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ABSTRACT

Objective Unhealthy diets resulting in overweight and obesity and diet-related non-communicable diseases are of increasing concern in Ethiopia, alongside persistent undernutrition, and have been linked to unhealthy food environments. Little is known about the policy response to unhealthy food environments in Ethiopia. The objective of this study was to assess how different food environment domains have been addressed in Ethiopian policy goals and action over time and how this compares with global good practice benchmarks.

Setting Ethiopia.

Primary and secondary outcome measures We analysed intentions and plans of the government to act, using policy documents (outputs of decision-making in the form of published strategies, plans or policies) related to improving diets and nutritional status through healthy food environments in Ethiopia between 2008 and 2020. Our coding framework was guided by the policy component (n=7 domains) of the Healthy Food-Environment Policy Index, which was modified to include food quality and safety as an eighth domain.

Results From the 127 policy outputs identified, 38 were retained, published by 9 different government ministries and institutions. Our results show that eight food environment domains have been addressed to some extent, but gaps remain compared with global best practice, especially in food promotion, processing, retail, price and trade. From 2018, policy began to embrace the wider food system, with more explicit food environment interventions becoming apparent.

Conclusions Policy efforts achieved in food safety, food processing, marketing and labelling are important stepping stones to building future policy actions addressing the food environment domains of food retail, food provision and food trade. Benchmarking of food environment policy actions should also consider actions on food fortification, agro-processing and informal markets in the context of multiple forms of malnutrition.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This is the first analysis in Ethiopia to assess all relevant food and nutrition policy outputs and compare them to global good practice indicators for food environment policy actions.
⇒ Included government documents were limited to those available online or electronically, thus, documents that were only available as hard copies may have been missed.
⇒ The analysis only captured government commitments outlined in policy documents, which did not allow any conclusions to be drawn in terms of the implementation of these policies.

INTRODUCTION

Until recently, the greatest nutrition challenges in Ethiopia were the high burden of undernutrition and micronutrient deficiencies.[1 2] However, overweight and obesity rates, particularly in adult women in urban areas, are slowly but steadily increasing, leading to a double burden of malnutrition.[1–3] In Ethiopia, diets poor in iron or vitamin A and/or high in sodium or low in fruit or whole grains are a major risk factor for malnutrition in all its forms and disability-adjusted life-years.[4] Previous research has shown that diets are largely shaped by the surrounding food environment,[5] including the availability and affordability of healthy/unhealthy foods and beverages[6 7] and the food safety and hygiene of food vendors.[8] The food environment can be defined as the physical and social space where consumers interact with the wider food system, thereby including what food is available, promoted, safe, convenient and accessible.[5]

Food environments in Ethiopia have changed in recent years[9]: prices of nutrient-dense foods, such as fruit and vegetables and unprocessed meat, have increased over the period 2007–2016, while prices of sugar, oils and fats have declined.[10] Food retail outlets in Addis Ababa, the capital of Ethiopia, include a mix of private modern retail, public cooperatives and informal microsellers.[11] A study assessing urban food environments in

Ethiopia revealed that most food or drink advertising was on food outlets and promoted ultraprocessed beverages, such as sugar-sweetened beverages (SSBs).[12] In 2010, the upper-middle class in Eastern and Southern Africa reportedly spent up to 80% of their food and drink expenditure on processed foods, of which 60% were ultraprocessed.[13] Perceived lack of food safety related to fresh fruit and vegetables could further increase the consumption of ultraprocessed foods among urban Ethiopian adolescents.[14] In addition, foodborne illnesses pose an immediate risk to Ethiopian consumers due to the unhygienic food preparation practices and poor environmental health conditions of the food outlets.[15]

Policy actions to improve food systems by increasing the availability, affordability and acceptability of safe and nutritious foods in food environments have been proposed,[16] some of which have been introduced in several countries.[17–20] Examples include taxes and incentives to reformulate sugary drinks and foods high in fats, sugars and salt in order to discourage their consumption while also promoting healthy foods,[21 22] public food procurement policies, provision of free meals in schools, introducing nutritional standards or menu labelling in school cafeterias[23] and incentive-driven food safety and hygiene training and certification initiatives in informal markets.[24] The policy component of the Healthy Food Environment Policy Index (Food-EPI) tool developed by the International Network for Food and Obesity/Non-Communicable Diseases Research, Monitoring and Action Support (INFORMAS) has been used to identify critical gaps in national policy actions by comparing these with international good practices.[19 25 26] The Food-EPI framework has been applied in several countries,[19 25] including within Africa,[27 28] but not previously in Ethiopia. Our research will therefore contribute novel insights on the application and scope of the Food-EPI tool and its indicators of good practice in low-income and middle-income countries (LMICs).

Policy actions addressing the food environment require attention from different sectors (eg, health, agriculture, trade, education, social protection and finance), which could affect the food environment. While evidence suggests that multisectoral policy-making is taking place in Ethiopia, effective coordination and collaboration remains a challenge.[29] Furthermore, the extent to which different domains of the food environment have been addressed in Ethiopian policies has not yet been assessed. Prior research on food and nutrition policies (FNPs) in Ethiopia has either focused on food supply,[30] multisectorality,[31–33] nutrition sensitive agriculture,[34] infant or child nutrition,[35 36] nutrition governance and implementation,[37 38] or the evidence base for nutrition policies in the health sector.[39] No study has yet systematically analysed all nutrition-relevant policies in Ethiopia to understand how the different domains of the food environment are addressed.

To close this gap, the objective of this study was to assess how different food environment domains have been addressed in Ethiopian policy goals and actions over time and how they compare with global good practice benchmarks. We also explored how the food environment policy actions are linked with setting goals for potential dietary or nutritional outcomes, and how this has evolved over time. Our study, therefore, provides an important overview of the food environment policy context in Ethiopia and a good entry point for policy prioritisation.

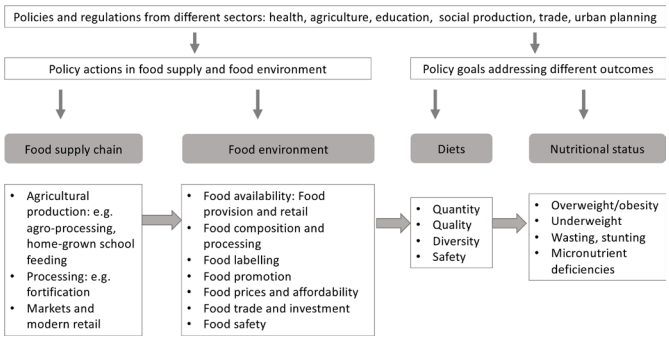

Figure 1 Theoretical framework of food environment policy actions and goals.

