



Saw Swee Hock
School of Public Health

Response to the Ministry of Health's Public Consultation on Measures to Reduce Sugar Intake from Pre-Packaged Sugar Sweetened Beverages (SSBs)

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Response to MOH Public Consultation on Measures to Reduce Sugar Intake from Pre-Packaged SSBs by SSHSPH

1 Introduction

1.1 With high sugar intake from SSBs linked to increased risk of obesity and diabetes, and SSBs contributing to more than half of Singaporeans' high daily average intake of 12 teaspoons (60g)¹, MOH has proposed four possible measures to reduce Singaporeans' consumption of SSBs as part of Singapore's War on Diabetes. SSHSPH is very supportive of MOH's move to reduce sugar intake from SSB consumption.

1.2 This paper cites available evidence affirming the need to address SSB intake as part of a national health improvement strategy and the efficacy of each of MOH's proposed measures. It also provides insights on and suggestions for implementation of these measures, in view of existing literature on other countries' experiences.

2 SSB Consumption and Health

2.1 **Weight gain.** The association between SSB consumption and adverse health outcomes, including weight gain, and diabetes, is well documented. A systematic review from 2013 to 2015 concluded that 96% of prospective cohort studies indicated a direct association between SSB consumption and weight gain or body mass index (BMI) increase in adults and children. [1] Locally, a study based on data from a birth cohort study found that volume of SSB intake was positively correlated to BMI increase of children at 5 years of age. [2] Being overweight is linked to the likelihood of having non-communicable diseases (NCDs) like diabetes, heart attack, stroke, and cancer.

2.2 **'Empty calories'.** In addition, SSBs are uniquely damaging as they are high in calories and poor in nutrition and consumers generally do not eat less of other foods to compensate for the extra calories consumed from SSBs. [3] [4] [5] [6]

2.3 **Metabolic syndrome (MetSyn)² and type 2 diabetes mellitus (T2DM).** Apart from contributing to weight gain, higher consumption of SSBs is associated with development of MetSyn and T2DM. While this is in part due to SSBs' contribution to weight gain, an independent effect may also stem from the high levels of rapidly absorbable carbohydrates in the form of added sugars used to flavour these beverages. [7] [3] [8] Meta-analyses have provided empirical evidence of this association between higher consumption of SSBs and MetSyn and T2DM. Each extra serving of SSB consumed per day was associated with a 20% increased risk of T2DM. [7] [9]

2.4 **Oral health.** With mounting evidence on the link between consumption of added sugars and development of dental caries, and SSBs being the leading source of added sugars

¹ WHO recommends that sugar intake be kept to less than 10% (about 10 teaspoons) of total energy intake for adults, or further to 5% of total energy intake for additional health benefits. [76]

² Metabolic syndrome is a cluster of conditions — increased blood pressure, high blood sugar, excess body fat around the waist, and abnormal cholesterol or triglyceride levels — that occur together, increasing your risk of heart disease, stroke and diabetes.

in the diet, SSBs' association with dental caries should also be highlighted as an issue of concern. [10] [11] [12] Dental caries is the most common chronic disease in children in Singapore, with more than 40% of preschoolers suffering from dental decay. [13] It is important to note that dental health of milk teeth is an early indicator of unhealthy diet habits, progressively leading to other health complications later in life. About 29.4% of 12 year olds and 40% of 15 year olds had dental caries and these included permanent teeth. [14]

2.5 **Taste preferences.** Habitual consumption of SSBs may also have chronic adverse effects on taste preferences. Individuals, especially children, who habitually consume SSBs may find less sweet foods (eg. water and vegetables) unappealing, resulting in poor diet quality over the long term. [3]

2.6 SSBs' association with several adverse health outcomes makes a compelling case for MOH's current consideration of implementing public health measures to reduce SSB intake. However, MOH's public consultation stressed mainly SSBs' linkage with obesity and diabetes, without mention of its impact on other health outcomes, such as oral health. Building public awareness on the broader implications of SSBs on health can help improve public understanding and response to the public health measures.

3 Proposed SSB Control Measures

3.1 MOH's proposed SSB control measures are appropriate, considering available evidence to date on their efficacy. They are also the key measures increasingly adopted by countries around the world to reduce SSB sugar consumption as part of a larger move to tackle obesity and the growing disease burden from NCDs. An Australian study evaluating proposed regulatory interventions tackling obesity in terms of DALYs and costs ranked three of these measures (albeit in relation to unhealthy food and beverages rather than SSBs alone) as the highest in terms of cost-effectiveness. Taxation was ranked the highest, followed by Front-of-Pack (FOP) traffic light nutrition labelling, and then reduction of unhealthy food advertising to children. (Ban on unhealthy food and beverages was not amongst the interventions evaluated.) [15] The following sub-sections will address the evidence, issues and implementation implications surrounding each of the measures.

