

Sustainability in the Qatar national dietary guidelines, among the first to incorporate sustainability principles

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Abstract

Objective: To present one of the first national dietary guidelines that incorporates food sustainability principles into its public health recommendations.

Design: The paper outlines recommendations and utilizes an ecological framework of policy analysis to examine context, drivers, consequences and future suggestions in establishing and maintaining sustainability principles within the Qatar Dietary Guidelines.

Setting: Qatar.

Subjects: Population of Qatar.

Results: Qatar has produced one of the first national dietary guidelines to integrate principles of food sustainability. National interest in environmental sustainability and food security, population concern over food waste (reinforced by Islamic religious law), strong authority of the Supreme Council of Health (supported by an Emirate government), a small domestic food industry and a lack of food industry influence on the guidelines have contributed to the inclusion of sustainability principles within the document.

Conclusions: Whether these principles will be embraced or rejected by the population in the long term will likely be determined by the Dietary Guidelines Task Force and the Supreme Council of Health's commitment to educating the population about the relevance and importance of these principles and establishing champions to advocate for them.

Keywords
Dietary guidelines
Sustainable diets
Public health
Nutrition

Sustainable diets and dietary guidelines

Many countries across the world have employed dietary guidelines for decades. Dietary guidelines for all nations were called for at the International Conference on Nutrition, convened by the FAO and the WHO in Rome, 1992 under the World Declaration and Plan of Action for Nutrition⁽¹⁾. As well as directing individual behaviour change, dietary guidelines form the basis of national nutrition policy, including the provision of: a baseline from which the adequacy of the food supply and consumption patterns can be assessed; consistent and reliable information for the development of educational curricula and promotional materials; and a rationale for other national policy and guidelines (e.g. food labelling, recommendations from non-governmental organizations, nutrition policy).

However, the gap between nutrition policy and the food environment (i.e. accessibility and marketing of

high-energy, low-nutrient foods) has become increasingly conspicuous due to recognition of the influence of greater food environs on nutritional intake – contributing to population health concerns such as obesity, CVD, some cancer and diabetes⁽²⁾. Often considered to a lesser degree, but equally important, is the impact of nutritional intake on the natural environment (e.g. greenhouse gas emissions, water use, land use, biodiversity and waste)^(3–5). However, this is an emerging and complex area of research. Quantification of the impacts of different foods on various aspects of the food supply chain under different conditions and countries of production continues to evolve^(3,5–8). None the less, beginning to integrate emerging sustainability principles into dietary guidelines can start to address and raise awareness about the links between consumption and environmental concerns. Ideally, these principles need to be consistent with the nutrition objectives of the dietary guidelines. The 2010 FAO International Scientific Symposium on Biodiversity and Sustainable Diets defined sustainable diets as ‘diets with low environmental impacts which contribute to food

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and nutrition security and to healthy life for present and future generations. Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources⁽⁹⁾.

Academics have been promoting sustainability in dietary guidelines since the 1980s⁽¹⁰⁾ to the present day^(5,6). Further, as early as 1996, the joint FAO/WHO publication *Preparation and Use of Food Based Dietary Guidelines* suggested that the question of ‘are the guidelines environmentally sustainable?’ be considered^(11,12). Many international documents and organizations also support the integration of sustainability principles into dietary guidelines. In 2013, Australia highlighted ‘Food, Nutrition and Environmental Sustainability’ in Appendix G of Australia’s Dietary Guidelines⁽¹³⁾, but stopped short of including the messages in its guidelines. The messages include: avoid overconsumption; minimize food wastage; considering food buying, storage, preparation and disposal practices; and minimize and recycle food packaging. In 2012, the Barilla Centre for Food and Nutrition proposed the ‘Food and Environment Double Pyramid 2012: Enabling Sustainable Food Choices’, stating that ‘human health cannot be separated from the health of ecosystems’^(12,14).

In 2009, the Sustainable Development Commission provided advice to the UK government in *Setting the Table: Advice to Government on Priority Elements of Sustainable Diets*⁽³⁾. It prioritizes its recommendations into ‘win–wins’ for health, environmental, economic and social factors (e.g. reducing consumption of meat and dairy), changes where lesser gains in sustainability will be made with other potential negative impacts (e.g. increasing fruit and vegetable intake, particularly seasonal and field grown) and changes which make a smaller contribution to sustainability, but have largely complementary effects in other areas (e.g. cooking and storing foods in energy-conserving ways). Likewise, in 2011, the Health Council of the Netherlands produced *Guidelines for a Healthy Diet: The Ecological Perspective*, citing ecological effects of diet on biodiversity, land use, greenhouse gas emissions, disturbances in the nitrogen and phosphate cycles, water use and soil quality⁽⁷⁾.