THEORETICAL FRAMEWORK

We developed a theoretical framework for our study (figure 1) based on the food environment domains of the INFORMAS Food-EPI framework,[26] which we complemented with insights from other food environment frameworks in order to cover all relevant domains of the food environment in the Ethiopian context.[40–45] INFORMAS identifies seven different food environment domains in the Food-EPI tool, encompassing food composition and processing, labelling, promotion, provision, retail, prices, trade and investment.[26] Based on the assumption that these domains are largely shaped by government action regarding the accessibility, availability and affordability of healthy food choices, the Food-EPI tool has been used to rate policy actions in countries against global benchmarks, which are based on international best practice examples relevant for each of the food environment domains.[19]

Following the development of the Food-EPI tool, the conceptualisation of food environments has further evolved in terms of its scope and place in the wider food system. Food safety was identified as an important domain of the food environment, given its influence on consumers' food consumption.[40–42] Frameworks developed for the African and LMIC food environment also highlighted food safety and its importance with regard to the sanitation and hygiene of vendors, food adulteration and contamination, especially in informal retail in African urban food environments.[43 44] Food-EPI studies in Ghana and Kenya integrated food safety as good practice examples of either trade or retail.[27 28] However, food safety cuts across the whole food environment, especially the domains of food production, composition, provision, trade and retail,[40] therefore, we included it

as an additional, individual domain in our framework (figure 1).

The reviewed frameworks also recognise that the food environment interacts with the whole food system and is not a stand-alone box within a system but overlaps with food supply chains, consumer behaviours and dietary and health outcomes.[41 42 45] Considering the interlinkages of the food environment with food production,[41 42 46] we have also included policy actions in the food supply chain such as agricultural production, which can influence the food environment in terms of availability, safety, processing, composition and provision.

Positioned as a central component within food systems, food environments have been recognised as the space where people directly interact with the wider food system by purchasing, preparing and/or consuming food.[41 43 44 47] We; therefore, also wanted to assess if and how food environment policy actions in Ethiopia are coherent with their goal setting for diets and nutritional status (figure 1).

The influence of food environments on diets has been recognised since the early conceptualisations of food environments in 2005.[48] More recently, the potential of policy actions to shift consumption towards high quality safe, nutritious foods and away from nutrient-poor refined foods high in sugars, fats and/or salt and ultraprocessed foods and beverages has been highlighted.[16] The different dimensions of the food environment can affect diets in terms of quantity, quality, diversity and safety, which can influence the nutritional status of populations, manifested in different forms of malnutrition (overweight, obesity, underweight, wasting, stunting and micronutrient deficiencies).[41] We included these concepts as potential outcomes of unhealthy food environment policy actions in our framework and used them to assess goal setting in the included policy documents.

In this assessment, we distinguish between policy goals and actions. Policy actions, also referred to as policy instruments, are interventions designed to achieve desired outcomes and impacts. Policy goals are defined as the adoption of an objective related to a specific issue within a policy document[49] and can inform the issues dominating the policy agenda.[50] Analysis of the goals set in the policy documents can therefore shed light on the food environment outcomes that are being recognised as concerns in Ethiopian policy-making.

METHODOLOGY

This study analysed Ethiopian policy documents with regard to policy goals and actions addressing food environments and related goals for diets and nutritional status over the last decade (2008–2020). The documents were outputs of decision-making in the form of published strategies, plans or policies[51] and included legal outputs (from the highest to lowest hierarchy: proclamations, regulations or directives), documents stating overarching government plans (policies and strategies) and sectoral documents proposing policy actions to implement policy goals (sectoral strategies, action plans, programme documents or guidelines).[52]

Our study followed a document analysis focused on the policy component of the Food-EPI tool and the first three steps of its process: analyse context; collect relevant documents; and extract the evidence from the policies and actions.[26] However, evidence collected for this study comprised intentions and plans of the government; we did not capture government funding for implementation nor actions or policies currently implemented as per the standard approach in Food-Epi.[26] As part of the document analysis, content was analysed by identification of the themes related to the food environment domains.[53]

Data collection

Delineating policies addressing 'food environments' proved to be challenging, given that numerous policies could affect any domain within food environments[54] and given the current lack of explicit intentionality of Ethiopian policies to improve food environments.[55] We, therefore, could not conduct searches for policy documents that were explicitly labelled as 'food environment' policies but followed an institutional approach instead. We define institutions as: the sectoral entities within which rules and norms for food and nutrition are set in Ethiopia and which have been involved in food and nutrition policy-making since the first National Nutrition Strategy in 2008.[54 56–58] This included ministries and related institutions that committed themselves to nutrition-specific and nutrition-sensitive policy-making (Ministries of Agriculture; Finance and Economic Development; Labour and Social Affairs; Transport; Urban Development and Construction; Water, Irrigation and Energy; Women's, Children and Youth Affairs; Youth and Sport; Education; Health; Trade and Industry; Food Beverage and Pharmaceutical Industry Development Institute; Disaster Risk Management Commission; Food and Drug Administration; Standards Agency).

We first searched the websites of these ministries and institutions for policy outputs. Subsequently, representatives of 16 ministries or governmental institutions were contacted in early 2020 and invited to discuss policy action around food environments. Eight (of 16) key stakeholders agreed to meet and share additional policy documents. International Food Policy Research Institute-Ethiopia also provided policy documents that were collected as part of one of their projects; additionally, the websites of UN agencies, such as the WHO Global Database on the Implementation of Nutrition Action and the Nutrition Policy Landscape Information System, the Food and Agriculture Organisation Food and Agriculture Policy Decision Analysis and UNICEF, were searched to identify policy documents on food environments (figure 2).

