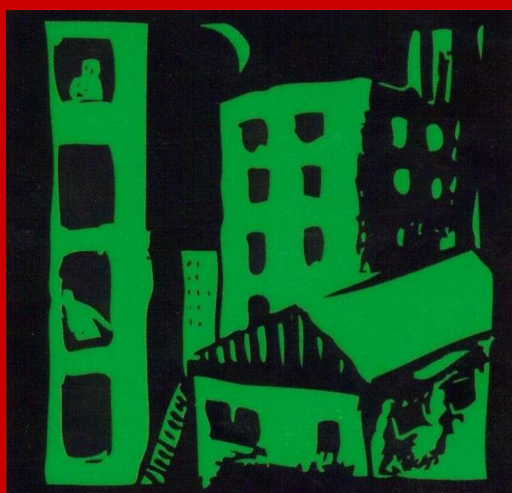
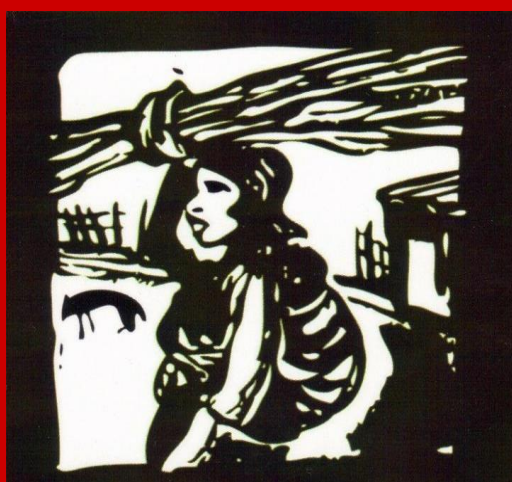


LAW
DEMOCRACY
& DEVELOPMENT



VOLUME 25 (2021)

DOI: <http://dx.doi.org/10.17159/2077-4907/2021/idd.v25.12>

ISSN: 2077-4907
CC-BY 4.0

The necessity for Zambia's vitamin A sugar fortification requirement

HILDA THOPACU

Post-Doctoral Fellow, University of Fort Hare, South Africa

<https://orcid.org/0000-0002-7219-6845>

ABSTRACT

Zambia faces a serious vitamin A deficiency (VAD) that affects most infants and expectant mothers, leading to night blindness, maternal deaths, and more. One of the efforts to address this is by permitting only the manufacture, sale, or import of household consumption sugar which is fortified with vitamin A - which is seen as a disguised restriction on international trade. Through a desk-top research study, the article examines the question, as to what extent Zambia's fortification requirement complies with the necessity principle in the Technical Barrier to Trade Annex to the Southern African Development Community Protocol on Trade (TBT Annex) and Article 2(2) of the World Trade Organization's Agreement on Technical Barriers to Trade (TBT Agreement). The

research finds that the measure is a technical regulation with a legitimate objective to protect the health and lives of a target VAD Zambian population. Further, it is applied to both domestic and like foreign products; therefore, it is neither discriminatory nor directly linked to the lack of competitive opportunities for like foreign products. Even if fortified maize meal could be opted for instead of sugar, it cannot achieve the equivalent contribution in dealing with the VAD problem because of challenges, such as, the uncertainty in regulatory regime, and its irregular consumption pattern. Consequently, the sugar fortification requirement is not more trade restrictive than necessary under the TBT Annex and Article 2(2) of the TBT Agreement.

Key words: Zambia, sugar fortification, vitamin A, SADC, TBT Agreement, necessity, trade restrictiveness, competitive opportunities, sugar market.

1 INTRODUCTION

Zambia is a Least Developed Country (LDC) within the lower-middle-income country bracket as per its 2014 Gross National Income (GNI) per capita of USD1680.¹ Despite registered economic growth of an average of 7 per cent, data shows that as of 2015,² poverty levels were still high at 54.4 per cent, with 76.6 per cent in the rural areas.³ Zambia has a population of about 17 861 030⁴ (the majority of whom are poor), with a few (less than 2 per cent) employed in the copper industry⁵ and over 11000⁶ in the

¹ World Trade Organisation (WTO) "Trade Policy Review: Zambia" WT/TPR/S/340 (2016) at 9 available at https://www.wto.org/english/tratop_e/tpr_e/s340_e.pdf (accessed 3 August 2021).

² See Republic of Zambia General Statistical Office *Zambia in Figures 2018* (2018) at 31 available at <http://www.zamstats.gov.zm/phocadownload/Dissemination/Zambia%20in%20Figure%202018.pdf> (accessed 3 August 2021).

³ Ministry of National Development and Planning *Seventh National Development Plan 2017-2021* (2017) at 82, 86 (accessed 17 July 2020) available at <http://extwprlegs1.fao.org/docs/pdf/zam170109.pdf> (accessed 3 August 2021).

⁴ The World Bank "Data: Zambia" at <http://data.worldbank.org/country/zambia> (accessed 6 August 2020).

⁵ United Nations *Zambia Country Analysis* (2015) at 9, available at http://zm.one.un.org/sites/default/files/un_country_analysis_report.pdf (accessed 8 June 2020).

⁶ Corporate Citizen *Illovo Sugar: Zambia Sugar Plc Socio-Economic Impact Assessment, Internal Management Report* (2017) at 10 available at <https://www.illovosugarafrica.com/UserContent/Documents/Illovo-Impact-Report-Zambia-Dec17.pdf> (accessed 5 August 2020). See also Reena das Nair, Nkhonjera M & Ziba F *Growth and Development in the Sugar to Confectionery Value Chain* (2017) at 16-17 UJ & CCRED available at <https://static1.squarespace.com/static/52246331e4b0a46e5f1b8ce5/t/5992f39cd482e9e6d3dcb892/1502802858230/Sugar+Research+Report.pdf> (accessed 25 May 2020); Kalinda T & Chisanga B "Sugar value chain in Zambia: an assessment of the growth opportunities and challenges" (2014) 6(1) *Asian Journal of Agricultural Sciences* 1 at 8.

sugar industry.⁷ The majority of the poor live in rural areas and depend on subsistence farming⁸ as their main source of livelihood. With maize as the most important agricultural food crop and main source of calorie in the country,⁹ most of the people are exposed to the risk of becoming Vitamin A Deficient (VAD).¹⁰ This VAD phenomenon is an issue that Zambia has had to deal with for quite a while now.¹¹

In 1992, the Zambian government introduced supplementation of diet by distributing vitamin A capsules to lactating mothers and children between 6 and 72 months.¹² However, by 1996 it was clear that supplementation would not effectively achieve the desired objective due to poor implementation.¹³ Then, in 1997, a national survey report finally established that 66 per cent and 22 per cent of Zambian children and women, respectively, were VAD. Only 28.4 per cent of the target population had been served by the supplementation programme.¹⁴ That was indicative of the seriousness of the VAD issue. Under these circumstances, Zambia was classified within the severe VAD category in accordance with the World Health Organization (WHO) standards and cut-off points.¹⁵ Available scientific evidence at the time¹⁶ confirmed that

⁷ Chisanga B, Meyer FH, Winter-Nelson N & Sitko NJ *Does the Current Sugar Market Structure Benefit Consumers and Sugar Cane Growers?* (2014) 69 Policy Brief Indaba Agricultural Policy Research Institute (2014) at 1 available at <https://ideas.repec.org/p/ags/midcwp/188569.html> (accessed 7 October 2021).

