
Tonga	28.23%	28.62%	29.08%
Vanuatu	36.43%	36.31%	32.00%

No.	Year	Country	Disaster
<u>1</u>	<u>2009</u>	<u>Fiji</u>	<u>Floods (Jan)</u>
<u>2</u>	<u>2009</u>	<u>SI – Guadalcanal</u>	<u>Floods (Feb)</u>
<u>3</u>	<u>2009</u>	<u>Ambrym</u>	<u>Volcano and Flood (Apr)</u>
<u>4</u>	<u>2009</u>	<u>Samoa</u>	<u>Tsunami (Sep/Oct)</u>
<u>5</u>	<u>2009</u>	<u>Tonga</u>	<u>Tsunami (Sep/Oct)</u>
<u>6</u>	<u>2009</u>	<u>Gaum</u>	<u>Volcano (Dec 2010)</u>
<u>7</u>	<u>2009</u>	<u>Fiji</u>	<u>TC Mick in (Dec)</u>
<u>8</u>	<u>2010</u>	<u>Solomon Islands</u>	<u>Rendova Tsunami -(Jan)</u>
<u>9</u>	<u>2010</u>	<u>Cooks islands</u>	<u>TC Pat in Aitutaki(Feb)</u>
<u>10</u>	<u>2010</u>	<u>Fiji</u>	<u>TC Tomas in(Mar)</u>
<u>11</u>	<u>2010</u>	<u>Solomon Islands</u>	<u>TC Ului in(Mar)</u>
<u>12</u>	<u>2011</u>	<u>Vanuatu</u>	<u>TC Vania in(Jan)</u>
<u>13</u>	<u>2011</u>	<u>Vanuatu</u>	<u>TC Atu in(Feb)</u>
<u>14</u>	<u>2011</u>	<u>Kiribati</u>	<u>Drought Response Planning</u>
<u>15</u>	<u>2011</u>	<u>Tuvalu</u>	<u>Drought response(Oct/Nov)</u>
<u>16</u>	<u>2011</u>	<u>Tokelau</u>	<u>Drought response(Oct/Nov)</u>
<u>17</u>	<u>2012</u>	<u>Fiji</u>	<u>Floods - TD 06F (Jan)</u>
<u>18</u>	<u>2012</u>	<u>Vanuatu</u>	<u>TC Wilma (March)</u>
<u>19</u>	<u>2012</u>	<u>Fiji</u>	<u>Floods - TD 17F (March/April)</u>
<u>20</u>	<u>2012</u>	<u>Palau</u>	<u>Typhoon Bopha in(Nov)</u>
<u>21</u>	<u>2012</u>	<u>Samoa</u>	<u>TC Evan –(Dec)</u>
<u>22</u>	<u>2012</u>	<u>Fiji</u>	<u>TC Evan –(Dec)</u>
<u>23</u>	<u>2013</u>	<u>Solomon Islands</u>	<u>Earthquake & Tsunami(Feb)</u>
<u>24</u>	<u>2013</u>	<u>Marshall Islands</u>	<u>Drought in (April/July)</u>
<u>25</u>	<u>2014</u>	<u>Tonga</u>	<u>TC Ian (Jan)</u>
<u>26</u>	<u>2014</u>	<u>Marshall Islands</u>	<u>King tide (March)</u>
<u>27</u>	<u>2014</u>	<u>Vanuatu</u>	<u>TC Lusi (March)</u>
<u>28</u>	<u>2014</u>	<u>Solomon Islands</u>	<u>Flash floods (April)</u>
<u>29</u>	<u>2015</u>	<u>Vanuatu, SI, Kiribati, Tuvalu</u>	<u>TC Pam</u>
<u>30</u>	<u>2015/6</u>	<u>Most PICs</u>	<u>El Nino</u>
<u>31</u>	<u>2016</u>	<u>Fiji</u>	<u>TC Winston</u>