Inclusion criteria for policy documents

This search resulted in a total of 127 documents, which were then screened based on eligibility criteria. Policy documents were selected based on their goals, which

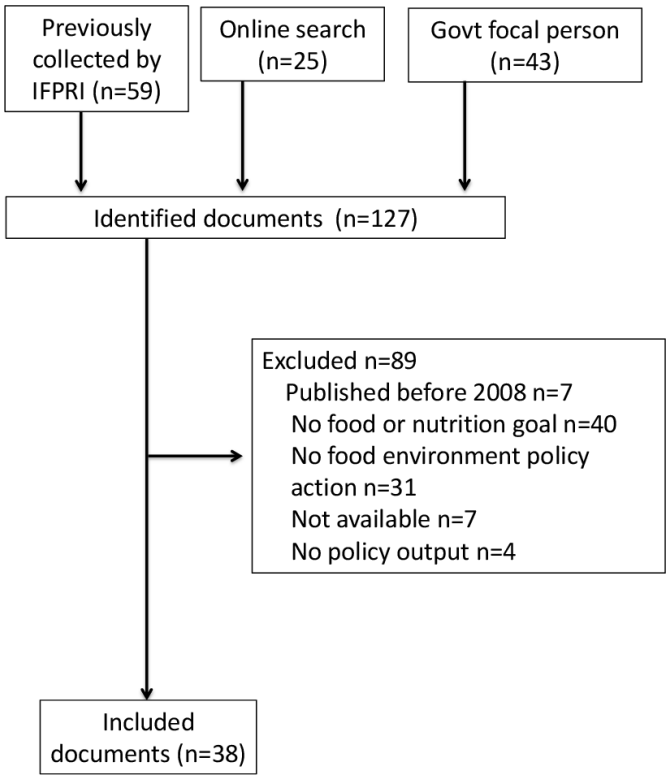

Figure 2 Overview of policy document collection. IFPRI, International Food Policy Research Institute.

had to be related to any food environment domain, or outcomes on diets or nutritional status, as defined by our framework (figure 1). Policy outputs had to be published between 2008 and 2020, since Ethiopia's first National Nutrition Strategy was adopted in 2008. Inclusion of documents was restricted to national-level policies published in English or in Amharic, one of the official languages and lingua franca in Ethiopia. Documents had to be available as soft (digital) or hard copy. If documents were published only in Amharic, they were reviewed by an Amharic-speaking team member (TG) and partially translated.

Data extraction and analysis

Data extraction included information related to type and title of document, year of publication, timeline and main institutions. All selected documents were then imported into Nvivo (V.12.6.0) to conduct a content analysis. The framework developed for our study (figure 1) was operationalised into a codebook (online supplemental material 1), including codes for the food environment domains (food composition and processing, labelling, promotion, provision, retail, prices, trade and investment, food safety) and for the different outcomes influenced by the food environment: dietary quantity, quality, diversity and safety, and different types of malnutrition (overweight or obesity, underweight, wasting, stunting or micronutrient deficiencies). Policy documents were uploaded in NVivo and coded using the codebook. These a priori codes were complemented with additional codes revealed from the policy documents. A code for 'food availability', for instance, was added for policy actions that were not specific to food retail or provision but were more generally about availability. For the analysis, coded data were collated by codes and emerging subthemes that were either linked to the Food-EPI good practice indicators or to additional themes linked to the food environment domain.[59] For instance, for data on food composition, information related to the Food-EPI good practice indicator 'food composition standards/targets for processed foods' was collated, as well as data related to food fortification. Data were also collated by year of publication to identify potential changes in policy actions and goal setting over time. Data coding and analysis was conducted by the first author (UT), who sought advice from coauthors in cases of doubt to align the approach for coding or analysis.

We then defined the proposed policy actions in comparison with global indicators of good practice, which have been developed for the Food-EPI tool globally but also adapted to the LMIC context.[28 60] With regard to food safety, no global indicator of good practice exists.[61] We, therefore, used the one from the Food-EPI study in Ghana, defined under food retail as 'robust food hygiene policies'.[28] All data relevant to a domain were coded and analysed for the results section, since the global indicators only address selected policy actions. We also conducted a historical analysis for which we sorted the coded data by year to identify potential changes and patterns in how food environment domains have been addressed over the period 2008–2020.

Patient and public involvement

No patients were involved.

RESULTS

This section describes how Ethiopian policy outputs addressed the food environment over the period 2008–2020, in terms of the individual domains as defined in our framework and how policy goals addressing food environments and potential outcomes were defined in the documents.

Of the 127 policy documents identified, 89 were excluded for the following reasons: they were published before 2008 (n=7); they were neither available as soft (digital) nor hard copy (n=7); they had no policy goal or action addressing any domain of the food environment (n=71); or they did not include a policy output (n=4) (figure 2). The screening process described above resulted in 38 included documents (table 1). Most policy outputs were issued by the Ethiopian Food and Drug Administration (EFDA) (n=11 out of 38), followed by multisectoral outputs issued by the federal government (n=9 out of 38) and the Ministry of Health (n=6 out of 38). Almost half of the policy documents were published in 2016 or 2017 (n=16 out of 38) (table 1).

Table 1 Overview of the 38 policy documents included

Category	No of policy documents
Type of document	
Legal documents	14
Strategies	7
Action plans	6
Programme documents	6
Guidelines	4
Policy	1
Institutions leading the policy document	
Food and Drug Administration	11
Federal Democratic Republic of Ethiopia	9
Ministry of Health	6
Ministry of Education	5
Ministry of Agriculture	3
Ministry of Finance and Economic Development	1
Ministry of Labour and Social Affairs	1
Ministry of Trade and Industry	1
National Planning Commission	1
Year of publication	
2008	2
2009	1
2010	1
2012	2
2013	3
2014	4
2015	3
2016	8
2017	8
2018	3
2019	2
2020	1

Historical analysis of policies addressing food environments

Over the period 2008–2020, policy outputs for food and nutrition have not only increased in number but also in terms of content and explicit intentionality.[55] The different domains of the food environment have also been increasingly addressed over the last 12 years (figure 3). Policy goals have broadened from a focus on undernutrition, mostly in children <5 years old and women of reproductive age, to recognition of the double burden of malnutrition across the lifecycle.