Mandatory FOP Nutrition Labelling

3.2 Current evidence validates that FOP nutrition labels do influence consumers' selection of foods, though the magnitude and direction of effects vary depending on the type of label. [16] [17] [18] [19] While voluntary labelling schemes are more palatable to industry stakeholders and less likely to be lobbied, their uptake is typically slow, as demonstrated in New Zealand where only 5% of products carry the Health Star Ratings. [19] Mandatory warning label policies, on the other hand, tend to face high levels of industry opposition, based on preliminary evidence from Canada and Chile [19], and the experience of California and other states in the US [11]. Considering these, mandatory FOP nutrition labelling is a practicable policy decision.

3.3 **Label types.** It has been found that interpretive labels which reduce the cognitive workload for consumers consistently outperform other label types in improving the selection healthier food choices, particularly where nutritional content is interpreted through use of colours and summary. [17] [16] [20] [19]

3.4 **Design features** can also influence consumers' likelihood of noticing label information and available studies to date as well as literature from tobacco warning labels have identified size, colour and placement of labels as key influencing characteristics. [19] Colour-coding with use of red denoting unhealthfulness is particularly effective. [21] [22] Label placement in the upper left position also tended to have higher attentional capture. [21] These considerations can be taken into account and guidelines set for FOP size and placement. Minimum font size requirements can also be imposed, with reference to other legislations' technical guidelines. [23]

3.5 **Product reformulation.** Evidence has also suggested that FOP nutrition labels can encourage companies to reformulate existing products and develop new ones with healthier product composition. [24] [19] A study of food manufacturers joining the Choices programme in the Netherlands revealed that the programme led to a sizeable proportion of reformulated products and newly developed products with improved nutrient composition. [24]

3.6 **Serving or portion size** is an important aspect of nutritional information. Sugar content information (in % or grams per 100 ml) without the perspective of portion size can be misleading. For example, a 500 ml serving of soft drink with 6% sugar content actually contributes more 'empty calories' than a 100 ml serving of soft drink with 10% sugar content. The former actually equates to 30 grams of sugar, more than half of WHO's recommended daily intake of 50 grams, while the latter equates to 10 grams of sugar.

3.7 Most countries with mandatory nutrition labelling require serving size to be presented on food labels. However, some countries do not require listing of total number of servings per package or total package size, making it difficult for consumers to relate the "per serving" nutrition information to that of the total package and to their own total daily intake. Studies have also shown that lack of standardisation among serving sizes of similar products can compromise usability of the nutrition information. [25] Some countries (such as Australia, New Zealand, Canada, the USA and the European countries) requiring mandatory listing of nutrition information on a serving size basis define serving size as the average amount customarily consumed in one occasion, as opposed to the recommended definition of recommended amount to be consumed per eating occasion³. This results in serving sizes being defined by the food manufacturers and variation in declared serving size among similar foods in these countries. Some legislations also allow variation up to a defined percentage limit in the reference serving size of individually packaged foods.⁴ (See Figure 1) [25] This results in considerable variability in the representation of nutrition information across products and limitations for accurate comparison of such information by consumers to support selection of healthier choices. Studies have also found a tendency for food manufacturers to declare smaller serving sizes for products with higher calorie densities. [25]

3.8 As far as possible, mandatory FOP labelling should be implemented with listing of nutrition information on a standardised serving size basis (eg. per 100 ml) and requirement for package size information, education on how to interpret these in relation to the recommended amount of sugar intake per day, and consistency of format and definitions.

³ In the USA, the National Academy of Medicine reported that the serving size recommended by food guides should serve as the main criterion for defining food labelling serving sizes. [25]

⁴ Brazilian regulations allow variation of up to 30% in relation to the reference serving size in grams or millilitres for individually packaged foods or foods sold as individualised units in a pack. Therefore, for instance, for foods that have a reference serving size of 50 g, a serving size of 35 g to 65 g can be used in the nutrition information. [25]

Figure 1: Nutrition labelling and serving size definition in countries with mandatory nutrition labelling [25]

Country	Presentation of Nutrition Labelling				Per 100 g or 100 mL	Definition of a Serving
	Serving Size (g or mL)	Variation is Allowed	No. of Servings per Package	Household Measures		
Mercosur countries ¹	✓	✓		✓		Average amount of food that should be consumed by healthy people on one eating occasion for health promotion [29,30]
Australia and New Zealand	✓	✓			✓	Average amount of food customarily consumed on one occasion [23,24]
Canada	✓	✓		✓		Amount of food customarily consumed on one eating occasion [25]
United States of America	✓	✓	✓	✓		Amount of food customarily consumed on one eating occasion by persons aged four years or more [26]
European countries ²	✓	✓	✓		✓	Amount of food customarily consumed on one occasion [33]