The FAO has recently begun to address the issue of sustainable diets^(15–17). In 2013, the FAO Director stated that ‘changing what we eat, how we eat and how much we eat is essential for sustainability’⁽¹⁸⁾. Additionally, the UN launched the Zero Hunger Challenge in 2012, which emphasizes that ‘all food systems are sustainable’ and calls for ‘zero loss or waste of food’^(12,19).

The Mediterranean diet has been proposed as an example of a sustainable diet, focusing both on healthy eating and biodiversity^(15,20). However it seems that few nations, if any, have integrated environmental sustainability into dietary guidelines. In 2014, Qatar released its first national dietary guidelines – one of the world’s first to incorporate sustainability recommendations.

To better understand how sustainability principles were integrated into the Qatar Dietary Guidelines, it is helpful to map the evolution of the integration using policy analysis. Ritchie and Spencer’s⁽²¹⁾ categories of applied policy research – contextual, diagnostic, evaluative and strategic – provide an ecological framework of policy making focusing on stakeholders, context, drivers, consequences and power. An ecological perspective – rather than a more often used policy-making cycle – is useful, as there was no articulated intent to include this policy area within the dietary guidelines. Table 1 matches Ritchie and Spencer’s⁽²¹⁾ categories of applied policy research to research concepts that were derived from policy analysis literature⁽²²⁾. As the Guidelines were released only recently, the analysis emphasizes the first two categories, while evaluative and strategic components are only surmised. The first two categories are first presented, followed by a description of the components of sustainability in the guidelines. The paper finishes by outlining evaluative and strategic projections.

Contextual: What are the Qatar Dietary Guidelines and who was involved?

Qatar has taken the first step in producing one of the first national dietary guidelines to integrate principles of food sustainability. From the outside, Qatar – with one of the

Table 1 Categories of applied policy research and expanded research concepts

Ritchie and Spencer’s categories of applied policy research ⁽²¹⁾	Related concepts from policy analysis literature
Diagnostic	• Drivers
Contextual*	• Context
	• Scope of public policy
	• Policy means or instruments
	• Stakeholders and institutions
Evaluative	• Barriers, facilitators and mediators
	• Consequences
	• Distributional dimensions (who and what benefits and loses)
Strategic	• Strategic recommendations

*Note that Ritchie and Spencer’s use of the word ‘Contextual’ differs from the notion of Context under ‘Diagnostic’, where it refers to the socio-political context from which policy emerges.

fastest growing economies in the world, one of the highest global obesity levels, tensions between development and tradition, an Emirate government* and little domestic food production, arable land or fresh water – seems an unlikely candidate for being one of the first nations to integrate food sustainability issues into its national dietary guidelines.

Qatar published its first national dietary guidelines in 2014, as part of its National Health Strategy⁽²³⁾ and Nutrition and Physical Activity Plan to ‘reduce morbidity and mortality attributable to chronic non-communicable diseases in the State of Qatar’⁽²⁴⁾. Qatar, like many countries across the globe, is incurring significant human and financial costs due to increased levels of chronic non-communicable diseases such as hypertension and diabetes. In 2011, Qatar spent \$US 3.32 billion on healthcare, a 27% increase from 2010^(12,25). Like other nations, these health problems are predominantly associated with diet, physical inactivity and other lifestyle behaviours.

The Supreme Council of Health,† Health Promotion and Non-communicable Diseases, led the development of the Qatar Dietary Guidelines in collaboration with the National Dietary Guidelines Task Force. The task force consisted mostly of nutritionists and some public health personnel coming from a wide range of institutions across Qatar, including: Qatar University; Qatar Foundation; Qatar Diabetes Association; Hamad Medical Corporation; Aspetar (orthopaedic and sports medicine hospital); SIDRA (medical and research centre); and Weill Cornell Medical College. Representation from the food supply sector came from the Qatar National Food Security Programme; numerous other food supply sector representatives also attended a 2013 meeting where the draft dietary guidelines were first presented for feedback. The Task Force created a first draft of the guidelines in January 2013. A coordinator was hired in February 2013 to further the development of the guidelines.

Diagnostic: What facilitated the integration of sustainability principles into the Guidelines?

Regional interest in food security as well as national policies and programmes set the framework for the integration of sustainability principles into the Qatar Dietary Guidelines.

