



INTERNATIONAL PUBLIC POLICY INSIGHTS

Others are affected by obesity, a major NCD (cardiovascular disease, diabetes, cancer, etc.). Lack of healthy food and meal system problems cause obesity. Globalization and urbanization affect food production, distribution, marketing, and consumption. The shift to ultra-processed food has caused fat and overweight. Ultraprocessed, energy-dense, sugar- and salt-rich food is overconsumed and promoted worldwide, contributing to obesity.

This review investigated UAE and global food policy to see how they can meet SDG 3, good health and well-being for all ages.

Secondary data and literature were examined. This policy review analyzes adult obesity therapy evidence, examines pros and cons, and advises future research.

CLIMATE CHANGE, FOOD SYSTEMS, AND OBESITY: CALL FOR A POLICY STRENGTHENING IN THE UAE

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DESPITE PREVENTATIVE EFFORTS, OBESITY PERSISTS. WE MUST PROGRESS TO ATTAIN THE SDGS AND END NCDS LIKE OBESITY AND RELATED MORBIDITIES. TO BATTLE OBESITY IN THE MODERN, COMPLICATED, AND INTERCONNECTED WORLD, GOVERNMENT POLICIES SHOULD TRANSFORM THE ECONOMY, AGRICULTURE, LABOR, TRADE, AND SOCIAL SPHERE.

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This Policy Insights theme on the Year of Sustainability

The "2023 Year of Sustainability" theme in the United Arab Emirates (UAE) is a significant initiative aimed at promoting and advancing sustainability in various aspects of the country's development, in addition the hosting of the Congress of Parties (COP28), in Dubai. This theme underscores the UAE's commitment to addressing environmental, social, and economic challenges while working towards a more sustainable future. Here is a brief overview of the critical aspects of the 2023 Year of Sustainability theme in the UAE:

- 1. Environmental Stewardship:** The UAE has been actively pursuing sustainability in environmental practices. Initiatives such as renewable energy projects, sustainable agriculture, and conservation efforts are expected to be highlighted and expanded in 2023. The country aims to reduce its carbon footprint and conserve its natural resources.
- 2. Green Innovation and Technology:** The UAE is known for its investments in green technology and innovation. In 2023, there will likely be a focus on promoting research and development in sustainable technologies, energy-efficient solutions, and eco-friendly transportation.
- 3. Sustainable Urban Development:** As the UAE continues to grow and urbanize, sustainable urban planning and development will play a vital role in improving quality of life and reducing environmental impact. This theme is expected to emphasize the importance of smart cities and green infrastructure.
- 4. Conservation and Biodiversity:** The UAE is home to unique ecosystems and wildlife. The Year of Sustainability will likely include conservation efforts to protect these natural treasures and promote biodiversity through initiatives like wildlife reserves and habitat restoration projects.
- 5. Sustainable Business Practices:** Encouraging businesses to adopt sustainable practices is a key element of the 2023 theme. The UAE will likely support and incentivize businesses to



implement eco-friendly policies, reduce waste, and operate with a focus on environmental and social responsibility.

6. Education and Awareness: Promoting sustainability education and raising awareness among citizens, residents, and visitors is crucial. Educational programs and campaigns are expected to be an integral part of the Year of Sustainability, fostering a culture of responsible and environmentally conscious behavior.

7. International Collaboration: The UAE has a history of collaborating with international organizations and partners to address global sustainability challenges. In 2023, the country is likely to continue its efforts to contribute to global sustainability initiatives and share its expertise with the world.

The 2023 Year of Sustainability in the UAE reflects the country's dedication to sustainability, recognizing that a balanced approach to economic growth and environmental stewardship is essential for the well-being of current and future generations. This theme is expected to have a lasting impact on the UAE's policies, practices, and its position as a global leader in sustainability.

Abstract

Obesity is a critical part of the Non-Communicable Diseases (NCD) burden, influencing the prevalence of others (cardiovascular disease, diabetes, cancer, etc.). The rise of obesity is linked to the malfunction of food systems and their inability to supply healthy food.

Urbanization and globalization alter how we produce, disseminate, market, and consume food. Ultra-processed food is an example of how transition in nutrition is happening, bringing us to overweight and obesity. The global rise of obesity has been concurrent with growing overconsumption and marketing of ultra-processed, energy-dense, and sugar and salt-rich food.

The objectives of this review were to analyze existing evidence of food policies in the UAE and the world to see how they can deliver to achieve the Sustainable Development Goals (SDGs), particularly SDG 3, which is to achieve good health and well-being for all ages.

We used the secondary data and literature review to conduct the analysis. In this policy review, we summarize the evidence behind interventions to prevent obesity in adults, discuss the strengths and weaknesses of current research, and recommend a direction for future steps.

