

Salt reduction in the Western Pacific Region: strategies for action

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Abbreviations

WASH – World Action on Salt and Health

CASH – Consensus Action on Salt and Health

AWASH – Australian Division of World Action on Salt and Health

GRAS – Generally Recognized as Safe

CSPI – Center for Science in the Public Interest

CWASH – China Division of World Action on Salt and Health

NGO – Non-government Organization

PIC – Pacific Island country

FSA – Food Standards Agency

UK – United Kingdom

USA – United States of America

EU – European

MSG – Monosodium Glutamate

OECS - Organization of the Eastern Caribbean States

RDA – Recommended Dietary Allowance

EXECUTIVE SUMMARY

Reducing population salt intakes has been identified as the single most cost effective measure for improving population health outcomes throughout the world, based on the contribution of existing high salt intakes to cardiovascular disease and a range of other illnesses. On this basis, the World Health Organization (WHO) is encouraging all countries to reduce average salt intakes to <5 g/day through the development of national salt reduction strategies.

This paper has been prepared at the request of the WHO Western Pacific Regional Office as a background situational assessment intended to inform discussions at a technical consultation on salt reduction in the region, to be hosted by the Singapore Health Board in May 2010. The brief was to conduct a review of factors affecting salt consumption in Western Pacific Region Members states, develop country profiles, review international initiatives and suggest approaches for interventions to reduce salt intakes in the Region.

Due to the extensive scope of the project and the lack of direct access to some of the key contacts working in the different countries, whilst a great deal of information has been obtained, it is possible that some issues have been overlooked or the most up to date information has not been identified. It is therefore recommended that the report is used as a starting point for further consultation and discussions with relevant experts, both in the Western Pacific Region and internationally. This is with a view to highlighting any relevant issues not already identified as well as obtaining feedback on suggested actions.

Available measurements and estimates of salt intakes in the Western Pacific Region indicate that they are much higher than is good for health and in some countries they are increasing. Pacific Island countries seem to have lower intakes of salt with Japan and China having some of the highest. There is a trend away from traditional diets towards imported processed foods and a greater reliance on eating out in many of the countries, particularly in urban areas.

However, despite the relatively high salt intakes in the Region and the increasing activity on salt reduction in other parts of the world, there are relatively few examples of work going on to reduce population salt intakes in the Western Pacific Region. Some research into sources of salt in the diets and cost effectiveness of salt reduction strategies has been undertaken or is underway in the Pacific Island countries. There appears to be no specific salt reduction initiatives in Vietnam, Cambodia or Lao PDR. Governments in Malaysia, Singapore and Mongolia have shown some interest in salt reduction and NGOs are taking action in these countries and in the Philippines. Discussions are underway about establishing C-WASH in China along the lines of what has been established in Australia (AWASH). NGOs are also driving salt reduction work in Australia and New Zealand. However, there are no comprehensive government-led strategies to reduce population salt intakes in any of the countries in the region.

There is a large body of work on food and nutrition in the Pacific Island countries, much of which is specifically concerned with how food supply and trade regulations might

influence obesity. Many of the recommendations from this work could be applied to action on salt reduction in both the Pacific Island countries and the rest of the region.

However, experience from other countries and regions indicates that, unless salt is identified as a stand-alone priority for action and a dedicated strategy and action plan to reduce population salt intakes is developed and implemented, it is likely to get lost among the plethora of other nutrition initiatives waiting to be addressed. What makes salt reduction so different is that there are tried and tested, cost effective mechanisms for reducing population salt intakes. National salt reduction programs have enormous potential to prevent chronic disease through blood pressure lowering at a fraction of the cost of drug therapies for the management of hypertension and should be a national health priority for all countries with high incidences of non-communicable diseases.

Baseline assessments of salt intakes and of the key foods that contribute to salt in the diets of different countries are an important first step for each country. Coalitions of government agencies, NGOs, academics and food industry organizations should also be established to consider how best to progress the issue. Local people and organizations should be supported to develop these coalitions. Whilst government leadership is desirable, a great deal has been achieved by NGOs and advocacy organizations in many countries. Coordination and support to facilitate monitoring and development of initiatives in the Western Pacific Region would be a useful way of ensuring that individual countries recognize and are able to reap the benefits of national salt reduction programs.

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1. Introduction and approach

There is consensus that reducing salt consumption will lower blood pressure levels with great potential to produce significant individual and population health benefits.¹⁻⁷ Furthermore, centrally-implemented salt reduction strategies led by government and the food processing industry are projected to be highly cost-effective.^{6,8-10} A number of countries and individual corporations are already working to reduce the salt content of processed foods^{9,11,12} and there is strong evidence that this can reduce mean population salt consumption.¹³

The WHO organized an expert meeting and technical meeting on salt reduction in Paris in 2007.⁹ The report of the meeting recommended that all countries develop strategies to reduce average salt intakes to <5 g/day. WHO has since been supporting the development of salt reduction strategies and initiatives in Europe¹⁴ and the Americas¹⁵ and is now considering how it might stimulate further work in the Western Pacific Region. As part of this it commissioned work to undertake a baseline situational assessment of salt intakes and trends in the region.

The specific objectives of the work were to establish a baseline for different countries and the region in relation to:

- salt intakes and trends
- sources of salt in the diet and salt levels in foods
- consumer awareness or behaviors relevant to salt and health
- key stakeholders in each country
- current initiatives that might impact on salt intakes including government nutrition or health policies, food labeling policies, NGO activities and industry actions

This has been done by collating information from country nutrition profiles on the WHO website, scanning the published and grey literature using Google, identifying information on salt in Western Pacific Countries using Scopus, and collating further information on initiatives in the Western Pacific and internationally from existing reports and the WASH website. The available data was then categorized and analysis undertaken in relation to the key elements of existing salt reduction strategies and the lessons that can be learnt.

Summary of reports found through the literature search				
Search method	Keywords	Limits	Articles identified	Relevant articles
SCOPUS	“Country” AND salt OR sodium	From 2000 onwards*	915	80
Google	“Country” and “salt reduction”, Heart Foundations and other stakeholder groups websites searched	From reputable source	34	17
WHO	All country profiles included	N/A	56	56
Other	References of relevant papers searched, contacted relevant stakeholders (WASH, Heart Foundations etc)	N/A	45	26

* Search was widened to include previous years only if there were no publications from 2000 onwards

A limitation of the paper is that some of the information from existing reports or on websites is quite old, and it was not always possible to know whether more up to date information was available. Many different languages are spoken in the region but only documents that were in, or had been translated into, English were used for the purpose of the analysis. There was also limited contact with people working in each of the countries. Whilst a number of useful conclusions have been drawn and some recommendations made, it is recommended that these are used as the basis of further consultation with experts in the field to identify any additional issues that might influence thinking.

The paper begins with the review of the existing situation in the Western Pacific Region in terms of salt intakes, foods and practices that contribute to salt intakes and any initiatives that are already underway to reduce population salt intakes. It then goes on to examine national and regional salt reduction activities in other parts of the world and considers some of the key challenges and lessons that have emerged. The final section makes some general recommendations about ways in which salt reduction might be approached on a national and regional basis in the Western Pacific and lists available resources.

2. Situational analysis of the Western Pacific Region

2.1 Demographics

The Western Pacific Region is extremely diverse and covers 37 countries, including 27 Member States and one Associate member. The other areas are either the responsibility of France, the UK or the USA. Hong Kong and Macao are Special Administrative Regions of China. The countries are diverse in terms of demographics, geography and culture ranging from one of the biggest and the most populous country in the world (China) to a state that consist of collections of 607 islands with a total population of 133,144 consisting of various ethno-linguistic groups (Federated States of Micronesia).

Despite this diversity, most countries and sub-regions of the Western Pacific Region have experienced similar profound changes in recent years. These include dramatic increases in life expectancy across the region in parallel with increased growing urbanization and globalization. About 40% of people in the Western Pacific Region now live in urban areas and this is expected to increase to 50% by 2015. Globalization has also resulted in increased industrialization, growing mobility of capital and labor and increased trade in many products (including foodstuffs).

The lives of people in the region have been transformed as a result of these profound changes with many people now working in different environments and locations, different diets, reduced levels of physical activity, and increased access to alcohol, tobacco and imported processed foods. Many countries are now wholly dependent on imports. In fact information about imports¹⁶ provides a useful insight into how much salt is been eaten in some countries. Some examples are:

- Imports of items such as boneless beef, canned tuna and salt increased by up to 50% in American Samoa from 2001-2006 which equates to around 6 kg salt per person per year
- Niue imported 1.5 g salt per person per day in 2007
- Tonga imported 6 g salt per person per day in 2006

Overall, import figures tend to indicate the heavy dominance on less healthy foods and soft drinks. Australia, New Zealand, China, the Philippines and the USA are key sources of imports and Fiji is also important in the Region.¹⁶

2.2 Diet related health problems

These and other factors impact on the health and wellbeing of people in the Region, which are experiencing shifts in causes of death and disability from infectious diseases to non-communicable diseases. Chronic diseases, mainly cardiovascular diseases, cancers, diabetes, hypertension and chronic respiratory diseases, have overtaken communicable diseases as the leading health burden in the Western Pacific Region.¹⁷ Up to 80% of heart disease, stroke, type 2 diabetes and over a third of cancers could be prevented by eliminating shared risk factors, mainly tobacco use, unhealthy diet, physical inactivity and the harmful use of alcohol.¹⁷

One of the major risk factors for cardiovascular diseases and stroke is high blood pressure. This includes hypertension although it is increasingly recognized that as many blood pressure related deaths occur in individuals who do not have hypertension.¹⁰ High salt intakes are one of the major contributors to high blood pressure. Many countries in the Western Pacific Region already have high salt intakes and the growing dependence on imported processed foods, often with high salt content, is likely to exacerbate this problem, contributing to the increase in non-communicable diseases in the region.

