NCD ROADMAP REPORT

Noncommunicable diseases impose large – but often preventable – health, social and economic costs in the Pacific Islands. This report provides a suggested Roadmap for a multi-sectoral approach for a country and regional response to the NCD Crisis in the Pacific.

A background document on preventing and controlling NCDs in the Pacific, circulated June 2014 for consideration by the Joint Forum Economic and Pacific Health Ministers' Meeting, July 2014.

Contents

Acronyms and Glossary

Body Mass Index (BMI)	Body Mass Index. A measure of weight for height, calculated as a person's weight in kilograms divided by the square of the persons height in metres: kg/m2. WHO define BMI equal to or greater than 25 as overweight, and BMI equal to or greater than 30 as obese. There is ongoing research about how appropriate these cut off points are in the Pacific.
CHD	Coronary Heart Disease
Cost-effectiveness analysis; highly cost-effective; cost-effective; and not cost-effective	**Cost-effectiveness analysis** compares the costs, and the health effects, of alternative interventions to see which option achieves the biggest impact for the same cost (or same impact for the lowest cost). The technique helps decide if an intervention gives value for money ('maximum bang for the buck') as distinct from simply being the lowest cost option. Many use the WHO convention that a **highly cost-effective** intervention globally delivers a result at less than GDP per capita; a **cost-effective** intervention between one and three times GDP per capita; and **not cost-effective** intervention at more than three times GDP per capita (WHO, 2013b)
CVD	Cardiovascular Disease
DALY	Disability Adjusted Life Year. Instead of simply measuring the cost of death averted, a DALY seeks to take into account avoidance of death and sickness and disability. A DALY is therefore a notional, composite, measure combining mortality (death) and sickness / disability (morbidity). One DALY represents the loss of one healthy year of life.
Externalities	Costs (including social costs) that are not fully captured in the price of a product.
FEMM	Forum Economic Ministers Meeting
Fiscal Space	Exists when a government has budgetary room to increase spending, and can do so without impairing fiscal solvency i.e. the government's present and future ability to cover its recurrent expenditures and service its debts (Heller P, 2005)
FCTC	WHO Framework Convention on Tobacco Control
Market failure	'When a market left to itself does not allocate resources efficiently' (Economist, 2013). Sources of market failure include abuse of market power by monopolies; externalities (good or bad effects not captured by the price of a product or service); 'public goods' (things that the private sector has little or no incentive to produce at a socially desirable level) and information failures (asymmetric information or uncertainty)
NCDs	Non-Communicable Diseases, also known as chronic diseases are not passed from person to person. The four main causes of death (mortality) and illness (morbidity) from NCDs are the following: *Cardiovascular disease (CVD)* includes heart attacks, stroke, and other heart and blood vessel diseases.

	Cancer including neoplasms. *Diabetes* rarely kills patients by itself but is a major contributing factor to deaths from heart, circulatory, and kidney failure. *Chronic respiratory diseases* including Chronic Obstructive Pulmonary Diseases (COPD), asthma, emphysema and chronic bronchitis.
Obesity	Body Mass Index (BMI) ≥ 30 kg / m2
Overweight	Body Mass Index (BMI) ≥25 kg / m2
PDARN	Pacific Drug and Alcohol Research Network
PICTA	Pacific Island Countries Trade Agreement
PEN	Package of Essential Non-communicable (PEN) Disease Interventions for Primary Health Care in Low Resource Settings. (An initiative of the World Health Organization)
QALY	A health outcome measurement unit that combines duration and quality of life. See Sassi (2006)
Price elasticity	'Measures how much the quantity of supply of a good, or demand for it, changes if its price changes. If the percentage change in quantity is more than the percentage change in price, the good is elastic; if it is less, the good is inelastic'. (Economist, 2013)
Regressive tax	'A tax that takes a smaller proportion of income as the taxpayer's income rises, for example, a fixed-rate vehicle tax that eats up a much larger slice of a poor person's income than a rich person's income' (Economist, 2013)
SADs	Smoking Attributable Deaths
SNAP	Smoking, Nutrition, Alcohol, Physical inactivity
SPC	Secretariat of the Pacific Community
STEPS	Not an acronym. It is the term used for the WHO stepwise approach to surveillance of risk factors
SSB	Sugar Sweetened Beverages: sodas, sports drinks, etc
VAT	Value Added Tax
WHO	World Health Organization
WTO	World Trade Organization

Currencies

All $ are current United States dollars unless otherwise stated

Executive Summary

The key messages of this report

- NCDs are already causing a health crisis in the Pacific, with most of the trends and risk factors pointing to a substantial worsening of the situation.
- Several NCD related programs are already financially unsustainable.
- Overall NCD costs in the Pacific are expected to continue increasing, given the high level of risk factors for NCDs in the region and the lack of investments in primary and secondary prevention strategies to date. However effective implementation of the recommendations in this Roadmap is the most likely way of 'bending' the cost curve for NCD treatments downwards, putting countries on the path to more sustainable financing.
- Growing NCD burdens, combined with modest economic growth, will inevitably further squeeze Ministry of Health *and* national development budgets unless urgent action is taken now. Premature death and disability undermines national economic productivity.
- Fortunately, many NCDs are often preventable, or their health and financial burdens can at least be postponed.
- Proven, affordable, and cost-effective interventions are available. Some interventions are cost-saving, paying for themselves over the longer term
- Multiple factors inside – and beyond – the health sector are driving the rise in NCDs, so a multi-sectoral approach is essential.
- Given risk factors in the Pacific, and available 'best buys', each country should now finalise its own short Country-specific NCD Roadmap that would include the following four key strategies common to all countries in the Pacific :
    - Strengthened **tobacco** control (including raising the excise duty on tobacco products to at least 70% of their retail price));
    - Policies on reducing consumption of **food and drink** products directly linked to obesity, heart disease and diabetes in the Pacific, especially salt and sugary drinks.
    - Improved **efficiency and impact** from the existing health dollar by reallocating resources to targeted primary and secondary prevention of NCDs including scaling up of PEN and better drug prices;
    - Strengthening the **evidence base** for better investment planning and program effectiveness, including estimating productivity losses to the economy from premature NCD disability and death.
- Countries can then add other interventions to their own country NCD Roadmap that suit their own specific country needs and capacities. This report identifies a menu of over 30 other actions suited to the Pacific from which to choose.
- A simple template is provided at Annex 10 that can serve as the basis for a country specific, but also region wide, NCD Roadmap.

Section 1:

Why an NCD 'crisis'?

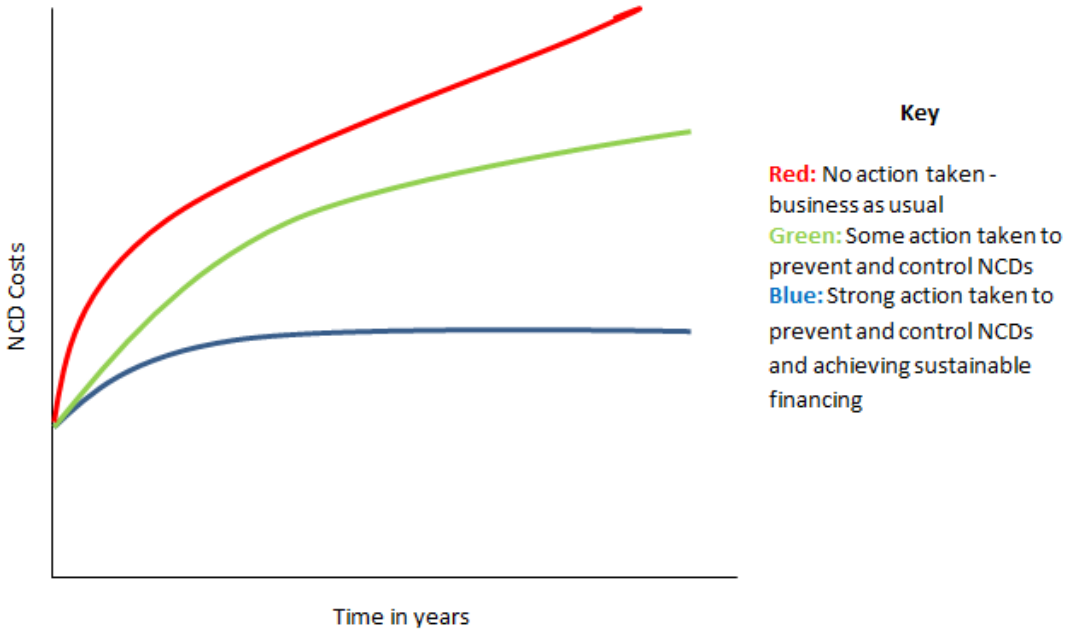
There are essentially three arguments why the Pacific is facing an NCD 'crisis': a health argument, an economic argument; and a political argument.

The **health argument** is essentially that NCDs are already a major health challenge in the Pacific. NCDs account for around 70% of all deaths in the Pacific, and in some cases up to 75% of all deaths. Importantly, many of these NCD related deaths are premature (before age 60 years) and are preventable. Indeed, most countries in the Pacific have rates of premature deaths much higher than the rest of the world. Pacific Island countries have some of the highest rates of diabetes in the world. NCDs not only cause premature deaths, they also impose a heavy burden of disability on individuals, families, and workers including through strokes, diabetes related blindness and amputations, and kidney disease. Importantly, the trends are pointing the wrong way: existing risks factors suggest that NCDs will be an even greater health challenge for the Pacific in coming years unless urgent and widespread action is taken now. Over half (52.45%) of adult males in Tonga are estimated to be obese - the highest prevalence of obesity out of 188 countries worldwide – and four of the seven countries in the world where adult female obesity is estimated to be 50% or more of the population are in the Pacific: Kiribati, FSM, Tonga and Samoa (Ng et al., 2014). Three of the top ten countries in the world for rates of adult smoking are in the Pacific: Kiribati, PNG and Tonga (Ng M et al., 2014).

The **economic argument** is essentially that NCDs impose large – but often preventable – costs on already overstretched Government health budgets, and the economy more broadly. Countries can expect a further rise in the costs of treating NCDs in the coming years given the pipeline of risk factors in the Pacific, and the lack of investment in primary and secondary prevention to date. A hypothetical, stylised, presentation of this possibility is shown in diagram one below. Overall NCD costs in the Pacific are expected to continue increasing, given the high level of risk factors for NCDs in the region and insufficient investments in primary and secondary prevention strategies to date. However effective implementation of the recommendations in this Roadmap is the most likely way of 'bending' the cost curve for NCD treatments downwards, putting countries on the path to more sustainable financing. The rising costs of (preventable) NCD treatment extend beyond the health sector, undermining national budgets and national investments. NCDs also impose large – but again often preventable – economic costs on individuals and the economy more broadly through death and disability of key skilled workers. Adverse social impacts occur when people – especially girls – are withdrawn from education or the workforce to become carers for those with NCD disabilities. Orphans and widows caused by premature NCD deaths are vulnerable to poverty and exploitation.

Diagram one

A hypothetical, stylised representation of how NCD treatment costs may rise. Strong implementation of the recommendations of this report can, however, "bend the cost curve" that puts countries on a path to more sustainable financing.



The **political argument** is essentially that Pacific Islands Forum Leaders themselves have invested political capital by explicitly declaring the "Pacific is in an NCD Crisis". Health, Finance and Economic, and Trade Ministers from the Pacific have made similar commitments. A business as usual approach, combined with the existing high level of risk factors for NCDs, will inevitably lead to deteriorating health and living standards in the Pacific under the watch of current leaders, thereby undermining their political credibility and reputation. But political leaders who take substantial action now to prevent and control the NCD crisis in the Pacific will make a substantial and recognised contribution to social and economic growth in their countries.

Why the focus on cardiovascular disease and diabetes?

There is a particular focus in this report on cardiovascular disease (which leads to high blood pressure, heart attacks and strokes) and type 2 diabetes. This is deliberate. In Tonga for example 60% of all male deaths and 58 % of all female deaths of all ages are attributed to cardiovascular disease and diabetes. Cancers and chronic respiratory diseases – the other two main NCDs that occur in the world – should, of course, continue to receive attention and resources where that is technically feasible and affordable in the Pacific. Countries with limited resources and lower incidence of cancer can also seek to identify opportunities to leverage off other existing programs: antenatal care and public health advice about sexually transmitted infections provide a good opportunity for identification and prevention of cervical cancer. Effective risk reduction through tobacco control, reduce harmful use of alcohol, improved diet and physical activity contributes to reduction of the incidence of all four main NCDs: cardiovascular disease, diabetes, chronic respiratory diseases, and cancers.

Why the focus on risk reduction more than disease management?

There is a deliberate focus on reducing exposure of the population to modifiable risk factors of major NCDs affecting the countries including tobacco use, unhealthy diet, physical inactivity and harmful use of alcohol. That is because it is almost always more costly to treat NCDs than to prevent them arising in the first place, or progressing to more advanced stages. That is especially so in low and middle income countries where economic resources (including money and skilled health personnel) are scarce.

Why the focus on these four strategies?

Governments – and their citizens – want to know that scarce health resources are being directed to a manageable set of achievable actions that will have the most impact on health outcomes and will provide the best value for money. This report uses the international literature to identify four key strategies – tobacco control; reducing consumption of unhealthy food and drink; improved efficiency and impact; and improved evidence base for decision making – that will make the biggest difference to reducing the health and economic burdens of NCDs in the Pacific. Importantly, these four key strategies constitute "best buys" for *all* countries in the Pacific irrespective of their population size, wealth, or political and economic systems. Implementing these four key strategies will also contribute to a regional response to the region wide NCD crisis. As this report makes clear, individual countries are then also encouraged to identify and implement additional interventions to the four 'region-wide' strategies so as to address particular risk factors that affect their country, and for which they have the resources to respond.

Why a multisectoral approach?

Multiple factors inside – and beyond – the health sector are driving the rise in NCDs, so a multi-sectoral approach is essential. WHO estimates that two thirds of the effects in responding to NCDs will come from reducing exposure to risk factors through multisectoral initiatives. Around one third of the effect to better control NCDs will come from interventions to prevent and treat high risk groups – for example sedentary, overweight, smokers with high blood pressure and insulin resistance – particularly through interventions at the primary care level. Continued, and intensified, leadership from the health sector in promoting population wide tobacco control and scaling up the Package of Essential NCD interventions (PEN) for high-risk groups is therefore essential. But relying on the health sector alone to reduce the NCD crisis is ineffectual. The social determinants of health need to be addressed. And while pharmaceutical drugs and similar treatments have a vital role to play in preventing and treating NCDs, 'medicalising' the NCD response through drugs alone when changes in lifestyle would have been more effective is wasteful of scarce health resources. Ministers from the Pacific have therefore formally committed themselves to adopting a multi-sectoral approach to responding to NCDs. Stakeholder analysis identifies numerous areas where multi-sectoral approaches are needed. Development partners also have an interest in supporting a multisectoral approach through their investments in infrastructure and other sectors, and their trade policies.

Why this report?

This report responds to the FEMM Ministers' request in July 2013 for a 'Roadmap' to respond to NCDs. This *NCD Roadmap Report* serves as a background resource document for officials to review the latest evidence about the economic and financial implications of responding to the NCD crisis in the Pacific. A short briefing note has been prepared for Ministers, and a slightly longer briefing note prepared for officials. Specific recommended interventions are summarised in Annex 6 which is, in effect, the operational Roadmap for action by all stakeholders from an economic and financial perspective that can be adopted at the country level. Annex 8 provides details of the evidence base used to identify strategic interventions by Ministries of Finance and Economic Planning, including the key issue of taxation policy. Annex 9 provides details of resource allocation and financing issues for Ministries of Health. Annex 10 provides a template for the development of individual country Roadmaps to prevent and control NCDs that could be considered at the joint meeting of Finance and Health Ministers in July 2014.

This *NCD Roadmap Report* is intended to help 'operationalise' - in ways that are affordable and cost-effective - the already agreed frameworks and strategies for responding to NCDs. There are already agreed global, regional, and national frameworks and strategies for responding to NCDs. This proposed Roadmap is not intended to duplicate or serve as an alternative to those existing frameworks and strategies. Indeed, each of the recommended interventions directly support the WHO supported nine voluntary global targets for prevention and control of NCDs by 2025 (details in Box 3 in the next chapter) and the priorities Pacific countries have identified already. Rather, it provides a financial and economic perspective of how to use existing – and hopefully additional – resources in the most effective, efficient, equitable and sustainable ways to address the NCD crisis as part of existing frameworks and strategies.

Section two: An economic and financial perspective to setting strategic priorities for NCDs

Economics can provide insight into why and under what circumstances investing in NCD prevention and control is a good use of scarce resources. There are compelling economic reasons for countries to invest resources to reduce the impact of NCDs. In particular, economic analysis shows that NCDs can impose large and rapid increases in costs to budgets, sometimes to an unsustainable level. But NCDs also impose broader costs to the economy through lost productivity as a result of premature deaths and disability such as stroke. Economic analysis is particularly useful in identifying 'best buys' and selecting interventions that are likely to achieve value for money. Some interventions – especially taxation measures - are even cost-saving to Governments over time, because subsequent reductions in health expenditure are larger than the intervention costs. Importantly, there are cost-effective and often affordable interventions for each of the major risk factors for NCDs – Smoking (and other forms of tobacco use such as chewing tobacco), Nutrition, Alcohol and Physical inactivity ('SNAP'). It will be important to further analyse 'best buys' in the Pacific given the particular NCD challenges in this region. One particularly cost-effective – but often overlooked and under-funded - investment is implementation research and impact analysis. It is also important that Pacific Island countries undertake, and update, their own cost-effectiveness and other forms of economic analysis because

the key variables will change. There are also important limitations to the use of cost-effectiveness and other economic tools that need be noted.

Section three: actions by government agencies.

All Government Ministries have a role to play in addressing the multi-sectoral aspects of the NCD crisis. Leaders have declared NCDs to be regional and national crisis: all arms of government therefore have a role to play. **The Prime Minister's Office** has a key role in providing leadership, demonstrating political commitment, using their convening power to ensure coordination, measuring overall progress, and explaining to the public the need for price increases through taxation. A critically important factor is emphasising accountability for effective implementation.

Ministries of Finance and Economic Planning have a particularly strategic role to play by ensuring that scarce resources from Government, development partners, and other stakeholders are allocated to best use and can be sustained. Most Pacific Islands are caught in a pincer movement: rapidly rising NCD related health costs but only modest prospects for overall economic growth and revenue generation. Not everything will be affordable. Not everything represents value for money. The focus must be on allocating scarce financial and human resources to preventing – or at least postponing – the rising incidence of NCDs and their complications in ways that are affordable and sustainable.

This roadmap is not a plea for extra resources: rather it is an argument for using existing resources to better effect. There is a case for some – but not necessarily all – countries in the Pacific to increase their public expenditure on health. But that is not the central message of this report. To the contrary, the key message is that all countries can use their existing resources more effectively, efficiently, equitably and sustainably. Each country's own roadmap will enable them to identify where existing resources can be used to best effect, drawing on the options identified in this report.

Ministries of Finance and Economic Planning also have the important role of setting tax policy to discourage consumption of unhealthy products. Tobacco is a major policy area because it kills up to two thirds of its users prematurely, and exacerbates the costs and consequences of all NCDs. Three countries in the Pacific – Kiribati, PNG and Tonga – are amongst the top ten countries in the world for prevalence of male tobacco smoking. Pacific Island countries should immediately take steps to raise the excise duty on tobacco products to at least 70% of their retail price to raise revenue and reduce consumption: the Cook Islands presents a good example of what to do. Other complementary action should also be considered to achieve the already agreed aim of a Tobacco Free Pacific by 2025. Compliance with existing tobacco regulation is generally weak, providing an environment for uptake of tobacco amongst the young as well as loss of government revenue. **Alcohol** is another policy area: The Cook Islands provides a useful example of how to use price to capture some of the health and social costs of alcohol abuse. Taxes and subsidies on **food products, especially sugar-sweetened drinks** is a key policy area: consumption of sugar is a major, independent, explanatory factor in the rise of type 2 diabetes in low and middle income countries**.** But political economy factors need to be understood and managed: the pain in raising taxes is now, the public health gain is later. There are several practical lessons to draw on in designing taxes on food and drinks that are spelt out in this report. Reducing **salt** intake is a cost-effective strategy to reduce high blood pressure and

cardiovascular disease. **Transfats** are now recognised as a significant risk factor for NCDs and can be relatively easily removed / replaced in the food chain as a public health measure.

Ministries of Health are also key agencies, with some key financing and resource allocation issues common to the Pacific that still need to be addressed in the health sector as a whole, not just with respect to NCDs. The themes common to most countries in the Pacific include the need for improved efficiency; improved focus on prevention and front line services; strengthened public financial management; investment in data analysis, and impact evaluation; and a preparedness to take hard decisions, including avoiding high cost interventions with poor outcomes. There is also an unfinished agenda of communicable diseases and maternal, newborn and child health to address. Strengthening NCD prevention and control should become a means of health system strengthening more broadly, rather than becoming another 'vertical' disease approach. Ministries of Health also need to decide how best to implement – and fund – health promotion activities. This report notes that there is a distinction between health promotion *activities* and health promotion *foundations.* Whatever institutional arrangements are chosen – health promotion activities through the existing primary health care system or via a dedicated health promotion *foundation* - it is important to assess program effectiveness: changing lifestyle behaviour is difficult and resources can be wasted if not used well.

Four key strategies are recommended for immediate adoption by all countries in the Pacific in their own 'NCD country Roadmap'. The four key strategies were selected because they directly address the key drivers of the NCD epidemic in all countries of the Pacific; involve 'best buys' for Governments; are technically, financially and administratively feasible in all countries of the Pacific; complement and strengthen existing policies, commitments and systems. The four key strategies applicable in all countries of the Pacific are:

- to urgently strengthen **tobacco** control, including by raising the excise duty on tobacco products to at least 70% of their retail price
- tax, and better regulate, **food and drink** products that are directly linked to obesity, diabetes, heart disease and other NCDs in the Pacific, and improve public understanding how food and drink can be drivers of NCDs;
- improve **efficiency and impact** of the existing health dollar by reallocating scarce health resources to targeted primary and secondary prevention of NCDs including through the PEN package of 'best buys';
- strengthen the **evidence base** for better investment planning and program effectiveness to ensure interventions work as intended and provide value for money.

There are other key priorities in the 30 or more other options identified. Each country can then add other interventions to these four key priorities from a wide menu of identified options suited to its own country circumstances. For example, some countries will need to include much stronger measures for alcohol control in their own country specific roadmap, given the burden of alcohol related NCDs. Other countries may not identify alcohol control as an urgent priority at this stage for their country specific roadmap, but will wish instead to focus on reducing childhood and adolescent obesity as that is the key challenge in their situation. Reducing pharmaceutical prices is urgent for those countries paying up to ten times the price of essential drugs such as simvastatin, as shown later in this report. Each country will be able to identify other priorities from the 30 or more options identified in Annex 6. This would enable countries to develop a country specific NCD Roadmap, but

one that also entails a regional response (based on the four key strategies common to all countries in the Pacific).

There are important roles for all other Government agencies too if a multi-sectoral approach is to be effective. This report discusses the economic and financial rationale of various NCD related interventions by each of the following agencies: Attorney-General, and (in alphabetical order) Ministries of Agriculture; Communications; Customs and Excise; Education; Labour and Industry, and the Public Service Commissions; Trade; Urban Planning and town councils; and Sport. Each country's National Statistics Offices, and their Police force, have important roles to play too. Annex 6 provides a summary of the economic reasoning and possible revenue implications of options for each Ministry.

The strategies put forward in the Roadmap are achievable and affordable but will take determination and leadership in the face of vested interests. The Roadmap identifies specific actions that can be taken by all Ministries, including the Economic Ministries. The Roadmap identifies possible cost and revenue implications, and potential 'winners and losers' of any intervention. The Roadmap involves some financial and political costs. The public, and affected industries, do not like taxes and price increases. Some of the benefits of intervention will only emerge in the medium term while the costs appear sooner. Vested interests might seek to undermine the actions taken in the public interest. They might promulgate certain myths (see Annex 12). But the health, social and economic costs of inaction are much higher than the costs of intervention in the Pacific where there is an NCD crisis. Political leaders will need to demonstrate leadership in managing the political economy challenges. The Pacific Islands are at a critical juncture in responding to NCDs. Leaders who take decisive action now will create a substantial and lasting legacy for their nations.

Pacific Leaders have declared an NCD "crisis": effective implementation is therefore a key part of a national and regional response. It is quite common for good policy to be developed, and laws enacted, in developing and developed countries, only to find that actual implementation is neglected or starved of resources and attention. But weak implementation has economic and political costs. The economic costs are the ineffectual use and wasted time of leaders and managers who had developed a policy that had not been implemented properly. Political credibility of leaders is eroded when implementation is weak. All Pacific countries share some things in common when it comes to implementation of NCD responses: this is an opportunity for regional sharing of information and lesson-learning. On the other hand, differences in implementation capacity need to be recognised. There are some useful generic resources available to help countries strengthen their implementation efforts. There are also some useful lessons that arise from country-specific studies. Section three elaborates.

Section Four: Development partners, the private sector, civil society and regional approaches

Development partners can support – or sometimes hinder – the response to the NCD crisis. They directly support – or can distort – efforts to reduce NCDs by the nature, timing and type of aid financing

to Ministries of Health. Development partners, like governments in the region, should anticipate a rise in treatment costs of NCDs in the Pacific, given the high level of risk factors for NCDs in the region, and insufficient investment in primary and secondary prevention strategies to date.

Development partners also *indirectly* support – or sometimes hinder – the response to the NCD crisis by the way they design and implement their aid activities in other sectors as well, including road transport, agriculture and education. Development partners can also help – or hinder – the response to the NCD crisis by their own 'whole of government' approaches, including trade policy. Development partners in the Pacific should consider having NCDs as a standing agenda item when they meet together.

It is not in the interests of the **private business sector** to see workers (or consumers) going on sick leave, become disabled, or die prematurely due to (otherwise preventable) NCDs. Establishing a standing, high level, liaison between the Prime Minister's office and the Chambers of Commerce is a starting point to encourage two-way dialogue. **Civil society** especially Churches, media, and Universities can play an important role. **Regional agreements** are important too, particularly for generating regional public goods and sharing knowledge.

Section Five: Conclusion and next steps

Conclusion

Pacific Leaders have committed to responding to the NCD crisis. Forum Economic Ministers, Health Ministers, and Trade Ministers have echoed the importance of responding within their mandates. Global, regional, and national frameworks and strategies have already been identified and agreed.

Existing financial and other economic resources need to be used to maximum effect if commitments and frameworks are to achieve the goals of reducing the impact of NCDs. Multiple causes beyond the health sector are driving the NCD crisis: as a result a multi-sectoral approach is essential. Ministries and stakeholders need a credible, economically and financially defensible, 'actionable' roadmap to know where, how and why to engage.

Four key strategies, tailored to the specific challenges of the Pacific, and adopted by all countries would make a strategic difference: **tobacco** control; reducing consumption of **unhealthy food and drinks** that drive obesity and diabetes in the Pacific; improved **efficiency and impact** of the existing health dollar; and strengthening the **evidence** base for investment planning and results management. This would be the core response that all countries in the Pacific would be encouraged to commit to in their own country specific NCD roadmap. Because of their applicability and feasibility to all countries in the Pacific, the four strategies – if adopted – would then also become a coherent regional strategy. Each country can then also choose other interventions from a menu of other options to suit their own country circumstances.

Next steps

Ministers may each wish to endorse a country-specific roadmap for their country where progress can be mapped and monitored, with tangible evidence of progress then available when *Healthy*

***Islands*celebrates its 20-year anniversary in 2015.** A draft template for countries to quickly set out their own country-specific roadmap is at Annex 10. It assumes each country in the Pacific will initiate and track progress on the four strategic activities to control NCDs (tobacco control; reducing consumption of unhealthy food and drinks that drive obesity and diabetes in the Pacific; improved efficiency and impact of the existing health dollar; and strengthened evidence base for investment planning and results management). It also assumes countries will also identify other interventions they see as priorities from the menu of options identified in Annex 6. Ministers have already agreed to have NCDs as a standing item on future agendas: reporting back on progress under Annex 10 would give all Ministers tangible evidence of systematic and prioritised progress when countries evaluate the 20 years of *Healthy Islands Healthy People* in 2015.

Section one: context and purpose of this roadmap

Evidence of an NCD 'crisis'

There are essentially three arguments why the Pacific is facing an NCD 'crisis': a health argument, an economic argument; and a political argument. The **health argument** is essentially that NCDs are already a major health challenge in the Pacific (Lower T, 2005; Pacific Islands Forum Secretariat, 2012; WHO, 2007, 2013f; World Bank, 2013a). They contribute around 70% of deaths (Annex 1) and are a major source of disability. The response to NCDs requires additional resources from Governments[1] at the same that there remains an unfinished agenda of communicable (including malaria), maternal, newborn and other challenges for rapidly growing, and ageing, populations. Importantly, the Pacific region now has higher rates of *premature* deaths[2] than other countries of similar income levels, and indeed the world as a whole (Chart 1). Chart 2 shows diabetes prevalence in the Pacific using WHO STEPS survey data, which are clearly very high in several countries. Life expectancy is falling as a result of NCDs in countries such as Tonga. Worryingly, the current level of risk factors suggests NCDs will be an even greater health challenge for the Pacific in coming years unless urgent and widespread action is taken now. Levels of obesity and overweight are now amongst the highest in the world. Kiribati, Papua New Guinea and Tonga are in the top ten countries in the world for prevalence of male tobacco smoking.

Box 1.1

Some NCD programs are already financially unsustainable or are not cost-effective.

(Anderson I et al., 2013; World Bank, 2013a)

Vanuatu already cannot afford to include basic kits to check cholesterol, or generic drugs for all people with high cholesterol, on its Essential Drug List because those basic items are too expensive. The drug costs alone for treating one diabetic patient in Vanuatu absorbs what the Government normally spends on drugs for 76.4 other citizens. Only 1.31% of the total population in Vanuatu can be treated with insulin before the country's total (ie not just insulin) drug budget allocation is used up. Dialysis in Samoa cost $ 38,686 per patient per year in 2010/11, more than 12 times GNI per capita. Around two thirds of the patients had then died within two years.

The **economic argument** includes the fact that NCDs impose large – but often preventable – **financial costs** on already overstretched Government health budgets. Several NCD related programs are already unsustainable financially in the Pacific (Box 1.2). Real (adjusted for inflation) health care expenditure[3] per person is already rising at a faster rate than real increases in GDP per person in some countries (Chart 4). Countries should expect a continued rise in NCD related costs given the pipeline of risk factors in most countries and the lack of investment to date in primary and secondary prevention. The rising costs of (preventable) NCD treatment can squeeze out public expenditure on other often less expensive but higher impact health expenditures including maternal and child care. Expenditure on NCDs can rise quickly and dominate public health expenditure. Latest reports show that health care expenditure on cardiovascular disease in Australia rose by nearly 50% to AUD $7,717 million in the 8 years to 2008/9, making it the largest single disease expenditure item. The health-care sector with the largest increase

[1] Governments are the major source of expenditure on health in the Pacific.
[2] The WHO *NCD Country Profiles 2011* classifies a death below age 60 years as premature.
[3] Information in this series is only available for total health expenditure per person (public and private). However as public expenditure represented 88.9% of total health expenditure in Samoa in 2012, the policy implication is the same: health expenditure is now growing faster than per capita income. Comparable time series data on trends in government revenue were not available.

Box 1.2

Diabetes: an (often preventable) source of disability and ill health.

Source: (IDF, 2010)

Diabetes is among the top ten causes of disability worldwide. Tens of millions of people with diabetes suffer disabling and life-threatening complications such as heart disease, stroke, lower limb amputations, blindness and visual impairment, and kidney failure.

WHO estimates that 15 million people are blind as a result of diabetes, the majority of them are in low- and middle-income countries. In many countries, diabetes is the commonest cause of kidney failure and lower limb amputation.

Diabetes is an important cause of cardiovascular disease: Cardiovascular disease is the leading complication and cause of death among people with diabetes. Diabetes increases the risk of tuberculosis (TB): People with diabetes are three times more likely to develop TB and more likely to die from it. Diabetes and malaria frequently occur together in countries where malaria is endemic: In people with diabetes, both severe malaria and diabetes are harder to treat and there is a higher chance of death. Diabetes is a neglected cause of maternal mortality.

Diabetes shares common risk factors with other NCDs: Physical inactivity, inappropriate nutrition, and obesity contribute to diabetes and cardiovascular disease, cancer and chronic respiratory diseases.

Preventing diabetes also helps prevent other NCDs.

(55%) was hospital admitted patients experiencing cardiovascular disease (AIHW, 2014). Rising levels of obesity also generate increased costs through additional capital expenditures, treatment of associated complications, and increased reliance on public health budgets. Reports in Australia indicate the on road costs of ambulances to move obese patients are now AUD $ 280,000, double the cost of a regular ambulance; that obese patients account for over one third of hospital admissions although they represent just over a quarter of the total population; and that because obese patients are strongly represented amongst lower socio-economic groups they turn to the public health system for treatment, unable to afford private care (Australian Financial Review, 2014).

NCDs not only impose large financial costs on governments, they can also impose **broader economic costs** on society more generally through lost productivity and reduced savings. Some analysts find that 'because NCDs tend to affect people in low and middle income countries during their prime working years, the reduction in productivity from chronic illnesses could have worse consequences for the economy than in high income countries' (Alleyne et al., 2013). There is little empirical evidence available on the productivity losses to firms as a result of NCD related death and disability in the Pacific: an important area for future applied research. And it may be that high levels of unemployment and under-employment in some countries mute the direct economic effects of premature deaths and disability. However there is strong anecdotal evidence that Pacific Islands – whose small populations often have limited numbers of highly skilled or experienced workers – suffer disproportionately large productivity losses when skilled workers die or are disabled prematurely from NCDs. Even the loss of unskilled and unemployed workers is a loss of potential productivity to the economy, and a premature loss of previous public investments in health and education. Premature death and disability is also an important social loss if people – especially girls – are removed from educational and work opportunities to care for NCD disabled patients. Widows and orphans from NCD related premature deaths are vulnerable to poverty and exploitation. All of these financing and economic pressures occur in Pacific Island countries which have subdued, or at least volatile, histories of and prospects for economic growth and revenue generation, especially in per capita terms (Anderson I, Ivatts S, Somanathan A, & Rolfe B, 2014).

The **political argument** why NCDs are a crisis is essentially that Pacific Islands Forum Leaders themselves have invested political capital by explicitly declaring the "Pacific is in an NCD Crisis" including as part of the 42nd Pacific Islands Forum communiqué of September 2011.

Health, Finance and Economic, and Trade Ministers from the Pacific have similarly confirmed there is an NCD crisis and the importance they attach to urgently addressing NCDs. Pacific Island governments have signed up to the WHO *Global Action Plan for the Prevention and Control of NCDs 2013-2020* including its headline goal of achieving a relative reduction of 25 per cent in the overall mortality from cardiovascular diseases, cancer, diabetes, or chronic respiratory diseases by 2025 (WHO, 2013d). Most countries also have country - specific NCD strategies. Tonga has included NCD targets into its own Millennium Development Goals framework. The risk factors for NCDs, and the increased prevalence of NCDs, will not fix themselves automatically. Political action is needed at the global, regional and country level (Bonita et al., 2013). Further details substantiating the health, economic and political arguments are in Annex 2.

Chart 1: Rates of premature (age 30- 69 years) deaths in the Pacific compared to others.

