Tackling High Consumption of Sugar Sweetened Beverages (SSB) in Indonesia

CHPM Center for Health Policy and Management

Policy Brief

Lt. 1 Gedung Penelitian dan Pengembangan FK-KMK UGM Jl. Medika Yogyakarta 55281
| Email: chpm@ugm.ac.id | Telp/Fax (hunting) (+62274) 549425

TACKLING HIGH CONSUMPTION OF SUGAR SWEETENED BEVERAGES (SSB) IN INDONESIA

A POLICY BRIEF

Alliance for Health Policy and Systems Research
AUB American University of Beirut
Faculty of Health Sciences
Knowledge to Policy | K2P | Center
Knowledge to Policy Center K2P Mentorship Program

Authors
Relmbuss Biljers Fanda
Agus Salim
Tri Muhartini
Kurnia Putri Utomo
Shita Listya Dewi
Clara Abou Samra

Funding
CHPM received a grant from Knowledge to Policy, American University of Beirut to develop this policy brief.

Acknowledgment
The policy brief was developed as part of Knowledge to Policy (K2P) Center Mentorship Program for Building Institutional Capacity for HPSR and Delivery Science [BIRD Project]. We would like to acknowledge the team at K2P Center for their technical support and guidance during the planning and development of this policy brief. The template for the policy brief has been adapted from K2P Center's Policy Brief.
This work was supported by the Alliance for Health Policy and Systems Research [BIRD Project]. The Alliance is able to conduct its work thanks to the commitment and support from a variety of funders. These include long-term core contributors from national governments and international institutions, as well as designated funding for specific projects within our current priorities. For the full list of Alliance donors, please visit: https://www.who.int/alliance-hpsr/partners/en/.

Merit Reviews
This document already received and be revised according to external reviews from Prof Guilermo Paraje, PhD from Business School - Escuela de Negocios, WHO Indonesia, WHO SEARO, and our colleague Digna Purwaningrum, PhD.

Citation
This CHPM Policy Brief could be cited as
"Fanda RB, Salim A, Muhartini T, Utomo KP, Dewi SL, Abou Samra C. 2020. CHPM Policy Brief: Tackling High Consumption of Sugar Sweetened Beverages (SSB) In Indonesia".

CONTENTS

KEY MESSAGES

The problem statement

Indonesia has the third highest Consumption of Sugar Sweetened Beverages (SSBs) consumption (20,23 liter/person) in South East Asia (Ferretti & Mariani, 2019). The high consumption of SSBs contributes to the high rate of mortality and morbidity from overweight, obesity, non-communicable diseases (such as diabetes and cardiovascular disease) (Malik et al., 2019) and increases healthcare expenditure (Ferretti & Mariani, 2019). This problem has been further exacerbated due to lack of adequate regulation implementation to control the availability, accessibility, affordability, industry interference and marketing of SSBs (Haning, Arundhana, & Muqni, 2016).

Underlying factors

Governance arrangement: Indonesia has an inadequate regulation system to reduce the high consumption of SSB products whereby there are not yet have a clear definition for SSB in one regulation (policy), its standard of SSB and limited multi sectoral collaboration to tackle this issue.

Financial arrangement: A direct observation to an online market platform (Tokopedia) have found that price for sugar in Indonesia is starting with 0.5 US Dollar (7.900 rupiah) for 500 mg and price for SSB product is starting with 0.1 US Dollar (1.500 Rupiah) for 180 ml drinks. It shows that the price is very cheap.

Marketing: Sugar Beverage Ads include promotional advertisements that are broadcasted widely on all four private television stations in Indonesia including at the same time on Saturdays and Sundays while children's programs are aired from 6:00 to 21:00.

Element of comprehensive approach

Indonesia already be aware to reduce SSB consumption based on their input in program priority. The very first step that must be done is to **add the definition of SSB products and its standard in Law No.18 of 2012 concerning Food and Regulation of the Food and Drug Supervisory Agency No. 21 of 2016 concerning the Food Category**. However, to support handling SSB consumption it also requires several elements that already be identified to tackle SSB consumption based on all systematic reviews, including::

Element 1: Addressing availability, accessibility and marketing for sugar sweetened beverages products and healthier alternatives.

1.1. Limiting the availability of SSB, especially around schools
1.2. Ensuring the availability of healthier drinks in schools, hospitals, supermarkets and restaurants
1.3 Regulating the marketing of SSB

Element 2: Implementing fiscal policy to encourage behavior change to consume healthier products.

Element 3: Implementing Health Promotion Efforts to improve public awareness regarding SSB products and their impacts

3.1. Implementing behavior change interventions to increase awareness at school, society and community levels regarding SSB and its impacts
3.2. Ensuring availability of clear alarming labels on SSB
3.3. Increasing Public service Advertisement on television regarding healthy lifestyle by reducing sugar, salt, and fat content

Implementation Consideration

A policy alternative should be considerate several point of assessment to each level including individual, children, older people, parent, school, government, industry, and community:

- Increase levels of community awareness to prevent obesity due to over consumption of SSB product.
- Understand the behavior would have a negative long-term impact, especially for older people
- Address factors in the Indonesian culture for over consumption of sugary drink
- Educate parents to provide support to school policy to limit the children consumption
- Decrease children's exposure to SSBs Product
- Develop school-based interventions to tackle and edify students
- Engage all national government stakeholders and obtain their support on this issue (one unified message about consumption of SSB)
- Increase the awareness on the impact of SSB product
- Account for the difference between social engineering and gaining money
- Select the right leading institution for each proposed policy option.

EXECUTIVE SUMMARY

Problem statement

Indonesia has the third highest consumption of Sugar Sweetened Beverages (SSBs) consumption (20,23 liter/person) in South East Asia (Ferretti & Mariani, 2019). The high consumption of SSBs contributes to the high rate of mortality and morbidity from overweight, obesity, non-communicable diseases (such as diabetes and cardiovascular disease) (Malik et al., 2019) and increases healthcare expenditures (Ferretti & Mariani, 2019). This problem has been further exacerbated due to lack of adequate regulation implementation to control the availability, accessibility, affordability, industry interference and marketing of SSBs (Haning, Arundhana, & Muqni, 2016).

Size of the problem

In Indonesia, sugar-sweetened beverages are consumed at least once a week by 62 % children, 72% adolescents and 61% of adults, with ready-to-drink tea being the most frequently consumed SSB (Laksmi et al., 2018). Indonesia has a large and rapidly growing market for SSBs. Large markets sell unhealthy drinks in various places, such as schools, supermarkets, and some hospitals (Moreno, 2009; and Moira Smith et al., 2019). Upon completion of a food frequency questionnaire, 81.6% of children consumed a commercial snack food and 40.0% consumed a sugar sweetened beverage one day prior to the survey (Green et al., 2019). According to the Indonesian Research and Development Agency for Health (Balitbangkes, 2014), the daily consumption of carbonated drinks was 2.4 milliliter (ml)/ person. The highest consumption is in the age group of 13-18 years which is 4.7 ml / person / day (Mutaqin, Z. Z, 2018). In 2014, total sales of SSBs were 3.894 billion litres, of which carbonated soft drinks accounted for 944 million litres (24.2%), juice for 167 million litres (4.3%), ready-to-drink coffee 16 million litres (0.4%), ready-to-drink tea 2145 million litres (55.1%) and energy drinks 622 million litres (16%), for a population of slightly more than 250 million people. Annual per capita sales of SSBs in Indonesia was around 16 litres in 2014, compared to over 70 litres in Singapore (Bourke, E. J., & Veerman, J. L.,2018).

A systematic review showed that Non-communicable disease (NCD) such as CVD and type 2 diabetes and obesity were related to the increasing trend of SSB consumption (Vargas-Garcia, Evans, and Cade 2015). A systematic review mentioned that non-communicable disease (NCD) such as CVD, diabetes type 2 is associated with several modifiable factors including consuming SSB (Vargas-Garcia, Evans, and Cade 2015). Another systematic review reported that consumption of sugar sweetened beverages is associated with the incidence of type 2 diabetes, and independently of adiposity (obesity) based on the observational cohort studies (Imamura et al., 2015). Indonesia health research conducted by Health Research and Development of Indonesian MOH (Badan Penelitian dan Pengembangan Kesehatan Kementerian Kesehatan RI, 2018) reported that NCDs has grown from 2013 to 2018 in all of Indonesia Sub National Levels. In addition, BPJS Kesehatan (Indonesia National Health Insurance Institution) reported that the catastrophic burden of disease for non-communicable disease already grew. In 2017 alone, 10,801,787 of people, or 5.7% JKN (National health insurance) members were reportedly covered for catastrophic services which constituted 14.6 trillion rupiah or 21.8% of the total health service budget. BPJS Kesehatan reported that around 50.9% and 17.7% of the catastrophic service spending was on cardiovascular disease and chronic kidney diseases, respectively (BPJS data, 2017). Diabetes Mellitus has contributed to 7.7 trillion rupiah (equal to 50,8 million US dollar) in 2016 for assurance cost, hypertension ranked the first position on hospital claim cases at Jakarta and East Nusa Tenggara Provinces (Heniwati, 2016).

Underlying factors

Governance arrangements

Indonesia has inadequate regulation system to reduce the high consumption of SSB products where there are not yet have a clear definition for SSB in one regulation (policy), its standard of SSB and limited multi sectoral collaboration to tackle this issue. The only definition comes from Food and Drug Control Agency (BPOM) Number 21 of 2018 concerning the Food Category that stated SSB consists of its several forms including processed drinks (carbonated and non-carbonated), fruit juices, concentrates and fruit juices. Ministry of Health and BPOM has a technical authority to determine concept of sugar intake for a human body but they do not have a same statement about this maximum standard of sugar threshold value. Evidence has shown that there is no collaboration among government institutions which have found that The Ministry of Finance has failed to advocate the SSB tax in 2012 and 2016 (Preece, 2019)

Financial arrangement

A direct observation to an online market platform (Tokopedia) have found that price for sugar in Indonesia is starting with 0,5 US Dollar (7.900 rupiah) for 500 mg and the price for SSB product is starting with 0,1 US Dollar (1.500 Rupiah) for 180 ml drinks. It shows that the prices are very affordable.

Marketing

Sugar Beverage Ads include promotional advertisements that are broadcast widely on all four private television stations in Indonesia including at the same time on Saturdays and Sundays while children's programs are aired from 6:00 am to 09:00 pm or 21:00. This is because there is no specific law to regulate advertisements intended for the implementation of advertising commerce broadcasting for children (Ali, 2014). The average time between child exposure to advertisements depicting unhealthy foods and beverages is much less than the average time between exposure to advertisements depicting healthy food and beverage (Kelly et al., 2016).

Yogyakarta has the highest ranking for the ratio of unhealthy and healthy food ads with a ratio of 25:1 which means the length of time it takes to advertise healthy food is equal to 25 times for unhealthy food ads. Figure 1 explains the amount of time between child exposure to advertisements health and unhealthy foods and beverages. On average, a child watching television may be exposed to one *unhealthy food/beverage* advertisement every 4 min in Yogyakarta, 12 min in Shanghai, 13 min in Heilongjiang, 16 min in Kuala Lumpur, 17 min in Xi'an and every 26 min in Seoul. This compares among the children seeing one advertisement promoting a *healthy food/beverage* every 22 min in Shanghai and Xi'an, 43 min in Seoul, 100 min in Yogyakarta, 120 min in Kuala Lumpur and every 150 min in Heilongjiang. The most frequently advertised product across all sites was sugar-sweetened drinks (Kelly et al., 2016).

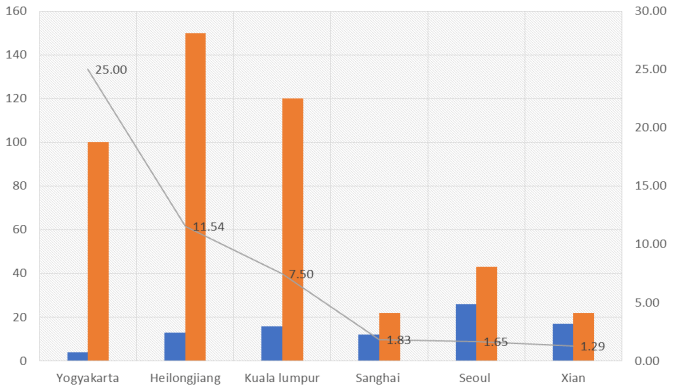


Figure 1. Amount of time (in minutes) between child exposure to advertisements depicting health vs. unhealthy foods and beverages

Implmentation of an agreed upon course of action

Central BPOM (Drug and Food Control) Center in Semarang said that about 66.7% of food and snacks for school children in Central Java, Indonesia did not meet health requirements (Henny, et al., 2015). Drink samples containing saccharin and cyclamate found in schools in Semarang Indonesia was due to lack of supervision and guidance to the traders by the schools (Henny, E, et al., 2015). Research at SDN 01 Kebon Jeruk Jakarta, Indonesia shows that most of the foods available in the school canteen are high-fat and high-energy foods and high sugar drinks (Putri, V et al. 2017).

Element of a comprehensive approach to address the problem

Element 1: Addressing availability, accessibility and marketing for sugar sweetened beverages products and healthier alternatives

1.1 Limiting the availability of SSB, especially around schools

Children spend more time in schools than in any other environment away from home. More than 48 million students attend 94,000 public elementary, middle, and secondary schools each day, and an additional 5.3 million students attend 30,000 private schools (Story, Mary, et al., 2009). Limiting availability or reducing the quantity of SSB products refers to a policy that tries to limit school society access especially children and young people in order to limit sugar intake. Some school implemented a limit on portion size such as reducing the sugary drink to 12 oz, and á la carte offerings (without drink) and a controlled cafeteria food (Levy, Friend, & Wang, 2011).

A systematic review found that educational and behavioral interventions by changing menu for healthier, increasing the availability of healthier drinks and restriction of SSB products are successful in reducing SSB intake in children and adolescents (Micha et al., 2018). Another systematic also mentioned that limiting the SSB product generally have declined 4 – 6% of SSB consumption among student (Levy et al., 2011)..

1.2 Ensuring the availability of healthier drinks in schools, hospitals, supermarkets and restaurants

The availability of healthy drinks is one option to intervene in the selection of products that will be consumed by the community in schools, restaurants, supermarkets and hospitals. Three systematic reviews found that healthier food and drinks can be available in public spaces (schools, hospitals, supermarkets, and restaurants) (Hollands et al., 2019; Verloigne et al., 2012; & Al-Khudairy, 2019). A single study showed providing healthy drinks in schools is done by replacing SSB products with water in vending machines and cafeterias (Whatlet et al., 2008). One study also showed that replacing carbonated drinks with healthy (non-carbonated) drinks at school can control student weight gain (Ruyter et al., 2012).

Three systematic reviews explain that the availability of healthier drinks in schools, restaurants, supermarkets and hospitals can be done with: (1) providing more healthy products than less healthy products; and (2) reducing the availability of unhealthy products (especially SSBs) (Hollands et al., 2019; Al-Khudairy et al., 2019; & Roy et al., 2015). Two systematic reviews show that policies and practices that change the amount and proximity of healthy drinks can contribute to changes in the amount of consumption chosen by people, and can be used as part of a broader set of strategies to support healthier food consumption (Hollands et al., 2019; and Al-Khudairy L et al., 2019). For this reason, this option proposes not only the availability but also the proximity of reaching the purchase of healthy drinks. To control community consumption, availability healthier drink policy should come with an easy access of the drink (Roy et al., 2015).

1.3 Regulating the marketing of SSB

The term 'marketing' refers to commercial activities designed to increase brand recognition, appeal and ultimately purchase of products and services. It traditionally relates to four broad classes of activities, including 'product', 'price', 'place' and 'promotion' (Kelly, B., et al.,2013). Promotion includes advertising (television, cinema, radio, print and digital media), Internet, packaging and labelling, branding, point-of-sale material, merchandising, film and television programme tie-in characters, and the commercial sponsorship of education material by a commercial source (Cairns, G., et al.,2009).

One systematic review provides valuable insights and provides strong evidence to support restrictions on food marketing for children. Exposure to food marketing impacts the attitudes, preferences, and consumption of unhealthy children's food, with adverse health consequences. (Smith, R., et al, 2019). One systematic review mentioned a significant proportion of advertising is for foods and beverages, and these advertisements are often for products high in fat, sugar and salt (HFSS). This review mentioned in the absence of a complete ban on unhealthy food advertising to children there is a need to strengthen and extend existing rules and codes to cover common persuasive techniques (Jenkin, Get al., 2014).

Element 2: Implementing fiscal policy to encourage changing behavior to consume more healthier products.

Evidence shows that government intervention, in the form of taxes or subsidies, is quite effective in transforming consumption patterns related to obesity and chronic disease (Thow et al., 2014). The price elasticity for consumption changes (the elastic price of sugar-sweetened beverage and cross-price elasticity used for substitution in milk, diet drinks, and fruit juice) with a tax rate of 20% (0.30 dollars) on consumption (Bourke and Veerman, 2018). The price change was converted into consumption change using price elasticity (the elastic price 1,609 kJ/L for sugar-sweetened beverage and cross-price elasticity used for substitution in milk 2,660 kJ/L, diet drinks 4 kJ/L, and fruit juice 1,821 kJ/L). The government needs to establish a fiscal policy to keep the pattern public consumption which can affect diabetes (WHO, 2016).

Sugar-sweetened beverage tax is a robust instrument reducing sugar consumption and it also reduces the burden due to obesity and non-communicable diseases. The tax motivates consumers to buy healthier products, as well as to create new income useful for health program promotion and services. In the UK, it also prompts leading sugar-sweetened beverage industries to make reformulation. (Roache, S. A., & Gostin, L. O., 2017). The implementation of the sugar-sweetened beverage tax is one of the solutions recommended by WHO (WHO., 2017) to cut the globally increasing prevalence of obesity non-communicable diseases.

Four studies mentioned that SSB taxes increase taxation and fiscal policies to reduce calorie and sugar intake and increase behavioral intentions to consume healthier products. SSB taxes have the potential to reduce calorie and sugar intake as well as increasing the behavioral intent to reduce consumption in the future at least a 20% increase (Escobar, Maria A. Cabrera, et al., 2013; Eykelenboom et al., 2019; Redondo, Hernández-Aguado & Lumbreras, 2018 ; Nakhimovsky, Sharon, et al., 2016). This intervention could be a positive incentive for healthier products to compete at market arena. Lessons learned from the tax application indicate a decrease in sugar-sweetened beverages in the tax application indicate a decrease in sugar-sweetened beverages in the first years of the implementation (Roache, S.A. & Gostin, L.O., 2017.;Ng, Shu Wen, et al., 2019). A study examined the potential impacts of sugar-sweetened beverage tax policy in developed countries. The study claimed more significant impacts on lower-income groups. However, the countries studied were in different nutrition transition stadiums, sugar-sweetened consumption patterns, and BMI distribution. In Indonesia, low-income groups consume a lower number of sugar-sweetened beverages than high-income groups. A study found that high-income groups made expenditure 27 times higher than lower-income group. The high-income groups are population with high BMI, which is inversely proportional to the situation in other countries (Bourke & Veerman, 2018). There is an estimate that a national SSB tax of $ 0.01 per ounce will cost the United States $ 51 million to be implemented in the first year but generate $ 23.6 billion in health care savings related to obesity for 10 years (Wilde et al., 2019).

Element 3: Implementing Health Promotion Efforts to improve public awareness regarding SSB products and their impacts.

3.1 Implementing behavior change interventions to increase awareness at school, society and community levels regarding SSB and its impacts

Behavioral intervention is an intervention or program, or policy designed to affect the actions that individuals take into consideration to change their attitude with an action for their health (Ibrahim, 2005). Behavioral interventions would be relied on an approach to change knowledge, attitude and subsequently of children at school and community level facing SSBs consumption. Integrated Behavioral change interventions aiming to reduce the SSB consumption have been reported to be successful, especially among children and adolescents (Rahman et al., 2018). There are some behavior interventions regarding behavior intervention such as providing lunchbox for student (Nathan et al., 2019), sugar and salt restriction in school(Micha et al., 2018), substituting sugar drink to water (Franse, Wang, Constant, Fries, & Raat, 2019; Nathan et al., 2019), and changing diet and lifestyle (Mozaffarian et al., 2011).