2.3 Nutrition action plans / population targets / dietary guidelines

Many of the countries have food and nutrition action plans but these are often focused on preventing malnutrition. Increasingly plans to address non-communicable diseases are being developed (**Table 1**). Twenty six of the countries have some sort of dietary guidelines and reference to the need to reduce salt was identified in 12 of these. More details about the nutrition action plans in each of the countries can be found in **Annex I**. Research has been undertaken into salt intakes, sources of salt in the diet and availability of processed foods in shops in Fiji and a number of studies on the cost effectiveness of salt reduction strategies in different Pacific Island countries are underway. No countries had population targets for salt reduction or comprehensive salt reduction strategies.

2.4 Population salt intakes

Estimates of population salt intakes were identified for 19 of the countries (**Table 1**). Most of the countries where salt intake data was not available were Pacific Island countries (13). The others were Vietnam, Lao PDR, and Brunei Darussalam. Nine estimates were from dietary recall methods, seven from urinary analysis and the remaining two (Australia and Cambodia) were from both. In most cases the most recent estimate has been reported. However, where there were a range of estimates within a similar time frame, as in Australia, the range has been indicated. As in other regions, salt intakes tend to be higher in men. In general, salt intakes are lower (4-9 g) in the Pacific Island countries and higher in parts of Asia, particularly China (7.4-16.9 g) and Mongolia (7.8-14.6 g). The very high sodium intakes recorded in Northern Japan in the 1950s and early 1960s are no longer reported as average salt intakes had decreased yearly from 13.5 g in 1975 to 11.7 g in 1987. However, there are some indications that salt levels have been increasing in the last few years.¹⁸

2.5 Sources of salt in the diet

Sources of salt in the diet vary from country to country with discretionary salt usage (i.e. salt added during cooking or at the table) ranging from as little as 20% in Malaysia^{18,19} compared to up to 80% in rural China²⁰ (**Table 1**). In general discretionary salt seems to account for a bigger proportion of total salt intakes in many countries in the region. This is iodized salt in most cases.

Where traditional diets predominate, main sources of salt include salted fish and seafood, soy sauce and miso soup (Japan). A key contributor to salt in the diets of the populations of several of the countries in the region is salted vegetables and preserved fruits, which is atypical compared to most other countries around the world.

In Japan, the main contributors to salt in the diet are as follows:

Soy sauce	20%
Fish and seafood	16.2%
Soup	15.3%
Salted vegetables and fruit	13.8%
Salt added during cooking	9.9%
Salt added in restaurants, fast food and at home	9.5%
Other sauces	6.7%
Bread	4%

In many countries, but in particular the Pacific Island countries, there is a trend towards increased consumption of processed foods.²¹ A review of sources in salt in the diet in Fiji revealed showed the majority of salt was coming from the following foods:

Iodized salt	27%
Bread	17.4%
Roti	14.5%
Fish and seafood	12.1%
Savory biscuits	9%
Meat	7%

There are also signs of a slow but gradual trend towards food prepared away from the home including fast foods and takeaways. These trends are more pronounced in urban than rural areas.

2.6 Knowledge and behavior

There is a limited amount of information on consumer knowledge or behaviors relevant to salt and health in the region. Over half of women in a consumer survey undertaken in Mongolia said that they were trying to reduce salt intakes.²² In Australia around 75% claim they don't add salt during cooking or at the table.²³ However, only a third said they regularly try and buy low or reduced salt foods.²³ In Japan, China and Korea, it is standard to add salt to dishes on serving and people are more likely to add salt themselves prior to consumption.^{20,24} One study in Vietnam reported that 98% of participants reported cooking with salt and 75% reported adding salt regularly whilst eating.²⁵ In contrast 52% of middle-aged Korean females reported trying to reduce salt intakes.²⁶

In Fiji, it has been reported that people buy packets of MSG which they add directly to food before eating or use during cooking and food preparation.²⁷ Similarly 98% of people in Lao reported using MSG daily.²⁸

Some people in some areas are increasingly relying on food eaten outside of the home. For example, Malaysians often eat at hawker centers where a meal is likely to contain more than the daily recommended amount of salt (6g).¹⁹ Further information on the extent to which such practices contribute to overall sodium intake in the region is needed.

Iodine deficiency is a problem in most of the countries and in many cases has been made a higher priority than salt reduction. There is evidence to suggest that iodization policies may inadvertently contribute to higher salt intakes as studies undertaken in both

Australia and Mongolia provide clear evidence that consumers are increasing their salt intakes (or at least purchases) as a result of information about the importance of increasing iodine intakes.^{22,29}

Understanding labeling is likely to be a problem in many countries. Whereas imported foods may include information on the Nutrition Information Panel (NIP) of the exporting country, it is not normal for the information to appear in the local language

Table 1: Summary of salt intakes, sources of salt in the diet and dietary guidelines (for the countries where salt intake data was available)

	Salt intake (g/day) M	Salt intake (g/day) F	Measure [¥]	Main foods contributing to salt	Most recent NPAN	Most recent dietary guidelines	Mention salt
American Samoa³⁰	5.5	5.5	DR	Tinned fish, corned beef	1996 draft	-	-
Fiji²⁷	5.4	5.2	DR	Iodized salt, bread, roti and savory biscuits, fish and seafood	FPAN 2006	1999	Y
Guam³¹	8.8	7.2	DR	Processed foods	-	Pacific Islands pyramid	Y
Marshall Islands³²	7	7	UA	-	NPAN 1995 draft	1995	N
Micronesia³³	5	5	UA	-	NPAN 1999	1999	N
N. Mariana Islands³⁴	4.2-7.3 (1-10yrs)	4.2-7.3 (1-10yrs)	DR	Canned luncheon meats	1996 Food and Nutrition Policy	1996	Y
Papua New Guinea^{35*}	2.4g	1.8g	UA	-	2000 National Food Security Policy	-	-
Samoa³⁶	4.4	4.4	DR	Tinned fish, corned beef	NPAN 2002	1993	N
Solomon Islands³⁷	3.9-6.8	3.9-6.8	UA	-	Healthy Lifestyle Plan 2007-2017 draft	Drafted	-
Australia³⁸	3.2-12	3.2-12	Both	Bread and cereals, meat products, convenience foods, dairy, biscuits, snackfoods	-	2003	Y
Hong Kong³⁹	12.1	11.3	UA	Savory biscuits, meat/seafood, crisps and nuts, preserved fruits, imitation shark fin soups	-	See China	Y
Japan⁴⁰	12 – 13.3	10.7-11.2	UA	Soy sauce, fish/seafood, soup, salted veg, sauces, bread, meat, noodles, fast food	-	2000	Y

New Zealand ⁴¹	7.6	5.4	DR	As Australia	NZ Health Strategy 2000	2003	Y
Cambodia ^{42*}	>10	>10	Both	Only 12% adults with adequate iodized salt	NNS 2009	-	-
China ^{43*}	12	12	DR	Soy sauce, vegetables, sodium bicarbonate (tenderizer), noodles, bread	-	2001	Y
Korea, Republic of ^{44*}	13.3	11.3	DR	Processed foods, pickled vegetables, fish, bean paste, salted fish, soy sauce	Health promotion policy by MOH	2003	Y
Malaysia ⁴⁵	7.0	5.8	DR	Salted fish, soy sauce, noodles, salted nuts, stock cubes, cheese, coated chicken, pickles ⁴⁶	NPAN 1995	2000	Y
Mongolia ^{22*}	14.6	12.6	UA	-	NPAN 2001	-	-
Singapore ⁴⁷	9	7.6	DR	As for Malaysia	Health Promotion Board work ongoing	2003	Y

* Iodisation policy in place

¥ DR; dietary recall UA; urinary analysis

2.7 Salt reduction initiatives

2.7.1 Government action

As highlighted above, 26 of the countries have some sort of dietary guidelines and 12 of these of these make reference to salt. However, there are no coordinated government salt reduction strategies in the Western Pacific Region. A number of countries have sodium labeling legislation in place and there are some signs of moves towards government action in Australia, Singapore, Malaysia and Mongolia.

The Singapore Health Promotion Board (HPB) is active in salt reduction. It has set up a food composition database and runs the labeling program known as the Healthier Choice Symbol which includes criteria for sodium. It has also worked with independent and chain restaurants to provide healthier dishes (including 25% reduced salt) both directly and through the public procurement system. The HPB also works with the Ministry of Education to help schools conduct culinary training for tuck-shop vendors and assess food and drinks sold in the tuck-shops.