Note: ¹ Southern Cone Common Market (Mercosul): Argentina, Brazil, Paraguay, and Uruguay. ² Germany, Austria, Belgium, Bulgaria, Cyprus, Croatia, Denmark, Slovakia, Slovenia, Spain, Estonia, Finland, France, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Republic Czech Republic, Romania, and Sweden.

3.9 **Clarity of message.** Similarly, while colour-coding and categorisation of SSBs into grades or Nutri-Scores can aid speedier identification of healthier products, care should be taken to ensure that they objectively reflect the healthiness of the sugar content and do not result in misleading cognitive biases. As shades of green in a traffic light coding system habitually indicate endorsement of a product's safety and beneficial nature, SSBs classified as such should consist of virtually zero sugar content. Otherwise, FOPs can actually create the perception that SSBs with certain levels of sugar content are beneficial, resulting in consumers' unrestrained consumption of them and subsequent high sugar intake.

3.10 **Alignment with Healthier Choice scheme (HCS).** On the same note, concerns have been raised that the HCS may promote the perception that foods endorsed with the label are healthy and can therefore be consumed in large amounts. This is of concern as although HCS foods are lower in saturated fat, sodium or sugar as compared to other foods in their category, these foods can still provide an appreciable amount of these nutrients of concern. [26] Use of a 'Healthy Choice' label (rather than 'Healthier Choice') awarded only to foods that are actually healthy, and healthier when consumed in larger quantities, will provide greater clarity and preclude such misconceptions. Currently, drinks with 6% sugar content are eligible for the

HCS symbol. Careful plans should be mapped out on how HCS will align with or be phased out with the upcoming SSB FOP labelling so as to provide clarity and not cause confusion to consumers. It may be timely to take this opportunity to review the current qualifying thresholds for HCS, as well as consider future plans to utilise one single label type (possibly phasing out HCS and extending FOP labelling to other foods and snacks).

Advertising Regulations

3.11 Restricting the advertising of unhealthy SSBs is particularly important for children who are less able to distinguish between factual information and commercial messages, and are therefore, more vulnerable to marketing's influences. [27] Studies have shown that sustained exposure to marketing of nutrient poor foods can lead to poor diets [27] [28], and countries with laws to restrict advertisements of less healthy foods have a decline in sales of such foods. [29]

3.12 SPH is supportive of the move to restrict advertisements, and recommends implementation of MOH's 2nd option of banning advertisements for less healthy SSBs across all time-belts and mass media channels.

3.13 **Children's television watching habits in Singapore.** Singapore is a dense urban environment and children tend to watch television later in the evening. They are also increasingly watching programmes that may not be specifically meant for children [30]. Restriction of television advertising to selected time-belts and channels, even with expansion of current restricted timings and programmes, may not be effective.

3.14 **Older children and caregivers.** In addition, the current voluntary advertising guidelines apply to advertisements that are directed towards children who are defined as 12 years old or younger. However, older children can serve as role-models influencing the behaviour and food preferences of younger children. [31] Adolescents and even young adults, who can be vulnerable to marketing effects through social pressures [27] [32], should also be protected from advertising of unhealthy SSBs in order for the regulation to be effective. Similarly, caregivers such as grandparents are key food providers at home and their exposure to such advertising can affect the diet of the children they care for.

3.15 **Other platforms and new media.** MOH should also consider extending regulations to other media platforms, such as outdoor advertisements, public transport advertisements and new media (digital or social media). Children in Singapore are exposed to a variety of media, especially new media. As MOH's technical media briefing has illustrated, the proportion of children exposed to the internet and social media has increased. [30] With Singapore's high social media penetration and mobile and smart phone usage levels⁵, such a trend will only continue to grow. On a global scale, there is accumulating evidence that food marketing on new media is increasing and influences children's food preferences and choices⁶. The impact of integrated campaigns reinforcing commercial messages across multiple platforms and new media engaging personally with consumers is likely to be even greater than that of traditional marketing. [27] [33] [34] [35] [36]

3.16 **Regulation of new media advertising.** Difficulties in monitoring the new media market and lack of data have typically precluded informed policy discussion on regulation of

⁵ Singapore is ranked 9th globally by social media penetration (at 83% as at Jan 2018) [77] and mobile and smart phones are used by 95% and 91% of the population respectively (as at Jan 2017) [78]