One systematic review mentioned integrated behavioral change interventions aiming to reduce the SSB consumption are reported to be successful, especially among children and adolescents (Rahman, Jomaa, Kahale, Adair, & Pine, 2018). Four studies mentioned that community-based awareness interventions are better than school interventions alone in terms of reducing SSB intake (Avery et al., 2015)(Micha et al., 2018)(Mozaffarian,et all., 2011) (Vézina-Im et al., 2017). There is no systematic review mentioning evidence regarding potential harms.

3.2 Ensuring availability of clear alarming labels on SSB

Clear alarming label is clear nutrition labelling which WHO mention as a list of nutrients on a food label accompanied by some form of quantifying mechanism. (Hawkes, Corinna et al, 2004). Some labeling interventions include traffic-light labeling, nutritional rating score shelf-labels, menu-board calorie labeling, and emoticon labeling (Von Philipsborn P, et al., 2019). Diet, Physical Activities and Health Strategy (DPAS) and associated technical and action plan reports were adopted by the World Health Assembly in 2004. It suggests fiscal, labelling, and nutritional guideline policies (Moise, N et al., 2011). One systematic review found evidence that multicomponent community campaigns focused on SSBs showed positive effect on decreasing SSB sales (Von Philipsborn, et al 2019)..

One systematic review mentioned that traffic-light labelling and nutritional rating score labelling showed a positive effect on decreasing sales of SSBs. For menu-

board calorie, labelling chain restaurants, and cafes post the number of calories contained in foods and beverages on menu boards (Von Philipsborn, et al., 2019).

3.3 Increasing Public service Advertisement on television regarding healthy lifestyle by reducing sugar, salt, and fat content

Public communication campaigns (PCCs) refer to an organized set of communication activities directed at large audiences in order to generate specific outcomes within a specified time period. The purpose of PCCs is to influence and change the behaviors of individuals (Jang, Juhyun et al, 2016). One systematic review mentioned public service advertisements that emphasize the harmful effects of over-consuming SBs serve as another effective initiative to consider provided that their arguments are strongly presented (Du, M., et al., 2018). One study from Indonesia suggested mentioned promotion and the socialization of PSAs related to the limit of consumption of sweetened drinks and the dangers of consuming sweet drinks excessive, can be through mass media / electronics, television, and social media so all walks of life the public can be exposed to this information(Daeli, Widi & Nurwahyuni, Atik. 2019).

One systematic review mentioned Public Service Advertisement (PSAs) about sugary drinks represent a new but potentially powerful way to produce behavior change and impact the obesity epidemic among children and adolescents. (Bleakley, A., et al.,2015). Another systematic review mentioned public service advertisements that emphasize the harmful effects of over-consuming SBs serve as another effective initiative to consider provided that their arguments are strongly presented (Du, M., et al., 2018). One study from Indonesia suggested mentioned promotion and the socialization of PSAs related to the limit of consumption of sweetened drinks and the dangers of consuming sweet drinks excessive, can be through mass media / electronics, television, and social media so all walks of life the public can be exposed to this information(Daeli, Widi & Nurwahyuni, Atik. 2019).

Implementation Considerations:

A policy alternative should be considerate several point of assessment to each level including individual, children, older people, parent, school, government, industry, and community:

- Increase the awareness to prevent from obesity with over consumption of SSB product.
- Understand the behavior would have a negative impact in future especially for older people
- Reduce the Indonesian culture for provide and drink sugary drink
- Educate parents to provide support to school policy to limit the children consumption
- Decrease children exposing of SSBs Product
- Develop school-based intervention to tackle and edify student
- Integrate all national government stakeholder into one voice
- Increase the awareness the impact of SSB product
- Make sure the difference between social engineering and gaining money
- Select the right leading institution for each option is essential

Implementation considerations are discussed in detail for each element in the full policy brief.

CONTENT

Problem statement

Indonesia has the third highest consumption of Sugar Sweetened Beverages (SSBs) consumption (20,23 liter/person) in South East Asia (Ferretti & Mariani, 2019). The high consumption of SSBs contributes to the high rate of mortality and morbidity from overweight, obesity, non-communicable diseases (such as diabetes and cardiovascular disease) (Malik et al., 2019) and increases healthcare expenditure (Ferretti & Mariani, 2019). This problem has been further exacerbated due to lack of adequate regulation implementation to control the availability, accessibility, affordability, industry interference and marketing of SSBs (Haning, Arundhana, & Muqni, 2016).

Background to Policy Brief

CHPM produce a policy brief with a comprehensive literature reviews for a high-quality research in global and Indonesia context to be able to inform deliberation about health policy and programs. This document is prepared by synthesizing and contextualizing the best available evidence regarding the problem and potential policy alternatives through systematic search strategies, internal and external expert consultations, policymakers', and stakeholders' interviews.

The preparation of the Policy Brief involved the following steps:

1. Selecting a priority topic in Indonesia
2. Selecting a working team for SSB consumption based on their expertise who deliberates to develop an outline for the policy brief and oversee the litmus testing phase.
3. Developing and refining the outline, particularly the framing of the problem and the viable elements
4. Litmus testing by conducting one to one scheme interviews with up to 13 selected most related government institutional as the policymakers and stakeholders to frame the problem and make sure all aspects are addressed.
5. Identifying, appraising, and synthesizing relevant research evidence about the problem, elements, and implementation considerations
6. Drafting the policy brief in such a way as to present concisely and in accessible language the global and local research evidence.
7. Undergoing merit review internationally and nationally.
8. Finalizing the Policy Brief based on the input of merit reviewers, translating into Bahasa Indonesia, validating translation, and disseminating through policy dialogues and other mechanisms

Size of the problem

Developing countries in the epidemiological transition are undergoing a reduction in mortality from communicable diseases but have concomitant increases in nutrition-related non-communicable diseases, thereby experiencing the double burden of malnutrition and obesity. There is a growing concern about the rapid rise in prevalence of obesity amongst children globally and particularly in developing countries (Yang, Wai Yew, et al., 2012). Forty-three million children aged 0–5 years are obese or overweight worldwide, and the prevalence of obesity in children is estimated to rise from 4.2% in 1990 to 9.1% in 2020. A systematic review showed that Non-communicable disease (NCD) such as CVD and type 2 diabetes and obesity were related to the increasing trend of SSB consumption (Vargas-Garcia, Evans, and Cade 2015).

Similarly, WHO national action plan detailed that non-communicable disease (NCD) such as CVD, diabetes type 2, Cancer and Chronic Respiratory Diseases were related to several factors including overweight, raised blood pressure, raised blood glucose, and raised lipid (World Health Organization, 2015). Behavioral Risk Factors that are related to NCD include smoking (tobacco), harmful use of alcohol, lack of physical activities and unhealthy diet. In line with Indonesian Ministry of Health program, unhealthy diet is related to high consumption of sugar, salt and fat.

Sugar-sweetened beverages include all beverages that contain free sugars. The beverages may be in the form of carbonated or non-carbonated drinks, fruit/ vegetable juice, liquid and powder concentrates, flavored water, sports drink and energy drink, instant tea, instant coffee, Sweetened coffee drinks (Bottled iced coffees, coffee drinks ordered with sugar or flavoring syrups) and flavored milk. The free sugars mentioned are monosaccharide (glucose, fructose) and disaccharide (sucrose and table sugar) and natural sugar in honey, syrup, fruit juice without sugar, and fruit juice concentrate (WHO, 2017) (YMH, 2019).

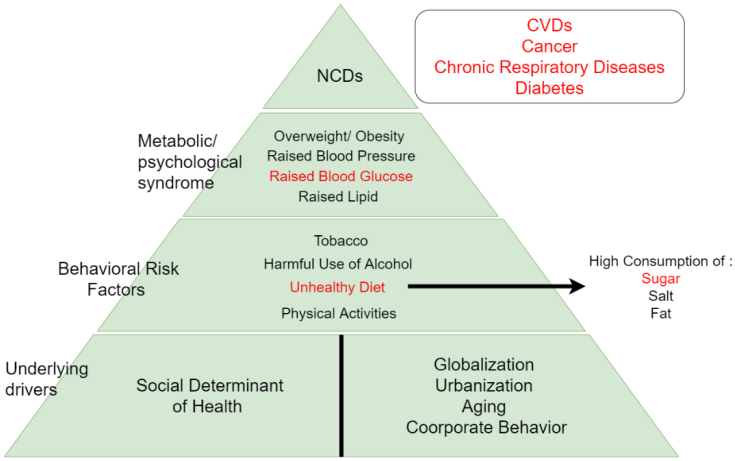


Figure 2. Detailed the pyramid of NCD national action and addressed how the salt and NCD were connected.

Another systematic review reported that consumption of sugar sweetened beverages is associated with incident type 2 diabetes, and independently of adiposity (obesity) based on the observational cohort studies (Imamura et al., 2015). As of 2018, 35.4% of Indonesians were overweight or obese. Vermeen et al. (2019) mentioned that more than 5 percent of Indonesia reported living with diabetes and 35,4 percent were overweight. Indonesia's healthcare system lacks the capacity to cope with this escalating chronic disease burden, and the rising burden is connected to increasing consumption of sugary drink (Veermen et all 2019). The Imamura's systematic and veermen opinion have been supported by a systematic review regarding the Physiological and psychological mechanisms linking SSB intake with adverse health outcomes (figure 2).

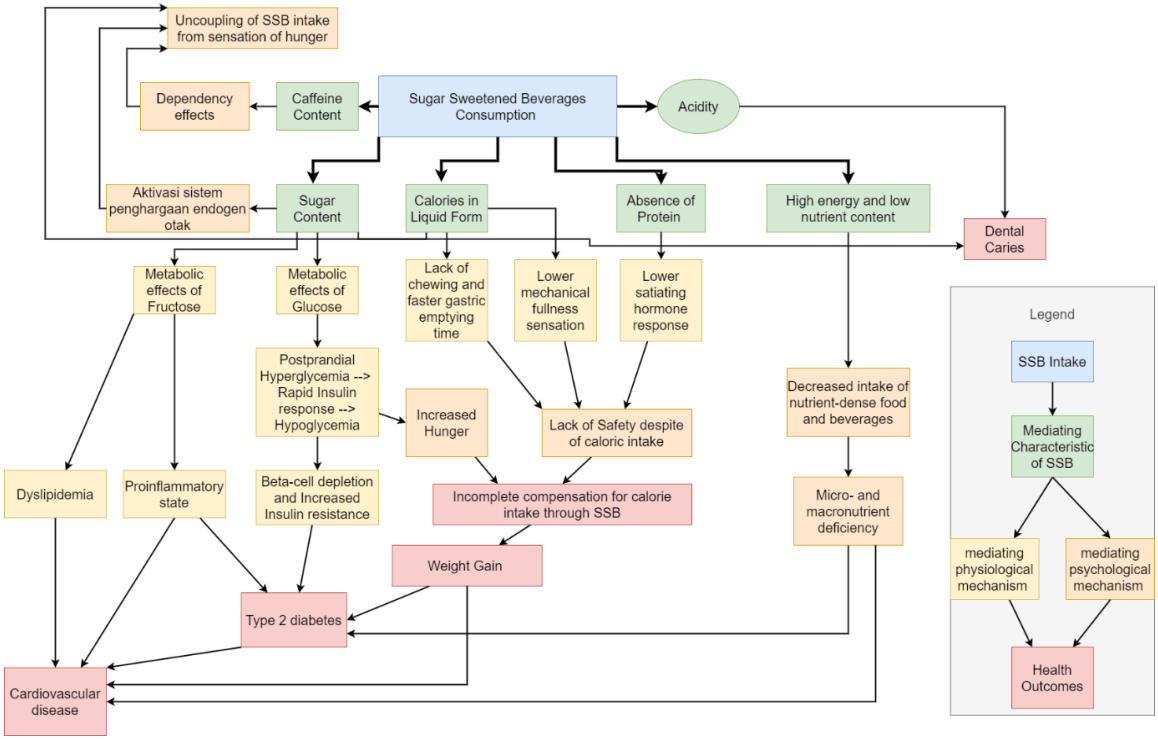


Figure 3. Physiological and psychological mechanisms linking SSB intake with adverse health outcomes (Von Philipsborn P, et al., 2019)

In 2018 in Indonesia, sugar-sweetened beverages are consumed at least once a week by 62 % children, 72% adolescents and 61% of adults, with ready-to-drink tea being the most frequently consumed SSB (Laksmi et al., 2018). Indonesia has a large and rapidly growing market for SSBs. Large markets have sold unhealthy drinks in various places, such as schools, supermarkets, and some hospitals (Moreno, 2009; and Moira Smith et al., 2019. Among all children, 81.6% consumed a commercial snack food and 40.0% consumed a sugar□sweetened beverage in the day preceding the interview. According to the Indonesian Research and Development Agency for Health (Balitbangkes) (2014), the daily consumption of carbonated drinks was 2.4 millimeter / person. The highest consumption is in the age group of 13-18 years which is 4.7 ml / person / day (Mutaqin, Z. Z, 2018). In 2014, total sales of SSBs were 3.894 billion litres, of which carbonated soft drinks accounted for 944 million litres (24.2%), juice for 167 million litres (4.3%), ready-to-drink coffee 16 million litres (0.4%), ready-to-drink tea 2145 million litres (55.1%) and energy drinks 622 million litres (16%), for a population of slightly more than 250 million people. Annual per capita sales of SSBs in Indonesia was around 16 litres in 2014, compared to over 70 litres in Singapore (Bourke, E. J., & Veerman, J. L.,2018). This trend is similar to rise of SSB consumption further in MICs where multinational companies are targeting new investments (Nakhimovsky, S. S et al, 2016

Indonesia is a growing marketplace for sugar-sweetened beverages (Bourke & Veerman, 2018). In 2004-2005, the production was raised by almost 300% which means a 30% annual increase. The production increased, from 2.1 million liters in 2005 and 5.919 million liters in 2014. Meanwhile, soft drink per capita consumption is 33 liters per year. It does not surpass Thailand with 89 liters and Singapore with 141 liters (Ardiansyah, B. G., 2017). It has been estimated that SSBs account for at least one-fifth of the weight gained between 1977 and 2007 in the United States (US) population. Therefore, SSBs were a target for many obesity prevention interventions (Eykelenboom, Michelle, et al., 2019). Both observational and experimental evidence have successfully shown a correlation between SSB intake, weight gain and its related comorbidities (that mainly being obesity, metabolic syndrome, CVD and type 2 diabetes) (Vargas-Garcia, Evans, and Cade 2015). Another systematic review reported that consumption of sugar sweetened beverages is associated with incidence of type 2 diabetes, and independently of adiposity (obesity) based on the observational cohort studies (Imamura et al., 2015).

There are some national studies reporting that high sugar intake has significant degree with Noncommunicable disease. In Surabaya, a research to elderly people reported

that there was a correlation between the consumption of SSBs and the incidence of diabetes mellitus in elderly (p <0.001; OR = 9.375). It means that the risk to have a diabetes is nine (9) times more likely for people who consumed SSB daily than the other people who have a less consuming in a month (Ramadhani & Mahmudiono, 2018). In Semarang, a study reported that there was a correlation between consumption of sweetened drink with blood sugar levels among adults aged 30-50 years (p = 0,001, r = 0,351). This finding showed that there is a weak significant correlation so there is a potential risk to have high blood sugar level with a consumption of SSB products (Maryanto & Pontang, 2018). A research in Depok City reported that there was a strong correlation between the consumption frequencies of sugar-sweetened beverages with serum triglyceride levels among female adolescent (15-17 years old). Triglycerides are one form of fat deposits in the body and are used as an energy source for various metabolic processes and constituents of cell membranes and if High triglycerides are assumed to trigger a thickening of the walls of blood vessels, so the risk of stroke and heart attack occurs (Patriantoro,2018).

Indonesia health research conducted by Health Research and Development of Indonesian MOH (Badan Penelitian dan Pengembangan Kesehatan Kementerian Kesehatan RI, 2018) reported that NCDs has grown from 2013 to 2018 in all of Indonesia Sub National Levels. This institution reported that cancer prevalence has increased from 1.4 percent to 1.8 for 1,000 people, stroke prevalence reported an increase from 7 percent to 10,9 for 1,000 people and Diabetes Meletus has experienced around 0.9 percent to 2.0 percent per 1,000 people. All NCD trends are detailed in figure 3.

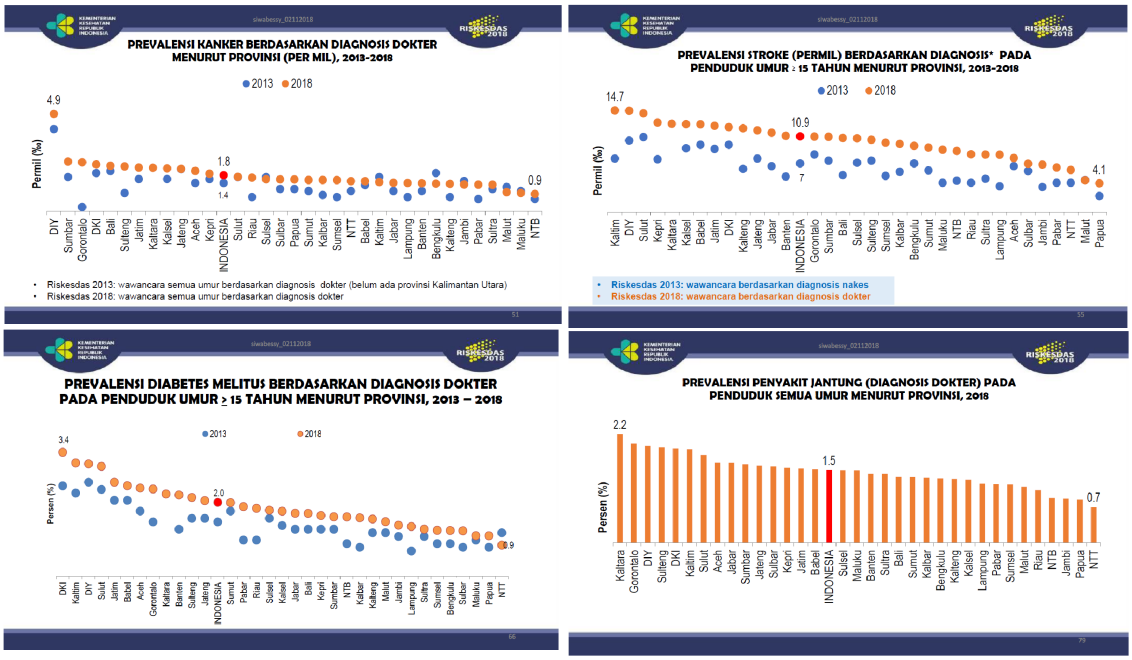


Figure 4. NCD Trends in Indonesia

Indonesia is experiencing a rise in disability- adjusted life-years (DALYs) for the non-communicable disease (NCD) such as ischemic heart disease, cerebrovascular disease, and diabetes between 1990 and 2016 (Mboi et al., 2018). To promote healthy lifestyle, Indonesian Ministry of Health have encouraged the society to limit their intake of Sugar, Salt and Fat (SSF). The food product should have a label indicating the message "over consumption for SSF will lead to the NCD cases" (Ramayulis & Achadi, 2018).

Not only noncommunicable diseases reported an increase in prevalence between 2013 and 2018, but also in cost. In Indonesia, BPJS Kesehatan (Indonesia National Health Insurance Institution) reported that the catastrophic burden of disease for non-communicable disease already grew. In 2017, 10,801,787 of people, or 5.7% JKN (National health insurance) members were covered for catastrophic services which constituted 14.6 trillion rupiah or 21.8% of the total health service budget. BPJS Kesehatan reported that 50.9% and 17.7% of the catastrophic service spending was on cardiovascular disease and chronic kidney diseases, respectively (BPJS data, 2017). Diabetes Mellitus has contributed to 7.7 trillion rupiah (equal to 50,8 million US dollar) in 2016 for insurance cost. Hypertension ranked first when it came to hospital case claims at Jakarta and East Nusa Tenggara Provinces (Heniwati, 2016).