The Australian Department of Health and Ageing has recently established a Food and Health Dialogue to engage the food industry to reduce salt in key products such as bread and breakfast cereals. The Malaysian Health Minister has made an announcement urging the food industry to reduce salt in foods. The Malaysian government also has plans to develop a healthy choices labeling scheme that will include criteria for salt. In Mongolia, the Department of Health started the Healthy

Lifestyle-Healthy Diet Campaign in 1996 which warns the public to limit their intakes of salty foods.

Public education campaigns have been successful in reducing salt in Japan with average salt intakes decreasing yearly, from 13.5 g in 1975 to 11.7 g in 1987 resulting in a corresponding reduction in disease mortality. Evaluation of local community education campaigns⁴⁸ also demonstrated success in reducing population salt intakes. However, WASH claims that Japan is now becoming one of the most salt friendly nations and there are some indications that salt intakes are rising again.⁴⁹

2.7.2 Food industry-led action

Salt reduction has been on the agenda of companies in Australia and New Zealand for many years driven partly by the Heart Foundation Tick program.⁵⁰ The Australian Food and Grocery Council has also been promoting the %DI labeling scheme in Australia to inform consumers about the nutrient levels of various products. No other industry-led salt reduction initiatives were identified in the region.

2.7.3 NGO action

NGO-led research and advocacy activity is increasing. WASH has been encouraging research and advocacy organizations around the world to raise the profile of the need for salt reduction strategies since 2005 and now has 379 members in 80 countries, including 66 members in six countries in the Western Pacific Region. Forty three of these members are in Australia where AWASH, hosted by the George Institute for International Health, launched its high profile Drop the Salt! campaign in May 2007 and is leading negotiations with the food industry, advocating for government action and establishing comprehensive monitoring and surveillance systems in Australia.³⁸ Stakeholder research has revealed that AWASH has had considerable impact in terms of both influencing industry action and raising salt higher as a priority on the government's agenda.

The George Institute for International Health also has an office in China and a member of staff is holding preliminary discussions about the feasibility of establishing a Chinese Division of World Action on Salt and Health (C-WASH) there. Preliminary discussions are also being held about the possibility of establishing a NZ branch of WASH or merging with AWASH so that activities cover both countries.

The Heart Foundation in New Zealand is coordinating discussions with the food industry on salt reduction in bread in New Zealand.⁵¹ The Japanese Hypertension Society has established a working group, published guidelines calling for a reduction to less than 6 g salt per day, published relevant booklets on how to measure salt intake in clinics and low salt recipes, and approached government to make nutritional labeling, including salt content, mandatory. Similar NGO activities to raise awareness of the need for salt reduction and call for government action are also ongoing in the Philippines and Malaysia.

2.8 Regional differences and summary of salt reduction initiatives in each region

This overview has highlighted some regional differences and identified the salt reduction initiatives in each region. These can be summarized as:

- **Pacific Island Countries**
Relatively low salt intakes, almost complete reliance on imported foods, range of nutrition action plans and series of meetings on food, work on impact of trade and fiscal policies. Report on salt intakes and trends in Fiji and modeling of cost effectiveness of salt reduction strategies in PICs underway but no current salt reduction initiatives identified.
- **Vietnam, Cambodia and Lao PDR**
Little available information on salt intakes or sources, although predominantly traditional diet prevails. No salt reduction initiatives identified although discussions initiated in Vietnam.
- **Malaysia, Singapore, Brunei, Philippines, Mongolia**
High salt intakes, move towards reliance on imports particularly in urban areas, but also strong tradition of salted vegetable dishes. Strong NGO action. Draft action plans prepared by WASH for Malaysia and Singapore. Malaysian Health Minister encouraging manufacturers to reduce salt levels. Meeting on salt reduction in region planned for Philippines in February 2010.
- **China and Hong Kong**
High salt intakes. High discretionary salt usage particularly in rural areas. Government action on labeling. China salt substitute initiative currently being expanded. Discussions about establishing C-WASH underway.
- **Japan, Korea, Australia and New Zealand**
High salt intakes. Strong NGO action. AWASH has comprehensive strategy and preliminary discussions about establishing NZWASH underway. Food industry engaged and taking action in Australia. Some government activity in Japan, Australia and New Zealand but no strong leadership.

Further details of activities in different countries and regions can be found in the country profiles (**Annex 1**) and summary of action in each of the sub-regions (**Annex 2**).

3. International overview of salt reduction initiatives and characteristics of strategies

This overview draws on a number of recent reviews of international salt reduction activity,^{15,52,53} supplemented by information obtained from a review of other existing literature, including academic journal reports, WASH country profiles and newsletters, and government reports identified through Google searches or on Government or NGO websites. The brief overview here is given by region; the strategies are discussed in more detail in relation to their characteristics and elements and further details of the national initiatives are listed in **Annex 3**.

3.1 Salt reduction around the world

3.1.1 Salt reduction in Europe

Estimations of salt intake levels in Europe range from 5.5-10.8 g per day.³⁰ More countries have developed salt reduction initiatives in Europe than any other region; it is also where actions have been going on for the longest. Moreover, Europe contains the two countries that have clearly demonstrated an impact on population salt intakes (UK and Finland).

There is also action at the regional level in the form of the “Framework for National Salt Initiatives” established by the European Commission’s Platform on Diet, Physical Activity and Health. As a means of generating momentum for required action, the Framework aims to support and reinforce national plans, enable comparison of progress across the EU, and facilitate coordinated messages for reformulation of food products across the food industry.⁵⁴

There is specific activity on salt reduction in 22 countries. These countries, along with an additional eight, also have WASH representatives. Government strategies exist in eight countries and five more are developing them. Three of the government strategies (UK, Finland and Ireland) are comprehensive, stand-alone strategies comprising three key elements: engagement with the food industry to encourage reformulation, consumer awareness, and labeling (more detail in the next section). Four of the countries (UK, Finland, Ireland and France), have demonstrated a reduction in salt levels in foods and two of these (UK and Finland) have also demonstrated a reduction in population salt intakes. Several initiatives have managed to raise consumer awareness, and have been credited with changing consumer behavior.

Case study 1:
FSA salt reduction strategy

Since 2003 the FSA has had in place a program of work to help UK consumers reduce their salt intakes. High salt intakes contribute to high blood pressure, which can increase the risk of heart disease and stroke. The Agency's initiative forms an important part of our work to make healthy eating an easier option and reduce diet-related diseases. The program of work to achieve that goal has three main strands:

- a public campaign to raise consumers' awareness of why a high salt intake is bad for their health and what they can do to reduce intakes
- working with the food industry to reduce levels of salt in foods as around 75% of the salt we eat is already in the everyday foods that we buy
- front-of-pack labeling to provide additional information to consumers on the levels of salt (and other nutrients) in food

In March 2006 the FSA published the original voluntary salt reduction targets for 85 categories of food, as guidance to the food industry. The Agency committed to review the targets in 2008, to formally assess progress to date and to establish what further reductions were necessary to maintain progress towards the 6g daily intake target. In May 2009 the Agency published revised salt reduction targets for 2012, for 80 categories of foods. These are more challenging than the previous targets for 2010.

Evaluation of the campaign through monitoring changes in consumers' claimed behaviour suggests that:

- the number of consumers cutting down on salt has increased by around one-third
- there has been a 10-fold increase in awareness of the 6g a day message
- the number of consumers trying to cut down on salt by checking labels has doubled

Additional monitoring in relation to salt intakes revealed that

- population intakes had been reduced from 9.5g to 8.6g/day since the previous dietary survey conducted in 2001

3.1.2 Salt reduction initiatives in the Americas

There is a wide range of activity underway in the Americas including Canada and many countries in South America, Central America, and the English Caribbean Community. Estimates of salt intakes range from 5 to 19 g/day with most population targets being <5 g except for Argentina which is <6 g.

Government programs with the three key elements of product reformulation, consumer awareness and labeling are in place in Argentina, Brazil and Canada. The programs in Brazil and Argentina also contain, or are considering, restrictions on marketing in relation to high salt products. Governments have also committed and are developing programs in Barbados and in the OECS countries as well as Chile and Paraguay. A range of other countries including Costa Rica, Panama and Uruguay have dietary guidelines, but no specific programs.

The fact that there is no government salt reduction activity underway in the USA has been identified as a barrier to more effective action in the region.¹⁵

In addition to the countries listed above WASH has members in Cuba, Dutch West Indies, Jamaica, Mexico and Venezuela.

Pan America Health Organization consultation,¹⁵ meeting⁵⁵ and policy statement⁵⁶

A group of independent experts on salt and health convened by the PAHO has recently issued a policy statement outlining a policy goal to achieve a gradual and sustained drop in dietary salt intake to reach national targets of the internationally recommended target of less than 5 g/person by 2020. It has issued recommendations to national governments, NGOs health care organizations and associations of health professionals; the food industry; and to the PAHO. Recommendations to national governments include development of salt reduction programs comprising of food industry reformulation, standardized labeling, educational programs and monitoring and surveillance. In addition, it requests that national governments review salt fortification policies to be in accordance with the recommended salt intake, extend official support to CODEX committee on food labeling for salt/sodium to be included as a mandatory component of nutrition labels and develop legislative or regulatory frameworks to implement the WHO recommendations on advertising of foods to children. Recommendations to the PAHO include to ensure good communications, develop a template for national report cards and report to Member States on comparative national baselines and provide research, monitoring, networking and advocacy support to Member States.