⁶ A small number of studies have measured the impact of new media food marketing and identified that children's exposure to advergames positively impacts their perceived traits for products and product preferences. [27]

this space. Efforts in this direction could start with attempts to characterise the nature and scope of children and young people's exposure to these promotions. This could be done through purchasing of social media data sets, or accounts from advertising and data insight departments of social media channels, researchers, or market analysis companies. Regulatory measures to restrict unhealthy food marketing to children through new media are presently limited⁷. [37] [38] In some countries, governments have engaged with the food and advertising industries to enact self-regulatory codes. However, independent evaluations of these measures concluded that an industry-led approach has generally not been effective. [27] [39] A comprehensive prohibition against publishing, broadcasting, displaying or otherwise communicating an unhealthy food advertisement directed at children, or permitting or authorising such to occur, has been recommended by the WHO and the Obesity Policy Coalition in Australia. [40] [41] Accumulated data and insights on unhealthy food advertising in new media can lead to constructive discussion on the framing of such a policy.

3.17 Educational campaigns building media literacy about food marketing and more advanced understanding of the persuasive intent of commercial messages can also help guard children and their caregivers against the negative effects of advertising of unhealthy SSBs. [42] These efforts can complement advertising regulations on traditional or outdoor media, and help mitigate effects in the new media space as efforts to form a regulatory policy around it progress.

3.18 Definition of unhealthy SSBs. Similar to the concept of consistency described in para. 3.10), the defining criteria for 'unhealthy SSBs' for advertising regulations should align with that for the other implemented measures of FOP nutrition labelling, HCS and other related measures.

Excise Duty on SSBs

3.19 Impact on product reformulation. In addition to evidence cited by MOH on the efficacy of excise duty in reducing sugar content in drinks, based on the UK's experience [30], the broader literature and other countries' experiences have also pointed to the positive impact of SSB taxation on industry reformulation of sugar content in drinks. Available literature suggests that a tiered tax structure, where different levels of tax are imposed for different concentrations of sugar in beverages, tended to encourage industry behaviour change towards sugar content reduction and product reformulation. [43] Apart from the UK's experience, Thailand, which introduced a tiered tax structure based on levels of sugar content in September 2017, has also seen some movement in the industry towards reformulation of their SSB formulas. [44]

3.20 Impact on SSB consumption. While MOH has stated that its primary intention for the excise duty is to encourage industry reformulation, SSB taxation also has an effect on reducing consumer purchase and consumption of unhealthy SSBs. Numerous studies have observed reduction in SSB consumption after the introduction of SSB taxation in countries and cities such as Mexico, Chile and Berkeley, ranging from over 3 to 20 percent. [45] [46] [47] [48] Modelling studies have also attempted to quantify the healthcare benefits and cost savings resulting from such sugar intake reduction. A 10% reduction in SSB consumption among Mexican adults was modelled to result in over 180,000 fewer cases of T2DM and savings of 983 million international dollars. [49] Similar modelling studies have estimated significant

⁷ South Korea's regulation restricting unhealthy food marketing to children (aged 4 to 18 years) includes online advertising using free gifts, and UK's ban on such advertisements in children's television has recently extended to other media, including websites. [37] [38]

HALY gains and healthcare cost savings in Australia and reduction in caries increment in the German population with a 20% SSB tax. [50] [51]

3.21 On the effect of SSB taxation on consumption reduction, international research has observed the following that can serve as useful pointers in MOH's policy framing process:

- a) A 20% magnitude in taxation is recommended in order to observe higher reduction in consumption translatable to healthcare gains. This is also the percentage increase in SSB prices recommended by WHO for the intervention. [52] [53] [54] [55] [46]
- b) A greater relative effectiveness of a volumetric tax⁸ versus other tax types, such as an ad valorem tax, or a tiered taxation structure, in reducing SSB purchases. A tiered taxation structure apparently promotes industry behavioural change towards reformulation better. [53] [43] [44]
- c) A number of studies has estimated comparatively higher price elasticity of non-carbonated SSBs compared to carbonated SSBs. [52] [56] [57]

3.22 **'Signalling effect'**. An important aspect of SSB taxation is its 'signalling effect', which creates public awareness on the detrimental health effects of SSB. In fact, some studies have pointed out that it is the public signal sent across by the taxation that influences consumers' attitudes and purchasing behaviours, leading to subsequent SSB consumption decline. [58] In Mexico, for example, the SSB tax was accompanied by a prolonged, multi-year advocacy campaign involving consumer advocacy organisations and media campaigns. This probably influenced public perception of SSBs, resulting in comparatively more consistent and definitive evidence of SSB purchase decline across studies. [47] [59] This 'signalling effect' possibly also explains why reduction in SSB purchase in Chile was more significant for the higher- and middle-SES groups, who were better placed to understand the rationale behind the tax change and make healthier purchasing decisions, considering that the SSB tax modification did not accompany significant and widespread advocacy campaigns. [46] [47]