Poignant examples of impacts



Tropical Cyclone Winston, Fiji, Feb 2016

An aerial photo showing destroyed Mudu village on Koro Island



Key issues of EH in PICs

Environmental Health Risk Factor		Plans and Goals	
Issue	Main tasks	Governments	WHO
WASH	<ul style="list-style-type: none"> • Universal WASH • Elimination of open defecation 	<ul style="list-style-type: none"> • MoH for rural • MoE for urban • National Standards 	Pacific WASH report WSP project continuation Water security
CC&H	<ul style="list-style-type: none"> • NCCHAP follow up • Climate-resilient health systems • Linkage with NCDs 	<ul style="list-style-type: none"> • Early warning system • Health sector adaptation projects • Hospital safety 	NCCHAP/H-NAP supports DRM+CCA joint strategy LDCF project in 4 PICs Joint project of UN agencies
Asbestos	<ul style="list-style-type: none"> • National profiles and programmes 	Awareness raising and technical assistance	Asbestos-free PICs by 2017
HCWM	<ul style="list-style-type: none"> • Collaboration with SPREP 	Implementing PacWaste project with SPREP	HCWM assessment and recommendations by 2017
OH	<ul style="list-style-type: none"> • Implement Global Plan of Action on Workers' Health 	Collaboration with MoL	Report to WHA on GPA implementation in PICs

Conclusion

- PICs are very vulnerable to the impacts of climate change and natural disasters.
- Water and air pollution are the main environmental hazards.
- Climate change is a defining issue.
 - Drowning and injuries
 - Water-, food-, and vector-borne diseases
 - Noncommunicable diseases and mental illnesses
 - Damage and loss of health facilities
- Integrated approach is necessary to build climate- and disaster-resilient health systems.



Thank you very much for your attention.



Acknowledgement : Some slides were adopted from Dr Elizabeth Holland, Mr Jose Hueb and Ms Seulki Lee's.

Cook Islands			
Area of work	Focus, activities	Key achievements	Issues, concerns, comments
WASH	AusAID WSP project	Revised workplan developed Dec '12	Focus on capacity-building, training, development of Water Quality Monitoring programs
CC&H	V&A project Implementation of adaptation activities	NCCHAP completed May 2012	JNAP approach
EHA			
Other			
General comments: Cook Islands is in free association with New Zealand; in general, less intensive support required than in other PICs. May be viewed serve as “benchmark” for other countries and/or provide resources to other PICs.			

Federated States of Micronesia (FSM)

Area of work	Focus, activities	Key achievements	Issues, concerns, comments
WASH			Chuuk State of most concern with respect to WASH – overcrowded, poor sanitation
CC&H	V&A project Implementation of adaptation activities	NCCHAP completed August 2011	Lack of progress with implementation of NCCHAP
EHA			In “typhoon belt”
Other	Asbestos	Asbestos profiles completed for two of the four states of FSM	Very capable Environmental Health Coordinator in FSM WHO DPS to attend national ENH meeting in FSM in 2013

General comments: FSM is a logistically challenging country in which to work, given autonomy of individual states, distance between the four states, infrequent flights etc

Fiji

Area of work	Focus, activities	Key achievements	Issues, concerns, comments
WASH	WSP (focus on rural communities)	<p>Supported WASH activities in post-disaster context</p> <p>Participation in Pacific WASH Coalition (based in Fiji)</p>	<p>Opportunity for WHO to evaluate usefulness/validity of H2S test kits (?develop guidelines)</p>
CC&H	Global pilot project (Piloting Climate Change Adaptation to Protect Human Health – PCCAPHH)	<p>Fiji's PCCAPHH project leading the 7-country global pilot project</p> <p>Advanced statistical models developed correlating historical climate variables with incidence of four priority climate-sensitive infectious diseases</p> <p>Building of technical capacity in GIS and statistical modeling through PCCPAHH project Involvement of local scientific collaborators</p>	<p>PCCAPHH focus on select communicable diseases (to the exclusion of other CDs, as well as NCDs, mental health etc)</p> <p>Opportunities to expand PCCAPHH +/- broaden focus of work in Fiji to include abovementioned issues, as well as transfer “lessons learned” to other PICs</p>

Fiji - continued

Area of work	Focus, activities	Key achievements	Issues, concerns, comments
EHA	Disaster risk reduction, preparedness, response, recovery	Development of national Cluster system supported by WHO as co-lead of Health & Nutrition Cluster, and member of WASH Cluster Assisted MoH in response to several major disaster events in last two years (floods, cyclones), including distribution of Inter-Agency Emergency Health Kit in 2012	Prone to cyclones, floods, droughts
Other		WHO presence office in Fiji MoH – currently dedicated to PCCAPHH Project – has enabled the development of strong relationships with ENH & EHA counterparts, as well as high level “buy-in” for CC&H issues	Opportunity to explore health-related aspects of <i>kava</i> consumption and air pollution studies in Fiji (large cities by Pacific standards)