Case Study 2:

Brazil: Comprehensive strategy in development; industry collaboration in place

Average salt intakes in Brazil are estimated at 9.6 g/day, exclusive of food eaten outside the home. Nutritional labelling is mandatory in Brazil.

In addition to labelling and formulation of dietary guidelines, Brazil is involved in several activities related to salt reduction including:

- Planned research to determine the nutrient content – including salt – of selected processed foods, including meat and dairy products, bakery goods, ready-to-eat meals and snack foods. Foods. Nutrition monitoring is the responsibility of the National Health Surveillance Agency (ANVISA), which plans to establish a database with nutritional profiles of foods together with a network of laboratories with the capacity to analyze nutrient content.
- Planned monitoring program for reductions in salt, sugar and fat content achieved in collaboration with industry

See <http://www.anvisa.gov.br> or contact ANVISA directly at infovisa@anvisa.gov.br for further information.

3.1.3 Salt reduction initiatives in Asia

Estimations of salt intake levels in Asia range from 6 - 21 g per person per day, although there are few countries with reliable measures. No governments have set population targets. The Japanese Hypertension Society has published guidelines calling for a reduction to <6 g/day. The only government action identified was in China, on labeling. Media reports also indicate Malaysia and Singapore are considering action on salt reduction (these countries and Korea are covered in the previous section as they are part of the Western Pacific Region). There is a limited amount of information from the rest of the region. Whilst estimates of dietary salt intakes are available for Turkey and

Bangladesh there appears to be no government strategies in place. NGO activity to raise awareness of the issue and push for government action is underway or has taken place in Iran, Bangladesh, Nepal and Turkey. In addition to these four countries and the countries in the Western Pacific Region, WASH has members in 12 other countries in Asia.

3.1.4 Salt reduction initiatives in Africa

There are no available measurements or estimates of salt intakes in Africa and no population targets. Two countries (Nigeria and South Africa) have dietary guidelines for salt intake, but there are no government-led salt reduction strategies in Africa. NGO activity to raise awareness of salt as a major risk factor for hypertension has taken place in one country (Cameroon). WASH currently has active participants from 14 African countries.

3.2 Key characteristics and elements of salt reduction strategies

As shown in sections 2 and 3.1, salt reduction strategies are now being implemented all over the world and take a number of different forms. A review of these strategies reveals that they can be characterized as follows.

1. Governance and strategy development
 - a. Establishing leadership and roles
 - b. Mobilizing support
 - c. Adoption of population targets and/or dietary guidance
 - d. Use of voluntary or mandatory regulatory measures
 - e. Development of salt-specific or broader strategy
2. Baseline assessment, monitoring and evaluation
 - a. Salt intakes
 - b. Salt levels in foods
 - c. Consumer awareness
3. Action to reduce population salt intake
 - a. Engagement with the food industry to encourage product reformulation
 - b. Consumer awareness and education campaigns
 - c. Labeling and advertising
4. NGO / advocacy action
 - a. WASH membership and participation in World Salt Awareness Week
 - b. Media and communications
 - c. Food industry engagement
 - d. Government engagement

Some of the key characteristics of the strategies identified in sections three and four are documented in **Table 1**. Only strategies where there was a clear leading organization coordinating more than one initiative (21 in total) were included in the table. Information on other national initiatives is included in **Annex 3**. Each set of characteristics of salt reduction strategies are now discussed in turn.

Table 2: Summary of international salt reduction strategies

Country	Baseline Assessment	Sodium levels	Government leadership	Food industry Reformulation		Labeling/ Advertising		Awareness Campaign	NGO activity
	<i>Salt intakes</i>		<i>S / Med / W</i>	<i>Y / N</i>	<i>V / M</i>	<i>NIP/ FOP</i>	<i>V/Ma</i>	<i>Y / N</i>	
Argentina	D=12.5g	N	S (6g)	P	M	FOP	Ma	-	-
Australia	D=3-8g adults, up to 9g kids UA= 6.5-12g	Y	W (6g)	Y	V	NIP FOP	Ma V	NGO	Y
Brazil	D=9.6g	P	Med (5g)	N	-	NIP	Ma	-	Y
Canada	D=7.8g	P	Med	Y	V	NIP FOP	Ma V	NGO	Y
Chile	D=10g	P	Med	N	-	NIP	Ma	G – HP	N
China	D=12g	N	W (6g)	N	-	NIP	V		Y
Finland	UA = 7.6-10g	Y	S	Y	V	FOP	Ma	NGOs	Y
France	UA=8.4g	Y	Med (8g)	N	-	NIP	V	G – HP	N
Ireland	D=10g		S (6g)	Y	V	NIP FOP	Ma V	G – Me	Y
Italy	D=10.8g	P	Med	Y	V	-	-	-	-
Japan	D=13.2g		Med (6g)	N	-	-	-	NGO	Y
Malaysia	D=6.4g	N	W	N	-	-	-	NGO	Y
Netherlands	D=9g	Y	W	Y	V	NIP	V	NGO	Y
New Zealand	D=7.6g M, 5.4g F	Y	Med	N	-	NIP FOP	Ma V	NGO	Y
Portugal	D=11.9g			Y	M	-	-	-	-
Singapore	D=8.8g	Y	Med	-	-	NIP	V	G	Y
Spain	D=5.4g	N	Med (5g)	Y	V	-	-	G - HP	N
Sweden	D=9.5g boys, 6.7g girls UA=11.7g	N	Med	-	-	FOP	Ma	-	-
Switzerland	UA= 8.1g F, 10.6g M	P	Med (8g)	-	-	-	-	P	Y
UK	D = 11g M, 8.1g W UA=8.6g	Y	S (6g)	Y	V	NIP FOP	Ma V	G - SM	Y
USA	D=8.6g	Y	W	Y	V	NIP FOP	Ma V	NGO	Y

D - Salt intake determined through dietary analysis

G – Government

HP – Health Promotion

Ma- Mandatory

UA - Salt intake determined by urinary analysis

Med- Medium

Me– Media

P - Planned

S – Strong

SM – Social Marketing

V – Voluntary

W - Weak

3.2.1 Leadership and roles

The role of the different stakeholders is a critical difference between strategies. Some strategies are led by government, some by NGOs and some by the food industry.

Specifically, from the 21 countries included in the table:

- Five countries (Argentina, Brazil, Finland, Ireland and the UK) have strong government leadership including comprehensive government-led strategies with targets for population intakes, either voluntary or mandatory requirements for the food industry to reduce salt in foods, and consumer awareness and labeling initiatives.
- 11 countries (Canada, Chile, France, Italy, Japan, New Zealand, Portugal, Singapore, Spain, Sweden and Switzerland) have medium government leadership defined as having some government initiatives but no comprehensive strategy.
- The other five countries have initiatives that are led by NGOs (Australia, China, Malaysia, USA) or the food industry (The Netherlands).

Governments have either taken complete leadership and developed a comprehensive strategy as in the UK, or simply set a population target, as in Switzerland. Six national governments (Finland, Ireland, Italy, Portugal, Spain and the UK) are working with the food industry to reduce salt in foods. Fifteen have stipulated criteria for sodium labeling and six (Chile, France, Ireland, Singapore, Spain and the UK) have developed consumer awareness campaigns.

Few examples of industry leadership on salt reduction initiatives were identified (although this could be a function of the nature of reporting). One exception is the Netherlands, where the trade association of the food industry has set up a self regulatory task force to address the use of salt by the food industry, and has established its own targets for reductions. Another organization has been given the remit to monitor progress.

NGOs and advocacy organizations have often taken the lead on salt reduction in the absence of government leadership or industry action. Whilst government has supported need for action on salt in Canada, most of the work underway is led by the Stroke Network. The advocacy organization, Center for Science in the Public Interest (CSPI), is also the lead organization on salt reduction in the United States where there is no government program. AWASH has established a comprehensive strategy on salt reduction in Australia, and is leading negotiations with the food industry at the same time as advocating for government leadership.

3.2.2 Mobilizing support

Whichever organization takes the lead it is important to mobilize support for action. This includes ensuring clear agreement on the evidence and that it is widely understood by key stakeholders. This can be done through the preparation of briefing documents or position statements which high profile academics or government representatives can promote through the media. Examples of success from other countries can be highlighted through reports or inviting key people to speak at meetings or conferences. An example of this was AWASH inviting the Chair of the UK FSA, to speak at an event on salt and children in Sydney, Australia. This attracted considerable media attention

and a wide range of influential people who were keen to learn from the experience of the UK.

Undertaking stakeholder research and consultation to ensure stakeholder positions are understood and built on, establishing advisory groups and organizing meetings are all ways of mobilizing support. Not all stakeholders will agree on all issues so it is helpful to identify points of common interest and work towards a shared agenda.