Although interest in obesity prevention has increased, its prevalence has not yet decreased. It is crucial to advance the efforts towards achieving the SDGs, and reduce the burden of NCDs, including obesity and related morbidities. To tackle the obesity problem in the modern, complex, and interconnected world, governmental policies should consider changes in many other sectors – economy, agriculture, labor, trade, and social sphere.

Abbreviations

- FAO – Food and Agricultural Organization
- GCC – Gulf Cooperation Council
- GDP – Gross Domestic Product
- GHG – Green House gas
- HoReCa - hotel/restaurant/catering
- MOHAP – Ministry of Health and Prevention
- NCD – Non-communicable diseases
- NGOs - Non-governmental organizations
- RTA – Roads and Transports Authority
- SDGs – Sustainable Development Goals
- UN – United Nations
- WHO – World Health Organization

Policy Issues

There is rising awareness that the present food systems are harmful and unsustainable, and they are moving more and more toward providing and selling foods and drinks that are unhealthy and highly processed. Large food corporations have a lot of influence on food systems and are a significant roadblock to solving problems with nutrition and obesity prevention.

The Global Syndemic of Obesity, Undernutrition, and Climate Change, published in 2019, looked at the relationship between three pandemics: Obesity, undernutrition, and climate change (The Lancet Commissions, 2019) and highlighted that the rising prevalence of obesity can be partially attributed to broken food systems and their inability to provide healthy, sustainable and nutritious diets. Food systems also play a crucial role in the ongoing climate crisis and are responsible for 25-30% of greenhouse gas emissions (GHG) (The Lancet Commissions, 2019). Similarly, natural disasters are likely to influence food availability, quality, and nutritional content directly.

Obesity and overweight problems have proliferated in all member states (WHO, 2018). Like all countries, the UAE has been facing the obesity problem and related health conditions, with prevalence rising to 27,8% in the population (WHO, 2018). Despite all measures undertaken so far, the problem persists. Now, there is also a burden of health conditions linked to obesity that have a severe medical, social, and economic impact.

At a High-Level Meeting of the United Nations General Assembly in 2011, Member States agreed to a program to reduce NCDs' burden, including obesity. The Assembly mandated the World Health Assembly to develop a set of targets and a program to achieve them as guidance for national governments. The targets, adopted at the World Health Assembly in May 2013, included a 25% relative decrease in total mortality due to chronic respiratory illnesses, cancer, diabetes, or cardiovascular diseases to stop the growth in obesity and diabetes.

According to the World Obesity Report (Obesity: missing the global targets 2025, costs, trends, and Countries Reports, March 2020), the UAE has an abysmal chance to meet the UN adult obesity targets 2025 as the rate of obesity increased during 1995-2015 is considered to be very rapid and the National Obesity risk is measured as 7/10 which is very high.

Size of the problem

According to the WHO Observatory Library, 2017-2018, the prevalence of obesity is at 27.8% (25,1% amongst men and 30,6% amongst women). If we look at the Emirati population, 32,2% of men and 41,8% of women are living with obesity).

The prevalence of diabetes has been on the rise in the UAE and counts now at 16,3% as per the International Diabetes Federation, compared to 9.3% worldwide [International Diabetes Federation 2020].



Stakeholder Analysis

The key stakeholders include governmental agencies (Ministry of Climate Change and Environment, Ministry of Health and Prevention, Department of Health, Abu Dhabi Public Health Department, Environmental agencies, Ministry of Education, Ministry of High Education and Scientific Research, Ministry of Transport/RTA, Dubai Tourism & Culture Authority, Municipalities, National Bureau of Statistics, WHO, Local NGOs, Representatives of HoReCa business, medical insurances, Academicians.

Stakeholder identification & engagement plan

| Stakeholder | How is this group affected by your policy proposal? Do you think they will support it or oppose it? Why? |
|--|--|
| Governmental agencies. – MOHAP, Climate Change and Environment, Municipalities, Ministry of Education, Ministry of High Education and Research, Food Control Authorities | <p>The government is committed to meeting the SDGs targets and will support and engage themselves in the proposed policy changes.</p> <p>Prepare policies, strategies, and plans, deliver health care services and health education and health promotion: MOHAP at the Federal level and others at the level of each Emirate.</p> <p>Achieve excellence in higher education and scientific research output, and contribute to UAE's knowledge-based society and sustainable development by providing educational programs and services following international quality standards.</p> <p>Municipalities - Create a sustainable agricultural and food industry that guarantees the public receives safe food while preserving the well-being of plants and animals.</p> |
| General population | <p>Will benefit from improving health status.</p> <p>Educational campaigns are needed to encourage people to make changes in their food choices – adults and kids.</p> |
| Food and beverage industries | <p>Will be impacted negatively and forced to change the ingredients and processes.</p> |
| HoReCa & retailers, caterers & other businesses | <p>HoReCa is the food service industry sector that consists of establishments that prepare and serve food and beverages, encouraging consumers to eat more.</p> |