Our historical analysis over more than a decade (2008–2020) revealed three major phases (table 2): the 'starting out phase', the 'nutrition-sensitive phase' and the 'food systems phase'. During the first phase between 2008 and 2012, nutrition was put on the agenda with the

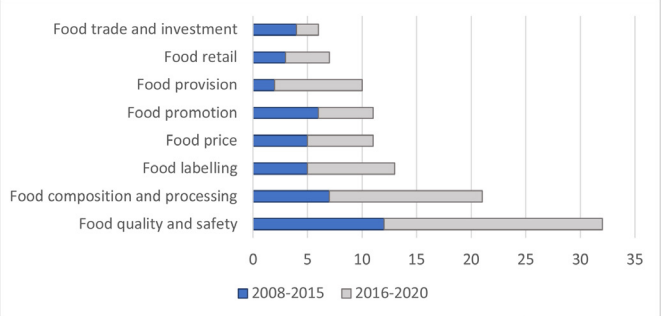

Figure 3 Number of policy documents addressing food environment domains between 2008 and 2020.

first National Nutrition Programme (NNP I) calling for multisectoral and nutrition-sensitive approaches, which resulted in the School Health and Nutrition Strategy in 2012.[62] The focus of food processing in this phase was mostly on agro-processing, for instance of sugar, with the objective to increase economic growth rather than public health nutrition.[63] Policy actions related to food labelling and promotion targeted infant formula and breastmilk substitutes. While taxes on soft drinks were already in place then, it was unclear if this was motivated by public health objectives. Food provision policy action solely focused on schools.

The efforts of the first phase intensified in the second phase, which we defined as the 'nutrition-sensitive phase' between 2015 and 2017, with nutrition-sensitive programmes applying multi-sectoral approaches in agriculture,[64 65] social protection,[66] education,[67] and water supply[68] and a reinforced food fortification initiative to reduce micronutrient deficiencies.[58] With the NNP II, this phase was also marked by a broadened focus on the nutrition of different population groups along the lifecycle and a recognition that factors in the physical food environment influence diet. This led to the first calls for regulatory actions in the food environment from the NNP II.[58]

The 'food systems phase' from 2018 is defined by a more systemic approach towards nutrition, consolidating the nutrition-sensitive efforts into a comprehensive FNP.[69] Furthermore, the proposals to improve the food environment in the NNP II[58] had been articulated more clearly in the National Strategic Action Plan (NSAP) for the Prevention and Control of Non-Communicable Diseases (NCDs).[70] Reformulating foods high in saturated fats, sugar and salt was identified as a policy action to achieve the consumption of healthy foods and a reduction in overweight and obesity. At the same time, a more comprehensive excise tax on foods high in saturated fats, sugar and salt was introduced. Despite the achievements in food environment policy actions, the proposal for a policy of food sold in or around schools in the School Health and Nutrition Strategy in 2012[62] has not yet been taken forward in subsequent policy action, and other gaps compared with global indicators of good practice remained. While food safety has been the most constant

Table 2 Historical overview of food environment-related national policy documents in Ethiopia

Phases	Year	Policy documents	Food environment domains and goals related to nutritional and dietary outcomes
'Starting out phase': putting nutrition on the policy agenda	2008	1. Excise Tax (Amendment) Proclamation No. 570/2008 2. National Nutrition Strategy	Overall food environment interventions: Policy outputs include explicit food environment goals and actions. Nutrition-sensitive interventions for food industry and trade only related to fortification and food safety. Schools are recognised as platforms for healthy eating promotion but focus on hunger and micronutrient deficiencies. Physical environment mentioned as crucial but only for physical activity promotion and NCD prevention, not specific to food. Individual food environment domains: Food composition and processing: agro-processing focus on sugar production. Food labelling: infant formula labelling should not discourage breastfeeding. Food promotion: unsafe promotion and use of breastmilk substitutes is prohibited. Food provision: interventions for nutrition services, education and food provision, but also mention of regulating food safety in and around schools. Food prices: 30% excise tax on soft drinks introduced, 20% on bottled water, but not clear if motivated by public health objective. Food safety: any imported, packaged, processed, fortified food or nutritional supplements should comply with international and national safety standards; ensure equitable access to safe and affordable water for all. Goals related to nutritional and dietary outcomes: related to nutritional status (underweight/wasting/stunting) of children and women of reproductive age, multisectoral and lifecycle approach, stunting and food fortification new objectives. Who is targeted by policy action: children (mainly under 5, but schoolchildren too) and women of reproductive age. Main paradigm: multisectoral and lifecycle approach; food fortification introduced.
	2009	1.Food and Medicine Administration Proclamation No. 661/2009	
	2010	1.Growth and Transformation Plan I	
	2012	1. National School Health and Nutrition Strategy 2. Regulation Investment Incentives No. 270/2012	
	2013	1. Infant formula, follow-up formula and formulas for special nutritional purpose directive 2. National Nutrition Programme I 3. ONE WASH National Programme Document	

Continued

Table 2 Continued

Phases	Year	Policy documents	Food environment domains and goals related to nutritional and dietary outcomes
'Nutrition-sensitive phase': nutrition-sensitive approaches reaching out into different sector	2014	1. Food Exporters, Importers and Wholesalers Directive 2. Regulation for Food, Medicine and Healthcare Administration and Control No. 299 3. Agriculture Growth Programme II 4. Homegrown School Feeding Programme	Overall food environment interventions: First mention of unhealthy school food environment potentially contributing to unhealthy choices. General call for regulatory interventions in the food environment for NCD prevention and in the school environment (for physical activity only) to prevent childhood obesity; involvement of industry and trade sector limited to food fortification and food safety measures. Individual food environment domains: Food composition and processing: food fortification initiative reinforced by creating awareness of food industry related to micronutrient deficiencies, promoting fortified food and ensuring safety of fortified food. Food promoted for agro-processing is expanded to meat, milk and honey, while previously sugar was singled out for agro-processing. Food promotion: focus on nutritious infant food, but also on protection of children in general, and restricting marketing of foods high in sugar, salt or fat to children. Food provision: school food provision through school meals introduced to create a 'conducive environment'; promote healthy school environment and school feeding to 'provide students with energy to participate in school activities, have protein content' to prevent undernutrition; safe food preparation and water supply; create market linkages/collaborate with local farmers and food industry for fortified food production. Social protection programmes to improve food security with cash or food transfers for most vulnerable households. Food prices: sugar price stabilisation introduced. Food safety: safety of different food products that are imported, exported and distributed; also addressing adulteration and vitamin or mineral supplements; mention of food system in terms of food safety risks along the food chain; making school environment healthy, safe and sanitary; safe water for consumption and food safety in manufacturing but also for food service providers and vendors. Goals related to nutritional and dietary outcomes: stunting, wasting and underweight; improve household dietary diversity. First reference to all forms of malnutrition. Who is targeted by policy action: children (infants/schoolchildren) and women of reproductive age; general population in fortification/food safety actions. Main paradigm: First reference to all forms of malnutrition.
	2015	1. Food Advertising Directive 2. Health Sector Transformation Plan 3. Productive Safety Net Programme IV	
	2016	1. Food Supplement Directive 2. National Nutrition Programme II 3. Seqota Declaration Implementation Plan 4.National Nutrition-Sensitive Agriculture Strategy 1. National Hygiene and Environmental Health Strategy 2. National Guideline on Adolescent, Maternal Infant and Young Child Nutrition 3. National Social Protection Strategy 4. Growth and Transformation Plan II	
	2017	1. Cereal and Cereal Product Manufacturers Internal Quality Control Establishment Directive 2. Edible Oil Good Manufacturing Practices 3. Food Manufacturing Factories Pre-Licensing Directive 4. Emergency School Feeding Programme Implementation Guideline 5. National School Feeding Strategy 6. School Water, Sanitation and Hygiene Strategy and Implementation Action Plan 7. School Health Programme 8. National Food Fortification Programme Plan of Action	