Underlying factors

Governance arrangements:

Indonesia does have inadequate regulation system to reduce the high consumption of SSB products where there are not yet have a clear definition for SSB in one regulation (policy), its standard of SSB and limited multi sectoral collaboration to tackle this issue.

The only definition comes from Food and Drug Control Agency (BPOM) Number 21 of 2018 concerning the Food Category that stated SSB consists of its several forms including processed drinks (carbonated and non-carbonated), fruit juices, concentrates and fruit juices. Although the government does not yet have a specific definition of SSB, BPOM has Regulation No. 22 of 2019 concerning Nutrition Value on Processed Food Labels stating that all food products should inform all the nutrition labels except alcohol. Nutrition value information will be endorsed by BPOM with a proof letter of a licensed laboratory or a public/government laboratory.

Ministry of Health (MoH) and BPOM has a technical authority to determine concept of sugar intake for a human body but they do not have the same statement about this maximum standard of sugar threshold value. MoH have established a national regulation mentioned that sugar consumption should not exceed 50 gram per day per person (equal to 4 tablespoons) (Menteri Kesehatan RI, 2013). This number is as the same amount as the sugar intake index determined by WHO. WHO guidelines recommend adults and children to cut sugar consumption to less than 10% of daily energy intake (equal to 12 teaspoons for adults) to prevent obesity and carries (WHO, 2017). On the other hand, BPOM regulations also encourage companies to reformulate by reducing sugar levels to 6 gram per 100 ml.

However, overcoming the high consumption of SSB in Indonesia is not only the role of BPOM and the Ministry of Health, it requires a dual role from the government. After conducting a map of role for each ministry and a series of national consultation interviews, the role of each government agencies has been found fragmented activities and limited collaboration. Table 1 explains that there are several other government institutions that also have a role in overcoming SSB consumption. However, the real evidence shows that there is no collaboration between government agencies in the formulation of policies related to handling DPS consumption. The Ministry of Finance has failed to advocate for SSB taxes The Ministry of Finance has failed to advocate the SSB tax in 2012 and 2016 (Preece, 2019).

Table 1. The Role of Each Ministry in SSB

Institution	Role
Ministry of Health	Preventive • Preventing non-communicable diseases caused by SSB through the preparation of healthy compositions for consumption. Promotive • Promoting healthy drinks and healthy living behaviors. Curative • Providing treatment services and facilities from the impact of consuming SSB (non-communicable diseases).
Ministry of Finance	Utilize revenue from sales or the SSB industry as state fiscal revenue, which is intended to support health services.
Food and Drug Control Agency (BPOM)	Regulate and supervise the composition of sugars in food and drinks. Set labels on food and drinks. Overseeing the circulation of SSB in the community.
Ministry of Trade	• Regulate the proportion of the availability of healthy food and drinks in the community. • Providing easier access (proximity) to healthy food and drinks. • Regulate the price of healthy food and drinks to be cheaper than SSB.
Ministry of Industry	• Overseeing the SSB product industry in Indonesia and from outside. • Expanding and providing support to the healthy food and beverage industry.

The regulation establishes standardization of the amount of sugar contained in processed drinks, such as SSB. In addition, BPOM regulations also encourage companies to reformulate by reducing sugar levels to 6 gram per 100 ml. Beverage companies that follow the recommendations will get a healthier label on the packaging. However, according to the American Heart Association (AHA) sugar consumption is no more than 4gram per 100ml and composition for less sugar drinks is better at least 25 percent per serving compared to a standard serving size of the traditional variety. To overcome the high consumption of SSB, the Ministry of Health (MOH) has provided education in the "Germas (National Healthy Life Movement)" program which invites the public to

reduce their consumption of sugar, sugar drinks, salt and excess fat content (Ministry of Health in interview, 20 April 2020), but this policy is not implemented as stated. MoH has attempted to encourage the society to limit their consumption of sugar, salt, and fat. The National Agency of Food and Drugs Control created a technical regulation to control sugar consumption that every food industry should provide nutrition. Furthermore, this organization has attempted to promote healthier indicator labels for the food industry in order to encourage society to choose healthier food (BPOM, 2019). The regulation establishes standardization of the amount of sugar contained in processed drinks, such as SSB. In addition, Beverage companies that follow the recommendations will get a healthier label on the packaging. In 2020, the Ministry of Finance has planned to adopt an excise tax policy for SSB, due to the negative effects of increased consumption of SSB such as obesity and diabetes (Ministry of Finance, 2020). Meanwhile, the Ministry of Industry and Trade has not established a policy to monitor the consumption and sale of SSB products.

Financial arrangement

The economic sector mentions that the total revenue for Indonesian carbonated soft drinks (most of them is SSB) are US $ 57.67 Million (equal to 940 billion rupiah, I USD= 16,405) in 2019 (Statista, August 2019). Total revenue for Indonesian carbonated soft drinks in 2019 has reached US $ 19.48 million and is expected to increase to US $ 21.49 million in 2020. Meanwhile, non-carbonated soft drink revenue in 2019 has reached US $ 28.19 million and is expected to increase to US $ 30.13 million in 2020 (Statista, August 2019). A study on national socio-economic survey in 2019 mentioned that the proportion of household expenditure for sweetened beverage consumption is 67.19% of the total respondents, namely 279,331 households. Respondents living in urban areas increased expenditure and consumption of sweetened drinks higher than in rural areas (Daeli & Nurwahyuni, 2019). This data has shown that there is a phenomenon that more than have of respondent could have opportunity to drink SSB product in Indonesia. A direct observation to an online market platform (Tokopedia) have found that price for sugar in Indonesia is starting with 0,5 US Dollar (7.900 rupiah) for 500 mg and price for SSB product is starting with 0,1 US Dollar (1.500 Rupiah) for 180 ml drinks. It shows that the price is affordable (so cheap).

Compared to another ASEAN (Association of South East Asia Nation) countries, Indonesia only receive tax from alcohol drink and tobacco, while another country (Cambodia, Thailand and Laos) have successfully implemented tax for SSB, Night Clubs, Motorcycle (Vehicle), Fossil Fuel, and gambling (Kementerian Keuangan, 2020). The MOF already attempted to add Excise law in 2012 (rejected by Commission XI) and 2015 (rejected in 2016 Budget). While Indonesia is still having difficulties in implementing an SSB excise tax, Brunei has charged a $? 0.30 for 6 grams sugar per 100 milliliter in an SSB product, Philippines charged food with natural sugars or artificial sweeteners a $ 0.12 and those with high fructose corn syrup a $ 0.24. Furthermore, food with high sugar content will be charged from $ 0.003 to $0.031 + 14 % its total price in Thailand (Preece, 2019).

Buying or selling behavior has an impact on SSB consumption reduction. A 20% tax and a £ 0.10 levy per drink for SSB decreases purchasing. The introduction of a 30% tax shows a decrease in the total calories purchased. Studies that apply a randomized controlled design show that subjects less likely to choose SSB when taxes > 10% are applied (Redondo, M., Hernández-Aguado, I., & Lumbreras, B., 2018). For example, in the US, soft drink revenues are around $ 70 billion a year, so a simple tax would generate billions of dollars. (Escobar, Maria A. Cabrera, et al., 2013). There is an estimate that a national SSB tax of $ 0.01 per ounce will cost the United States $ 51 million to be implemented in the first year but generate $ 23.6 billion in health care savings related to obesity for 10 years (Wilde et al., 2019).

Overall, the total health expenditure in Indonesia has increased over a 7-year period from 2010 to 2017 and the health sector is receiving a 3.2 percent total gross domestic product in 2017. However, the major sources experienced increasing percentage for Health Insurance scheme and local health expenditure, the national source schemes captured remained stable at 6.1 percent of the total health expenditure. This number showed that Indonesia needs to explore more options and innovation in terms of strengthening and increasing the number of national sources scheme, and SSB taxation could be an obvious answer to expand the national sources (Ministry of Health, 2020)

Delivery arrangement

An evidence indicates that over half of all television advertisements broadcast during children's programming in Asia-Pacific countries are for foods/beverages (Kelly et al., 2016). Sugar Beverage Ads include promotional advertisements that are broadcasted widely on all four private television stations in Indonesia including on Saturdays and Sundays at the time when children's programs are aired from 6:00 to 21:00. This is because there is no specific law to regulate advertisements intended for the implementation of advertising commerce broadcasting for children (Ali, 2014). The average time between child exposure to advertisements depicting unhealthy foods and beverages is much less than the

average time between exposure to advertisements depicting healthy food and beverage (Kelly et al., 2016).

Yogyakarta has the highest ranking for the ratio of unhealthy and healthy food ads with a ratio of 25: 1 which means the length of time it takes to advertise healthy food is equal to 25 times for unhealthy food ads. Figure 1 explains the amount of time between child exposure to advertisements health and unhealthy foods and beverages. On average, a child watching television may be exposed to one *unhealthy food/beverage* advertisement every 4 min in Yogyakarta, 12 min in Shanghai, 13 min in Heilongjiang, 16 min in Kuala Lumpur, 17 min in Xi'an and every 26 min in Seoul. This compares among the children seeing one advertisement promoting a *healthy food/beverage* every 22 min in Shanghai and Xi'an, 43 min in Seoul, 100 min in Yogyakarta, 120 min in Kuala Lumpur and every 150 min in Heilongjiang. The most frequently advertised product across all sites was sugar-sweetened drinks (Kelly et al., 2016).

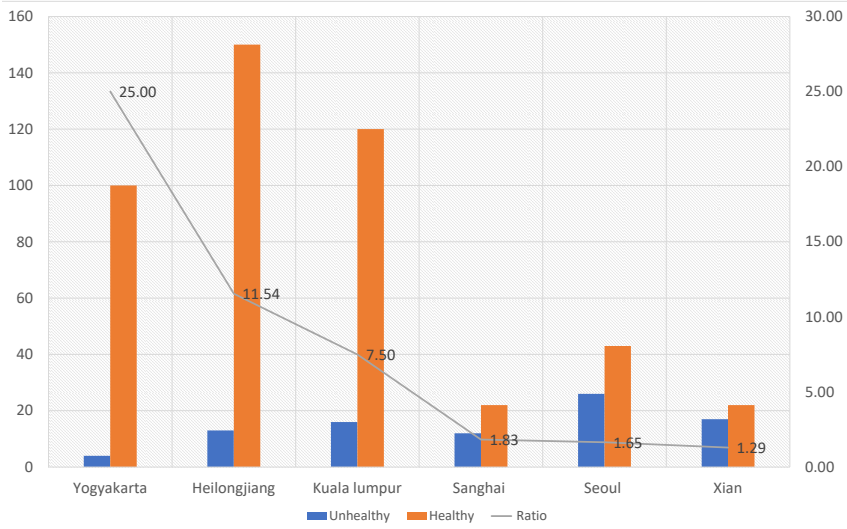


Figure 5. Amount of time (in minutes) between child exposure to advertisements depicting health vs. unhealthy foods and beverages

One systematic review mentioned that children who watched television advertisements for cariogenic foods, such as chocolate, fast food, soft drinks, biscuits, and energy drinks, are more prone to developing dental caries. This may be explained by the effect of food advertisements, which may divert a child's preference over healthy food choices, even if only on the short term. (Shqair, et al.,2019).

Implementation of an agreed upon course of action: Central BPOM (Drug and Food Control) Center in Semarang declared that about 66.7% of food and snacks for school children in Central Java, Indonesia did not meet health requirements (Henny, E, et al., 2015). Drink samples containing saccharin and cyclamate found in schools in Semarang Indonesia are due to the fact that the school do not conduct supervision and monitoring for the traders (Henny, E, et al., 2015). Research at SDN 01 Kebon Jeruk Jakarta, Indonesia shows that most of the food available in the school canteen are high-fat and high-energy foods and high sugar drinks (Putri, V et al. 2017). The most important school-environmental correlated to soft drink consumption were soft drink availability and consumption at school. The results of a preliminary survey of high school adolescents in Pontianak City showed that 60% of teens often visit fast-food restaurants on weekends and 44% consume soft drinks (Rafiony, Ayu et al., 2015).

Element of a comprehensive approach to address the problem

One systematic review illustrated that tackling high consumption need to address to involve a wide range of stakeholders (from children to governmental authorities). First of all, it is desirable to have an impact on the awareness, knowledge, and trust of the participants which can increase their motivation to change this dietary behavior (Vargas-Garcia, Evans, and Cade 2015). Figure 4 will illustrate the potential policy alternatives and how they will have impact in society.

Government of Indonesia is already aware of the need to reduce SSB consumption based on their input in program priority. To tackle SSB consumption, there are many issues that should be addressed at the national level (see Figure 2). Based on the results of the policy dialogue with stakeholders, the main thing that must be done is **to define SSB products in Law No.18 of 2012 concerning Food and Regulation of the Food and Drug Supervisory Agency No. 21 of 2016 concerning the Food Category**. Furthermore, to support handling SSB consumption it also requires several elements that already be identified to tackle SSB consumption based on all systematic reviews, including:

Option 1: Addressing availability, accessibility, and marketing for sugar sweetened beverages products and healthier drink

1.1. Limiting the availability of SSB, especially around schools

1.2. Ensuring the availability of healthier drinks in schools, hospitals, supermarkets and restaurants

1.3. Regulating the marketing of SSB

Option 2: Implementing fiscal policy to encourage changing behavior to consume more healthier products

Option 3: Implementing Health Promotion Efforts to improve public awareness regarding SSB products and their impacts.

3.1. Implementing behavior change intervention to increase awareness at school society and community level regarding SSB and its Impacts

3.2. Ensuring availability of clear alarming labels on SSB

3.3. Increasing Public service Advertisement on television regarding healthy lifestyle by reducing sugar, salt, and fat content

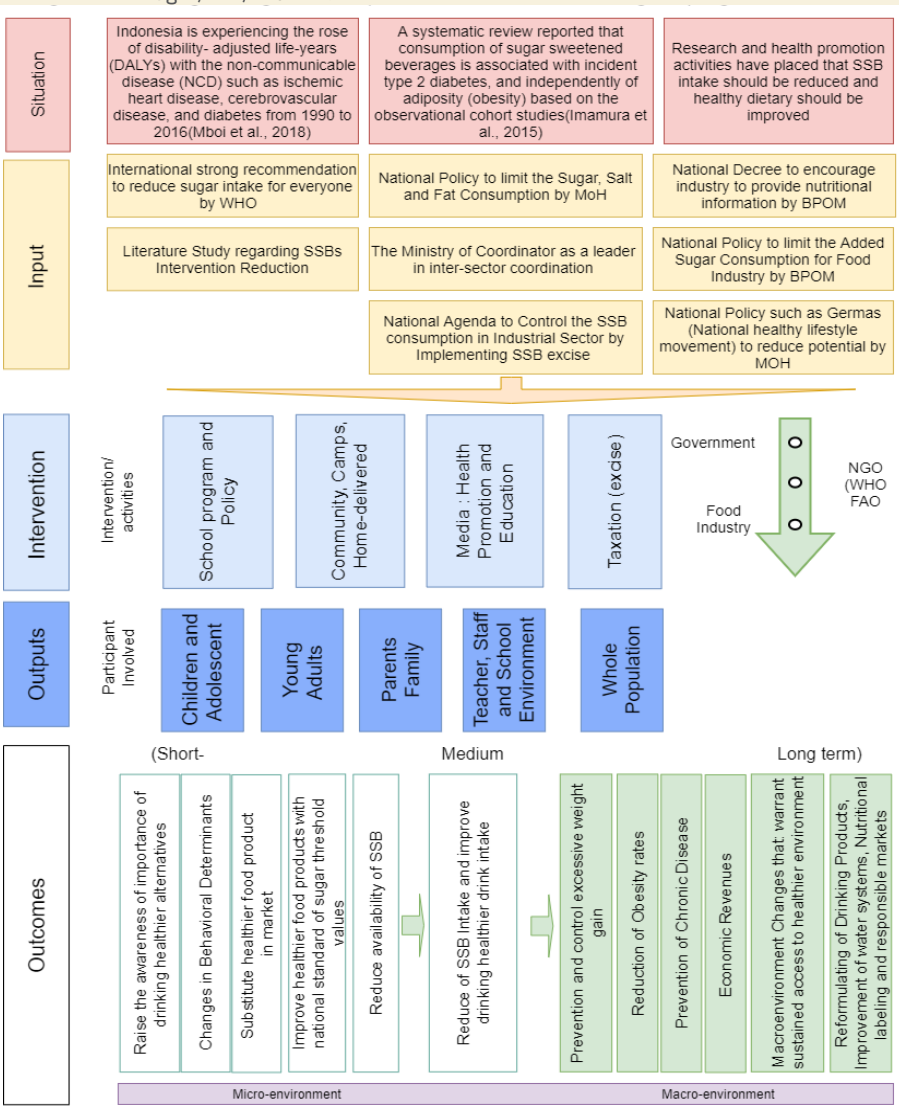


Figure 6. Tackling the high consumption of SSB in Indonesia logical program framework

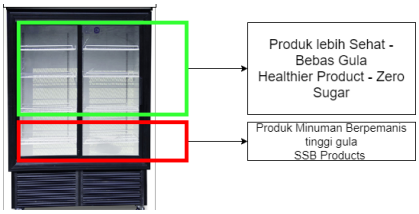
Policy Elements and Implementation Considerations

Element 1: Addressing availability, accessibility, and marketing for sugar sweetened beverages products and healthier drink

Sugar sweetened beverages (SSB) products are widely available and accessible in the community. Locations that often provide SSB are vending machines or canteens in schools, hospitals, supermarkets or retail and hospitals (von Philipsborn P, et al 2019; Hollands et al., 2019; and Wiecha, 2006). The availability and accessibility of SSB that is easily accessible has made the amount of public consumption even higher, as analysis of the 2017 Susesanas data explains that consumption of sweet drinks in Indonesia is 67.19% of 297,331 households (Deali and Nurwahyuni, 2017). So, to handle the availability and consumption of SSB, it is necessary to have healthy drinks that are accessible. Two systematic reviews state that to support availability, government and public space management need to pay attention to proximity and the number of healthy drinks (Hollands et al., 2019). Accessibility of healthy foods and drinks can influence consumer choices (Hollands et al., 2019 and Lena et al., 2018). Food and beverage locations that are far away and difficult to access can make buyers reluctant to buy.

Interventions to control proximity and the number of healthy drinks in schools, hospitals, supermarkets and restaurants require policy and supervision from three institutions namely the Ministry of Trade, the Ministry of Education, and the Ministry of Health. The Ministry of Trade monitors the supermarkets and restaurants. The Ministry of Education supervises the availability of healthy drinks in the school environment while the Ministry of Health regulates the availability of healthy drinks in vending machines and canteens in hospital environments. Addressing the availability and accessibility can be done in three ways, such as:

1.1 Limiting the availability of SSB, especially around schools



Limiting availability or reducing the quantity of SSB products refers to a policy that tries to limit school society access especially children and young people in order to limit sugar intake. Some school implemented a limit on portion size such as reducing the sugary drink to 12 oz, an á la carte offerings (without drink) and a controlled cafeteria food (Levy et al., 2011). Schools are identified as a key setting for public health strategies to lower or prevent the prevalence of overweight and obesity. While the schools alone cannot solve the childhood obesity epidemic, it also is unlikely that childhood obesity rates can be reversed without strong school-based policies and programs to support healthy eating and physical activity. Children spend more time in schools than in any other environment away from home. More than 48 million students attend 94,000 public elementary, middle, and secondary schools each day, and an additional 5.3 million students attend 30,000 private schools (Story, Mary, et al., 2009). Childhood obesity has a complex multifactorial etiology grounded in environmental and individual level factors that affect behavior and outcomes. An ecological, systems-based approach to addressing childhood obesity is increasingly being advocated (Cauchi, Daniel, et al.,2016) because of interventions that change the school food environment with outcomes including both food-related behaviours (purchasing, consumption) and body weight (Driessen, Christine E., et al., 2014) and replacing SSBs with beverage alternatives on long-term health outcomes (Zheng, Miaobing, et al.,2015).

A systematic review found that educational and behavioral interventions by changing menu for healthier, increasing the availability of healthier drinks and restriction of SSB products are successful in reducing SSB intake in children and adolescents (Micha et al., 2018). Another systematic mentioned that implementing intervention to limit SSB product in middle school have showed 25 percent of and for high school have showed 27 percent of the product consuming (Levy et al., 2011). The role of the school principal is needed to establish a sustainability policy to reduce SSB consumption is essential (Tull, K., 2017).