| | |
|--|---|
| | They need a campaign to execute the policy requirements – by labelling menu nutrition, calories postings, encouraging clients to select vegetables, and stimulating drinking water. |
| Pharmaceuticals | Typically, obese clients pay a higher premium, which benefits insurance. However, the insurance system must adjust to the governmental policies to prevent obesity – nutrition, food marketing, labeling, education, etc. Also, they will have a role in providing some education to the patients on healthy nutrition. |
| NGOs/patients' groups working in health sectors | Provide health care to prevent and manage diabetes and related complications; Organize health and nutrition awareness campaigns; Collaborate with other sectors and institutions to reduce the burden of NCDs. |
| Medical professionals, academicians | This group will be actively helping people understand food ingredients & nutrition better, to change their eating habits and physical health via counselling & conducting research studies. Academia will be interested in engaging themselves in new research that could support the policy, develop a national surveillance system, and develop the indicators to monitor and evaluate the impact. |
| National Media Council Media, communication, and entertainment industry of the 7 Emirates | They can lose profit. They can contribute to education campaigns, advertising, and documentaries to increase awareness about the problem and impact of obesity on morbidity and mortality in mass media. |
| Educational facilities – schools/universities | To be involved in planning and implementing an updated curriculum that includes a healthy nutrition course. Provide Research Solutions, and prepare a pool of scientific evidence on national and international platforms. |



The rationale for government intervention

Obesity prevalence has been growing in every country since 1975 (The Lancet Commission report, 2019). According to the World Obesity Federation it is predicted the prevalence of people with overweight and obesity will reach over 50% by 2035 (World Obesity report 2023) and could cost the world more than 4 trillion US dollars (World Obesity Report 2023.)

UAE is one of the countries most impacted by Obesity and related health conditions (WHO, 2016) as the prevalence of obesity amongst women population is 44% and amongst men is 31%.

There are drivers of obesity epidemics – unhealthy diets, low physical activity, stress, and the inability of food systems to supply the population with healthy, nutritious, and balanced food ingredients. As per WHO Report "WHO Recommendations on the Marketing of food and non-alcoholic beverages to children in the Eastern Mediterranean Region" 2018, food marketing is another critical factor that stimulates unhealthy food preferences and encourages consumption.

According to the Global Obesity Observatory, the UAE has a national obesity risk score of 7/10 (10 being the highest risk) based on obesity prevalence, rate of increase, and likelihood of meeting the 2025 target amid other factors.

The Sustainable Development Goals call for ending malnutrition in all its forms (target 2.2) and reducing premature mortality from non-communicable diseases (target 3.4). Reducing obesity will also contribute to universal health coverage (target 3.8), improved quality education (Goal 4), and reduced inequalities (Goal 10). Integrating ending childhood obesity into national development and financing frameworks for the Sustainable Development Goals will ensure a response from all sectors.

The management of the interdependencies between the use of water, energy, and land as well as the requirement for methods to ensure the smart use of natural resources are part of the transformation of food systems. The use of integrated landscape management strategies might improve the management of sustainable resources. To motivate all stakeholders to invest in sustainability and participate in resource governance, policymakers must support integrated landscape management, promote the use of clean energy sources,

work to restore soil quality, strengthen land tenure rights, and ensure equitable access to water and other natural resources.

Underlying factors

Governance

The UAE has always been committed to meeting the SDGs targets, and now at 71st place amongst 165 countries with an SDG index equal to 70.2 out of 100 (UAE National Pathway for Food Systems Transformation).

The UAE is the first country in the world to appoint a Minister of State for Food and Water Security, with the overall responsibility to unify, consolidate and streamline all efforts toward ensuring adequate, affordable, safe, and nutritious food for all.

The UAE has introduced a few critical strategic documents currently well implemented - UAE National Pathway for Food Systems Transformation, UAE Nutrition Strategy, and the Centinell Strategy 2071. The UAE National Nutrition Plan 2022-2030 aims to establish sustainable nutritional systems for healthy diets, provide safe and supportive environments for nutrition to all age groups, and improve maternal, infant, and young child's nutrition states a few critical targets, including reducing childhood obesity. This document responds to all critical challenges from creating sustainable food systems and financing to nutritional health challenges from the other, thus improving the health condition of the entire community.

Policy Context

The UN General Assembly proclaimed 2016–2025 as the UN Decade of Action on Nutrition. As a Member State, UAE is committed to contributing to the FAO and WHO's global convention to set, track and achieve policy commitments to end all forms of malnutrition. Advocating for the commitments by all stakeholders to implement specific interventions, policies, programs, and investments for action on nutrition in all relevant sectors will be crucial to bringing about a real and meaningful system change to end all forms of malnutrition. This Action Plan will provide a national framework for making, reporting, and monitoring progress.