⁸ See United Nations (2015) at 13-17.

⁹ Fiedler JL, Lividini K, Zulu R, Kabaghe G, Tehinse J & Bermudez IO "Identifying Zambia's fortification options: toward overcoming the food and nutrition information gap-induced impasse" (2013) 34(4) *Food and Nutrition Bulletin* 480.

¹⁰ World Health Organisation & Food Agricultural Organisation of the United Nations, *Guidelines on Food Fortification with Micronutrients* (Allen L, Bruno de B, Dary O & Hurrell R (eds) (2006) at 5 available at https://www.who.int/nutrition/publications/guide_food_fortification_micronutrients.pdf (accessed 7 October 2021).

¹¹ See United Nations (2015) at 18-19.

¹² Serleimitsos JA & Fusco H *Vitamin A fortification of sugar in Zambia 1998-2001* (2001) MOST USAID Micronutrient Programme at 1.

¹³ See Serleimitsos & Fusco (2001) at 2.

¹⁴ See Serleimitsos & Fusco (2001) at 2; Besa EM "Fortification of sugar in Zambia" (2001) 22(4) *Food and Nutrition Bulletin* 419 at 419 puts it at 65% and 22% children and women VAD, respectively; meanwhile, MOST USAID indicated that 65.7% and 21.5% children and women, respectively, had low or deficient serum retinol levels less than 20 ug/dl : MOST USAID *Zambian national strategy and plan of action for the prevention and control of vitamin A deficiency and anaemia*, Micronutrient Program (2004) at iv available at <https://www.nfnc.org.zm/download/zambian-national-strategy-on-vitamin-a-and-anemia/> (accessed 7 October 2021).

¹⁵ See Besa (2001) at 419.

¹⁶ Haggblade S, Babu S, Harris J, Mkandawire E, Nthani D & Hendriks LS "Drivers of micronutrient policy change in Zambia: an application of the kaleidoscope model" (2016) 14 *Feed the Future Innovation Lab for Food Security Policy Research Paper* at 54.

the country was indeed in a very precarious unhealthy situation.¹⁷ The target children were at risk of contracting diseases, such as preventable blindness, and that increased risks of infections and deaths from severe infections in children were likely to occur.¹⁸ Expectant mothers were at risk of night blindness and maternal mortality. If the situation was not effectively addressed, there was a high risk of the country's economic development and human productivity being adversely affected.¹⁹ It is in that context that the law for regulating vitamin A sugar fortification was birthed.

2 THE LEGISLATIVE HISTORY OF THE LAW ON SUGAR FORTIFICATION

There are key statutory provisions and subsidiary legislation that have provided the necessary environment for the development and enforcement of the requirement to fortify sugar with vitamin A. Among them is the repealed²⁰ Food and Drugs Act (FDA),²¹ enacted on 1 December 1972 and last amended in 1994, which aims to protect the public against health hazards, and fraud in the sale and use of food, drugs, cosmetics and medical devices. Accordingly, the FDA penalises any person who sells food²² which has in or upon it any poisonous, harmful substance or is adulterated.²³ It also penalises any person who labels, packages, processes, sells or advertises any food in a manner that is false, misleading or deceptive as regards character, nature, quality, safety or composition contrary to any regulation made under the FDA.²⁴ Furthermore, any importation of any product in contravention of the FDA is prohibited.²⁵ Then, in sections 23(1)(c)&(d), the Minister is given power (subject to section 23(2), and in consultation with the Board) to make regulations prescribing standards for the composition or quality of any food or article and the importation of any foods. Within that context, in 1978, the Food and Drugs Regulations were enacted.

Another important piece of legislation is the Control of Goods Act Cap 421 (CGA) which was enacted in 1954 and last amended in 1964. It aims to regulate the sale,

¹⁷ See World Health Organisation & Food Agricultural Organisation of the United Nations (2006) at 4.

¹⁸ World Health Organization "*Micronutrient deficiencies: vitamin A deficiency*" available at <https://www.who.int/nutrition/topics/vad/en/#:~:text=The%20challenge,the%20risk%20of%20maternal%20mortality> (accessed 4 July 2020).

¹⁹ See World Health Organisation & Food Agricultural Organisation of the United Nations (2006) at 3.

²⁰ On 2 August 2019 the Food and Safety Act 7 of 2019 was enacted. In s 65, it repeals the Food and Drug Act : available at <https://zambialii.org/zm/legislation/act/7> (accessed 16 May 2021).

²¹ See Cap 303 Laws of Zambia.

²² The FDA defines "food" to include any article manufactured or sold for use as food or as an ingredient. It defines "article" to include any food.

²³ See ss 3(a) & (c) of the FDA Cap 303.

²⁴ See s 4 of the FDA.

²⁵ See s 20 of the FDA.

distribution, purchase or control of imports into Zambia. According to section 3(1)(a), whenever it appears to the President as necessary or expedient, the President may by Statutory Instrument (SI) make regulations to control the import of any goods into Zambia. That power may be delegated to the Minister who may, through specific orders, control imports into Zambia. For example, under regulation 3(1) of the Control of Goods (Export and Import) (Agriculture) Regulations Cap 421,²⁶ the Minister of Agriculture can make orders to prohibit, restrict or otherwise control the import or export of any of the goods specified in the schedule. Accordingly, under the Second Schedule of the Control of Goods (Import and Export) (Agriculture) Order,²⁷ there is a restricted list of products whose entry into Zambia is only permissible upon the submission of an import permit issued by the permanent secretary of the ministry of agriculture.²⁸ It is notable that sugar is not on that list.

Then in 1998, SI 155 of 1998 was enacted to regulate fortification²⁹ of household consumption sugar. On 30 September 1999, the Zambia Bureau of Standards issued the Zambian Standard White Sugar Specification ZS 389:1999 (White Sugar Standards).³⁰ It is a requirement under this Standard that white sugar must contain a minimum of 10 milligram (mg) of vitamin A (as retinol) per kilogram (kg) of sugar,³¹ and fortified with a vitamin A premix specified in Appendix A. The premix should contain, among others, retinol of a quantity not less than 15g per kg.³² When the Control of Goods (Import and Export) (Agriculture) (Amendment) Order³³ of 23 June 2006 was made, sugar was also added to the restricted list of products for which an import permit was required (see the preceding paragraph on the Control of Goods (Import and Export) (Agriculture) Order). This, among others, entrenched the conditional permit approval system, further

²⁶ See SI 73 of 1970.

²⁷ See SI 96 of 1995.

²⁸ Clause 3(1)(a) SI 96 of 1995.