3.2.3 Clarifying objectives - establishing population and dietary targets

From the countries included in the table, ten countries have population targets. These range from 5 g/day to 8 g/day, with most at 6 g/day. In Europe, population targets have been identified for nine countries (**Table 1**) and range from 5 - 8 g, although it is likely that many other EU countries are working to the WHO 5 g target.

From the broader review of international initiatives, eight countries (mostly Eastern European) were identified as having dietary guidelines for salt in place but no specific programs to ensure these are achieved. It is likely that many of the other countries with salt initiatives in place also had dietary guidelines but this information was not specified in any of the review documents used for this analysis.

3.2.4 Adopting voluntary or mandatory approaches

Both voluntary and mandatory legislative tools have been used in salt reduction strategies. The UK FSA set salt targets, and asked the food industry to meet them on a voluntary basis, with clear monitoring and publicizing of progress. No country at this stage has legislated for salt levels in foods, although Argentina has introduced a bill that would do this. Finland has legislation that stipulates high salt warnings on different foods; this has led to the reformulation of a range of products as well as many products disappearing from the market.

Both voluntary measures or legislation can be effective provided that there are clear mechanisms for monitoring with penalties for non compliance.⁵⁷ Highlighting food industry achievements or lack of them is a very useful mechanism and can be used to incentivize companies to make changes. This can be done in relation to progress by the food industry as a whole or by naming particular companies. In Ireland, progress is highlighted without reference to individual companies whereas in the UK the FSA publicizes information on company action plans and progress. In Finland, product surveys are done regularly to assess salt levels of different brands and the results are publicized widely in the media.

Voluntary measures are likely to be easier and quicker to implement as well as being more flexible than legislation.

3.2.5 Developing salt-specific versus broader strategies

It is often argued that there is no good reason for addressing salt independently of other nutrients. This is the argument of the government and supported by some key public health organizations in Australia. The counter argument is that unless the focus is specifically on salt then it gets lost amongst the wider range of nutrition initiatives and the various steps needed to effectively reduce population salt intakes, including systematic monitoring of salt levels in foods, are likely to be undertaken in the absence of a salt specific strategy.¹⁵ The UK FSA has led the way on salt reduction and, whilst it is now

engaging the food industry on wider reformulation activities, still maintains that it was and continues to be better to address salt reduction separately.

There is also a clear and proven effective strategy for reducing population salt intakes whereas there is still less clarity on how to approach some of the other issues. Whilst countries may have a range of health problems to address there are few issues that can be tackled so cost effectively in such a definitive timescale.

3.3 Monitoring and evaluation

There are two key elements of any monitoring strategy

- Monitoring of salt intakes
- Monitoring of composition of foods

Consumer awareness and behavior is also a useful indicator for monitoring.

3.3.1 Monitoring salt intakes

From Table 2:

- Seven countries (Australia, Finland, France, New Zealand, Sweden, Switzerland and the UK) have assessment of salt intakes based on 24-hour urinary analysis which is seen as the gold standard.
- The remaining 14 countries have estimated intakes using dietary surveys.

Salt intakes are best monitored by measuring sodium excretion.⁵⁸ Dietary surveys tend to significantly underestimate salt intakes by an average of 22%⁵⁹ and therefore 24-hour urinary sodium analysis has become the gold standard method of measuring sodium intakes in population surveys.⁶⁰⁻⁶² A 24 hour period is necessary to capture the variations in a day as healthy individuals tend to have an elevated level of electrolyte excretion at or before midday and a minimum at night towards the end of sleep.³⁰ However, the 24-hour excretion method still tends to underestimate true intake as it takes no account of electrolyte loss other than via the kidney which doesn't take account of electrolytes lost through sweat or in the feces. This can be accounted for in population studies. 24-hour collection not prone to reporting bias but places a high burden on the participant and requires a complete collection which is difficult to validate. Researchers generally accept 24-hour urinary sodium as a good indicator of sodium intake.

Overnight urines are a lower burden alternative which may be likely to yield a higher rate of compliance in larger epidemiological studies. The collection begins once the participant has voided before bed and then all urine during the night and the first void in the morning, constitute the overnight collection. Sodium excretion is calculated and corrected to an eight hour base. However, this is not as reliable.

3.3.2 Estimates based on dietary surveys

Estimates based on dietary surveys are likely to be too low due to the difficulties of adequately quantifying the amount of salt added during cooking and at the table, the variation of sodium content of manufactured foods, and under-reporting. However, dietary surveys are still crucial to understand what foods people are eating so that it is possible to assess the contribution of different foods to sodium intakes.

3.3.3 Monitoring composition of foods

Data on the salt content of foods can be used to monitor progress in reducing salt in foods. Eight countries identified in the table (including Australia, Finland, France, Netherlands, New Zealand, Singapore, the UK and USA) have established databases for monitoring the composition of foods.^{63,64} These range from generic food composition databases set up to monitor broader changes to the food supply as a whole to more specific databases set up to monitor changes in relation to the sodium content of particular food categories. For example, the USDA database contains information on the nutrient content of natural and processed foods but data is not available at brand level, limiting its use in targeting individual food manufacturers. The UK FSA nutrient databank contains information on the leading brands in the market for the main contributors of salt in the diet. The AWASH database contains information on the nutrient content of over 80% of the market for the major foods contributing to salt in Australian diets. This will enable tracking of changes to the mean sodium composition of processed foods at both an individual branded product and a food category level.⁶³

Whilst a comprehensive nutrient databank that allows specific brands of products to be tracked over time as well as assessing average salt contents of product categories is likely to provide the strongest monitoring results, regular ad hoc surveys of salt levels in different food products can also be useful to highlight salt levels and monitor changes over time.

3.3.4 Evidence of success

Despite the wide range of initiatives in place, only three countries, the UK,¹¹ Finland,⁶⁵ and Japan⁴⁹ have so far demonstrated a clearly documented impact on population salt intakes. Finland commenced work to reduce salt in 1975 and by 2002 had demonstrated a 3 g reduction in average population salt intakes from (from 12 to 9 g per person per day). In the same period there was a decrease of around 60% in CHD and stroke mortality.^{66,67} The UK FSA started working with the food industry in 2003 and launched its consumer education campaign in 2005. By 2008 it had demonstrated a 0.9 g reduction from 9.5 to 8.6 g per person per day.¹³ The UK attributes this reduction in intakes to significant falls in the salt content of many key product categories,⁶⁸ which is likely to have been driven by the establishment of clear targets for salt levels in foods. The Finnish success is more likely to be attributed to labeling legislation forcing reductions in salt levels in foods.⁶⁹

Despite differences related to legislation or voluntary negotiations with industry, both the UK and the Finnish salt reduction strategies are characterized by strong government leadership including the establishment of clear population targets (6 g and 5 g respectively) and a clearly defined timescale, which are seen as critical elements to their success.

Japan previously managed to reduce salt intakes year on year through a sustained public education program but recent estimates indicate that, in the absence of a program to reduce salt in key foods, salt intakes are once again gradually rising.⁴⁹

3.3.5 Monitoring consumer awareness

In addition to monitoring in terms of sodium intakes and composition of foods, it can also be useful to monitor consumer awareness and practices related to salt. Both the UK and Finland have also demonstrated changes in consumer awareness. Some other

countries (e.g. Australia) have also established monitoring systems to demonstrate any change in consumer awareness.

3.4 Actions taken to reduce population salt intakes

3.4.1 Engaging the food industry to encourage product reformulation

Eleven of the 21 salt reduction strategies include a program of working with the food industry to reformulate foods. All of these are voluntary. Portugal and Argentina are currently considering legislation for salt levels in foods. Countries have adopted a variety of actions to encourage the industry to reformulate foods. Some have set targets. For example, the EU Framework has suggested a target of 16% reduction in salt levels in processed foods over four years which many countries have adopted. The UK has introduced voluntary targets for 85 different food categories, and Finland established criteria for high and low salt labels.

A key component of this process is deciding the foods to focus on. This is likely to vary between countries. In most countries that have adopted a Western diet, processed foods make up between 75 and 80% of salt in the diets with around 10% occurring in foods naturally and the remainder added during cooking or at the table.⁷⁰ In other countries, such as China, salt added during cooking or at the table constitutes around 80% of the salt in people's diets.³⁰ In this case there is an opportunity for influencing salt intakes by persuading people to reduce the amount of salt used in cooking or at the table or through the use of salt substitutes at home. In most cases, however, where processed foods contribute to the vast majority of salt in the diet, the only way to effectively reduce population salt intakes is by reducing the amount of salt in processed foods (e.g. foods eaten out of the home in restaurants or catering establishments and fast foods/takeaways). Some of the strategies identified focus on all foods and others identify particular products or a number of product categories.