3.23 **Public education.** For this reason, accompanying SSB taxes with highly visible educational campaigns can contribute to amplifying their effect of reducing SSB consumption. A recent study observed that a public awareness campaign to decrease SSB intake via multiple media platforms was associated with an accelerated decrease in SSB purchases. [47] Another evaluation study of SSB tax in Mexico has pointed to the importance of self-efficacy and self-regulation in motivating SSB drinking behaviour change and recommended that SSB tax informational campaigns accompany such self-efficacy building programmes. [58]

3.24 **Earmarking revenue from SSB taxation** for health promotion efforts or the provision of healthier low sugar content alternatives can strengthen the narrative around SSB taxes and its public health intent. In Mexico, for example, a portion of the SSB tax revenue was allocated for the installation of drinking water fountains in schools and public spaces. [59] Such efforts to increase availability of water fountains or healthier beverages with lower sugar content should be considered. It should be noted that a local study by SSHSPH in 2017 indicated strong support (77% of participants) for the installation of water fountains at eateries as a proposed policy action to tackle SSB consumption. [60]

Nationwide Ban on Sale of Higher-sugar SSBs

3.25 Mandatory FOP labelling, advertising restrictions and taxation should already help to instil awareness about the health effects of SSBs and gradually reduce their consumption. A

⁸ Application of a fixed rate per volume unit. (eg. 20cts/per litre) [53]

nationwide ban is comparatively less flexible as a measure and may be counter-productive, creating greater desire for such drinks and possibly resulting in bulk purchase of them via alternative avenues (eg. cross-border or online purchase). Such a ban is also likely to face strong industry opposition.

3.26 Ban in selected organisations or population groups. Such drinks, however, can be banned in certain organisations (such as schools or companies) on a mutually agreeable basis. Currently, drinks with more than 6 grams of sugar per 100 ml are not allowed to be sold in schools. This practice can be extended to other institutions on an autonomous basis.

3.27 Ban for SSBs with very high sugar content. A ban can also be effected only for beverages with very high sugar content. While seven drink companies have pledged to reduce the amount of sugar in their products to 12 percent or lower by 2020⁹ [61], this sugar content limit could be extended as a nationwide ban for all sugary drinks sold in Singapore. Such moderated measures are likely to be more palatable for beverage companies and well-received by consumers. It will also promote self-efficacy among consumers and consumer groups in the purchasing decision process.

4 A Multi-Pronged Approach

4.1 The multi-factorial nature of SSB consumption behaviour calls for a multi-pronged approach to tackling it. A combination of measures, possibly synergistic implementation of all the four proposed measures, and possibly alongside other obesity or NCD tackling measures as part of a broader national strategy, should be implemented.

4.2 This should be accompanied by a public education campaign on the rationale for the measures, clear instructions to interpret the FOP labels, and consistency in definition and categorisation of what constitute acceptable versus unhealthy SSBs across the measures. The measures should also accompany efforts to increase availability of healthier options (eg. water or beverages with very low sugar content). (See para. 3.24)

5 Public Education and Advocacy

5.1 Such public education can involve staging a period of advocacy, which enhances the public's receptivity and understanding of the rationale for the regulations. It also provides lead time for industry to react, respond in a participatory process and accept the upcoming changes. Mexico ran a large and comprehensive obesity prevention advocacy strategy involving SSB taxation, improved school food policy, restrictions on advertising to children and improved food labelling requirements, in the lead up to their implementation. [59] Similarly, Thailand's journey towards enactment of the SSB tax spanned a period of evidence generation, network building with NGOs and advocacy groups, and monitoring and strategic leveraging of political developments and legislative opportunities. [44] [62] Similar advocacy experiences in other parts of the world, such as that for SSB warning label implementation in parts of the US, has pointed out that such public policy dialogue by itself raises public awareness about the negative effects of sugary drink consumption. [63]

⁹ MOH made this announcement two days after the Prime Minister's National Day Rally in August 2017. The seven beverage firms are Coco-Cola, F&N Foods, Malaysia Dairy Industries, Nestle, PepsiCo, Pokka and Yeo Hiap Seng. [79]