Continued

Table 2 Continued

Phases	Year	Policy documents	Food environment domains and goals related to nutritional and dietary outcomes
'Food systems phase': food environment and nutrition outcomes addressed in wider food system	2018	1. Milk Product Factory Internal Quality Management System Guideline 2. Baby Food Control Directive 3. Food and Nutrition Policy	Overall food environment interventions: Food environment mentioned in terms of safety of food provided through food outlets and vendors. More systems-oriented thinking for food safety along the value chain. The built environment was addressed but only with regard to physical activity. Proposals for food processing, prices and front-of pack labelling. More specific calls for reformulation compared with previous more generic proposals. Individual food environment domains: Food composition and processing: reformulation of foods containing saturated fats or salt. Food promotion and labelling: advertising and labelling of breastmilk substitutes, other infant food and fortified food; proposals for front-of pack labelling. Food prices: up to 60% excise tax introduced on foods and beverages high in saturated and trans-fats, sugar and sodium. Food safety: safety, availability and affordability of healthy, sustainable food; systematic approach towards food safety along the value chain. Goals related to nutritional and dietary outcomes: in addition to stunting, wasting and underweight goals, first dietary goal related to unhealthy (in nutrition terms) foods and first goal regarding overweight. Who is targeted by policy action: general population at 'all stages of life' and, for NCD prevention, adults above 15 years. Main paradigm: food systems approach; more explicit goals addressing the double burden of malnutrition.
	2019	1. Food and Medicine Administration Proclamation No. 1112/2019 2. National Strategic Action Plan for the Prevention and Control of Non-Communicable Diseases (NCDs)	
	2020	1.Excise Tax Proclamation No. 1186/2020	

and dominant component throughout the whole decade, in this third phase both the FNP and the second Growth and Transformation Plan (GTP II) proposed a system-wide approach to food safety, including all actors along the entire food chain.[69 71]

Proposed policy goals and actions addressing the food environment overall

While individual domains were addressed through specific policy actions (table 3), policy documents also referred to the food environment more generally. Market access, availability and accessibility of food were mentioned as important areas of intervention for healthy diets.[69 72] The most recent agriculture policies promoted the production of diverse crops for consumption, while also trying to ensure diversity available at market and household level.[64 65] The National Guideline for Adolescent, Maternal, Infant and Young Child Nutrition stated that 'availability and access in urban and semi urban areas to fast food outlets, school truck-shops, food stores and vendors in the vicinity may play a role in adolescents' decision-making'.[73]

Only the NSAP for the Prevention and Control of NCDs formulated specific goals to 'create a supportive, health-promoting environment'.[70] The FNP defined goals of improving multiple domains of the food environment with regard to availability, accessibility and safety of food.[69] Increasing year-round availability of nutrient-dense foods was also the aim of agricultural policy outputs.[64 65 72] Goals related to the school food environment included improving access and educational achievement through health and nutrition interventions, such as school feeding and child-friendly, safe, hygienic and healthy school environments.[58 62 72 74 75]

Proposed policy actions addressing specific food environment domains

Food composition and processing

For the Food-EPI good practice indicators of setting 'food composition standards/targets for content of the nutrients of concern (transfats, added sugars, salt, saturated fat) in industrially processed foods' or 'out of home meals from food service outlets', limited evidence was found in the policy documents. The Ethiopian Standards Agency set standards for several food items, most of them related to unprocessed fruit, vegetables or cereals, but only a few are for processed foods and beverages (such as soft drinks, palm oil and sweets) and not with the aim to reformulate these foods by minimising the nutrients of concern. Both the NNP II and the NSAP for the Prevention and Control of NCDs proposed actions with regard to reformulating nutrients of concern.[58 70]

We identified policy actions relating to processing that went beyond the Food-EPI good practice indicators, such as agro-processing and food fortification. While policy documents focused on agro-processing of nutrient-dense foods such as meat and milk, they also included honey and sugar, not motivated by objectives related to public health but to economic development, job creation and international trade.[63 71] The agriculture policy documents that were already sensitive to nutrition tailored the agro-processing actions more towards 'ensuring consumption of nutritious and diverse foods'.[64] This was proposed by focusing on nutrient-rich value chain crops in production and processing, postharvest handling, value addition and preservation.[58 64 69] Fortification of edible oil, flour and salt was also an important policy action in different policy documents.[56–58 69 72]

Food labelling

Food labelling is mandatory and regulated by the EFDA. It should include a list of all ingredients for commercially produced or imported foods, 'declaring in numerical form the amount of nutrients present in the per portion of the product as recommended for daily consumption or amount per unit for single use'.[58 76] The food label should not include any health claims,[77] which are particularly regulated for infant formula and 'may not be described or presented on any label or in any labelling in a manner that is false, misleading or discouraging breast-feeding'.[78] For the front-of-pack labelling or menu board labelling system, we found limited evidence in one document proposing front-of pack labelling of salt and sugar content of processed foods and drinks without specifying its proposed format.[70]