All stakeholders participated in preparing the UAE National Action Plan in Nutrition. They contributed to the development of the recommended plan of action about the following six pillars identified in the ICN2 Framework for Action:



- Sustainable food systems for healthy diets;
- Aligned health systems providing universal coverage of essential nutrition actions;
- Social protection and nutrition education;
- Trade and investment for improved nutrition;
- Enabling food and breastfeeding environments; and
- Review, strengthen and promote nutrition governance and accountability.

Financing

From an economic perspective, high rates of obesity and associated chronic diseases cost the government, businesses, and individuals a lot. As well as direct healthcare costs, obesity and associated non-communicable diseases are also linked to indirect costs, such as loss of productivity and reduced workforce participation.

The financial sector — including banking, insurance, and investment organizations — increasingly recognizes the importance of incorporating environmental, social, and governance considerations within financial decision-making (Robinson et al., 2022).

The World Economic Forum notes that institutional investors can play a crucial role in incentivizing the establishment of more equitable, sustainable, and healthy food systems by setting higher standards for how companies operating in the food system target environmental and social outcomes alongside financial returns (World Economic Forum, Geneva, 2020). Institutional investors that incorporate nutrition within decision-making can mitigate risks related to changing regulatory environments (e.g., taxation and restrictions on sales and marketing of unhealthy products), consumer demand for healthier products, reputational concerns around unhealthy products, and unethical business practices.

Delivery

Overarching objective: To reduce the morbidity and mortality from diet-related risk factors of NCDs in the UAE. The sub-objectives include the following:

To improve nutrition by offering more healthy food options to the population by strengthening legal regulations, in particular:

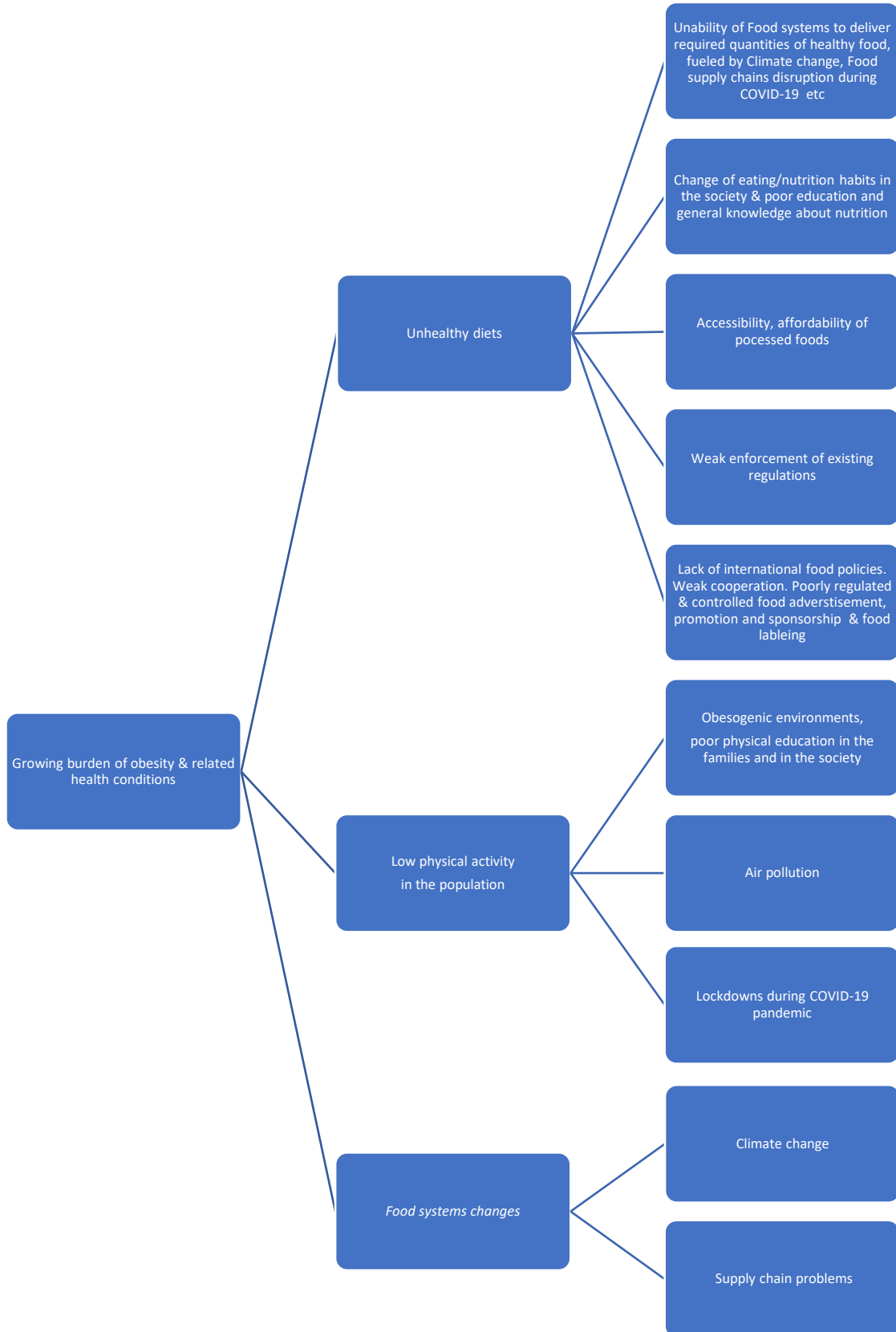
- Nutrition facts labeling (including front-of-pack labeling) according to the revised GCC and UAE nutrition labeling
- Salt & sugar reduction and reduction of saturated and trans fats,