²⁹ Food fortification is the addition of one or more vitamins and minerals to commonly consumed foods during the manufacturing process in order to correct or prevent a demonstrated deficiency and provide a healthy benefit to the targeted population, see Mkambula P, Mbuya MNN, Rowe LA, Sablah M, Friesen VM, Chadha M, Osei AK, Ringholz C, Vasta FC & Gorstein J "The unfinished agenda for food fortification in low and middle-income countries: quantifying progress, gaps and potential opportunities"(2020) 12(354) 1 at 2; World Health Organisation & Food Agricultural Organization (2006) at 13.

³⁰ Zambia Bureau of Standards Zambian Standards White Sugar-Specification ZS 389:1999 Standard available at http://www.puntofocal.gov.ar/notific_otros_miembros/zmb56_t.pdf; <https://zambialii.org/zm/legislation/statutory-instrument/2017/no-68-2017>; <https://www.zambiatradingportal.gov.zm/index.php?r=searchMeasures/view&id=1469> (accessed 7 August 2020).

³¹ White Sugar Standards (1999) Standard 5.1; Serlemitos & Fusco (2001) at 8 & 21; Besa (2001) at 421.

³² White Sugar Standards (1999) Appendix A Standard A1.

³³ See SI 69 of 2006 available at <https://zambialii.org/node/11838> (accessed 23 July 2020).

complicating and increasing the costs of compliance. Clearly, the approval of an import permit application for white household consumption sugar was not an automatic one.

With the trend in which legal developments were taking place at the time, it was clear that Zambia was on a path to streamline standards regulation in the country.³⁴ Accordingly, the Compulsory Standards Act 3 of 2017 (CSA) and the Standards Act 4 of 2017 were enacted by the Parliament of Zambia on 13 April 2017. These enactments ushered in a new regime: the Standards Act 2017 which repealed and replaced the Standards Act Cap 416, Laws of Zambia; and the regulation of compulsory standards would no longer fall under the Standards Act, but the CSA. The latter requires that where a compulsory standard exists for a particular product, that standard must be complied with before its sale, importation, manufacture or supply.³⁵ For cross-border purposes, this provision means that only household sugar that is fortified according to the established standards would be permitted to enter Zambia. Considering that the White Sugar Standard preceded the CSA, it was imperative that such pre-existing standards be aligned with the newly enacted CSA. Accordingly, on 22 September 2017, the White Sugar Standards plus other standards were declared compulsory standards in terms of the Standards (Compulsory Standard) (Declaration) Order, SI 68 of 2017.³⁶ Tracing the genesis of this regime back to SI 155 of 1998, it is notable that the mandatory requirement (then) is essentially still the same (albeit under specifically new legislative frameworks).

This kind of regime gives the general impression that the sugar fortification requirement (the measure in issue) is a de facto prohibition against the import, sale, or manufacture of white sugar. The measure in issue is seen as a contributory factor to the limited volumes of sugar imports into Zambia between 2011-2016.³⁷ With the slow progress in the reduction of VAD levels³⁸ and high Zambian sugar prices (despite efficient sugar production systems),³⁹ the fortification requirement is also seen as a disguised trade restrictive measure that the Zambian government uses to shield its dominant sugar producer, Zambia Sugar Plc, from competition.⁴⁰ It is within that context that this article examines the necessity of Zambia's legal requirement on the

³⁴ National Assembly of Zambia *The Report of the Committee on Delegated Legislation for the Second Session of the Twelfth National Assembly Appointed on Thursday, September 21st, 2017*, Final Report 5 (2018) available at http://www.parliament.gov.zm/sites/default/files/documents/committee_reports/REPORT-%20DELEGATED%20LEGISLATION%202018%20FINAL%20COPY.pdf (accessed 17 July 2020).

³⁵ See ss 15 (1) & 19 Compulsory Standards Act 3 of 2017.

³⁶ Paras 2 & 3 of Standards (Compulsory Standards) (Declaration) Order 2017.

³⁷ See Das Nair et al (2017) at 20.

³⁸ See Fiedler et al (2013) at 482.

³⁹ See Chisanga et al (2014) at 1.

⁴⁰ See Fiedler et al (2013) at 482.

fortification of household consumption sugar with vitamin A in the light of trade rules for regulating the application of health protection measures in the Southern African Development Community (SADC) and the World Trade Organization (WTO).

As a member of the SADC and the WTO, Zambia is bound by the terms of the Marrakesh Agreement Establishing the WTO (WTO Agreement)⁴¹ and the SADC Protocol on Trade (Protocol).⁴² Under the Protocol, both the Sanitary and Phytosanitary (SPS) Annex VIII (SPS Annex) and the Technical Barriers to Trade (TBT) Annex (TBT Annex) to the Protocol list the objective of health and life protection in their preambles and clauses.⁴³ They also indicate the need for SADC members to apply measures that are necessary,⁴⁴ albeit within different scopes of application. Even then, there are no clearly defined parameters to demarcate the extent of their coverage.⁴⁵ Accordingly, it is rather difficult to establish with certainty whether the current issue at hand, falls under either the SPS Annex or TBT Annex.

It is notable that on 27 July 2009, Malawi lodged a complaint against Zambia's vitamin A sugar fortification requirement on the Common Market for Eastern and Southern Africa (COMESA), the East African Community (EAC) and the SADC (COMESA-EAC-SADC) online Mechanism for Reporting, Monitoring and Eliminating Non-Tariff Barriers (RME Mechanism).⁴⁶ The measure was found to be non-discriminatory since it applied to both domestic and foreign market players alike.⁴⁷ However, the report does not indicate the contentious rules upon which the complaint and resolution were founded. This silence leaves a critical knowledge gap as to the appropriate SADC trade rule in relation to the law applicable to the sugar fortification requirement. With the lack of regional sugar and food fortification standards,⁴⁸ it is also difficult to determine

⁴¹ See World Trade Organisation "Marrakesh Agreement Establishing the WTO" available at https://www.wto.org/english/docs_e/legal_e/04-wto_e.htm (accessed 7 August 2020).

⁴² See Protocol on Trade in the Southern African Development Community 1996 available at https://www.sadc.int/documents-publications/show/Protocol_on_Trade1996.pdf (accessed 7 August 2020).

⁴³ Fourth Recital of the TBT Annex and first Recital of the SPS Annex.

⁴⁴ Sixth Recital and Art 5(2) SPS Annex VIII; see Art 5(2) and the proviso to Art 6(1) TBT Annex on the identification, prevention and elimination of unnecessary TBTs amongst SADC members.

⁴⁵ Article 4(2) of the TBT Annex merely avers that nothing in the Annex shall affect the rights of SADC Members under Art 16 of the SADC Protocol on Trade, Sanitary and Phytosanitary Measures, or of the WTO Agreement on Sanitary and Phytosanitary Measures, with respect to measures that do not fall within the scope of the TBT Annex.

⁴⁶ See COMESA-EAC-SADC "Reporting, monitoring and eliminating mechanism" available at https://www.tradebarriers.org/resolved_complaints/search:sugar (accessed 14 May 2021).

⁴⁷ COMESA-EAC-SADC "Reporting, monitoring and eliminating mechanism".