Food promotion

We found evidence for policy actions restricting the promotion of breastmilk substitutes targeted at infants but limited evidence of marketing restrictions of unhealthy food for children on broadcast media, although not for non-broadcast media or specific settings. The Food Advertising Directive does not allow advertising of 'any food which has a high level sugar, salt and fat on children's programmes using known personalities and other similar ways',[79] but without specifying the nutrient profiling thresholds. The NNP II further called for regulations to prevent the exploitation of children, young people and families by advertising unhealthy foods and beverages.[58]

For the indicator regarding 'promotion of unhealthy food in settings where children, including adolescents, gather', we only found proposals to regulate advertising at schools, such as prohibiting promotions on soft drinks, sweets and foods due to their impact on obesity.[80]

Marketing of breastmilk substitutes is restricted because some components of the International Code of Marketing of Breastmilk Substitutes have been adopted.[78 79 81] Advertising food for infants, such as formula, is prohibited.[79 81–83] Furthermore, 'it is forbidden to give infant food samples or any food description gift, material or similar thing for pregnant women, infant mothers or family members' or show any pictures of children or mothers in child food advertisements.[79]

Table 3 Food environment domains in Ethiopian policy documents against global indicators of good practice*

Food environment domain (no of policies)	Good practice indicators	Status in ethiopian policies
Food composition and processing (n=21)	Food composition standards/targets set for content of the nutrients of concern (trans-fats, added sugars, salt, saturated fat) in industrially processed foods.	Standards or targets are set for several (mostly unprocessed) food items, not with the aim of minimising the nutrients of concern but to replace trans-fat and saturated fats with mono and polyunsaturated fats and to reduce salt.[70]
	Food composition standards/targets set for the content of the nutrients of concern (trans-fats, added sugars, salt, saturated fat) in out-of-home meals from food service outlets.	No evidence on policy action found.
Food labelling (n=13)	Ingredient list/nutrient declarations of all packaged foods.	Packaged food is required to include an ingredient list.[76–78 82 90]
	Regulations in place for health and nutrition claims to protect consumers against unsubstantiated and misleading nutrition and health claims.	Nutrition and health claims should comply with FAO Codex Nutrition and Health Claims.[79 91 92]
	Front-of-pack labelling system (examples are nutri score or traffic lights).	Front-of-pack labelling of salt and sugar content of packaged/processed foods and drinks only proposed.[87]
	Menu board labelling system.	No evidence on policy action found.
Food promotion (n=11)	Restrict promotion of unhealthy food to children, including adolescents in broadcast mediatelevision, radio).	Not allowed to advertise any food that has high level of sugar, salt and fat on children's programme using known personalities.[79]
	Restrict promotion of unhealthy food to children, including adolescents in non-broadcast media (online or social media).	No evidence on policy action found.
	Restrict promotion of unhealthy food in settings where children, including adolescents, gather (eg, preschools, schools, sport and cultural events).	Limited evidence on proposed measures to regulate advertising at schools on food linked with obesity.[80]
	Restrict marketing of breastmilk substitutes.	Some provisions of the International Code of Marketing of Breastmilk Substitutes being adopted.[78 79 81]
Food prices (n=11)	Reduce taxes on healthy foods (eg, low or no sales tax, excise, value-added or import duties on fruit and vegetables).	No evidence on policy action found.
	Increase taxes on unhealthy foods (eg, sugar-sweetened beverages, foods high in nutrients of concern).	In 2009, excise tax on all types of soft drinks, water and other beverages; in 2020, tax on beverages and foods high in salt, sugar, transfats and saturated fats.[85]
	Existing food subsidies favour healthy foods.	No evidence for subsidies favouring healthy foods.[71]
	Food related income support is for healthy foods	Food-related support through food vouchers or cash transfers to food-insecure households.[66 83]
Food provision (n=10)	Policies in schools/early education services for food service activities (canteens, food at events, fundraising, promotions, vending machines, etc) to provide and promote healthy food choices.	Only proposed in terms of a national standard for food procurement and food handlers in and around school for food safety control.[62 67]
	Policies in public setting for food service activities (canteens, food at events, fundraising, promotions, vending machines, etc) to provide and promote healthy food choices.	No evidence on policy action found.
	Support and training systems to help schools and other public sector organisations and their caterers meet healthy food service policies and guidelines.	As part of school feeding, standard training for all actors on food processing, safety, handling and preparation.[67]

Continued

Table 3 Continued

Food environment domain (no of policies)	Good practice indicators	Status in ethiopian policies
Food retail (n=7)	Zoning laws on the density/location of healthy/unhealthy food service outlets.	No evidence on policy action, but mentioned food environment may play a role in adolescents' food choices.[73]
	In-store availability of healthy/unhealthy foods regulated to promote in-store availability of healthy foods and limit in-store availability of unhealthy foods.	No evidence on policy action found.
Food trade and investment (n=6)	Trade agreement impacts on population nutrition and health assessed.	No evidence on policy action found.
	Protect regulatory capacity regarding public health nutrition.	No evidence on policy action found.
Food safety (n=32)	Food hygiene policies are robust enough and are being enforced, where needed, by national and local government to protect human health and consumers' interests in relation to food.	Food safety policy documents are numerous and robust, but enforcement is limited.[78 81 82 88 90] Regulations on food safety of imported foods are in place[77 82] and training in food safety for food vendors in and around schools, hotels, restaurants, street vendors and catering.[62 69]

*Adapted from Laar *et al*[28] and Djojosoeparto *et al*[60].

Food prices

Good practice indicators related to food prices include reduced taxes or subsidies on healthy food and increased taxes on unhealthy foods. The identified policy actions related to food prices appear incoherent with nutrition objectives and across policy documents. Instead of subsidising healthy food, the GTP II proposed price stabilisation interventions for sugar, edible oil and wheat to low-income households.[71] The NSAP for the Prevention and Control of NCDs was the first document proposing increased taxes for SSBs.[70] Excise tax on SSBs was already in place in 2002 but was reduced from 40% to 30% between 2002 and 2009.[84] In 2020, this tax was expanded to foods and beverages high in salt, sugar, transfats and saturated fats.[85] Edible animal or vegetable fats/oils with≥40 g/100 g of saturated fat, or >0.5 g/100 g of transfat, are taxed at a rate of 30%–50%.[85]

Food-related income support is provided by the fourth Productive Safety Net Programme (PSNP IV), through conditional cash transfers or direct support in terms of cash or food to vulnerable households and individuals,[66] but this support is not specific to healthy foods.