- To limit the influence of marketing on food choices by amending the food marketing & advertisement legislation
- To educate people about food and diets via public campaigns
- To incentivize farmers and other local producers of organic foods and customers to increase healthy behaviour; and to disincentivize producers of unhealthy food (salty, palm oils, trans-fats, etc.)
- To enhance government and stakeholder coordination mechanisms and increase their capacity for effective policy monitoring and rapid response capabilities in the light of policy interference by the industry or other vested interests.
- To stimulate scientific research and to improve the evidence on health-related effects.

Theory of Change

We interpret "issues" as the consequences of the policy problem (what would happen if there is no government intervention?).



PESTLE Analysis

| Dimension | Description |
|----------------|--|
| Political | Strong political will and the UAE government's dedication towards achieving SDGs targets and overall population health & environment improvement. Existing legislation on Food Systems, food security, and nutrition. |
| Economic | Regulating the food industry, diets, and marketing will help to prevent high economic impact (health care costs, premature mortality, productivity loss etc.) and continuous loss in GDP. Halting overweight and obesity would result in average annual savings equal of 13 %. Slowing the increase in overweight and obesity by 5% would result in 5% in average annual savings between 2020-2060. |
| Socio-cultural | Strong political commitment to reduce the obesogenic environments and lifestyle. Healthy lifestyle is trendy, including physical activities Initiatives – Fitness Challenge. |
| Technological | Development of smart technology allows using compliance system to monitor the implementation of the regulations. In the fight against hunger and climate change, a number of recent technology advancements—such as genome-editing technologies, solar power for irrigation pumps and cold storage, and digitalization along the value chain—have the potential to lower emissions while also increasing output. |
| Legal | The efficient legal system that allows quick and effective implementation and enforcement. |
| Environmental | More land sufficient for sustainable agriculture, lower GHG emissions, more healthy food choices promoted, decreased demand for unsustainable food choices. |



SWOT Analysis

| | |
|------------------------|--|
| Internal Origin | Strengths |
| | Political commitment to the Prevention of Non-communicable diseases, including obesity, and towards achieving SDGs. Existing laws & strategies. Food systems reforms. |
| | Weaknesses |
| | Weak laws on food advertisement, promotion and sponsorships, loopholes in the legislation, weak enforcement mechanisms, no compliance monitoring mechanisms. Weak labelling. |
| External Origin | Opportunities |
| | Taxation on all processed diets, stronger regulation of marketing. Incentivizing farmers, retail, and customers, and disincentivizing manufacturers of junk food. Empowerment of research and development. Development of food technology. |
| | Threats |
| | Increased affordability, and accessibility of processed foods, especially for lower social classes and kids. Poorly controlled marketing, especially targeting kids. Poor food education for all ages. |

Policy Options & Recommendations

Elements to address the problem

Element 1:

To improve nutrition by offering more healthy food options to the population by strengthening legal regulations on marketing, food labeling, and food ingredients (sugar, salt, and fatty acids).

Element 2:

To incentivize farmers and other producers of organic foods and customers to increase healthy behaviour (price measures for retail, for example); and to disincentivize producers of unhealthy food (salty, palm oils, trans-fats, etc) by introducing penalties.

Element 3:

To stimulate scientific research and to improve the evidence on health-related effects

Element 4:

To enhance government and stakeholder coordination mechanisms and increase their capacity for effective policy monitoring and rapid response capabilities in the light of policy interference by the industry or other vested interests.



Category of finding

Element 1

To improve nutrition by offering more healthy food options to the population by strengthening legal regulations (on food labeling, food ingredients, and marketing for all ages) and by improving health education.

Benefits

Improved quality of nutrition, decreased burden of the non-communicable diseases, including obesity, and related economic, social and environmental issues.

Most consumers reported that they often or sometimes look at nutrition labels when purchasing food; women with higher income and education levels were more likely to look at nutrition labels. Concerning understanding nutrition labeling, the review found that consumers have difficulty understanding the information included on the label (Thavorncharoensap, Montarat, 2017).