The following are some examples of where countries have focused their efforts in relation to working with the food industry to reduce salt contents of foods to date:

- Europe: About half of the strategies that focus on the food industry span all food products, some target a number of key product categories and the remainder focus just on bread, which is the biggest contributor to salt in the diet in most parts of Europe.
- UK: The UK has taken an across-the-board approach, with targets for reductions in 85 product categories
- Finland: Finland also took an across-the-board approach, with mandatory labeling of low salt and high salt foods to drive reformulation in specific categories
- EU Framework for national salt initiatives: The Framework suggests that Member States select at least five categories to focus on out of the following 12 categories:
 - Bread, meat products, cheeses, ready meals, soups, breakfast cereals, fish products, crisps and savory snacks, catering meals, restaurant meals; sauces, condiments and spices; and potato products.
- Brazil: The strategy targets meat, dairy products, bakery goods, ready-to-eat meals and snack foods, on the basis of voluntary cooperation with the food industry and close monitoring of step-wise reductions.
- Canada: Canada has established a working group to encourage voluntary reductions.
- France, New Zealand, Spain, Greece, Iceland and Poland all have a specific focus on bread. Brazil and Chile also have specific initiatives on bread
- In Australia, AWASH has advocated for across-the-board reductions in line with the UK approach but with a particular focus on bread and cereal products, processed meat products and fast foods.
- Manufacturers are voluntarily using salt replacers in Costa Rica and retailers promoting low salt foods in Panama.

An important consideration for reformulation is the technical factors involved in reducing salt. Salt was traditionally added to foods to preserve it. Salt acts as a preservative by reducing water activity, which inhibits or slows the growth of food poisoning or spoilage microorganisms. However, relatively few of today's processed foods rely on salt as a preservative. A substantial amount of salt can therefore often be taken out of different foods without too many technical challenges.

A range of natural ingredients such as pepper, garlic, curry, tarragon and oregano, vinegar, lemon juice, wine and smoke flavor can all be used as replacements for salt in foods. Chilli powder is often a blend made with salt and stock cubes and bouillon often contain salt so care needs to be taken when using these instead.

Where the salt contributes to the compositional structure or safety of food as opposed to just the taste, some form of salt replacer may need to be considered. Salt substitutes have been successfully used in Finland (Pansalt). In China the China Salt Substitute project showed that replacing salt with a salt substitute (lower sodium, higher potassium) was effective in reducing blood pressure and further studies are underway. However, the jury is still out as to whether they provide a viable option on a wider scale.

A lot of commercial research is underway in this field but there are still no fully satisfactory alternatives. The most common form of salt replacer - potassium chloride - tends to be expensive and is not suitable for people with kidney problems. Also, more than 25% substitution with potassium chloride may result in a metallic taste. Some adverse health outcomes have also been linked to salt replacers so it is important that any product is fully tested before being promoted or introduced onto the market.

The food industry's preferred response to pressure to reduce salt in foods is to provide low salt varieties of standard products. However, this relies on consumers making the right choice. Consumers may be unaware of the need to reduce their salt intakes or may associate low salt with low taste, and are therefore not that likely to make the right choices. If it is possible to make low salt alternatives then there is really no strong justification for the food industry not simply reducing the salt content of the standard products.

Another critical issue around reformulation is whether the changes should be introduced by "stealth" or actively marketed to consumers. Consumers may be more likely to accept reformulated products when they do not know they have been reformulated or they may be more likely to accept them if they are marketed as "healthier" products. Thus a company has to decide whether to reformulate foods without informing consumers to avoid the problem of consumers being turned away from a product because they perceive it to be inferior. Or, alternatively, they may want to use reformulation as an opportunity to market the food based on increased health benefits. Companies can both respond to and set the market trends in this respect. For example, several companies report that their consumers associate low salt with low taste and therefore have decided against promoting the reduced salt content of products. In this case, changing by "stealth" is the preferred way forward. In other situations, such as where consumer awareness about the importance of reducing salt intakes has increased due to the consumer campaigns (as in the UK), retailers and manufacturers are increasingly promoting the reduced salt content of their products.

Salt replacers/substitutes

Examples of trade products that can be used as salt replacers are:

- Carbelac (yeast extracts)
- Provesta (yeast extracts)
- Mycoscent (derived from mycoprotein)
- Aromild (yeast extracts)
- Pansalt (a patented salt replacer containing KCl, magnesium sulphate and lysine hydrochloride)

Whilst a salt substitute has been key to the reduction of salt intakes in Finland and trials in China have shown the use of salt substitutes can reduce blood pressure as effectively as common drug treatments, their wider applicability needs to be examined on a case by case basis. Cost, taste, consumer acceptability and safety all need to be considered.

Some of these products contain inosine which has been linked to increased risk of uric acid-related problems such as gout or kidney stones in high doses over prolonged periods. The safety of inosine for young children, pregnant or nursing women has not been established.

In eight of the 15 countries (Australia, Canada, Finland, Japan, Malaysia, Netherlands, New Zealand and USA), the consumer awareness-raising initiatives are led by NGOs. In the remainder they are led by government, usually as part of a broader health promotion (HP) campaign. The UK is the only country with a comprehensive stand-alone social marketing campaign to reduce population salt intakes.

The approaches to consumer awareness campaigns are varied. Half the campaigns focus on salt alone with a variety of messages and approaches ranging from comprehensive, multi-faceted social marketing campaigns to single message campaigns simply advising consumers not to add salt to foods. The remaining campaigns integrate salt messages into broader nutrition campaigns.

Brazil and Argentina's approach to consumer awareness seems to be through labeling and restricting advertising. Canada's Food Guide has been revised to include advice on reading and interpreting nutritional information, including on salt. The Canadian Stroke Network has established a dedicated salt website and is highlighting salt in children's meals through advocacy activities. Salt messages are distributed as part of a dedicated consumer awareness program on salt in Panama.

The food industry also has a key role in relation to raising consumer awareness. Some examples include Heinz putting slashes of the front of all their cans saying "Check out our salt levels", the retailer Marks and Spencers having posters in store saying "We are taking salt out of our foods faster than you can say sodium chloride".

One factor pertinent to raising consumer awareness is whether to use the term "sodium" or "salt." WHO defines "dietary salt intake" as total sodium intake from all salt sources. While it is the sodium in salt that is bad for health and there are other sources of sodium in foods (e.g. sodium bicarbonate and monosodium glutamate), consumers are more familiar with "salt." Thus most initiatives have referred to "salt" in their campaigns. It should be noted, however, that experts favor reference to "sodium chloride" when it comes to technical aspects of reduction. However, sodium chloride comprises the vast majority of sodium in most diets and is such the main practical source of concern. One gram of sodium chloride contains 17.1 mmol, or 393.4 mg of sodium.⁹ To translate sodium into salt you therefore have to multiply by 2.5.

Another communication issue around salt concerns the iodization of salt. Iodine deficiency continues to be a problem in many parts of the world (not just developing countries) and the WHO's established policy of combating iodine deficiency is through the use of iodized salt, either by selling iodized salt to the consumer or by replacing salt in foods with iodized salt. This policy has been proven to be effective in many instances but there is a danger that it may inadvertently lead to consumer confusion about salt. For example, research in Australia demonstrated that minimal publicity about the iodization policy resulted in an increase in salt sales.²⁹ Research in Mongolia revealed that women used more iodized salt than normal salt in the belief that it was good for health.²² Continued monitoring would be useful to ensure that consumers are not receiving conflicting messages about whether or not people should be trying to reduce salt in their diets.

In addition, currently the amount of iodine added to salt is based on a 1996 estimate of average salt intake of 10 g/day yet WHO recommendations are for countries to try and reduce salt intakes to <5 g/day. It will be important to amend levels of iodization in salt

in line with any changes in salt intakes. In the longer term alternative vehicles to salt to address iodine deficiency might be considered.

3.4.3 Labeling and advertising

One way of labeling salt/sodium is on nutrition facts panels. But not all countries have mandatory labeling of salt or sodium, and in many countries where labeling systems are in place, it is reported that they can be confusing. Labels in Canada and the US, the EU and Australia refer to sodium rather than salt. However, governments often specify national intake targets as grams of salt per day. In addition to the mandatory requirement for sodium, companies in the UK have been encouraged to include the salt equivalent on labels to help consumers make appropriate choices.

Another option is to have labeling initiatives specifically designed to reduce salt. Five countries (UK, Finland, Ireland, Sweden and the Netherlands) have specific initiatives on labeling directly related to efforts to reduce salt. The Swedish (Keyhole) and Netherlands (Healthy Choice) schemes exist both to indicate which foods are healthier choices within a product category. Along with influencing consumer behavior, the logos are intended to encourage food companies to reformulate products so that they can then carry the logo. The UK has adopted a color-coded “traffic light” front-of-pack labeling scheme; research had suggested that this was the approach most likely to enable consumers to make healthy choices.⁷¹ Finland attributes much of its success to mandatory warnings on high salt foods, as well as indicating which foods are low in salt. Ireland has introduced legislation in relation to labeling of health claims related to salt.

Argentina has legislation stipulating that the advertising of processed or packaged foods containing more than 30% of the RDA for sodium must carry the warning: “High salt content – consumption may be harmful for human health”. Labeling of sodium content is mandatory in Brazil and proposals for regulation of advertising are underway. Requirements for labeling of sodium are also in place in Costa Rica and Chile.