Source (WHO, 2013a)

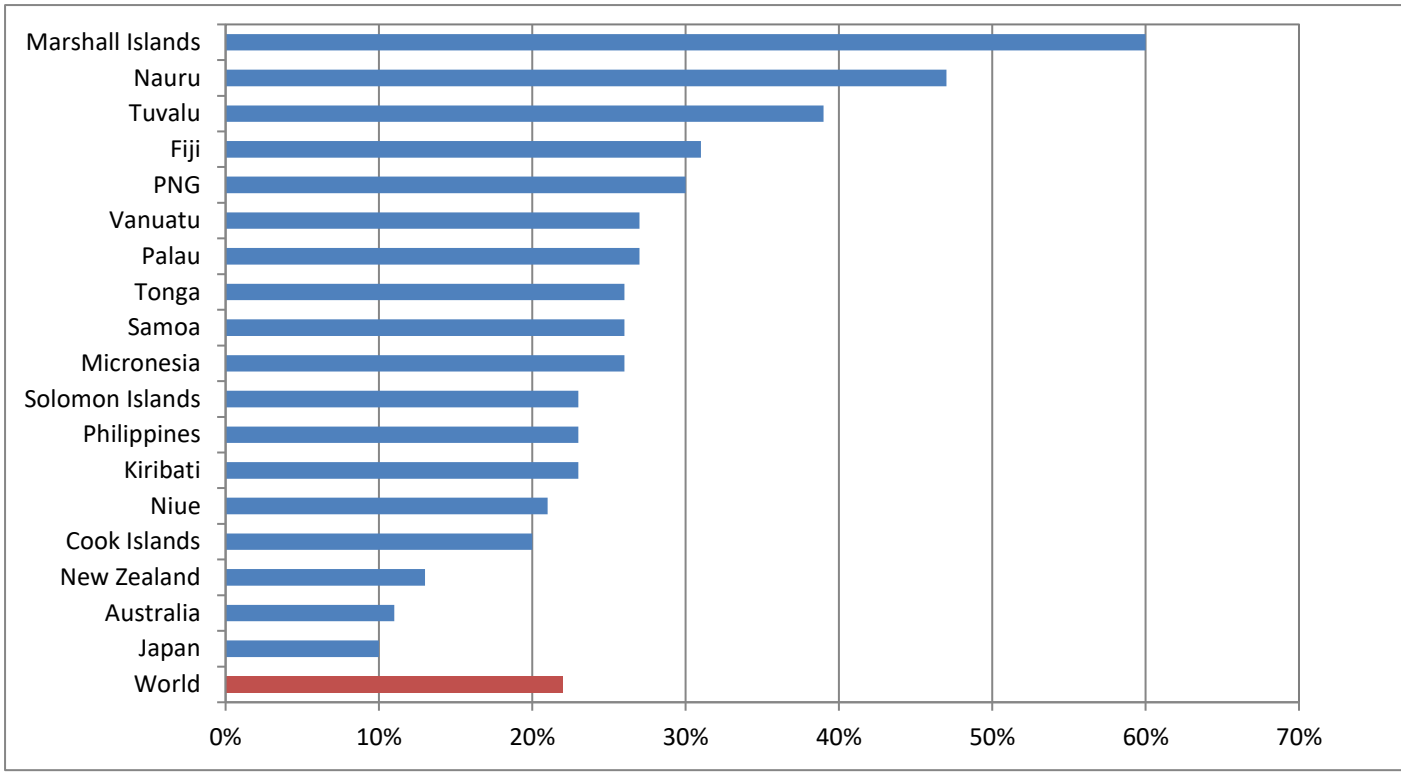


Chart 2

Diabetes prevalence using STEPS survey (year of survey in brackets)

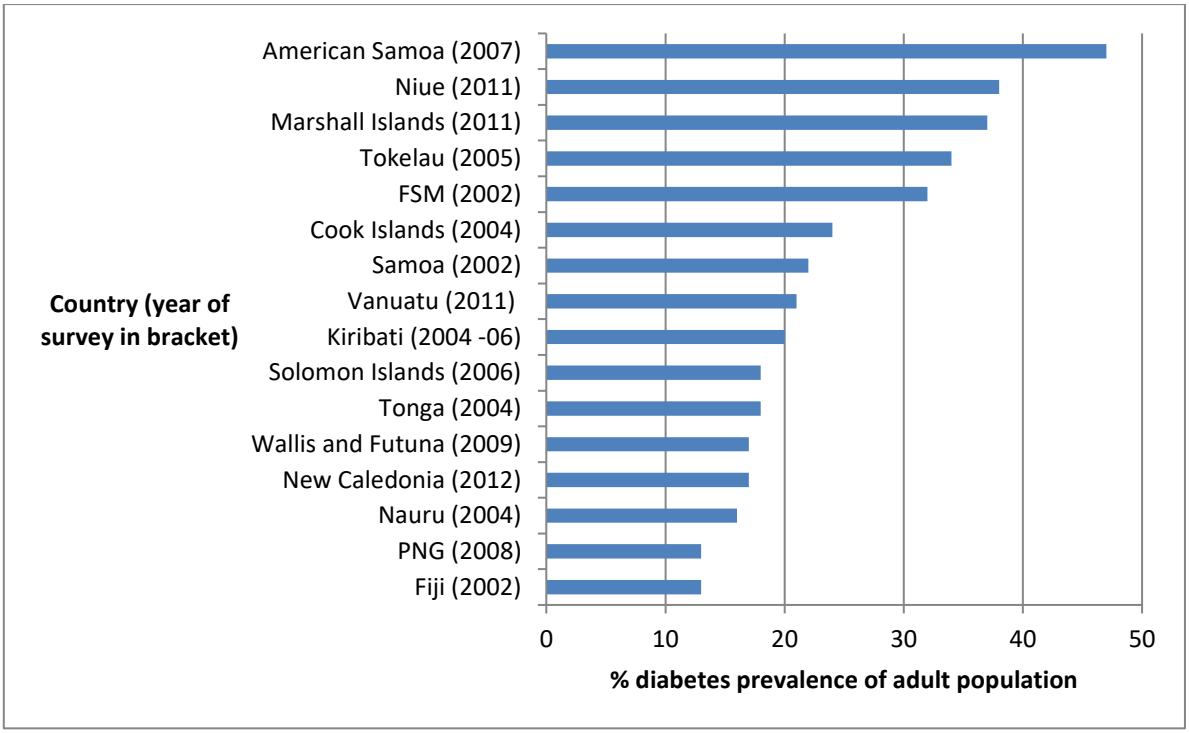
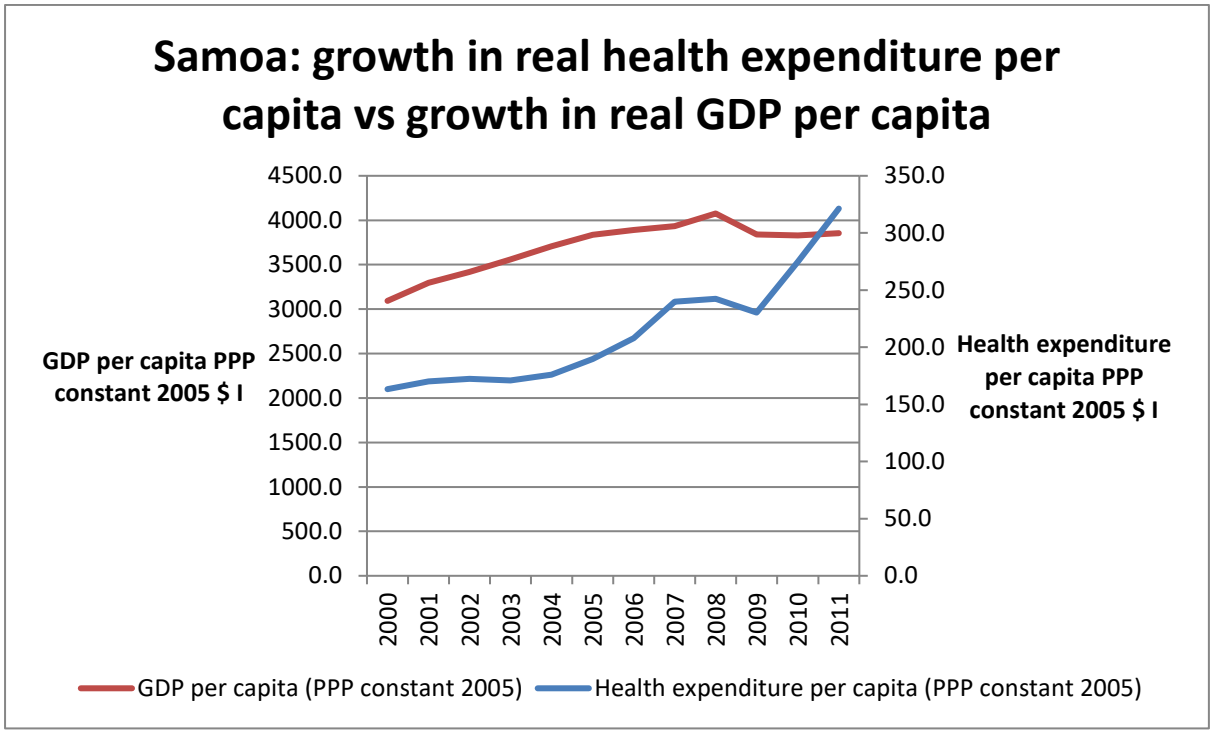


Chart 3

Real per capita expenditure on health care rising faster than real GDP per capita in Samoa

(World Bank, 2014)



Responding to a crisis: the need for a multisectoral approach

Multiple factors inside – and beyond – the health sector are driving the rise in NCDs, so a multi-sectoral approach is essential. Some of the determinants of NCDs cannot be changed or modified: age, gender and genetics. But much of the rapid rise in NCDs globally, and in the Pacific, in recent decades is the direct result of lifestyle choices and social factors that can be modified. These 'social determinants of health' include critical choices made by individuals: Smoking, Nutrition, Alcohol and Physical inactivity ('SNAP') (Beaglehole R et al, 2011; Marmot, 2005; UNDP, 2013). Town planning - including lack of sidewalks, bicycle paths, parks, and the location of fast food shops – can create an 'obesogenic environment' that makes it easier for societies to adopt unhealthy lifestyles. Some argue that it is the interaction between genetic factors in the Pacific (a 'thrifty gene' that stores fat) and the broader social environment (cheap but unhealthy food and a more sedentary lifestyle) that explains the particularly high rates of obesity, overweight and diabetes in the Pacific (Joffe & Zimmet, 1998). Others note that early explorers to the Pacific particularly remarked on the lean and healthy physiques of people, and that obesity and diabetes are now only very recent phenomenon (Coyne T, 2000). This, in turn, suggests there is nothing natural, automatic, or inevitable about obesity and associated NCDs in the Pacific.

The health sector has a key role to play, but so too do other sectors. WHO estimates that two thirds of the effects in responding to NCDs will come from reducing exposure to risk factors through multisectoral initiatives (Bettcher D, 2012). Key issues include reducing tobacco use, unhealthy eating, and facilitating more physical activity. Several ministries – including Ministries of Health, will need to

be involved in these activities. WHO also estimate that around one third of the effect to better control NCDs will come from interventions to prevent and treat high risk groups – for example sedentary, overweight, smokers with high blood pressure and insulin resistance – particularly through interventions at the primary care level. Continued, and intensified, leadership from the health sector in promoting population wide tobacco control and scaling up the Package of Essential NCD interventions (PEN) for high-risk groups is therefore essential.

Relying just on the health sector to reduce the NCD crisis is therefore not enough. Some interventions such as immunisation against communicable diseases, and surgery, can achieve desired outcomes solely through the health sector. But many other health challenges involve factors beyond the health sector: availability of water and sanitation, the level and quality of girls' education, policing of traffic violations and domestic violence etc. This is particularly true of NCDs where 'lifestyle' factors of Smoking, Nutrition, Alcohol and Physical inactivity ('SNAP') are key determinants. Pharmaceutical drugs and other interventions can stabilise and reduce progression of certain NCDs and are a vital part of any response package. On the other hand even that is thought to have gone too far in some developed countries: 'medicalising' the response to NCDs by prescribing pills when changes to lifestyle are likely to have a better effect at much lower cost to government.

Box 1.3

Voluntary Global Targets for the prevention and control of NCDs to be achieved by 2025 under the WHO Global Action Plan for Prevention of NCD 's strategy

The nine targets are: 25% reduction in premature mortality from NCDs; 80% coverage of NCD medicines and technologies; 50% coverage of drug therapy and counselling; no increase in diabetes and obesity; 25% reduction in raised blood pressure. The four non-health sector targets are 30% reduction in tobacco use; 30% reduction in salt / sodium intake; 10% reduction in physical inactivity; 10% reduction in harmful use of alcohol.

Ministers from the Pacific have therefore formally committed themselves to adopting a multi-sectoral approach to responding to NCDs, and stakeholder analysis identifies numerous areas where multi-sectoral approaches are needed. Ministers of Health have publicly committed to a multi-sectoral approach[4] in the recent Honiara Communique (Honiara Communique, 2011). Stakeholder analysis in Fiji and Tonga identified sixty to eighty separate policy problems that undermined a healthy food environment in each country in areas such as pricing and marketing of healthy versus unhealthy foods, agriculture, fisheries, trade and education (Snowdon, Lawrence, Schultz, Vivili, & Swinburn, 2010). Globally, member states of the WHO, including those in the Pacific, are supporting nine voluntary global NCD targets to be achieved by 2025: four of which are outside the health sector (Box 1.3). Globally, Article 39 of the recent UNGA Political Declaration on NCDs states that 'the incidence and impacts of non-communicable diseases can be largely prevented or reduced with an approach that incorporates evidence-based, affordable, cost-effective, population-wide and multisectoral interventions' (United Nations General Assembly, 2011).

[4] Ministers decided, amongst other things, to "lead the advocacy for a whole-of-government and whole-of-society response and a coordinating mechanism to mainstream the response to NCD (and) ensure implementation of evidence-based initiatives to reduce the common modifiable NCD risk factors across the life-course, and address the social determinants of health, including leveraging the power of local government and civil society, with a focus on interventions across the life-course"

Development partners also have an interest in supporting – and contributing to – NCD prevention and control. Several bilateral and multilateral development partners have supported investments in the health sector in the Pacific and join the countries in the region in not wanting to see those gains reversed by the rise of (often preventable) NCDs. Development partners are now starting to increase their support to NCD prevention and control, after earlier providing much larger funding for HIV AIDS programs where disease burdens were lower (Negin J & Robinson H, 2010). Increased support for NCD prevention and control by development partners, such as the recent 30-week NCD training course for Tongan nurses, is welcome. But governments and their development partners also need to integrate their efforts into broader health system delivery, and avoid treating NCDs as another 'vertical' disease.

Bilateral and multilateral development partners can also influence NCD incidence through the nature of their investments in other sectors. How development partners design and fund activities in other sectors can improve – or worsen – the 'obesogenic environment. Examples include roads (with or without pavements and bicycle paths); buildings (elevators rather than stairs made the prominent default option); schools (with insufficient play areas); and agriculture (alternatives to tobacco production). Development partners also have direct interests in the overall macroeconomic stability of the Pacific and the prospects for long-term sustainable growth. No-one, including development partners, wants to see the health (and then the national) budgets of small states overwhelmed by (otherwise preventable) NCD costs, and the country becoming aid-dependent.

Substantial progress is possible. For example, latest STEPS data shows remarkable progress in reducing some (but unfortunately not all[5]) risk factors in Samoa. More specifically, the percentage of adults who smoke tobacco daily fell from over one third (34.9%) in 2002 to just less than a quarter (24.4%) in 2013. The percentage of those adults with low physical activity fell from almost a half (48.8%) to less than one fifth (19.9%) over the same period. (Globally, a recent study (Kontis et al., 2014)found that addressing just six risk factors would get very close to achieving a 25% reduction in NCD premature mortality between 2010 and 2025 (the '25 x 25 target'). Those six risk factors are tobacco and alcohol use; salt intake; obesity; and raised blood pressure and glucose. The study found that if the targets for addressing these risk factors were achieved, the probability of a man aged between 30 and 70 years dying from the four main NCDs (cardiovascular disease, chronic respiratory diseases, cancers and diabetes) would decrease by 22% compared to a business as usual scenario. For women, the decrease would be 19%. Importantly, in terms of setting priorities, the largest benefits globally come from reducing blood pressure and tobacco control. Indeed, achieving a 50% reduction in tobacco use is judged to be the quickest and most likely route to closing in on the 25 x 25 target (Kontis et al., 2014).

Purpose of this report

This report responds to the request by the Forum Economic Ministers Meeting (FEMM) for a 'Roadmap' to respond to NCDs. Forum Leaders declared NCDs to be a 'crisis' (Annex 3). The FEMM held in Tonga in July 2013 requested SPC to facilitate the development of a 'roadmap' for NCD prevention and control in the region (Forum Economic Ministers Meeting, 2013). In addition, Ministers directed that the Forum Secretariat and Secretariat of the Pacific Community explore options for a

[5] The same STEPS survey also found a 27 percentage point increased prevalence of raised fasting blood glucose from just over one fifth of the population (22.3%) to almost a half (49.7%) over the period 2002 to 2013 and an average 1.5 kg / m2 in BMI.

joint meeting of Economic and Health Ministers to promote greater collaboration to tackle the epidemic rate of NCDs in the region'. FEMM also agreed that a standing item on NCDs be included in their annual meeting agenda. The key extracts from the FEMM communique are at Annex 4.

This proposed Roadmap is intended to help 'operationalise' the already agreed frameworks and strategies for responding to NCDs in ways that are affordable and cost-effective There are already agreed global (WHO, 2013e, 2013g), regional (WHO, 2013f), and national frameworks and strategies for responding to NCDs. This proposed Roadmap is certainly not intended to duplicate or offer an alternative to those existing frameworks and strategies. On the contrary, this proposed Roadmap is intended to help 'operationalise' these existing frameworks and strategies in ways that are affordable, cost-effective, and financially sustainable from an economic and financial perspective in the context of the Pacific. Countries – especially in the Pacific where financial and human resources are already stretched – 'want fewer proposals and more action' (Beaglehole, 2014).

This report therefore provides an evidence base on what is currently known about NCD prevention and control and then identifies four high impact, feasible, strategies to prevent and control NCDs recommended for all countries in the Pacific which are consistent with existing agreements. This report can be a resource for officials and other stakeholders wishing to get an up to date snapshot of current research about NCD prevention and control, particularly as it might apply to the Pacific. Based on that latest evidence, four core strategies are identified that are necessary and achievable to implement in all countries of the Pacific. Those four key strategies are: strengthen tobacco control; tax products that are linked to obesity, diabetes, heart disease and other NCDs; improve efficiency and impact of the existing health dollar by reallocating scarce health resources to targeted primary and secondary prevention of cardiovascular disease and diabetes; and strengthen the evidence base for better decision making. Those four interventions have been selected because they most directly and strategically address the key constraints in reducing the NCD crisis and are feasible to implement in all countries of the Pacific. Beyond those four key interventions the Roadmap then offers a menu of over 30 other interventions that various Ministries could consider depending upon their own country's challenges and capacities. That recommended menu of additional measures is inevitably quite generic as it addresses the needs of differing countries in the Pacific, but is a resource that countries can draw on to develop their own country-specific roadmap**.** Individual governments are best placed to decide the time lines, and sequencing, of interventions.

The key is country led actions via their own country NCD Roadmap, but there is scope for regional collaborative action too. The NCD crisis in the Pacific requires a national level whole of government response to meet national and global commitments (Bonita et al., 2013). But there are also opportunities for regional collaboration and sharing of lessons. Despite their many differences, most countries in the Pacific face common challenges: similar increases in NCDs, particularly cardiovascular disease and diabetes; similar risk factors, including tobacco use, and overweight; and similar economic and financial resource constraints. A good starting point for more collaborative action and achieving economies of scale would be for Pacific Island countries to agree on more systematic sharing of information and experiences. Early priorities for information sharing might include experiences with tobacco control, effective health promotion activities, and the costs of expanding PEN. An existing regional institution might be able to take on this role of being a clearing house of relevant experiences.

The immediate audience for a report of this detail and length are Government officials and other stakeholders requiring evidence of policy options. A 2 page briefing note is available to Ministers and an 8 page briefing note is also available to officials. A suggested menu of over 30 possible recommended options for countries to consider including in their own Country NCD Roadmap are summarised in Annex 6. Annex 8 provides details of the evidence base used to identify these options with respect to the large and substantive issue of taxation policy. Annex 10 provides the outline of a country – specific NCD roadmap that each country in the Pacific could complete prior to the Forum Economic Finance Ministers Meeting in early July 2014, and then agree to.

This proposed Roadmap incorporates views of many stakeholders. SPC was responsible for overall management of this report. The World Bank[6] was asked to provide initial drafts, bearing in mind the economic and financial implications of NCDs, and the role of the World Bank in engaging with Ministers of Finance but also other multi-sectoral agencies including Ministries of Agriculture, Education, Health, Transport etc. The report draws on insights and contributions made by the 20 Pacific Island countries and several partner organisations at the Fifth Pacific NCD Forum held in Auckland 23-26 September; the meeting of Quintilateral partners in New Caledonia 2-3 December 2013; the SPC Scientific and Technical Expert Group 9 December 2013; the Nossal Institute for Global Health; the Australian Department of Foreign Affairs and Trade; NZAID; and a meeting convened by the World Bank in Sydney on 11 February where economists and public health experts from a range of institutions participated. Drafts were shared with key officials of the Pacific Islands during March and April 2014 and their reviews reflected in further revisions to the report. Directors of Health from the Pacific endorsed the broad directions of the Roadmap during their meeting in Nadi, Fiji, 28-29 April 2014. A formal World Bank peer review meeting in June 2014 also provided comments and insights that were reflected in this final version of the Roadmap report.

[6] Dr Xioahui Hou, Senior Economist, World Bank was the Task Team Leader and Mr Ian Anderson, independent consultant, was lead author.

Section two: applying economic principles to the response.

Box 2.1

The "opportunity cost" of NCDs

The small and remote island of Tokelau has not been able to escape the consequences of NCDs. Forty per cent of the health budget now goes to finance the NCD related health needs of less than five per cent of the population: around 71 individuals who needed to be transferred overseas for care. The cost of overseas medical transfer and hospital accommodation for one typical patient - often a type 2 diabetes patient - and their carer is usually around $NZ 5000. That is a high financial cost to the Government of Tokelau.

It also involves a high "opportunity cost": what that $NZ 5000 *could* have been spent on had that typical patient been able to avoid diabetes through a healthy lifestyle. In Tokelau, that $NZ 5000 would have funded the total immunisation program for all children in Tokelau for a year. One recent case involving overseas referral for treatment of NCDs involved around $NZ 30,000 costs to the Tokelau Ministry of Health: an amount that would have funded six years funding of immunisation for all the children in Tokelau.

There are compelling economic reasons in principle for countries to invest resources to reduce the impact of NCDs. Improved health is a sufficient reason itself for preventing and treating NCDs, but economics also provides compelling supporting arguments. The international literature is clear: NCDs impose large direct and indirect costs on individuals, firms, governments and economies as a whole: Annex 2 elaborates. If nothing is done to reduce NCDs, estimates suggest there will be $84 billion lost national production, in addition to 250 million deaths, in 23 low and middle income countries over the period 2006-15 (Abegunde, Mathers, Adam, Ortegon, & Strong, 2007). NCDs also impose 'opportunity costs' in terms of benefits foregone: see Box 2:1. Yet many – although not all – NCDs are preventable, or at least can be postponed with proven, often affordable, and cost-effective interventions (WHO, 2010a; WHO Western Pacific Region, 2007; World Bank, 2011a, 2013a; World Health Organization, 2011). It therefore makes sense on economic grounds to invest resources to reduce the impact of NCDs. The more difficult issue is then to decide the appropriate level of resources to invest in responding to NCDs given other competing demands inside and outside the health sector; where and how can resources be mobilised in ways that are efficient and sustainable; and where should scarce resources be allocated.

There are several cost-effective, affordable, and even cost-saving interventions that address the key drivers of preventable NCDs. There are many economic tools[7] that can help policy makers make best use of scarce resources. Cost-effectiveness analysis is only one such tool. But it is particularly useful in identifying 'best buys' and selecting interventions that are likely to achieve value for money. Research suggests a small range of proven interventions[8] costing around $1 to $2 per person could reduce losses in economic output by $8 billion and avert 32 million deaths in low and middle income countries (Asaria, Chisholm, Mathers, Ezzati, & Beaglehole, 2007; Lim et al., 2007). One study found that each $1 of 'savings' the state of Arizona anticipated from eliminating early intervention podiatric (foot) services for diabetic patients subsequently resulted in

[7] Including cost-effectiveness analysis; benefit-incidence analysis; provider-payment analysis; fiscal space analysis. Cost-benefit analysis is only used in the health sector when the benefits can be measured in monetary terms, which is not always the case: eg the value of a life saved.

[8] Tobacco control, reduction in salt intake, and combination drug therapy for people with a high risk of cardiovascular disease.

increased medical costs of $44 due to increased risk of diabetic foot infections, longer hospital stays etc: investing in prevention was clearly economic (APMA, 2014). Another study found that a range of community based physical activity interventions in the United States generated cost-effectiveness ratios between $14,000 and $69,000 per Quality Adjusted Life Year (QALY) [9] gained compared to no intervention (Roux L, Pratt M, Tengs T, & al., 2008). All interventions in this study appeared to reduce disease incidence[10]. The interventions were judged to be generally worthwhile from an economic perspective given that the annual cost directly attributable to inactivity in the United States was an estimated $24 billion–$76 billion, or 2.4%–5.0% of national healthcare expenditures. The analysis also noted that 'interestingly, even the most complex and expensive intervention (the physical activity component of the diabetes prevention program) proved to be cost-effective, suggesting that targeting high-risk populations with intensive interventions can be a good use of public health funds'.

Some interventions are even cost-saving to governments: the cost of interventions being less than the subsequent reductions in health expenditure from successful programs. One major study found that taxation measures on unhealthy products 'are consistently cost saving in all the low and middle income settings considered, and generate the largest or second largest health effects' (Cecchini et al., 2010). This is in contrast to OECD countries where higher costs of interventions make interventions cost-effective, but not necessarily cost saving. Food labelling was also found to be cost-saving, but with smaller health effects than taxation and other fiscal measures. The availability, accessibility, and quality of the overall health system is also a key determinant of cost-effectiveness. Cecchini and colleagues found that 'physician counselling of individuals at risk in primary care is one of the most effective interventions, but its health effect is greatest and cost-effectiveness best in countries where a larger proportion of the population has regular access to primary care physicians and facilities' (Cecchini et al., 2010). Narayan and colleagues (Narayan et al., 2006) found that three interventions for preventing and treating diabetes - moderate glycemic control, blood pressure control, and foot care - were cost saving, and feasible[11] , in all developing country regions of the world.

Several interventions can be cost – effective compared to alternatives. Narayan et al found that some interventions for diabetes were often cost-*effective* in terms of cost per Quality Adjusted Life Year compared to alternatives, but not necessarily cost-*saving*. For example, lifestyle interventions to prevent type 2 diabetes was estimated to cost $ 80 per QALY gained in the East Asia and Pacific region in 2002. On the other hand, screening for undiagnosed diabetes was not particularly cost effective in most regions, ranging from $3870 to $8550 per QALY gained in 2002 dollars depending upon the region. (This may not necessarily be the case in the Pacific where prevalence of undiagnosed diabetes may be higher).

Importantly, there are cost-effective and often affordable interventions for each of the major risk factors for NCDs – Smoking, Nutrition, Alcohol and Physical inactivity ('SNAP') – identified by public health experts (Beaglehole R et al, 2011) that are now part of key response strategies and frameworks.

[9] A Quality Adjusted Life Year (QALY) is most simply defined as a 'health outcome measurement unit that combines duration and quality of life' (Sassi, 2006)

[10] The report notes that 'all interventions appeared to reduce disease incidence: reductions ranged from 5–15 cases per 100,000 for colorectal cancer, to 15–58 cases per 100,000 for breast cancer, to 59–207 cases per 100,000 for type 2 diabetes, and to as many as 140–476 cases per 100,000 for Chronic Heart Disease.

[11] 'Feasibility' was judged on the basis of 4 criteria: difficulty of reaching the intended population; technical complexity; capital intensity and cultural acceptability.

Some interventions – such as encouraging increased walking – may have negligible cost to government but noticeable improvements in reduction of NCDs for patients at risk. For example, a recent peer reviewed study found that, at the baseline study, every 2000 extra steps per day (roughly equivalent to 20 min a day of moderately-paced walking) amongst people with impaired glucose tolerance was associated with a 10% lower risk of cardiovascular event (eg stroke). Each 2000 step increase or decrease in daily walking from the baseline results of the study to 12 months was associated with an additional 8% lower or higher cardiovascular event rate, respectively (T. Yates et al., 2014).

WHO has identified a series of 'best buys' from an economic perspective that align with the four major risk factors for NCDs at a global level[12]. The details are in Annex 5 but the key points summarised in Table 2.1 below. It can be seen that several interventions are judged to be both 'very cost-effective' as well as being simultaneously 'very low cost' at a global level. Other interventions are judged 'quite cost-effective' and simultaneously 'quite low cost'. Still others are judged to be 'less cost-effective' and have a higher cost.

Table 2.1

'Best buys' at a global level to respond to NCDs.

Source: (WHO, 2010a)

'SNAP' Risk factor	Very cost effective: One lost year of healthy life ('DALY') averted for less than $ GDP per person) and very low cost (less than $ 0.50 per person)	Quite cost-effective: One lost year of healthy life ('DALY') averted for less than 3 times $ GDP per person) and quite low cost (less than $ 1 per person)	Less cost-effective: One lost year of healthy life ('DALY') averted for greater than 3 times $ GDP per person and higher cost (greater than $ 1 per person)
Smoking	Raise taxes on tobacco; enforce bans on tobacco advertising; protect people from tobacco smoke; warn about dangers of tobacco	Offer counselling to smokers	
Nutrition	Reduce salt intake; replace trans-fat with polyunsaturated fat; promote public awareness about diet; restrict marketing of food and beverages to children		Promote healthy eating in schools and workplaces
Alcohol	Raise taxes on alcohol; restrict access to retailed alcohol;	Enforce drink driving laws; offer advice for hazardous drinking.	

[12] Some of these are not yet assessed globally. Others are best buys when implemented in conjunction with other interventions. Details are available in the WHO (2010) *Global Status Report on NCDs*

	enforce bans on alcohol advertising	
Physical inactivity	Promote physical activity via mass media	Promote physical activity in schools

Although more needs to be done to assess the cost, and effectiveness, data, preliminary analysis also suggests there are some very cost effective 'best buy' interventions available in the context of the Pacific Islands too**.** These are summarised in Table 2.2 below.

Table 2.2

Likely 'best buy' interventions in the Pacific Islands

Source: (WHO, 2013f)

Prioritised: Very Cost-effective (Best Buys) Interventions

Risk factor / disease	Interventions
Tobacco use	Tax increases
	Smoke-free indoor workplaces and public places
	Health information and warnings
	Bans on tobacco advertising, promotion and sponsorship
Harmful alcohol use	Tax increases
	Restricted access to retailed alcohol
	Bans on alcohol advertising
Unhealthy diet and physical inactivity	Reduced salt intake in food
	Replacement of trans fat with polyunsaturated fat
	Public awareness through mass media on diet and physical activity
Cardiovascular disease (CVD) and diabetes	Counselling and multi-drug therapy for people with a high risk of developing heart attacks and strokes (including those with established CVD) (PEN)
	Treatment of heart attacks with aspirin
Cancer	Hepatitis B Immunization to prevent liver cancer
	Screening and treatment of pre-cancerous lesions to prevent cervical cancer

It will be important to further analyse 'best buys' in the Pacific given the particular NCD challenges in this region. The abovementioned identification of 'best buys' to date for the Pacific is very useful. But questions still remain where economic analysis could generate important insights. Would the global finding that promotion of healthy eating and physical activity in schools is 'less cost effective' still be true in the Pacific, given the high levels of obesity and overweight school age youth? Is 'public awareness through mass media on diet and physical activity' really a highly cost-effective intervention in the Pacific when other studies suggest general public health campaigns may have only 'trivial' impacts on lifestyle choices (Cobiac L et al., 2012; Szmedra P, Sharma K, & C., 2009)? To what extent will the reportedly low compliance levels for taking medication in the Pacific undermine cost-effectiveness? Is the *quality,* as distinct from the coverage levels, of scaled up NCD related interventions likely to achieve cost-effectiveness? While strengthened alcohol control is clearly important in some countries in the Pacific to reduce risk factors for NCDs (and domestic violence) is that true for all countries, given different cultural norms? How can NCD prevention strategies be

integrated into and leverage off existing programs: for example using antenatal services and public health advice about sexually transmitted infections to identify and reduce cervical cancer? And conversely, should countries have a public discussion about the likelihood that some interventions – heart transplants and possibly even dialysis – are simply unaffordable for some countries at this stage in their development?

One particularly cost-effective – but often overlooked and under-funded - investment is implementation research and impact analysis. Resources are scarce in the Pacific. They cannot be wasted on well-intentioned but low impact interventions based on intuition, ideology, or inertia. Investing in applied field research, genuine evaluation, impact analysis and result-management is a cost-effective and potentially cost-saving investment. There are now several good resources on how to undertake impact evaluation at reasonable cost that can then improve the evidence base for subsequent policy making and resource allocation (Bamberger M, Rugh J, & Mabry L, 2012; Duflo E, 2004, 2006; Duflo E & Kremer M, 2003; List J, 2011; World Bank, 2011b)**.**

It is also important that Pacific Island countries undertake, and update, their own cost-effectiveness and other forms of economic analysis because the key variables will change. Cost-effectiveness of interventions will vary between and within countries of the Pacific, and over time. Costs will change up and down with changes in exchange rates and inflation. Effectiveness of interventions will change with change in response to technological changes, and disease resistance. The key NCD burdens will change with population ageing, changes in risk factors, and improved disease surveillance and detection. The capacity to fund interventions in a sustainable manner ('fiscal space') will change in the light of economic growth and other factors. As a result, what is a cost-effective and value for money intervention now may not be so in five years. Countries will therefore need to keep cost-effectiveness and other economic assessments under review. But undertaking cost-effectiveness and other economic analysis will itself use up finances and economic resources. Even economic analysis needs to be prioritised, achieve value for money, and be affordable.

There are also important limitations to the use of cost-effectiveness and other economic tools that need be noted (Jamison D et al, 2006; WHO, 2003b). It is often very difficult, or expensive, to get reliable data on either, or both, of the key arms of cost-effectiveness: actual costs [13] and / or actual effectiveness of interventions. Even if data is available, cost-effectiveness analysis normally says nothing about whether *governments* should then intervene: individual households and the private sector might be better placed to respond. And even if government financing was justified, due to the existence of market failures[14], cost-effective interventions may simply not be affordable given constraints on government budgets. Issues of inequity also need to be explicitly considered. Some cost effective interventions may increase inequity: for example, where there are low unit costs to treat large numbers in urban areas compared to more remote rural areas. In other cases, cost effective interventions may reduce inequity: for example where there are increased unit costs to reach outer islands and remote communities, but those groups have higher burdens of disease than others.

It will also be important for governments, and their development partners, to scale up NCD prevention and control in ways that strengthen the health system more broadly. The rise in NCDs places new and additional strains on health systems, some of which are still struggling to fully respond

[13] And, importantly, how those costs change as activities are scaled up.
[14] See the glossary for a definition.

to communicable diseases and maternal health challenges around which they were originally designed (Robinson H & Hort K, 2012). In PNG, for example, communicable, maternal, perinatal and nutritional conditions still constituted almost half (47%) of all deaths of all ages, with NCDs constituting 44% of all deaths and injuries 9% (WHO, 2011). Recent analysis identified several health system challenges as Fiji scales up its response to NCDs. These challenges included the need for strengthened human resource planning (at the time there were only two staff dedicated to NCD in the Ministry of Health); reducing inequity in access and outcomes; strengthening the links between attendance at the national diabetes centre and glycaemic control; and strengthened strategic planning and coordination with civil society and the private sector dealing with NCDs (Snowdon W, Waqa G, Raj A, Kanungo A, & H., 2013).

Linking NCD interventions to maternal care in primary health care settings is one way of strengthening the health system more broadly and avoiding a 'vertical' disease approach. There are increasingly clear links between maternal nutrition and health, including smoking and alcohol use when pregnant, and the increased risk of obesity and NCDs amongst children and young adults (Barker D, 1990; Black et al., 2013; Gillman, Rifas-Shiman, Berkey, Field, & Colditz, 2003; Jaddoe W et al., 2014; Victora et al., 2008; R. C. Whitaker & Dietz, 1998). Investing in maternal nutrition and health is a sound investment in its own right. Linking and leveraging NCD interventions to maternal health, especially in regular primary care settings, is one way of maximising the health impact of government resources, and strengthening the health system more broadly. Good advice and support for women about smoking cessation, diet and exercise, breastfeeding, and testing for pre-diabetes and hypertension contributes to maternal health and NCD prevention simultaneously. Reproductive health services also offer the opportunity to identify, prevent and treat cervical cancer.