1.2 Ensuring the availability of healthier drinks in schools, hospitals, supermarkets and restaurants

Drinks and healthy food are always available in Indonesian schools, hospitals, supermarkets, and

restaurants. However, the amount of production and consumption is not as much as unhealthy drinks, especially SSB (Sugar-Sweetened Beverages). The availability of healthy drinks is one option to intervene in the selection of products (consider it as a healthier product) that will be consumed by the community in schools, restaurants, supermarkets and hospitals To ensure that people are interested in consuming healthy drinks, a strategic step is needed to optimize the availability of healthy products in schools, hospitals, supermarkets, and restaurants. Three systematic reviews found that healthier food and drinks can be available in public spaces (schools, hospitals, supermarkets, and restaurants) (Hollands et al., 2019; Verloigne et al., 2012; & Al-Khudairy, 2019). A single study showed providing healthy drinks in schools can be done by replacing SSB products with water in vending machines and cafeterias (Whatlet et al., 2008). One study also showed that replacing carbonated drinks with healthy (non-carbonated) drinks at school can control student weight gain (Ruyter et al., 2012). Three systematic reviews explain, availability of healthier drinks in schools, restaurants, supermarkets and hospitals can be done with: 1) provide more healthy products than less healthy products; and 2) reduce the availability of unhealthy products (especially SSBs) (Hollands et al., 2019; Al-Khudairy, 2019; & Roy et al., 2015).

To control community consumption, availability healthier drink policy should come with an easy access of the drink (Roy et al., 2015). A systematic reviews state that to support availability, government and public space management need to pay attention to proximity and the number of healthy drinks (Hollands et al., 2019). For this reason, this option proposes not only the availability but also the proximity of reaching the purchase of healthy drinks. Getting closer to the reach of healthy foods and drinks can influence consumer choices (Hollands et al., 2019 and Lena et al., 2018). Food and beverage locations that are far away and difficult to access can make buyers reluctant to buy. A single study stated availability (75% healthy and 25% unhealthy) and a proximity (on the top shelves) healthy products effectively influence consumer purchases (Kleef et al., 2012). One systematic review mentioned that dietary water beverages and water availability contributed to a significant conversion in BMI in the intervention group for 18 months. Dietary water beverages and water availability contributed to a significant conversion in BMI in the intervention group for 18 months (Avery, Bostock, & Mccullough, 2015).

1.3 Regulating the marketing of SSB

The term 'marketing' refers to commercial activities designed to increase brand recognition, appeal and ultimately purchase of products and services. It traditionally relates to four broad classes of activities, including 'product', 'price', 'place' and 'promotion' (Kelly, B., et al.,2013). Promotion includes advertising (television, cinema, radio, print and digital media), Internet, packaging and labelling, branding, point-of-sale material, merchandising, film and television programme tie-in characters, and the commercial sponsorship of education material by a commercial source (Cairns, G., et al.,2009). Exposure to food marketing impacts the attitudes, preferences, and consumption of unhealthy children's food, with adverse health consequences. (Smith, R., et al, 2019). One systematic review mentioned in the absence of a complete ban on unhealthy food advertising to children there is a need to strengthen and extend existing rules and codes to cover common persuasive techniques. The review reported 38 studies documenting persuasive marketing techniques used to promote food to children on TV revealed that the most common strategies were the use of premium offers, promotional characters, nutrition and health-related claims, the theme of taste and the emotional appeal of fun. These persuasive techniques were used more frequently to promote unhealthy food. (Jenkin, Get al., 2014).

One systematic review mentioned marketing regulation can have a negative effect on implementation. one systematic review mentioned 58 studies included in their review were conducted in the USA, and for a number of intervention types, all or almost all studies are from the USA, including limits to the availability of SSB in schools (seven out of seven studies), labelling (seven out of eight studies), and whole food supply interventions (three out of three studies). Results may not be generalizable to other countries and world regions (von Philipsborn P, et al., 2019). One systematic review mentioned the collective effects of continued exposure to food and beverage marketing that occurs in real life and over a lifetime may differ. Children exposed to unhealthy dietary advertisements for more than 5 min had less caloric intake than those who were exposed ≤ 5 min. Subgroup analysis for duration of exposure (eating opportunity) to unhealthy

foods/beverages showed that participants given <15 min (two studies) for eating/drinking had more caloric intake than those given ≥15 min to eat/drink. Subgroup analysis on type of foods/beverages provided, we found that when children were exposed to unhealthy advertisements, they consumed more unhealthy calories than healthy calories and that the difference between the two estimates was statistically significant. With respect to baseline characteristics, the mean difference of dietary intake as reported in kcal among boys was 94.8 kcal, while in girls it was 8.8 kcal, and the difference was significant. Results subgroup analysis on age were not significantly different (Sadeghirad, B., et al., 2016)

One Systematic review found a change in parents' television viewing rules (policies) is likely to reduce children's intake of discretionary choices, as well as to support national guidelines regarding such sedentary activities (Johnson, B. J., et al., 2016). Parents are a strong influence on children's food choices in their early years of life, and it is known that girls are more likely to snack, including whilst watching TV, and to have increased screen viewing time if they come from overweight families. Parents are responsible for setting a precedent for their children and are therefore influential in influencing screen-viewing habits and dietary choices. It appears that eating together as a family on a regular basis is associated with lower BMI and healthier food choices in children but that, although family meals are important, they do not counteract the effects of watching TV whilst eating. (Avery A, Anderson C, McCullough F., 2017).

Table 2. Element one finding categories

Category of Findings	Element 1.1	Element 1.2	Element 1.3
Benefit.	Two systematic reviews mentioned school food and nutrition policies focus on changing the school food environment to improve opportunities for healthier food choices for the whole student population with reinforce nutrition messages received as part of the school curriculum and outside the school from parents and others (Jaime, Patricia C., et al., 2009;Driessen, Christine E., et al., 2014). Three systematic reviews mentioned schools can help in the fight against obesity by creating environments conducive to healthful eating and physical activity with effective strategies i.e: (i) Improvement of overall school food environment, (ii) Purchase of new PE/sports equipment, (iii) Daily formal physical activity (PA) session organized after school, (iv) Provision of free or low-cost fruit, (v) Availability of school playgrounds for structured/unstructured physical activity (PA) after regular school hours, (vi) Provision of free/low cost water in school, (vii) Provision of a healthy breakfast at school for children, (viii) Substitution of SSB, and (ix) Reduction in screen time at home (Story, Mary, et al., 2009; Zheng, Miaobing, et al., 2015; Cauchi, Daniel, et al., 2016).	A research result shows that replacing carbonated drinks with healthy drinks (non-carbonated) in schools has good benefits for students (Ruyter et al., 2012). A change in body weight is quite good when school students get healthy drinks for 18 months. Weight gain and fat accumulation can be reduced in students by providing non-carbonated drinks (Ruyter et al., 2012). Two systematic review shows that policies and practices that change the amount and proximity of healthy drinks can contribute to changes in the amount of consumption chosen by people, and can be used as part of a broader set of strategies to support healthier food consumption (Hollands et al., 2019; and Al-Khudairy L, Uthman OA, Walmsley R, et al., 2018). One systematic review mentioned that Competitive food (all foods and beverages available for sale to students on school premises) by the U.S. Child Nutrition Programs (CNPs) could reduce SSB intake of student by 0.18 serving per day (Micha et al., 2018).	One systematic review provides valuable insights and provides strong evidence to support restrictions on food marketing for children. Exposure to food marketing impacts the attitudes, preferences, and consumption of unhealthy children's food, with adverse health consequences. (Smith, R., et al, 2019). One systematic review mentioned a significant proportion of advertising is for foods and beverages, and these advertisements are often for products high in fat, sugar and salt (HFSS).The review found evidence to aid decision-making on actions and measures to reduce the volume, exposure and negative impact of advertising for foods high in fat, sugar and salt (HFSS) to children. Evidence was not definitive; however, seven out of nine studies supported the use of statutory actions. The findings indicate the potential for statutory regulation. (Chambers, S. A., et al 2015).

Category of Findings	Element 1.1	Element 1.2	Element 1.3
Potential Harms.	One meta-analysis study conducted in Canada reported that while frequency of SSB consumption decreased following a ban on SSB in schools, the volume of SBB (in milliliters) consumed increased in general. In other words, adolescents might report consuming SSB less frequently simply because they drink larger quantities each time, they consume SSB. This could reflect a trend of the industry to continuously increase the size of the SBB it sells over the years(Tsilas et al., 2017). A systematic review showed that studies that had banning policies for sweetened drinks and chips alone without banning other unhealthy food and providing healthier choices had undesirable effects, as the students compensated by buying other processed food like ice cream or by getting processed food from outside the school (Cullen, Karen Weber, et al., 2006; Jaime, Patricia C., et al., 2009). However, to support SSB restrictions in schools, parental awareness is also needed to oversee the consumption of children's drinks at home and other environments (Jean et al., 2006 and Philipsborn et a., 2019).	There is no potential harm found in selected systematic reviews/	There is no potential harm found in selected systematic reviews. One Systematic review does not suggest that the marketing techniques found in the review (the use of premium offers, promotional characters, nutrition and health-related claims, the theme of taste and the emotional appeal of fun) will be the same as those found in other media. Different media, magazines, packaging, billboards and the Internet are likely to prioritize different persuasive marketing techniques. We know, for instance, that the Internet and smartphones make use of advertising techniques that facilitate interactive marketing, which is not available via TV (Jenkin, Get al., 2014).
Cost	A systematic review showed a comprehensive food environment intervention in two schools, intervention schools spent 49% more on produce per student compared with control schools, and lost on average USD$16,500 each per year from reduced sales of competitive school meals and vending machine purchases (Driessen, Christine E., et al., 2014). Two systematic reviews mentioned changes to the school food environment may result in a reduction in school revenue from competitive foods and beverages. Therefore, we need to consider increasing reimbursement rates for school meals to help schools serve meals that meet the current dietary guidelines (Driessen, Christine E., et al., 2014; Story, Mary, et al., 2009). A study in China for school-based obesity prevention policies and programs for both education and environment have shown to be cost-effective (Meng, Liping, et al., 2013).	A systematic review shows there is no strong evidence that the price of healthy products to be cheap can change people's consumption behavior (Al-Khudairy L, Uthman OA, Walmsley R, et al., 2018) One systematic review stated that providing healthy drinks does not require large costs and intervention also requires only a ministerial decree (Hollands et al., 2019).	One Systematic review does not suggest that the marketing techniques found in the review (the use of premium offers, promotional characters, nutrition and health-related claims, the theme of taste and the emotional appeal of fun) will be the same as those found in other media. Different media, magazines, packaging, billboards and the Internet are likely to prioritize different persuasive marketing techniques. We know, for instance, that the Internet and smartphones make use of advertising techniques that facilitate interactive marketing, which is not available via TV (Jenkin, Get al., 2014).

Category of Findings	Element 1.1	Element 1.2	Element 1.3
Uncertainty	A systematic review reported that it is unknown whether SSB substitutions with different beverage types would confer a similar advantage. The type of beverage alternative for SSBs suitable for children and adults may differ (Zheng, Miaobing, et al.,2015). Three systematic reviews mentioned more efforts and resources should be devoted to policy and implementation efforts at national and regional. Finally, need to research funding to create and evaluate innovative obesity prevention pilot interventions in schools, using behavioral, environmental, and policy change strategies (Driessen, Christine E., et al., 2014;Jaime, Patricia C., et al., 2009;Story, Mary, et al., 2009).	Two systematic review showed that ensuring healthy food and drinks are available well and sustainably in various places to become a high attraction for the community is still difficult to get certainty (Hollands et al., 2019 and Verloigne et al., 2012).	One systematic review about statutory regulation focused on television advertising and provided little evidence for the results of actions applying to non-broadcast advertising. This perhaps reflects the lack of actions addressing other media more generally. Modelling studies focused on banning television advertising, but they did not take into account the likelihood that advertising would switch to different media if regulations were in effect. They also assumed full compliance with regulations. Lewin et al. (2006) have highlighted the methods used by major food companies online to attract children to their brands, and the FTC (2012) report found that advertising to youth through new media had increased by 50% from 2006 to 2009 (Chambers, S. A., et al 2015).

Barriers to implementation exist at the point of sale such as schools, hospitals, supermarkets, restaurants and the government. Various strategies are proposed at each level.

Table 3. Element one barriers and counterstrategies

Level	Barriers	Counterstrategies
The national system	National Stakeholder Consultation: The system would need a continued commitment of all relevant government agencies and require a strong leader to coordinate this policy.	Based on the results of in-depth interviews conducted, there are several stakeholders who have the potential to take a responsibility for the option. All stakeholders are assessed to find out how strong their power and interest and we ranked them by conducting a stakeholder analysis. In this option, there are two main leading stakeholders which are **the Ministry of Education and Culture** for controlling school environment and **the Ministry of Health and the National Agency of Drug and Food Control (BPOM)** for community environment context.
Individual student	Without a proper control from parents, children's preference and weight could not be controlled and lead them to an obesity. This condition reflects that the awareness of the children them self and the parent are insufficient to assess the daily product nutrition including SSB products. (Kumanyika, Shiriki K., 2008).	The importance of using age-appropriate substitution strategies for reducing SSB consumption to achieve anticipated beneficial effects on long-term health outcomes and include population-level education strategies for suitable beverage substitutions (Zheng, Miaobing, et al.,2015). A study reported that obesity-prevention interventions having one or more environmental components, which may be particularly attractive for increasingly autonomous adolescents who may not respond to conventional nutrition education and behavioural counselling. The parent should play a vital role model to understand and control their family members food (Cauchi, Daniel, et al.,2016).
	One systematic review found that exposure to unhealthy food and beverage marketing increased children's dietary intake and influenced children's dietary behaviours during or shortly after exposure to advertisements. The systematic review suggested that younger children (≤8 years of age) might be more susceptible to the impact of food and beverage marketing in terms of quantity and quality of calories consumed. Voluntary self-monitoring by industry and inadequate nutritional standards for defining healthy/unhealthy dietary products and the lack of government monitoring and oversight remain key flaws to recent initiatives and likely account for the lack of reduction in child-targeted marketing for unhealthy foods and beverages(Sadeghirad, B., et al., 2016).	WHO released a set of recommendations urging member states to restrict the marketing of foods and beverages high in saturated fats, trans-fats, added sugar and salt to children. One systematic review supported the need for a review of public policy on child-targeted unhealthy food and beverage marketing (Sadeghirad, B., et al., 2016).
Parents	The lack of parental support to address the school food and activity environment, so that school health policies are not effective (Story, Mary, et al., 2009).	The involvement of parents is required in developing the school wellness policy with increase compliance with the policy's implementation (Story, Mary, et al., 2009). The existence of parents is very important as role models for children in relation to body image, nutrition and physicality activity practices (Kumanyika, Shiriki K., 2008).

Level	Barriers	Counterstrategies
	Exposure to commercial TV was significantly associated with consuming sweetened beverages, independently of parental norms, in both cross-sectional and longitudinal analyses. Adjusted cross-sectional analyses show that the likelihood of consuming sweetened beverages at least one to three times per week increased by 50 % for each hour a day watching television, by 40 % for each hour a day of total screen time, and by 60 % for having been exposed to commercial TV versus not. The analyses performed show that both TV viewing time and exposure to commercial TV are associated with sweetened beverages consumption, independent of each other. This could indicate that TV viewing influences sweetened beverage consumption through TV commercials, and also in other ways, for example drinking sweetened beverages while watching TV or by program content influence (Olafsdottir, S. et al., 2014).	Parents' attempts to limit their child's exposure to TV commercials were also found to be of importance as children of parents who did not or only partly limit their children's exposure to commercials were at nearly double the risk to consume sweetened beverages at least one to three times per week, compared to children of parents who attempted to limit the exposure completely(Olafsdottir, S. et al., 2014). It appears that eating together as a family on a regular basis is associated with lower BMI and healthier food choices in children but that, although family meals are important, they do not counteract the effects of watching TV whilst eating. (Avery A, Anderson C, McCullough F., 2017).
Schools	Competitive foods are typically considered 'junk foods' as they are usually low in nutritional value and high in sugars and fats and usually available outside of school meals such as vending machines, snack bars and student stores (Driessen, Christine E., et al., 2014). NSC: Providing healthier food will be a challenge for school with limited resources such as financing and expertise. Many interventions already addressed school level so they would be overwhelming.	Schools need to provide lunch breakfast program which all students have access to these meals either free or subsidized based on their socio-economic status (Driessen, Christine E., et al., 2014). Schools have been promoted by policymakers, researchers, and media as a logical strategic setting for implementing nutrition policies aiming at promotion of healthy diet and tackling childhood obesity (Jaime, Patricia C., et al., 2009). Regulating the availability of SSBs in public and private schools in Indonesia can be done through policies issued by the Ministry of Education and Culture. If we look at the regulations regarding smoke-free schools and other regulations, the ministry does not make a difference between public and private schools. However, deeper information is needed about the mechanism of its implementation in public and private schools. A state needs to incorporate the programs within the curriculum likes improve school preparedness, school administration capacity and resource management, it has shown to be more effective and provide sustainability of the outcomes (Habib-Mourad, C., et al., 2015; Horodyska, Karolina, et al., 2015). A systematic review states that healthy drinks can be provided at school by replacing unhealthy drinks in the canteen or vending machine (Ruyter et al., 2012). NSC: Healthy drinks can be more readily available in schools by involving the Ministry of Education as a control. Ensuring healthy drinks are available can be done by making it a point to achieve good and child-friendly school accreditation. Regulating the availability of SSBs in public and private schools in Indonesia can be done through policies issued by the Ministry of Education and Culture. If we look at the regulations regarding smoke-free schools and other regulations, the ministry does not make a difference between public and private schools. However, deeper information is needed about the mechanism of its implementation in public and private schools.