The National Health Strategy and the Qatar National Development Strategy 2011–2016⁽²⁶⁾ were developed from the ‘Qatar National Vision 2030’ plan. The Qatar National Development Strategy outlines key strategies which relate to foods that endanger both the environment and the food supply, such as scarcity in water, low arable land, solid waste generation and depletion of fish stocks.

* Similar to a monarchy or sultanate, but a government in which the supreme power is in the hands of an Emir (the ruler of a Muslim state); the Emir may be an absolute overlord or a sovereign with constitutionally limited authority (<https://www.cia.gov/library/publications/the-world-factbook/fields/2128.htm>).

† National health ministry.

Another target for the strategy is to ‘build an environmentally aware society’. The Qatar National Health Strategy notes cross-sectoral linkages as essential in meeting the Qatar National Vision⁽²³⁾.

The Qatar National Food Security Programme was launched in 2008. A 2011 Emiri Decision directed the programme to engage leaders in government, academia and the private sector to develop a national food security plan to secure a safe, healthy and affordable food supply for Qatar. One of the key initiatives in the plan proposes ‘by transitioning to high-efficiency production and better crop selection, farms in Qatar are able to produce approximately 40% of the nation’s food (by volume) using the same amount of land and one-third less water than is required today’⁽²⁷⁾. Interest in food security from Gulf countries‡ in the Middle East is driven by concern over low levels of domestic food production, arable land and fresh water. Numerous regional and global conferences on food security have been held in the Gulf^(28–30).

The coordinator acted as a policy champion, introducing the idea of integrating sustainability principles into the dietary guidelines and drawing on the evidence base and national priorities noted above. While some Task Force members did not see the connection between dietary guidelines and sustainability (seeing the prime objective as nutritional health), others supported the idea. The fact that sustainability principles were not only congruent with the draft guidelines, but reinforced them also supported the integration. The opportunity to be a world leader as one of the first countries to include sustainability guidelines was an incentive. Qatar, through many programmes such as the Qatar Foundation and their focus on sport, strives to be a world leader (e.g. Qatar was named the world’s leading sports tourism destination in 2013)⁽³¹⁾.

Finally, as outlined in more detail below, Islamic law provided a point of connection for individuals to issues of overconsumption and waste – the latter being the most salient sustainability concern for committee members. In addition to the increasing global awareness of food waste, it is a phenomenon experienced by many daily, exacerbated by a generosity with food that is central to the local culture.

Sustainability recommendations in the Qatar Dietary Guidelines

Table 2 lists the recommendations specific to sustainability under the title ‘Eat Healthy while Protecting the Environment’. Recommendations are consistent with the evidence for nutritional health, and most address multiple environmental issues. However, potential environmental impacts are not limited to the evidence provided in the present

‡ Gulf Cooperation Council Countries (GCC) include Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates.

Table 2 Eat healthy while protecting the environment

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- Emphasize a plant-based diet, including vegetables, fruit, whole grain cereals, legumes, nuts and seeds
 - Reduce leftovers and waste
 - When available, consume locally and regionally produced foods
 - Choose fresh, home-made foods over highly processed foods and fast foods
 - Conserve water in food preparation
 - Follow the recommendations of the Qatar Dietary Guidelines
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paper, as many impacts are as yet undocumented or not quantified⁽⁸⁾.

Emphasize a plant-based diet, including vegetables, fruit, whole grain cereal, legumes

A robust evidence base associates a diet rich in plant-based foods with a reduction of non-communicable disease risk factors and chronic disease⁽²⁾. This includes the 2004 WHO Global Strategy on Diet, Physical Activity and Health which states ‘increase(d) consumption of fruits and vegetables, and legumes, whole grains and nuts’ should be considered when preparing national policies and dietary guidelines⁽³²⁾. Another key evidence review considered is the 2012 American Cancer Society Guidelines on Nutrition and Physical Activity for Cancer Prevention, which recommends ‘consume a healthy diet, with an emphasis on plant foods’⁽³³⁾.

The emphasis on a plant-based diet has multiple potential environmental impacts. Greenhouse gas emissions are lower in plant-based *v.* animal-based foods^(3,5,7,12). In general, plant-based foods such as fruit, vegetables, legumes and grains utilize less water than animal foods, such as beef. The majority of water we use is incorporated or ‘embedded’ into the food that we eat through the food production cycle (e.g. water for crops, animal uses, processing)⁽³⁴⁾. Finally, less refined foods (e.g. whole fruit *v.* jam) tend to generate less waste in processing, transportation and packaging.