Section three: actions by Government agencies.

All Government Ministries have a role to play in addressing the multi-sectoral aspects of the NCD crisis. Leaders have declared NCDs to be regional and national crisis (Annex 3). All arms of government therefore have a role to play or the Leaders' statement is simply rhetoric. This section of the report highlights options that make best use of existing government resources to operationalise national and regional strategies. Discussion starts with the role of the Prime Minister's office as without national leadership and coordination all other Government efforts will be fragmented and lose coherence. Discussion then highlights the substantial roles to be played by Ministries of Finance and Economic Planning, and the Ministries of Health. Discussion then identifies how other agencies, listed in alphabetical order, can best use their existing resources to address NCDs at low cost but with potentially high and sustained impact. Annex 6 summarises the overall situation, including the possible additional cost and revenue implications, and technical and political feasibility of specific individual options. Annex 6 is therefore, in effect, 'the roadmap' for Governments to consider.

The importance of implementation

If Pacific Leaders have declared an NCD "crisis" then implementation is a key part of a national and regional response. It is quite common for good policy to be developed, and laws enacted, in developing and developed countries, only to find that actual implementation is neglected or starved of resources and attention (Thomas J & Grindle M, 1990). Many factors contribute to weak implementation: inadequate financing and resourcing; weak or ambiguous lines of accountability; weak monitoring and evaluation; perceptions that leaders and managers are no longer interested in the issue; and opposition to change by vested interests.

But weak implementation has economic and political costs. The economic costs are the ineffectual use and wasted time of leaders and managers who had developed a policy that had not been implemented properly. This imposes a particularly high cost in the Pacific when the time, energy, and political / bureaucratic capital of skilled leaders and managers is a precious resource that should not be wasted. The political cost is the erosion of credibility and authority of leaders and managers as people see another 'crisis' or commitment declared with little tangible follow up.

All Pacific countries share some things in common when it comes to implementation of NCD responses: this is an opportunity for regional sharing of information and lesson-learning. Virtually all countries are scaling up the Package of Essential NCD interventions (PEN) at the same time. What are the clinical, management, budgeting and financing successes and failures of implementing this scale up that can be shared? All countries in the Pacific want to expand and strengthen NCD preventive care and broader health promotion in primary care settings so as to relieve pressure on hospitals: what are the lessons of implementing such approaches? Many countries in the Pacific recognise the importance of tobacco control in reducing NCD burdens, but would benefit from sharing experiences about implementing tobacco control to domestic, smallholder, loose-leaf tobacco.

On the other hand, differences in implementation capacity need to be recognised. The response to HIV AIDS in the Pacific shows that individual countries in the Pacific have very different staffing resources and capacities. A one size fits all approach cannot be applied when some countries have just one or two public health officials available to work on NCDs, while others have potentially more staff

available. Individual countries are in the best position to know what to prioritise in terms of implementation; how to budget and resource implementation; and how to hold agencies and individuals responsible and accountable for results. Having said that, it is also important for each country to be explicit and clear about which agency is actually responsible for implementation of a specific policy. The illustrative example of a country-specific NCD Roadmap therefore includes a column at the right hand edge of the template where countries can specify which agency is responsible for implementing a particular policy.

There are some useful generic resources available to help countries strengthen their implementation efforts. For example, the latest WHO report on the global tobacco epidemic focuses on *implementation* of tobacco control particularly with respect to enforcing bans and advertising controls (WHO, 2013h). That report notes that "governments globally collect nearly $ 145 billion in tobacco excise tax revenues each year, but spend less than $ 1 billion combined on tobacco control – 96% of this is spent by high-income countries". WHO estimates that, globally, developing countries invest just $ 0.0003 per capita on tobacco control. The latest WHO report also notes that countries need to take comprehensive action in terms of restricting tobacco advertising, promotion and sponsorship: experience suggests tobacco companies will often respond to effective advertising control measures by shifting their advertising budgets across to sports or school sponsorships, defeating the purpose of control (WHO, 2013h).

Since December 2012 WHO has also made available an online version of its Tobacco Tax Simulation (TaXSiM) model (http://www.who.int/tobacco/economics/taxsim/ en/index.html). TaXSiM is a practical way of improving implementation of a key NCD response strategy because it is "an innovative tool that can be used to describe the current market and tax situation for cigarettes particular country or tax jurisdiction, and then to forecast the impact of tax changes on final consumer prices, cigarette consumption and government tax revenues. A particular strength of the model is that it examines outcomes on a brand-wise basis, which highlights how different tax policies can affect different segments of the tobacco market" (WHO, 2013h).

There are also some useful lessons that arise from country-specific studies. Thow and colleagues examined trade and food policy in three Pacific Island countries - Fiji, Samoa and Tonga – and drew out insights and lessons from those countries' experience in seeking to control and reduce imports of turkey tails and lamb flaps (Thow AM, Swinburn B, et al., 2010). The case studies note the importance of political leadership; of generating widespread public understanding of the need for control measures; and the convergence of policy goals (perceptions of 'dumping' of low quality food not sold for human consumption in exporting markets complemented health policy goals). The case studies also highlight specific objections that can arise as governments seek to implement policy. For example, the report notes that in the case of Samoa "Overall, the Chamber of Commerce supported the aim of ban (improving health), but disagreed with notion of prohibiting the import of legal products. The question of availability of affordable healthy alternatives was a key concern of critics of the ban, as turkey tails were considered to be the cheapest cut of 'meat' available". The report also draws some general conclusions from the three countries about how to successfully implement policies:

> "Policy uptake was also enabled by the use of existing legislation, consideration of other government commitments (e.g. WTO) and establishing a clear justification for food targeted. In contrast, barriers to policy success included a limited policy scope, low engagement from

other sectors, selection of an inappropriate legislative tool, ……Barriers to policy success included a focus only on health concerns (not taking into account policy issues of other sectors), limited engagement from other sectors in proposing and developing these cross-sectoral policies, and lack of a clear enforcement mechanism" (Thow AM, Swinburn B, et al., 2010).

Tonga announced in mid-2013 a range of fiscal and other policy measures designed to reduce risk factors associated with NCDs. This quite comprehensive package of measures included:

- The tobacco concession for inbound travellers is reduced from 500 cigarettes to 250 cigarettes
- Duty for fresh fish has been reduced from 20% to 5%.
- Duty on vegetable oil has been reduced from 20% to 10%.
- Duty on tinned fish has been reduced from 20% to 5%.
- Excise tax of TOP $1 per kg is imposed on lard.
- Excise tax of TOP $.50 per litre is imposed on carbonated drinks.
- Excise tax on tobacco is increased from TOP $210 per 1000 cigarettes or per kg to TOP $250 (imported) – and TOP $200 to TOP $238 for locally manufactured tobacco/cigarettes.

Further fiscal and policy measures are under consideration in Tonga. It would be very useful for policy makers in Tonga, and indeed in the rest of the Pacific region, to collect baseline data and track trends in consumption and government revenue as taxes and duties change. That would help establish a good evidence base to assess if policies are having the desired effect in terms of consumption of unhealthy products, or if consumers are switching to lower priced, but possibly even more unhealthy, products.

Against that background of what some countries have done already, the following section canvasses options for Governments to consider.

Prime Minister's Office

The political credibility of leaders can be enhanced or diminished by the actions taken – or not taken to respond to NCDs. Forum Leaders have themselves explicitly defined the NCD situation as a 'crisis' in the Pacific, threatening social, health, and economic achievements (Forum Communique, 2011). Their own political credibility therefore rests on the actions they take, and are seen to be taking. The Prime Minister and his[15] office possess the leadership to display a sense of urgency about NCDs; have the convening power to bring together public and private sector stakeholders; and have the authority to make decisions and remove policy obstacles. While each country in the Pacific is best placed to decide how to use the prestige and authority of the Prime Minister and his office, a minimum requirement would be for the Prime Minister to establish, and then actively chair, a regular meeting of a multi-sectoral task force to supervise progress in addressing NCDs.

The Prime Minister and his office is also important in terms of explaining the need for certain tax increases. Nobody welcomes increased taxes. This is especially important in the democratic Pacific

[15] There are currently no female Prime Ministers in the Pacific Islands.

where governments can change if they lose the support of the general public. Yet increasing taxes on certain harmful products, especially tobacco and sugar-sweetened drinks, is essential in the context of the Pacific where NCD rates are so high. The Prime Minister and his office can provide the leadership and public explanation as to why raising taxes on certain harmful products is necessary and in their society's best interests.

Perhaps most importantly, the Prime Minister's office can hold Government agencies and other stakeholders accountable for properly implementing their stated commitments. That is critical, because weaknesses in implementation and accountability are often the Achilles heel of otherwise good strategies and policies, resulting in waste of scarce resources, political cynicism, and loss of public support.

Ministries of Finance and Economic Policy

Ministries of Finance and Economic Planning have a particularly important role to play, especially with respect to taxation policy. While increasing taxation carries with it its own economic costs, there are good public policy reasons why increasing taxation on targeted items is justified in the Pacific. Annex 7 provides details.

The following summarises what, where and why Ministries of Finance can do within their mandates to respond to the NCD crisis in the Pacific. Greater detail and substantiation is provided in Annex 8.

Ensuring that existing and future expenditures are affordable, effective, efficient and financially sustainable.

The most strategic action Ministries of Finance and Economic Policy can take is to ensure that scarce resources from Government, development partners, and other stakeholders are affordable, allocated to best use, and can be sustained. Most Pacific Islands are caught in a pincer movement: rapidly rising NCD related health costs but only modest prospects for overall economic growth and revenue generation. Not everything will be affordable. Not everything represents value for money. The focus must be on allocating scarce financial and human resources to preventing – or at least postponing – the rising incidence of NCDs and their complications.

Ministries of Finance and Economic Policy have a responsibility and duty to therefore require tests of value for money and overall affordability for expenditure on NCDs to ensure scarce resources are used to maximum benefit. Ministries of Finance and Economic Policy are entitled, for example, to reject, or at least question, expenditure proposals for dialysis treatment of diabetes if the cost per patient is more than three times the GDP per capita of the country[16]; prognosis and outcomes poor; and / or access confined to the well-connected. Overseas treatment costs are also often a source of large and fast-growing costs for many countries in the Pacific: overseas treatment absorbed 15% of the total health budget in Samoa but benefited less than 0.1% of the nation's population (World Bank, 2013a). Threshold levels of relative additional benefit and cost, and overall affordability, should be used to screen large and fast-growing expenditure items. Those proposals failing to meet minimum

[16] See "cost-effectiveness" in the acronyms and glossary for a definition of cost-effectiveness thresholds.

thresholds should be rejected, and resources reallocated to potentially high impact interventions such as PEN. Expenditure on 'futile care' [17] should be redirected to interventions with greater evidence based probabilities of successful outcomes. Ministry of Finance and Economic Policy should also actively and critically assess development partner funding proposals. New, aid funded, expenditure on tertiary hospitals should be rejected if they impose a long tail of otherwise unforeseen or un-budgeted recurrent costs on Government's own resources, or attract health worker and other resources away from primary and secondary prevention at the community level.

Tobacco control and reducing harmful use of alcohol

Tobacco is a major strategic policy area to address NCDs, particularly in the Pacific. That is because tobacco use is the only risk factor common to all of the four main NCDs (cancer, heart disease, chronic respiratory diseases and diabetes) and causes or exacerbates virtually all NCDs. WHO notes that "tobacco is the leading behavioural risk factor causing substantially large number of potentially preventable deaths worldwide…one death every six seconds (WHO, 2012d). Tobacco smokers lose at least one decade of life expectancy compared to those who never smoked (Jha et al., 2013). The Pacific needs to take urgent action: adult males in Kiribati, PNG and Tonga have the 3rd, 5th and 10th highest rates of smoking in the world in 2012 with age standardised prevalence rates of 54.4%; 51.4% and 46.4% respectively (Ng M et al., 2014). Tobacco use costs money (and ill health) yet rates of tobacco consumption, including leaf tobacco, are highest amongst the poorest and least educated groups in PNG. Second-hand smoke imposes health and economic costs on society. Recent studies show that, although no significant reduction in birth weight was detected, smoke free legislation is associated with a more than 10% reduction in preterm birth and hospital attendances for asthma (Been et al., 2014). Recent analysis finds that "at present, tobacco use is the most policy-responsive of (six)[18] targeted risk factors" responsible for the majority of NCDs globally (Kontis et al., 2014).

Raising taxes on tobacco products is a particularly effective means of simultaneously reducing consumption (thereby decreasing death and disease); increasing total government revenue; and reducing hospital and other medical expenses. The total cost of tobacco control measures in California was $4.5 billion but resulted in $86 billion reduced health care costs: a saving to the health system of $19 for every dollar invested in the tobacco control program (Glantz & Gonzalez, 2012).

WHO recommends that excise duties should be at least 70% of the retail price of all tobacco products as a means of reducing consumption. Very few countries in the Pacific have achieved that level. However, as seen in Table 3.1 below, several Pacific Island countries are sufficiently close that a small extra effort would reach that recommended level, while other Pacific Island countries however need to catch up. The countries that have achieved this level have done so recently by raising taxes on tobacco products. Increasing excise duties on tobacco to at least 70% reduces consumption while generating additional revenue for Government. In some countries the excise level may need to be higher to reduce consumption). Modelling by WHO in 2012 found that raising the then excise tax on cigarettes by 50% would directly generate an additional $1.6 million Government revenue per year in

[17] In essence, complex and expensive treatment that medical professionals know has little or no chance of working which simply postpones death for a short period rather than prolonging healthy life. See Annex 9.
[18] The six main risk factors for NCDs in the study by Kontis et al (2014) are tobacco and alcohol use; salt intake; obesity; and raised blood pressure and glucose.

Samoa. Tonga would directly generate an additional $1.45 million per year (World Bank, 2013a). The modelling did not include savings to the Government health budget as a result of reduced strokes and heart attacks.

Raising tobacco excise rates sends a powerful signal to consumers – and an important message to development partners. Raising the price of tobacco sends an important signal to consumers about the harmful effects of tobacco, provided this is accompanied by public education. Raising the price of tobacco also sends an important signal to development partners that Governments in the Pacific are serious about NCD control and increasing their own revenue raising efforts. Development partners may be reluctant to provide additional finance NCD programs in the Pacific if they think a Government there is not, itself, prepared to take such an essential measure as raising the tax on tobacco. The Cook Islands presents a good example of how to raise excise duties in a staged manner.

Box 3.1: tobacco control in the Cook Islands

Statement by the Minister of Finance of the Cook Islands, Hon Mark Brown, in budget speech of June 2012.

Source: Government of Cook Islands (2012)

'If you smoke one packet of cigarettes a day that is the equivalent of two dollars an hour off your hourly wage rate.

So if you are a wage worker earning seven dollars an hour and you smoke one packet of cigarettes a day you are actually only earning five dollars an hour and the other two dollars you are burning it up in smoke.

So if you are a smoker and you want a pay rise of two dollars an hour, stop smoking'.

Table 3.1

Taxes on tobacco as a per cent of retail prices: some countries are within reach of the WHO target of excise duties being at least 70% of retail price, others need to catch up.

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Source: latest advice from WHO at June 2014.

Country (listed in descending order: highest rates of total taxes as a percentage of final retail price to the lowest)		Other taxes as a per cent of final retail price.	Total taxes as % of retail price in 2012
Palau	70.7%	0%	70.7%
Tuvalu	41.6%	5.2%	67.6%
Niue	0%	66.5%	66.5%
Tonga	50%	13%	63.0%
Marshall Islands	46.7%	14.9%	61.6%
Samoa	46.7%	13.1%	59.8%
Vanuatu	48.1%	12.8%	58.5%
Federated States of Micronesia	0.0%	54.79%	54.8%
Cook Islands	46.6%	6.9%	53.5%
Kiribati	52.5%	41.7%	41.7%
Fiji	27.8%	13.1%	40.8%
Papua New Guinea	28.3%	9.1%	37.4%
Solomon Islands	20.0%	10%	30%

Raising the excise duty on tobacco in a staged manner to at least 70% of the retail price is key, but must be accompanied by other measures of tobacco control if it is to reduce the drivers of NCDs. Recent analysis finds that some 7.4 million Smoking Attributable Deaths ('SADs') were averted amongst countries implementing good tobacco control in the 3 years to 2010. Importantly, while the largest number of SADs was averted as a result of increased cigarette taxes (3.5 million), other policies were also important including smoke-free air laws (2.5 million SADs averted); health warnings (700

000 SADs averted); cessation treatments (380 000 SADs averted), and bans on tobacco marketing (306 000 SADs averted) (Levy D, Ellis J, Mays D, & Huang A, 2013).

Despite a commitment to a Tobacco Free Pacific by 2025, compliance with *existing* tobacco regulation and control is generally weak in the Pacific. Sale of single sticks of cigarettes, or sales to minors, is still commonplace in the Pacific. Tobacco advertising needs to be strictly controlled, including at sports grounds and near schools. Smoking bans in restaurants and public places need to be enforced. Nicotine replacement therapy should be provided where this is affordable. It is particularly important in places like PNG that Ministries of Agriculture ensure that higher prices of tobacco products are not accompanied by an expansion of domestic, including backyard, tobacco. Tobacco companies should not be providing educational scholarships, as they do in PNG. Plain packaging of cigarettes appears to be effective in reducing consumption: there was a 78% increase in the number of calls to tobacco Quitline, peaking 4 weeks after the Australian Government introduced plain packaging of cigarettes (Young J et al., 2014). 'Earmarking' tobacco taxes for use in health promotion makes political sense, but is very hard to justify on economic or public finance grounds for reasons discussed in Annex 8. In any event, raising the price of tobacco to reduce consumption is a key objective in its own right: arguments for and against 'earmarking' are a secondary issue (Annex 8 elaborates).

Increasing the tax on tobacco will generate arguments, but there are strong counter-arguments. The tobacco industry argues that raising tobacco prices is regressive, hurting the poor the most. This is not true over the medium term: the poor benefit significantly more than the rich in terms of improved health outcomes, and less of the tax burden, because the poor are more likely to stop smoking, or not take it up (Jha P et al., 2012). While direct employment in tobacco industries may fall, this can be managed by staging the tax increases over time and actively supporting alternative employment in production of healthy foods: an important goal in its own right in the Pacific. Any immediate losses in the tobacco industry need to be compared to increased excise revenue and reduced government health expenditure on strokes and heart attacks. Strong tobacco control measures that are well implemented have early health and financial benefits: hospital admissions for heart attacks in several countries fell by an average of 17% within a year and around 30% after 3 years, saving health budgets (Glantz & Gonzalez, 2012). Annex 11 summarises some myths about NCDs including tobacco control.

Alcohol also contributes to the burden of NCDs, as well as causing other health and social problems, and should be considered for tax increases. Tobacco requires aggressive policies because there is no safe level of usage; is addictive; kills two thirds of users; and has no health benefits. Alcohol does not have those characteristics, and is not – at present – as widely used in the Pacific. Yet alcohol can also contribute to NCDs. Parry and colleagues recent comprehensive survey of the evidence concludes that: 'There is a strong link between alcohol and non-communicable diseases, particularly cancer, cardiovascular disease, liver disease, pancreatitis and diabetes, and these findings support calls by the World Health Organization to implement evidence-based strategies to reduce harmful use of alcohol' (Parry, Patra, & Rehm, 2011). Alcohol misuse amongst men can lead to domestic violence, already an important challenge in the Pacific, and medical costs. Alcohol misuse amongst pregnant women can cause irreversible damage to the foetus and child. The Cook Islands provides a useful example of how to use price to capture some of the health and social costs ("externalities") of alcohol abuse. Details are in Annex 8. Individual countries are best placed to decide via their own country specific Roadmap

what priority and policy to adopt with respect to alcohol depending upon the health and economic burden it places on society.

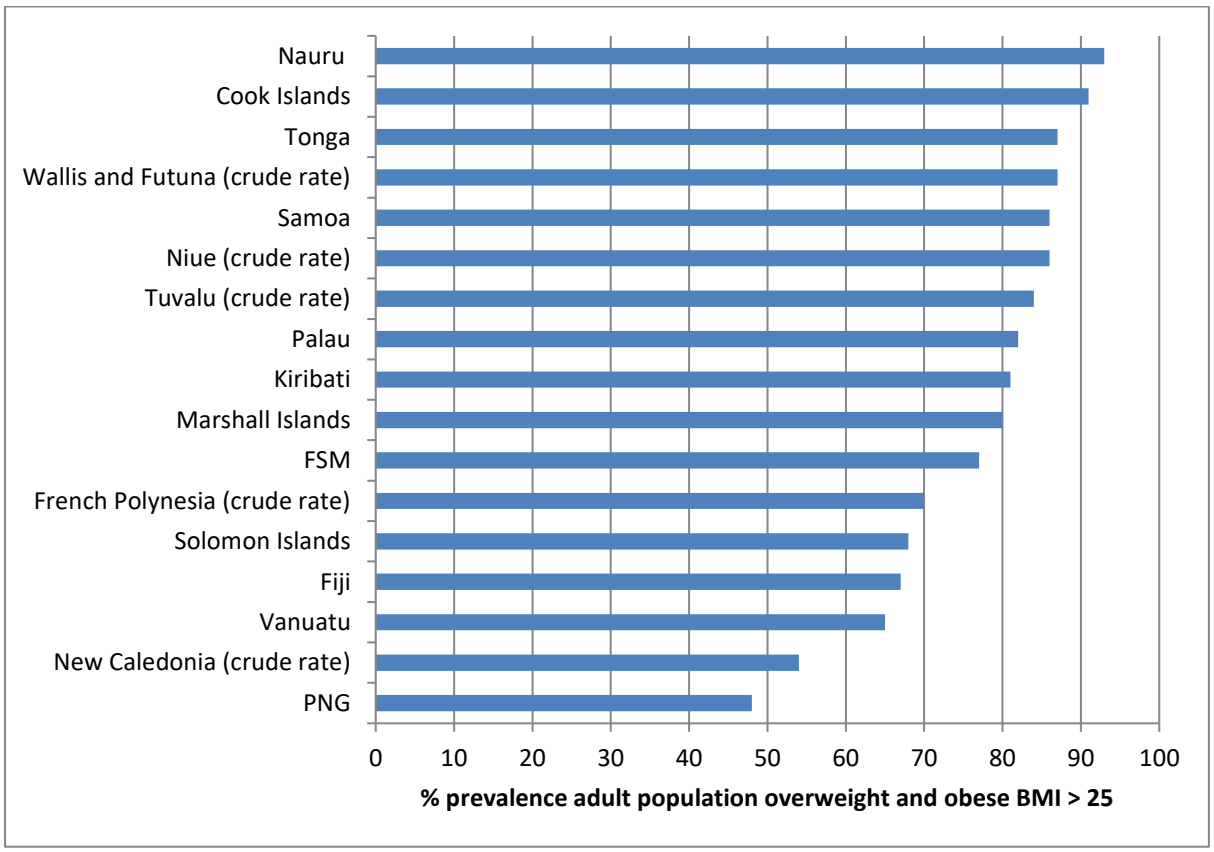
Taxes on unhealthy food and drink that are associated with diabetes and obesity

There is no doubt that the Pacific has high levels of overweight and obesity: a key but preventable risk factor for NCDs including heart disease and type 2 diabetes. As seen in Chart 4 below, over half the adult population in 16 of the 17 Pacific Island countries and territories for which information is available are overweight or obese. In 11 countries, more than 75% of the population is overweight or obese.

Chart 4
Overweight and obesity prevalence

(BMI > 25;age standardised 20+ unless otherwise shown)

Source: Global Health Observatory Data Repository



Increased taxes on unhealthy **food products, especially sugar-sweetened drinks** are a therefore a strategically important option in the Pacific, in combination with improved physical activity. That is because the top ten countries in world for the highest rates of obesity - as well as diabetes - are all in the Pacific. Of course, many food and drink products are potentially unhealthy, so priorities need to be set. Consumption of sugar, especially in sugar-sweetened drinks is an important first target in the Pacific. That is because they are a major, independent, explanatory factor in the rise of type 2 diabetes in low and middle income countries (Basu, Stuckler, McKee, & Galea, 2013). Sugar and high fructose corn syrup is increasingly used in many processed food products and drinks and aggressively marketed, including to children. As a result average consumption globally is now 70 grams (or 17 teaspoons) per day, up 46% from 30 years ago (Credit Suisse Research Institute, 2013): see Box 3.2.

Box 3.2

Sugar

Extracts from Credit Suisse Research Institute report (2013)

'The world daily average consumption of sugar and high fructose corn syrup per person is now 70 grams (or 17 teaspoons) per day, up 46% since 30 years ago…

Sugar-sweetened beverages are concentrated sources of sugar….As the sugar is in a solution, it is easily and completely ingested, giving a large injection of calories without the consequential satiation of appetite...the correlation between obesity and soda consumption across many populations is convincing and is a particular risk factor for childhood obesity….

After balancing arguments in favor and against, we believe that taxation (of sugar) would be the best approach and will provide the best outcome: reducing consumption while helping the public sector deal with the growing social and medical costs'

There is *generally* good international evidence to suggest that tax increases do reduce consumption of unhealthy products, particularly if the end price increases significantly: Thow and colleagues cite examples of studies involving price increases of around 25% - to 50% that reduced consumption (Thow AM, Jan S, Leeder S, & B., 2010). Some international evidence suggests that taxing food and drink products to reduce NCDs is usually a cost-effective intervention (Cecchini et al., 2010; WHO, 2003a). However some analysts find that while there is clear evidence that increased taxes on sugar sweetened drinks reduce consumption[19], there is then only mixed, or missing, evidence that taxing sugar sweetened drinks and 'unhealthy foods' then directly reduces obesity (Escobar M, Veerman L, Tollman S, Bertram M, & K., 2013; Moodie, Sheppard, Sacks, Keating, & Flego, 2013). Others note that while some food and drinks are quite responsive ('elastic') to price increases, other products are less so: a review of 160 studies found that food purchased away from home, soft drinks, juice, and meats were most responsive to price changes; other products were less so including eggs and oils. Most analysts note the lack of well conducted studies in developing countries, or involving populations 'at risk' of poor nutrition (Andreyeva T, Long M, & Brownwell K, 2010; Thow AM, Jan S, et al., 2010).

Any decision to tax food and drink therefore needs to be designed carefully if it is to have desired outcomes on reducing risk factors. Tax increases need to be relatively large to be effective; cover a range of similar goods to prevent substituting into other unhealthy products; incorporate the price increases at the shelf price (rather than at the checkout); and not be subject to easy price manipulation such as bulk purchasing. It is also important to understand how both suppliers, and consumers, react to a tax increase. How

[19] A pooled price elasticity from meta- analysis of – 1.30 (95% confidence interval of – 1.0 to – 1.509)

suppliers and shops respond to the tax increase on unhealthy products will depend upon the degree of competition in the industry. Highly competitive markets may see some or all of the tax increase absorbed by suppliers and shops. Suppliers and shops with little competition may pass on the tax increase in terms of higher prices to consumers.

How *consumers* respond may also differ depending upon the availability of alternative purchases. In general, poorer households are most responsive to price changes and, often having higher levels of risk factors for NCDs, stand to benefit more from shifting consumption away from unhealthy foods. However in practice much depends upon the availability of healthy alternatives. As noted shortly after Denmark introduced a 'fat tax' in 2011: "the desired health outcome will be achieved only if a healthier substitute is affordable or cheaper…for example if butter is easily and cheaply substituted with low fat spread. This is known as a substitution effect. If consumers choose to continue to purchase the same food they will have to spend more money, which implies that they may compensate by reducing the amount of healthy foods they buy, such as fish, fruit, and vegetables. This is known as income effect."(Sinne Smed, 2012). It is worth noting that Denmark subsequently abandoned the 'fat tax' particularly because people in Denmark could easily cross the border to another country and purchase lower priced products that were not so taxed.

Control of **salt** intake is important where there are high rates of hypertension and heart disease, as in the case of the Pacific. The physiological requirement for salt is less than 1 gram per day however many are eating between 9 and 12 grams. Excess salt intake progressively elevates blood pressure levels throughout life, which greatly increases the risks of vascular disease and is likely responsible for about half of the disease burden ascribed to high blood pressure (Asaria et al., 2007; Mohan S & Cambell N, 2009). Salt reduction has also been shown to be cost-effective, and in some cases, cost-saving. In the US, it was projected that an intervention that reduced salt by 3g/day would save between $10 and $24 billion in health costs annually (Bibbins-Domingo K et al., 2010). Regulation; industry cooperation; and public awareness campaigns about reducing salt intake can be a cost-effective strategy to reduce hypertension and cardiovascular disease which do not necessarily involve taxes (Asaria et al., 2007; Cecchini et al., 2010). Cost effectiveness studies of salt reduction are currently being conducted in Fiji and Samoa. Despite differences in costs and circumstances, these studies will provide valuable insights and lessons for other countries in the Pacific region. The WHO Collaborating Centre on Population Salt Reduction has also been working with countries in the Pacific to identify and measure actual salt levels in commonly consumed foods, and to develop appropriate, evidence-based salt reduction targets suited to the Pacific. This work is now well advanced. When finalised in coming months, the region wide targets for salt reduction would be well suited for formal inclusion in each country's NCD Roadmap.

Transfats, often used in restaurant cooking and baked products, has been linked to heart disease and diabetes. Several countries globally are seeking to limit their use (Mozaffarian, Katan, Ascherio, Stampfer, & Willett, 2006). Recent analysis found that 60 out of 64 food products sampled in Fiji contained more than one accepted level of 2% transfats per 100 gram of fat with some commonly consumed products such as pizza having 18.85% transfats per 100g fat (Chand B, Prasad R, Lako J, & Sotheswaram S, 2011). Fiji is introducing legislation that require trans fats to be labelled in nutrient information. Restrictions on caterers re-using cooking oils can be a useful option. Basu and colleagues estimate that a 20% tax on palm oil would avert approximately 363,000 deaths from heart attacks and

stroke over the period 2014-2023 in India if there was no substitution into other unhealthier oils (Basu S et al., 2013).

Reducing taxes on healthy foods, or even providing subsidies, is a possible option for some countries but would require very careful targeting. There may be some scope for reducing taxes on healthy products (including fresh fruit, vegetables, and fish) in some countries but the additional costs (loss of revenue) need to be compared to the additional benefits (price reductions would need to be large to induce increased consumption and improved health). It is unlikely that subsidies on healthy foods are going to be the best use of scarce government resources given the budgetary constraints most Pacific Island countries are facing; the usual problems of targeting the truly needy via subsidies; and the likelihood the money spent on subsidies would have higher impact in alternative uses.

Political economy factors clearly need to be understood and managed when designing taxes on food and drink. The political pain is now, the public health gain is later. Consumers often like to consume the (unhealthy) food and drinks, and dislike taxes. Industry and retailers will resist efforts to reduce sales and will actively – and sometimes aggressively – work to protect their profits (R. Moodie et al., 2013). There will be claims that taxes on unhealthy foods and drinks are regressive (disproportionately affecting the poor) although little mention of the likelihood that the poor are also disproportionately disadvantaged if they consume higher levels of such products. There will be industry winners and losers. Political leadership and communication explaining the links between unhealthy food and drink and the NCD crisis is essential before taxes are increased. There are several practical lessons to draw on in designing taxes on food and drinks that are spelt out in this report and suggested roadmap.

Ministries of Health

Ministries of Health clearly have a central role to play in responding to the NCD Crisis. WHO estimates that around one third of the effect of NCDs can be controlled through actions such as targeting prevention and treatment of high risk groups (overweight, sedentary, smokers with high blood pressure and insulin resistance) taken within the health sector (Bettcher D, 2012). The following summarises the key interventions for them. Details are in Annex 9.

NCDs need to be seen as part of the broader health system strengthening agenda of the Pacific, and not 'just another vertical disease'. The focus on NCDs is understandable when around 70% of deaths and a large share of the disability burden are caused by NCDs. However virtually all countries in the Pacific also still have an unfinished agenda of communicable diseases and maternal, newborn and child health to address (World Bank, 2013a). The rising incidence of NCDs also adds to existing challenges of health system strengthening, some arguing that prevention and management of chronic diseases are now 'a litmus test for health system strengthening in low and middle income countries' (Samb et al., 2010). This has implications for all of the building blocks of the health system including information management, health workforce, technology choices, drugs, leadership and health financing, especially as countries increasingly move to Universal Health Coverage. Weaknesses in national health systems also undermine the value of otherwise cost-effective interventions for NCDs and other diseases (Cecchini et al., 2010; Robinson H & Hort K, 2012; Samb et al., 2010).

Integrating health system strengthening, whilst acknowledging the broader social determinants of health, is therefore critical when scaling up NCD responses. Taking a life cycle approach to NCD prevention and control, from pre-pregnancy through to old age, is one way of integrating NCD management into the health system more broadly. Taking a life cycle approach to NCD (and other health challenges) from pre-pregnancy through to adulthood within the overall health system is also a way of recognising that many of the social determinants of health nevertheless still lie outside of the health system itself.

Increasing efficiency and impact of the existing health dollar is a key strategy available for most countries in the Pacific, freeing up resources that can be better allocated to prevention and control of NCDs, maternal and child health, and other core priorities. There is a good deal of scope for improving the effectiveness and efficiency of existing government expenditure in many countries of the Pacific. Challenges common to most countries in the Pacific include the need for improved allocative ('doing the right things') and technical ('doing things right') efficiency; improved focus on prevention and front line services; strengthened public financial management; investment in data analysis and results management; and a preparedness to take hard decisions, including avoiding high cost interventions with poor outcomes (World Bank, 2010, 2012, 2013a, 2013b, 2013c). There may be scope in some of the larger economies of the Pacific to consider gradually privatising or at least contracting out very expensive and cost-ineffective interventions such as dialysis units in ways that allow the currently small private sector to expand in a phased manner.

There are also several specific actions that Pacific Island countries can do which are likely to improve the efficiency, effectiveness, and equity of the existing health dollar. Pacific Island countries should continue to implement and scale up the Crisis Response Package, including the Package of Essential NCD (PEN) interventions, adapted to their country needs and resources. Those approaches involve evidence-based, technically feasible, and cost-effective and generally affordable interventions in most settings. Like all such interventions, Ministries of Finance and Economic Planning, and Ministries of Health, need to actively and jointly monitor and measure the costs and consequences of the scaling up of these interventions. That is because, amongst other things, there is a potentially very wide range of options and costs involved. The predicted costs for scaling up PEN in the Cook Islands range from $NZ900,000 ($NZ 12 per person) to over $NZ 4 million ($NZ 54 per person). Careful monitoring is also required to assess the quality of implementation as this ultimately affects value for money as well as health outcomes. There are also second round dynamic effects that need to be identified and budgeted for: will increased coverage of NCD screening lead to surges in diagnostic testing and treatment that had not been anticipated or resourced? Pacific Island countries, and their development partners, should more systematically capture the costs and lessons of the roll out, and share those insights with others in the region. For example, there are strategic benefits in Pacific Island countries identifying the reasons for large variations in the price of identical pharmaceutical products in the region (Annex 9 provides details).

Ministries of Health also need to distinguish between health *promotion* and a health *Foundation* and evaluate program effectiveness carefully**.** The latest global study of obesity and overweight in *The Lancet* concluded that:

> Data from systematic reviews suggest that only 31% of the coronary heart disease risk and 8% of the stroke mortality risk associated with obesity is mediated through raised blood pressure

> and cholesterol collectively. Therefore, drugs targeting blood pressure and cholesterol can be expected to attenuate some, but not most of, the cardiovascular risk attributable to overweight and obesity. Therefore, even with aggressive drug therapy, increased rates of overweight and obesity can be expected to have substantial health effects and increase prevalence of diabetes, osteoarthrisits, cancers, and major vascular disease.(Ng et al., 2014)

Health promotion and changes to lifestyle are therefore important. But health promotion goes well beyond simply raising 'awareness' if risky behaviours (smoking, alcohol abuse, sedentary lifestyles; unhealthy eating) are to change. Having a dedicated health promotion foundation may be a good option, provided it did not duplicate existing activities or take scarce, highly trained managers and staff away from existing Ministry of Health priorities. A more cost-effective alternative to establishing a new stand-alone health promotion foundation might be to better integrate health promotion activities into the existing primary health care settings[20]. Whatever approach is taken, the difficulties in changing lifestyle behaviours means that program effectiveness should be tested and evaluated.