Level	Barriers	Counterstrategies
Schools	NSC: Students buy drinks and food not only from vending machines or cafeterias inside the school but also through street vendors outside the school area.	
Supermarket	National Stakeholder Consultation (NSC): Recently, the Indonesian Ministry of Trade cannot directly regulate the amount of goods available in supermarkets, specifically the number of healthy and unhealthy beverage products. Controlling the number and proximity of healthy drinks in supermarkets has a big challenge, because the products sold adjust to the market and the ability of the industry or business practices of managers.	A systematic review states that to regulate the amount and proximity of healthy drinks the government can do by establishing a policy related to the operation of retail sales products. The policy has been carried out by various countries, such as Scotland having provided Healthcare Retail Standards (HRS) to regulate the availability of healthy products, especially in supermarkets or retails (Hollands et al., 2019). Indonesia can emulate HRS to control food and beverage spending in the community to achieve balanced nutrition. In addition, other interventions can also be done by reducing the amount and proportion of unhealthy drinks. While the availability of the number and proportion of healthy drinks is increased in absolute and relative terms.
Hospital	Two research results reveal that providing healthy drinks in hospitals is not difficult if the leadership has awareness of the products available in the canteen and vending machines (Tsai et al., 2017; and Moran et al., 2016).	One article from the Public Health England citing, discussing healthy drinks in hospitals can be done in two phases, namely: Phase 1 changes the availability of healthy goods in the vending machine. Healthier products are also moved to the least prominent position in the machine. It aims to find out whether increasing the availability of healthier products alone can help encourage healthier choices; and Phase 2 changes product placement in the vending machine, placing the healthiest items in the most prominent position (top three rows, closest to eye level) and unhealthy items in the least prominent position (including the bottom row). It aims to find out whether increased availability, combined with increased visibility, healthier products can help encourage healthier choices (Tim Chadborn, 2018).
Restaurant	NSC: Like supermarkets, regulating the availability of healthy drinks in restaurants also has a big challenge, because at present the government has no control over it. Sales in restaurants also match market practices and business entrepreneurs.	A systematic review states that healthy drinks can be available and become the choice of buyers when getting a strategic position in the menu. Buyers can be attracted by healthy drinks when ingredients information is clearly stated (Hollands et al., 2019). One single study also pointed out that promoting healthy consumption in restaurants also requires regulations requiring "the inclusion of information on each beverage ingredient" (Burton et al., 2006).
Industry	Regulation of food marketing to children and, taxation of and/or regulating the availability of unhealthy food and drinks in schools have been proposed as an essential response to protect children from food industry activities (Jaime, Patricia C., et al., 2009).	Governments need to ensure that any school food policy is developed as part of wider public health policy that addresses and protects children from all the environmental influences on childhood diet and obesity, both in and out of school (Jaime, Patricia C., et al., 2009)

Level	Barriers	Counterstrategies
	Through heavy advertisement and strong product distribution systems, the industry has successfully enhanced accessibility and affordability of SBs with minimal other choices. Beverage companies have employed tactical marketing strategies by integrating their brand into the culture of their various customer countries, for example emotively linking SBs with popular sports of many countries around the world such as cricket and soccer or a lifestyle that promises "happiness" (Du, M., et al., 2018).	There has been extensive advocacy work to reduce food advertising during children's television viewing times, change in home policies regarding television use is another possible solution (Johnson, B. J., et al., 2016).
Government	NSC: it is difficult to change behavior at school even though labels and so on, and vending machines are everywhere so that people sometimes also need to be forced to live healthy lives.	Policy and legislative initiatives at the national and regional levels are needed to develop and support healthful food and physical activity behaviors that will promote energy balance and a healthy body weight (Story, Mary, et al., 2009). Nationwide school BMI surveillance and monitoring systems are needed in order to establish baseline rates and track population trends of obesity and to determine whether policies, programs, and services are in fact reducing childhood obesity (Story, Mary, et al., 2009).
	NSC: The challenge of providing healthy drinks in schools, hospitals, supermarkets and restaurants is that the government does not have a definite definition of healthy drinks, unhealthy drinks or SSB. In addition, the size of sugar for healthy drinks that BPOM has set is still relatively high when compared to the standard American Heart Association (AHC). Drinks with healthy logol in Indonesia have a standard sugar of 6 grams per 100 ml, while AHC recommends 4 ml per 100 ml.	NSC: BPOM, and the Ministry of Health need to first make improvements to policies regarding food categories and nutritional value. Then the Ministry of Trade, the Ministry of Industry and the Ministry of Education need to issue policies to provide controls on the availability of healthy drinks in the community.
	NSC: The Indonesian Food and Drug Authority or Indonesian FDA had been involved in advertising, but this organization limited to control the content. FDA attempted to have regulations including that who can advertise and what kind of media. For regulations regarding broadcast time, Indonesian FDA do not yet have any restrictions. So, Indonesian FDA has technical guidelines for the supervision of food advertisements. Regarding what can and cannot be done for all food ingredients, there are no specific rules for sweetening drinks. (Other rules such as) there are no public officials and health officials who can advertise, there are restrictions on certain products such as milk, which have specific targets there. But this sweet drink is a general target so Indonesian FDA don't have it (ad restrictions), but there are rules for good and not misleading ad serving," said The National Stakeholder Official.	NSC: National Stakeholder consultation delivered some important considerations that other institutions have the authority to limit advertising. "Advertising restrictions are the authority of the Ministry of Communication and Information Technology, advertisers, and KPAI. Comprehensive studies and justifications are needed because businesses can protest if the justification of restrictions is not included in their thinking.

Level	Barriers	Counterstrategies
Community	One review mentioned the magnitude of effect of food marketing on body weight, that estimated to be at least the same as that of other determinants of obesity, including family, peers and socioeconomic status 1; and food marketing is amenable to intervention, making it a promising lever for change. Products that most frequently advertised to children internationally on television are sugar□sweetened breakfast cereals, soft drinks, confectionery and high fat snacks are the (Kelly,B., 2013).	One systematic review mentioned evidence that almost certainly underestimates the impact of food promotion. The evidence base to date still focuses on television advertising, with relatively less attention given to other forms of advertising and the full marketing mix. Forms of promotion (e.g. merchandising, packaging, sponsorships), product development, pricing and distribution strategies may each influence consumer responses independently and as integrated, synergistic mechanisms. Measuring this effect holistically in its real-world setting, while adjusting for the myriad of additional influencing factors is unlikely to ever capture the cumulative effect fully. Yet the combination of the full marketing toolbox that underpins the most powerful food brands is of course the real strength of a large-scale marketing strategy (Cairns, G., et al.,2009).

NSC: National stakeholder consultation

Element 2: Implementing fiscal policy to encourage changing behavior to consume more healthier products.

A systematic review shows that government intervention, in the form of taxes or subsidies, is quite effective in transforming consumption patterns related to obesity and chronic disease (Thow et al., 2014). The government needs to establish a fiscal policy to keep the pattern public consumption which can affect diabetes (WHO, 2016). The focus of this intervention is to attempt to make a social engineering to limit the high consumption of SSB products and increase consuming for healthier drinks. Not only is this intervention is trying gain more income from that product but as a fiscal control instrument, it also leads to promote and change society behavior toward to healthy lifestyle. This intervention could be a positive incentive for healthier products to compete at market arena. Lessons learned from the tax application indicate a decrease in sugar-sweetened beverages in the first years of the implementation (Roache, S.A. & Gostin, L.O., 2017.;Ng, Shu Wen, et al., 2019). Sugar-sweetened beverage tax is a robust instrument reducing sugar consumption. Hence, it also reduces the burden due to obesity and non-communicable diseases (WHO., 2017). The tax, recommended by the government, has been one of the methods resisting an increase in the prevalence of non-communicable diseases.

Healthier products unsweetened like water, plain milk or diet soft drink, heavily influenced by commercials. Common words and phrases from commonly known commercials, such as natural, refreshing, hydrating, and giving you wings, and used those terms not only to classify beverages as healthy or unhealthy but to assign perceived health effects. Limiting advertising of SSBs, providing incentives to purchase healthy options, and increasing the cost of SSBs or lowering the cost of healthy beverage choices were the most appropriate advice (Wolfenden, Luke, et al., 2015). According to WHO standards, in both adults and children, the intake of free sugars should be reduced to less than 10% of total energy intake. Meanwhile, the Ministry of Health of the Republic of Indonesia has also regulated the limit of sugar consumption to 50 grams/day (Kementerian Kesehatan RI, 2015). The price elasticity for consumption changes (the elastic price of sugar-sweetened beverage and cross-price elasticity used for substitution in milk, diet drinks, and fruit juice) with a tax rate of 20% (0.30 dollars) on consumption (Bourke and Veerman, 2018). The price change was converted into consumption change using price elasticity (the elastic price 1,609 kJ/L for sugar-sweetened beverage and cross-price elasticity used for substitution in milk 2,660 kJ/L, diet drinks 4 kJ/L, and fruit juice 1,821 kJ/L). The limited sugar includes sugar in food by producers or households and other sugar contained in honey, syrup, juice, and fruit concentrates. Sugar-sweetened beverages have highly produced, giving negative impacts to health. The WHO urges the government in all countries to initiate tax application on bottled sugar-sweetened beverages.

Bourke and Veerman conducted a study (published in 2018) to see the potential impacts of sugar-sweetened beverages tax on health in Indonesia. They designed a model calculating the effect of a tax rate of 20% (0.30 dollars) on consumption. Alteration in the consumption determined alteration in the population BMI, diseases linked to obesity, and health-adjusted life years (HALYs).

The price change was converted into consumption change using price elasticity (the elastic price of sugar-sweetened beverage and cross-price elasticity used for substitution in milk, diet drinks, and fruit juice). This study also examined the potential impacts of sugar-sweetened beverage tax policy in developed countries. The study claimed more significant impacts on lower-income groups. However, the countries studied were in different nutrition transition stadiums, sugar-sweetened consumption patterns, and BMI distribution. In Indonesia, low-income groups consume a lower number of sugar-sweetened beverages than high-income groups. A study found that high-income groups made expenditure 27 times higher than lower-income group. The high-income groups are population with high BMI, which is inversely proportional to the situation in other countries (Bourke & Veerman, 2018).

Several benefits community can get are: 1) reduced consumption, hence prevented obesity; 2) reduced the financial burden for health services; 3) revenue of sugar-sweetened beverage tax allocated for other health programs; 4) benefits for low-income consumers and young people (WHO, 2017). Taxation on sugary drinks is an effective intervention to reduce sugar consumption. Evidence shows that a tax on sugary drinks that rises prices by 20% can lead to a reduction in consumption of around 20%, thus preventing obesity and diabetes (WHO, 2017). Learning from the United Kingdom, after implementing SSB tax, manufacturer company have been conducting product reformulation and that drive competition among companies, both in terms of reducing sugar content to keep prices low and to offer healthier products. The industries have cut the level of sugar added to their products to a half. The reformulation is targeted to not only one-two countries, but also worldwide countries. Therefore, it gives a massive impact on both low- and middle-income countries too (Roache, S. A., & Gostin, L. O., 2017). Estimates suggest that, over 10 years, a tax on sugary drinks of 1 cent per ounce in the United States of America would result in more than US$ 17 billion in healthcare cost savings (WHO, 2017). Taxes on sugary drink could generate approximately US$ 13 billion in annual tax revenues in the United States of America in 2016. Based on 2014 data, a tax on sugary drinks of 1 yuan (US$ 0.16) per litre in China would generate an estimated 73.6 billion yuan (US$ 11.8 billion) in revenues. Revenue generated by these taxes could be spent on efforts to improve health care systems, encourage healthier diets, increase physical activity, or build capacity for effective tax administration, further increasing the value of this measure (WHO, 2017).

In Sri Lanka, poor and middle-income class are more likely to consume SSB, so the country set 15 % VAT for SSB. This scheme will be expected to decrease their lost income and incurring out of pocket to while they are sick (WHO, 2018). In Mexico, after implementing 10 % for tax on SSB products, this country has written the successful story that they could reduce 6 % of SSB on consumption to all population and 17% reduction of poor house expenditure for it in first year(Álvarez-Sánchez, Cristina, et al., 2018. The next years after the introduction of a tax on sugary drinks, households with the fewest resources reduced their purchases of sugary drinks by 11.7%, compared to 7.6% for the general population (WHO, 2017). The tax motivates consumers to buy healthier products, as well as to create new income useful for health program promotion and services. In the UK, it also prompts leading sugar-sweetened beverage industries to make reformulation. The industries have cut the level of sugar added to their products to a half. The reformulation is targeted to not only one-two countries, but also worldwide countries. Therefore, it gives a massive impact on both low- and middle-income countries too (Roache, S. A., & Gostin, L. O., 2017). There is an estimate that a national SSB tax of $ 0.01 per ounce will cost the United States $ 51 million to be implemented in the first year but generate $ 23.6 billion in health care savings related to obesity for 10 years (Wilde et al., 2019). Another plus point following this reduction is the increasing income from the tax goes to install the drink fountains at schools and public spaces including rural area (Álvarez-Sánchez, Cristina, et al., 2018).

Table 4. Element two findings categories

Category of Findings	Element 2.
Benefit.	Two systematic reviews mentioned WHO encouraged countries to increase taxation on SSBs about fiscal policies in the prevention of noncommunicable diseases (Eykelenboom et al., 2019; Redondo, M., Hernández-Aguado, I., & Lumbreras, B., 2018). Two systematic reviews mentioned that the increase in SSB prices required to halt the increase in the prevalence of overweight and obesity varies across MICs, with most requiring at least a 20% increase (Escobar, Maria A. Cabrera, et al., 2013; Nakhimovsky, Sharon S., et al., 2016). One systematic review mentioned positive impacts of the implementation of the sugar-sweetened beverage tax. Sugar-sweetened beverage tax is a robust instrument reducing sugar consumption. Hence, it also reduces the burden due to obesity and non-communicable diseases. The tax motivates consumers to buy healthier products, creating new income useful for health program promotion and services. In the UK, it also prompts leading sugar-sweetened beverage industries to make reformulation. The industries have cut the level of sugar added to their products to a half. The reformulation is targeted to not only one-two countries, but also worldwide countries. Therefore, it gives a massive impact on both low- and middle-income countries too (Roache, S. A., & Gostin, L. O., 2017).

Potential Harms.	One systematic review mention need to identify the corporate political activity (CPA) of a particular company is not, in and of itself, an indication of a public health problem. These practices may pose a risk to public health policies and outcomes or may simply be perceived as posing a risk, in that there is likelihood that commercial interests will be privileged above public interest considerations (Mialon, M., Swinburn, B. & Sacks, G., 2015).
Cost	A study based on a randomized controlled design showed that a tax >19% was effective for the reduction in intent of SSB purchases (Redondo, M., Hernández-Aguado, I., & Lumbreras, B., 2018). Other cost effectiveness studies report the policy generates substantial health benefits and also saves costs and health care savings are more than 24 times the cost of tax implementation. These results are consistent with previous US and international modeling studies in finding SSB taxes to be cost saving. There is an estimation that a national SSB tax of $ 0.01 per ounce will cost the United States $ 51 million to apply in the first year, but generate $ 23.6 billion in obesity-related health care savings over 10 years(Wilde et al., 2019). A systematic review showed purchasing behavior or sales also found an impact, a 20% tax and a £0.10 per-beverage levy on SSBs showed a decline in SSB purchases. The introduction of a 30% tax showed a decrease in total calories purchased. Studies applying a randomized controlled design showed that subjects were less likely to select an SSB when a tax >10% was implemented (Redondo, M., Hernández-Aguado, I., & Lumbreras, B., 2018).
Uncertainty	A systematic review reported that those most susceptible to obesity and cardiovascular diseases were among the wealthier in the population but this is no longer the case. Low income earners are now a population with high consumption of unhealthy obesogenic food. Also, in many LMICs, the prevalence of obesity is growing more rapidly in low socioeconomic groups (Escobar, Maria A. Cabrera, et al., 2013). One systematic review mentioned there is still insufficient scientific evidence on the issue and some questions remain unanswered, such as the most appropriate type of regulation or whether taxation should be supplemented by interventions in nutritional education (Redondo, M., Hernández-Aguado, I., & Lumbreras, B., 2018).

There are some implementations consideration regarding Implementing Sugar Sweetened Beverages Taxation Regulations that would be described in the table below:

Table 5. Element 2 Barriers and Counterstrategies

Level	Barriers	Counterstrategies
The national systems	National Stakeholder Consultation: The system would need a continued commitment of all relevant government agencies and require a strong leader to coordinate this policy.	Based on the results of in-depth interviews conducted, there are several stakeholders who have the potential to take a responsibility for the option. All stakeholders are assessed to find out how strong their power and interest and we ranked them by conducting a stakeholder analysis. This option requires a large role and responsibility to the **Ministry of Finance with a support of Ministry of Health and BPOM.**
Individual	National stakeholder consultation (NSC): : The price of a healthier beverage is generally more expensive and more difficult to reach by the public.	NSC: With the excise tax, the prices of unhealthy drinks and healthy drinks will be relatively the same, so that people have choices which should be consumed. NSC: to reduce the price of healthy drinks in order to remain affordable, the cost of production must be reduced without reducing health quality standards. Therefore, additional policies that are incentive are needed so that healthy beverage products can compete with sweetened drinks. If the price is relatively the same, the availability of healthier drinks is not only easy to obtain but also remains affordable in order to encourage people to switch.
Trading	NSC: there is no standard category for consumes healthy and unhealthy drinks/ foods in the industry and that would lead to a challenge to determine the fiscal policy	NSC: the ministry of trade must encourage and regulate the circulation of goods in society. NSC: Using the excise option, law enforcement can be carried out both from the producer level to the level of the retail seller both physically and bookkeeping. This matter of law enforcement does not exist in policies with a non-fiscal measure approach.
Industry	NSC: Industry are worrying that when they produce the healthier product and reduce the high SSB product based on the fiscal policy, and they will love their market. This happens because the Indonesia society drink preference is a sweet product, so they would love their income.	NSC: to meet the needs for consumer protection/ the need for appropriate fiscal policies, it is necessary to formulate public policies for the right industry. More empirical research and monitoring of the industry and its response to health-related taxes on SSBs are needed to help policymakers ensure that the increases in consumer prices (and not just the tax rate) are sufficient to reduce population obesity outcomes (Nakhimovsky, Sharon S., et al., 2016).
Community	NSC: The society choose a drink product without seeing nutrition label and complain if the product price is increased.	NSC: Industry and Government should inform society the reason to increase the price by put a label and this policy should be transform into educational learning since young age.

Government	NSC: There is a unanimous vote to reduce high consumption of SSB in Indonesia. Due to this condition, when the ministry attempt to make a draft to legalize by the parliament, other agencies and parliament assumed that this is a way get more income. They refused the regulation draft. The cycle of policy adoption and implementation would be more difficulty and longer.	There are several strategies that could be run to support the SSBs Implementation. First. Lobbying of the SSBs industry and relationships between the industry and politicians are important barriers that needs to be addressed. Second, encourage industry to reformulate SSB content. Third, Availability of healthy alternatives, the subtheme availability of healthy alternatives (Eykelenboom et al., 2019).
	NSC: The technical agencies do not admit that program intervention could show a positive effectiveness to reduce NCD yet. The fiscal policy will have similar story to other programs such as GERMAS by the Ministry of Health	NSC: Lobbying and advocate the technical ministry are mandatory steps. Present the cost effectiveness and showing a high quality product translation would followed the advocacy process along.

Element 3: Implementing Health Promotion Efforts to improve public awareness regarding SSB products and their impacts.

Health promotion is a process to increase the health status of individual, school, community, and population by improving their knowledge, attitude, and behavior. In SSB setting, most public health interventions adapt educational and behavioral approaches through school-based didactic learning and interactive class activities from simple educational messages to parents. In addition, it is important to have supportive interventions such as school policy, providing foods and changing dietary (Rahman et al., 2018). In this option, we developed an option with 4 complementary sub-options which are:

3.1. Implementing behavioral change interventions at the school and community level to limit the use of SSBs.

Behavioral intervention is an intervention or program, or policy designed to affect the actions that individuals take into consideration of their health (Ibrahim, 2005). Behavioral interventions would be relied on an approach to change knowledge, attitude and subsequently of children at school and community level facing SSBs consumption. Integrated Behavioral change interventions aiming to reduce the SSB consumption have been reported to be successful, especially among children and adolescents (Rahman et al., 2018). There are some behavior interventions regarding behavior intervention such as providing lunchbox for student (Nathan et al., 2019), and changing diet and lifestyle (Mozaffarian et al., 2011). Providing lunch box student refers to a policy to serve a student to have a controlled nutrition box from in the morning up to in the afternoon (including breakfast) (Levy et al., 2011).

Nine systematic reviews and meta-analyses have studied the effectiveness of implementing behavioral change at the school and community level to limit the use of SSBs. Two systematic reviews mentioned behavioral interventions to limit sugar intake and providing a nutritional information will help student to understand their situation and lead a motivation to have a changing behavior to reduce SSBs consumption (Rahman et al., 2018) (Vézina-Im et al., 2017). The education program to change behavior reported there a reduction of SSB consumption in three days after curriculum laughing in a group at elementary school compared to the other does not. After twelve month the overweight participant is decreased for 0,2 percent while the control group was increasing 7.5 % (Levy et al., 2011). A school-based intervention has been reported as a cost effectiveness intervention to reduce the SSB consumption in urban area in China (Meng et all., 2013). The most consideration is the policy should be continued annually by a refresher courses (Levy et al., 2011).

3.2. Ensuring availability of clear alarming labels on SSB

Clear alarming label is clear nutrition labelling which WHO mention as a list of nutrients on a food label accompanied by some form of quantifying mechanism. (Hawkes, Corinna et al, 2004). Some labeling interventions include traffic-light labeling, nutritional rating score shelf-labels, menu-board calorie labeling, and emoticon labeling (Von Philipsborn P, et al., 2019). Diet, Physical Activities and Health Strategy (DPAS) and associated technical and action plan reports were adopted by the World Health Assembly in 2004. It suggests fiscal, labelling, and nutritional guideline policies (Moise, N et al., 2011). It suggests fiscal, labeling, and nutritional guideline policies. It proposes regulating beverage marketing to children and restricting the availability in schools of 'products' high in sugar, a provision that might apply to SSB. WHO's policy tools, Marketing of Food and Non-alcoholic Beverages to Children and School Policy Framework: Implementation of DPAS, expand on these concepts. (Moise, N et al., 2011).