Restrictions on unhealthy food advertisements were found to be cost-effective interventions in many settings. Thus, statutory regulations on unhealthy food advertisements may be considered a promising intervention in a multi-component strategy tackling Obesity (Thavorncharoensap, Montarat, 2017).

Potential harms

Difficult to ensure compliance with food regulations at different food suppliers and HORECA businesses as they would be concerned about losing customers;

Some customers have difficulties understanding food labels and nutrition information, and may not consider considering them.



Category of finding

Element 1

To improve nutrition by offering more healthy food options to the population by strengthening legal regulations (on food labeling, food ingredients, and marketing for all ages) and by improving health education.

It takes Long-term to change people's eating habits.

Cost

and/ or cost-effectiveness in relation to the status quo

Traffic-light labelling is considered a cost-effective intervention (Sacks et al., 2011).

Food advertisement regulation was proved a very cost-effective measure (Magnus et al., 2009).

Information campaigns for population, training, material development, etc. – need financing;

Consultations with legal experts.

Uncertainty

regarding benefits and potential harms (so monitoring and evaluation could be warranted if the approach element were pursued)

Changing legislation and regulations should be coordinated within the GCC, which requires time and special efforts to control internet advertisement.

Category of finding

Element 2

To incentivize farmers and other producers of organic foods, retailers and meal providers (subsidies) as well as customers to increase healthy behaviour; and to



Category of finding

Element 1

To improve nutrition by offering more healthy food options to the population by strengthening legal regulations (on food labeling, food ingredients, and marketing for all ages) and by improving health education.

disincentivize producers of unhealthy food (salty, palm oils, trans-fats etc) by amending the regulations & pricing policies – food taxes, promotions, subsidies, vouchers, and portion sizes; penalties for advertizers. (*Financial incentives and disincentives to encourage healthy eating – report, 2009*)

Benefits

Farmers and local producers will be encouraged and supported to offer, and the customers will be motivated to purchase healthier and more socially and environmentally responsible food options.

This will boost innovation of the new business models that prioritize environmental, social, and financial outcomes (Mc Kinsey & Company report, 2020).

Sugar-Sweetened Beverage taxation has been suggested to reduce obesity prevalence. Governments in Australia, Fiji, Finland, France, Ireland, Mexico, Nauru, Samoa, and Sweden have already implemented such taxes (Montarat Thavorncharoensap, 2017; Olsen et al. 2009).



Category of finding

Element 1

To improve nutrition by offering more healthy food options to the population by strengthening legal regulations (on food labeling, food ingredients, and marketing for all ages) and by improving health education.

Potential harms

The industry is likely to be highly resistant to taxation (as was illustrated in New York with attempts to introduce soda taxes (Hartocollis A., 2012).

Unintended side effects could also take the form of price-induced shifts to other (untaxed) unhealthy food or drink choices. Previous studies have highlighted an increase in caffeine and fruit juice consumption following the introduction of a sugar-sweetened beverage tax (Dharmasena S, Capps Jr O, 2012), which could undermine the policy's effectiveness from an obesity prevention perspective.

Potential impact of counteractive pricing strategies (e.g. the extent to which the actual price paid by the consumer is likely to change in response to a tax or subsidy).

Cost

and/ or cost-effectiveness in relation to the status quo

Tax on sugar-sweetened beverages is proven to be cost-effective (Gortmaker et al. 2015).

Uncertainty

Requires a coordinated effort regionally and internationally.



Category of finding

Element 1

To improve nutrition by offering more healthy food options to the population by strengthening legal regulations (on food labeling, food ingredients, and marketing for all ages) and by improving health education.

regarding benefits and potential harms (so monitoring and evaluation could be warranted if the approach element were pursued)

Category of finding

Element 3

To Enhance government and stakeholder coordination mechanisms and increase their capacity for effective policy monitoring and rapid response capabilities in the light of policy interference by the industry or other vested interests.

Benefits

Coordinated response to the obesity – related problems.

Comprehensive action from multiple stakeholders is critical for promoting food systems that are healthy, sustainable and equitable (Swinburn BA, 2019).



Category of finding

Element 3

To Enhance government and stakeholder coordination mechanisms and increase their capacity for effective policy monitoring and rapid response capabilities in the light of policy interference by the industry or other vested interests.

With increasing globalisation, the international community has recognised the need for multi-stakeholder governance frameworks that address sustainability challenges, including those related to food systems (Robinson H, 2022).

Potential harms

Cooperation between some of the stakeholders could be problematic due to the conflict of interests.