Earmarking taxes for health promotion activities can make political sense but raises fundamental issues about best use of scarce revenues and is always a secondary issue to the key objective or reducing tobacco use through a price increase. 'Earmarking' increased taxes on tobacco and alcohol and allocating the additional revenue to health promotion has intuitive and political appeal, and has been used in several countries including Thailand. But 'earmarking' is hard to justify on economic grounds. That is because additional revenue from any source should go to the central government pool where it can be allocated to the highest development priority in whatever sector: health, education, agriculture, energy, road infrastructure etc. (For some countries in the Pacific, the highest national development priority might indeed be to reduce the incidence and rising public expenditure impacts of preventable NCDs). In any event, debates about earmarking should always be seen as very much a secondary issue: the first order of priority is to raise (and maintain) the real prices on tobacco so as to discourage consumption of an addictive substance that kills two-thirds of its users, and undermines the health and wealth of the already poor. The poor, and young, are particularly sensitive to price increases so raising (and maintaining) the excise duty on tobacco is a worthwhile and sufficient objective in its own right.

Cost recovery and Social Health Insurance are also problematic. User fees have the potential to raise additional revenues and send useful price signals. But they may generate even larger economic and social costs, and harm access by the poor. Introducing social health insurance is most unlikely to generate additional financial resources in the Pacific context at this time, and is not a better response to addressing NCDs than other options, including improved technical and allocative efficiency in the health sector. Annex 9 has details.

Other Government departments

[20] Of course, not all health promotion activities could or should be done at the primary health care level. Higher level advocacy, communications, regulations for tobacco control etc are done at a national level. And there will always be a place for health promotion while treating patients at secondary and tertiary levels of the health care system, when patients may be more open to adopting health promotion advice.

All Departments have a role to play when there is a 'national crisis'. Annex 6 provides a consolidated summary of actions that departments can take from an economic and financing perspective. The following summarises the situation.

Attorney Generals

The Attorney-General will need to be involved in any multi-sectoral task force to ensure that taxation and other measures are legally sound. From an economic perspective, Governments certainly do not wish to incur needless court costs and possible compensation payments that overturn revenue enhancing taxation measures that are successfully challenged by industry.

Ministries of Agriculture and Fisheries

The Ministries of Agriculture and Fisheries can do two things that are strategic from an economic perspective. First, they can proactively identify and promote production and marketing opportunities for fresh fruit, vegetables and fish. They can help identify and support increased value chain processing of healthy but under-utilised products, and facilitate their sale to local markets, schools, and restaurants. They can support efforts to improve the consistency, quality, reliability and safe handling of food products, including by supporting refrigerated warehousing, and improved transportation links. This would increase the value-added of primary production and help reduce the current high levels of physical and nutritional deterioration of food between farm / fish catch and the consumer. Second, Ministries of Agriculture should actively discourage the production of unhealthy products, including small holder production of tobacco leaf, including through inspection of actual land usage by extension officers, and help identify alternative productive use of the land. This would be particularly important in PNG where local tobacco leaf production is common and opportunities for alternative high value crops foregone.

Ministries of Communications

The Ministries of Communications have two important roles to play from an economic perspective. First, they should strictly limit harmful advertising including advertising of alcohol, tobacco and 'junk food' on TV, radio and movies – especially during times when children may be watching or listening – and in public places such as sports grounds, as these are 'gateways' to unhealthy lifestyles and acquiring NCDs. Second, the Ministries should also be promoting clear and evidence based information about risk factors for NCDs and other public health issues, as such information is a 'public good' unlikely, by definition, to be supplied at the optimum social level by private industry. But this needs to be done carefully and monitored for effectiveness as there is mixed evidence about the cost-effectiveness and impact of public health messages promoting healthier lifestyles (Cecchini et al., 2010; Cobiac L et al., 2012). The Ministries could encourage and financially support role models, including sports and movie stars, to be advocates for healthy living. Local TV programs and soap operas could be encouraged wherever possible to show healthy lifestyle and eating behaviours as normal.

Ministries of Customs and Excise

The Ministries have two important roles to play from an economic perspective. First, they need to ensure that excise duties, and rules of marketing and selling products known to cause NCDs, are being implemented properly and consistently across the country at all times. Imported tobacco, alcohol, food and drink should all pay the appropriate rates of excise duty. Illegally selling of broken packets of cigarettes and single stick sales at local markets – still a common occurrence in much of the Pacific - should be curtailed and if necessary fined. Leakage of duty free tobacco and alcohol from duty free stores to the domestic market should be stopped, and duty free allowances of the products reduced over time. Action in this area will increase government revenue, and increase the effectiveness of public health policy and warnings about illegal practices.

Second, the Ministries should work with the National Statistics Office, the Ministries of Health, and the Ministries of Finance and Economic Planning to more systematically collect data and trends on the importation of tobacco, alcohol, food and drink. Many countries rely heavily on imports of these products but have weak data on actual consumption (and revenue) trends. Ministries of Customs and Excise should regularly monitor and publish the level of excise duty collected for tobacco and alcohol, and map the revenue gained on geographical maps – which should then be published online – so that the public can identify which sales points are selling NCD inducing products but not paying excise duties.

Ministries of Education

Ministries of Education have an important role to play in reducing NCDs. That is partly because childhood obesity increases the risk of adverse health outcomes in adulthood as well as obesity (Han, Lawlor, & Kimm, 2010; Robert C. Whitaker, Wright, Pepe, Seidel, & Dietz, 1997). It is also partly because children spend so much of their time in the school environment where access – or barriers – to physical activity and healthy food can help set in train life- long positive -or negative – patterns of behaviour. And it is partly because schools provide an environment where children and youth can learn accurate (or inaccurate) information about the risks and consequences of NCDs that can then influence their own choices, and those of their families. These issues are particularly important in the Pacific where there are already high rates of being overweight and obese: nearly one in four boys and one in five girls aged 13-15 are obese, and nearly 30% of boys in the Cook Islands are obese (World Bank, 2013a).

There are several practical measures that Ministries of Education and individual schools can take. School canteens should aggressively monitor and avoid unhealthy foods and especially ban sugar sweetened beverages. Ministries of Education should work with town councils to ensure that fast food outlets, trade stores, and street hawkers selling tobacco and sugar sweetened drinks are not permitted to be located near schools. Short but regular and vigorous exercise during school hours should be encouraged. Increasing playground space, and / or making playgrounds safely and responsibly accessible to the community during weekends could be considered. Advertising of unhealthy products and sports / educational sponsorship by tobacco companies (as occurs in PNG) should be banned.

It will be important to measure and monitor the impacts of such interventions over time as several studies and reports suggest that school based interventions are not particularly cost-effective, at least

at a global level (Cecchini et al., 2010; WHO, 2010a). The situation may – or may not be – different in the Pacific where levels of overweight and obesity are particularly high among school aged youth.

Ministries of Labour and Industry, and the Public Service Commission

Ministries of Labour and Industry have three important contributions to make in responding to NCDs from an economic perspective.

First, because of 'market failures'[21] Ministries should work constructively – but firmly - with food and drink manufacturers, and retailers, to reduce the production and sale of unhealthy products. This includes production, labelling, and sale of tobacco and alcohol, the level of salt and fat content in products, and the sale of sweetened drinks and products. Tobacco, alcohol, processed food and drink industries often have strong market power and use sophisticated mechanisms to expand sales and increase profits globally that are not socially optimal ('market failures'). (R. Moodie et al., 2013; Zimmet, 2000). Recent analysis concludes industry self-regulation is not sufficient to protect public health. More specifically, recent peer reviewed research concludes that 'despite the common reliance on industry self-regulation and public–private partnerships, there is no evidence of their effectiveness or safety. Public regulation and market intervention are the only evidence-based mechanisms to prevent harm caused by the unhealthy commodity industries' (R. Moodie et al., 2013).

Second, Ministries should work in an even – handed way to promote the production and marketing of alternative healthy local foods. Stakeholder analysis finds there are several policy and administrative barriers to promoting locally produced healthier foods in Fiji and Tonga. This acts as a barrier to expanded economic production and opportunities for increased value-added in the economy, as well as undermining public health. These barriers include absence of food quality and food labelling requirements for locally produced and manufactured food; poor support to the local fishing industry; difficulties in access agricultural land; support for agricultural exports but not local production (Snowdon et al., 2010). Supporting a policy and business environment that encouraged employment intensive production and sale of healthy horticultural and garden products would help generate additional tax revenues and help offset any employment losses from reduced employment in tobacco and related industries.

Third, the Ministries of Industry and Labour, and the Public Service Commission, should actively make workplaces "heart healthy". They can do so by organising health checks amongst all workers for NCD risk factors, with mechanisms to facilitate referral and improved lifestyles for those found to be at risk. A recent workplace health assessment of 900 store managers and 200 operations managers in a major food chain in Australia found that 31% of senior staff were obese and that '80 % of its senior managers were in bodies older than their birth age' (Davies A, 2014). As a result, the company is encouraging fitness and healthy lifestyle programs for 200,000 of its staff. Companies, supported by Ministries of Industry and Labour, can take several actions. They can ensure workplace canteens are not selling unhealthy food or drinks, or allowing tobacco or alcohol consumption. Guam, for example, has introduced a Worksite Wellness Program to help reduce NCDs. Select Care Health Insurance

[21] See glossary for a definition of market failures.

provides health screening, nutrition and cooking advice, tobacco cessation programs, and stress management. Workplace interventions should be measured and monitored carefully as there is some suggestion that, globally at least, such interventions are not particularly cost-effective compared to alternative use of resources (Cecchini et al., 2010).

Ministries of Trade

It is clear from the literature that, from an economic perspective, international trade, and international trade agreements, provides both opportunities and constraints to addressing the NCD crisis in the Pacific (Hawkes C, Blouin C, Henson S, Drager N, & L., 2009; Legge D, Gleeson D, Snowdon W, & Thow AM, 2013; Mitchell A & Voon T, 2011; Snowdon W & Thow AM, 2013; Thow AM, Swinburn B, et al., 2010; WHO, 2012a; WHO and WTO, 2002; World Trade Organization, 2013). On the one hand, international trade and supporting trade agreements provide small and remote Pacific Island economies with sources of economic growth, and a much wider variety of competitively priced goods, services and financing (including overseas remittances and tourism) than they would have otherwise. International trade agreements also provide a rules-based approach to international dispute settlements, and incentives for public sector reform in procurement and other sectors. "Aid for Trade" provides an opportunity to increase production and exports of healthy fruits and vegetables; reduce post-harvest losses of fresh food; and increase policy coherence between health and economic sectors (Thow AM & S., 2013).

On the other hand, international trade, and trade agreements, have seen the rapid growth of imports of unhealthy foods, drinks, and tobacco products, often displacing local production and sales of fresh local products. Importation of canned and bottled sugar-sweetened drinks have contributed to unhealthy diets while draining scarce foreign exchange reserves and adding to shipping costs for their importation and re-export of used cans. The six[22] Pacific Island members of the World Trade Organization have access to a rules-based international agreement of 159 countries promoting fairer and freer trade in goods and services, but are also conscious of the high profile experience of Samoa when it sought to ban imports of turkey tails on public health grounds (Edwardes B & Frizelle F, 2009; Snowdon W & Thow AM, 2013) and similar events (Thow AM, Swinburn B, et al., 2010). Some researchers find that recent regional trade agreements carry greater threats and less protection to public health than more traditional trade agreements because of 'inherent power imbalances' between the parties, and because some regional trade agreements involve investment and intellectual property rules likely to restrict access to medicines and / or control of harmful substances (Friel S et al., 2013; Gleeson & Friel, 2013).

The literature suggests that the key issues for policy makers in the Pacific to bear in mind are:

- *International trade agreements do allow countries to restrict the import of unhealthy products on public health grounds*. The WTO and other relevant trade agreements generally permit countries to manage trade in goods and services in order to achieve their national health objectives as long as health measures respect basic trade principles such as non-

[22] Fiji, Papua New Guinea, Samoa, Solomon Islands, Tonga, and Vanuatu.

discrimination between local producers and trading partners. In addition, key provisions in the WTO (such as GATT Article XX) specifically allow governments to take actions to protect human, animal or plant life or health (WHO and WTO, 2002; World Trade Organization, 2013). WTO dispute ruling justified a ban on asbestos products on the grounds that WTO agreements do give priority to health and safety over trade (World Trade Organization, 2013). But these actions are disciplined, for example to prevent them being used as an excuse for protecting domestic producers: protectionism in disguise(World Trade Organization, 2013). PICTA excluded tobacco and alcohol from the tariff reduction following submissions on the health and financial implications of their inclusion(Snowdon W & Thow AM, 2013)

- *But taxes or other health related measures need to be consistent with the trade agreement rules.* For the WTO these rules include the obligation that any taxes or restrictions must be applied, for example, in a non-discriminatory way (that is, apply equally to domestic production as well as imports); for the purpose of protecting public health (rather than disguised protection of local producers); and are based on scientific evidence or internationally recognised standards (World Trade Organization, 2013)

- *Improved data collection on import trends and impact is urgently required to establish the actual facts and evidence base to inform policy.* There is insufficient data on imports of unhealthy products for policy makers to choose strategic, targeted, or defensible decisions. The UNDP has analysed household income and expenditure data and estimated the import content, and health implications, of such purchases[23]. Additional work such as that should be encouraged.

- *Weak implementation of existing domestic regulations, and out-dated regulations, may be an equally important factor as increasing imports.* Studies show that some Pacific Island countries have a poor record in implementing their own food labelling and food standards laws, or those laws are out-dated (Snowdon W & Thow AM, 2013). There is ample anecdotal evidence to show that cigarettes can be easily sold as single sticks, or to children, in most countries of the Pacific due to lax enforcement.

Perhaps most importantly, the Pacific Islands take a 'whole of government' approach, preferably led by the Prime Minister's Office, and specifically involve Ministries of Health, in the development of a country's position on trade and taxation issues. Some countries in the Pacific are in the process of replacing customs duties with excise taxes and value added taxes as part of trade negotiations. In the process, the prices of some unhealthy products may rise. But the prices of some other unhealthy products may also fall, which is likely to increase their consumption. The prices of other products may be kept administratively low for reasons of price control. It is not at all clear that the health implications of these significant price changes are being factored into the policy making, as the Ministry of Health is not automatically involved in discussions.

[23] Analysis is awaiting finalisation and publication. However preliminary findings suggest that imported food was significant in all Pacific countries, but varied considerably between them; and that there was a statistically significant association between unhealthy food and imported food when measured in caloric intake as well as a seemingly positive association between imported foods and obesity.

Ministries of Urban Planning and town councils

Poor urban planning can reduce normal physical activity and increase access to unhealthy fast foods. Recent estimates suggest that, worldwide, physical inactivity causes around 10% of breast cancer and colon cancer; 9% of all premature mortality; and 7% of Type 2 diabetes (Lee et al., 2012) . Urban living is associated with sedentary living and obesity (Kirby, 2013). There is some evidence that 'successful promotion of active living, healthy eating, and healthy weight may be influenced significantly more by social support, access to facilities and greater choice in physical activity and food venues within neighbourhoods rather than by health advice alone' (Heath G, 2012). A study of lifestyle diseases in Pacific communities found that increasing urbanisation and sedentary work practices contributed to "lifestyles of least effort" (Coyne T, 2000). Around 50% or more of the adult populations have low levels of physical activity in five[24] of the eight Pacific countries for which data is available.

Ministries of Urban Planning and town councils could therefore 'map' the relative ease of access to 'heart-healthy' facilities – parks, bicycle paths, sidewalks – compared to unhealthy facilities – including fast food outlets and plan future developments in better ways.

Ministries of Sport

Ministries of Sport clearly have a major role in promoting physical activity: a key component of prevention strategies for reducing obesity, cardiovascular disease, diabetes and other NCDs (Cecchini et al., 2010). It is therefore critical that Ministries of Sport take a population based approach to their responsibilities, aiming to improve physical activity of the whole population. From an economic perspective (as well as a public health perspective) it is important that these Ministries not to allocate their scarce resources disproportionately to elite (and often male dominated) sports and sports stadiums. Instead, scarce funding for sports should be accessible by a wide range of community groups, including girls and the broader community.

National Statistics Office

The information base for policy making remains mixed. Not one country in the Pacific has accurate, population based, information on the number of people dying, or on the causes of death. Only three countries – Cook Islands, Fiji and Samoa – have baseline data on salt consumption. No country we are aware of has data on the difference in cost when treating the same NCD patient at a tertiary hospital compared to a secondary hospital or a primary care setting. Only Tonga includes NCDs as a separate chapter in its National Health Accounts. On the other hand, 19 out of 21 Pacific countries now have WHO STEPS surveys on NCD prevalence and risk factors, and five have conducted a second survey. A formal cost-effectiveness study on salt reduction interventions is being conducted in Fiji.

[24] Cook Islands 72 % physically inactive; Kiribati 50.1%; Marshall Islands 66.1%; Micronesia Federated States 64.3%; Samoa 50.3%.

The National Statistics Office therefore has a strategic but often overlooked role to play in the response to NCDs and other health challenges. Priorities need to be set. This can only be done using good information, otherwise resources are wasted.

There are several practical things that National Statistics Offices can do. They should be tasked to regularly collect, analyse, and report to the Prime Minister's Task Force the latest data from household and retail expenditure surveys on the key risk factors driving NCDs including expenditure trends on tobacco, alcohol, sugar sweetened drinks, and fast food. Such surveys should be designed in such a way that they generate regular, comparable, statistics across the Pacific to identify trends and outriders. The National Statistics Office should also consider removing unhealthy products (tobacco, sugar sweetened drinks, turkey tails, mutton flaps etc) from the basket of goods used for tracking inflation: there is no public policy reason why society should be compensated through wage increases for price rises in known causes of NCDs during a 'crisis'.

Police

The police have an important role to play. They will be the agency enforcing alcohol related convictions, including through random breath testing of motor vehicle drivers and bike riders. Police will be in a position to collect data and trends on alcohol related offenses including traffic accidents and assaults. They will be involved in ensuring that laws prohibiting the sale of cigarettes to children, or sale of single cigarettes, are implemented.

Section Four: Development partners, the private sector, civil society and regional approaches

Multi-sectoral approaches are certainly not just confined to the Government sector. Other stakeholders can support – or undermine – the response to the NCD crisis by what they do, or do not do.

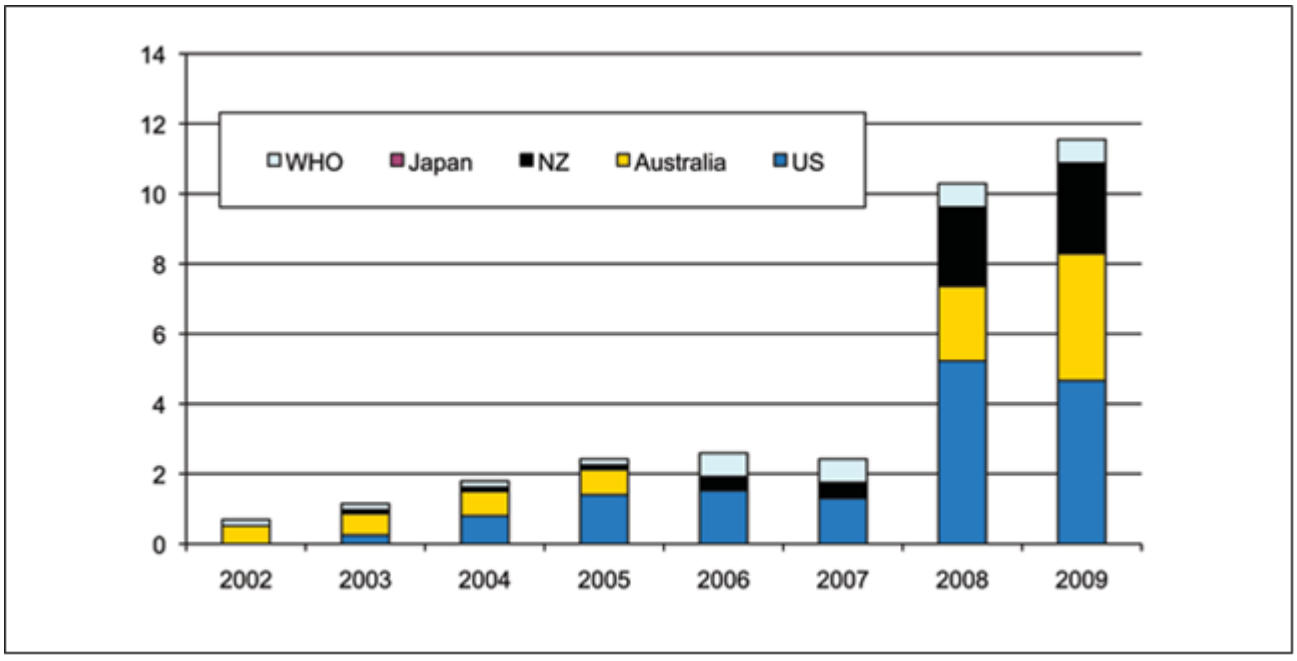
Multilateral and bilateral development partners

Development partners have not prioritised NCDs until very recently. Latest estimates suggest that only 1.11% of global development assistance for health was directed towards NCDs in 2009 (latest year available) compared to 27.4% allocated to HIV AIDS (IHME, 2014). Even in the Pacific, where NCD burdens are high and HIV AIDS relatively low, development partners have traditionally favoured funding for HIV AIDS at more than twice the level of NCDs. From 2002 to 2009, external assistance totalled $68,481,730 for HIV and $32,910,778 for NCDs; external assistance for HIV activities in the Pacific in 2009 was more than $18 million, while funding for NCDs was almost $12 million (Negin J & Robinson H, 2010). Development partners have, however, been increasing funding for NCDs since 2008, as seen in Chart 5 below.

Chart 5

External financing for NCDs in the Pacific by source, 2002-2009, in constant (2007) $ million

Source (Negin J & Robinson H, 2010)



Development partners can directly support – or sometimes hinder – the response to the NCD crisis. Development partners provide direct support to confronting NCDs by providing financial, technical and policy support to the Ministries of Health. From an economic perspective, this is often a much valued form of assistance, particularly when such assistance is provided in grant, untied forms of aid; committed and disbursed in a reliable and predictable manner; is aligned to host government priorities; is genuinely additional to government's own expenditure efforts (rather than substituting for them); is accompanied by evidence-based policy dialogue; and is actively monitored and evaluated for quality and 'lesson learning'. However such direct assistance can hinder the response to the NCD crisis if the assistance does not have those aforementioned characteristics; is provided as a 'vertical' disease specific program that distorts other priorities; duplicates government mechanisms; or involves additional and low value added transaction costs.

Development partners can also *indirectly* support – or sometimes hinder – the response to the NCD crisis. That is because NCDs require a multi-sectoral response and development partners are usually active in several sectors. To the extent that development partners design, and fund, road transport projects that also incorporate footpaths and bicycle paths; build schools that have good recreation space; support town planning that has parks and playgrounds; then development partners indirectly support the response to NCDs. Development partners that overlook those factors in the design and implementation of such projects hinder the response. Development partners in the Pacific could consider including a standing item on NCDs on their agendas for regular meetings.

Development partners can also help – or hinder – the response to the NCD crisis by their own 'whole of government' approaches, including trade policy. One observer recently commented that while tobacco kills more than HIV AIDS, malaria, and tuberculosis combined, the United States does not include one line item for tobacco control in its $ 8 billion Global Health program, and usually supports the reduction of import restrictions on tobacco during trade negotiations (Bollyky T, 2014). One recent analysis notes that:

> 'The conflict between aid (including for health programmes) and trade is nowhere more apparent than in the case of mutton flap exports from New Zealand to the Pacific Island countries. New Zealand has provided aid for efforts to control NCDs, including the provision of renal dialysis, while at the same time exporting high-fat mutton offcuts (mutton flaps) to the region It even threatened to pursue sanctions at the WTO when Fiji implemented a ban on importation of flaps' (Snowdon W & Thow AM, 2013)

Private business sector

From an economic perspective it is not in the interests of the private sector to see workers (or consumers) going on sick leave, become disabled, or die prematurely due to (otherwise preventable) NCDs. Nor is it in the interests of the private sector to see the Ministry of Health spend increasing amounts of scarce government resources on (otherwise preventable) expensive curative treatments when those resources could have been invested in roads, ports, electricity generation and other

wealth enhancing activities. While some industries and retailers profit from manufacturing and selling unhealthy products, most will benefit from having a healthier society and economy.

Government needs to liaise with industry; explain the reasons for the changes envisaged in each country's roadmap; work with the private sector to implement the changes; but be – and be seen to be – firm and consistent in pursuing the national objectives.

Establishing a standing, high level, liaison between the Prime Minister's office and the Chambers of Commerce is a starting point to encourage two way dialogue.

Industry itself needs to take action by better understanding the nature of NCD risks and consequences in its own workforce. As noted earlier, a recent workplace health assessment of 900 store managers and 200 operations managers in a major food chain in Australia found that 31% of senior staff were obese and that '80 % of its senior managers were in bodies older than their birth age' (Davies A, 2014). As a result, senior management is now working on a program to encourage healthier lifestyles amongst 200,000 workers in its stores.

There may be scope in some of the larger Pacific economies for Government to progressively withdraw from financing – and providing – cost-ineffective interventions such as dialysis machines and turning them over to the private sector in a stage manner. This would have a double benefit. First, it would reduce the large and growing expense of dialysis treatment from the public expenditure budget. This is important because that public expenditure now benefits only a small number of individuals, for a few months or years, rather than the general public which is the key responsibility of Government. Furthermore, progressively opening up the dialysis market to the private sector in a stage manner would create an environment that would enable the private sector to grow: itself a worthwhile policy outcome in its own right.

Civil society: churches, university and media

Churches play a very significant role in the life of the Pacific Islands. Church values are directly aligned to a scaled up response to NCDs: healthy living; no tobacco or alcohol related violence; and the value and importance of personal responsibility. Church leaders should be given accurate information about the risks and responses to NCDs.

Media, including opinion leaders on social media, set agendas and norms. Credible health professionals should be encouraged to brief journalists and social media networkers to give them accurate information about risks and responses to NCDs.

Universities can play an important role in providing independent and objective generation and analysis of data related to NCD risks and interventions. They can also provide 'heart healthy' campuses and environments for students.

Regional arrangements

The Pacific Islands share many common challenges, but also opportunities for doing things differently. There are potential benefits (but also some transaction costs) in having a regional approach to certain challenges including, for example, establishing a tobacco free Pacific. Sharing insights into the relative costs and benefits of alternative approaches to responding to NCDs is a 'public good' that reduces costs for all members. As each country develops and refines its own roadmap, it will be possible to develop an overarching regional framework showing points of complementarity and opportunities for collaboration. There is a need for a 'clearing house' of experiences so that countries can learn from each other about approaches that work (and don't work) and the cost implications of various approaches. This could be housed within existing regional institutional arrangements or perhaps within a University. Organisations such as SPC, WHO and World Bank are well placed to support regional approaches within their respective mandates. SPC is particularly well placed to foster multi-sectoral, regional, approaches in the Pacific, given its mandates in agriculture and fisheries as well as public health.

Section Five: Conclusion and next steps

Conclusion

Economics provides strong arguments – and tools - for allocating scarce resources to combating the rise of NCDs in ways that are effective, efficient, affordable and sustainable. Not everything that Governments or stakeholders would like to do is affordable, cost-effective, or sustainable in the Pacific. Yet there are many interventions that are so but are not being scaled up.

Multiple causes beyond the health sector per se are driving the NCD crisis: as a result a multi-sectoral approach is essential. Action by Ministries of Health is a necessary - but by no means sufficient - condition for responding to the crisis. Failure of other sectors and stakeholders to respond to the crisis will mean actions taken by others are undermined and already scarce Ministry of Health resources wasted.

It is in the interests of all other Ministries, and most stakeholders, to support the reduction of preventable NCD burdens, but Ministries and stakeholders need a credible and 'actionable' roadmap to know where, how and why to engage in practice. That roadmap needs to be sufficiently comprehensive that all stakeholders can find points to engage; sufficiently flexible that it meets individual country and sub-national circumstances; but sufficiently specific that it allows all stakeholders to see where, why and how they fit in and align to the country's own efforts. A credible, 'actionable' roadmap, led and seen to be led by the top levels of Government, may serve to reduce the volatility of development partners' financing as political priorities change. A credible and 'actionable' roadmap is also essential for sustained business sector engagement, which has seen 'roadmaps' for other aspects of development launched – and then languish – before.

Next steps

This report provides the evidence base for countries in the Pacific to develop their own country specific NCD Roadmap, consistent with existing policies and programs. Pacific Leaders have committed to responding to the NCD crisis. Forum Economic Ministers, Health Ministers, and Trade Ministers have echoed the importance of responding within their mandates. Global, regional, and national frameworks and strategies have already been identified and agreed. This report, and the options contained in Annex 6 for consideration by all stakeholders, sets out how to operationalise those commitments from an economic and financing perspective.

Four key strategies are recommended for inclusion in every Country NCD Roadmap in the Pacific. Given the risk factors for NCDs, and evidence about "best buys", four key strategies are recommended for all countries in the Pacific. The four key strategies involve: strengthening **tobacco** control; policies on **food and drink** products that are directly linked to obesity, diabetes, heart disease and other NCDs; improved **efficiency** and impact of the existing health dollar by reallocating scarce health resources to targeted primary and secondary prevention of NCDs, and especially high burden NCDs such cardio-vascular disease and diabetes; and strengthening the **evidence base** for better investment planning and program effectiveness to ensure interventions work as intended and provide value for money. In

addition, each country can then add other interventions from a wide menu of identified options to create a Country NCD Roadmap suited to its own country circumstances.

Annex 1: Summary of NCD prevalence and risk factors in the Pacific in 2008

Source: (WHO, 2010a). NOTE: These are the statistics used by the WHO in its *Global Status Report on NCDs.* Individual countries may have different estimates.

Indicator	Cook Islands	Fiji	Kiribati	Marshall Islands	Micronesia (Federated States)	Nauru	Niue	Samoa	Solomon Islands	Tonga	Tuvalu	Vanuatu
Total population	20,288	860,623	99,546	54,038	111,064	10,255	1,468	183,081	538,148	104,058	9,827	239,651
NCDs as a percentage of all deaths (%)	74	77	69	73	67	70	72	70	60	74	73	70
Current daily smoking total (%)	34	8	67	17	17	47	…	36	28	22	32	12
Physical inactivity (%)	72	…	50	51	65	49	…	49	43	41	…	…
Raised blood pressure (%)	41	39	34	33	38	39	…	40	31	40	…	42
Raised blood glucose (%)	20	14	22	27	16	13	…	21	15	18	…	8
Overweight (%)	91	65	81	79	75	93	…	85	65	87	…	62
Obese (%)	63	30	46	45	32	71	…	54	30	58	…	28
Raised cholesterol(%)	58	52	34	44	46	44	…	33	32	48	…	…

Annex 2: The health, economic, and political arguments for why there is an NCD crisis in the Pacific

The health argument

NCDs are already a major health challenge in the Pacific, with the region having rates of premature deaths much higher than the rest of the world. NCDs are already the leading cause of death in twelve Pacific Island Countries for which comparable data is available, frequently accounting for 70% of all deaths (details in Annex One). Life expectancy in Tonga has fallen as a result of NCDs. Cardiovascular disease is the leading cause of death in the Pacific, often occurring at rates twice that of more traditional communicable diseases. NCDs such as diabetes and stroke can also cause chronic ill health and disability as well as death. The Pacific now has some of the highest rates of diabetes in the world (World Bank, 2013a). Of particular importance is the fact that most Pacific Island countries have rates of premature death that are much higher than countries of a similar income level, or indeed the world average. The Pacific also has some of the highest rates of diabetes in the world. This is shown in Chart 1 and 2 below.

Chart 1: Rates of premature (age 30- 69 years) deaths in the Pacific compared to others.

Source (WHO, 2013a)

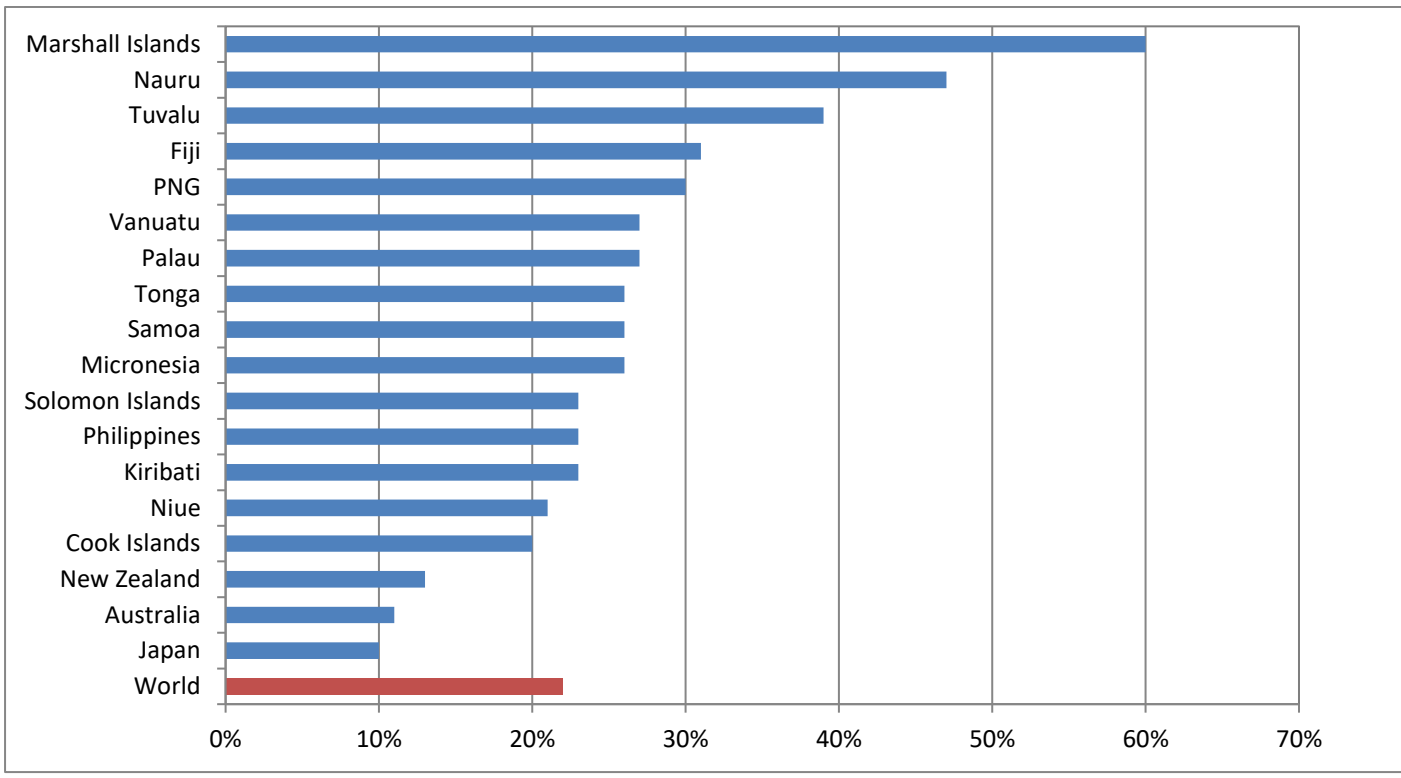
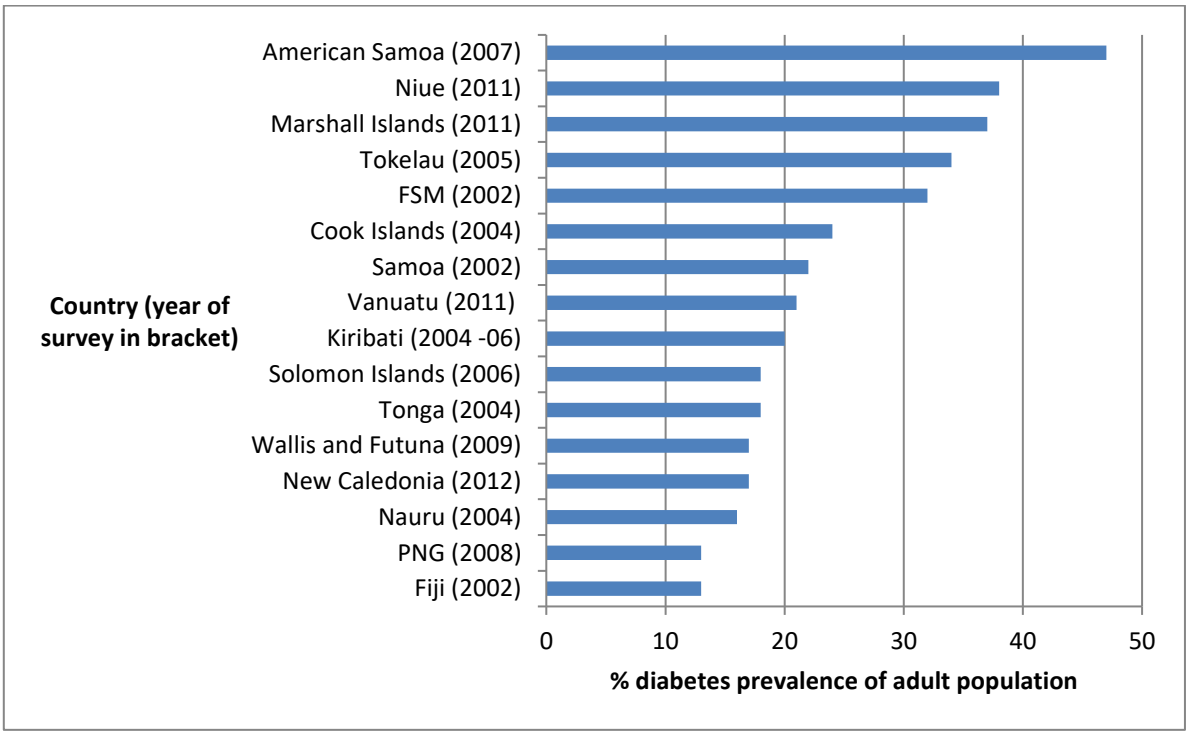


Chart Two: Diabetes prevalence rates

Source: WHO STEPS surveys (various years shown in brackets)



Source: World Development Indicators

NOTE: These estimates use the WDI statistics. It is acknowledged that countries may have different estimates based on different methodologies.