One systematic review mentioned labels that are easy

to understand, such as traffic-light labels, and labels which rate the healthfulness of beverages with stars or numbers (von Philipsborn P, et al 2019). In traffic-light labeling of beverages, beverages were labeled as red, yellow, and green according to their nutritional value (Boelsen-Robinson, 2017). In rating score labeling, the rating score ranging from zero to three stars is calculated for foods and beverages by an algorithm based on nutrient density per 100 kcal. Vitamins, minerals, omega-3 fatty acids, fiber, and whole grains increase the score, and trans- and saturated fats as well as added sodium and sugar decrease the score. The rating is displayed on the shelf tag next to the price. Products that do not contain nutrients, such as bottled water, are not rated and not labeled. For the menu board, labeling, chain restaurants, and cafes post the number of calories contained in foods and beverages on menu boards. (von Philipsborn P, et al 2019).

Large scale regulatory policies, such as marketing restrictions will be needed to strengthen anti-obesity programs. DPAS and associated technical and action plan reports were adopted by the World Health Assembly in 2004. It provides no mandates, but calls for a comprehensive, multi-sector approach, addresses sugar intake reduction, and emphasizes the need to create legislation to protect human health. In other hand, a systematic review mentioned that exposure to advertisements and other forms of marketing could be a potential factor to increase the SSB consumption (von Philipsborn P, et al 2019).

3.3. Increasing Public service Advertisement on television regarding healthy lifestyle by reducing sugar, salt, and fat content

Public communication campaigns (PCCs) refer to an organized set of communication activities directed at large audiences in order to generate specific outcomes within a specified time period. The purpose of PCCs is to influence and change the behaviors of individuals (JANG, Juhyun et al, 2016). One systematic review mentioned public service advertisements that emphasize the harmful effects of over-consuming SBs serve as another effective initiative to consider provided that their arguments are strongly presented (Du, M., et al., 2018). One study from Indonesia suggested mentioned promotion and the socialization of PSAs related to the limit of consumption of sweetened drinks and the dangers of consuming sweet drinks excessive, can be through mass media / electronics, television, and social media so all walks of life the public can be exposed to this information (Daeli, Widi & Nurwahyuni, Atik. 2019).

One systematic review mentioned interventions promoting healthful behaviors generally have greater effect sizes compared with those targeting cessation of unhealthful behaviors (Afshin, A, et al., 2017). One systematic review found that Public Service Advertisement (PSAs) about sugary drinks represent a new powerful way to produce behavior change and impact the obesity epidemic among children and adolescents (Bleakley, A., et al.,2015). One research from Indonesia found that internet access variables are variable ones consistently has a lowering probability household expenditure and participation for consumption of sweet drinks. Age variable, gender, marital status, education, occupation, region of residence and status economics, tends to have a consistent probability increase home spending and participation ladder for sweet drinks consumption. Thing what can be done is promotion and the socialization of public health service advertisements related to the limit of consumption of sweetened drinks and the dangers of consuming sweet drinks excessive, can be through mass media / electronics, television, and social media so all walks of life the public can be exposed to this information(Daeli, Widi & Nurwahyuni, Atik. 2019). One systematic review found moderate certainty evidence that multicomponent community campaigns focused on SSBs are associated with decreasing SSB sales (von Philipsborn P, et al 2019).

Table 6. key finding from published journal (systematic reviews and original articles)

Category of Findings	Element 3.1	Element 3.2	Element 3.3
Benefit.	One systematic review mentioned behavioral interventions to reduce sugar intake reported in modest level or lower of effectiveness intervention, although they mentioned it was better than no intervention (Rahman et al., 2018). One systematic review revealed that providing an information platform to students will help them assess BMI and its categories and this information can effectively influence changes in their behavior (Vézina-Im et al., 2017).	One systematic review mentioned that traffic-light labelling is associated with decreasing sales of SSBs, and low-certainty evidence that nutritional rating score labelling is associated with decreasing sales of SSBs. For menu-board calorie labelling reported effects on decreasing the SSB sales varied. (von Philipsborn P, et al 2019).	One systematic review found moderate□certainty evidence that multicomponent community campaigns focused on SSBs are associated with decreasing SSB sales (von Philipsborn P, et al 2019). One systematic review mentioned Public Service Advertisement (PSAs) about sugary drinks represent a new but potentially powerful way to produce behavior change and impact the obesity epidemic among children and adolescents. PSAs using humor, fear, or nurturance affected both emotional and cognitive correlates of adolescents' intention to cut back on sugary beverage consumption. Messages to reduce SSB consumption should address beliefs about SSBs that are related to intention and future research should also investigate other PSA elements (e.g., a celebrity endorsement) that might also affect the PSA strategy intention association (Bleakley, A., et al.,2015). One systematic review mentioned public service advertisements that emphasize the harmful effects of over-consuming SSBs serve as another effective initiative to consider provided that their arguments are strongly presented. Other beneficial interventions include the implementation of education campaigns, easy-to-understand food labelling, food advertising regulations, and government subsidies for healthier foods (Du, M., et al., 2018).
Potential Harms.	There is no single systematic review mentioning the dangerous of Behavioral intervention to human body.	There is no systematic review mentioning about the potential harm of this option to human body and social environment directly. One systematic review mentioned that traffic-light labelling can have a negative effect on implementation and the evidence in one systematic review is limited to specific settings, specific modes of delivery, or specific populations. Both studies on traffic□light labelling, for example, were implemented in hospitals. The only study on menu□board calorie labelling at low risk of bias examined cafés belonging to one chain in New York City (von Philipsborn P, et al., 2019).	There is no systematic review mentioning about increasing Public service Advertisement on television regarding healthy lifestyle by reducing sugar, salt, and fat content. One Systematic review mentions the weaknesses of PSA related to the target audience, that the use of existing PSAs, some of which are targeted by the general public and some of which are more teen-oriented (Bleakley, A., et al.,2015).

Cost	One systematic review mentioned that the financial estimation for behavior intervention regarding the SSB intake reduction is a high cost, because of the complexity (multi-level approach) to establish an environment support system. However most systematic review articles do not provide the cost estimation (Rahman et al., 2018). A systematic review showed the changing SSBs Consumption to water or dietary drinks reported the intervention was estimate as € 2500 (equals to Rp 44,689,920, € 1 = Rp 17,875) per a water fountain and annual costs per child of €13 (Rp 232,387) with no added costs for the educational component as it was delivered by the teachers. This cost is determined to design an intervention that combine School-based educational programs and environmental change. An evaluation of the multi-component Program Obesity Zero, estimated to cost €373 (Rp 6,667,736) per child. It included a combination of health center-based, family-centered and school-based education activities amongst overweight and obese primary school-aged children of low socioeconomic status (school based program) (Avery et al., 2015). A school-based intervention has been reported as a cost effectiveness intervention in urban area in China (Meng et all., 2013)	Three systematic review mentioned that SSB was price elastic. One systematic review found moderate certainty evidence from three ITS studies that price increases for SSBs in chain restaurants, leisure centres and convenience stores are associated with decreasing SSB sales (von Philipsborn P, et al 2019).	
Uncertainty	A systematic review reported that the success rate for behavioral intervention is low in the beginning of period. Some studies reported that both theory-based and non-theory-based interventions are equally effective in changing health behavior. Nevertheless, one advantage of using a theory has an advantage potentially to guide the selected of behavior change techniques to use in interventions. Improvements in other foods such as sugary drinks and other sweet and savory snacks are not consistent between studies. Parent awareness and behavior to provide substitute healthier food and drink still be considered, because they tend to feed their children with high fat and sugar contained food. Results for SSB outcomes in adults were not statistically significant, the direction of the effect was consistent. Although the school stands out as one of the most common delivery channels to target obesity-related behaviors (including reduction of sweetened beverages) (Vargas-Garcia et al., 2017)	There are not many systematic reviews that mention the uncertainty associated with the SSB labeling effort. But one sytematic review found low-certainty evidence from one ITS study that emoticon labelling in school cafeterias is associated with decreased sales of sugar-sweetened milk (von Philipsborn P, et al 2019).	One systematic review reported the important role of parents and the relevance of setting limits, because increased energy intake and unhealthy eating or drinking habits are associated with increased screen time and eating whilst watching the TV (Avery A, Anderson C, McCullough F., 2017). One review indicated that to decrease children's sweetened beverage consumption, parents' attempts to limit children's exposure to TV commercials are important. This further strengthens the assumption that it is possible to affect children's food habits by influencing their TV habits (Olafsdottir, S. et al., 2014).

Evidence reveals through these pieces of evidence mentioned that community-based interventions are better than school interventions in terms of reducing SSB intake. Two systematic reviews mention that ensuring behavioral intervention to reduce sugar intake on SSB consumption reduction in school-based setting could reach its peak, if the intervention involved student social circumstance (School, Family and external environment)(Rahman et al., 2018)(Vargas-Garcia et al., 2017). A person's weight change could lead to changes in lifestyle rather than vice versa, so they will consider what will go to their body including SSB products (Mozaffarian et al., 2011).

Some studies reported that we should consider the individual and social decision affected the uncertainty of the behavior interventions and their outcome. A school-based intervention does not work if environmental interventions are alone, without educational interventions at the school level. Everyone should play a key role in this intervention to support this program. This option should address to control individual (student) and social actor (family, school society, department store, the local government and so on).

One systematic review mentioned that eating whilst watching TV was associated with significantly increased odds of drinking soft drinks daily, which was more than double in those who ate snacks whilst watching TV sometimes and more than tripled in preschool children who ate snacks whilst watching TV every. They also found significant associations between total daily eating whilst watching TV and consumption of soft drinks. There was a 70% greater chance of daily soft drink consumption in children who ate whilst watching TV once a day, and an 83% greater chance in children who ate in front of the TV twice a day compared with preschoolers who ate in front of the TV less than once a day (Avery A, Anderson C, McCullough F., 2017).

More children, of all age groups, from lower socioeconomic backgrounds consume snacks, energy dense drinks, and meals whilst watching TV compared with children from families with a higher level of income or educational attainment Avery A, Anderson C, McCullough F., 2017). Exposure to commercial TV was significantly associated with consuming sweetened beverages, independently of parental norms, in both cross-sectional and longitudinal analyses. Adjusted cross-sectional analyses show that the likelihood of consuming sweetened beverages at least one to three times per week increased by 50 % for each hour a day watching television, by 40 % for each hour a day of total screen time, and by 60 % for having been exposed to commercial TV versus not. The analyses performed show that both TV viewing time and exposure to commercial TV are associated with sweetened beverages consumption, independent of each other. This could indicate that TV viewing influences sweetened beverage consumption through TV commercials, and also in other ways, for example drinking sweetened beverages while watching TV or by program content influence (Olafsdottir, S. et al., 2014).

Parents are a strong influence on children's food choices in their early years of life, and it is known that girls are more likely to snack, including whilst watching TV, and to have increased screen viewing time if they come from overweight families. Parents are responsible for setting a precedent for their children and are therefore influential in influencing screen-viewing habits and dietary choices. It appears that eating together as a family on a regular basis is associated with lower BMI and healthier food choices in children but that, although family meals are important, they do not counteract the effects of watching TV whilst eating. (Avery A, Anderson C, McCullough F., 2017).

There are some implementations consideration regarding this element that would be described in the table below.

Table 7.Element three barriers and counterstrategies

Level	Barriers	Counterstrategies
The national systems	National Stakeholder Consultation: The system would need a continued commitment of all relevant government agencies and require a strong leader to coordinate this policy.	Based on the results of in-depth interviews conducted, there are several stakeholders who have the potential to take a responsibility for the option. All stakeholders are assessed to find out how strong their power and interest and we ranked them by conducting a stakeholder analysis. In this option, there are two main leading stakeholders which are **the Ministry of Education and Culture** for controlling school environment and **the Ministry of Health** for community environment context.
Individual student	One systematic review has examined the association between eating whilst watching TV and children's food and eating intake. It was found that having the TV on at mealtimes reduces diet quality with more high□ fat, high□sugar foods and fewer fruits and vegetables and increased consumption of sugar-sweetened beverages (Shqair,et al.,2019).	One systematic review mentioned strategies must be adopted to promote a healthy diet for children, and thus prevent chronic diseases like obesity and dental caries. Policies aiming to reduce the exposure of children to TV marketing messages promoting unhealthy foods, and to introduce more messages for nutritional foods must be encouraged. (Shqair,et al.,2019).

Parents	Some parent have a tendency to provide high fat and SSBs drink to their children event the school already have a policy to reduce SSB intake (Nathan et al., 2019) NSC: Providing healthier food will be a challenge for school with limited resources such as financing and expertise. Many interventions already addressed school level so they would be overwhelming.	Parents behavior also contributed to the effectiveness of this program to control their children meals and understand potential healthy food. (Nathan et al., 2019) Health professionals should take apart in working with schools to ensure that school environments encourage children to make healthier drink choices. This would give participants the opportunity to focus their efforts on one element at a time, without having to make too many stretching lifestyle changes at once. The new learned behavior could also be maintained and built into the next stages of an intervention to reinforce them (Winpenny, Penney, Corder, White, & van Sluijs, 2017).
Schools	Research on students in Tambaksari Subdistrict, Surabaya, Indonesia 2016/2017 academic year shows results on a weekly frequency, it can be concluded that there is a relationship between consumption patterns of snacks, including: fruit syrup, chocolate, fried foods, brains and sausages, pentol and pentol fried on a weekly frequency with the incidence of overweight / obesity. Pattern of consumption of snacks and drinks sweetness in elementary school children increases with increasing days (Nisak, AJ, et al., 2017).	NSC: National Stakeholders say it is necessary to educate children in schools about the content of sweetened drinks. He said it was necessary to put the label of the beverage content on the packaging of sweet drinks. This is an effort to educate the public. To make this effort, coordination between the ministries of industry and the ministries of education and culture is needed.
Communities	For school society, it needed a complementary intervention including demonstration on how to choose and prepare less-sweetened alternatives incorporated within the intervention activities (Vargas-Garcia et al., 2017).	Governmental efforts to reduce availability and/or eliminate SSB in schools is a mandatory and should be pursued (Vézina-Im et al., 2017).
Industry	One systematic review state that informants described processes whereby industry lobbying and the education workers' union interests resulted in exclusion of strong statements about marketing SSB to children, taxation, and other statute specific regulations from the National Accord. The systematic review detected concerns, especially among Industry participants, about the 'lack of guidelines from government regarding industry's role': there is no clear sugar reduction threshold, and no funds or infrastructure in place to reduce sugar in beverages(Moise, N., 2011).	One systematic review mentioned informants from academia and MOH indicated that taxation may limit SSB consumption. To counter-marketing practices and SSB consumption, almost all insisted that 'government intervention is crucial to protect children'. (Moise, N., 2011).
Government	NSC: Indonesia has more than 100.000 schools and there are some divided responsibilities among the school level. This condition would lead a barrier to implementing a school and community behavior to integrate all components. General schools (public or private) will be taken responsibility by Local Education Authority (Dinas Pendidikan) and be controlled and organized by Ministry of Education (Kemendikbud), while Ministry of religious affair (Kementerian Agama, Kemenag) are taking responsibility for Religion School (Madrasah Alia, Madrasah Tsanawiyah). In other hand, Province Education Authority will be in charge for General Senior High Schools in Indonesia while District/City Education Authority is playing important role to develop Junior High Schools and Primary Schools. This situation will lead to a question "Who will take responsibilities as the leader in option?".	Need to implement health in all policy approach. It has a meaning that Ministry of Health would design the intervention and will be supported by Ministry of Education, District Health Authority, District Education Authority, Public Primary Care, Local Governments, Local Universities, and related NGO.
	NSC: Until now the growth of NCD in Indonesia is still high even though it has been echoed by GERMAS by the Ministry of Health so that its non-fiscal approach needs to be questioned about its effectiveness.	NSC: National Stakeholder said, in term of fiscal the implementation of sugar sweetened beverages excise tax could be done, but there had to be a political process.
	A convoluted policymaking system, a prolonged policy adoption process, competing agendas, and opposition (mostly from industry). Industry has systematically obstructed inclusion of Norms and technical guidelines, arguing that government should not interfere with business (Moise, N., 2011).	Government strategies would also support other settings by facilitating healthy options to become easy choices for consumers. One of the interventions to date evaluated kilojoule labelling of fast-food menus, one finding a significant reduction in kilojoules ordered (Johnson, B. J., et al., 2016).

NEXT STEPS

The aim of this policy brief is to foster a multi-stakeholder dialogue informed by the best available evidence. The intention is not to advocate for specific policy options/elements or close off discussion. Further actions will flow from the deliberations that the policy brief is intended to inform. These may include:

Deliberation amongst policymakers and stakeholders regarding the policy elements described in this policy brief.

Refining elements, for example by incorporating, removing or modifying some components.

REFERENCE

Afshin, A., Peñalvo, J. L., Del Gobbo, L., Silva, J., Michaelson, M., O'Flaherty, M., Capewell, S., Spiegelman, D., Danaei, G., & Mozaffarian, D. (2017). The prospective impact of food pricing on improving dietary consumption: A systematic review and meta-analysis. PloS one, 12(3), e0172277. https://doi.org/10.1371/journal.pone.0172277

Al-Khudairy L, Uthman OA, Walmsley R, et al. 2019. Choice architecture interventions to improve diet and/or dietary behavior by healthcare staff in high-income countries: a systematic review. BMJ Open 2019. DOI 10.1136/ bmjopen-2018-023687

Al-Zalabani AH, Elahi IN, Katib A, Alamri AG, Halawani A, Alsindi NM, et al. Association between soft drinks consumption and asthma: A systematic review and meta-analysis. BMJ Open. 2019;9(10):1–11.

Andrea M. Teng, Amanda C. Jones, Anja Mizdrak, Louise Signal, Murat Genç, Nick Wilson. (2019) Impact of sugar□sweetened beverage taxes on purchases and dietary intake: Systematic review and meta□analysis. Obesity Reviews. https://doi.org/10.1111/obr.12868

Argadikoesoema, S. (2019). Strategy Guidelines and Action Steps for Increasing Application of Healthy Diet Guidelines. National Cancer Management Committee (KPKN) Period 2014-2019

Avery, A., Bostock, L., & Mccullough, F. (2015). A systematic review investigating interventions that can help reduce consumption of sugar-sweetened beverages in children leading to changes in body fatness. Journal of Human Nutrition and Dietetics, 28(s1), 52–64. https://doi.org/10.1111/jhn.12267

Avery, A., Bostock, L., & Mccullough, F. (2015). A systematic review investigating interventions that can help reduce consumption of sugar-sweetened beverages in children leading to changes in body fatness. Journal of Human Nutrition and Dietetics, 28(s1), 52–64. https://doi.org/10.1111/jhn.12267

Backholer, K., Sarink, D., Beauchamp, A., Keating, C., Loh, V., Ball, K., . . . Peeters, A. (2016). The impact of a tax on sugar-sweetened beverages according to socio-economic position: A systematic review of the evidence. Public Health Nutrition, 19(17), 3070-3084. doi:10.1017/S136898001600104X

Badan Pengawasan Obat dan Makanan (2019). Peraturan Badan Pengawasan Obat dan Makanan Republik Indonesia Nomor 22 tahun 2019 tentang Informasi Nilai Gizi Pada Label Pangan Olahan

Bleakley, A., Jordan, A. B., Hennessy, M., Glanz, K., Strasser, A., & Vaala, S. (2015). Do Emotional Appeals in Public Service Advertisements Influence Adolescents' Intention to Reduce Consumption of Sugar-Sweetened Beverages?. Journal of health communication, 20(8), 938–948. https://doi.org/10.1080/10810730.2015.1018593

Bourke, E. J., & Veerman, J. L. (2018). The potential impact of taxing sugar drinks on health inequality in Indonesia. BMJ Global Health, 3(6), 1–8. https://doi.org/10.1136/bmjgh-2018-000923

Cairns, G., Angus, K., & Hastings, G. (2009). The extent, nature and effects of food promotion to children: a review of the evidence to December 2008. World Health Organization, WHO Press.

Cauchi, D., Glonti, K., Petticrew, M., & Knai, C. (2016). Environmental components of childhood obesity prevention interventions: an overview of systematic reviews. Obesity reviews, 17(11), 1116-1130.