⁴⁸ Southern African Development Community *Food and nutrition security strategy 2015-2025* (2014) at 10-11 available at <https://www.nepad.org/publication/sadc-food-and-nutrition-security-strategy-2015-2025> (accessed 15 May 2021); Tamara P *Regional value chains: exploring linkages and*

whether the issue at hand falls within the scope of the TBT Annex or SPS Annex or any other SADC trade rule. As a result, the evaluation and determination of the measure in issue is of necessity guided by jurisprudence from other jurisdictions. For ease of access to adequate and reliable data, emphasis is placed on WTO jurisprudence.

There is literature in the context of the WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) and the WTO Agreement on Technical Barriers to Trade (TBT Agreement) on whether there is a distinction between the TBT and SPS measures.⁴⁹ In one publication, the drafters of the TBT Agreement and SPS Agreement provide the scope of each Agreement⁵⁰ - that distinction is only in principle.⁵¹ In practical terms, it is not always easy for a WTO member to effectively categorise a measure either under the SPS Agreement or the TBT Agreement. Consequently, sometimes, just as Uganda did in 2020, a measure may be notified to both the WTO's TBT and SPS Committees.⁵² That notwithstanding however, the WTO website indicates that it is possible to distinguish between the SPS Agreement and the TBT Agreement by focusing on the *purpose* of the SPS Agreement and the *type* of health protection measures dealt with by the TBT Agreement (emphasis added).⁵³

opportunities in the agro-processing sector across five SADC countries, Working Paper 4/2018, CCRED & University of Johannesburg at 48 available at <https://saiia.org.za/wp-content/uploads/2019/03/EXPLORINGLINKAGESANDOPPORTUNITIESINTHEAGRO-PROCESSINGSECTORACROSSFIVESADCCOUNTRIES1.pdf> (accessed 4 May 2021).

⁴⁹ Norbert LWW "Clarifying the alphabet soup of the TBT and the SPS in the WTO" (2004) 8 *Drake Journal of Agricultural Law* 703 at 720-722; Bibek D *The SPS and TBT agreements-implications for Indian policy* (June 2005), Indian Council for Research on International Economic Relations available at <https://icrier.org/pdf/wp163.pdf> (accessed 6 October 2021); Gretchen HS *Key principles of the SPS and TBT Agreements* available at <https://www.unescap.org/sites/default/files/2.%20SPS%20%26%20TBT%20Key%20Principles.pdf> (accessed 6 October 2021). See also World Trade Organisation "Operating the SPS notification authority" available at https://www.wto.org/english/tratop_e/sps_e/sps_handbook_cbt_e/c2s2p1_e.htm (accessed 14 May 2021).

⁵⁰ Article 1(4) SPS Agreement and Art 1(5) TBT Agreement.

⁵¹ Thorstensen VH & Andreia CV *TBT, SPS and PS: are the wolves of protectionism disguised under sheep skin* (2015) available at <http://bibliotecadigital.fgv.br/dspace/handle/10438/16351> (accessed 16 May 2021).

⁵² World Trade Organisation Committee on Sanitary and Phytosanitary Measures "Notification" G/SPS/N/UGA/118, 10 January 2020 available at <https://www.daff.gov.za/doaDev/sideMenu/Food%20Import%20&%20Export%20Standard/docs/NUGA118-Uganda-DUS%20DEAS%2010252019.%20Monitoring%20&%20sampling%20of%20premixes%20&%20fortified%20foods%20-%20Guidelines.%20First%20Edition.pdf> (accessed 14 May 2021).

⁵³ World Trade Organisation, "Introduction: the sanitary and phytosanitary measures agreement" available at https://www.wto.org/english/tratop_e/sps_e/spsund_e.htm (accessed 23 February 2021).

The SPS Agreement aims to regulate the use of measures established to protect plants and animals from pests and diseases, humans or animals from food-borne diseases, and humans from diseases carried by animals or plants.⁵⁴ By definition, it applies to measures that address microbiological contamination of food, set permissible pesticide levels or veterinary drug residues, identify permitted food additives, or establish packaging and labelling requirements that directly relate to food safety.⁵⁵ Any of these measures may, or may not, be technical regulations.⁵⁶ The TBT Agreement, on the other hand, applies to all forms of technical regulations, conformity procedures⁵⁷ and voluntary standards except where the latter fall within the scope of the SPS Agreement. In most cases, regulations relating to food labelling requirements, quality and packaging, nutrition claims and concerns, are TBT, and not SPS, measures.⁵⁸ That is a wide scope indeed that extends from product safety (but not toxicity and additives) to volume, shape and appearance of packaging. Again, the same WTO website indicates that most measures for controlling diseases (except where such diseases are carried by plants or animals) fall under the TBT Agreement. Along those lines, I argue that diseases such as night blindness resulting from VAD cannot be said to be caused by either plants or animals.

Along those lines, it is most likely that Zambia's standard for sugar fortification with vitamin A is a TBT measure that falls under the TBT Agreement⁵⁹ and the TBT Annex. For reasons already explained above, an analysis of the necessity for the fortification requirement is informed by the WTO TBT Agreement and related jurisprudence with a particular focus on Article 2(2) of the TBT Agreement. It provides as follows:

“Members shall ensure that technical regulations are not prepared, adopted or applied with a view to or with the effect of creating unnecessary obstacles to international trade. For this purpose, technical regulations shall not be more trade-restrictive than necessary to fulfill a legitimate objective, taking account of the risks non-fulfillment would create. Such legitimate objectives are, *inter alia* ...the protection of human health or safety, animal or plant life or health... In assessing such risks, relevant elements of consideration are, *inter alia* available scientific and technical information, related processing technology or intended end-uses of products.”

⁵⁴ Article 2 (1) SPS Agreement.

⁵⁵ World Trade Organisation "Introduction: the sanitary and phytosanitary measures agreement".

⁵⁶ World Trade Organisation "Introduction: the Sanitary and phytosanitary measures agreement".

⁵⁷ See Articles 2(2) & 56(1) TBT Agreement.

⁵⁸ World Trade Organisation "Introduction: the sanitary and phytosanitary measures agreement".

⁵⁹ See WHO & FAO (2006) at 240-241 & 322.

Article 2(2) essentially calls on Members to be mindful of the intention of, the actions that relate to, and the effect of, the enforcement of their technical regulation so that these measures do not act as unnecessary obstacles to international trade. As a member of the SADC, Zambia affirms these rights and obligations in Article 5(1) of the TBT Annex. Under Article 5(2) of the TBT Annex, Zambia reaffirms its commitment to the fundamental principles of the WTO, including the principles of necessity and the application of measures in a non-trade restrictive manner. With such a commitment, Zambia's sovereign right to develop and apply life and health protective measures is not absolute.⁶⁰ The main question therefore is : to what extent does Zambia's sugar fortification requirement comply with the principle of necessity as understood in the context of the TBT Annex and Article 2(2) of the TBT Agreement?

With that, the remaining parts of this article proceed as follows: part 3 provides a brief background to the SADC and its implementation framework for the TBT Annex; part 4 provides a legal analysis of the necessity principle under Article 2(2) of the TBT Agreement and an evaluation of Zambia's sugar fortification measure; and part 5 is the conclusion.