Importantly, the trends are pointing the wrong way: existing risks factors suggest that NCDs will be an even greater health challenge for the Pacific in coming years unless urgent and widespread action is taken now. Each of the 10 countries in the Pacific for which data is available have 60% of more of the adult population overweight, and in six countries more than 75% are overweight. In four countries of the Pacific at least half the adult population is obese. Obesity and being overweight often occurs at young ages: nearly one in four boys and one in five girls in Tonga are obese. Other risk factors apart from weight are also significant in the Pacific. Based on the 2009 STEPS survey, over three quarters (76%) of males and nearly one half (48%) of females use tobacco. Over 70% of people in Cook Islands have low levels of physical activity. Based on the latest STEPS report for Vanuatu, only 5% of adult females, and 10% of adult males, were free of any of the preventable risk factors for acquiring NCDs in Vanuatu (World Bank, 2013a). Three of top ten rates of tobacco use in the world involve Pacific countries: Kiribati, PNG and Tonga.

The economic argument

NCDs impose large – but often preventable – costs on already overstretched Government health budgets. That is the result of a combination of factors: NCDs are increasingly affecting a larger proportion of a country's population; often involve medication and treatment for the rest of the person's life; and can often involve complex, expensive, hospital based treatments. This is all the more important in the Pacific where most health expenditure is borne directly by Government's own budgets, rather than from out of pocket payments or private health insurance. NCDs put a large strain on Government budgets: the estimated average total cost of dialysis for patients with diabetes related kidney failure to the Government of Samoa was $ 38,686 per patient per year in 2010/11, more than twelve times the Gross National Income of Samoa. But even low cost items can impose significant costs to government due to the chronic and long term nature of certain NCDs. Glucose testing strips for a diabetes patient in Vanuatu may cost only Vatu 42 ($ 0.45 cents) per day. But used every day, as required, amounts to $ 164 per patient per year, more than the total government expenditure on health per capita, further squeezing the Government's health budget. One patient requiring insulin absorbs the equivalent notional drug allocation of 76.4 other citizens in Vanuatu. Only 1.31% of the total population could be treated with insulin before the total Government pharmaceutical and medical supplies budget was used up (Anderson I et al., 2013; World Bank, 2013a). Increased expenditure on (often preventable) NCD costs means less money for alternative high priorities in the health sector (and beyond) including the unfinished agenda of communicable disease control in most countries of the Pacific.

The rising costs of (preventable) NCD treatment extend beyond the health sector, undermining national budgets and national investments. Health already absorbs a relatively large share of Government expenditure in the Pacific. For example, health accounts for between 10% – 24% of total government expenditure, supported by external financing, in Samoa, Tonga and Vanuatu, at least twice the share found in other lower middle income countries globally. While there is an argument for increasing absolute levels of public expenditure on health in the Pacific, most countries have limited scope ("fiscal space") to increase expenditure on health in a sustainable way. That is particularly because most countries in the Pacific face modest, or at least volatile, economic growth prospects and have a small revenue base (World Bank, 2013a). National budgets are therefore caught in a pincer movement – rising costs due to NCDs but subdued growth in government revenues. Preventable NCD costs drive out investments in national productive capacity.

NCDs also impose large – but again often preventable – social and economic costs on individuals and the economy more broadly. Chronic NCDs including diabetes and heart disease lead, on average, to increased absenteeism and reduced capacity for productive, income earning work. Diabetes related blindness and amputations reduce mobility and social interactions. Premature death of parents affects the wellbeing of children. There is some anecdotal evidence that people in the Pacific are being exploited by spending relatively large amounts of money on traditional or newly invented "cures" for advanced and non-curable diabetes and cancers.

The political argument

Perhaps most importantly, Pacific Islands Forum Leaders themselves have invested political capital by explicitly declaring the "Pacific is in an NCD Crisis" including as part of the 42nd Pacific Islands Forum communiqué of September 2011. The full text is at Annex 3. Amongst other things, Forum Leaders specifically:

> "Expressed their deep concern that non-communicable diseases has reached epidemic proportions in Pacific island countries and territories (PICTs) and has become a 'human, social and economic crisis' requiring an urgent and comprehensive response.
>
> Noted with concern the huge economic costs of NCDs in the Pacific and in particular the rapidly rising expenditure on NCDs comprising well over 50 per cent of the total health budget of many island countries.
>
> Leaders were particularly concerned that if allowed to continue unabated NCDs has the potential to undermine labour supply, productivity, investment and education, four of the main factors driving economic growth with potentially devastating consequences, especially in Pacific island countries and territories
>
> (Forum Communique, 2011).

Health, Finance and Economic, and Trade Ministers from the Pacific have similar confirmed there is an NCD crisis and the importance they attach to urgently addressing NCDs. Pacific Health Ministers have jointly said that they 'recognize NCD as a crisis in the Pacific to be addressed with the utmost urgency' (Honiara Communique, 2011). The Forum Economic Ministers Meeting recently reaffirmed the Forum Leaders' Communique noting that, amongst other things NCDs are creating a 'human, social and economic crisis', requiring an urgent and comprehensive response, including taxation and other economic measures (Forum Economic Ministers Meeting, 2013). The key references from the FEMM agreement on NCDs is at Annex 4. Forum Trade Ministers have also explicitly recognised the link[25] between trade and NCDs (Forum Trade Ministers' Meeting, 2013)

[25] The most recent Forum Trade Ministers' Declaration stated that "paragraph 55. The Meeting considered linkages between trade and health, including Non-Communicable Diseases (NCDs), trade in alcohol and tobacco and other health issues. Paragraph 56: Ministers acknowledged the decisions of the 2013 Forum Economic Ministers and Pacific Health Ministers regarding actions to address NCDs in the region, and noted the importance of a balanced approach to public health issues, and the need for trade and health officials to work closely".

Annex 3: Extract from Forum Leaders' Communique declaring NCDs a Crisis

Forum Leaders:

Expressed their deep concern that non-communicable diseases has reached epidemic proportions in Pacific island countries and territories (PICTs) and has become a 'human, social and economic crisis' requiring an urgent and comprehensive response.

Leaders expressed alarm that 75 per cent of all adult deaths in the Pacific are due to NCDs the majority of whom are in the economically active age bracket and that many more times this number suffer severe side effects that undermine their capacity to contribute further to economic development.

Leaders expressed grave concern that NCDs can undermine the achievement of the Millennium Development Goals (MDGs) which for a region that is already struggling to meet the 2015 targets provides an even greater challenge.

Conscious of the assessment by the World Economic Forum ranking NCDs as one of the top global threats to economic development, Leaders noted with concern the huge economic costs of NCDs in the Pacific and in particular the rapidly rising expenditure on NCDs comprising well over 50 per cent of the total health budget of many island countries.

Leaders were particularly concerned that if allowed to continue unabated NCDs has the potential to undermine labour supply, productivity, investment and education, four of the main factors driving economic growth with potentially devastating consequences, especially in Pacific island countries and territories.

Leaders recognised the seriousness of the threat that NCD poses to the people in Pacific Island countries and territories and the urgency to address it and declared the 'Pacific is in an NCD Crisis'"

Annex 4: Extract from FEMM Action Plan on Economic Cost of NCDs

Economic Cost of Non-Communicable Diseases (NCDs)

41. Ministers **reaffirmed** the Pacific Islands Forum Leaders' declaration that the Pacific is now in an NCD crisis and commit to implementing the decisions of Forum Leaders by taking relevant actions within the jurisdiction of Ministries of Finance and Economic Development, **agreed** to allocate and mobilise resources for initiatives that have been proven to reduce the incidence and prevalence of NCDs.

42. Ministers **supported** implementation of taxation interventions targeting NCD risk factors, secondary intervention (including preventative measures) and nutrition policy dialogue as part of the NCD roadmap for the Pacific Island region that would provide the basis for an effective 'whole of government' and 'whole of community' approach to addressing the NCD crisis in the region, in collaboration with national health and other relevant ministries/departments and development partners.

43. Given the high priority accorded to addressing NCDs in the region by Leaders, Ministers **agreed** to include NCDs as a standing agenda for future FEMMs and **requested** the Secretariat of the Pacific Community, on behalf of the Quintilateral Partners in Health, to provide updates on the development of the NCD roadmap and ensure close engagement of Forum Members.

44. Ministers **requested** Secretariat of the Pacific Community, on behalf of the Quintilateral Partners in Health, to present the finalised NCD roadmap to Economic Ministers in 2014 outlining the specific role and contribution of Economic Ministers in strengthening NCD prevention and control in the Pacific region.

45. Ministers **directed** that the Forum Secretariat and Secretariat of the Pacific Community explore options for a joint meeting of Economic and Health Ministers to promote greater collaboration to tackle the epidemic rate of NCDs in the region.

46. Ministers **noted** the importance of political will in leading the fight against NCDs which may have positive implications for selected Forum Island Countries' national budgets, as well as reducing NCDs' burden as a result of implementation of the NCD roadmap which shall be developed.

Annex 5: Summary of cost-effective 'best buys' at the global level

Risk factor **(DALYs, in millions; % global burden)**[a]	**Interventions / actions** (*** core set of 'best buys'**, Others are 'good buys')	**Avoidable burden** *(DALYs averted, millions)*	**Cost-effectiveness** [b] *(US$ per DALY prevented)* *[Very = < GDP per person; Quite = < 3xGDP per person Less = >3xGDP per person]*	**Implementation cost** *(US$ per capita)* *[Very low = < US$0.50 Quite low = < US$ 1*	**Feasibility** *(health system constraints)*
Tobacco use (> 50m DALYs; 3.7% global burden)	**Protect people from tobacco smoke *** **Warn about the dangers of tobacco *** **Enforce bans on tobacco advertising *** **Raise taxes on tobacco ***	Combined effect: 25-30 m DALYs averted (> 50% tobacco	Very cost-effective	Very low cost	Highly feasible; strong framework (FCTC)
	Offer counselling to smokers		Quite cost-effective	Quite low cost	Feasible (primary care)
Harmful use of alcohol (> 50m DALYs; 4.5% global burden)	**Restrict access to retailed alcohol *** **Enforce bans on alcohol advertising *** **Raise taxes on alcohol ***	Combined effect: 5-10 m DALYs averted (10-20% alcohol burden)	Very cost-effective	Very low cost	Highly feasible
	Enforce drink-driving laws (breath-testing) Offer brief advice for hazardous drinking		Quite cost-effective	Quite low cost	Intersectoral action Feasible (primary care)
Unhealthy diet (15-30m DALYs; 1-2% global burden)[c]	**Reduce salt intake *** **Replace trans-fat with polyunsaturated fat *** **Promote public awareness about diet * +**	Effect of salt reduction: 5 m DALYs averted Other interventions: Not yet assessed globally	Very cost-effective	Very low cost	Highly feasible
	Restrict marketing of food and beverages to children Replace saturated fat with unsaturated fat Manage food taxes and subsidies		Very cost-effective (more studies	Very low cost	Highly feasible
	Offer counselling in primary care		Quite cost-effective	Higher cost	Feasible (primary care)
	Provide health education in worksites Promote healthy eating in schools		Less cost-effective	Quite low cost	Highly feasible
Physical inactivity (> 30m DALYs; 2.1% global burden)	**Promote physical activity (mass media)** [*] **+**	Not yet assessed globally	Very cost-effective	Very low cost	Highly feasible
	Promote physical activity (communities) Support active transport strategies		Not assessed globally	Not assessed globally	Intersectoral action
	Offer counselling in primary care		Quite cost-effective	Higher cost	Feasible (primary care)
	Promote physical activity in worksites Promote physical activity in schools				Highly feasible
			Less cost-effective		

Infection	Prevent liver cancer via hepatitis B vaccination *	Not yet assessed globally	Very cost-effective	Very low cost	Feasible (primary care)

Annex 6 Summary of recommendations

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
Government Ministries						
Prime Minister's Office	Prime Minister to establish, and then actively chair, a regular meeting of a multi-sectoral task force to supervise progress in addressing NCDs Hold Government departments and other stakeholders accountable for progress through active monitoring and evaluation.	Use the authority and convening power of the PM to create a sense of urgency and develop a genuinely multi-sectoral approach to responding to NCDs. Weak implementation is the Achilles heel of many good policies. Lack of accountability and weak implementation wastes scarce	Frequency of meetings of multi-sectoral task force, and the level and breadth of representation. Evidence that the multi sectoral task force is taking decisions and that they are being implemented and actively monitored.	Low direct financial cost. Some involvement of time by all stakeholders. Potential for cost savings if duplication of Government and other stakeholder effort is reduced, and revenue increased if new taxes agreed to. There are large – but hidden – costs when accountability is	Easily feasible. Few obstacles to implementation initially, although maintaining commitment and momentum over the longer term may be a challenge. Difficult, but essential.	Difficulties can be expected if tobacco, alcohol, or food processing industries use surrogates to weaken task force recommendations . Some short term political pain when agencies realise they are being actively held accountable for implementation. Medium to long

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
		financial and human resources.		weak and implementation stalls.		term gain in the authority, credibility and prestige of the Prime Minister's office when agencies become – and are seen to become – more accountable for results.
Attorney General	The Attorney-General will need to be involved in any multi-sectoral task force to ensure that taxation and other measures are legally sound.	Reduces the chance that taxes and other policies can be overturned by self-interested legal challenges, including from industry.	Extent and quality of active participation by Attorney General or representative in multi-sectoral task forces.	Avoidance of large court fees and compensation payments if legislation is sound and valid at the outset.	Easily feasible to involve Attorney General or representative.	Credibility of Government efforts is increased (decreased) if laws are found to be valid (invalid)
Ministries of Agriculture	Promote the production and marketing of fresh fruit, vegetables and fish. Restrict the use of land for smallholder	Increases the availability of healthy foods, decreases production of domestic tobacco.	Increases in the quantity, quality and availability of fruit, vegetables and fish in local markets. Decreased	Increased cost for identifying and promoting healthy food products, especially if refrigerated warehouses for	Need for consistent quality and reliable supply by producers. Assumes consumers will	Potential for increased income from smallholder farmers and fishers. Resistance from

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
	production of tobacco leaf		production of tobacco leaf from smallholders and others.	fish have to be constructed. Some potential for reduced import bill on foodstuffs if local markets are attractive and competitive. Some potential for increased tax revenue to the extent that horticulture farmers, fishers, and retailers become more involved in the formal sector of the economy, rather than the informal sector	actually switch back to local fresh products rather than processed products.	small holder tobacco farmers
Ministries of Communication	Ban or severely restrict advertising of unhealthy	Counters aggressive marketing of	Cessation of advertising of unhealthy products at critical	Some net cost to monitor compliance.	Will need to monitor other alternatives eg advertising of	Reduced revenue for TV and radio stations and print media over the

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
	products especially when children are involved. Promote informed views and images about healthy lifestyles, including through social media	unhealthy products. Promotes knowledge and improved image of healthy living	times, especially when children involved. Role models on popular TV shows exhibiting healthy lifestyles and eating habits	Some possible gain to revenue if fines are imposed for repeated breaches.	unhealthy products via social media	short to medium term. Opposition from those whose products are banned from advertising.
Ministries of Customs and Excise	Strengthen the collection of excise duties on tobacco, alcohol and unhealthy food products (eg strengthen compliance of existing laws to reduce the sale of single stick cigarettes at markets). Collect – and publish – statistics on excise revenue collection of	Reduces disregard of government regulations Improves the statistical and evidence base for policy making and	Rise in the total value of revenue collected from unhealthy products. Map showing 'hot spots' where unhealthy products are	Will increase government revenue collection	Administratively feasible. But needs to be well supervised to ensure compliance officers are not subject to threats or bribes.	Resistance from small trade store owners and others currently not paying the correct amount of excise revenue. Criticism from general public unless the reasons for the tighter compliance are explained well in advance. Support from National Statistics Office, PMs office

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
	unhealthy products in collaboration with National Statistics Office, MOH and Ministry of Finance	future revenue collection	widely known to be sold, but where excise duties are inexplicably low			etc for generating a better statistical evidence base for policy.
Ministries of Education	Screen school canteen menus to replace unhealthy food and drinks with healthy alternatives. Work with town councils to minimise fast food outlets and street vendors near schools. Promote exercise programs. Provide education about NCD risks and responses. Prohibit use of educational or sports scholarships from	Reduce exposure to risk factors amongst a large population entering adulthood.	In short term, change in the availability of healthy versus unhealthy food and drinks in the school environment, and changes in the level of physical activity. In the medium term, increase in knowledge of students about the risk factors for NCDs. In the medium to longer term, some	Medium to high set up and transition costs to ensure there is sufficient, reliable, quality, local food supply chains in place to meet school canteen needs. Low overall running and operational costs and possibly some savings to school budgets if local food prices are cheaper than alternative manufactured foods and drinks. Switching school	Technically feasible. However changes will require good communication and sensitising students to the reasons for changes if they are to be accepted in practice. Need to trial different menus to test acceptability. Need to ensure local supply chain can produce sufficient quantities of local	Local farmers and fishers would benefit from expanded sales to school canteens. Fast food outlets and nearby trade stores selling sugar sweetened drinks and tobacco will lose business. Nearby horticultural producers and fishers will have an expanded market.

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
	tobacco companies or companies selling 'junk food' or SSBs. Monitor and evaluate, given international research that school based programs are not particularly cost-effective	Helps to ensure scarce resources are achieving intended outcomes.	evidence that overweight and obesity rates, and smoking rates, are declining in the school age cohort. Number of rigorous evaluations, and evidence that those evaluations are then used to influence future budget decisions (eg scale up or scale down programs)	canteen purchases from imported products to locally produced products would shift expenditure away from imports to local producers. Evaluations can be expensive, but can also be cost-saving in the long run if they lead to ineffective programs being cancelled or scaled down	healthy foods at consistent quality. Family and household practices may still overwhelm positive benefits of an improved school environment. Requires good technical design to achieve robust and useful findings.	

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
	compared to other alternatives.					
Ministries of Finance and Economic Planning	Support establishment of overarching principles for allocating scarce health resources and achieving value for money in the Ministry of Health (and if necessary other Ministries). Would include clearer and more explicit requirements for determining value for money purchases, and minimum thresholds for undertaking cost-effectiveness analysis in larger procurement packages.	Improves strategic allocation of existing scarce resources. Helps Ministries make best use of what resources they have. Reallocates scarce resources from high cost / low impact programs to low – medium cost / high impact programs.	Existence, and implementation, of clearer guidelines for allocating scarce resources, especially within the health sector.	Some financial and management costs in setting up and then regularly implementing more rigorous resource allocation criteria. If done properly, and implemented, potential for very large savings and freeing up of existing resources that can be reallocated to higher priorities / higher impact goods and services. Increased revenue.	Requires increased training on value for money considerations in procurement. Requires capacity for cost-effectiveness analysis (perhaps available in the country's Universities) when larger procurement packages are being considered. Some resistance from vested interests.	Possible resistance and inertia from Ministry of Health officials initially. But if improved resource allocation criteria convinces Ministry of Finance, and development partners, that MOH has better management of scarce resources, the business case for seeking additional funding is stronger.

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
	Increase excise duty on tobacco to reach 70% of the retail price of domestic and imported tobacco. Apply the excise duty on all tobacco products, and not just imported products, to increase revenue, reduce consumption, and be compatible with WTO rules and obligations.	Reduces existing consumption new uptake of a major source of NCDs. Compliance ensures the intended health and revenue benefits are achieved. Reduces the attractiveness and affordability of cigarettes to the young and the poor.	Government excise duties increased progressively over coming 3 years to reach 70% of retail price.	Increased revenue	Administratively easy to increase the excise duty. Strong resistance can be expected from tobacco industry. Need to ensure local smallholders do not increase growing of local tobacco leaf. Need to ensure compliance of new excise rates at customs borders and in small local trade stores.	Significant and measurable reduction in NCDs over the medium to longer term. Reduction in wasted expenditure on cigarettes by the poor and the young as price increases take effect. Increased revenue for Ministry of Finance (depending upon price elasticities and compliance). Tobacco companies lose production and sales over the medium term. Government revenue a winner. Local traders

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
						breaking the law a loser.
	Employ additional inspectors to ensure excise duties are being paid and cigarettes not sold individually at markets or to children.		Initially, the number of additional compliance inspectors hired. In short to medium term, number of violations recorded, and in medium to longer term evidence that excise revenue increasing / illegal sales decreasing.	Employment of additional inspectors should be revenue generating over the short to medium term as they improve compliance with the increased excise duties.	Administratively easy to employ additional inspectors and improve compliance. Some risk of bribery.	Credibility and authority of Government increased. Some unhappiness from consumers and traders currently breaking the law.
	Consider, with other Ministries such as Health, and Industry and Commerce, plain packaging of cigarettes after	Reduced consumption.	If implemented, reduction in use of tobacco.	Potentially high cost if litigation is involved.	Feasibility should be assessed after current dispute between Australia and tobacco companies resolved.	Reduction in tobacco users and therefore NCDs. Risk of litigation from tobacco companies who see branding as a

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
	current disputes between Australia and tobacco companies are resolved.	Await further research and advice from WHO.				key device to promote their products.
	Avoid preferential rates for 'e-cigarettes' until their safety and effectiveness as tobacco cessation tool has been assessed.					
	Increase taxes on other products linked to NCD risk factors including alcohol.	Reduced consumption of alcohol, especially at harmful levels. Reduction in domestic violence and traffic accidents	Increases in additional revenue and reduction over time in alcohol related NCDs (especially liver cancer etc) and alcohol related violence	Will depend upon price elasticities of individual products and income elasticities of individual consumers.	Increasing excise duties on alcohol is relatively straightforward from an administrative point of view.	Resistance from industry, support from women's groups and churches.

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
Ministries of Health	Review and reallocate scarce financial and personnel resources to effective primary and secondary prevention strategies.	Strategic action to substantially increase the effectiveness and efficiency of existing resources.	Increases in the level of funding going to primary and secondary preventions over the short to medium term. Indicators of improved detection and secondary prevention of high risk groups over the longer term.	Increased management effort to reallocate financial and human resources to primary and secondary prevention over the short to medium term. Reduced treatment costs for complicated NCDs over the longer term.	Requires good data and understanding of relative costs and benefits of existing allocations. Resistance from vested institutional interests and stakeholders. Development partners more willing to provide financing if they are convinced existing resources are well managed and allocated strategically.	Government revenues and society health outcomes improved over the longer term.
	Scale up PEN to national coverage by January 2015, and monitor costs and equity of access.	PEN is an evidence - based, cost-effective, approach to reducing NCDs including at the	Initially, the coverage levels (and cost) or scaling up PEN nationwide. Over medium to longer term, indicators of	Additional scaling-up cost will vary according to country and overall package involved (eg Cook Islands costs	Feasible but requires long term commitment to improve training, supply chains, supervision, maintenance of	Positive for the Government as communities see the PEN goods and services scaled up nationally.

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
		primary health care level.	reduced NCD incidence and complications.	ranged from $NZ 900,000 to $NZ 4 million over five years). Over the medium to longer term there should be a net reduction in hospitalisation costs.	equipment, improvement in the referral system etc.	Perhaps some reduction in access to traditional healers.
	Analyse reasons for different prices charged for imported essential NCD drugs such as simvastatin.	Improves the cost-effectiveness of essential drugs, and reduces costs.	Per unit price of key NCD drugs are competitive when compared to others in the Pacific and globally.	Potential for major cost savings.	Initial analysis for price differences is easily feasible. Feasibility of reducing costs would depend upon circumstances.	Potentially major savings to MOH drug budget. Possible resistance from drug suppliers.
	Avoid high cost / low impact interventions (including possibly dialysis) and 'futile care'.	Reallocates scarce resources to areas of greater impact and financial sustainability.	Correctly measure the full economic cost per patient of dialysis, and health outcomes, as well as the cost and outcomes of 'end of life futile care'.	Potential for major savings with little change in overall health results. Variable according to needs of the population group.	Technically feasible but difficult politically.	Opposition from those who believe Government must 'do everything' for a patient (even if it is unaffordable or the resources could be used to save many more

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
	Invest in maternal and pre-maternal health, including nutrition of adolescent girls.	Direct benefits to the mother, and long term NCD benefits for her children.	Coverage of maternal health screening and health of young women.	Scaled up interventions could be included in existing MNCH programs. Investing in maternal health is potentially cost-effective in reducing NCDs.	Technically and financially feasible, especially if integrated into existing but scaled up MNCH programs, and / or school health programs.	people in alternative uses). Support from women's groups.
	Collect and then monitor accurate up to date records of hospital and clinic admissions directly due to alcohol. Charge ' cost recovery' for those admissions caused by the user abusing alcohol.	Provides an evidence base for policy makers. Sends strong signal about alcohol abuse. Generates additional revenue for government.	Statistics collected, then analysed and used to inform policy. Introduction, and then collection, of additional fees from those abusing alcohol.	Minor administrative cost. Potential for increased revenue (Cook Islands can provide estimates of additional revenue generated).	Collecting data is easily feasible. Interpreting and using it for policy may be more challenging. Technically feasible. Requires cooperation from police, and clear definitions / testing of alcohol being involved.	Likely strong support, especially from church, women's groups, and victims of alcohol related domestic violence.

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
	Invest heavily in monitoring and evaluation as the foundation for making best use of scarce resources	Provides the evidence base to ensure scarce resources devoted to NCDs are not wasted.	Will vary according to the key drivers of NCD risk and prevalence in the country.	Additional direct costs in monitoring and evaluating. Net savings where good monitoring and evaluation identifies scope for improvements.	Requires technical expertise, and willingness of management to make use of the findings.	Varies. Can identify both winners and losers. Likely to attract strong support, at least in principle, from development partners.
Ministries of Labour and Industry (and the Public Service Commission)	Work constructively – but firmly - with food and drink manufacturers, and retailers, and Ministries of Health, to reduce the production and sale of unhealthy products. Work in an even – handed way to promote the production and marketing of	Unhealthy food products are important driver of NCDs especially in high risk groups. Expand public access to healthy foods.	Improved labelling; reduced salt and sugar; etc Increased production – and consumption – of healthy food products in public	Small additional costs for Government; additional costs for manufacturers as they transition across to improved labelling, reduced salt etc. Some capital investment costs required (eg refrigerated warehousing at	Technically feasible. Requires skilled negotiating and alliance building by Government. Feasibility is difficult and complex. Will require a combination of	Initial resistance by food manufacturers. Need to ensure negotiations with industry are transparent: avoiding behind the scenes lobbying and 'deals'

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
	alternative healthy local foods: eg regulations on food safety, quality, and labelling of locally produced and marketed vegetables, meat, fish, fruit. Where price controls are already in place, use these to encourage consumption of healthy products / discourage consumption of unhealthy products.		markets etc, including especially in poorer neighbourhoods.	local public markets) May require subsidising by Government (companies may be reluctant to invest if they think workers then move to another job).	several factors: ability of local producers to scale up - and then sustain - production; reach improved food safety standards etc. Also assumes that consumers will respond by purchasing local products.	Initial support from local food producers. But enthusiasm and momentum may erode as it becomes clear that food quality standards and product consistency needs to improve.
	Actively make workplaces "heart healthy" eg organising health	Workplaces are major catchment pools for large	Initially, the number of 'heart healthy' work environments.		Potentially difficult. On the demand side, it requires	Some resistance from industry if it thinks Government is

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
	checks amongst all workers for NCD risk factors; improvement of canteen food choices; banning smoking.	numbers of adults.	Over the medium to longer term, evidence that health of worker cohorts is improving and risk factors for NCDs decreasing.		management to see the benefits in workers undertaking NCD screening and training in work hours. On the supply side, it requires informed trainers and implementors. Requires management commitment.	shifting the responsibility for public health to industry.
Ministries of Sport	Allocate funding to a wide range of community groups, not just elite sports or sports stadiums, to encourage physical activity (not just as spectators) Ban advertising / sponsorship by	Physical inactivity is a risk factor for NCDs amongst all age groups, and males and females.	Increased numbers of people of all ages, and both genders, actively participating (rather than just watching) sport. Compliance with the bans.	Potentially significant overall, but less than the cost of building large sports stadiums for spectators. Little direct cost to Government.	Potentially difficult. Requires good community organising skills to ensure a broad range of community groups engage.	Strong initial support from community groups. Likely resistance from established sports clubs focused on spectators for revenue. Strong opposition from some

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
	tobacco, alcohol, and sugar-sweetened drink manufacturers of sporting teams and venues	Delinks unhealthy products from sport			Technically feasible in the short term.	sporting clubs and venues who lose sponsorship in the short term (although other more healthy industries may offer sponsorships). Opposition from unhealthy industries.
Ministries of Trade	Pacific Islands take a 'whole of government' approach, preferably led by the Prime Minister's Office, and specifically involve Ministries of Health, in the development of a country's position on trade and taxation issues	Promote policy coherence in the response to a nationwide and regional NCD crisis. Avoid key health issues (eg import of unhealthy products) being overlooked in policy discussions.	Initially, evidence that Ministry of Health is involved in the formulation of trade policy positions. Over the medium to longer term, evidence that a country's trade policy position reflects a balancing of health priorities with trade objectives.	Mixed. Excise duties on some unhealthy imports will increase (eg tobacco, alcohol, sugar-sweetened drinks and unhealthy foods) while excise duties on some other products (fresh fruit and vegetables) decrease.	Administratively simple to involve MOH officials in policy formulation of trade. But some initial resistance likely from Ministry of Trade personnel. (Having Prime Minister's Office emphasing the NCD crisis rationale for MOH involvement would help reduce	More coherent 'whole of government' approach to trade and economic policy. May be some resistance from Ministry of Trade officials, and opposition from manufacturers and importers of unhealthy products.

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
					institutional resistance).	
Police	Introduce random alcohol breath testing of drivers. (Some countries may wish to consider random tests on marijuana and other drug use and / or kava). Collect, monitor and publish statistics on alcohol related incidents.	Reduces excessive alcohol consumption. Evidence base for policy making.	Number of alcohol related driving convictions increase in the short term but then decrease over the longer term. Data collected and then analysed and used to inform policy.	Revenue generating (fines exceed cost of testing). Helps identify strategic areas for addressing risk factors for NCDs	Requires good implementation by police officers and resistance to bribes	Likely strong support from churches, media, and women's groups.
Ministries of Urban Planning and town councils	Ministries of Urban Planning and town councils could 'map' the relative ease of access to 'heart-healthy' facilities – parks, bicycle	Reduce the 'obesogenic' built environment. Increase access to 'heart-healthy' physical facilities	In the short term (6months) the establishment of a mapping that identifies the actual availability of favourable and unfavourable	Low cost to undertake the mapping exercise which establishes the evidence base for future planning and policy.	Overlapping jurisdictions about town planning could slow decision making.	Support from those who now buy and sell at fresh food markets. Fast food outlets likely to object.

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
	paths, sidewalks and fresh food markets – compared to unhealthy facilities – including fast food outlets and plan future developments in better ways.		conditions for active lifestyles. In the medium term, evidence that the mapping exercise has led to more 'heart healthy' built environments	Reduced revenue if parks, bicycle paths and sidewalks are created (but this can be covered by increased rates). Potential for increased revenue by charging higher rates to fast food outlets		
	Consider including in planning codes that new developments have recreational areas; sidewalks; dog control (to prevent attacks on those walking); and parks etc are maintained	As above	As above	May be hidden costs unless planned well: eg a fall in land tax from commercial users of increased recreational space.	As above	Possible objections from property developers. Likely strong support from broader community

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
National Statistics Office	Collect new relevant data in household expenditure eg household expenditure data on tobacco, alcohol, sugar sweetened drinks, and / or out of pocket expenditure on health.	Provides the evidence base for policy makers to make more informed decisions: eg scale and trends of tobacco consumption, and prevalence amongst lowest two wealth quintiles.	The addition, within one year, of key questions in household income surveys that are relevant to policy makers addressing NCDs (the actual questions will be very country-specific). Within two years, evidence that the expanded survey questionnaire has then been analysed and used by policy makers to formulate NCD and broader health policy.	Minimal cost to add questions to the survey instrument. Should help policy makers target revenue policies more accurately, and estimate the welfare implications for the poorest two quintiles of any policy measures.	Technically and administratively easy to include additional questions. Some capacity constraints in some countries to actively interpret and use the data.	Government policy makers win because they have a stronger and more objective evidence base to defend policies.
	Where possible, make the questions consistent between	Pacific Islands share some common challenges when addressing NCDs.	Consistency, where possible, in the survey questionnaire	Minor cost.	Technically feasible.	Allows comparisons.

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
	countries so that comparisons can be made. Remove unhealthy products (tobacco, sugar sweetened drinks, turkey tails, mutton flaps etc) from the basket of goods used for tracking inflation.	Sends a signal that unhealthy products are not a normal or desired part of consumption.	between countries. Removal of the items from the statistical basket of goods.	Minor cost to remove the items from the collection survey. Medium to longer term implication may be that wages increases are moderated if they were based on consumer price index movements.	Technically feasible. Requires some adjustments to allow comparisons with previous periods.	Likely to result in a reduction in the inflation rate of the consumer price index.
Ministry of Transport	Identify key bottlenecks that prevent fresh farm produce and fresh fish reaching consumers, and include that when prioritising future investments	Can reduce a key bottleneck in some countries of the Pacific where fresh food spoils due to transport delays.	Initially, that bottlenecks in fresh food transport are identified. Over time, that such information is included in priority setting criterai of investments	Requires good surveys and assessments to be useful. Over time, could help plug the gaps due to food spoilage in the value added chain of rural production and fishing	Feasible but requires good survey techniques and expertise in traffic flows and transport planning	Rural food producers and those engaged in fishing likely to support.