5.2 **Media advocacy.** Media campaigns in the advocacy process are typical and help to raise visibility of the issue in the country. Mass media campaigns on the harmful effects of SSBs, with print, video, radio and infographic components accompanied the implementation of SSB tax and other related control measures in Mexico. [59] [44]

5.3 **Anticipating opposing arguments.** The advocacy campaign should also anticipate opposing arguments from industry or other civil groups, with prepared responses and relevant evidence to counter them. Presently, we are already seeing countering arguments from soft drinks manufacturers on some of the proposed measures. [64] There are useful relevant summaries available for the arguments commonly used by the tobacco industry to counter regulatory measures. [11] [65] [66] Arguments for and against SSB control measures in advocacy campaigns in some countries, such as Mexico and Thailand, have also been documented. **Annex A** summarises the typical opposing arguments and responses surrounding such public policy discussion in other parts of the world.

5.4 **Generating scientific evidence.** In both Mexico and Thailand's experiences, international and local evidence were generated in close partnership with academics and stakeholders to support responses to opposing arguments. [59] [44] Local evidence was particularly important and a research review on SSB tax studies pointed to the need for in depth localised knowledge on consumption patterns, substitution and political support for such measures prior to their promotion and implementation. In Chile, the lack of local effectiveness studies supporting the SSB tax policy was a recurring argument cited by its detractors. [53]

5.5 Locally, figures on associated disease burden, oral health, and evidence on association of SSBs with increased BMI have been generated. A study on Singaporeans' receptivity to SSB policies has revealed considerable support ranging between 64% to 85% for most of the suggested policies. Only SSB taxation garnered 55% of support, with its comparative unpopularity possibly stemming from perception that it would impose additional economic burden on Singaporeans and misgivings about the 20% taxation magnitude being sufficient to impact purchase behaviour. [60] There may be a need to gather local data on SSB's price sensitivities as well as increase public awareness on evidence of SSB taxation's effectiveness.

6 Management of Industry

6.1 Engagement of industry and provision of lead time for their preparation prior to policy implementation can smoothen the execution process, motivate their reformulation efforts, and help maintain positive government-industry relations.

6.2 Thailand's SSB tax structure was enacted after a series of negotiations between government and industry. The reduced ad valorem rates and phased approach to implementation of their specific SSB tax¹⁰ was a compromise arrived at to motivate and provide sufficient lead time to industry before the full impact of the tax affected them. [44]

6.3 Similarly, the assessment of nutrient composition requires funds and technical expertise. Nutrition labelling have been cited as 'technical barriers' to cross border trade, due to the inconsistency of labelling requirements across different countries and lack of a common

¹⁰ Thailand's new Excise Tax Act involved reduction of the previous ad valorem tax for SSBs to 14% or less from 20% and a new specific tax with beverages containing higher sugar levels being taxed a higher rate. The tax will be introduced and increased in three phases over six years. [44]

international standard. The development of such a standard is now under formal consideration by the Codex Committee on Food Labelling [19] and efforts can be made to keep track of developments in this area to work towards alignment of our SSB FOP labelling to international standards and possibly that for other foods and snacks over the longer term.

6.4 Funding and other forms of assistance can be provided to help companies, especially smaller vendors, build up technical expertise in this area. Similar funding or assistance schemes can also be provided to help smaller vendors transition changes from the other measures, such as the SSB tax. Thailand's treatment of fruit juices in the new Excise Tax Act, for example, was structured to moderate possible negative impact to the local farming industry and to address the fruit and vegetable farming industry's concerns on how juices could not be reformulated and faced a comparative disadvantage.¹¹ [44]

7 Management of Prepared Beverages Market

7.1 A separate strategy should be formulated to manage the non-packaged drinks industry. The non-applicability of FOP labelling and SSB tax regulations on this market can be particularly salient for Singapore. Many prepared beverages are also high in sugar content. A typical cup of *kopi* and a glass of freshly squeezed watermelon juice, for example, consist of about 18 and 20 grams of sugar respectively.

7.2 Thailand, which experiences the same problem with street vendors, took on a differentiated approach for this group centred on softer promotional measures to exercise influence over sugar levels in freshly brewed drinks. Campaigns were carried out to educate street vendors and consumers about the quantity of sugar levels in freshly brewed drinks and reduced sugar options, with graphics displaying such information at points of sale. [44] HPB currently carries out similar health intervention pilots in collaboration with selected workplace canteen vendors. These include serving sugarless tea and coffee as the default option, and point of sale illustrations of reduced sugar options. [67] Such partnerships can be extended to other prepared beverages outlets or points of sale on a nationwide scale.

7.3 In addition, regulations regarding nutrition or health claims for prepared beverages could be considered to prevent misinforming consumers.