General comments: Fiji is the largest and most populated country in the Pacific (after PNG); also has a strong regional leadership role (including for health/research e.g. main medical school for the Pacific is in Fiji), therefore opportunities for strategic partnership with local academic institutions

Kiribati

Area of work	Focus, activities	Key achievements	Issues, concerns, comments
WASH	Water safety, security, hygiene & sanitation standards	WHO supported study of “Lifestraw” in 2011 (household water micro-filtration device)	Kiribati among most vulnerable countries in the world with respect to water supply & quality; very poor hygiene and sanitation standards
CC&H	V&A project Implementation of adaptation activities	NCCHAP completed November 2011 Good progress with implementation of NCCHAP, courtesy of EU-funded project (GCCA-PSIS), implemented by SPC with technical input from WHO	Kiribati among most vulnerable countries in the world to the impacts of CC (particularly, but not exclusively, sea-level rise), including major expected impacts on health WHO may provide technical assistance in environmental epidemiology, GIS and syndromic surveillance as part of inputs to abovementioned CC&H project
EHA			Prone to drought
Other	Waste management (medical, solid, liquid)	WHO has been involved with medical waste disposal project for Turangu Hospital (South Tarawa)	Like all atoll countries, Kiribati has severe challenges with waste disposal

General comments: Very high priority country for ENH. Possible opportunities for collaboration with major donor on renewable energy project, covering climate change adaptation + co-benefits + air quality etc. Strong CLO supporting range of WHO activities.

(Republic of the) Marshall Islands

Area of work	Focus, activities	Key achievements	Issues, concerns, comments
WASH	Water supply, safety	WHO has provided technical inputs to the development of IWRM program	Extremely vulnerable country with respect to WASH Very poor water (and food) safety and security
CC&H	V&A project Implementation of adaptation activities	NCCHAP completed Nov '11	Extremely vulnerable country with respect to CC&H (note impact of major dengue outbreak in 2011-12, in context of common perception of “immunity” to dengue in RMI) No progress with implementation of NCCHAP
EHA			Vulnerable to drought, storm surges
Other			World War II-era radiation exposure still very prominent issue for Marshallese; health impacts on current/future generations to be investigated

General comments: RMI is in free association with the USA. Capacity across government sectors (including health) is generally very low. Extremely high burden of NCDs. Very challenging country in which to work.

(Republic of) Nauru

Area of work	Focus, activities	Key achievements	Issues, concerns, comments
WASH	Water safety, security Sanitation & hygiene	WHO contributed to development of IWRM program	Water safety and security highly vulnerable S&H particularly problematic in some areas (e.g. Location Compound)
CC&H	V&A project Implementation of adaptations	NCCHAP final draft completed January 2012	Nauru highly vulnerable to impacts of climate change, particularly those related to food and water safety and security (including secondary impacts on NCDs) NCCHAP yet to be finalized and endorsed by government No progress with implementation of NCCHAP
EHA			
Other	Air quality		Secondary phosphate mining – uncertain health impacts

General comments: Australian government has recently re-opened “asylum-seeker processing facility” on Nauru, with very significant demographic, economic and health impacts. Secondary phosphate mining is another politically contentious issue. Very low health workforce capacity.

Niue

Area of work	Focus, activities	Key achievements	Issues, concerns, comments
WASH	Water safety	WHO has been active in supporting WASH activities in Niue	Water supply and quality generally good
CC&H	V&A project Implementation of NCCHAP	NCCHAP completed April 2012	Minimal progress towards implementing NCCHAP Impact of dengue outbreak in early 2012 was quite significant; community response was encouraging
EHA			Cyclones have had major impact on this tiny country (e.g. Cyclone Heta destroyed hospital in early 2000's)
Other			Niue has significant burden of NCDs and has long-term viability issues with respect to its tiny population

General comments: Population around 1400. Niue is in free association with New Zealand, which takes responsibility for defence, foreign affairs etc. Niueans may migrate freely to NZ; the Niuean population in NZ is several times greater than the population in Niue. Only one flight a week to Niue.