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
Development partners	Provide financial and technical support to MOH and other department efforts to reduce NCDs.	Additional financial resources and expertise are needed to address NCDs.	Sustained additional financial and technical assistance support aligned to MOH priorities, and well monitored.	Revenue enhancing for Pacific Island governments *provided* there is no substitution of aid money for Government's own expenditure efforts ('fungibility').	Feasible over the medium term, but should not be assumed. Development partners need confidence that public financial management of existing resources is improving, and that Pacific Island Governments are taking all available steps to increase their own revenues (eg through taxing tobacco) and reducing waste.	Governments and development partners have mutual interests in seeing a reduction in NCDs.
	Ensure design and implementation	Confirms that all NCD responses	Evidence that development	Increased cost (eg to design	Feasible over the medium to longer	Community support for more

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
	of aid projects in sectors outside the health sector (eg roads, education etc) help to reduce NCDs. Adopt a more coherent 'whole of government' approach to NCDs and other health issues when engaging with the Pacific (eg trade policy aligns with aid and other policies).	need to be multi-sectoral. Reduce disconnect and conflict between aid, development, and trade objectives when engaging with Pacific Island countries.	partners are including NCD risk mitigation factors into the designs and implementation of projects in all sectors, not just health sector. Improved coherence and whole of government approach to trade negotiations.	sidewalks etc into road projects) but costs are less than trying to retrofit such features for NCD health reasons after a project is completed. Will vary according to the situation.	term. Government needs to provide leadership and set consistent design standards at the outset. Requires strong political leadership to overcome institutional 'silo' perspectives.	'heart healthy' environments.
Private sector	Work with Government to establish a formal, transparent, regular, high level, task force for communication	Opens a dialogue with the private sector, sensitising them to the NCD crisis and their role in responding.	Initially, the establishment of a task force for liaison and communication. Over the medium term, evidence	Minor. Requires 'in kind' contribution from private sector.	Requires sustained commitment from leaders in Government and the private sector.	Provides a safety valve to air concerns and avoid misunderstanding.

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
	about NCD policies, including taxation and regulation of harmful products / promotion of healthy products.	Encourages dialogue to be formal and transparent, rather than behind the scenes lobbying and private deals.	that the task force is identifying areas for collaboration with the private sector, and avoiding communication breakdowns.			
	Work with Ministry of Health, and employees, to conduct workplace health surveys in the private and public sectors	Alerts private sector to the scale of NCD related disability and risk factors in the workforce	Initially, the number of workplace health surveys; number of workers screened and the results. In the medium term, the indicator should shift to measuring the reduction in risk factors for NCDs and other health problems	Minor cost to conduct (voluntary) health surveys of workers. Potential to avert premature death and disability.	Needs to be voluntary screening, conducted by technically competent health professionals, with regard to privacy and with pathways to follow up remedial action available: eg referrals to private clinics etc	Likely to generate good will amongst workers if managed well.
	Work with Ministry of	Provides an evidence base for	Initially, the number of well	Well conducted surveys could be	Feasible. May need technical	Workforce are likely to

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
	Health, Trade and Industry, Statistics Office and academic institutions to accurately measure the level and trends of lost productivity in individual firms and industries as a result of NCDs.	industry and government to make future targeted interventions and the costs, and benefits, of additional actions.	conducted and published assessments of the direct financial costs and indirect productivity losses to industry of NCDs in the Pacific. In the medium term, evidence that firms are using that data to support workplace interventions to reduce NCDs.	expensive. However good evidence could then generate cost-saving interventions over the longer term	assistance from Universities in development partner countries.	appreciate the exercise provided it is framed as an investment in their own worker productivity, and not a cost-cutting exercise by the firm.
Civil society	Alliances formed between Government and churches, media and universities to leverage responses to NCDs.	Provides a national response, not just a government response, to the NCD crisis.	Will vary according to country circumstances. Examples might include church organised 'biggest loser' competitions, and	Minor direct cost.	Requires good community organising and public liaison skills.	Likely to be positive to government and other stakeholders.

Ministry or stakeholder responsible.	Proposed action	Expected benefit in reducing NCD	Specific indicator to verify progress	Likely cost / revenue implications	Feasibility and obstacles to implementation	Political implications (including winners and losers)
	Churches to work with Ministry of Health to conduct health surveys and assessment of risk factors amongst the		reduced incidence of actors smoking or being overweight in local soap opera films.			
Regional	Support regional initiatives addressing NCDs.	Evidence based regional initiatives (eg tobacco free Pacific) will reduce risk factors for NCDs.	Level of engagement over time in WHO and SPC brokered regional initiatives.	Low. Some travel, liaison and implementation costs.	Feasible. Requires sustained leadership to maintain enthusiasm and momentum.	Pacific Leaders can demonstrate they have translated commitments made in various communiques into tangible responses and actions.

Annex 7 Why taxes? The six reasons why a tax on unhealthy products (or a subsidy on healthy products) can be a strategic and justified response to the NCD crisis.

Imposing any tax (or subsidy) has financial, economic and political costs and the decision to do so should not be taken lightly. Taxes, by definition, raise prices of goods and services to some part of the economy. They involve direct administrative costs, and indirect welfare costs and 'deadweight' economic costs. They involve political costs to Government.

Nevertheless, there are six reasons why a tax on unhealthy products (or a subsidy to healthy products) can be a strategic response to the NCD crisis in the Pacific.

First, **taxes discourage consumption of harmful products.** Unhealthy products are 'normal goods': as the price goes up, consumption falls on average, depending upon the responsiveness ("price elasticity") [26] of the consumer to the increase in price.

Second, **governments can simultaneously increase tax revenue while seeing a reduction in overall consumption** of the unhealthy products if the product is price inelastic, as is often the case with tobacco. Raising additional revenue is especially important in the Pacific where the large informal sector currently limits the scope for income taxes, and where accession to the WTO and ongoing trade negotiations lowers government revenues from import duties.

Third, large price increases, accompanied by clever public health messages, **sends a clear positive reinforcement signal to consumers,** reminding them every time they see the price that this product is unhealthy.

Fourth, increased taxes **also send a positive reinforcement signal to development partners**. Multilateral and bilateral development partners being asked to financially support the health sector in the Pacific are entitled to question the credibility of Pacific Island's commitment to responding to an NCD 'crisis' if those same Governments fail to make the effort to tax tobacco and other demonstrably harmful products at an appropriate level.

Fifth, the relatively low prices of unhealthy products fail to **capture their true cost to society: taxes can capture these 'externalities'**. One interesting analysis suggests that smokers appeared to have "paid their way" in some high income OECD countries through higher taxes on cigarettes "and shorter life expectancy" as a result of smoking which then reduces pension obligations. On the other hand, heavy drinkers imposed roughly half their societal costs ('externalities') to non-drinkers as a result of alcohol related traffic accidents, assaults etc.

Finally, **costs are regressive but the benefits are progressive.** Excise and similar taxes on unhealthy products are regressive (imposing a bigger proportionate burden on low income people than the rich)

[26] For example, Hsiao and Wang (2013) cite estimates from the USA that Sugar Sweetened Beverages (SSBs) have a price elasticity of -1.21, meaning a 10% SSB tax increase is associated with a 12.1% decrease in SSB consumption. They further note that SSB industry reports are consistent with these estimates: a 12% increase in the price of Coca-Cola is associated with an average reduction of 14.6% drop in sales in the USA.

in the short term. However, the benefits tend to be progressive (achieving a bigger proportionate benefit amongst low income people than the rich) over the medium term. That is because low income people are more price sensitive, and often have poorer health, to begin with. Reducing consumption of unhealthy products by low income groups therefore can have a proportionately stronger benefit than among the rich (Jha P et al., 2012).

Annex 8 Actions to be taken by the Ministries of Finance and Economic Planning: taxes and excise.

Taxes on tobacco

Tobacco use is a major risk factor for NCDs globally and a contributing factor in the Pacific. Three of the highest rates of tobacco use in the world are in the Pacific: Kiribati, PNG and Tonga. WHO notes that tobacco use is one of four[27] major risk factors for NCDs. WHO also notes that tobacco use causes more deaths globally than HIV and AIDS, tuberculosis, and malaria combined. WHO further notes that "tobacco is the leading behavioural risk factor causing substantially large number of potentially preventable deaths worldwide …….one death every six seconds."(WHO, 2012d). Latest research from Australia suggests that smoking and is directly linked to two thirds – not just a half as previously thought – of deaths in current smokers, and cuts an average of 10 years off a person's life (ABC News, 2013). Expenditure on tobacco robs users of their health, as well as household income to purchase other more desirable items: the money spent by a person smoking a packet of cigarettes a day would cover the cost of nearly 4 secondary school students' fees in Vanuatu[28]. Total prevalence rates of tobacco use by adults vary considerably between the countries of the Pacific, and between males and females, as seen in Chart 2.1below. Three countries from the Pacific are in the top ten countries in the world for prevalence rates of age adjusted male smoking: Kiribati[29] has the 3rd highest prevalence rate out of 187 countries around the world at 54.4%; PNG is 5th with prevalence rates of 51.4% and Tonga is tenth with prevalence rates of 46.4% (Ng M et al., 2014). Rates of smoking by youth – a worrying indicator for the future given that tobacco is addictive - also vary between countries of the Pacific and by gender (Chart 2.2). The poorest, and least educated, groups in PNG use tobacco, including leaf tobacco, the most (Chart 2.3)

Chart 2.1

Adult smoking rates in the Pacific

Source: (WHO and SPC, 2013a)

NOTE: These estimates are SPC estimates. It is acknowledged that countries may have different estimates based on different methodologies or more recent surveys such as STEPS.

[27] The four main risk factors are Smoking, Nutrition, Alcohol and Physical inactivity ("SNAP").

[28] A packet of 20 cigarettes currently costs Vt 750 in Port Vila, or Vt 22,500 a month (Vt 750*30= Vt22,500). Average monthly expenditure on secondary school fees is around Vt 5900 per month. Expenditure for a packet a day smoker would therefore cover the secondary school fees of 3.8 children of that smoker. Figures provided via personal correspondence from staff in Port Vila.

[29] It should be noted that the 2009 STEPS survey gives a male smoking prevalence rate of 76% and female rate of 48%. Different approaches generate different estimates. But it is clear Kiribati has high rates of tobacco use whatever approach is used.

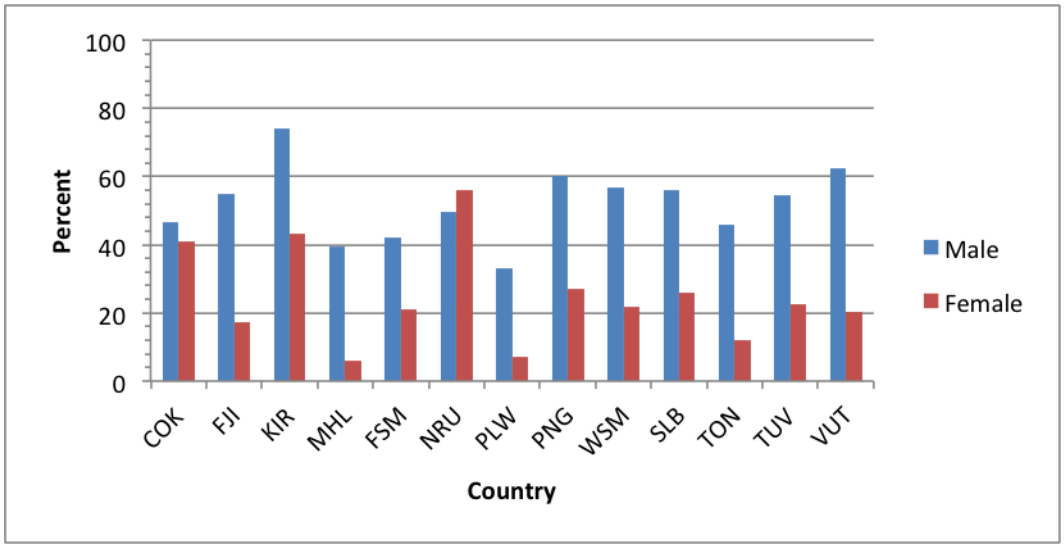


Chart 2.2

Youth smoking rates in the Pacific (any smoking in the past 30 days)

Source: (WHO and SPC, 2013a)

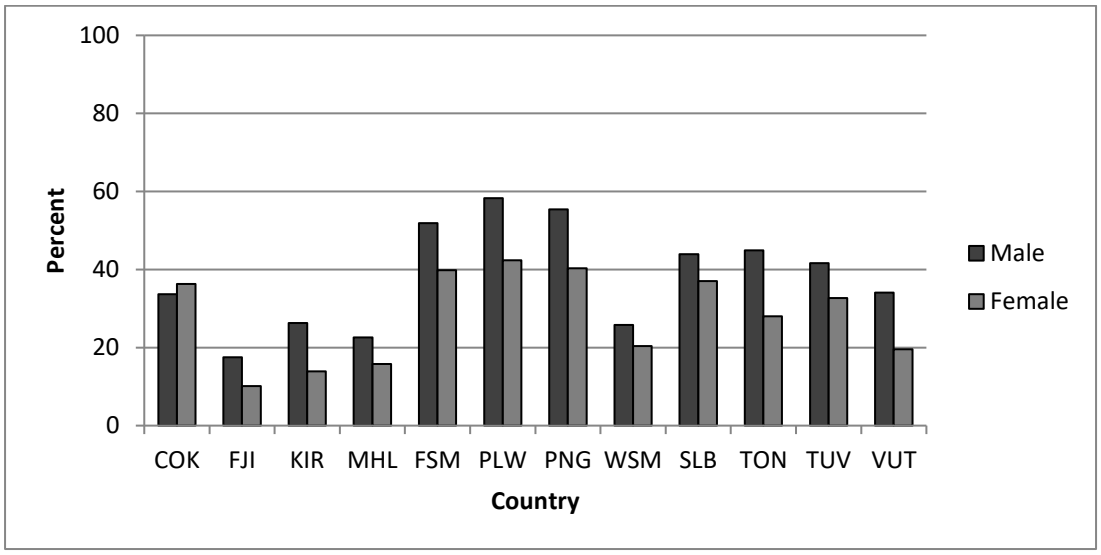
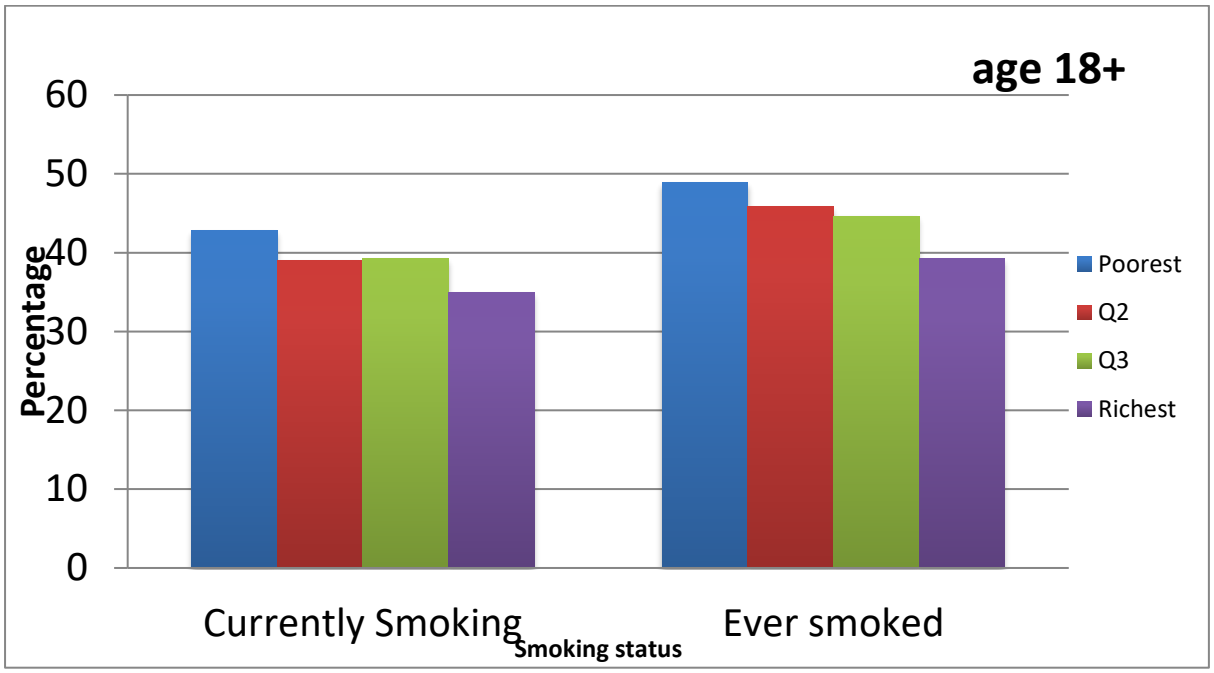


Chart 2.3 Smoking by wealth quartile in PNG: the poor smoke the most

Source: HIES for PNG



Compliance with tobacco regulation is generally very weak, providing an environment for uptake of tobacco amongst the young, and consequently the risk of addiction, and loss of Government revenue. The WHO notes that Samoa, Tonga and Vanuatu each scored 0/5 on key aspects of tobacco regulation: monitoring tobacco use and prevention policies; protecting citizens from tobacco smoke; offering services to help quit, warning of the dangers of tobacco; enforcing bans; and raising taxation on tobacco products [30] (WHO, 2011). A 2010 survey in Tonga found that access to tobacco was very high: all but one of Tonga's 597 retail store outlets sold tobacco products. This means there is an average of one tobacco outlet for every 29 Tongan households. Roughly speaking, Tongan citizens have more chance of accessing a store selling tobacco then they do of having a screening for diabetes at the Diabetes Centre.[31] Almost two thirds (63%) of retail store outlets were selling tobacco sticks separately, and almost one quarter (23%) were selling tobacco to underage children recently, both activities in violation of the law (World Bank, 2013a). An earlier study found that even relatively small population centres had very wide access to tobacco: south Tarawa had 245 tobacco outlets, Nuku'alofa 254 outlets, and Port Vila 393 outlets prior to 2005. Worse, 97% of those outlets in Kiribati and 85% of outlets in Tonga sold tobacco to visibly under-aged children in a controlled and supervised

[30] More formally, the WHO noted that Samoa, Tonga, and Vanuatu, along with many other Pacific Island countries, each scored 0 / 5 in terms of the "implementation of anti-tobacco (m) POWER measures at the highest level of achievement ". (m)POWER stands for M: Monitoring tobacco use and prevention policies; P: Protecting people from tobacco smoke; O: Offering help to quit tobacco use; W: Warning about the dangers of tobacco; E: Enforcing bans on tobacco advertising, promotion and sponsorship; and R: Raising taxes on tobacco. WHO notes that each measure reflects one or more provisions of the WHO Framework Convention on Tobacco Control, and the package of six measures is an important entry point for scaling up efforts to reduce the demand for tobacco.
[31] There are 596 retail outlets selling tobacco in Tonga. There were 438 screenings for diabetes at the Diabetes Clinic in 2010.

experiment (Lower T, 2005). There is anecdotal evidence in the Pacific that duty free shops ostensibly aimed at overseas tourists are easily sold to local residents. Increasing enforcement of existing legislation is therefore an important action to consider. Hiring additional staff to enforce legislation and issue fines and infringement notices would be a net revenue raising exercise, particularly if such staff were well-paid and well-supervised so as to avoid the temptation of taking bribes.

There is significant scope for increasing the level – and collection - of excise duties on tobacco products in the Pacific, thereby generating additional revenue and reducing consumption. WHO's longstanding recommendation is that excise taxes on tobacco products should be increased to at least 70% of the final retail price (WHO, 2010b). And best practice is to raise taxes to at least 75 % of the retail price, a situation that 27 countries globally have achieved (WHO, 2013a). Table 3.1 below shows the latest information as at June 2014.

Table 3: 1

Share of excise and other taxes as % of retail price of the most commonly sold brand of cigarettes.

Source: Latest estimates via WHO communication 2014.

Country **(listed in descending order: highest rates of total taxes as a percentage of final retail price to the lowest)**	**Other taxes as a per cent of final retail price.**	**Total taxes as % of retail price in 2012**
Palau	70.7%	0%	70.7%
Tuvalu	41.6%	5.2%	67.6%
Niue	0%	66.5%	66.5%
Tonga	50%	13%	63.0%
Marshall Islands	46.7%	14.9%	61.6%
Samoa	46.7%	13.1%	59.8%
Vanuatu	48.1%	12.8%	58.5%
Federated States of Micronesia	0.0%	54.79%	54.8%
Cook Islands	46.6%	6.9%	53.5%
Kiribati	52.5%	41.7%	41.7%
Fiji	27.8%	13.1%	40.8%

Country (listed in descending order: highest rates of total taxes as a percentage of final retail price to the lowest)		Other taxes as a per cent of final retail price.	Total taxes as % of retail price in 2012
Papua New Guinea	28.3%	9.1%	37.4%
Solomon Islands	20.0%	10%	30%

Pacific Island countries should immediately take steps to progressively raise the excise duty on tobacco products to at least 70% of their retail price so as to raise revenue and reduce consumption, and then maintain that in real (adjusted for inflation) terms. Significantly raising the price of tobacco through taxation is one of the most effective ways of reducing tobacco consumption, whilst also generating additional revenue for Governments (Abedian I, Merwe R, Wilkins N, & Jha P, 1998; Guindon E, Perucic AM, & Boisclair D, 2003; Jha P et al., 2012; WHO, 2004). Countries in the Pacific could do this in a staged manner by increasing excise rates by around 25% per year over the next 3-5 years. It should, however, be noted that raising tobacco prices may result in some smokers who are unable to afford manufactured cigarettes to opt for raw tobacco and tobacco without filters. This should be an area of future applied research to inform future policy. That is because there is no 'safe' level of tobacco use in any form - manufactured or loose - and spending money on any tobacco product reduces the opportunity to purchase safe and useful goods and services.

The Cook Islands and Tonga present good examples of what to do. The Minister of Finance of the Cook Islands announced in 2012 an increase in the excise on tobacco of 33 per cent, to be repeated over three years, thereby doubling the price of tobacco. Prudently, the new law also increases the excise duty by 2% per year to prevent the real value of the tax eroding with inflation (Government of the Cook Islands, 2012). Tonga has similarly embarked on a process of incrementally raising excise rates so that it will reach 60% of the final price of cigarettes within 3 years, with the total tax burden then reaching 75% of final price. This is estimated to raise an additional TOP 4.68 million or approximately $2.5 million over the three years just from the excise duty increases alone. It is also projected to reduce the number of daily smokers by 1660 people in Tonga and reduce the number of deaths by 74. Tonga is also reducing the amount of duty free sales allowed per traveller to that which applies in Australia: 50 g per person.

There are other examples from the Pacific to follow too (WHO and SPC, 2013a). For example, Tonga is making schools, health facilities, and public restaurants tobacco free. The 2013 Tonga budget includes a 15% increase in average price per pack in year one, a 15% increase in year two, and a 13% increase in year three (WHO and SPC, 2013a). Palau recently approved the implementation of the country's first excise tax on tobacco products in 2014 ($3.50 USD per 0.017kg -equivalent to a 20-pack

of manufactured cigarettes) and has included a planned increase to $5.00 USD per 0.017kg in 2015. Some sports clubs in Vanuatu are declared tobacco free. Fiji has just opened its first tobacco-free school grounds in Nadi. Solomon Islands and Samoa are implementing graphic health warnings on tobacco products.

In considering the increase in duties on tobacco, it is very important for Pacific Islands to ensure that the excise duty applies equally to both imports and domestically produced tobacco. That is important so as to raise additional revenue for governments; reduce consumption; and to be consistent with the obligations of the World Trade Organisation.

Other complementary action should also be considered to achieve a Tobacco Free Pacific by 2025. The global target is to achieve a 25% reduction in NCDs by 2025 is to have a relative reduction of 30% in tobacco consumption by that year. However the Pacific goal is more ambitious: to achieve a Tobacco Free Pacific [32] by 2025, which is a less than 5% tobacco use prevalence rate among adults. (WHO and SPC, 2013a). To achieve that, Governments will need to take actions to complement the required increases in excise duties. These complementary actions should include banning smoking in workplaces, restaurants and public places; banning all tobacco advertising; offering smoking cessation programs; enforcing existing legislation on tobacco sales; and encouraging increased levies on life insurance policies for smokers. Countries will need to work with Departments of Agriculture to ensure that local smallholder production of tobacco does not increase in response to the increased price of manufactured tobacco, as initially happened in Tonga. Countries can consider the introduction of plain packaging laws as Australia has done once current legal disputes have been decided. Plain packaging of cigarettes appears to be effective in reducing consumption: there was a 78% increase in the number of calls to tobacco Quitline, peaking 4 weeks after the Australian Government introduced plain packaging of cigarettes (Young J et al., 2014).

The tobacco industry can be expected to respond with some myths about tobacco taxes but increased tobacco taxes do not hurt the poor, or employment, over the longer term, and smuggling can be controlled in the Pacific. The tobacco industry can be expected to resist changes that improve tobacco control (R. Moodie et al., 2013). Part of their argument may be that raising tobacco taxes is 'regressive': having a larger impact on those with lower incomes than the rich. That may be true in the very short term, but recent analysis finds that the poor, and the young, are more likely to quit, or not commence, smoking as a result of a price increase than the rich. As a result, the health benefits are actually 'progressive': benefitting the poor much more than the rich (Jha P et al., 2012). Furthermore, revenue raised from tobacco taxation that was then spent by Government on primary health care (or primary education) is likely to be 'pro-poor' and progressive, disproportionately benefitting the poor.

The tobacco companies may also claim that increased taxes on tobacco will reduce employment and income of local tobacco farmers and manufacturers. This is certainly possible in the short term and is an important consideration for some countries with domestic producers and manufacturers of tobacco. Raising tobacco taxes in a fixed, step wise, incremental approach, as the Cook Islands have done provides a transition period for workers to find alternative employment. Governments should also view with scepticism the self-interested assertions by tobacco companies about economic losses: the agriculture land and manufacturing plants are not abandoned as a result of decreased tobacco

[32] In effect, less than 5% or less tobacco use prevalence by 2025).

sales. Instead, they shift to other uses that almost always impose less health, social and economic costs on society. Governments also reduce expenditure through their health system as a result of averted strokes and heart attacks, benefits that can be seen within months of tobacco consumption falling. The tobacco companies may also argue that raising the price of tobacco encourages smuggling. This claim is usually overstated (Abedian I et al., 1998; WHO, 2010b). In any event, Pacific Island countries have greater capacity to detect smuggling of tobacco than countries in Asia and Africa with numerous road traffic routes on their porous borders.

Governments should communicate with the tobacco industry, but in a transparent way and not permit 'interference' in policy making. Tobacco companies are reported to use 'bullying' and intimidation under the guise of international trade negotiations (Glassman, 2013) to undermine or limit actions to protect public health. Recent case studies in the Pacific indicate the likelihood of 'tobacco industry interference'[33] contrary to Article 5.3 of the WHO Framework Convention on Tobacco Control in PNG and Solomon Islands. Examples include agreements on tobacco tax restrictions between the Department of Finance and a tobacco company; a scholarship scheme funded by a tobacco company for over ten years to support University of Papua New Guinea students (Dulcie Oreke, 2012); and an agreement to allow the sale of "kiddi packs" (packs of less than 20 cigarettes) in PNG (McCool J, 2013).

Taxes on alcohol

Latest research reconfirms that alcohol contributes to the burden of NCDs, as well as causing other health and social problems. While modest alcohol consumption of red wine provides some protective and health benefits in adults, larger consumption leads directly to a range of otherwise preventable health costs. Together tobacco and alcohol—the second and third leading risk factors for the global disease burden, respectively—cause nearly 12% of global disability-adjusted life-years (R. Moodie et al., 2013). Parry and colleagues recent comprehensive survey of the evidence concludes that: 'There is a strong link between alcohol and non-communicable diseases, particularly cancer, cardiovascular disease, liver disease, pancreatitis and diabetes, and these findings support calls by the World Health Organization to implement evidence-based strategies to reduce harmful use of alcohol' (Parry et al., 2011).

Alcohol use varies across the Pacific, and between genders. Statistics collected from STEPS surveys by SPC show that current alcohol use for men ranges from 95% of the adult population in Tokelau through to 30% in the Marshall Islands. Female use of alcohol is consistently lower across the Pacific. In Samoa, 80% of adult males and 47% of adult females use alcohol (SPC, 2011). The more recent WHO STEPS survey in Vanuatu found that only 12% of males and 7% of females drank alcohol in the preceding 30 days. Furthermore, 72% of women and 22% of males were "lifetime abstainers" of

[33] McCool et al (2013) describe 'tobacco industry interference' as attempts to influence people in power, providing advice to undermine effective legislation and policy, attempts to discredit reputable research, investing in corporate social responsibility activities and attempting to undermine bans on advertising, promotion of products (e.g., cross-border advertising

alcohol. Excessive consumption of alcohol is acknowledged as a major contributing factor in domestic violence(Tonga, 2010). An interesting examination of shipping manifests in Tokelau concluded that around one quarter of the 2562 line items imported over the four years to April 2012 were alcoholic drinks (WHO, 2012b).

The Cook Islands provides a useful example of how to use price to capture some of the health and social costs of alcohol abuse. Since 2009, all alcohol related consultations and admissions will carry a charge regardless of patient category or age status**.** Alcohol related services incur a user fee of at least 7 times that of non-alcohol related services, and can go as high as 100 times higher in the case of alcohol related admissions to the high dependency inpatient units. The situation is summarised in Table A:3:2 below. In the latest budget, the Government of the Cook Islands also increased levies on alcohol by fifteen per cent, with the levies on low alcohol beers increased by five per cent (Government of the Cook Islands, 2012).

Table A 3:2

Schedule of Charges for health services: alcohol related and non-alcohol related.

Source: (Government of the Cook Islands, 2010)

Medical services provided	Resident Cook Islanders	Cook Islanders permanently residing overseas	All visitors to the Cook Islands (tourists, contract workers etc)
Health services involving a police report			
Motor vehicle accident involving alcohol	150	250	350
Motor vehicle accident not involving alcohol	20	30	50
Assault involving alcohol	150	250	350
Assault not involving alcohol	20	30	50
Inpatient			
Alcohol related	50	70	100
Non-alcohol related	0-5	10-20	100
High dependency unit alcohol related	1000	1500	2000
High dependency unit not alcohol related	10	200	400
Outpatient			
Laboratory, X-ray and pharmaceutical	30	50	70

charges in addition to any applicable user fees.

It would be useful for other countries in the region to know more about the policy framing, and program implications, of this innovative scheme. For example: how were the fee rates for alcohol related services actually set? Do they fully cover the direct costs of medical treatment? Are the additional fees collected in practice, and if so how much has been collected? Are there (subsidised) services available for alcohol dependency? How do health personnel ensure that only *abusers* - and not *victims* – of alcohol abuse such as spouses are charged the extra fees? Is there any evidence that the higher user fees affect behaviour amongst high risk groups such as young males?

Taxes on unhealthy food and drinks products.

There is strong evidence to show that changing dietary habits is an important factor explaining the rise of overweight and obesity in the Pacific. The World Bank study on the Economic Costs of NCDs (World Bank, 2013a) summarised the situation as follows:

> **Changing diets is an underlying risk factor in the Pacific.** Diets in the Pacific have changed from predominantly root vegetables, coconuts and fresh fish to ones consisting of bread, rice, tinned fish, sugar and salt and, more recently, Asian packaged noodles. Certain imported foods also increased NCD risks. Coyne cites earlier studies showing people in Vanuatu "were 2.19 times more likely to be overweight and or obese and 1.94 times more likely to be diabetic if they used imported fat sources compared to traditional fat sources such as coconut". A separate study examining the links between food availability, food prices, and obesity in Samoa found that total energy availability from food increased by 47%, with more than 900 extra calories available per capita per day between 1961 and 2007. Mean Body Mass Index for men and women aged 35-44 also rose 18% between 1980 and 2010. Another study found modern diets, with high levels of processed foods, was significantly and positively associated with metabolic syndrome in Samoa, an underlying characteristic of cardiovascular disease and type 2 diabetes. The WHO supported 2011 STEPS survey in Vanuatu found that 65% of women, and 58% of men, did not eat the recommended five portions of fruit and vegetables per day. Estimates collected by the SPC show the surprisingly low intake of fruit and vegetables in much of the Pacific, often exceeding 95% of the total adult population. Unfortunately, there appears to be little reliable public data on salt intake in the Pacific, despite the fact that salt intake is a potentially significant driver of hypertension.

Changes in the prices of food, supplemented by policy and regulation, can have an impact on risk factors for NCDs. Faulkner and colleagues found 'consistent evidence that weight outcomes are responsive to food and beverage prices. The debate on the use of food taxes and subsidies to address obesity should now shift to how best to address practical issues in designing such policies'

(Faulkner et al., 2011). But to be effective these also need to be supplemented by supportive policies and regulations. WHO has recommended policy frameworks for the marketing of food products, especially to children (WHO, 2012c).

Sugar sweetened drinks and diabetes

'Individuals drinking one to two sugar sweetened drinks had a 26% greater risk of developing type 2 diabetes than those drinking less than 1 sugar sweetened drink per month' (Malik et al., 2010)

Sugar sweetened drinks are a particular problem. Many foods can be unhealthy. Taxing or regulating a wide range of foods is likely to be administratively difficult and politically unpopular. But with diabetes and obesity rates amongst the highest in the world, the Pacific needs to address high risk foods and especially sugar sweetened drinks. That is because there is ample scientific evidence to show that high consumption of sugar sweetened beverages (SSB) is closely associated with increased risk of weight gain, type 2 diabetes, and metabolic syndrome (Basu et al., 2013; Hu & Malik, 2010; Malik et al., 2010; Schulze et al., 2004; WHO, 2003a). That is mainly because the liquid form of large sugar intake in the form of drinks puts a particularly large, sudden and ultimately damaging load on metabolism. One large study found that individuals drinking 1 to 2 SSBs per day had a 26% greater risk of developing type 2 diabetes than those drinking less than 1 SSB per month (Malik et al., 2010). SSBs are the largest source of added sugar in the US diet: 84% of adolescents and 63% of adults consume SSBs on any given day, with each standard drink having nearly 7 teaspoons of sugar. (Hsiao A & Wang C, 2013). SSBs often displace healthier drinks (water, milk) and foods. One analysis estimated that consumption of SSBs added $82 billion in medical costs in the USA (Hsiao A & Wang C, 2013).

Of particular relevance to the Pacific Islands is the recent findings by Basu and colleagues (Basu et al., 2013) that consumption of sugar is a major, independent, explanatory factor in the rise of type 2 diabetes in low and middle income countries. Their study of 173 countries found that:

> Each additional exposure to sugars and related sweeteners of 100 kJ/ person per day was associated with a 2.8% rise in diabetes prevalence in a country, even after accounting for other components of the diet such as oils and meats (P<0.001). The only other dietary factor significantly correlated with diabetes prevalence was cereals (P<0.01), which are also high in carbohydrates. Sedentary lifestyles and overweight were also significant correlates to diabetes prevalence…..
>
> Sugar remained a significant predictor of diabetes independent of these factors (P<0.001). Notably, sugar correlated with prevalence of overweight more strongly than did any other component of the diet (r=0.69)…..
>
> Once the effects of sugar and related sweeteners are taken into account, the correlations between diabetes and both rising incomes and urbanization statistically disappear, indicating that sugar exposure may be an explanation for why urbanization and rising incomes have been correlated with diabetes rates.

What information is available suggests the Pacific Islands are consuming large amounts of sugar, including through sugar-sweetened drinks. It is difficult to find reliable, comparable, statistics

about consumption of sugar and sugar sweetened drinks in the Pacific. However a study of imported shipping manifests in Tokelau (WHO, 2012b) provides one intriguing insight into the situation:

> In the 2008 to 2012 study period 314 000 kg of soft drink were imported into Tokelau. In the study period a total of 32 000 kg of sugar were imported into Tokelau in the form of soft drinks. In 2012 the amount of sugar imported in sugary drinks was equivalent to 6 kg/day. This is equivalent to 1 teaspoon of sugar a day for every resident of Tokelau. In 2008 the daily sugar was 6 teaspoons each. This dramatic reduction is commendable and progress to zero importation of sugary drinks should be encouraged. Apart from obesity, sugary drinks are damaging to teeth and also contribute a large amount of non-recyclable/non-biodegradable waste to the local environment. The total recorded weight of beverages (gross weight: packaging plus liquid portion) imported was 353 000 kg. The relative quantity, by weight, of fruit and vegetables imported was low. A total of 15 000 kg of fruit and 110 000 kg of vegetables were imported over 47 months.