Chambers, S. A., Freeman, R., Anderson, A. S., & MacGillivray, S. (2015). Reducing the volume, exposure and negative impacts of advertising for foods high in fat, sugar and salt to children: A systematic review of the evidence from statutory and self-regulatory actions and educational measures. Preventive medicine, 75, 32–43. https://doi.org/10.1016/j.ypmed.2015.02.011

Daeli, W. A. C., & Nurwahyuni, A. (2019). Determinan Sosial Ekonomi Konsumsi Minuman Berpemanis di Indonesia: Analisis Data Susenas 2017. Jurnal Ekonomi Kesehatan Indonesia, 4(1). https://doi.org/10.7454/eki.v4i1.3066

Driessen, C. E., Cameron, A. J., Thornton, L. E., Lai, S. K., & Barnett, L. M. (2014). Effect of changes to the school food environment on eating behaviours and/or body weight in children: a systematic review. Obesity reviews, 15(12), 968-982.

Ernawati, Endah. (2018). Fulfillment of Food Product Label Requirements for Sale Online Against Food Label Regulations. Thesis. IPB University.

Escobar, M. A. C., Veerman, J. L., Tollman, S. M., Bertram, M. Y., & Hofman, K. J. (2013). Evidence that a tax on sugar sweetened beverages reduces the obesity rate: a meta-analysis. BMC public health, 13(1), 1072.

Eykelenboom, M., Van Stralen, M. M., Olthof, M. R., Schoonmade, L. J., Steenhuis, I. H. M., & Renders, C. M. (2019). Political and public acceptability of a sugar-sweetened beverages tax: A mixed-method systematic review and meta-Analysis. International Journal of Behavioral Nutrition and Physical Activity, 16(1), 1–19. https://doi.org/10.1186/s12966-019-0843-0

Ferretti F, Mariani M. Sugar-sweetened beverage affordability and the prevalence of overweight and obesity in a cross section of countries. Global Health. 2019;15(1):1–14.

Fiona S Morton and Florian Zettelmeyer. 2004. The Strategic Positioning of Store Brands in Retailer-Manufacturer Negotiations. Review of Industrial Organization, Vol. 24, No. 2. Spreinger. https://www.jstor.org/stable/41803617

Franse, C. B., Wang, L., Constant, F., Fries, L. R., & Raat, H. (2019). Factors associated with water consumption among children: A systematic review. International Journal of Behavioral Nutrition and Physical Activity, 16(1), 1–14. https://doi.org/10.1186/s12966-019-0827-0

Friana, Hendra. (2020). The Problem of Excise on Sweetened Beverages, Minister of Industry: Industry Is Not Normal. Tirto.id. https://tirto.id/soal-cukai-minuman-berpemanis-menperin-industri-lagi-tak-normal-eCCN

Gordon, A., & Fox, M. K. (2007). School Nutrition Dietary Assessment Study III: Summary of Findings (No. aaa39732a8284ecbb2faca5dbb5fb0d3). Mathematica Policy Research.

Government Regulation No. 69/1999 concerning Food Labels and Advertisements.

Green, M., Hadihardjono, D. N., Pries, A. M., Izwardy, D., Zehner, E., & Huffman, S. L. (2019). High proportions of children under 3 years of age consume commercially produced snack foods and sugar-sweetened beverages in Bandung City, Indonesia. Maternal and Child Nutrition, 15(S4), 1–14. https://doi.org/10.1111/mcn.12764

Green, M., Hadihardjono, D. N., Pries, A. M., Izwardy, D., Zehner, E., & Huffman, S. L. 2019. High proportions of children under 3 years of age consume commercially produced snack foods and sugar-sweetened beverages in Bandung City, Indonesia. Maternal & child nutrition. https://doi.org/10.1111/mcn.12764

Habib-Mourad, C. and Ghandour, L.A., 2015. Time to act: lessons learnt from the first pilot school-based intervention study from Lebanon to prevent and reduce childhood obesity. Frontiers in Public Health, 3, p.56.

Haning, M. T., Arundhana, A. I., & Muqni, A. D. (2016). The government policy related to sugar-sweetened beverages in Indonesia. Indian Journal of Community Health, 28(3), 222–227.

Hawkes, Corinna & World Health Organization. Noncommunicable Diseases and Mental Health Cluster. (2004). Nutrition labels and health claims: the global regulatory environment / Corinna Hawkes. World Health Organization

Henny, E., Kartini, A., Rahfiludin, MZ.,(2015). Relationship of Elementary School Student Knowledge With Instant Powder Drink Consumption in Sendangmulyo 03 Semarang State Primary School. Public Health Journal. 3(1).264.

Hobbs M, Pearson N, Foster PJ, Biddle SJ. Sedentary behaviour and diet across the lifespan: an updated systematic review. Br J Sports Med. 2015;49(18):1179–1188. doi:10.1136/bjsports-2014-093754

Hollands, G.J., Carter, P., Anwer, S., King, S.E., Jebb, S.A., Ogilvie, D., Shemilt, I., Higgins, J.P. and Marteau, T.M., 2019. Altering the availability or proximity of food, alcohol, and tobacco products to change their selection and consumption. Cochrane Database of Systematic Reviews, (9).

Horodyska, K., Luszczynska, A., Hayes, C.B., O'Shea, M.P., Langøien, L.J., Roos, G., van den Berg, M., Hendriksen, M., De Bourdeaudhuij, I. and Brug, J., 2015. Implementation conditions for diet and physical activity interventions and policies: an umbrella review. BMC Public Health, 15(1), p.1250.

https://kemenperin.go.id/tugas-pokok-fungsi-kementerian-perindustrian

https://www.kemendag.go.id/id/about-us/main-duty\

Ibrahim, S. A. (2005). Critical Perspectives on Racial and Ethnic Differences in Health in Late Life. Annals of Internal Medicine (Vol. 142). https://doi.org/10.7326/0003-4819-142-1-200501040-00023

Imamura F, O'Connor L, Ye Z, Mursu J, Hayashino Y, Bhupathiraju SN, et al. Consumption of sugar sweetened beverages, artificially sweetened beverages, and fruit juice and incidence of type 2 diabetes: Systematic review, meta-analysis, and estimation of population attributable fraction. BMJ. 2015;351:1–12.

Jaime, P. C., & Lock, K. (2009). Do school based food and nutrition policies improve diet and reduce obesity?. Preventive medicine, 48(1), 45-53.

Janet E. Whatley Blum, ScD; Anne-Marie Davee, MS, RD; Christina M. Beaudoin, PhD; Paul L. Jenkins, PhD; Lori A. Kaley, MS, MSB; Debra A. Wigand, MEd, CHES. (2008). Reduced Availability of Sugar-sweetened Beverages and Diet Soda Has a Limited Impact on Beverage Consumption Patterns in Maine High School Youth. Society For Nutrition Education. doi: 10.1016/j.jneb.2007.12.004

Jang, Juhyun & NA, Baeg & Lee, Moo-Sik & SEO, Soonryu & SUNG, Changhyun & KIM, Hyun & LEE, Jin. (2016). The Effect of Public Service Advertising on Cardiovascular Disease in Korea. Iranian Journal of Public Health. 45. 1029-1037.

Janne C. de Ruyter, Margreet R. Olthof, Jacob C. Seidell, and Martijn B. Katan. 2012. A Trial of Sugar-free or Sugar-Sweetened Beverages and Body Weight in Children. The New England Journal of Medicine. DOI: 10.1056/NEJMoa1203034.

Jean L. Wiecha, Phd; Daniel Finkelstein, Edm, Phd; Philip J. Troped, Phd, Ms; Maren Fragala, Ms; Karen E. Peterson, Dsc, Rd. (2006). School Vending Machine Use and Fast-Food Restaurant Use Are Associated with Sugar-Sweetened Beverage Intake in Youth. Journal of the American Dietetic Association. doi: 10.1016/j.jada.2006.07.007

Jenkin G, Madhvani N, Signal L, Bowers S. A systematic review of persuasive marketing techniques to promote food to children on television. Obes Rev. 2014;15(4):281-293. doi:10.1111/obr.12141

Johnson, B. J., Hendrie, G. A., & Golley, R. K. (2016). Reducing discretionary food and beverage intake in early childhood: a systematic review within an ecological framework. Public health nutrition, 19(9), 1684–1695. https://doi.org/10.1017/S1368980015002992

Kelly, B., King, L., Baur, L., Rayner, M., Lobstein, T., ... Monteiro, C. (2013). Monitoring food and non-alcoholic beverage promotions to children. Obesity Reviews, 14, 59–69

Kementerian Kesehatan RI, 2020. Kebijakan Cukai Untuk Minuman Berpemanis (SSB) terhadap Kesehatan.

Kementerian Kesehatan RI. 2013. Peraturan Menteri Kesehatan Nomor 30 tahun 2013 tentang Pencantuman Informasi Kandungan Gula, Garam, dan Lemak Serta Pesan Kesehatan untuk Pangan Olahan dan Pangan Siap Saji.

Kementerian Keuangan RI dan Kementerian Kesehatan RI. 2019. Policy Paper Pengenaan Cukai Terhadap Minuman Bergula dalam Kemasan. Kerjasama antara Kementerian Keuangan RI dan Kementerian Kesehatan RI.

Kementerian Keuangan RI, 2020. Kebijakan Ekstensifikasi Barang Kena Cukai Berupa Minuman Berpemanis.

Kumanyika, S.K., 2008. Environmental influences on childhood obesity: ethnic and cultural influences in context. Physiology & behavior, 94(1), pp.61-70.

Laksmi, P. W., Morin, C., Gandy, J., Moreno, L. A., Kavouras, S. A., Martinez, H., ... Guelinckx, I. (2018). Fluid intake of children, adolescents and adults in Indonesia: results of the 2016 Liq.In7 national cross-sectional survey. European Journal of Nutrition, 57(3), 89–100. https://doi.org/10.1007/s00394-018-1740-z

Levy, D. T., Friend, K. B., & Wang, Y. C. (2011). A review of the literature on policies directed at the youth consumption of sugar sweetened beverages. Advances in Nutrition, 2(2). https://doi.org/10.3945/an.111.000356

Lim SS, Vos T, Flaxman AD, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet 2012; 380:2224–60. 10.1016/S0140-6736(12)61766-8

Lisa M. Powell, Roy Wada, Joseph J. Persky, and Frank J. Chaloupka. (2014) Employment Impact of Sugar-Sweetened Beverage Taxes. American Journal of Public Health Vol 104, No. 4. DOI 10.2105/AJPH.2013.301630

Luger M, Lafontan M, Bes-Rastrollo M, Winzer E, Yumuk V, Farpour-Lambert N. Sugar-Sweetened Beverages and Weight Gain in Children and Adults: A Systematic Review from 2013 to 2015 and a Comparison with Previous Studies. Obes Facts. 2018;10(6):674–93.

Ma¨ıte´ Verloigne, Wendy Van Lippevelde, Lea Maes, Johannes Brug, and Ilse De Bourdeaudhuij. Family- and school-based correlates of energy balance-related behaviours in 10–12-year-old children: a systematic review within the ENERGY (EuropeaN Energy balance Research to prevent excessive weight Gain among Youth) project. Public Health Nutrition. DOI 10.1017/S1368980011003168.

Maite Redondo,Ildefonso Hernández-Aguado, and Blanca Lumbreras. (2018). The impact of the tax on sweetened beverages: a systematic review. The American Journal of Clinical Nutrition, Volume 108, Issue 3. https://doi.org/10.1093/ajcn/nqy135

Mazarello Paes, V., Hesketh, K., O'Malley, C., Moore, H., Summerbell, C., Griffin, S., Van Sluijs, E.M.F., Ong, K.K. and Lakshman, R., 2015. Determinants of sugar□ sweetened beverage consumption in young children: a systematic review. obesity reviews, 16(11), pp.903-913.

Megan A. Moreno. 2009. Sugary Drinks and Childhood Obesity. Article Information. DOI 10.1001/archpediatrics.2009.16

Micha, R., Karageorgou, D., Bakogianni, I., Trichia, E., Whitsel, L. P., Story, M., … Mozaffarian, D. (2018). Effectiveness of school food environment policies on children's dietary behaviors: A systematic review and meta-analysis. PLoS ONE, 13(3), 1–27. https://doi.org/10.1371/journal.pone.0194555

Minister of Health Regulation No. 30/2013 concerning Inclusion of Sugar, Salt and Fat Information and Health Messages for Processed and Ready-to-Eat Foods.

Minister of Health Regulation No. 41/2014 concerning Balanced Nutrition Guidelines. While the current label is still voluntary, it is because the existing regulations are not mandatory.

Moise, N., Cifuentes, E., Orozco, E., & Willett, W. (2011). Limiting the consumption of sugar sweetened beverages in Mexico's obesogenic environment: A qualitative policy review and stakeholder analysis. Journal of Public Health Policy, 32(4), 458–475. doi:10.1057/jphp.2011.39

Mozaffarian, D., Hao, T., Rimm, E. B., Willett, W. C., & Hu, F. B. (2011). Changes in Diet and Lifestyle and Long-Term Weight Gain in Women and Men. New England Journal of Medicine, 364(25), 2392–2404. https://doi.org/10.1056/NEJMoa1014296

Nakhimovsky, S. S., Feigl, A. B., Avila, C., O'Sullivan, G., Macgregor-Skinner, E., & Spranca, M. (2016). Taxes on Sugar-Sweetened Beverages to Reduce Overweight and Obesity in Middle-Income Countries: A Systematic Review. PloS one, 11(9), e0163358. https://doi.org/10.1371/journal.pone.0163358

Nathan, N., Janssen, L., Sutherland, R., Hodder, R. K., Evans, C. E. L., Booth, D., … Wolfenden, L. (2019). The effectiveness of lunchbox interventions on improving the foods and beverages packed and consumed by children at centre-based care or school: A systematic review and meta-analysis. International Journal of Behavioral Nutrition and Physical Activity, 16(1), 1–15. https://doi.org/10.1186/s12966-019-0798-1

Olafsdottir, Steingerdur & Berg, Christina & Eiben, Gabriele & Lanfer, A & Reisch, Lucia & Ahrens, Wolfgang & Kourides, Yiannis & Molnár, Dénes & Moreno, Luis & Siani, Alfonso & Veidebaum, Toomas & Lissner, L. (2013). Young children's screen activities, sweet drink consumption and anthropometry: Results from a prospective European study. European journal of clinical nutrition. 68. 10.1038/ejcn.2013.234.

Patriantoro, L., Devaera, Y., Bardosono, S., Fauzia, K., Khoirunnisa, M., & Saptarini, D. (2019). Correlation between the Consumption Frequency of Sugar-Sweetened Beverages with Serum Triglyceride Levels in Female Adolescents. World Nutrition Journal, 2(2), 38. https://doi.org/10.25220/wnj.v02.i2.0007

Popkin, B. M., & Hawkes, C. (2016). Sweetening of the global diet, particularly beverages: patterns, trends, and policy responses. The Lancet Diabetes & Endocrinology, 4(2), 174–186. doi:10.1016/s2213-8587(15)00419-2

Powell, L. M., Chriqui, J. F., Khan, T., Wada, R., & Chaloupka, F. J. (2013). Assessing the potential effectiveness of food and beverage taxes and subsidies for improving public health: a systematic review of prices, demand and body weight outcomes. Obesity reviews : an official journal of the International Association for the Study of Obesity, 14(2), 110–128. https://doi.org/10.1111/obr.12002

Prawira, Aditya Eka., (2019). Prevent Obesity, Should Sweet Drinks Be Affected by Excise like Cigarettes?. Liputan6. https://www.liputan6.com/health/read/3867858/cegah-obesitas-haruskah-minuman-manis-dikenai-cukai-seperti-rokok

Putri, V., Angkasa, D., & Nuzrina, R. (2017). Consumption of Fast Food, Soft Drinks, Physical Activity, and Events Overweight Primary School Students in Jakarta. Indonesian Journal of Human Nutrition, 4(1), 48 - 58. doi:http://dx.doi.org/10.21776/ub.ijhn.2017.004.01.5

Radwan H, Ballout RA, Hasan H, Lessan N, Karavetian M, Rizk R. The epidemiology and economic burden of obesity and related cardiometabolic disorders in the United Arab Emirates: A systematic review and qualitative synthesis. J Obes. 2018;2018.

Rahman, A. A., Jomaa, L., Kahale, L. A., Adair, P., & Pine, C. (2018). Effectiveness of behavioral interventions to reduce the intake of sugar-sweetened beverages in children and adolescents: A systematic review and meta-analysis. Nutrition Reviews, 76(2), 88–107. https://doi.org/10.1093/nutrit/nux061

Rajshri Roy, Bridget Kelly, Anna Rangan, Margaret Allman-Farinelli. 2015. Food Environment Interventions to Improve the Dietary Behavior of Young Adults in Tertiary Education Settings: A Systematic Literature Review. http://dx.doi.org/10.1016/j.jand.2015.06.380

Ramadhani, P., & Mahmudiono, T. (2018). Hubungan Konsumsi Sugar-Sweetened Beverages Dengan Kejadian Diabetes Mellitus Pada Lansia. Media Gizi Indonesia, 13(1), 49. https://doi.org/10.20473/mgi.v13i1.49-56

Redondo, M., Hernández-Aguado, I., & Lumbreras, B. (2018). The impact of the tax on sweetened beverages: a systematic review. The American journal of clinical nutrition, 108(3), 548-563.

Regulation of the Food and Drug Supervisory Agency (BPOM) No. 21/2018 concerning the Food Category.

Regulation of the Food and Drug Supervisory Agency (BPOM) No. 22/2019 concerning Information on Nutrition Values on Processed Food Labels

Sadeghirad, B., Duhaney, T., Motaghipisheh, S., Campbell, N. R. C., & Johnston, B. C. (2016). Influence of unhealthy food and beverage marketing on children's dietary intake and preference: a systematic review and meta-analysis of randomized trials. Obesity Reviews, 17(10), 945–959. doi:10.1111/obr.12445

Sari K, Amaliah N, Utami NH. Economic inequality and obesity: multilevel analysis of Indonesian communities. Ann Nutrition Metab 2013;63:217.

Scot Burton, Elizabeth. H Creyer, Jeremy Kees, & Keyle Huggins. (2006). Attacking the Obesity Epidemic: The Potential Health Benefits of Providing Nutrition Information in Restaurants. Am J Public Health. doi: 10.2105/AJPH.2004.054973

Shqair AQ, Pauli LA, Costa VPP, Cenci M, Goettems ML. Screen time, dietary patterns and intake of potentially cariogenic food in children: A systematic review. J Dent. 2019;86:17□26. doi:10.1016/j.jdent.2019.06.004

Smith, R., Kelly, B., Yeatman, H., & Boyland, E. (2019). Food Marketing Influences Children's Attitudes, Preferences and Consumption: A Systematic Critical Review. Nutrients, 11(4), 875. https://doi.org/10.3390/nu11040875

Statista. Consumer Market Outlook – Soft Drink – Indonesia. https://www.statista.com/outlook/20020000/120/soft-drinks/indonesia

Story, M., Nanney, M. S., & Schwartz, M. B. (2009). Schools and obesity prevention: creating school environments and policies to promote healthy eating and physical activity. The Milbank Quarterly, 87(1), 71-100.

The Law No. 18/2012 Governing Food Security in Indonesia

Thow, A.M., Downs, S. and Jan, S., 2014. A systematic review of the effectiveness of food taxes and subsidies to improve diets: understanding the recent evidence. Nutrition reviews, 72(9), pp.551-565.

van Kleef E, Otten K, van Trijp HC. (2012). Healthy Snacks at The Checkout Counter: a Lab And Field Study on The Impact of Shelf Arrangement and Assortment Structure on Consumer Choices. BMC Public Health. Article number 1072.