7.4 The treatment of 3-in-1 instant beverages should be considered, as they comprise a sizeable proportion of prepared beverages intake in Singapore. This also reiterates the need for longer term plans to extend FOP nutrition labelling, and possibly the other SSB control measures as well, to other foods and snacks. (See para. 3.10.)

8 Treatment of Juices and Flavoured Milk

8.1 100 percent natural fruit or vegetable juices with no added caloric sweeteners are typically excluded in SSB taxes, on the premise that these beverages contain vitamins or minerals and are considered healthy. [68] However, Thailand's SSB tax does extend to natural juices (albeit with certain exemptions (see para. 6.4)) on the premise that natural sugars contribute to 'empty calories' as well. The explanation is that while it is easy to gulp down juices of five apples without feeling full, munching through five apples will be challenging and one should seek to get his or her intake of vitamins through eating fruits rather than drinking

¹¹ Under Thailand's new Excise Tax Act, Juices are exempted from ad valorem rates and the sugar content levels they are taxed at are higher and determined separately from that for the other SSBs. [80] [72]

juices. [69] [70] Some countries are already countenancing a fruit juice tax and South Africa has also included a trigger clause in its sugary drinks tax law so that it applies to fruit juice if its consumption shoots up. [69]

8.2 Subjecting natural juices to taxation can however result in strong opposition from vendors and manufacturers. Fruit juice producers in Thailand recently protested against the SSB tax and the excise department is now set to raise the sugar content requirement level for taxation for juices. [71] [72] Whether to exempt natural juices from regulation is a policy decision that will need to be made and the 'signal' sent across on their healthiness should be consistent across implemented SSB control measures.

8.3 Similarly, some jurisdictions (such as Mexico and Berkeley), exempt flavoured milk from SSB tax in view of the beneficial calcium content in them, and also to align with school policies (many public schools in the US serve such milk to students as part of the National School Lunch programme). [59] [68] While the public health community is divided over whether flavoured milk has a net positive impact on health, growing concern about overconsumption of added sugars and calories has led to arguments against encouraging flavoured milk consumption, especially among children. The model legislation recommended by advocates for SSB control policies in the US regards flavoured milk as a SSB subject to tax. [68]

8.4 A similar policy decision will need to be made on flavoured milk or similar malt beverages prepared with milk or water such as MILO, Horlicks and Ovaltine. A usual 200 ml carton of MILO, for example, contains 13.8 grams of sugar. It is useful to note, though, that some jurisdictions adopted a moderated exemption policy for natural juices and flavoured milk. In Philadelphia, for example, drinks comprising greater than 50 percent of milk, fruit or vegetables are exempt from the tax. [73]

9 Post-Implementation Behaviour

9.1 There should be a mechanism to review and revise the SSB control policies after their implementation according to how consumers and industry react. Cross-border purchase, for example, can be a risk for small geographical areas and there were suggestions that the poor pass through rate of the SSB tax in Berkeley was due to retailers' fear of driving shoppers to nearby stores outside of the city. Implementation of similar policies in neighbouring cities or countries can help mitigate this. [48] Malaysia has recently announced a 40 cents per litre tax on drinks with more than 5 grams of sugar content per 100 ml starting April 2019. [74] Monitoring of price increases and cross-border purchase post implementation can be useful in shaping future decisions to maximise policy impact.

9.2 On the industry front, aggressive in-store promotions and marketing to retain SSB market share was observed in some countries like Mexico after the excise tax. Reduction of package drink sizes alongside introduction of larger package sizes at comparatively cheaper prices was also noted. Industry was using a cost shifting strategy of passing more of the tax to smaller beverage package sizes. [52]

9.3 On a broader scale, and complementing current efforts to reduce sugar intake from SSB consumption, there is a need to tackle the upsize mentality and the food and beverage industry's marketing tactics surrounding it. Consumers purchasing meals at restaurants and outlets are often encouraged to add on a SSB at a small additional cost lower than the standalone price of the SSB. Similarly, larger size beverages are typically sold at

comparatively more economical prices. Such practices can counter the impact of SSB regulation measures and provide an avenue for industry to circumvent them.

9.4 A mechanism that reviews industry reaction and facilitates adjustment to enacted policies can help address such concerns and other unexpected post-implementation industry practices. In response, accompanying prohibition of in-store promotion of certain SSBs and imposition of strict volume-based pricing can be introduced. The latter can also be explored as an accompanying SSB regulation measure on its own to tackle the upsize marketing practice and resulting SSB consumption in larger amounts.