3 OVERVIEW OF THE SADC'S PURPOSE AND THE REGULATION OF TECHNICAL BARRIERS TO TRADE

On 17 August 1992 at Windhoek, Namibia, ten founding Member States⁶¹ who were inspired by the commonalities in social-cultural affinities, common historical experiences - problems and aspirations,⁶² signed the SADC Treaty to establish the SADC as an organisation. The membership has now increased to 15 States at different levels of economic development that can be divided into two main groups, namely, developing countries and LDCs. In the first category are South Africa, Botswana, Mauritius, Namibia, Seychelles, Swaziland, and Zimbabwe, and the remaining seven states of Angola, Democratic Republic of Congo, Lesotho, Malawi, Mozambique, Tanzania, Zambia are LDCs⁶³. At the international level, the SADC is recognised by the WTO⁶⁴ and the African

⁶⁰ See 4th Recital to the Preamble of the TBT Annex.

⁶¹ Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland, United Republic of Tanzania, Zambia and Zimbabwe.

⁶² Southern African Development Community "A declaration by the heads of state or government of southern African States" (1993) available at 1 para available at http://www.sadc.int/files/8613/5292/8378/Declaration_Treaty_of_SADC.pdf (accessed 15 May 2021).

⁶³ Derived from the United Nations' list of LDCs in accordance with Art XI(2) of the WTO Agreement; see United Nations "LDCs at a glance" available at <https://www.un.org/development/desa/dpad/least-developed-country-category/ldcs-at-a-glance.html> (accessed 13 May 2020).

⁶⁴ By notifying the WTO SADC Members affirmed the validity of this landmark document at the WTO; see World Trade Organisation "Regional trade agreements database Southern African Development

Union (AU) as a regional economic community desirous of establishing a single integrated regional market.⁶⁵

The SADC was formed with the main aim of providing an organisational structure to facilitate the development and implementation of common approaches to social-economic transformation of Southern Africa.⁶⁶ In pursuit of this goal, intra-SADC trade was singled out as the steering wheel to promote regional development by encouraging “new types of investments in more productive and competitive industries, producing goods and services for regional and international markets”.⁶⁷ Toward that goal, the Protocol was adopted and signed in 1996, and four years later it entered into force.⁶⁸ Relied on as the key legal instrument for regulating intra-SADC trade, the Protocol affirms SADC members’ rights and obligations under the WTO Agreement.⁶⁹

Accordingly, in Article 17, they agree to use international standards as a basis for standards related measures, except where they would be inappropriate or ineffective to achieve the Member’s legitimate objectives.⁷⁰ That intention has been implemented in the TBT Annex, which was first adopted in 2008⁷¹ and then subsequently revised. On 17 July 2014, the revised version of the TBT Annex was approved.⁷² That is the version that is currently applicable within the region. Another set of trade rules is the SADC Sugar Cooperation Agreement, also known as Annex VII Concerning Trade in Sugar (Annex VII

Community (SADC)" available at <http://rtais.wto.org/UI/PublicShowRTAIDCard.aspx?rtaid=45> (accessed 22 September 2019).

⁶⁵ Article 6(1)(2)(a) African Economic Community Treaty; Richard FO *Legal aspects of economic integration in Africa* Cambridge : Cambridge University Press (2011) at 19; United Nations Economic Commission for Africa *Assessing regional economic integration in Africa II: rationalising regional economic communities* (2006) at 2.

⁶⁶ Article 5 SADC Treaty.

⁶⁷ Southern African Development Community "Toward a Southern African Development Community: declaration by the heads of state or government of southern African states" (1993) at 7 available at http://www.sadc.int/files/8613/5292/8378/Declaration_Treaty_of_SADC.pdf (accessed 1 October 2020); Clement N "SADC law: building towards regional integration" (2012) 2 *SADC Law Journal* 124 at 125.

⁶⁸ See World Trade Organisation "Regional Trade Database" available at <https://rtais.wto.org/UI/PublicMaintainRTAHome.aspx> (accessed 3 August 2021).

⁶⁹ Preamble to the SADC Protocol on Trade regarding WTO rights and obligations.

⁷⁰ Section 17(1) TBT Annex.

⁷¹ SADC Technical Barriers to Trade (TBT) Annex to the SADC Protocol on Trade, Adopted by the SADC Committee of Trade Ministers on July 12, 2008 available at https://www.sadc.int/files/3013/5817/6379/SADC_Technical_Barriers_to_Trade_-_ANNEX.pdf (accessed 31 May 2020).

⁷² SADC TBT Annex to the SADC Protocol on Trade available at https://www.sadc.int/files/6614/1520/1550/TBT_ANNEX_to_the_SADC_Protocol_on_Trade_-_Approved_Version_-_17_July_2014_-_ENGLISH.pdf (accessed 31 May 2020).

to the SADC Protocol on Trade). It permits duty-free sugar quota market access into the Southern African Custom Union (SACU) for non-SACU members.⁷³ It also permits SADC sugar producers to apply temporary restrictions on the domestic sugar market.⁷⁴ This exception was expected to last until 2012 subject to a positive outcome of a review that would be conducted five years from the date of the commencement of the Sugar Cooperation Agreement.⁷⁵ A key feature of Annex VII is the Technical Committee on Sugar (TCS) which was established to identify areas of common interest for regional cooperation with the aim to facilitate a balanced establishment of national industries.⁷⁶ Although a review of the technical and institutional performance of the TCS is not within the scope of this article, the regional sugar market is subject to a combination of entire national, regional and international legal and institutional frameworks in a specific given space of time.

4 THE LEGAL MEANING OF NECESSITY IN ARTICLE 2(2) OF THE TBT AGREEMENT

Determination of necessity of a measure in Article 2(2) ultimately rests on finding “whether the technical regulation at issue restricts international trade beyond what is necessary for that technical regulation to achieve the degree of contribution that it makes to the achievement of a legitimate objective”.⁷⁷ According to the Appellate Body (AB) in *European Communities - Measures Affecting Asbestos and Asbestos-Containing Products (EC - Asbestos)* and *European Communities - Trade Description of Sardines (EC - Sardines)* the first step in examining a measure under the TBT is to determine whether or not the measure is a technical regulation. The finding from this preliminary assessment is the threshold factor, and if the measure is found not to be one, the TBT Agreement will not apply to it.⁷⁸

4.1 The meaning and scope of a technical regulation

⁷³ Article 4 Annex VII.

⁷⁴ Article 2(a) Annex VII.

⁷⁵ Article 3(1) Annex VII.

⁷⁶ Articles 9 & 7 Annex VII.

⁷⁷ See *United States–Certain Country of Origin Labeling (COOL) Requirements*, (adopted 23 July 2012) Appellate Body Report WT/DS384/AB/R/WT/DS386/AB/R DSR 2012: V p 2449 at para. 461; *United States - Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products* (adopted 13 June 2012) Appellate Body Report WT/DS381/AB/R at para 319.

⁷⁸ *European Communities - Measures Affecting Asbestos and Asbestos-Containing Products* (adopted 5 April 2001) Appellate Body Report WT/DS135/AB/R DSR 2001: VII p 3243 at para 59; *European Communities - Trade Description of Sardines* (adopted 23 October 2002) Appellate Body Report WT/DS231/AB/R DSR 2020: VIII p 3359 at para 175.