Food provision

We identified some policy actions in schools for food service activities, but only in the context of school feeding programmes targeted at primary schoolchildren from poor and food-insecure households.[58 62 72 80 83] The School Feeding Programme aimed to reduce hunger and reduce deficiencies in vitamin A, iodine and iron.[62] School meals should therefore contain energy and macronutrients and micronutrients by including protein-rich cereals, oil and iodized salt.[74] We found no evidence of policy action in school feeding programmes or procurement policies that encouraged healthy foods while discouraging or banning unhealthy foods or beverages.

Evidence for 'Support and training systems to help schools and their caterers meet healthy food service policies and guidelines' was only identified as part of the School Feeding Programme, which draws on a team of experts and trainers from teacher training colleges and federal/regional Ministries of Education and Health to provide training in health and nutrition.[62]

In addition to the good practice indicators, we identified relevant information in the policy documents regarding the sourcing of foods through school gardens, smallholder farmers,[80 86] market linkages or collaborations with the food industry.[67]

Food retail

We found no evidence on 'Zoning laws on the density/location of healthy/unhealthy food service outlets' or in-store availability of healthy/unhealthy foods. It was recognised that the 'availability and access to fast food outlets, school tuck-shops, food stores and vendors in the vicinity may play a role in adolescents' decision-making',[73] but no action was specified on how to address this.

In addition to the Food-EPI indicators, we identified policy action to improve the availability of safe and healthy foods at markets. The AGP II aimed to build market centres, particularly for perishable foods such as fruit and vegetables, animals, milk and honey collection and processing.[65]

Food trade and investment

We found no evidence for the good practice indicator that 'trade agreement impacts on population nutrition and health should be assessed'. The GTP II aimed to undertake negotiations with the World Trade Organization, while strengthening existing regional partnerships within East Africa,[63 71] but the impact of trade agreements on population nutrition was not addressed.

Food safety

The good practice indicator for food safety refers to the robustness of food safety and hygiene policies. We identified strong policy action on food safety (including hygiene) in numerous documents, which also highlighted the limited enforcement of food safety regulations.

Food safety standards are regulated by the EFDA through registration, licensing and inspection of food.[76 77 87–89] The EFDA stated that 'no food unfit for human consumption or not complying with appropriate safety and quality standards may be manufactured, imported, exported, stored, distributed, transported or made available for sale or use to the public'.[88]

All food items were covered under the Food and Medicine Administration Proclamation 2009,[90] which was then replaced with the more detailed Proclamation in 2019.[82] Following the proclamations, directives have been published specifically for safe production, processing, packaging and distribution of milk, cereals, edible oil, micronutrient supplements and infant formula/complementary food.[56 76 78 91–93] However, some policy documents highlighted that enforcement of existing food safety standards needs strengthening in specific contexts (imported foods, school feeding foods prepared in hotels, restaurants or by street vendors).[57 69 72] The NNP (I and II) and different directives of the EFDA proposed strengthening the inspection of imported food.[57 58 77] The NNP II suggested preparing a manual to inspect and regulate food items, strengthen the capacity of the Ministry of Trade for regular inspections and monitoring and also strengthen and equip laboratories.[58]

In addition to the good practice indicator, we found evidence related to water safety in specific settings, such as the school environment. Several policy documents envisioned an adequate, safe, uninterrupted and inclusive water supply[56 72] for all households and schools.[57 59 73 75 94] For school environments, interventions such as training to control safe and hygienic storage and the preparation and handling of food in and around schools were proposed[62 67 72 86] for fast food outlets, school tuck shops, street vendors, hotels, restaurants and food catering services.[69 73]

Policy goals addressing outcomes related to diets or nutritional status

Most policy goals referred to dietary outcomes related to safety, quality and diversity. Dietary quantity was rarely mentioned. Improving dietary diversity was a goal of the FNP, the PSNP IV, the AGP II and the Nutrition Sensitive Agriculture Strategy.[64–66 69] The School Feeding Strategy aimed to provide children with vitamins and minerals.[67] More specific dietary goals to reduce salt intake and increase fruit and vegetable consumption were only set for the prevention of NCDs.[70] Dietary quantity was only mentioned in terms of having sufficient food available for consumption.[64 72]

Reducing stunting and wasting in children and underweight in women of reproductive age were the goals of several policy documents.[56–58 64 69 72 73 95] In the NNP II, in 2016 and the FNP in 2018, these goals were broadened to the reduction of malnutrition in different age groups at all stages of life (children, women of reproductive age, adolescents and the general population).[58 69]

Ending all forms of malnutrition was a goal of the Seqota Declaration, in addition to stunting reduction.[72] The NSAP for the Prevention and Control of NCDs specifically aimed to reduce the proportion of people with overweight and obesity.[70] Reducing micronutrient deficiencies among vulnerable populations, especially in women of reproductive age and children, was the goal of the National Food Fortification Plan.[96]

DISCUSSION

The objective of this study was to assess how different food environment domains have been addressed in Ethiopian policy documents over time and how this compares to the Food-EPI good practice benchmarks. We also aimed to understand if food environment policy actions were coherent with dietary or nutritional goals, and how this has evolved over time. In the policy documents, we identified policy actions addressing diets, different forms of malnutrition and food environments. Over the time period 2008–2020, these efforts have intensified, both in the number of policy documents but also in terms of focus and content.[55] Comparing government action over this 12-year period with global best practices has revealed gaps in all food environment domains but also relevant policy actions that could be added when benchmarking food environment policies in the context of multiple burdens of malnutrition.