Vargas-Garcia, E. J., Evans, C. E. L., Prestwich, A., Sykes-Muskett, B. J., Hooson, J., & Cade, J. E. (2017). Interventions to reduce consumption of sugar-sweetened beverages or increase water intake: evidence from a systematic review and meta-analysis. Obesity Reviews, 18(11), 1350–1363. https://doi.org/10.1111/obr.12580

Vézina-Im, L. A., Beaulieu, D., Bélanger-Gravel, A., Boucher, D., Sirois, C., Dugas, M., & Provencher, V. (2017). Efficacy of school-based interventions aimed at decreasing sugar-sweetened beverage consumption among adolescents: A systematic review. Public Health Nutrition, 20(13), 2416–2431. https://doi.org/10.1017/S1368980017000076

von Philipsborn P, Stratil JM, Burns J, Busert LK, Pfadenhauer LM, Polus S, Holzapfel C, Hauner H, Rehfuess E. Environmental interventions to reduce the consumption of sugar□sweetened beverages and their effects on health. Cochrane Database of Systematic Reviews 2019, Issue 6. Art. No.: CD012292. DOI: 10.1002/14651858.CD012292.pub2.

Wilde, P., Huang, Y., Sy, S., Abrahams-Gessel, S., Jardim, T. V., Paarlberg, R., … Gaziano, T. (2019). Cost-effectiveness of a US national sugar-sweetened beverage tax with a multistakeholder approach: Who pays and who benefits. American Journal of Public Health, 109(2), 276–284. https://doi.org/10.2105/AJPH.2018.304803

Winpenny, E. M., Penney, T. L., Corder, K., White, M., & van Sluijs, E. M. F. (2017). Changes in consumption of added sugars from age 13 to 30 years: a systematic review and meta-analysis of longitudinal studies. Obesity Reviews, 18(11), 1336–1349. https://doi.org/10.1111/obr.12588

Wolfenden, L., Kingsland, M., Rowland, B.C., Dodds, P., Gillham, K., Yoong, S.L., Sidey, M. and Wiggers, J., (2015). Improving availability, promotion and purchase of fruit and vegetable and non sugar-sweetened drink products at community sporting clubs: a randomised trial. International Journal of Behavioral Nutrition and Physical Activity, 12(1), p.35.

Wolff E, Dansinger ML. Soft drinks and weight gain: How strong is the link? MedGenMed Medscape General Medicine. 2008.

World Food Programme (WFP). March 2017. The Cost of the Diet Study in Indonesia. https://www.wfp.org/publications/indonesia-cost-diet-study

World Food Programme, (2017). An Eating Habit Study.

World Health Organization (2018). Technical Report on: Taxation for Sugar Sweetend Beverages in Sri Lanka

World Health Organization. 2015. Multi-sectoral Action Plan For The Prevention And Control of Noncommunicable Diseases in Maldives (2016-2020).

World Health Organization. 2015. Taxes on Sugar-sweetened Beverages as a Public Health Strategy: The Experience of Mexico

World Health Organization. Taxes on sugary drinks: Why do it? [Internet]. World Health Organization; 2017. Available from: https://apps.who.int/iris/bitstream/handle/10665/260253/WHO-NMH-PND-16.5Rev.1-eng.pdf?sequence=1

Wright, A., Smith, K. E., & Hellowell, M. (2017). Policy lessons from health taxes: A systematic review of empirical studies. BMC Public Health, 17(1), 1–14. https://doi.org/10.1186/s12889-017-4497-z

Yee, A. Z., Lwin, M. O., & Ho, S. S. (2017). The influence of parental practices on child promotive and preventive food consumption behaviors: a systematic review and meta-analysis. International Journal of Behavioral Nutrition and Physical Activity, 14(1), 47.

YMH (2019). Sugar-Sweetened Beverages. Young Men Health Organization: https://youngmenshealthsite.org/guides/sugar-sweetened-beverages/

Zheng, M., Allman-Farinelli, M., Heitmann, B. L., & Rangan, A. (2015). Substitution of sugar-sweetened beverages with other beverage alternatives: a review of long-term health outcomes. Journal of the Academy of Nutrition and Dietetics, 115(5), 767-779.

ANNEX

Annex. 1. Search Strategies

Sugar Sweetened Beverage General Topic.

("sugar-sweetened beverages"[MeSH Terms] OR ("sugar-sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar-sweetened beverages"[All Fields] OR ("sugar"[All Fields] AND "sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar sweetened beverages"[All Fields]) OR ("sugar"[All Fields] AND "beverages"[All Fields]) AND (systematic[sb] OR Meta-Analysis[ptyp])
Total search: 141 Articles

Options for tackling high consumption of SSB.

1. Implementing Behavior Change Interventions at School and Community Level to Limit the Use of SSBs.

A. Step 1 >PubMed

General search

("sugar-sweetened beverages"[MeSH Terms] OR ("sugar-sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar-sweetened beverages"[All Fields] OR ("sugar"[All Fields] AND "sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar sweetened beverages"[All Fields])
Total search: 2.710 Articles

Behavior interventions and children

("sugar-sweetened beverages"[MeSH Terms] OR ("sugar-sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar-sweetened beverages"[All Fields] OR ("sugar"[All Fields] AND "sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar sweetened beverages"[All Fields]) AND (("behaviour"[All Fields] OR "behavior"[MeSH Terms] OR "behavior"[All Fields]) AND interventions[All Fields] AND ("child"[MeSH Terms] OR "child"[All Fields] OR "children"[All Fields])) AND (systematic[sb] AND "loattrfree full text"[sb])
Total search: 9 Articles

No	Reference
1	Avery, A., Bostock, L., & Mccullough, F. (2015). A systematic review investigating interventions that can help reduce consumption of sugar-sweetened beverages in children leading to changes in body fatness. *Journal of Human Nutrition and Dietetics*, *28*(s1), 52–64. https://doi.org/10.1111/jhn.12267
2	Avery, A., Bostock, L., & Mccullough, F. (2015). A systematic review investigating interventions that can help reduce consumption of sugar-sweetened beverages in children leading to changes in body fatness. *Journal of Human Nutrition and Dietetics*, *28*(s1), 52–64. https://doi.org/10.1111/jhn.12267
3	Franse, C. B., Wang, L., Constant, F., Fries, L. R., & Raat, H. (2019). Factors associated with water consumption among children: A systematic review. *International Journal of Behavioral Nutrition and Physical Activity*, *16*(1), 1–14. https://doi.org/10.1186/s12966-019-0827-0
4	Micha, R., Karageorgou, D., Bakogianni, I., Trichia, E., Whitsel, L. P., Story, M., … Mozaffarian, D. (2018). Effectiveness of school food environment policies on children's dietary behaviors: A systematic review and meta-analysis. *PLoS ONE*, *13*(3), 1–27. https://doi.org/10.1371/journal.pone.0194555
5	Mozaffarian, D., Hao, T., Rimm, E. B., Willett, W. C., & Hu, F. B. (2011). Changes in Diet and Lifestyle and Long-Term Weight Gain in Women and Men. *New England Journal of Medicine*, *364*(25), 2392–2404. https://doi.org/10.1056/NEJMoa1014296
6	Rahman, A. A., Jomaa, L., Kahale, L. A., Adair, P., & Pine, C. (2018). Effectiveness of behavioral interventions to reduce the intake of sugar-sweetened beverages in children and adolescents: A systematic review and meta-analysis. *Nutrition Reviews*, *76*(2), 88–107. https://doi.org/10.1093/nutrit/nux061
7	Vargas-Garcia, E. J., Evans, C. E. L., Prestwich, A., Sykes-Muskett, B. J., Hooson, J., & Cade, J. E. (2017). Interventions to reduce consumption of sugar-sweetened beverages or increase water intake: evidence from a systematic review and meta-analysis. *Obesity Reviews*, *18*(11), 1350–1363. https://doi.org/10.1111/obr.12580
8	Vézina-Im, L. A., Beaulieu, D., Bélanger-Gravel, A., Boucher, D., Sirois, C., Dugas, M., & Provencher, V. (2017). Efficacy of school-based interventions aimed at decreasing sugar-sweetened beverage consumption among adolescents: A systematic review. *Public Health Nutrition*, *20*(13), 2416–2431. https://doi.org/10.1017/S1368980017000076
9	von Philipsborn, P., Stratil, J. M., Burns, J., Busert, L. K., Pfadenhauer, L. M., Polus, S., … Rehfuess, E. (2019). Environmental interventions to reduce the consumption of sugar-sweetened beverages and their effects on health. *Cochrane Database of Systematic Reviews*, *2019*(6). https://doi.org/10.1002/14651858.CD012292.pub2

2. Implementing Sugar Sweetened Beverages Taxation Regulations

A. Step 1 >PubMed

General search

("sugar-sweetened beverages"[MeSH Terms] OR ("sugar-sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar-sweetened beverages"[All Fields] OR ("sugar"[All Fields] AND "sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar sweetened beverages"[All Fields])
Total search: 2.710 Articles

Adverse effects, analysis, economics, organization and administration, standars, statistic and numerical data, supply and distribution

("Sugar-Sweetened Beverages"[Mesh]) AND ("Sugar-Sweetened Beverages/adverse effects"[Mesh] OR "Sugar-Sweetened Beverages/analysis"[Mesh] OR "Sugar-Sweetened Beverages/economics"[Mesh] OR "Sugar-Sweetened Beverages/organization and administration"[Mesh] OR "Sugar-Sweetened Beverages/standards"[Mesh] OR "Sugar-Sweetened Beverages/statistics and numerical data"[Mesh] OR "Sugar-Sweetened Beverages/supply and distribution"[Mesh])
Total search: 3 Articles

No	Reference
1	Redondo, M., Hernández-Aguado, I., & Lumbreras, B. (2018). The impact of the tax on sweetened beverages: a systematic review. *The American journal of clinical nutrition, 108*(3), 548-563.
2	Nakhimovsky, S. S., Feigl, A. B., Avila, C., O'Sullivan, G., Macgregor-Skinner, E., & Spranca, M. (2016). Taxes on sugar-sweetened beverages to reduce overweight and obesity in middle-income countries: a systematic review. PloS one, 11(9).
3	Escobar, M. A. C., Veerman, J. L., Tollman, S. M., Bertram, M. Y., & Hofman, K. J. (2013). Evidence that a tax on sugar sweetened beverages reduces the obesity rate: a meta-analysis. BMC public health, 13(1), 1072.

B. Step 2 >PubMed

General search

("sugar-sweetened beverages"[MeSH Terms] OR ("sugar-sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar-sweetened beverages"[All Fields] OR ("sugar"[All Fields] AND "sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar sweetened beverages"[All Fields])
Total search: 2.710 Articles

Systematic Review and published in the last 10 years

("sugar-sweetened beverages"[MeSH Terms] OR ("sugar-sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar-sweetened beverages"[All Fields] OR ("sugar"[All Fields] AND "sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar sweetened beverages"[All Fields])
Total search: 102 Articles

3. Limiting the Availability of SSB, Especially Around Schools

A. Step 1 >PubMed

General search

("sugar-sweetened beverages"[MeSH Terms] OR ("sugar-sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar-sweetened beverages"[All Fields] OR ("sugar"[All Fields] AND "sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar sweetened beverages"[All Fields])
Total search: 2.710 Articles

Adverse effects, analysis, economics, organization and administration, standars, statistic and numerical data, supply and distribution - Systematic review and published in the last 10 years

("Sugar-Sweetened Beverages"[Mesh]) AND ("Sugar-Sweetened Beverages/adverse effects"[Mesh] OR "Sugar-Sweetened Beverages/analysis"[Mesh] OR "Sugar-Sweetened Beverages/economics"[Mesh] OR "Sugar-Sweetened Beverages/organization and administration"[Mesh] OR "Sugar-Sweetened Beverages/standards"[Mesh] OR "Sugar-Sweetened Beverages/statistics and numerical data"[Mesh] OR "Sugar-Sweetened Beverages/supply and distribution"[Mesh])
Total search: 4 Articles

No	Reference
1	Mazarello Paes, V., et al. "Determinants of sugar-sweetened beverage consumption in young children: a systematic review." *obesity reviews* 16.11 (2015): 903-913.
2	Eykelenboom, Michelle, et al. "Political and public acceptability of a sugar-sweetened beverages tax: a mixed-method systematic review and meta-analysis." International Journal of Behavioral Nutrition and Physical Activity 16.1 (2019): 78.
3	Yee, A.Z., Lwin, M.O. and Ho, S.S., 2017. The influence of parental practices on child promotive and preventive food consumption behaviors: a systematic review and meta-analysis. International Journal of Behavioral Nutrition and Physical Activity, 14(1), p.47
4	Zheng, M., Allman-Farinelli, M., Heitmann, B. L., & Rangan, A. (2015). Substitution of sugar-sweetened beverages with other beverage alternatives: a review of long-term health outcomes. Journal of the Academy of Nutrition and Dietetics, 115(5), 767-779.

B. Step 2 >PubMed

General search

("sugar-sweetened beverages"[MeSH Terms] OR ("sugar-sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar-sweetened beverages"[All Fields] OR ("sugar"[All Fields] AND "sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar sweetened beverages"[All Fields])
Total search: 2.710 Articles

Availability

((((“sugar-sweetened beverages”[MeSH Terms] OR (“sugar sweetened”[All Fields] AND “beverages”[All Fields])) OR “sugar sweetened beverages”[All Fields]) OR ((“sugar”[All Fields] AND “sweetened”[All Fields]) AND “beverages”[All Fields])) OR “sugar sweetened beverages”[All Fields]) AND ((“availabilities”[All Fields] OR “availability”[All Fields]) OR “available”[All Fields])

Total search: 14 Articles

4. Ensuring the Availability of Healthy Drinks in Schools, Hospitals, Supermarkets, and Restaurants.

General search

(“healthies”[All Fields] OR “healthy”[All Fields]) AND (((((((“drink”[All Fields] OR “drinking”[MeSH Terms]) OR “drinking”[All Fields]) OR “alcohol drinking”[MeSH Terms]) OR (“alcohol”[All Fields] AND “drinking”[All Fields])) OR “alcohol drinking”[All Fields]) OR “drinkings”[All Fields]) OR “drinks”[All Fields])

Total search: 2.191 Articles

No	Reference
1	Hollands GJ, Carter P, Anwer S, King SE, Jebb SA, Ogilvie D, Shemilt I, Higgins JPT, Marteau TM
2	Cochrane Database of Systematic Reviews 2019, Issue 9. Art. No.: CD012573.
3	de Ruyter JC, Olthof MR, Seidell JC, Katan MB. A trial of sugar-free or sugar-sweetened beverages and body weight in children. N Engl J Med. 2012;367(15):1397-1406. doi:10.1056/NEJMoa1203034

5. Regulation the Marketing of SSB and Ensuring Availability of Clear Alarming Labels on SSB

A. Step 1 >PubMed

General search

(“sugar-sweetened beverages”[MeSH Terms] OR (“sugar-sweetened”[All Fields] AND “beverages”[All Fields]) OR “sugar-sweetened beverages”[All Fields] OR (“sugar”[All Fields] AND “sweetened”[All Fields] AND “beverages”[All Fields]) OR “sugar sweetened beverages”[All Fields])

Total search: 1.107 Articles

Marketing

(“sugar-sweetened beverages”[MeSH Terms] OR (“sugar-sweetened”[All Fields] AND “beverages”[All Fields]) OR “sugar-sweetened beverages”[All Fields] OR (“sugar”[All Fields] AND “sweetened”[All Fields] AND “beverages”[All Fields]) OR “sugar sweetened beverages”[All Fields]) AND (“marketing”[MeSH Terms] OR “marketing”[All Fields]) AND (systematic[sb] AND “2010/03/09”[PDat] : “2020/03/05”[PDat])

Total search: 3 Articles

B. Step 2 >PubMed

General search

(“sugar-sweetened beverages”[MeSH Terms] OR (“sugar-sweetened”[All Fields] AND “beverages”[All Fields]) OR “sugar-sweetened beverages”[All Fields] OR (“sugar”[All Fields] AND “sweetened”[All Fields] AND “beverages”[All Fields]) OR “sugar sweetened beverages”[All Fields])

Total search: 1.107 Articles

Regulation Marketing

(“sugar-sweetened beverages”[MeSH Terms] OR (“sugar-sweetened”[All Fields] AND “beverages”[All Fields]) OR “sugar-sweetened beverages”[All Fields] OR (“sugar”[All Fields] AND “sweetened”[All Fields] AND “beverages”[All Fields]) OR “sugar sweetened beverages”[All Fields]) AND ((“social control, formal”[MeSH Terms] OR (“social”[All Fields] AND “control”[All Fields] AND “formal”[All Fields]) OR “formal social control”[All Fields] OR “regulation”[All Fields]) AND (“marketing”[MeSH Terms] OR “marketing”[All Fields])) AND (systematic[sb] AND “2010/03/09”[PDat] : “2020/03/05”[PDat])

Total search: 2 Articles

C. Step 3 >PubMed

General search

(“sugar-sweetened beverages”[MeSH Terms] OR (“sugar-sweetened”[All Fields] AND “beverages”[All Fields]) OR “sugar-sweetened beverages”[All Fields] OR (“sugar”[All Fields] AND “sweetened”[All Fields] AND “beverages”[All Fields]) OR “sugar sweetened beverages”[All Fields])

Total search: 1.107 Articles

Commercial Policy

("sugar-sweetened beverages"[MeSH Terms] OR ("sugar-sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar-sweetened beverages"[All Fields] OR ("sugar"[All Fields] AND "sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar sweetened beverages"[All Fields]) AND (Commercial[All Fields] AND ("policy"[MeSH Terms] OR "policy"[All Fields])) AND (systematic[sb] AND "2010/03/09"[PDat] : "2020/03/05"[PDat])
Total search: 2 Articles

D. Step 4 >PubMed

General search

("sugar-sweetened beverages"[MeSH Terms] OR ("sugar-sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar-sweetened beverages"[All Fields] OR ("sugar"[All Fields] AND "sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar sweetened beverages"[All Fields])
Total search: 1.107 Articles

Packaging

("sugar-sweetened beverages"[MeSH Terms] OR ("sugar-sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar-sweetened beverages"[All Fields] OR ("sugar"[All Fields] AND "sweetened"[All Fields] AND "beverages"[All Fields]) OR "sugar sweetened beverages"[All Fields]) AND ("product packaging"[MeSH Terms] OR ("product"[All Fields] AND "packaging"[All Fields]) OR "product packaging"[All Fields] OR "packaging"[All Fields] OR "drug packaging"[MeSH Terms] OR ("drug"[All Fields] AND "packaging"[All Fields]) OR "drug packaging"[All Fields]) AND (systematic[sb] AND "2010/03/09"[PDat] : "2020/03/05"[PDat])
Total search: 2 Articles

Option 5 has 5 articles.

No	Reference
1	Powell, L. M., Chriqui, J. F., Khan, T., Wada, R., & Chaloupka, F. J. (2013). Assessing the potential effectiveness of food and beverage taxes and subsidies for improving public health: a systematic review of prices, demand and body weight outcomes. Obesity reviews : an official journal of the International Association for the Study of Obesity, 14(2), 110–128. https://doi.org/10.1111/obr.12002
2	Moise, N., Cifuentes, E., Orozco, E., & Willett, W. (2011). Limiting the consumption of sugar sweetened beverages in Mexico's obesogenic environment: A qualitative policy review and stakeholder analysis. Journal of Public Health Policy, 32(4), 458–475. doi:10.1057/jphp.2011.39
3	Nakhimovsky, S. S., Feigl, A. B., Avila, C., O'Sullivan, G., Macgregor-Skinner, E., & Spranca, M. (2016). Taxes on Sugar-Sweetened Beverages to Reduce Overweight and Obesity in Middle-Income Countries: A Systematic Review. PloS one, 11(9), e0163358. https://doi.org/10.1371/journal.pone.0163358
4	Backholer, K., Sarink, D., Beauchamp, A., Keating, C., Loh, V., Ball, K., . . . Peeters, A. (2016). The impact of a tax on sugar-sweetened beverages according to socio-economic position: A systematic review of the evidence. Public Health Nutrition, 19(17), 3070-3084. doi:10.1017/S136898001600104X
5	von Philipsborn P, Stratil JM, Burns J, Busert LK, Pfadenhauer LM, Polus S, Holzapfel C, Hauner H, Rehfuess E. Environmental interventions to reduce the consumption of sugar□sweetened beverages and their effects on health. Cochrane Database of Systematic Reviews 2019, Issue 6. Art. No.: CD012292. DOI: 10.1002/14651858.CD012292.pub2.