According to Article 1(2)⁷⁹ and Annex 1(1) of the TBT Agreement, a technical regulation is a:

“Document which lays down product characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method.”⁸⁰

Following the interpretation and conclusion drawn by the AB in *EC - Asbestos*, the AB in *EC - Sardines* said that any particular document at issue must meet three criteria for it to be a technical regulation in terms of Annex 1(1), namely: first, it must apply to an identifiable product or group of products either expressly by its name⁸¹ or implicitly through its characteristics;⁸² secondly, it must lay down one or more characteristics of the product which may be intrinsic including their features, qualities. Alternatively, the characteristics may be related to the product through composition, colour, size, shape, texture;⁸³ thirdly, it must be a requirement that, compliance with the product characteristics is mandatory.⁸⁴ In the light of these criteria it is also important to consider features, such as, the applicable administrative provisions⁸⁵ and

“... whether the measure consists of a law or a regulation enacted by a WTO member, whether it prescribes or prohibits particular conduct, whether it sets out specific requirements that constitute the sole means of addressing a particular matter, and the nature of the matter addressed by the measure”.⁸⁶

⁷⁹ Article 1(2) states that for purposes of the TBT Agreement, the meanings given in Annex 1 of this Agreement will apply.

⁸⁰ Annex 1(1) TBT Agreement.

⁸¹ *US - Sardine* (Appellate Body Report 2002) at para 191.

⁸² *EC - Asbestos* (Appellate Body Report 2001) at para 70.

⁸³ *US - Sardines* (Appellate Body Report 2002) at paras 176 & 189; *EC - Asbestos* (Appellate Body Report 2001) at para 67.

⁸⁴ *US - Sardines* (Appellate Body Report 2002) at para 176; *US - Tuna II (Mexico)* (Appellate Body Report 2012) at para 183, *EC - Asbestos* (Appellate Body Report 2001) at para 68.

⁸⁵ *US - Tuna II (Mexico)* (Appellate Body Report 2012) at para 185.

⁸⁶ *US - Tuna II (Mexico)* (Appellate Body Report 2012) at para 188, 199; *EC - Asbestos* (Appellate Body Report 2001) at para 64.

With that in mind, there is need for an in-depth consideration of the measure as a whole.⁸⁷ That said, is the Zambian law that makes it mandatory to fortify white sugar with vitamin A, a technical regulation?

In accordance with the first criterion cited above, I argue that the CSA read together with the White Sugar Standards regulate the standards of an identifiable product, namely, white sugar⁸⁸ meant for domestic human consumption.⁸⁹ In respect of the second criterion, there is a list of elements, such as, labelling, texture, colour and chemical composition in the White Sugar Standards. These elements constitute both extrinsic and intrinsic product characteristics. Meanwhile, the chemical composition which consists, among others, of a minimum of 10 mg of vitamin A (as retinol) per kilogram of sugar⁹⁰ is an intrinsic feature of the product. As regards the third criterion, there is the prohibition in section 15(1)(a) of the CSA against the sale, manufacture or importation of white sugar unless the terms of the compulsory standard in the White Sugar Standards⁹¹ on vitamin A fortification has been complied with. Compliance is enforced through various administrative provisions that warrant certain administrative actions, such as: the supply of a white sugar sample by the importer to the Zambian Compulsory Standard Agency (ZCSA) for inspection, testing or analysis;⁹² the issue of a directive by the Executive Director of the ZCSA to cease sale or importation, return of the imported property to its place of origin, to cause product modification or appropriate disposal thereof where it is suspected that a product or consignment or batch of a product does not comply with, or has not been manufactured in accordance with, the applicable compulsory standard.⁹³ Non-compliance may lead to criminal convictions that can be sanctioned through a fine, imprisonment or both.⁹⁴ In *EC - Mexico Tuna II (Mexico)*, the AB took into account the provisions on criminal sanctions and surveillance mechanisms that were meant to guarantee compliance with the labelling requirement, in order to establish the mandatory nature of the measure in

⁸⁷ *US - Tuna II (Mexico)* (Appellate Body Report 2012) at para 190; *EC - Sardines* (Appellate Body Report 2002) at para 192.

⁸⁸ In *US - Sardines* (Appellate Body Report 2002) at para 191 where the AB stated that a name clearly identifies a product.

⁸⁹ White Sugar Standards (1999) at Standard 1.

⁹⁰ White Sugar Standards (1999) at Standard 5.

⁹¹ Standards (Compulsory Standards) (Declaration) Order, White Sugar Standards (2017) at paras 2 & 3, Schedule 2 at 773.

⁹² See s 19(1)(a) Compulsory Standards Act 3 of 2017.

⁹³ See ss 16 (2) & (4) CSA.

⁹⁴ See s16 (1) CSA which imposes a duty on a manufacturer not to contravene a compulsory standard and s16(6) CSA which provides that “any contravention is an offence, which upon conviction, is punishable by a fine not exceeding three hundred thousand penalty units, or to imprisonment for a term not exceeding three years, or to both”.

issue.⁹⁵ Looking at the CSA and the White Sugar Standards holistically, the law on sugar fortification is a technical regulation⁹⁶ that falls within the scope of the TBT Agreement and TBT Annex.

4.2 Legitimate objective

The TBT Agreement does not define a legitimate objective. Therefore, when the AB in *US - Tuna II (Mexico)* was faced with the need to determine the legitimacy of the measure, it turned to the *Shorter Oxford English Dictionary* for interpretation. The AB then defined a legitimate objective as a target or an aim that is lawful, justifiable or proper.⁹⁷ Article 2(2) provides an illustrative list of legitimate objectives, including the protection of health and safety. Can the aim of the sugar fortification requirement be justified as legitimate? The assessment of legitimacy under Article 2(2) is not subject to the national characterisation of a measure in issue.⁹⁸ This eliminates subjectivity in favour of a broader and objective assessment of the measure beyond the facts that may seem obvious.⁹⁹ In so doing, the Panel may consider aspects, such as, the text of the statutes, its legislative history, and the structure and operation of the measure.¹⁰⁰

As submitted above,¹⁰¹ it appears that the legislative history of the text of SI 155 of 1998, the terms of the White Sugar Standards read together with the text of the CSA indicate that the law on white sugar fortification with vitamin A is intended to address the prevalence of VAD among a target population. That intention falls within the list of measures provided in Article 2(2). Accordingly, the measure aims to achieve a legitimate objective. That finding without more is reason to conclude that the measure is a legally valid one. However, for the contentions cited earlier regarding the protective

⁹⁵ *US - Tuna II (Mexico)* (Appellate Body Report 2012) at para 194.

⁹⁶ *EC - Asbestos* (Appellate Body Report 2001) at para 75, where after an extensive examination of the elements of the measure in accordance with the three criteria, the AB arrived at the conclusion that the measure, taken as an integrated whole, was indeed a technical regulation under the TBT Agreement.

⁹⁷ *US - Tuna II (Mexico)* (Appellate Body Report 2012) at para 313; *US-COOL* (Appellate Body Report 2015) at para 370.