Policy actions addressing the food environment in Ethiopia were dominated by food safety, with less evidence identified for other domains. Food processing and trade were regulated in terms of food safety but not with regard to nutrient content, with the exception of food fortification efforts. The prioritisation of food safety on the political agenda could be explained by the high burden of foodborne diseases,[97] the acute nature of food safety issues and potential market disruptions for exports.[98] While food safety actions were included in different policies and legal documents and covered different types of foods, researchers pointed out that food safety regulations are not updated sufficiently and identified the need for a comprehensive food law.[99 100] However, focusing policies mostly on food safety could limit food environment policymaking to a 'short-term crisis narrative', ignoring more long-term public health concerns such as overweight and obesity.[101] For food prices, marketing, provision, labelling and reformulation, we found limited or conflicting evidence. For instance, fiscal policies included subsidies for flour, sugar and oil in 2016, as well as taxation of foods high in salt, sugar, transfats and saturated fats introduced in 2020. Subsidies for flour seem coherent with the focus of agricultural policies on cereal production, which accounts for more than 80% of energy production in Ethiopia.[102]

Unintended consequences of such policy actions should be considered, as research from Egypt showed that subsidies on bread and flour led to increased overweight and obesity in children and women.[103] However, subsidies for healthy foods, such as fruit and vegetables, do not seem to be in place but are urgently needed in view of their escalating price,[10] which prevents particularly the poorest households in Ethiopia from consuming the recommended amounts of fruit and vegetables.[104] Restrictions on advertising and the promotion of foods and beverages on children's programmes are in place for breastmilk substitutes or complementary foods,[77 79 81] as well as foods high in sugar, salt and fat. However, they do not exist in settings where children gather, such as schools. Defining (un)healthy foods through food-based dietary guidelines, which are currently under development,[105] would allow a more coherent, integrated approach towards food prices, promotion, labelling, processing and provision.

The policy goals set in the policy documents appear to be coherent with specific proposed food environment policy actions. We identified that Ethiopian policy documents mostly aimed at reducing wasting and stunting, which is aligned with the policy focus on food safety.[106 107] Policy actions addressing food promotion, processing, labelling or trade of unhealthy foods, which could contribute to reducing overweight, obesity or diet-related NCDs,[16] are only in the early stages in Ethiopian policy-making. This was also well reflected in goal setting, which has only addressed multiple forms of malnutrition and obesity as a risk factor for diet-related NCDs since 2014, which also aligns with the observed increases in overweight and obesity from 2011.[1 108] The first policy actions on diet-related NCDs were also aligned with goals to reduce overweight and the consumption of unhealthy foods such as salt.[70]

We argue that addressing multiple forms of malnutrition should also be reflected in benchmarking food environment policy actions. In our analysis, we compared food environment policy action in Ethiopia with the Food-EPI good practice indicators, but also searched for additional policy action on the food environment domains. This helped us to identify policy actions relevant for the food environment that could be considered in global benchmarks in the future. Food processing and composition in the Food-EPI indicators is limited to food reformulation, but we argue that policy actions on agro-processing and food fortification are also of importance and could influence what types of foods are available, processed and promoted in value chains and at markets. A good practice indicator could be related to increasing the agro-processing of healthy foods. We also found that good practice indicators related to food retail were too narrowly focused on formal food outlets, which is not where most consumers in LMICs purchase their food.[109] Policy action addressing informal vendors, as well as open markets, should be analysed in LMICs settings. Potential good practice examples for food safety policies could include incentive-driven training and certification initiatives for informal vendors or policy action beyond the current focus on standards, inspections and control.[24] Also, a food safety commitment index has been proposed to monitor the level of commitment that LMIC governments are making to food safety.[61] Regarding food prices, subsidies on unhealthy foods should also be monitored and benchmarked as they could incentivise the consumption of energy-dense unbalanced diets.[103] Furthermore, policy actions targeting schools appeared prominent in our analysis. The school setting is ideal to address multiple forms of malnutrition[23] and probably more feasible to manage and regulate than the community food environment (although action is required in both). Therefore, defining good practice indicators specific for the school food environment would be an important stepping stone to implementing food environment policies on a larger scale. Lastly, benchmarking food and water safety, especially in public settings, would be crucial. In conclusion, we recommend expanding the current Food-EPI good practice indicators to policy actions relevant for LMICs, which address multiple burdens of malnutrition more comprehensively, as well as adding policy actions earlier in the food supply chain, which influences the food environment.[16]

Our study provides an overview of the food environment policy context in Ethiopia and proposals for context-specific benchmarks in other LMICs. However, it does not come without limitations. The main limitation of this study is that it only considered government documents that were available online or electronically, therefore, documents may have been missed that were only available as hard copy. In addition, it only captured national government commitments outlined in policy documents and not the entire policy process. We therefore, cannot make any conclusions in terms of the extent of policy implementation or regional variability.

Our study focused on the document analysis part of the Food-EPI tool because the situation with the COVID-19 pandemic did not allow expert interviews or workshops to be held. Therefore, we could not include a rating or priority setting of policy actions by experts, which is an important next step to making food environments in Ethiopia healthier.

Our analysis could also provide useful insights for Ethiopian policy-makers. Positioning food environment policy actions into the wider food system is crucial for more sustainable transformation, considering that actions in the food supply chain before food reaches the food environment can influence whether food is safe, available or affordable to consumers. Only in recent policy documents from 2018 has an approach to safer food systems been observed. However, this food systems approach would be crucial for all domains of the food environment and could put them into context with food supply actions.[9]

In order to address the double burden of malnutrition, the focus on food safety should be linked to healthy diets more generally, given that food safety, security and nutrition security are all compatible and important parts of a

healthy food system.[98] The existing legal actions for food safety could be broadened to promote nutritious food and discourage the consumption of unhealthy food. The excise tax is a step in the right direction, but expanding such efforts to regulating the promotion and availability of unhealthy foods would help leverage efforts to promote healthy diets.

Applying a food systems approach in policy-making is still in the early stages in most countries; the policy dialogues in Ethiopia as part of the preparations for the UN Food Systems Summit and the Ethiopian Food System Roadmap 2030 have been important steps to put food systems thinking on the agendas of high-level government officials.[110 111] However, the proposed actions strongly focused on agricultural production and less on food environments. Furthermore, the extent to which the discussed policies are influenced by the current armed conflict in certain regions and the impact of COVID-19 in Ethiopia remains to be seen. Food environments are already negatively affected by interrupted supply chains and it is likely that acute malnutrition interventions could be prioritised in Ethiopian policy-making as a consequence. An important next step following this assessment would be a deliberative priority-setting exercise to generate a set of actions[19] to address the identified gaps in food environment policy actions in Ethiopia. For global benchmarking of food environment policy action, additional indicators should be considered to address important issues in the context of multiple forms of malnutrition.

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