Not surprisingly, Governments are therefore using – or considering - taxation measures to reduce consumption of sugar-sweetened beverages (SSB) for health reasons. Brazil, Chile, France, Hungary, Mexico, Taiwan, and Thailand impose taxes on SSB to reduce obesity and improve health (Jou & Techakehakij, 2012). Within the Pacific, taxes on SSB are or have been applied in Cook Islands, Fiji, Nauru, Samoa, and Tonga. Taxing unhealthy food and drinks is clearly a key policy option already identified in the Pacific: 43% of all the policy recommendations[34] to promote a healthy food environment arising from stakeholder workshops in the Fiji and Tonga focused on changing the prices of food and drinks (Snowdon et al., 2010). The Cook Islands has recently increased excise duties on imported (but not locally produced) SSBs. This was clearly designed as a health measure to confront NCDs, as can be seen from the Budget statement at the time:

> Increased consumption of sugar is a major contributor to obesity and other non communicable diseases which are now emerging as the single biggest public health challenge facing the Cook Islands over the medium term. The average soft drink contains thirty six grams of sugar or ten teaspoons inside one can of soft drink. The current levies on sweetened drinks will be increased by fifteen per cent from 1 August 2012 and increased by two per cent per annum from 1 July 2013 to maintain the real value of the levy. This will increase the average price of a soft drink can by around twenty five cent will apply to imported fizzy drinks and not to locally manufactured products, so go local. (Government of the Cook Islands, 2012)

Yet there is still somewhat mixed – or even missing – evidence about the ultimate effectiveness of taxing food, and especially SSBs, on obesity and NCDs. All of the international peer reviewed literature consulted for this report noted that the quality of evidence linking taxes on food to health outcomes is generally low, often involving computer modelling and assumptions. Almost all studies were conducted in high income countries which may not be applicable in low and middle income countries.

[34] Increasing access and availability of locally produced health food was next (19%) and better control of marketing of unhealthy products was next after that (16%).

There are good peer reviewed studies that conclude taxing sugar sweetened beverages reduces consumption, and even obesity, and raises additional tax revenue. One high profile study estimated that a 20% tax on sugar sweetened beverages would reduce the number of obese adults in the UK by around 180,000 people (1.3%) and reduce the number of overweight adults by around 285,000 (0.9%). The tax would also generate an estimated £260 million ($ 418 million) additional revenue to the Government per year. Most of the benefits would occur amongst younger people, with little differences between income groups (Briggs A et al., 2013). Another study in Norway estimated that doubling production taxes and VAT would increase soft drink prices by 27% and this would reduce average consumption by 44% in heavy soft drink consumers and by 17% in light consumers. Modelling suggested that a 10% excise tax on soft drinks in the USA would reduce per capita consumption by 23 litres per year, equivalent to 1.4 kg decrease in body weight. (Thow AM, Jan S, et al., 2010). Another modelling study estimated that a nationwide penny-per-ounce tax in the USA "would reduce consumption by 15 %, averting 95,000 coronary heart events, 8000 strokes, and 26,000 premature deaths over a decade—amounting to healthcare cost savings of $17.1 billion over 10 years"(Hsiao A & Wang C, 2013). The authors note the societal gains would be even greater if the $13 billion in tax revenues so generated went to prevention, healthcare or nutrition education.

One study noted a rapid reduction in health care costs, but those savings reducing in later years as people survived into older age brackets. Modelling for the Australian context found that taxes on SSBs, with or without subsidies on fresh fruit and vegetables, resulted in reduced energy consumption and BMI, and 'sustained reductions in the incidence of diabetes, cardiovascular disease and several cancers'. Furthermore 'total health care costs initially decreased rapidly but stabilised after 10-15 years, after which the savings reduced in magnitude (due to more people surviving and requiring health care'(Veerman L, Sacks G, Antonopoulos N, & J., 2012)

But there are also sceptics: at the very least, taxing sugar-sweetened drinks for health reasons requires careful targeting, management, and monitoring to be effective. One recent study notes that three factors will determine the effectiveness of a volume based excise tax on SSB in promoting health: population obesity prevalence; soft drink consumption levels; and existing baseline tax rates(Jou & Techakehakij, 2012). In essence, taxes on SSB are only effective where the prevalence and risk of obesity is high, that soft drink consumption is widespread amongst those at risk, and that existing taxes on SSBs are low. Other analysts are sceptical that a tax on SSBs is effective as a tool in promoting health under almost any circumstances. For example a recent report (Winkler JT, 2012) in the *British Journal of Nutrition* identified several reasons why taxes on soft drinks will not work. First, it assumes the tax will be translated into price increases. But soft drinks operate in a lucrative and competitive market where discounting and price promotions are common. Producers may sell the drinks in larger bottles, or substitute artificial sweeteners for any tax on sugar to absorb or conceal the price increase. Second, even if the price did increase, consumers may maintain consumption: "if consumers are (already) willing to pay 950% extra for a brand (Coke) they prefer (compared to the lowest priced cola drink) they are unlikely to be changed by a 10% tax". Third, and unlike tobacco, there are ready alternative substitutes for accessing sugar based products. A tax on sugar sweetened

drinks may see a shift to fruit juices, but they have high sugar contents too[35]. Fourth, politicians do not like imposing new taxes, and consumers do not like being 'told' what to eat or drink.

One clear finding is that political economy factors need to be understood and managed: the pain is now, the gain is later. The UK study that modelled a 20% tax on SSB noted that most of the reduction in obesity and overweight occurred amongst those aged under 30 years. The study went on to note that "Although improving the health of younger people has the potential to offer lifelong health gains, the complications of obesity typically present in later life, so savings to the health service are unlikely to be realised in the shorter term" (Briggs A et al., 2013). Denmark repealed its tax on saturated fats one year after introducing it for health reasons. They did so due to political opposition from farmers, producers and consumers, and in recognition that citizens were crossing the border to Germany to purchase products. Denmark then shelved proposals to introduce a sugar tax (Stafford N, 2012). Mayor Bloomberg sought to ban increasingly large (greater than 16 oz) sugary drinks in restaurants in New York for health reasons, partly in recognition that consumers tend to accept and consume larger portion sizes irrespective of appetite or taste. However the ban was overruled, based partly on the grounds that the ban would apply to restaurants but not convenience stores and so was unfair. The US Congress was proposing a 10% SSB tax which would then fund health care, but the soft drink industry spent $40.7 million in lobbying (increased from $2.8 million in 2006) which was part of the reason for the proposed tax being dropped (Hsiao A & Wang C, 2013). The President of Mexico is seeking an additional tax on SSBs but is facing opposition from soft drink companies (The Economist, 2013)

There are practical lessons to learn from the Pacific's own experience, including managing the politics and institutional incentives. Thow and colleagues (Thow et al., 2011) undertook a comparative analysis of the experiences of applying four different taxes on soft drinks in Fiji, Samoa, Nauru and French Polynesia. Table A 3:3 below summarises the tax level and corresponding amount of revenue raised.

Table A:3:3

Summary of tax levels and revenue raised during 2009

Source: (Thow et al., 2011)

Country	Tax level applied	Revenue raised
Fiji	Import excise duty of 5% and domestic excise duty of 5c/l (since reduced and replaced with a 3% fiscal import duty on raw materials) $ 0.04	Not specified
French Polynesia	40 CFP / L local and 60 CFP / L imported	FCP 1444 million in 2005
Samoa	0.40 Tala / Litre ($US 0.25)	Tala 516,268 in 2007
Nauru	Special import levy of 30%	$240,000

[35] "The most popular juice in the UK, orange, averages 10.3g sugar / 100ml and the second favourite, apple,10.9g".

Their main policy conclusions include:

- Taxes are generally higher in countries (eg Nauru) where there is a clear and explicit goal of promoting health and / or directing funds to obesity prevention. This is probably because it improves public support for the tax.
- Taxes were lower – and did not last in Fiji – when they were imposed for purely revenue raising measures. Domestic lobbying from manufacturers led to the removal of the excise tax.
- It was important to use existing legislative mechanisms such as import taxes and excise duties as this minimised administrative costs compared to introducing a completely new instrument.
- Institutional incentives are important. Allocating tax revenues on unhealthy products to a health promotion fund may increase public support for the tax. However incentives to collect the tax may be then diluted. In Fiji, Samoa and Nauru the Ministry of Finance collected the additional taxes where it contributed to the general government budget (an issue of direct institutional interest to those Ministries of Finance). In French Polynesia the revenue was originally earmarked for a health prevention fund, but the next Government diverted the majority of the tax revenue to the general budget.

Taxing food and drink products to reduce NCDs can therefore be a complex challenge, but clear conclusions and 'good practice' strategies can be identified. Those conclusions and 'good practice' strategies can be summarised as follows:

- In general, taxes and subsidies influenced consumption in the desired direction
- But they generally have to be large to have an effect.
- And they need to be backed up with clear health messages, not just price signals
- The type of tax is important. A sales tax at the checkout is a weak disincentive: consumers have already decided to buy the item. An excise duty or similar tax is better as it is applies to local production and imports and is therefore incorporated in the retail price on the shelf. A tax based on price might lead to bulk buying: a tax based on volume is generally more effective in switching purchases from unhealthy foods.
- It is important to capture like products with a tax, rather than a single product, otherwise consumers will simply switch from one unhealthy product to another.
- Taxes on food and drink products are not necessarily regressive amongst the young and poor over the medium term, because low income households and the young reduce their consumption of the now higher priced goods more than wealthier households and adults (Thow AM, Jan S, et al., 2010)

Salt

Salt is an important contributor to cardiovascular disease – the leading cause of death in the Pacific. The Fifth Pacific NCD Forum held in Auckland 23-26 September 2013 noted that:

> Cardiovascular disease is the leading cause of mortality in the Pacific. Elevated blood pressure has been shown to be positively linked to stroke and heart disease and to multiple end-organ complications. There is a direct relationship between salt intake and blood pressure and evidence shows that reducing salt intake reduces blood pressure and the risk of cardiovascular events and stroke. Reducing salt intake has been identified as one of the most cost-effective interventions to prevent and control NCDs. In May 2013, the World Health Assembly agreed a set of targets for NCDs including a 30% relative reduction in population salt intake by 2025. For countries in the Pacific to achieve this target, action on salt reduction needs to be scaled up and integrated into broader food and nutrition security policies and plans

There are cost-effective interventions to reduce salt intake that do not necessarily rely on taxation or other measures. Salt is different to other unhealthy products such as tobacco. A minimal level of salt is required for good health: WHO recommends a reduction of salt intake to less than 5g/person/day which corresponds to approximately 2000 mg of sodium certain amount of salt. Iodised salt is one important public health approach to reduce iodine deficiency and preventable reductions in IQ. Salt is also different to other unhealthy products like tobacco and sugar sweetened products because reductions in overall salt intake can occur without requiring changes in individual behaviour. That is because much of the excess salt load comes processed foods: changes in industry standards can be made cost-effectively at a population based level.

A range of multi-sectoral initiatives have already been identified for the Pacific: better monitoring of salt intake; increased collaboration with / regulation of the food processing industry; and improved public awareness are key strategies. Several policy and programming actions have already been identified for reducing salt intake in the Pacific (WHO and SPC, 2013b). Key amongst those strategies are better monitoring of salt intake (to understand levels, trends and progress); increased collaboration / regulation of the food processing industry (to reduce salt loads in foods commonly consumed) and improved public awareness (so that consumers understand the risks of excessive salt intake.

Transfats

Transfats - an unhealthy product - have been found in high quantities in some locally produced foods in the Pacific. Transfats, or trans fatty acids, are essentially liquid oils that have been turned into solid fats, thereby increasing the shelf life of products such as cakes, pastries and pizza. They are associated with plaque and raised LDL ("bad") cholesterol and risk of heart disease, breast cancer,

prostrate cancer and diabetes type 2 insulin resistance. A recent analysis found that 60 of 64 food samples in Fiji contained more than 2% transfats per 100gram of fat, the maximum threshold level used in Denmark which has a legal limit for transfats. Importantly, three samples contained more than 20% transfats per 100g of fat. Locally produced and commonly consumed pizza had 18.85% transfats per 100g fat: well above the 2% threshold in Denmark (Chand B et al., 2011).

The USA is currently considering banning the addition of artificial transfats in food, preventing an estimated 20,000 heart attacks and 7000 deaths from heart disease every year in the USA. Artificial transfats occur when vegetable oil are treated with hydrogen to extend the shelf life and improve the texture of certain food products including frozen pizzas, cakes, coffee creamers. Their use in food products is associated with cardiovascular disease. The U.S. Food and Drug Administration (FDA) announced (US FDA, 2013) on 7 November 2013 its preliminary determination that partially hydrogenated oils (PHOs), the primary dietary source of artificial transfats in processed foods, are not "generally recognized as safe" for use in food. If the FDA finalizes its preliminary determination, PHOs would be considered "food additives" and could not be used in food unless authorized by regulation. The FDA estimates that further reduction in the amount of *trans* fat in the American diet could prevent an additional 20,000 heart attacks and 7,000 deaths from heart disease each year.

Imported products from the USA would cease to have artificial transfats but imports from other countries could still have them and domestic producers could still use them. The Pacific Islands market is too small to expect global producers to label or ban transfats from exports to the region. But it is reasonable for the Pacific to test certain imported and domestic products and consider what action to take in the light of associated risks. Pacific countries can also require local food manufactures not to use artificial transfats in their own production. This would require consultation with industry, and then regulation to ensure compliance. Banning all transfats is not feasible as some small level of natural transfats occurs in meat and dairy products.

Annex 9 Specific actions within the health sector.

While the underlying causes of NCDs, including lifestyle choices, lie outside the health system, most of the direct costs and interventions occur within the health system. And while a multi-sectoral approach is essential to address the social determinants of NCDs, it is also clear that Ministries of Health will have to play a major and strategic role in preventing, and treating, NCDs. This section of the report therefore addresses what needs to be done in the health sector. It is clear, however, that actions in the health sector will also have direct and indirect interactions with other Ministries – especially the Prime Minister's Office, Ministry of Finance and Economic Planning, Ministry of Trade – as well as development partners, the private sector and civil society.

Actions at the broad strategic level in the health sector with strong economic underpinnings.

Whole of sector, rather than a disease specific or 'vertical' approach

The 'crisis' in NCDs is a key priority, but it still needs to be seen as part of the health sectors broader mandate, as there is an unfinished agenda of communicable diseases to address, and broader health system strengthening is a remaining challenge. It would be a mistake to treat NCDs as a 'vertical disease' drawing resources and management attention away from other important priorities. These other priorities include the unfinished agenda of addressing communicable, maternal, neonatal and nutritional conditions which typically still account for between 20% and 25% of all deaths in the Pacific. Similarly, it would be a mistake and a lost opportunity if the legitimate focus on NCDs took a vertical or disease specific approach to such an extent that it failed to help foster much needed broader health system strengthening, including information management and broader health workforce training.

Key financing and resource allocation issues

There are some key financing and resource allocation issues that need to be addressed in the health sector as a whole, not just with respect to NCDs. Several recent reports have demonstrated that Pacific Island countries need to improve the effectiveness, efficiency, equity, and financial sustainability of health financing (World Bank, 2010, 2012, 2013a, 2013b, 2013c). There are several common themes that arise from these reports that are directly relevant to addressing the NCD crisis, as well as the broader health sector. These common themes are summarised below:

> ***The need for improved efficiency***. Governments in the Pacific do not have the current financial resources ('fiscal space') or future prospects for economic growth to devote large increases to the health sector. It is important for Ministries to therefore make better use of what resources they do have, as a basis for then seeking additional and needed

resources. WHO finds that, globally, there are ten leading causes of inefficiency[36] that, if addressed, could free up between 20% to 40% of all health spending (WHO, 2010c).

Focus on prevention and front line services. Effective primary and secondary prevention generally saves – or at least defers – subsequent larger expenditure when complications arise and hospital treatment is required. Every person in Vanuatu who changes their lifestyle through primary prevention, and successfully avoids becoming a newly diagnosed Type 2 diabetes patient, saves the government a minimum of $ 347 per year: more than twice the annual per capita government expenditure on health. Effective *secondary* prevention also has high pay-off to government. Every diagnosed Type 2 diabetes patient in Vanuatu who is stabilised through secondary prevention, and so avoids progressing to an insulin regime, then saves the government an *additional* $484 per year over the cost of an oral medication regime (World Bank, 2013a). While most countries put emphasis on the prevention in public statements, there is a disconnect when it comes to actual resource allocation. For example in Samoa per capita expenditure on total inpatient curative care, including overseas treatment, was recently over one hundred times more than per capita expenditure on prevention of NCDs, and almost eighty times what was spent per capita on maternal and child health and family planning in Samoa. Even per capita expenditure on traditional health care was more than seven times that which was spent on prevention of NCDs (World Bank, 2013c).

Strengthen public financial management. Slow release of funds, under and over expenditure, under-investment in maintenance of key assets, weak procurement and reporting practices all demonstrate that available resources are not being managed well to achieve the necessary health results, and this undermines the confidence of the Ministry of Finance (and development partners) to allocate additional needed funds to the sector.

Invest in data analysis, and impact evaluation. Countries cannot afford to have scarce financial and other resources wasted on ineffective interventions and practices. Not one Pacific country currently has accurate, population- based information on the number of deaths or causes of death. Few interventions are assessed for effectiveness, impact, or cost (an ongoing study on cost-effectiveness of salt reducing interventions being one welcome exception). Some interventions are based on intuitively appealing reasoning but may not be cost-effective. For example, many countries in the Pacific understandably wish to invest in health promotion foundations/agencies. But without good impact evaluation, even this strategy could lead to waste of scarce resources. A recent rigorous analysis in Australia found that $ 130 million equivalent per year spent on healthy lifestyle messages offered 'extremely poor value for money' and had only a 'trivial' effect on reducing heart

[36] The ten leading causes of inefficiency identified by WHO include: purchasing practices for medicines (under-use of generics; use of substandard or counterfeit medicines; irrational prescribing policies); misaligned incentives (fee for service payments); management practices (medical errors, costly staffing mixes); and poor investment decisions (hospital size; technology choices).

disease, whereas 'best value for money is achieved by mandating moderate limits on salt in the manufacture of bread, margarine and cereal' (Cobiac L et al., 2012). A study of chronically ill Pacific Islanders living with NCDs in Fiji, Nauru and Kiribati found that there was a distinct 'a lack of interest in conventional public health educational methods including printed material and public lectures' about stress, physical activity, nutrition and health responsibility (Szmedra P et al., 2009).

Take hard decisions: avoid high cost interventions with poor outcomes. The estimated average total cost of dialysis for patients with diabetes related kidney failure to the Government of Samoa was $ 38,686 per patient per year in 2010/11. While less than the previous approach of sending patients to New Zealand, the cost to Government was still more than twelve times the Gross National Income of Samoa. The cost-effectiveness of dialysis is further undermined by the fact that almost two thirds have died two years after commencing treatment (World Bank, 2013a). Studies in the USA suggest that 'futile care' (medical interventions with virtually no chance of successful outcomes and which postpone death by a few weeks rather than save lives) costs around $ 4000 per day (Wenger N, 2013). While no patient should suffer pain, and palliative care is an important option, there are ethical as well as economic issues involved when scarce resources are allocated to 'futile care' when other priority health needs are left unfunded (Murray K, 2011). Investing in maternal health and girls' nutrition is one area often under-funded, but which can have large, long term, inter-generational benefits in terms of reducing NCD risk and other adverse health factors (Barker D, 1990; Bhutta, 2013; Black et al., 2013; Gillman et al., 2003; Victora et al., 2008; R. C. Whitaker & Dietz, 1998)

Actions within the health sector specifically related to NCD control with strong economic underpinnings

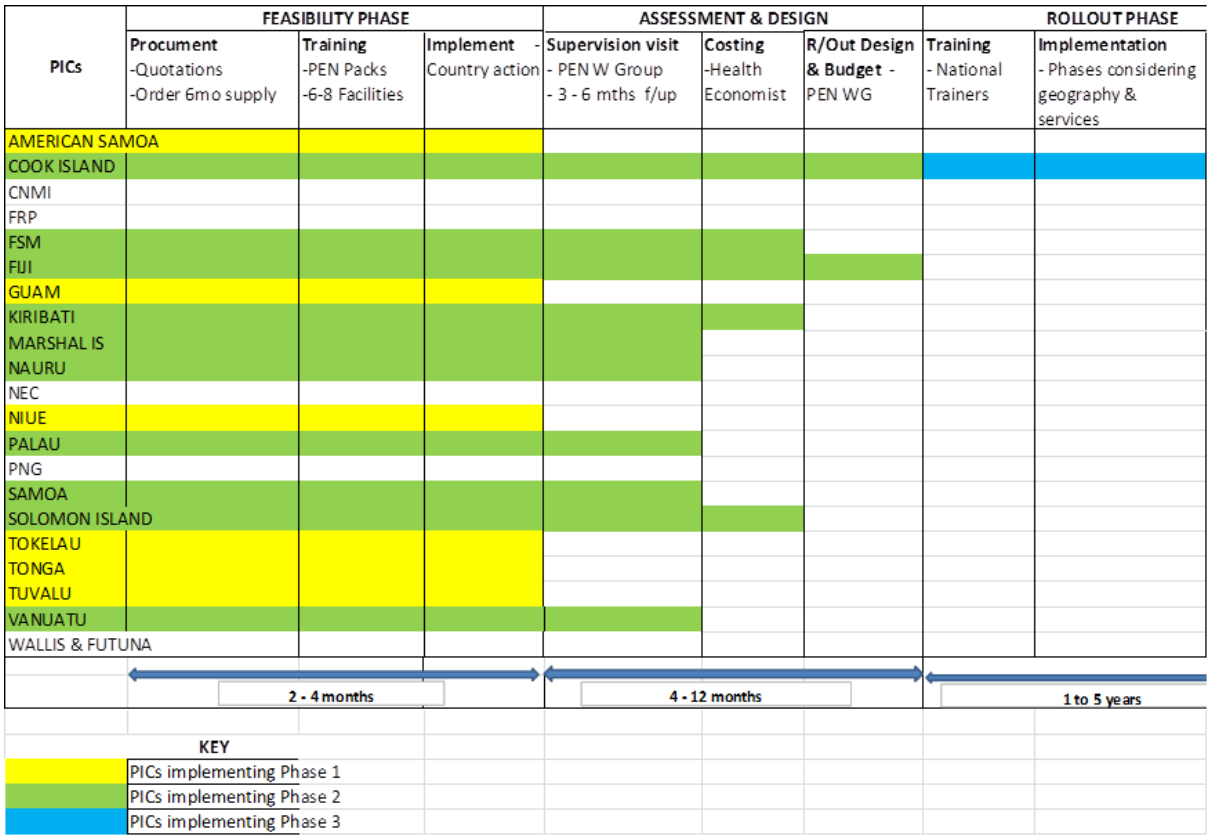
Scale up of Crisis Response Package and the Package of Essential NCD (PEN) interventions

Pacific Island countries should continue to implement and scale up the Crisis Response Package, including the Package of Essential NCD (PEN) interventions. That is because that approach has the potential to improve diagnosis and treatment at the primary care setting, in a low-tech environment, thereby saving - and better targeting - scarce resources. The approach recognises that lower middle income countries do not have the financial and other resources to screen and treat each individual NCD and risk factor separately. Instead, there are public health and economic benefits in identifying and treating high risk groups in the population, many of whom have multiple risks. The simple colour coded chart developed by WHO and the International Society of Hypertension (ISH) enables the identification and targeting of high risk people in resource poor settings without the need for laboratory testing. Earlier diagnosis and treatment, especially at primary care settings, through use of basic screening and, where needed, medications has the potential to avert much larger efforts at

curative treatment at hospitals. Chart 2.1 below summarises the state of progress in rolling out the Crisis Response Package and PEN as at September 2013.

Chart 2.1: Progress in rolling out the NCD Crisis Response Package and PEN at September 2013

Source: WHO



In scaling up PEN, countries should compare the additional costs of using laboratory based testing to the additional diagnostic benefits. The PEN has been deliberately designed to be an effective, feasible, and affordable approach to NCD prevention and control in developing countries. It should therefore form the basis of strategic resource allocations and programs in the Pacific. Importantly, recent analysis suggests the PEN approach can be simplified even further in low resource settings to reduce costs, with little if any loss of diagnostic power. More specifically, the additional cost (and human resource requirements) of laboratory based testing of cholesterol did not seem warranted in such settings. Instead, chart based assessments of overall risk factors for cardiovascular disease (such as age, gender, smoking status, systolic blood pressure, reported diabetes status, and BMI) appeared to have similarly strong diagnostic and predictive powers at reduced cost to the public health system

(Gaziano, Young, Fitzmaurice, Atwood, & Gaziano, 2008; Otgontuya D, Oum S, Buckley B, & R., 2013; Pandya A, Weinstein M, & Gaziano T, 2011). Such trials demonstrate the importance of monitoring, experimentation and impact evaluation: the subject of the next section.

Monitoring, experimentation, and impact evaluation

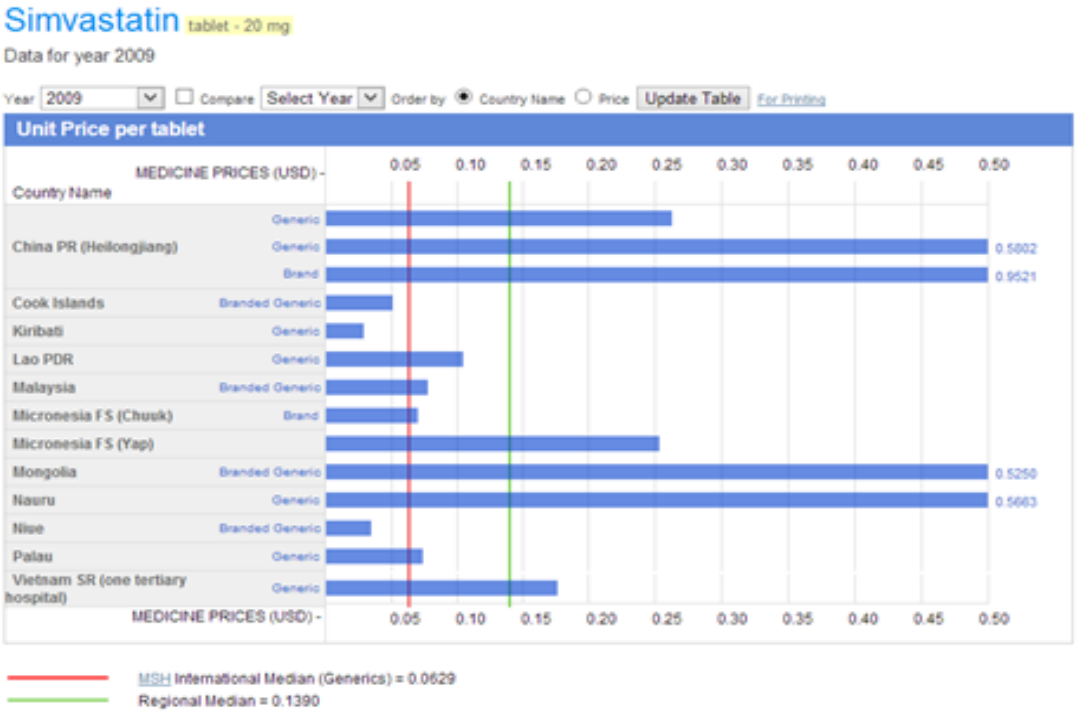
Pacific Island countries, supported by development partners, should more systematically capture the costs and lessons of the roll out, and share those insights with others in the region. Most countries in the Pacific are undertaking the same roll out and scaling up of the NCD crisis response package and PEN at roughly the same time. There are therefore important lessons and synergies to be identified, especially since the roll out can be relatively expensive. A well conducted study by the Cook Islands estimated the total cost of introducing PEN over the next five years ranged between $NZ 900,000 and $NZ 4,036,795 ($NZ 12 per capita and $NZ 54 per capita respectively) depending upon whether a 'pragmatic' or an 'ideal' implementation program was chosen (WHO, 2013c). Fiji has also commissioned an independent study of the cost of scaling up PEN. Independent studies such as these should be able to provide valuable insights and lessons to all countries in the region. Relevant policy questions that could be asked in future such studies could include: do unit costs of medical supplies rise under the roll out (because they are being shipped to more remote islands) or do unit prices actually fall (because of economies of scale and purchasing in bulk)? Does cost-effectiveness rise in more remote areas (because health burdens are higher, more than offsetting the additional cost of shipping items to more sparsely populated and remote islands)? What are the most significant drivers of recurrent cost and maintenance of PEN equipment? What innovations did other countries do to reduce costs?

Pharmaceutical prices

There are strategic benefits in Pacific Island countries identifying the reasons for large variations in the price of identical pharmaceutical products in the region. As seen in Chart 2.2 below, the Cook Islands, Kiribati and Niue are able to purchase generic simvastatin to reduce cholesterol at less than 5 cents per 20 mg tablet. However Micronesia is paying five times that (25 cents per tablet) and Nauru is paying more than ten times that (56 cents per tablet). It is important to understand why those large differences occur and then identify ways of reducing costs for those that appear to be paying higher prices. (Regional procurement of pharmaceuticals is, in theory, an option but has not worked well in the past because some countries did not pay their share of the bills).

Chart 2.2 Prices of 20 mg simvastatin tablets for treating cholesterol in 2009.

Source: WHO



Health Promotion activities or health promotion foundations?

Ministries of Health need to distinguish between health *promotion* and a health *Foundation* and evaluate program effectiveness carefully**.** Health promotion is important, and something that extends well beyond the formal health sector: principles formally recognised in the Ottawa Charter for Health Promotion in 1986 (World Health Organization, 2014). Health promotion goes well beyond simply raising 'awareness' if risky behaviours (smoking, alcohol abuse, sedentary lifestyles; unhealthy eating) are to change. As noted by Cobiac, the $ 130 million per year was spent in Australia on promoting healthy lifestyles but rigorous evaluation found this had only a "trivial" effect on behaviour. Raising "awareness" about risk factors is important but unlikely to lead to any significant or sustained behaviour change. By itself, general health promotion activities could therefore be a waste of money. Ministries also need to decide how to implement effective health promotion campaigns. Having a dedicated health promotion foundation may be a good option. That is because a dedicated health promotion foundation could have clarity of purpose and be able to focus on specialised tasks as well as coordinating others. Having a specialised Foundation might also help to quarantine and protect funding support for health promotion activities. On the other hand, having a separate health promotion foundation might simply be a bureaucratic duplication of activities that could and should have been done much more cheaply and effectively in the primary health care setting.

Whatever approach is taken, the difficulties in changing lifestyle behaviours means that program effectiveness must be regularly and rigorously tested. A recent study found that, once again, healthy lifestyles based on five criteria - non-smoking, an acceptable BMI, a high fruit and vegetable intake, regular physical activity, and low/moderate alcohol intake - are associated with reductions in the incidence of certain chronic diseases. Men who followed four or five of the behaviours had an odds ratio (OR) and confidence intervals (CI) for diabetes, corrected for age and social class, of 0.50 (95%

CI: 0.19, 1.31). For vascular disease the OR was 0.50 (95% CI: 0.30, 0.84) and there was a delay in vascular disease events of up to 12 years. Adoption of a healthy lifestyle also was associated with reduced dementia and cognitive impairment. However the worrying part of the study was that 'the adoption of a healthy lifestyle by men was low and appears not to have changed during the subsequent 30 years, with under 1% of men following all five of the behaviours and 5% reporting four or more in 1979 and in 2009' (Elwood P et al., 2013). The finding that less than 1% of men in the UK study (n=2,235) had adopted all five healthy lifestyles, and had not changed over 30 years, indicates the challenges and need for urgent, purposeful, action.

Other less compelling options: user fees, 'earmarking' and social health insurance

There are some other options available to Ministries of health that have the potential to raise additional revenue, but where the economic rationale is much less compelling. For example, **user fees** have the potential to raise additional revenues for Government. They can help improve the efficiency of the referral system by charging extra prices for those people bypassing the primary health care setting for non-emergency treatments. They are a useful and rationale way of limiting trivial cosmetic surgery. User fees can, if large enough and applied consistently, also send important and desirable price signals to society about the true economic cost of adverse personal behaviour: the Cook Islands sends useful price signals to society by charging large extra user medical fees to those who abuse alcohol. But user fees also have significant disadvantages from an economic perspective. User fees are an additional barrier to accessing health care. Despite exemptions and efforts at targeting user fees often fall, in practice, on the poor most in need of health care but least able to afford additional expenditure (Lagarde M & Palmer N, 2008; R. Yates, 2009). There are staff and other costs in collecting and managing user fees. Where user fees do generate additional net revenues, Ministries of Finance may be tempted to reduce overall budget allocations to the health sector.

There are **obvious political advantages in earmarking and reallocating additional revenue from 'health taxes' to the health sector, including health promotion.** Linking increased taxes on tobacco and alcohol to increased public expenditure on health emphasises the adverse health impacts of those products. Politicians can emphasise this link to steer through potentially unpopular tax increases. The Philippines Congress eventually passed tax increases on tobacco and alcohol in the face of strong industry resistance partly because the vast bulk of the additional revenue would be used – and would be seen to be used – in scaling up Universal Health Care in the Philippines. At least 29 countries around the world now use some or all of the additional revenue from increased taxes on tobacco and alcohol to fund health activities (WHO, 2013a). Thailand for example earmarks 2% of tobacco and alcohol excise to fund health promotion activities and Tuvalu allocates 2 cents per cigarette to tobacco control.

The economic **disadvantages** of earmarking are less obvious. Government revenue is always scarce, especially in the Pacific. But Government revenue is also 'fully fungible', meaning any additional revenue generated can and should be transferred to the central government pool of available resources and then allocated to whatever purpose generates the highest impact, irrespective of sector. Allocating any additional revenue to girls' education, rural road maintenance, port development, electricity generation or even reducing national debt may have an even higher development impact than funding health programs, important as they are. Importantly, however, it

may be that for some Pacific Island countries, reduction of NCD risk factors such as tobacco consumption might actually be the single most important development priority that country faces. In that case, sending additional revenue generated from tobacco taxes to the central revenue pool ends up, in practice, being then spent on NCD prevention and control anyway because that was the highest national development priority. At a practical level, simply allocating earmarked additional revenue from tobacco taxes to the health sector may also result, in practice, a corresponding reduction in general budget allocations from the Ministry of Finance.

It should be noted that **earmarking is very much a secondary issue: the first order of priority is to raise (and maintain) the real prices on tobacco so as to discourage consumption** of an addictive substance that kills two-thirds of its users, and undermines the health and wealth of the already poor. The poor, and young, are particularly sensitive to price increases so raising (and maintaining) the excise duty on tobacco is a worthwhile and sufficient objective in its own right. Whether or not to 'earmark' then becomes very much as secondary and less important issue. It is something best decided within the political system of each country, taking into account the best alternative uses for the additional revenue generated by taxes on tobacco.

Introduction of **Social Health Insurance is most unlikely to generate additional financial resources and is not appropriate for the Pacific at this stage.** Some countries in the Pacific have considered Social Health Insurance, usually in the form of compulsory additional surcharges on formal sector wages supplemented by Government subsidies to the rest of society, as a means of generating additional financial resources. Several recent studies find this is not an economically viable option for the Pacific Island countries given their current stage of development (World Bank, 2010, 2012, 2013a, 2013c).

Annex 10: Draft template for Country Roadmap

The following is an illustrative example of what a Country Roadmap might look like. All Pacific Island Forum countries would be invited to complete the template for the four key priority areas listed in the left hand column: strengthen tobacco control; reduce consumption of unhealthy food and drink; improve efficiency of existing health expenditure; strengthen the evidence base to ensure resources are used well. Specific activities under those four strategic priorities would depend upon country circumstances. (The examples in this matrix for years 2014 – 2015 are purely illustrative examples: countries would identify other examples that are key challenges for them). All Pacific Island Forum countries would also be invited to then choose additional interventions that address that country's specific needs and capacities. Those additional country specific interventions would be selected from the menu of over 30 other options available in Annex 6.

Priority Area and Specific Action	**2014**	**2015**	**2016**	**2017**	**Implementation / institutional responsibility**
1. Strengthen Tobacco Control					
Raise excise duty to at least 70% of retail price of tobacco products.	Public awareness campaign launched and tested	Raise excise to 45% of retail price and monitor. Duty free allowance for tobacco products reduced by 30%	Raise excise to 55% of retail price and monitor. Duty free allowance for tobacco products reduced by 30%	Duty free allowance for tobacco products reduced by 30%. Duty free allowance for tobacco products reduced by 30%	Ministry of Finance to raise excise duty and ensure compliance.