The emphasis on a plant-based diet is reinforced in many ways throughout the guidelines. The Qatar Dietary Guidelines booklet introduces the six food groups by counselling: ‘Emphasize a plant-based diet, including vegetables, fruit, whole grain cereals, legumes, nuts and seeds’. Second, Qatar’s Dietary Guidelines is one of the few in the world to promote primarily whole grains, by advising: ‘Substitute refined products (e.g. white bread) with whole grain breads and cereals’. Third, due to health benefits and cultural appropriateness, legumes is classified as its own food group. Fourth, fruit and vegetables are separated into two food groups, in order to increase their emphasis. Finally, like many national guidelines, a recommendation to ‘Choose legumes, nuts and seeds as alternative protein sources’ is included. It is important to note that the guidelines do not promote vegetarianism (it is not seen as culturally appropriate), but consumption of less animal-based foods and more plant-based foods.

Reduce leftovers and waste

Concerns over food waste have recently emerged worldwide as an important aspect of food security. Food waste

is estimated to be 31–39% in high- and middle-income countries⁽³⁵⁾. The Thirty-first FAO Regional Conference for the Near East in 2012 recommended that countries study the impact of food losses and establish a plan to reduce food losses and waste in the region by 50% within 10 years⁽³⁶⁾. In 2013, the FAO report *Food Waste Footprint: Impacts on Natural Resources* analysed the impacts of global food wastage from an environmental perspective and concluded that food waste harms climate, water, land and biodiversity. The report states that 1.3 billion tonnes of food per year is wasted, which causes major economic losses and significant harm to the natural resources needed for feeding humanity^(12,35). As food depletes many natural resources in its production, processing, distribution and consumption cycle, many reports include this point in their sustainability recommendations^(3,7,13).

Committee members and others reviewing the guidelines saw this recommendation as most salient to them, seeing it as unlawful (*baram*) to throw away food that is still good. A website outlining ‘Top 10 Tips on Avoiding Food Wastage from the Prophet’ quotes the Qur’an (6:141): ‘Eat – But waste not by excess: for God does not love the wasters’⁽³⁷⁾. The regional relevance may also be exacerbated by the large buffets and tables that are frequently set in the Gulf and the perception that ‘leftovers’ are often wasted. At the time of development of the Qatar Dietary Guidelines, recycling was not widely available in Qatar, so it was not included as a recommendation.

When available, consume seasonal, local and regional foods

Albeit having captured global interest, evidence to support the consumption of ‘locally’ grown foods is mixed. While concern over ‘food miles’ may seem intuitive, academics studying food systems suggest that many factors in the food production, transportation and distribution cycle influence energy use, and that foods need to be quantified and considered on a case-by-case basis^(8,38). On the other hand, Cowell and Parkinson⁽³⁸⁾ also present the argument that globalization of food systems may increase the ‘potential for exploitation of both the environment and human labour through minimizing consumer awareness about the upstream impact of their food purchasing habits’⁽³⁸⁾. This notion suggests that consumers may be more cognisant of and responsible for the effects of their food choices when the impact is realized closer to home (e.g. within a local food system). Enhancement of a local

food supply is also argued on the basis of food sovereignty, defined by Via Campesina as: 'the right of peoples to healthy and culturally appropriate food produced through sustainable methods and their right to define their own food and agriculture systems'⁽³⁹⁾.

More unequivocally, evidence does support consuming seasonal, field-grown fruit and vegetables for reducing resources needed for processing, distribution and storage^(3,4). However, as domestic food production in dairy and hot-house foods occurs throughout much of the year in Qatar, and as Qataris have no tradition of farming, it is difficult to identify and define seasonal foods. Therefore, this recommendation was not included in the guidelines.

Thus, the practical application and efficacy of this recommendation is also mixed. On one hand, because most food in Qatar is imported, one can easily prioritize regional foods (e.g. from Egypt, Jordan, Lebanon). However, this does not mean these regional foods are more 'environmentally friendly' than foods coming from further afar. Little information is available about farming practices in many of these countries. None the less, as demonstrated by the existence and mandate of the Qatar National Food Security Programme, food sovereignty – at least from a national perspective – is a concern in Qatar. Whether Qatar can sustainably meet its objectives for domestic food production may depend on technology such as the ability to efficiently desalinate water and cool greenhouses using sustainable power (e.g. solar) and the ability to develop and utilize halophyte (salt resistant) crops (e.g. mangroves).