⁹⁸ *US-COOL* (Appellate Body Report 2015) at para 371; *US -Tuna II (Mexico)* (Appellate Body Report 2012) at paras 313-314.

⁹⁹ *US - COOL* (Appellate Body Report 2015) at para 371 (referring to *US - Tuna II (Mexico)* (Appellate Body Report 2012) at paras 303 & 313 (referring also to *United States - Gambling United States-Measures Affecting the Cross-Border Supply of Gambling and Betting Services* (adopted 20 April 2005) Appellate Body Report WT/DS285/AB/R 2005 DSR 2005: XII p 5663 (Corr 1 DSR 2006: XII p 5475) at para 304).

¹⁰⁰ *US-COOL* (Appellate Body Report 2015) at para 371; *US - Tuna II (Mexico)* (Appellate Body Report 2012) at paras 303 & 314.

¹⁰¹ See headings 1, 2 and subheading 4.1 on technical regulation.

nature of the requirement in issue,¹⁰² this article overlooks the preceding finding for an objective and assessment of the actual intention of the measure.

4.3 More trade-restrictive than necessary to fulfil a legitimate objective

Article 2(2) does not just prohibit any form of trade restriction, but those that “exceed what is necessary for that technical regulation to achieve the degree of contribution needed to achieve a legitimate objective”.¹⁰³ Ultimately, necessity is the benchmark for determining the acceptable level of restriction of a measure in issue.¹⁰⁴ Such a conclusion requires a comparative analysis of various factors¹⁰⁵, such as, the trade restrictiveness of the technical regulation, the degree of contribution that it makes to the achievement of a legitimate objective, the risks non-fulfilment would create, and the gravity of the consequences that would arise from non-fulfilment of the objective pursued by the Member through the measure.¹⁰⁶ According to the AB, “it is required that a comparison of the challenged measure and possible alternative measures should be undertaken in most cases”¹⁰⁷, and in doing so, it is relevant to consider¹⁰⁸ whether the proposed alternative is less trade restrictive; whether it would make an equivalent contribution to the relevant legitimate objective, taking account of the risks non-fulfilment would create; and whether it is reasonably available.¹⁰⁹

This kind of comparative analysis should be looked at as a “conceptual tool”¹¹⁰ undertaken in most cases except where, for example, consistency of the measure with the agreement is established.¹¹¹ A conclusion arrived at from the objective

¹⁰² See heading 1.

¹⁰³ *US - Tuna II (Mexico)* (Appellate Body Report 2012) at para 319; *US-COOL* (Appellate Body Report 2015) at para 461.

¹⁰⁴ *US - Tuna II (Mexico)* (Appellate Body Report 2012) at para 319.

¹⁰⁵ *US - Tuna II (Mexico)* (Appellate Body Report 2012) at paras 320 & 322 and footnote 641; *US-COOL* (Appellate Body Report 2015) at paras 376 & 461.

¹⁰⁶ *US - Tuna II (Mexico)* (Appellate Body Report 2012) at paras 318 & 320; *US-COOL* (Appellate Body Report 2015) at para 471.

¹⁰⁷ *US - Tuna II (Mexico)* (Appellate Body Report 2012) at para 322; *US-COOL* (Appellate Body Report 2015) at para 376.

¹⁰⁸ *US - COOL* (Appellate Body Report 2015) at para 471.

¹⁰⁹ *United States - Certain Country of Origin Labelling (COOL) Requirements, Recourse to Article 21.5 of the DSU by Canada and Mexico* (adopted 29 May 2015) Appellate Body Report WT/DS384/AB/R WT/DS386/AB/R at para 5.202 that ultimately, the test of Art 2.2 revolves around a holistic weighing and balancing of all the relevant factors.

¹¹⁰ *US - Tuna II (Mexico)* (Appellate Body Report 2012) at para 320; *US-COOL* (Appellate Body Report 2015) at para 376.

¹¹¹ *US-Tuna II (Mexico)* (Appellate Body Report 2012) at para 32; *US-COOL* (Appellate Body Report 2015) at para 376.

consideration of all these issues will require access to, and production of, in-depth data. In that context, even if it is possible to conduct a logical flow of analysis through a particular sequential and orderly manner,¹¹² it is largely a question of fact determined by the particulars of each case. The most critical thing to do during the examination of the “more trade-restrictive than necessary” provision in Article 2(2) is to conduct a holistic weighing and balancing test of all the relevant factors.¹¹³

4.3.1 *Fulfil (the degree of contribution of a technical regulation)*

Inasmuch as the TBT Agreement recognises Members' right to advance certain legitimate objectives, how an objective is pursued and realised is a matter of national discretion.¹¹⁴ The extent to which the objective will be fulfilled will vary based on the means for implementation. In some cases, it may be fulfilled to a lesser degree, and in others to a greater one.¹¹⁵ That is the context within which the word “fulfil” as used in Article 2(2) should be understood - lesser or greater degree.¹¹⁶ Determining that extent has nothing to do with ascertaining whether the measure in issue has attained a certain minimum threshold or completely fulfilled the objective,¹¹⁷ but rather, whether the technical regulation written and applied, actually contributes to the achievement of the legitimate objective.¹¹⁸ The emphasis here is on the actual, and not a discernable contribution of the measure. Factors, such as, the text, design and structure of the technical regulation¹¹⁹, should be considered to determine whether the preparation, adoption and application of the measure have advanced the achievement of the measure in any way.¹²⁰ I now apply the preceding legal interpretation to facts and legal issues surrounding the sugar fortification measure.

¹¹² *US-COOL Recourse to Article 21.5 DSU* (Appellate Body Report 2015) at para 5.202.

¹¹³ *US - Tuna II (Mexico)* (Appellate Body Report 2012) at para. 318; *US-COOL Recourse to Article 21.5 DSU* (Appellate Body Report 2015) at para 5.202; *Brazil Measures Affecting Imports of Retreaded Tyres*, (adopted 17 December 2007) Appellate Body Report WT/DS332/AB/R DSR 2007: IV p 1527 at para 178; *US - Gambling* (Appellate Body Report 2005) at paras 306-308.

¹¹⁴ *European Communities - Trade Description of Sardines* Report of the Panel WT/DS231/R 29 May 2002 at para 7.120.

¹¹⁵ *US - Tuna II (Mexico)* (Appellate Body Report 2012) at para 315.

¹¹⁶ *US - Tuna II (Mexico)* (Appellate Body Report 2012) at para 315; *US-COOL* (Appellate Body Report 2015) at para 373.

¹¹⁷ *US-COOL* (Appellate Body Report 2015) at paras 373 & 468.

¹¹⁸ *US-COOL* (Appellate Body Report 2015) at paras 373, 461 & 468; *US - Tuna II (Mexico)* (Appellate Body Report 2012) at paras 316 & 317.

¹¹⁹ *US - Tuna II (Mexico)* (Appellate Body Report 2012) at para 317; *US-COOL* (Appellate Body Report 2015) at para 468.

¹²⁰ *US-COOL* (Appellate Body Report 2015) at para 373.