Priority Area and Specific Action	2014	2015	2016	2017	Implementation / institutional responsibility
					Ministry of Customs to reduce amount of duty free sales
Adequately fund the implementation and enforcement of tobacco control measures contained in existing commitments such as WHO Framework Convention on Tobacco Control (FCTC) and Tobacco Free Pacific 2025.	Reduce sales of single sticks of cigarettes and sales to children. Public awareness campaign launched and tested. Baseline study conducted by NGOs	Reduction of 25% such sales	Reduction of 70% such sales	Reduction of 95% such sales	Ministry of Finance and Police to ensure adequate finance. Police (and perhaps NGOs) to provide enforcement
2. *Reduce consumption of unhealthy food and drink known to cause NCDs*					
Reduction in salt intake	Baseline study and discussion with industry	Trial of options	Evaluation of trials	Implement 'best buys'	Ministry of Health
Tax on sugary drinks	Baseline study on current consumption levels, especially by groups at high risk of developing diabetes	National trial of 30% increased tax	Trial evaluated end 2016, with focus on consumption patterns of groups at high risk of acquiring type 2 diabetes	Possible future increases	Ministry of Finance

Priority Area and Specific Action	**2014**	**2015**	**2016**	**2017**	**Implementation / institutional responsibility**
3.Improve efficiency of existing health dollar expenditure					
Allocate scarce resources to preventing and treating NCDs in high risk groups	Reallocate resources to favour primary and secondary prevention. Continue scale up of PEN as a basis for achieving wide coverage of essential but affordable diagnostic and treatment services in all health centres. Identify high risk groups at risk of premature death / disability from NCDs and develop protocols that allow affordable treatment for such groups	Reallocate resources to favour primary and secondary prevention Continue scale up of PEN as a basis for achieving wide coverage of essential but affordable diagnostic and treatment services in all health centres. Trial of primary and secondary prevention amongst high risk groups. Trial to include data on costs and compliance by patients.	Reallocate resources to favour primary and secondary prevention Evaluate scale up of PEN in terms of inputs, outputs, and costs. Continued trial of primary and secondary prevention of high risk groups	Reallocate resources to favour primary and secondary prevention Identify options for improving PEN in the light of evaluation findings. Evaluate trial of primary and secondary prevention of high risk groups	Ministry of Finance oversight of Ministry of Health Ministry of Health

Priority Area and Specific Action	2014	2015	2016	2017	Implementation / institutional responsibility
					Ministry of Health, with support from Ministry of Finance and perhaps development partners for the evaluation of trials and business case for scaling up expanded activities.

Priority Area and Specific Action	**2014**	**2015**	**2016**	**2017**	**Implementation / institutional responsibility**
Achieving competitive prices for pharmaceuticals	Compare price of key generic drugs with those obtained by other PICs	Work with WHO to identify options for drug price reductions	Negotiate more competitive prices	Monitor prices and quality	Ministry of Finance together with Ministry of Health
4. Strengthen evidence base to ensure resources are used well					
Assess cost-effectiveness of different approaches to health promotion eg is a stand-alone Health Promotion Foundation more cost-effective than integrated services within the existing primary health care system	Baseline study on the costs, and consequences, of alternative health promotions	Data collection and analysis	Identification of 'best buys' in that country situation	Implement and monitor best buys	Ministry of Finance to manage studies perhaps with national Universities, but in collaboration with Ministry of Health
Identify cost differences primary and tertiary level	Baseline study of treatment cost of cardio vascular disease, and diabetes, at a primary health care clinic and at the outpatients department of the main hospital	Analysis of reasons for the cost differences	Analysis and trialling of alternative approaches	Assessment of trials as basis for scale up	Ministry of Finance to manage studies perhaps with national Universities, but in collaboration with Ministry of Health
Other priorities selected from the menu of					

Priority Area and Specific Action	**2014**	**2015**	**2016**	**2017**	**Implementation / institutional responsibility**
options suited to that country's specific circumstances					
Ministry of Agriculture					
Improved availability of fresh food and fish	Baseline study on obstacles to improved production and sales	Design and construction of refrigerated warehouse at main market	Assessment of change in consumer purchases	Assessment of change in consumer health	Ministry of Agriculture
Ministry of Education					
Improve diet of school children.	Education campaign amongst all school children about diet and health. Liaison with trade stores and vendors near schools	Remove sugary drinks from school canteens and for sale within 2 km of a school as a first step.	Evaluate impact on weight and fitness of children	Respond to evaluation findings.	Ministry of Education
Engagement with development partners					
NCD risk factors included in designs of roads etc	Discussions and awareness raising with development partners	Designs for roads include footpaths; buildings have stairs.	Assessment of additional costs and outcomes	Policy for future programs designed	Ministry of Finance and / or Planning.

Annex 11: Some common myths about NCD prevention and control

Some interventions – such as food manufacturers replacing trans-fats from food products with healthier alternatives – are relatively easy and inexpensive to implement. Consumers may not even notice the difference, except that risks of heart disease have diminished significantly. On the other hand, raising prices on tobacco products, alcohol, and unhealthy food and sugar sweetened drinks will be quickly noticed by consumers and producers. Consumers may be willing to accept the price rises if they are accompanied with clear and consistent messages about the health benefits to themselves by reducing consumption of harmful products. Producers, importers and retailers may have legitimate concerns. But they may also have spurious and self-interested motives to undermine good public policy. It is important to be aware of some of the myths that vested interests use to block reform.

- *Myth: raising tobacco prices particularly hurts the poor, and the broader economy.* Fact: smoking hurts the poor more, as they have less money to buy good things, and are less able to deal with the ill health caused by smoking. The poor are more likely to quit smoking than the rich after a price rise, so it is often not 'regressive' (hurting the poor more) over the medium term. Indeed, the poor tend to benefit most in terms of improved health from a tax increase on tobacco (Jha P et al., 2012). While it is true there may be some initial loss of employment in local tobacco companies, especially where small economies have limited other manufacturing industries. However it is important to recognise other offsetting factors: household expenditure on tobacco does not simply disappear when smokers quit: the money is spent on other goods and services (virtually all of which will be healthier than smoking tobacco) or is saved. Government medical and other health costs will go down, often within months, as a result of reduced incidence of tobacco induced stroke, thereby freeing up money that can be spent on other goods and services that generate other jobs. Agricultural land used for tobacco consumption does not simply fall vacant: it can be used for other purposes. Smuggling can be an issue in some countries, but is more able to be controlled in island economies than in parts of Asia with highly porous land borders.

- *Myth: NCDs including obesity and diabetes are just the natural state of affairs in much of the Pacific, and nothing can be done about it.* Fact: evidence shows that diabetes and other NCDs were virtually unknown in the Pacific less than 100 years ago. Smoking, Nutrition, Alcohol and Physical inactivity ('SNAP') are the main causes of NCDs and they can be modified by policy and taxes.

- *Myth: international trade agreements prevent the Pacific from taking action that would restrict imports of unhealthy food and drinks.* Fact: Trade negotiations certainly involve tough bargaining. Unhappy experiences with efforts to control imports of unhealthy products do not tell the whole story. Regional trade agreements, as distinct from multilateral rules based trade agreements, may involve the reality, or the perception, of unequal bargaining power (Friel S et al., 2013). Nevertheless, countries can still restrict imports of unhealthy products, but need to do so in a non-discriminatory way that does not give special advantages to local

producers or favoured trading partners. A renewed interest in “Aid for Trade” provides countries with an opportunity to increase fruit and vegetable production and exports (Thow AM & S., 2013)

- *Myth: NCDs have already taken hold in the Pacific: there is little that can be done to reduce the health burden or the costs.* Fact: NCDs, and the risk factors of smoking, obesity, inactivity are indeed common in the Pacific. But targeted prevention and treatment can reduce, or at least postpone, their effects.

References

ABC News. (2013). Risk of early death from smoking more severe than thought, Australian study reveals. from http://www.abc.net.au/news/2013-10-11/smoking-risks-higher-death-disease-lung-cancer/5015588

Abedian I, Merwe R, Wilkins N, & Jha P (Eds.). (1998). *The Economics of Tobacco Control: Towards an Optimum Policy Mix*. Cape Town.

Abegunde, D. O., Mathers, C. D., Adam, T., Ortegon, M., & Strong, K. (2007). The burden and costs of chronic diseases in low-income and middle-income countries. *The Lancet, 370*(9603), 1929-1938.

AIHW. (2014). Health care expenditure on cardiovascular disease 2008-9. In Australian Institute of Health and Welfare (Ed.).

Alleyne, G., Binagwaho, A., Haines, A., Jahan, S., Nugent, R., Rojhani, A., & Stuckler, D. (2013). Embedding non-communicable diseases in the post-2015 development agenda. *The Lancet, 381*(9866), 566-574.

Anderson I, Ivatts S, Somanathan A, & Rolfe B. (2014). The challenge of health financing in five South Pacific countries. *Asia Pacific Economic Literature, 28*(1).

Anderson I, Sanburg A, Aru H, Tarivonda L, Ivatts S, Latu R, & Kool J. (2013). The costs and affordability of drug treatments for type 2 diabetes and hypertension in Vanuatu. *Pacific Health Dialog, 19*(2:1).

Andreyeva T, Long M, & Brownwell K. (2010). The impact of food prices on consumption: a systematic review of research on the price elasticity of demand for food. *American Journal of Public Health, 100*(2).

APMA. (2014). Arizona Medicaid study: exclusion of podiatric physicians and surgeons adversely impacted diabetic patient health, program finances. from http://www.apma.org/files/FileDownloads/AZMedicaidStudy.pdf

Asaria, P., Chisholm, D., Mathers, C., Ezzati, M., & Beaglehole, R. (2007). Chronic disease prevention: health effects and financial costs of strategies to reduce salt intake and control tobacco use. *The Lancet, 370*(9604), 2044-2053.

Australian Financial Review. (2014, 1-2 February 2014). Obesity epidemic leads to fat profits and fat trucks, *Australian Financial Review,* p. 8.

Bamberger M, Rugh J, & Mabry L. (2012). *Real world evaluation: working under budget, time, data, and political constraints, 2nd edition*: Sage.

Barker D. (1990). The fetal and infant origins of adult disease: the womb may be more important than the home. *British Medical Journal, 301*(6761), 1111.

Basu S, Babiarz K, Ebrahim S, Vellakkal S, Stuckler D, & Goldhaber-Fiebert J. (2013). Palm oil taxes and cardiovascular disease mortality in India: economic-epidemiological model. *British Medical Journal, 347*.

Basu, S., Stuckler, D., McKee, M., & Galea, G. (2013). Nutritional determinants of worldwide diabetes: an econometric study of food markets and diabetes prevalence in 173 countries. *Public Health Nutr, 16*(1), 179-186. doi: 10.1017/s1368980012002881

Beaglehole, R. (2014). NCDs: time for fewer proposals and more action. *The Lancet, 383*(9916), 504.

Beaglehole R et al. (2011). Priority Actions for the NonCommunicable Disease Crisis. *The Lancet, 377*(9775).

Been, J. V., Nurmatov, U. B., Cox, B., Nawrot, T. S., van Schayck, C. P., & Sheikh, A. (2014). Effect of smoke-free legislation on perinatal and child health: a systematic review and meta-analysis. *The Lancet, 383*(9928), 1549-1560.

Bettcher D. (2012). NCDs. from http://www.who.int/nmh/events/2012/4November2012_PPT_LinksPlans_DB.pdf

Bhutta, Z. A. (2013). Early nutrition and adult outcomes: pieces of the puzzle. *The Lancet, 382*(9891), 486-487.

Bibbins-Domingo K, Chertow G, Coxson P, Moran A, Lightwood J, & Pletcher M, e. a. (2010). Projected effect of dietary salt reductions on future cardiovascular disease. *New England Journal of Medicine, 362*(7).

Black, R. E., Victora, C. G., Walker, S. P., Bhutta, Z. A., Christian, P., de Onis, M., . . . Uauy, R. (2013). Maternal and child undernutrition and overweight in low-income and middle-income countries. *The Lancet*.

Bollyky T. (2014, 21 January 2014). The global grip of cigarette smoking, *Los Angeles Times*. Retrieved from http://www.latimes.com/opinion/commentary/la-oe-bollyky-tobacco-smoking-global-20140121,0,3474519.story?utm_&&&#axzz2rG3o1Hw5

Bonita, R., Magnusson, R., Bovet, P., Zhao, D., Malta, D. C., Geneau, R., . . . Beaglehole, R. (2013). Country actions to meet UN commitments on non-communicable diseases: a stepwise approach. *The Lancet, 381*(9866), 575-584.

Briggs A, Mytton O, Kehlbacher A, Tiffin R, Rayner M, & Scarborough P. (2013). Overall and income specific effect on prevalence of overweight and obesity of 20% sugar sweetened drink tax in the UK: econometric and comparative risk assessment modelling study. *BMJ, 347*.

Cecchini, M., Sassi, F., Lauer, J. A., Lee, Y. Y., Guajardo-Barron, V., & Chisholm, D. (2010). Tackling of unhealthy diets, physical inactivity, and obesity: health effects and cost-effectiveness. *The Lancet, 376*(9754), 1775-1784.

Chand B, Prasad R, Lako J, & Sotheswaram S. (2011). Trans fatty acid content of selected foods in Fiji. *International Proceedings of Chemical Biological and Environmental Engineering, 3*.

Cobiac L, Magnus A, Lim S, Barendregt J, Carter R, & Vos T. (2012). Which interventions offer best value for money in primary prevention of cardiovascular disease? Retrieved 9 November 2013, from http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0041842

Coyne T. (2000). Lifestyle diseases of the Pacific community. In Secretariat of the Pacific Community (Ed.).

Credit Suisse Research Institute. (2013). Sugar: consumption at a crossroads. Geneva.

Davies A. (2014, 22-23 February 2014). Fitness shock for supermarket's 'fresh food people', *Sydney Morning Herald*.

Duflo E. (2004). Scaling up and evaluation. *Annual World Bank Conference on Development Economics*.

Duflo E. (2006). Field experiments in development economics. In P. f. t. W. C. o. t. E. Society (Ed.): Massachusetts Institute of Technology.

Duflo E, & Kremer M. (2003). Use of randomization in the evaluation of development effectiveness *Paper prepared for the World Bank Conference on Evaluation and Development Effectiveness 2003*.

Dulcie Oreke. (2012, 21 September 2012). Company signs scholarship deal, *The Nation*.

Economist, T. (2013). Economics A to Z. Retrieved 1 September 2013, from http://www.economist.com/economics-a-to-z/a

Edwardes B, & Frizelle F. (2009). Globalisation and its impact on the South Pacific. *New Zealand Medical Journal, 122*(1291).

Elwood P, Galante J, Pickering J, Palmer S, Bayer A, Ben-Shlomo Y, . . . J., G. (2013). Healthy lifestyles reduce the incidence of chronic diseases and dementia: evidence from the Caerphilly cohort study. *PLoS ONE, 8*(2).

Escobar M, Veerman L, Tollman S, Bertram M, & K., H. (2013). Evidence that a tax on sugar sweetened beverages reduces the obesity rate: a meta analysis. *BMC Central, 13*.

Faulkner, G. E., Grootendorst, P., Nguyen, V. H., Andreyeva, T., Arbour-Nicitopoulos, K., Auld, M. C., . . . Windmeijer, F. (2011). Economic instruments for obesity prevention: results of a scoping review and modified Delphi survey. *Int J Behav Nutr Phys Act, 8*, 109. doi: 10.1186/1479-5868-8-109

Forum Communique. (2011). Forum Leaders' statement on NCDs. Retrieved 8 November 2013, from http://www.forumsec.org/pages.cfm/newsroom/press-statements/2011/forum-communique-42nd-pif-auckland-new-zealand.html

Forum Economic Ministers Meeting. (2013). 2013 Forum Economic Ministers Action Plan. In Pacific Islands Forum Secretariat (Ed.).

Forum Trade Ministers' Meeting. (2013). Outcomes document. from http://www.forumsec.org/resources/uploads/attachments/documents/2013_FTMM_Outcomes.pdf

Friel S, Gleeson D, Thow A-M, Labonte R, Stuckler D, Kay A, & W., S. (2013). A new generation of trade policy: potential risks to diet-related health from the trans pacific partnership agreement. *Globalization and Health, 9*(46).

Gaziano, T. A., Young, C. R., Fitzmaurice, G., Atwood, S., & Gaziano, J. M. (2008). Laboratory-based versus non-laboratory-based method for assessment of cardiovascular disease risk: the NHANES I Follow-up Study cohort. *The Lancet, 371*(9616), 923-931.

Gillman, M. W., Rifas-Shiman, S., Berkey, C. S., Field, A. E., & Colditz, G. A. (2003). Maternal gestational diabetes, birth weight, and adolescent obesity. *Pediatrics, 111*(3), e221-226.

Glantz, S., & Gonzalez, M. (2012). Effective tobacco control is key to rapid progress in reduction of non-communicable diseases. *The Lancet, 379*(9822), 1269-1271.

Glassman, A. (2013). Dealing with big tobacco bullies. Retrieved 22 January 2014

from http://international.cgdev.org/blog/dealing-big-tobacco-bullies

Gleeson, D., & Friel, S. (2013). Emerging threats to public health from regional trade agreements. *The Lancet, 381*(9876), 1507-1509.

Government of the Cook Islands. (2010). *Schedule of Charges for the Cook Islands*.

Government of the Cook Islands. (2012). Financial Statement (Appropriation Bill 2012/13) by the Minister of Finance Hon Mark Brown.

Guindon E, Perucic AM, & Boisclair D. (2003). Higher Tobacco Prices and Taxes in South East Asia: An Effective Tool to Reduce Tobacco Use, Save Lives and Generate Revenue. *HNP Discussion Paper, Economics of Tobacco Control Paper No. 11. World Bank,* .

Han, J. C., Lawlor, D. A., & Kimm, S. Y. S. (2010). Childhood obesity. *The Lancet, 375*(9727), 1737-1748.

Hawkes C, Blouin C, Henson S, Drager N, & L., D. (2009). *Trade, Food, Diet and Health: Perspectives and Policy Options*.

Heath G, T. P. (2012). The role of the built environment in shaping the health behaviors of physical activity and healthy eating for cardiovascular health. *Future Cardiology, 8*(5).

Heller P. (2005). Understanding Fiscal Space *IMF Policy Discussion Paper*. Washington DC: International Monetary Fund.

Honiara Communique. (2011). Honiara Communique on the Pacific NCD crisis. Retrieved 9 November 2013, from http://www.wpro.who.int/noncommunicable_diseases/honiara_communique.pdf

Hsiao A, & Wang C. (2013). Reducing sugar-sweetened beverage consumption: evidence, policies, and economics. *Current Obesity Reports, 2*, 191-199.

Hu, F., & Malik, V. (2010). Sugar-sweetened beverages and risk of obesity and type 2 diabetes: epidemiologic evidence. *Physiol Behav, 100*(1), 47-54. doi: 10.1016/j.physbeh.2010.01.036

IDF. (2010). A call to action on diabetes: International Diabetes Federation.

IHME. (2014). Development assistance to health focus areas 1990-2009. Retrieved 23 January 2014, from http://www.healthmetricsandevaluation.org/tools/data-visualization/development-assistance-health-health-focus-area-global-1990-2009-interactiv#/overview/stories

Jaddoe W, de Jonge L, Hofman A, Franco O, Steegers A, & R., G. (2014). First trimester fetal growth restriction and cardiovascular risk factors in school age children: population based cohort study. *British Medical Journal, 348*.

Jamison D et al. (2006). Disease control priorities in developing countries, second edition. In World Bank (Ed.).

Jha P, Joseph R, Li D, Gauvreau C, Anderson I, Moser P, . . . Chaloupka F. (2012). Tobacco Taxes: A Win-Win Measure for Fiscal Space and Health. In Asian Development Bank (Ed.). Manila.

Jha, P., Ramasundarahettige, C., Landsman, V., Rostron, B., Thun, M., Anderson, R. N., . . . Peto, R. (2013). 21st-Century Hazards of Smoking and Benefits of Cessation in the United States. *New England Journal of Medicine, 368*(4), 341-350. doi: doi:10.1056/NEJMsa1211128

Joffe, B., & Zimmet, P. (1998). The thrifty genotype in type 2 diabetes: an unfinished symphony moving to its finale? *Endocrine, 9*(2), 139-141. doi: 10.1385/endo:9:2:139

Jou, J., & Techakehakij, W. (2012). International application of sugar-sweetened beverage (SSB) taxation in obesity reduction: factors that may influence policy effectiveness in country-specific contexts. *Health Policy, 107*(1), 83-90. doi: 10.1016/j.healthpol.2012.05.011

Kirby, T. (2013). Tackling obesity in cities. *The Lancet Diabetes & Endocrinology, 1*(0), s1-s2.

Kontis, V., Mathers, C. D., Rehm, J., Stevens, G. A., Shield, K. D., Bonita, R., . . . Ezzati, M. (2014). Contribution of six risk factors to achieving the 25×25 non-communicable disease mortality reduction target: a modelling study. *The Lancet*.

Lagarde M, & Palmer N. (2008). The Impact of User Fees On Health Service Utilisation in Low and Middle Income Countries: How Strong Is The Evidence. *Bulletin of the World Health Organization, 86*(11).

Lee, I. M., Shiroma, E. J., Lobelo, F., Puska, P., Blair, S. N., & Katzmarzyk, P. T. (2012). Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy. *The Lancet, 380*(9838), 219-229.

Legge D, Gleeson D, Snowdon W, & Thow AM. (2013). Trade agreements and noncommunicable diseases in the Pacific Islands.

Levy D, Ellis J, Mays D, & Huang A. (2013). Smoking-related deaths averted due to three years of policy progress. *Bulletin of the World Health Organisation, 91*.

Lim, S. S., Gaziano, T. A., Gakidou, E., Reddy, K. S., Farzadfar, F., Lozano, R., & Rodgers, A. (2007). Prevention of cardiovascular disease in high-risk individuals in low-income and middle-income countries: health effects and costs. *The Lancet, 370*(9604), 2054-2062.

List J. (2011). Why economists should conduct field experiments and 14 tips for pulling one off. *Journal of Economic Perspectives, Volume 25*(3), 3-16.

Lower T, N. B., Abel M, AkeM, Puloka V, Tiban K,. (2005). Curbing the tide: non-communicable disease in the Pacific. *Pacific Health Dialog, 12*(2), 61-64.

Malik, V. S., Popkin, B. M., Bray, G. A., Despres, J. P., Willett, W. C., & Hu, F. B. (2010). Sugar-sweetened beverages and risk of metabolic syndrome and type 2 diabetes: a meta-analysis. *Diabetes Care, 33*(11), 2477-2483. doi: 10.2337/dc10-1079

Marmot, M. (2005). Social determinants of health inequalities. *Lancet, 365*, 1099 - 1104.

McCool J, M. J., Lyman A, Allen M. (2013). Supporting Pacific Island countries to strengthen their resistance to tobacco industry interference in tobacco control: a case study of Papua New Guinea and Solomon Islands. *International Journal of Environmental Research and Public Health, 10*.

Mitchell A, & Voon T. (2011). Implications of the World Trade Organization in combating non-communicable diseases. *Public Health 125*, 832-839.

Mohan S, & Cambell N. (2009). Salt and high blood pressure. *Clinical Science, 117*.

Moodie, M., Sheppard, L., Sacks, G., Keating, C., & Flego, A. (2013). Cost-Effectiveness of Fiscal Policies to Prevent Obesity. *Current Obesity Reports, 2*(3), 211-224. doi: 10.1007/s13679-013-0062-y

Moodie, R., Stuckler, D., Monteiro, C., Sheron, N., Neal, B., Thamarangsi, T., . . . Casswell, S. (2013). Profits and pandemics: prevention of harmful effects of tobacco, alcohol, and ultra-processed food and drink industries. *The Lancet, 381*(9867), 670-679.

Mozaffarian, D., Katan, M. B., Ascherio, A., Stampfer, M. J., & Willett, W. C. (2006). Trans Fatty Acids and Cardiovascular Disease. *New England Journal of Medicine, 354*(15), 1601-1613. doi: doi:10.1056/NEJMra054035

Murray K. (2011). How doctors die: it's not like the rest of us but it should be. Retrieved 9 November 2013, from http://www.zocalopublicsquare.org/2011/11/30/how-doctors-die/ideas/nexus/

Narayan, K. M. V., Zhang, P., Williams, D., Engelgau, M., Imperatore, G., Kanaya, A., & Ramachandran, A. (2006). How should developing countries manage diabetes? *Canadian Medical Association Journal, 175*(7), 733. doi: 10.1503/cmaj.060367

Negin J, & Robinson H. (2010). Funding for HIV and non-communicable diseases: implications for priority setting in the Pacific region: The Nossal Institute for Global Health.

Ng M, Freeman M, Fleming T, Robinson M, Dwyer-Lindgren L, Thomson B, . . . E., G. (2014). Smoking Prevalence and Cigarette Consumption in 187 Countries, 1980-2012. *Journal of American Medical Association, 311*(2).

Ng, M., Fleming, T., Robinson, M., Thomson, B., Graetz, N., Margono, C., . . . Gakidou, E. (2014). Global, regional, and national prevalence of overweight and obesity in children and adults during 1980?2013: a systematic analysis for the Global Burden of Disease Study 2013. *The Lancet*.

Otgontuya D, Oum S, Buckley B, & R., B. (2013). Assessment of total cardiovascular risk using WHO/ISH risk prediction charts in three low and middle income countries in Asia. *BMC Public Health, 13*.

Pacific Islands Forum Secretariat. (2012). 2012 Pacific Regional MDGs Tracking Report.

Pandya A, Weinstein M, & Gaziano T. (2011). A comparative assessment of non-laboratory-based versus commonly used laboratory-based cardiovacular disease risk scores in the NHAMES 111 population. *PloS ONE, 6*(5).

Parry, C. D., Patra, J., & Rehm, J. (2011). Alcohol consumption and non-communicable diseases: epidemiology and policy implications. *Addiction, 106*(10), 1718-1724. doi: 10.1111/j.1360-0443.2011.03605.x

Robinson H, & Hort K. (2012). Non-communicable diseases and health systems reform in low and middle income countries. *Pacific Health Dialog, 18*(1), 179-190.

Roux L, Pratt M, Tengs T, & al., e. (2008). Cost effectiveness of community-based physical activity interventions. *American Journal of Preventive Medicine, 35*(6).

Samb, B., Desai, N., Nishtar, S., Mendis, S., Bekedam, H., Wright, A., . . . Etienne, C. (2010). Prevention and management of chronic disease: a litmus test for health-systems strengthening in low-income and middle-income countries. *The Lancet, 376*(9754), 1785-1797.

Sassi, F. (2006). Calculating QALYs, comparing QALY and DALY calculations. *Health Policy and Planning, 21*(5), 402-408. doi: 10.1093/heapol/czl018

Schulze, M. B., Manson, J. E., Ludwig, D. S., Colditz, G. A., Stampfer, M. J., Willett, W. C., & Hu, F. B. (2004). Sugar-sweetened beverages, weight gain, and incidence of type 2 diabetes in young and middle-aged women. *JAMA, 292*(8), 927-934. doi: 10.1001/jama.292.8.927

Sinne Smed, A. R. (2012). Are taxes on fatty foods having their desired effects? We don't know because governments are not instigating the most appropriate evaluations. *British Medical Journal, 345*.

Snowdon W, & Thow AM. (2013). Trade policy and obesity prevention: challenges and innovation in the Pacific Islands. *Obesity Reviews, 14*(2).

Snowdon W, Waqa G, Raj A, Kanungo A, & H., R. (2013). Non-communicable diseases and health system responses in Fiji. Melbourne VIC: The Nossal Institute for Global Health.

Snowdon, W., Lawrence, M., Schultz, J., Vivili, P., & Swinburn, B. (2010). Evidence-informed process to identify policies that will promote a healthy food environment in the Pacific Islands. *Public Health Nutrition, 13*(06), 886-892. doi: doi:10.1017/S136898001000011X

SPC. (2011). NCD Statistics for the Pacific Islands Countries and Territories: Public Health Division, Secretariat of the Pacific Community.

Stafford N. (2012). Denmark cancels "fat tax" and shelves "sugar tax" because of threat of job losses. *BMJ, 345*. doi: 10.1136/bmj.e7889

Szmedra P, Sharma K, & C., R. (2009). Health promoting behaviour among chronically ill Pacificans living with non-communicable diseases in Fiji, Nauru and Kiribati. *Pacific Health Dialog., 15*(2).

The Economist. (2013, 19 October). Fizzing with rage: soft drinks in Mexico.

Thomas J, & Grindle M. (1990). After the decision: implementing policy reforms in developing countries. *World Development, 18*(8), 1163-1181.

Thow AM, Jan S, Leeder S, & B., S. (2010). The effect of fiscal policy on diet, obesity and chronic disease: a systematic review. *Bulletin of the World Health Organisation., 88*, 609-614.

Thow AM, & S., P. (2013). Aid for Trade: an opportunity to increase fruit and vegetable supply. *Bulletin of the World Health Organisation., 91*, 57-63.

Thow AM, Swinburn B, Colagiuri S, Diligolevu M, Quested C, Vivili P, & S., L. (2010). Trade and food policy: case studies from three Pacific Island countries. *Food Policy, 35*(6).

Thow, A. M., Quested, C., Juventin, L., Kun, R., Khan, A. N., & Swinburn, B. (2011). Taxing soft drinks in the Pacific: implementation lessons for improving health. *Health Promot Int, 26*(1), 55-64. doi: 10.1093/heapro/daq057

Tonga, G. o. (2010). Second National Millennium Development Goals Report.

UNDP. (2013). Discussion paper: addressing the social determinants of noncommunicable disease.

United Nations General Assembly. (2011). Political declaration of the high level meeting of the General Assembly on the prevention and control of non-communicable diseases. Retrieved 9 November 2013, from http://www.un.org/ga/search/view_doc.asp?symbol=A/66/L.1

US FDA. (2013). FDA takes step to reduce transfat in processed food: reducing transfat intake could prevent thousands of heart attacks and deaths. Retrieved 8 November 2013, from http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm373939.htm

Veerman L, Sacks G, Antonopoulos N, & J., M. (2012). Tax as a tool to prevent chronic disease - the impact of a tax on sugar-sweetened drinks. *Obesity Research Clinical Practice., 6*(1).

Victora, C. G., Adair, L., Fall, C., Hallal, P. C., Martorell, R., Richter, L., & Sachdev, H. S. (2008). Maternal and child undernutrition: consequences for adult health and human capital. *Lancet, 371*(9609), 340-357. doi: S0140-6736(07)61692-4 [pii]

10.1016/S0140-6736(07)61692-4

Wenger N. (2013). What to do about futile care. Retrieved 9 November 2013, from

http://www.rand.org/blog/2013/09/what-to-do-about-futile-critical-care.html

Whitaker, R. C., & Dietz, W. H. (1998). Role of the prenatal environment in the development of obesity. *J Pediatr, 132*(5), 768-776.

Whitaker, R. C., Wright, J. A., Pepe, M. S., Seidel, K. D., & Dietz, W. H. (1997). Predicting Obesity in Young Adulthood from Childhood and Parental Obesity. *New England Journal of Medicine, 337*(13), 869-873. doi: doi:10.1056/NEJM199709253371301

WHO. (2003a). Diet, nutrtion and the prevention of chronic diseases: report of a joint WHO/FAO expert consultation. Geneva.

WHO. (2003b). *WHO guide to cost-effectiveness analysis*. Geneva.

WHO. (2004). *The Millennium Development Goals and Tobacco Control*. Geneva.

WHO. (2007). Pacific framework for the prevention and control of noncommunicable diseases. Manila: WHO Western Pacific Region.

WHO. (2010a). Global Status Report on Non-Communicable Diseases. Geneva.

WHO. (2010b). WHO Technical Manual on Tobacco Tax Administration. Geneva: World Health Organization.

WHO. (2010c). World Health Report: The Path to Universal Coverage. Geneva: World Health Organization.

WHO. (2011). Noncommunicable Diseases Country Profiles. Geneva: World Health Organization.

WHO. (2012a). Confronting the tobacco epidemic in a new era of trade and investment liberalization. Geneva.

WHO. (2012b). Foods imported into the Tokelau Islands 10 May 2008-1 April 2012.

WHO. (2012c). A framework for implementing the set of recommendations on the marketing of foods and non-alcoholic beverages to children.

WHO. (2012d). WHO Global Report: Mortality Attributable To Tobacco.

WHO. (2013a). Benefits of increasing tobacco taxation in the Pacific. Presentation by Dr Douglas Bettcher, Director, Prevention of NCDs, WHO, in Nadi, Fiji, 29-30 April 2013.

WHO. (2013b). Cost-effectiveness thresholds. Retrieved 8 November 2013, from http://www.who.int/choice/costs/CER_thresholds/en/

WHO. (2013c). Cost of implementing the Package of Essential Non-communicable disease interventions for primary care in the Cook Islands: Technical Report prepared for the WHO by Black Pearl Human Welfare Consulting Group.

WHO. (2013d). Global Action Plan for the prevention and control of noncommunicable diseases 2013-2020. from http://www.who.int/nmh/publications/ncd-action-plan/en/index.html

WHO. (2013e). NCD Global Monitoring Framework. from http://www.who.int/nmh/global_monitoring_framework/en/index.html

WHO. (2013f). Political commitment to resilient action to prevent and control NCD in the Pacific: 3 interventions, 5 strategies and 15+ milestones. In W. a. SPC (Ed.), *5th Pacific NCD Forum*. Auckland.

WHO. (2013g). WHO Global NCD Action Plan 2010-2020 *WHO Resolution WHA 66.10*.

WHO. (2013h). WHO Report on the global tobacco epidemic 2013: enforcing bans on tobacco advertising promotion and sponsorship. Geneva: World Health Organization.

WHO and SPC. (2013a). Multi-sectoral action for tobacco control: working toward a tobacco-free Pacific 2025. *Fifth Pacific NCD Forum: political commitment to resilient action.*

WHO and SPC. (2013b). Salt reduction in the Pacific: current status and future direction. *Fifth Pacific NCD Forum.*

WHO and WTO. (2002). WTO agreements and public health - a joint study by WHO and the WTO secretariat.

WHO Western Pacific Region. (2007). Noncommunicable Disease and Poverty: The Need for Pro - Poor Strategies in the Western Pacific Region.

Winkler JT. (2012). Why soft drink taxes will not work. *British Journal of Nutrition, 108*, 395-396.

World Bank. (2010). Health Financing Options Solomon Islands. Washington DC: The World Bank.

World Bank. (2011a). The Growing Danger of Non Communicable Diseases: Acting Now to Reverse Course. Washington DC.

World Bank. (2011b). *Impact evaluation in practice*.

World Bank. (2012). Financing Options For The Health Sector In Tonga.

World Bank. (2013a). The Economic Costs of Non-Communicable Diseases in the Pacific Islands: A Rapid Stocktake Of The Situation In Samoa, Tonga and Vanuatu *HNP Discussion Paper 86522*. Washington DC.

World Bank. (2013b). Health Financing In Vanuatu: Challenges and Options.

World Bank. (2013c). Health Financing Options for Samoa.

World Bank. (2014). World Development Indicators. from http://databank.worldbank.org/data/views/variableSelection/selectvariables.aspx?source=world-development-indicators

World Health Organization. (2011). Scaling up against non-communicable diseases: how much will it cost? Geneva.

World Health Organization. (2014). The Ottawa Charter for Health Promotion. Retrieved 23 May 2014, from http://www.who.int/healthpromotion/conferences/previous/ottawa/en/index2.html

World Trade Organization. (2013). Ten common misunderstandings about the WTO. Retrieved 10 November 2013, from http://www.wto.org/english/thewto_e/whatis_e/10mis_e/10m00_e.htm

Yates, R. (2009). Universal health care and the removal of user fees. *The Lancet, 373*(9680), 2078-2081.

Yates, T., Haffner, S. M., Schulte, P. J., Thomas, L., Huffman, K. M., Bales, C. W., . . . Kraus, W. E. (2014). Association between change in daily ambulatory activity and cardiovascular events in people with impaired glucose tolerance (NAVIGATOR trial): a cohort analysis. *The Lancet, 383*(9922), 1059-1066.

Young J, Stacey I, Dobbins T, Dunlop S, Dessaix A, & D., C. (2014). Association between tobacco plain packaging and Quitline calls: a population-based, interrupted time-series analysis. *Medical Journal of Australia, 200*(1).

Zimmet. (2000). Globalisation, Coca Colonization and the chronic disease epidemic: can the Doomsday scenario be averted? . *Journal of Internal Medicine. 301 – 310., 247*, 301 - 310.