Choose fresh, home-made foods over highly processed foods and fast foods

Highly processed foods tend to be energy dense and nutrient poor. Many are 'discretionary' foods, which are not required for health (e.g. biscuits, sugar-sweetened drinks). In this way, their consumption can be considered as having the same negative impacts as 'overconsumption', as delineated below. Fast food has been criticized in the mainstream media for its reliance on industrial food suppliers whose commitment to health, social justice and sustainability concerns is questioned⁽⁴⁰⁾. Indeed, the 2011 UN World Economic and Social Survey states that 'intensive livestock production is probably the largest sector-specific source of water pollution'⁽⁴¹⁾, while the 2013 report identifies large-scale farming as 'the main source of excessive use of fertilizers and soil degradation'⁽⁴²⁾. The WHO/FAO expert consultation on Diet, Nutrition and the Prevention of Chronic Diseases (2003) also states that 'intensive methods of animal rearing exert greater environmental pressures than traditional animal husbandry'⁽⁴³⁾. Academics are also beginning to examine companies' commitment to corporate social responsibility, in some cases finding only superficial interest⁽⁴⁴⁾. Additionally, both highly processed and fast foods often have more packaging than is required, which also negatively impacts natural resources and waste^(4,12).

As well as being a recommendation under 'Eat Healthy while Protecting the Environment', this principle is also emphasized under the dietary guideline 'Limit sugar, salt and fat'. Sub-messages under this guideline include 'Eat less fast foods and processed foods' and 'Eat home-made food more often' (than highly processed and fast foods). These are relatively provocative statements, facilitated by a small domestic food industry, lack of food industry influence on the guidelines and a strong authority of the Supreme Council of Health (supported by an Emirate government), as well as the deep (and founded) concern over health issues such as obesity and diabetes. While many researchers, practitioners and public understand these messages to be necessary in other countries, some suggest influence by the food industry is a key barrier⁽⁴⁵⁾.

Conserve water in food preparation

Qatar has taken the lead in forming a Global Dry Land Alliance focusing on water scarcity and food security⁽⁴⁶⁾. This includes many arid countries in the Gulf and North Africa⁽⁴⁷⁾. Qatar and other Gulf countries are the world's most water-stressed nations, with the least available water per capita⁽⁴⁸⁾. However, Qatar's water usage per capita is among the highest in the world⁽⁴⁹⁾. Qatar depends on three key water sources: desalination, groundwater and recycled water⁽²⁾.

The recommendation in the Qatar Dietary Guidelines is consistent with the Australian Guideline Appendix recommendation⁽⁴⁾, suggesting 'conserve water in food preparation'. In fact, this is only included as a way to increase awareness and advance conversation around water use, as most water use for human use is 'embedded' in foods⁽³⁴⁾. Other reports also suggest avoiding bottled water consumption⁽³⁾. This was not included in Qatar, as bottled water consumption is ubiquitous, founded possibly on historic or perceived problems with the drinking water supply. Further, as in many countries, bottled water is highly promoted as an alternative to high-sugar drinks.

Follow the Qatar Dietary Guidelines

Initially, instead of this general guideline, 'Breastfeed your baby' and 'Avoid overconsumption' were delineated. While founded in evidence, the connection between these two recommendations and the environment were not transparent to the public. Thus, a short 'user-friendly' version of the guidelines includes only 'Follow the Qatar Dietary Guidelines'. The longer booklet includes more information about each guideline. 'Tips' to carry out the recommendations allude back to other advice on the guideline, stating: 'Try not to overconsume food and drinks. This uses more natural resources and puts more pressure on the environment, including increasing disposal of food waste and packaging'; and 'Breastfeeding (compared to infant formula feeding) requires no resources in transporting and home preparation and generates no waste'.

Breast-feeding can be considered the most environmentally friendly way of eating. Infant formula, in comparison, uses natural resources in production, transportation and home preparation. It also generates unneeded waste from packaging. There is great interest among public health personnel in Qatar to increase rates of breast-feeding. Studies in Qatar on rates of early initiation of breast-feeding showed a range of 47–57%. However, estimates of exclusive breast-feeding under 6 months ranged between 18.9% and 29%^(50,51). This is well below the UN recommended minimum threshold rate of 50% for breast-feeding at 6 months of age⁽⁵²⁾.

Overconsuming food and drinks contributes to overweight and obesity and increases the overall demand for food. This uses more natural resources and puts further pressure on the environment, including increasing greenhouse gas emissions^(3,7,13). Overconsuming also increases food and packaging waste. This recommendation also has relevance within the Islamic religion. Islamic doctrine suggests that one eats in thirds: 1/3 (of stomach) for food, 1/3 for water and 1/3 for air (in order to breathe comfortably)⁽³⁷⁾.