10 Post-Implementation Evaluation

10.1 Post-implementation evaluation of the measures' efficacy is important as lack of positive evidence would open up opportunity for industry to lobby for a revisit of the policies. It should however be noted that incidence and prevalence measures for chronic disease outcomes typically require an extensive period (10 to 20 years) before improvements can be observed. It is important to develop and work on intermediate outcome measures such as awareness levels and consumption figures, where noticeable changes can be detected over a shorter time frame, in order to effectively evaluate and communicate on the SSB tax intervention's success. Dental caries, which set in more quickly compared to obesity and chronic diseases, can also be tracked as an intermediate outcome measure. Existing databases, such as the school dental service, are available to be utilised for this.

10.2 To allow for evaluation, a meaningful evaluation plan should be developed, with the collection of robust baseline data for key indicators that measure policy effectiveness.

11 Concluding Comments

11.1 Tackling SSB consumption behaviour calls for a multi-pronged approach with a combination of regulatory measures, accompanying public education on the rationale for these measures, and clear and consistent definitions and communications on categories of SSBs across the measures. A pre-implementation period of advocacy can help build greater public awareness and provides lead time for industry's preparation and engagement on the issue. Post implementation, there should also be mechanisms to periodically review implementation issues faced and scientifically evaluate the measures' effectiveness.

Countering Arguments and Responses on SSB Control Measures

Countering Argument	Responses
<i>Applicable Across Measures</i>	
Interference with individuals' consumption. Consumers should be given freedom to drink SSBs.	Consumers also have a right to health, including freedom to access health food and clean water. [59]
Solution lies in education on balancing calories and exercising.	<ul style="list-style-type: none"> • Education is important and regulatory measures are only part of a comprehensive strategy to address obesity, diabetes and the other health effects of SSBs. [59] • Moreover, the primary audience for FOP labelling are people who consume SSBs, making such labelling even more effective in educating them on the healthiness of the products. [65]
Industry lacks nutrition assessment and product reformulation expertise.	Appropriate lead time and assistance can be provided to support industry with building nutrition assessment expertise and product reformulation efforts. (see para. 6.4)
Industry self-regulation is a better alternative	Self-regulation will not work because the industry's goal is to make a profit rather than reduce SSB consumption. [59]
<i>On Mandatory FOP Labelling</i>	
FOP labelling causes trade barriers.	International efforts are underway to align nutrition labelling to a common international standard. Local efforts will be made to align with this when the timing is appropriate. (see para. 6.3)
<i>On SSB Tax</i>	
Is SSBs a problem? There is no link between SSB consumption and obesity and other health problems.	There is proven association between SSB consumption and obesity, diabetes, other NCDs and oral health risk (see para. 2)
Does SSB tax work? There is insufficient evidence on the effectiveness of SSB taxes in improving health outcomes.	<p>International evidence on the effectiveness of SSB tax on influencing consumption and modelling studies indicating positive health effects (see paras. 3.19 and 3.2)</p> <p>Local data on price sensitivity may be useful in addressing possible public concerns. (see paras. 5.4 ad 5.5)</p>
SSB tax will bring financial hardship to poorer consumers. Regressive and disproportionate impact on the poor.	<ul style="list-style-type: none"> • SSBs are not necessity goods and one could avoid the tax by simply choosing not to purchase the drinks. [44] • The tax may not necessarily result in higher consumer spending. A study on Berkeley's case noted that overall consumer spending in stores studied did not rise despite increases in high sugar content SSB prices, suggesting that the tax may be effective in shifting consumers to purchase healthier beverages without causing undue economic hardship. [48] • The lower SES group may not actually take on a larger burden of the tax. Studies on Mexico's SSB tax revealed a larger reduction in purchases by the lower SES group. [52] • Considering the additional health benefit from SSB consumption reduction, the net effects of the tax would likely be neutral or even arguably progressive. A modelling study in Australia has shown that HALYs gained and healthcare costs saved would accrue to the most disadvantaged quintiles in Australia, a result of obesity usually being more common in the

Countering Argument	Responses
	<p>disadvantaged groups and disproportionately affecting them. [50] [59]</p> <ul style="list-style-type: none"> • If tax revenue is appropriated towards health improvement efforts for the more disadvantaged groups, this can further reduce concerns on regressive nature of a SSB tax. [52] [50]
<p>Consumers will switch to other substitutes.</p>	<p>The response to substitution should be extension of SSB tax or other SSB control measures to a broader range of food items.</p>
<p>Impact to beverage industries and loss of jobs.</p>	<p>Earlier gloomy forecasts on employment regarding SSB tax in other countries had not actually happened. A modelling study in the US actually estimated a net increase in employment figures with a 20% SSB tax. [53] [75]</p>

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