3.5 NGO advocacy / activities

3.5.1 WASH membership and media and communications

Advocacy organizations in different countries may adopt various approaches depending on their level of resources and the extent to which salt reduction is or isn't on the government's agenda. WASH now has 379 members in 80 countries has been instrumental in promoting and supporting NGOs to take action around the world. This includes International Salt Awareness Week, when members are encouraged to organize events and/or use the media to highlight the need for salt reduction. In some countries the role of advocacy may be limited to occasional research and media activity or just one off meetings to highlight the issue. National Heart Foundations and Hypertension Societies are often taking the lead on this issue.

3.5.2 Working with the food industry

CASH in the UK has adopted a combative approach issuing media releases and calling for tough government action to hold companies to account. AWASH in Australia has adopted a collaborative approach, whilst monitoring action closely and using the media to raise awareness of salt and to try and make it a government priority. The Heart Foundations in Australia and New Zealand also work directly with the food industry

through the Tick scheme which encourages companies to reformulate products to meet the criteria for logo on pack indicating to consumers that it is a healthier option.

3.5.3 Government engagement

Whatever the activities of the NGO, one of the main objectives of NGO activity is to place salt reduction on the government's agenda. CASH in the UK has been very successful with its high profile approach to the government which has included annual MP briefing sessions in Parliament. AWASH in Australia has developed a comprehensive program of government engagement which has included inviting MPs to speak at key conferences and events, meeting with state and Federal government officials, producing briefing documents for government and using press releases to call for action. WASH has also worked with organizations in Singapore and the Philippines to develop salt reduction plans for the governments there. In the Americas, CSPI's main activities are calling for the GRAS (Generally Recognized as Safe) status of salt in foods to be removed and highlighting salt levels in processed foods which it claims are actually increasing.

3.5.4 Monitoring

NGOs and advocacy organizations have also been involved in monitoring. This has included establishing nutrient composition databases, undertaking regular surveys on salt levels in foods, ranking companies in terms of commitments to action or monitoring government actions against commitments.

WASH Summary

WASH was established in 2005 and is a global group with the mission to improve the health of populations throughout the world by achieving a gradual reduction in salt intake. WASH's mission is to achieve a reduction in dietary salt intake around the world from the current intake of 10-15g/day to the WHO target of 5g/day. WASH is working to reach a consensus with the food industry and Government over the harmful effects of a high salt diet, and bring about a reduction in the amount of salt in processed foods, catered foods and restaurant food, as well as salt added to cooking, and at the table. Some of WASH's aims include:

- Acting as a global monitor highlighting internationally marketed products that are high in salt;
- Persuade international food companies to employ a global salt reduction plan
- To ensure a standard clear and comprehensive front of pack nutritional labelling system, for the salt content of all processed foods, that will be applied universally
- To ensure that evidence about the dangers of excessive salt consumption is translated into policy by each individual Government around the world;
- To share best practice for salt reduction strategies with Governments and health organisations worldwide.
- Reduce salt added during cooking and at the table by media publicity and a public health campaign

WASH members in each country are encouraged to set up their own country division of WASH. Similarly, each year WASH members are also encouraged to get involved in Salt Awareness Week.

4. Lessons from international experience

4.1 Governance and Strategy development

Lessons relating to the governance and development of successful strategies to reduce salt intakes include:

- A stand-alone salt reduction strategy is more likely to have an impact than if salt reduction is integrated into wider health and nutrition priorities
- Setting population and dietary targets is not sufficient to achieve change. Action plans need to be developed.
- Multi-pronged strategies need to be developed including working with the food industry to reduce salt in foods, raising consumer awareness and labeling.
- Both voluntary measures and legislation can be effective ways of reducing salt intakes providing that effective monitoring systems are in place. Voluntary systems are quicker and easier to implement and more flexible.
- Clear agreement on the science is an important prerequisite to progress
- Whilst NGOs can lead the development of a strategy government leadership is ultimately required
- Population targets should be established as they indicate a clear objective
- Identification and involvement of all relevant in the planning, implementation and assessment of the strategy is important
- Clear mechanisms for monitoring need to be developed to hold industry to account and demonstrate progress
- Dedicated staff and resources are required
- Technological support and support for small businesses through networking and guidance is desirable

4.2 Baseline assessment, monitoring and evaluation

This is an important element of any program to underpin the rationale for action and demonstrate progress. Lessons from the review of international initiatives include:

- Accurate measurement of salt intakes is required to persuade industry and governments to take action.
- It also provides a baseline from which to monitor progress towards targets.
- 24 hour urinary sodium collection is the most accurate way of assessing population salt intakes
- Dietary surveys on their own are likely to underestimate population salt intakes. However, they are required to provide information on contribution of different foods to salt in the diet
- It is also important to assess and monitor the sodium levels of foods that contribute to salt in the diet for example through the establishment of a database which can be updated annually
- Consumer awareness and behavior can also be monitored through surveys and the results can be publicized to raise consumer awareness.

4.3 Actions to reduce population salt intakes

Lessons from working with the food industry to reduce salt in processed food include:

- High profile commitments from leaders in the food industry are useful to stimulate companies to take action to reduce salt in foods
- Across the board reductions in standard products are required rather than providing low salt alternatives which relies on consumer choice
- It is important to understand the contribution of different foods to salt in the diet to inform where reductions are needed most
- A wide focus across a broad range of products is preferable to focusing on one or two product categories
- Agreements need to be negotiated with all sectors of the food industry including retailers, manufacturers and the catering and restaurant sectors
- Step-by-step reductions should be made without informing consumers of changes to specific brands in the early stages
- Cross industry agreements should be developed for key product categories (e.g. soups and sauces, breakfast cereals)
- Clear outcome targets (e.g. 350 mg/100 g) should be established for different products as this is easier to monitor than process targets and sets a level playing field for the food industry
- Companies that commit to and achieve targets should be promoted
- There needs to be clear and transparent monitoring of sodium levels in foods for example through the establishment of a brand specific database

There is no “one hat fits all” solution to raising consumer awareness and implementing labeling programs. A number of approaches have been tried. Some key lessons include:

- Consumer research can be used to establish how best to communicate to consumers
- Media coverage can be an effective way to increase consumer awareness but is unlikely to have a significant impact unless as part of wider communication campaign
- A communications strategy to reach hard-to-reach groups is useful
- Baseline assessment of consumer awareness is required to inform a targeted multi-staged consumer awareness strategy
- Ongoing evaluation of the consumer awareness program is important to provide insights into how messages could or should be revised
- Involvement of and support for NGOs to participate in the campaign brings skills and knowledge required to communicate to hard to reach groups
- Interpretive front-of-pack labeling has been important element of successful salt reduction strategies
- Front of pack labeling schemes not only help inform consumer choice but are also important drivers for reformulation of foods
- NGOs participation in the campaign brings skills and knowledge and can help to communicate to hard to reach groups
- Steps to ensure consumers are not confused by iodization messages need to be considered
- Mandatory salt warnings on high salt foods have proven to be a very effective way of reducing salt intakes in Finland

4.4 Role of NGOs and advocacy organizations

WASH (internationally) and NGOs in different countries throughout the world have contributed significantly to the development of salt reduction activities. The approach of NGOs in different countries varies considerably. Some observations are as follows:

- NGOs can either adopt collaborative or combative approach to working with government and the food industry depending on existing commitment and level of NGO resource
- Whilst NGOs can lead in the development of a strategy a key objective of any NGO or advocacy organization should be to get salt on the governments agenda
- Even where governments or other organizations have monitoring processes in place, NGOs can provide additional independent monitoring
- Governments should consider providing funding for NGOs to support them in this work
- NGOs and research organizations should become members of WASH to help promote an international approach to action

5. Proposed approaches and steps for salt reduction strategies

Whilst the research undertaken here has provided some insights into the current situation in relation to salt in the countries and sub-regions of the Western Pacific, this should not be seen as a basis from which concrete recommendations for the best way forwards can be made. The suggestions below are not intended to be prescriptive but instead to as a useful a starting point for consultation and further discussion with relevant organizations and experts in the region.

5.1 Co-ordination and support from WHO WPRO

The table in 5.3 below outlines the different stages that might be taken to develop comprehensive salt reduction strategies. However, not every country in the Western Pacific Region is likely to be in a position to develop and implement a comprehensive salt reduction strategy.

WHO WPRO is well placed to:

- facilitate baseline monitoring of salt intakes and sources of salt in the diet
- stimulate the development of coalitions in different countries
- support exchange of information between different countries and sub-Regions in the Region
- ensure that salt reduction is considered as part of existing discussions on tackling obesity including discussions with food manufacturers and consumer awareness campaigns.

Some suggestions for moving forwards in the different sub-regions are given below. In addition it might be worth considering identifying appropriate organizations in each of the sub-regions to help promote and facilitate salt reduction activities through research and advocacy activities.

5.2 Regional approaches

5.2.1 Pacific Island countries

Summary of situation and salt initiatives

Relatively low salt intakes, almost complete reliance on imported foods, range of nutrition action plans and series of meetings on food, work on impact of trade and fiscal policies. Report on salt intakes and trends in Fiji and modeling of cost effectiveness of salt reduction strategies in PICs underway but no current salt reduction initiatives identified. Pacific Food Summit planned for April 2010.