The paper now turns to a conclusion of the policy analysis, with a focus on the final two categories of the Ritchie and Spencer framework: the evaluative and strategic components.

Evaluative: How effective was the integration of sustainability principles?

It is impossible to determine the effectiveness of the integration of sustainability principles, as the guidelines were released during the time the present paper was being written. The effectiveness should be evaluated within an overall evaluation of the guidelines. However, some preliminary limitations are outlined below.

Relative to other larger countries, stakeholder involvement and focus group testing were more limited, and the process could be considered more top down. While this contributed to a more rapid development of the guidelines and facilitated the integration of sustainability principles, these factors could be a limitation in public adoption of the guidelines. Policy analysis could be completed in Qatar to compare and contrast potential negative unintended consequences (e.g. on the local food industry, such as food imports and packaging) with positive potential environmental and human health consequences. It is likely that opposition by food industry would be more focused on the nutritional aspects of the dietary guidelines such as 'eat less fast foods and processed foods', than the sustainability principles.

While the title of the sustainability section of the Guidelines 'Eat Healthy while Protecting the Environment' does not encompass all components of sustainability, such as social justice, it is a title that was more clearly

understood when feedback was sought from committee members and Supreme Council of Health staff.

Advice related to fish consumption and sustainability is complex and can be confusing. Research regarding dietary advice on sustainability recommends eating only sustainably sourced fish^(3,7). While the longer version of the Qatar Dietary Guidelines booklet references online seafood guides for obtaining information about the most healthy (i.e. related to contaminants) and sustainable fish and seafood options, this is confusing for consumers as it is difficult to ascertain what is sustainable. Information specific to Qatar or to the countries surrounding the Arabian Gulf is not available. Also, advice is shifting, as more sources of closed containment aquaculture are now achieving sustainable status⁽⁵³⁾, whereas open pen fish farming threatens the health of wild fish stocks⁽⁵⁴⁾. Additionally, advice to consume sustainable sources may put further pressure on already depleted wild fish stocks⁽³⁾.

Qatar recommends 'Eat a variety of fish at least twice each week'. Increasing the consumption of fish was strongly advocated for by regional WHO representatives as well as local nutritionists. This is supported by the strong research base associating the consumption of fish with reduced death from CHD⁽⁵⁵⁾ and also an association with a reduction in the risk of dementia and age-related macular degeneration⁽⁴⁾. Further, the Mediterranean diet, as well as many regional and national guidelines, recommend the intake of fish two or more times per week^(56–60). Some research suggests that benefits are associated with oily fish and that one serving of oily fish per week may be adequate to provide desired levels of the *n*-3 fatty acids, EPA and DHA⁽⁵⁵⁾. However, at this time, current information about fish availability and consumption in Qatar is too limited to provide clear advice on oily fish consumption.

Strategic: Future recommendations

To enhance the probability that these principles will be embraced in the long term, the Dietary Guidelines Task Force and the Supreme Council of Health need to educate the population about the relevance and importance of these principles. Champions within local sustainability groups and national organizations such as the high-profile and innovative Qatar Foundation need to be sought out and nurtured. Islamic law has provided a point of connection to some of the principles and could potentially play a role in retaining these principles in the future.

Research on population-based recommendations for sustainable diets is both emerging and complex. As quantification of the impacts of different foods on various aspects of the food supply chain under different conditions and countries of production continues to evolve, perhaps beginning in a cautious way with established 'win-wins' (for both nutritional health and the environment) is prudent.

Recommendations may need to be integrated slowly to enhance public acceptance. For now, leaving issues that may be more controversial for the public to accept such as radical shifts away from meat consumption may help to avoid a challenge that Lang and Barling⁽⁶⁾ identify related to consumer expectations and rights.

Conclusion

Qatar has produced one of the first national dietary guidelines to integrate principles of food sustainability. National interest in environmental sustainability and food security, population concern over food waste (reinforced by Islamic religious law), strong authority of the Supreme Council of Health (supported by an Emirate government), a small domestic food industry and a lack of food industry influence on the guidelines have contributed to the inclusion of sustainability principles within the document. Whether these principles will be embraced or rejected by the population in the long term will likely be determined by the Dietary Guidelines Task Force and the Supreme Council of Health's commitment to educating the population about the relevance and importance of these principles and establishing champions to advocate for them.

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