Cost

and/ or cost
 effectiveness in
 relation to the status
 quo

Costs – workshops, staff training, data collection & analysis costs,

Uncertainty

regarding benefits
 and potential harms
 (so monitoring and
 evaluation could be
 warranted if the
 approach element
 were pursued)

Collaboration between some stakeholders might be affected by manpower/capacities level/timelines/ budget or human resources availability or any other circumstances.



| Category of finding | Element 4 |
|--|--|
| Benefits | <p>To stimulate scientific research and to improve the evidence on health-related effects, research on the sociocultural factors that explain the variance in obesity and thus the sociocultural barriers and enablers of societal action, and research to address the policy inertia that is preventing policy progress.</p> |
| Potential harms | <p>The research projects take time to be established, conduct, and implement their results; they also need funding.</p> |
| <p>Cost and/ or cost- effectiveness in relation to the status quo</p> | <p>There are no data on the Cost-effectiveness of food system research.</p> <p>Research must be funded, supported, and acted upon by governments, and must actively seek out the involvement of people with lived experience of obesity. Work such as this – which interrogates the long-term impacts of obesity – helps push for commitment to evidence-based policy action by making the case clear to</p> |



Category of finding

Element 4

To stimulate scientific research and to improve the evidence on health-related effects, research on the sociocultural factors that explain the variance in obesity and thus the sociocultural barriers and enablers of societal action, and research to address the policy inertia that is preventing policy progress.

national decision-makers (The Economic Impact of Overweight & Obesity in 8 Countries, 2021).

Uncertainty

regarding benefits and potential harms (so monitoring and evaluation could be warranted if the approach element were pursued)

Implementation research requires some time, capacity, and funding.



| Level | Barriers | Element(s) | Counterstrategies |
|----------------|--|------------|--|
| Individual | Reluctance to comply with regulations. | 1 | Increase enforcement and compliance monitoring |
| Professional | Weak implementation capacity | 1,2,3,4 | Continuous training and education |
| Organizational | Threat of private sector interference in policy-making; Food industry policies and actions have generally been weak and fall far short of global recommendations | 1,2,3,4 | Regulations of the private sector's operations advertisement and others, Encouraging to comply with legislation. |
| System | Lack of well-crafted and implemented laws and rules; Absence of political will to regulate; Increasing market concentration and power of the food industry over governments and policy processes in ways that can either delay or circumvent | 1,2,3,4 | Built and strengthen the legal capacity Adopt an evidence-based nutrient profiling system to identify items covered by the marketing ban. Regional collaboration and cooperation are vital to safeguard youngsters from cross-border marketing (WHO 2018). |



| Level | Barriers | Element(s) | Counterstrategies |
|-------|---|------------|--|
| | <p>the implementation of recommended actions to address nutrition issues (Moodie et al., 2013)</p> <p>Insufficient mobilization of existing evidence to spur action and insufficient national data to inform regulation design (Fisher, 2021)</p> | | <p>Increasing accountability of the food industry for their influence on population diets forms an essential component of efforts to prevent obesity and improve health.</p> |

Identifying and appraising policy options

| Policy instruments | Policy tool 1 | Policy tool 2 | Policy tool 3 | Policy tool 4 |
|---|---|--|---|--|
| | Control&regulatory instrument & Education Campaign | Economic measures, incentives & disincentives | Stakeholder coordination and engagement | Stimulating scientific research and to improve the evidence on health-related effects, economic effects etc |
| Brief description of the policy tool | Amendments on the existing Legislation on food labeling, food marketing and regulating sugar, salt and fatty acids. | Economic incentives (rewards, subsidies) to the responsible companies/businesses stimulating production, distribution, serving | Coordinating stakeholder engagement to the regulation of food marketing | Creating evidence base on different foods and their impact on health; extent and impact of marketing unhealthy food to |



| | | | | |
|---------------------------------------|---|--|--|--|
| | <p>Updated Nutrition Action Plan.</p> <p>Guidance to assess whether the policies developed had an impact on food marketing.</p> <p>Population campaign on healthy food choice</p> | <p>and consumption of healthy diets.</p> <p>Economic incentives to stimulate healthy eating – price measures, promotions, vouchers and subsidies.</p> <p>Disincentives – to producers of junk food, advertizers etc.</p> <p>Facilitate global agri-business trade and diversify international food sources</p> | | <p>people could inform policies at national and regional levels ; how to incentivize healthy food behaviour.</p> <p>Fostering International Research collaboration</p> |
| What type of instrument is it? | <p>Control and regulatory: Rules and implementation guidelines to all public places, transport, working places and hospitality sector venues</p> <p>Informational & educational campaign for general population (radio/TV/Internet - based)</p> | <p>Economic incentives by investment policies re-purposing, business model innovation, institutional investment and customer behaviour change (Saswati Bora and Pradeep Prabhala, 2021)</p> | | <p>Advocacy/Persuasion or Education/Capacity building</p> |
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| <p>How will it achieve the policy intended results?</p> | <p>By legislating and regulating different foods' labeling, communicating important information about the ingredients</p> <p>By regulating the marketing of non-healthy, high-density foods to the population</p> <p>By providing information to the consumers and changing food consumption behaviour</p> <p>By helping the target audience to learn more about health risks and what actions to take</p> | <p>Create an Agriculture Fund or another clever financing structure to offer finance to all food and agribusinesses, with an emphasis on startups, SME sectors, and technology adoption.</p> <p>Encouraging business, farmers etc to grow, produce, distribute, serve, sell and consume healthy diets.</p> <p>Adaptation, and amplifying domestic food production, processing, and distribution</p> | <p>Develop and improve collaboration and partnerships between different agencies to coordinate their efforts in developing environmentally sustainable food systems enable to provide healthy diets for all ages</p> <p>public-private partnerships models to support the country in curbing the importations rate and increasing local food production.</p> | <p>It will help to educate and train people, professionals in the medical universities, health educators etc.</p> <p>Will help to provide evidence to the governments, manufacturers etc, patients</p> |
| <p>How can it be implemented?</p> | <p>Solid Enforcement guidelines & mechanisms and system of effective sanctions to be followed by all</p> | <p>To develop rewards systems (subsidies or vouchers, reduced VAT for certain essential products)</p> | <p>Develop the UAEs future agri-technologists through university</p> | <p>By coordinating universities, research institutions, and</p> |