Suggestions for way forward:

- A workshop on reducing population salt intakes in the Pacific Island countries could be convened as part of the PIFS in April and could consider:

- The outcomes of the modeling of cost effectiveness of salt reduction strategies in the Pacific Island countries that is expected to be completed by February (C-POND) next year
- The practicality of developing national salt reduction strategies in different PICs as using the Framework outlined in the previous section
- The feasibility of implementing the various recommendations relating to fiscal and trade policies and legislation to tackle obesity to reduce salt intakes in the PICs (see annex)
- The outcomes and recommendations of this workshop could then be discussed at the Regional technical meeting on salt reduction being hosted by the Singaporean Health Board in May 2010.

5.2.2 Vietnam, Cambodia and Lao PDR

Summary of situation and salt initiatives

Little information on salt intakes or sources identified although predominantly traditional diets expected to be high. No salt reduction initiatives identified although discussions recently initiated in Vietnam

Suggestions for way forward

- Key stakeholders in each of the countries in the sub-region could be consulted to establish whether further information is available
- Consideration could be given to commissioning report on salt intakes and contributions of salt to the diet in each country
- A sub-regional workshop to discuss the outcomes of the previous two proposed actions and consider future actions on salt reduction could be organized to discuss the way forward

5.2.3 Malaysia, Singapore, Brunei, Philippines, Mongolia.

Summary of situation and salt initiatives

High salt intakes, move towards reliance on imports particularly in urban areas, but also strong tradition of salted vegetable dishes. Strong NGO action. Draft action plans prepared by WASH for Malaysia and Singapore. Malaysian Health Minister encouraging manufacturers to reduce salt levels. Meeting on salt reduction in region planned for February 2010.

Suggestions for way forward:

- Summary of salt reduction initiatives in the region could be used to inform discussions at the meeting in the Philippines being planned for February 2010.
- The outcomes and recommendations of this workshop could then be discussed at a Regional technical meeting on salt reduction being hosted by the Singaporean Health Promotion Board in May 2010.
- A meeting could be convened with the Malaysian Health Minister to discuss the development of a national salt reduction strategy.
- Ways of using the Malaysian Health Minister as some kind of salt Tsar to stimulate the development of salt reduction initiatives in the sub-region could be considered.

5.2.4 China and Hong Kong.

High salt intakes. High discretionary salt usage particularly in rural areas. Government action on labeling. China salt substitute initiative currently being expanded. Discussions about establishing C-WASH underway.

Suggestions for way forward:

- Ways of progressing the preliminary discussions that have been held about the feasibility of establishing some sort of Chinese Division of World Action on Salt and Health should be considered.

5.2.5 Japan, Korea, Australia and New Zealand

High salt intakes. Strong NGO action. AWASH has comprehensive strategy and preliminary discussions about establishing NZWASH underway. Food industry engaged and taking action in Australia. Limited government activity.

Suggestions for way forward:

- Ways of adapting the AWASH models to New Zealand should be further considered with a view to making a joint approach to ANZFA about the need for compositional targets for salt levels in foods
- Key stakeholders in Japan and Korea should be consulted on the possible options for approaching salt reduction in these countries including whether the AWASH model might be feasible.

5.3 Action in individual countries

Salt intakes may be too high for any number of reasons in each country and the reasons will vary both between and within the countries. These reasons include:

- People are eating too much food
- Traditional foods are high in salt
- There is a culture of adding salt during cooking or at the table
- Diets are becoming increasingly dependent on processed foods which are higher in salt
- People do not understand that salt is bad for health or which foods are high in salt
- There is no information on food labels to help them choose lower salt options.

The evidence suggests that the approach to reducing salt intakes in any country should be based on a sound understanding of which of these factors apply and to what extent.

In the first instance, consideration should be given to how best to ensure the following two things are undertaken in each country:

- Measurement of salt intakes and collation of information on the key foods that contribute to salt in the diets
- Establishment of coalitions of government agencies, NGOs, academics and food industry organizations to consider how best to progress the issue.

The use of trade and fiscal measures to influence diets could also be given further consideration. Taxing unhealthy foods, restricting imports of high salt, fat or sugar foods and subsidizing healthier foods, are all examples.

Whilst there can be no blueprint for the development of salt reduction strategies; the following template outlines some of the key elements of strategies and operational steps that need to be taken.

GOVERNANCE AND STRATEGY DEVELOPMENT	
Establishing leadership and roles	<p>Identify relevant stakeholders including representatives from Ministries of health, National Food Agencies, NGOs, research organizations, food companies and trade organizations</p> <p>Identify appropriate lead</p>
Mobilizing support	<p>Involve stakeholders in the development of the strategy through:</p> <ul style="list-style-type: none"> • Working party or advisory group • Launch/planning meetings • Written consultations • One to one meetings <p>Collate and publish evidence base for action including link between salt and health plus estimates of sodium intakes and contributions of different foods to salt in the diet in the country or region.</p>
Adoption of population targets	<p>Establish population target as way of setting clear objectives. For example, WHO recommends establishing targets of <5g per person per day.</p>
Use of voluntary or mandatory regulatory measures	<p>Decide on whether it is more desirable to adopt voluntary or mandatory measures in relation to reducing salt in foods and labeling schemes.</p> <p>Discuss and agree process for implementing.</p>
Developing salt-specific or broader food and nutrition strategy	<p>Decide whether to develop salt specific strategy or integrate salt into broader strategy</p> <p>Develop and consult on proposals for strategy</p> <p>Establish timescale for achieving targets</p>
BASELINE ASSESSMENT AND MONITORING	
Salt intakes	<p>Decide on feasible option for monitoring population salt intakes and develop and implement program</p> <p>Publish baseline and regular updates</p> <p>Conduct regular surveys and publish findings to raise awareness</p>
Salt levels in foods	<p>Establish database to monitor composition of foods</p> <p>Publish baseline and regular updates OR publish regular surveys of salt levels in specific product categories</p>
Monitoring	<p>Conduct regular consumer surveys or focus groups to understand</p>

consumer awareness and labeling practices	consumer awareness and behavior in relation to salt and use of labeling.
ACTION TO REDUCE POPULATION SALT INTAKES	
Reducing salt in foods	<p>Obtain high level commitment to action from food industry</p> <p>Establish contribution of different foods to salt in the diet and decide which foods to prioritize</p> <p>Develop strategy for engagement with the food industry including regular one to one meetings, conferences, communication through newsletter etc</p> <p>Establish cross industry groups for particular product categories</p> <p>Use information from surveys or database to inform companies about sodium levels in their products relative to other companies</p> <p>Establish clear targets for different food categories</p> <p>Obtain action plans from individual food companies</p> <p>Monitor progress towards achieving commitments in action plan and towards meeting targets</p>
Raising consumer awareness	<p>Establish dietary guidelines and strategy to raise awareness about how to achieve them</p> <p>Use consumer research to identify appropriate messages for campaign</p> <p>Identify communication channels and develop materials</p> <p>Consider how best to target hard to reach groups</p> <p>Involve stakeholders in communicating messages</p>
Labeling	<p>Do consumer research to understand implications of current labeling schemes on salt intakes</p> <p>Introduce mandatory labeling of sodium content if not in place</p> <p>Decide on most effective front of pack labeling scheme such as traffic light labels or salt warnings on front of pack</p>
NGO/ADVOCACY ACTIVITIES	

WASH membership and participating in Salt Awareness Week	<p>Establish as a Division of WASH or become a member</p> <p>Consider participation in World Salt Awareness Week</p> <p>Identify clear objectives and develop strategy to achieve them</p> <p>Map out key players</p> <p>Arrange meetings</p>
Media and Communications	<p>Utilize the media to raise awareness</p> <p>Establish a web-site</p>
Food industry engagement	<p>Commission surveys on salt levels in foods</p> <p>Establish nutrient content databases</p> <p>Support or monitor government in working with food industry to reduce salt in foods as outlined above.</p>
Government engagement	<p>Draft background briefing papers for government</p> <p>Organize MPs briefings</p> <p>Hold regular one to one meetings with relevant politicians or policy officials</p> <p>Make submissions to relevant consultations</p>

6. Resources

For food companies:

UK Food Standards Agency Targets:

www.food.gov.uk/healthiereating/salt/

UK Trading Standards Institute Salt Reduction Toolkit:

www.tradingstandards.gov.uk/policy/index.cfm

British Meat Processors Association Guidance:

www.tradingstandards.gov.uk/policy/index.cfm

Reducing Salt in Foods: Practical Strategies, edited by David Kilcast:

www.chipsbooks.com/redusalt.htm

Institute of Food Science and technology:

<http://www>

For governments/advocacy organisations:

World Action on Salt and Health:

www.worldactiononsalt.com

UK Food Standards Agency salt reduction strategy:

www.food.gov.uk/healthiereating/salt/

EU Framework for national salt reduction initiatives:

www.ec.europa.eu/health/ph_determinants/life_style/nutrition/nutrition_salt_en.htm

Pan American Health Organisation: Dropping the Salt: practical steps:

www.paho.org/english/ad/dpc/nc/salt-mtg-phac-paper.pdf

Australian Division of World Action on Salt and Health (AWASH):

www.awash.org.au

UK national social marketing centre

www.nsms.org.uk

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