Palau

Area of work	Focus, activities	Key achievements	Issues, concerns, comments
WASH	Water safety		Major water infrastructure upgrade taking place (with WB funding)
CC&H	V&A project Implementation of adaptations	NCCHAP completed September 2011	Good progress with implementing adaptations, particularly with respect to food security and water safety
EHA	Training (HERM)		Affected by Typhoon Bopha (Dec 2012); have requested EHA training in early 2013
Other	Asbestos	Asbestos profile completed	Request for technical advice about mould infestation in the government building.

General comments: Small country (population 20 000) but relatively high capacity. Very well-respected Health Minister (Dr Stevenson Kuartei).

Papua New Guinea (PNG)			
Area of work	Focus, activities	Key achievements	Issues, concerns, comments
WASH			
CC&H	V&A Implementation of adaptations	NCCHAP completed 2010	Several activities underway in PNG related to CC&H adaptation (e.g. KOICA-funded VBD project)
EHA			Included in WPRO proposal for Safe Hospitals & Health Facilities (via ECHO)
Other			
General comments: Strong WR office; in practice, mostly independent of DPS activities.			

Solomon Islands

Area of work	Focus, activities	Key achievements	Issues, concerns, comments
WASH	Water safety, improved S&H		Relatively poor indicators with respect to access to improved WASH facilities
CC&H	V&A Implementation of adaptations	NCCHAP completed November 2011	Will need substantial assistance to implement NCCHAP
EHA	Disaster risk reduction; HERM	WHO supporting a national Cluster System for disasters	Extremely vulnerable to disasters, which are frequent, severe and high-impact EHA training for WR office + MHMS staff planned for Feb 2013 Included in WPRO proposal for Safe Hospitals & Health Facilities (via ECHO)
Other			

General comments: Strong WHO presence in Solomon Islands through WR office. Generally low capacity. Current ENH counterpart shows good potential.

Tokelau

Area of work	Focus, activities	Key achievements	Issues, concerns, comments
WASH			Atoll countries – WASH issues of paramount importance
CC&H			Extremely vulnerable to CC, including health impacts. No substantive V&A work done for health sector.
EHA			
Other			

General comments: In free association with NZ. Travel to Tokelau very difficult (no airport; must take boat from Samoa). WHO work historically limited in Tokelau.

Tonga

Area of work	Focus, activities	Key achievements	Issues, concerns, comments
WASH	WSP	Revised workplan for AusAID-funded WSP project developed	
CC&H	V&A project Implementation of adaptations	National report on CC&H completed February 2012	Progress with adaptations in relation to VBD
EHA	Disaster response; HERM	WHO assisted with health sector's response to cyclone in 2012	Disaster prone country
Other			

General comments: Strong CLO supporting range of WHO activities.

Tuvalu

Area of work	Focus, activities	Key achievements	Issues, concerns, comments
WASH	Water safety	WHO supporting focus on household rainwater harvesting	Atoll country – poor water security and S&H indicators
CC&H	V&A work Implementation of adaptations	NCCHAP completed April 2012	Health sector <u>may</u> be prioritised for CC adaptation funding under EU/SPC project – need to keep close eye on developments
EHA			
Other			Waste management is a significant challenge on atolls

General comments: Small health workforce but quite high capacity at senior levels, including public health.

Vanuatu

Area of work	Focus, activities	Key achievements	Issues, concerns, comments
WASH	WSP	<p>Revised workplan for AusAID-funded WSP project developed</p> <p>WHO collaborating with SPC on rural WSP program</p> <p>WHO involved in development of national water quality guidelines</p>	
CC&H	<p>V&A</p> <p>Implementation of adaptations</p>	NCCHAP final draft	<p>NCCHAP still needs to be finalized (appears to be “stuck” in CC office)</p> <p>Uncertain progress with respect to implementation</p>
EHA	DRR, HERM	Supply of emergency telecommunications kit to CLO (in progress)	<p>Extremely vulnerable to a wide range of natural disasters</p> <p>Included in WPRO proposal for Safe Hospitals & Health Facilities (via ECHO)</p>
Other			

General comments: Strong CLO supporting range of WHO activities.