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| | <p>agencies involved - producers, manufacturers, advertisement agencies, HoReCa, Retails, etc</p> <p>Should be coordinated in the regional level for all GCC</p> | <p>and penalties systems ('fat tax', sugar tax, etc.).</p> | <p>degrees and vocational training in local educational institutions (including effective technology integration, food safety and food loss reduction);</p> | <p>academia in the UAE/GCC.</p> <p>Foster international academic and research collaboration with leading global institutions, including a study-abroad scholarship and exchange program.</p> |
| <p>How can it be monitored?</p> | <p>Number of complaints; Number and amount of fines;</p> <p>Reported change in knowledge and attitude after seeing the campaign materials;</p> <p>Media/ad monitoring.</p> | <p>% Contribution of strategic investments from overall imports</p> <p>% increase in production of select strategic food items</p> | | |
| <p>Initial high level cost estimate</p> | <p>Consultations, Meetings with stakeholders,</p> | <p>Consultations with experts;</p> | <p>Consultations with experts,</p> | <p>Consultations with experts, management of the</p> |



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| | Academia; Design, testing & Production of campaign materials; Pre-and post-campaign research survey. | Meetings with stakeholders; The research community is to evaluating ongoing and future financial incentive schemes, as well as playing a role in designing pilots. | Meetings with stakeholders. | universities, academies etc; Research-related costs (design, testing, interviewing, analyzing, etc), funds for exchange programs and scholarships. |
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List of policy options as recommendations

Using the Effectiveness, Efficiency and Practicality assessment tool (Public Policy Guide, 2017), the policy options are recommended where applicable.

| Policy instruments | Selected or Rejected? | Please explain why you have selected or why you have rejected this policy option |
|------------------------|-----------------------|---|
| Policy Option 1 | Selected | Development and Implementation of the Legislation to support healthy diets promotion will allow protect population from the burden of non-communicable diseases, including obesity and related morbidities. Educational campaign is a very effective tool (but pricy and time-consuming at the same time) that can help individuals changing their health-related beliefs, knowledge, attitudes and behaviour towards foods. |
| Policy Option 2 | Selected | Economic incentives propose investment policies re-purposing, business model innovation, institutional investment and customer behaviour change (Saswati Bora and Pradeep Prabhala, 2021).There are evidence from |



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| | | <p>countries implementing taxes on some non-essential products (UK, USA and others): for soft drink taxation, citing evidence that for every 10% increase in price, consumption decreases by 7.8%.</p> <p>The evidence suggests that financial incentive schemes are most effective when implemented as part of an integrated package of mutually reinforcing activities, such as education, marketing or modelling. This is also a conclusion of a recent review of financial incentives in the US (Corinna Hawkes Consulting Services, Food and Nutrition Policy July 2009 "Financial incentives and disincentives to encourage healthy eating report").</p> |
| <p>Policy Option 3</p> | <p>Selected</p> | <p>The UAE Government at all levels has adopted an inclusive approach of forging strategic partnerships, working closely with all stakeholders (federal government entities, local authorities, the private sector, agri tech companies, food and nutrition experts, international organizations, academia, farmers, youth, NGOs, etc.) throughout the food value chain for meeting the SDGs. The UAE is pioneering innovative public-private partnerships models to support the country in curbing the importations rate and increasing local food production.</p> |
| <p>Policy Option 4</p> | <p>Selected</p> | <p>Creating evidence by conducting research studies on the cost-effectiveness of different prevention programs (legal & fiscal measures, educational campaigns, and others) will help design prevention programs, develop new health policies, and build capacities amongst various stakeholders.</p> |

Next steps.

Multi-sectorial, coordinated, population-based initiatives are needed to have better control and interventions to reduce obesity, overweight and related health problems.

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