Over the years, the Zambian government has developed specific national policy and strategy framework documents which have provided the necessary vision and direction to address VAD. The 1999-2004 Zambian National Strategy and Plan of Action (ZNSP) was specifically meant to address VAD. Together with the 2006 National Nutrition Policy (launched in 2008), there was an express and clear commitment to use supplementation, maize fortification and sugar fortification with vitamin A to reduce VAD.¹²¹ However, according to the 1997 and 2003 national survey reports, the reduction in VAD was progressively slow and of limited impact.¹²² Determined to effectively address VAD, government came out strongly in the 2011-2015 national food and nutrition strategic plan (NFNSP) to engender the buy-in and cooperation by industries for production of more fortified staple foods and condiments.¹²³ That notwithstanding, a 2013 report showed that there was no uniformity in consumption of vitamin fortified sugar with evidence of severe VAD in certain provinces.¹²⁴ The report highlighted that sugar fortification alone offered little hope for improving the status of vitamin A intake in the respective communities.¹²⁵

Then a 2017 market-level assessment in Mkhushi District in Zambia revealed a lack of compliance with the minimum legal requirement of 10mg per kilogram vitamin A concentration.¹²⁶ Although the study was limited in scope,¹²⁷ the monitoring and quality assurance issues are clear. It is difficult to see how the sugar fortification programme can have a significant positive impact on the VAD target population under such circumstances.

¹²¹ National Food and Nutrition Commission *National food and nutrition policy* (2006) at 21 available at <https://www.nfnc.org.zm/policy-documents/> (accessed 7 October 2021); MOST, USAID (2004) at 4.

¹²² National Food and Nutrition Commission of Zambia, *National food and nutrition strategic plan for Zambia 2011-2015* (2011) 6 available at <https://www.nfnc.org.zm/download/national-food-and-nutrition-strategic-plan-2011-2015/> (accessed 7 October 2021); Fiedler et al (2013) at 482-483; Matthew GD, Kabaghe G, Musonda M, & Palmer AC "Retail sugar from one Zambian community does not meet statutory requirements for vitamin A fortification"(2017) 38(4) *Food and Nutrition Bulletin* 594 at 595; Food and Agricultural Organisation *Nutrition country profile: the Republic of Zambia* (2009) at 46 available at <http://www.fao.org/publications/card/en/c/dad8c9bd-4653-4fd2-88ff-fda93c9a09c8/> (accessed 7 October 2021); Chomba C, Mwale M, Ibrahim A & Simpungwe E *Pathways for improved nutrition in Zambia: lessons from pro-vitamin A rich maize innovation platform* (2018) 2(14) FARA Research Report at 14; World Food Programme *Zambia annual country report: country strategic plan 2018-2019* (2018) at 6 at <https://docs.wfp.org/api/documents/WFP-0000104189/download/> (accessed 15 May 2021).

¹²³ The National Food and Nutrition Commission of Zambia (2006) at 30.

¹²⁴ See Fiedler et al (2013) at 491.

¹²⁵ See Fiedler et al (2013) at 497-498.

¹²⁶ Matthew et al (2017) at 596-597.

¹²⁷ Matthew et al (2017) at 598, that the study was limited to only one community with serious health concerns in Mkhushi District.

With hopes for better results, the Seventh National Development Plan 2017-2021 (Seventh NDP), proposes a multi-sectoral approach to address food security and nutrition issues.¹²⁸ Accordingly, foods, such as, maize meal and wheat flour, would be fortified with vitamin A.¹²⁹ However, the Seventh NDP is silent about the fortification of sugar with vitamin A, and it is not clear why. Could it be that the government is moving away from sugar fortification? Alternatively, could it be that matters involving sugar fortification are handled under a separate strategy framework? The lack of a nutrition sensitive guiding framework¹³⁰ makes it difficult to address the preceding questions with certainty. With the limited data at hand, it is possible to conclude that the implementation of the fortification of sugar with vitamin A has fulfilled the health and life protective objective to a lesser degree.

4.3.2 Trade restrictiveness

During the preliminary assessment of the trade restrictiveness of the COOL measure in *US-COOL*, the Panel indicated that an understanding on the trade restrictiveness of a measure under Article 2(2) starts with the determination of the ordinary meaning of "restrictive".¹³¹ In agreement with interpretations in previous disputes,¹³² the Panel concluded that the scope of "trade restrictiveness" in Article 2(2) is broad.¹³³ Also, that as it were under the GATT, the demonstration of any actual trade effects was not necessary because the aim of the provision is to protect the competitive opportunities available to imported products.¹³⁴ Although the Panel did not make a final conclusion on the trade restrictiveness of the COOL measure, its preliminary finding was that the cost of compliance with the COOL measure reduced the competitive opportunities for imported livestock relative to domestic livestock.¹³⁵

¹²⁸ Ministry of National Development and Planning (2017) at 93.

¹²⁹ Ministry of National Development and Planning *7 NDP implementation plan 2017-2021* (2018) at 53 available at <https://zambia.unfpa.org/sites/default/files/pub-pdf/Final%207NDP%20Implementation%20Plan%20-%209%20April%202018.pdf> (accessed 7 October 2021).

¹³⁰ Ministry of Health, United States Agency for International Development, the National Food and Nutrition Commission of Zambia, & Food and Nutrition Technical Assistance *Zambia nutrition advocacy plan 2017-2019* (2017) at 5 available at <https://www.fantaproject.org/node/1628> (accessed 7 October 2021).

¹³¹ *United States-Certain Country of Origin Labelling (US-COOL) Requirements* (18 November 2011) Panel Report WT/DS384/R WT/DS386/R at para 7.566.

¹³² *United States-Certain Country of Origin Labelling (US-COOL) Requirements* (18 November 2011) Panel Report WT/DS384/R WT/DS386/R at paras 7.566-7.571.

¹³³ *US-COOL* (Panel Report 2011) at para 7.572.

¹³⁴ *US - COOL* (Panel Report 2011) at para 7.572.

¹³⁵ *US - COOL* (Panel Report 2011) at paras 7.381, 7.373-7.380 & 7.575.

The AB found this holding to be conclusive. Along that line, the AB said that the COOL measure "had a considerable degree of trade restrictiveness insofar as it had a limiting effect on the competitive opportunities for imported livestock as compared to the situation prior to the enactment of the COOL measure".¹³⁶ Definitely, a considerable degree of trade restrictiveness imputes a certain level of limitation: one which is considerable. The *Oxford South African Concise Dictionary* defines "considerable" as "notably large, having merit or distinction". It also defines "large" as "of considerable or relatively great size, extent or capacity", "of a wide range or scope"; and "notably" as "in particular", "in a notable way". Therefore, "considerable" degree of trade restrictiveness can be understood to mean a limiting effect of a particularly great size, capacity or wide scope. With that in mind, the sugar fortification requirement will be said to be trade restrictive if it greatly reduces the competitive opportunities of like imported sugar in a particular way.

In southern Africa, sugar production mainly takes place in countries, such as, South Africa, Zambia, Zimbabwe, Eswatini and Malawi. South Africa and Zambia are both net exporters of sugar, with Mozambique, Botswana, and Namibia, as the major export destinations of South African sugar, and Eswatini, a main exporter to South Africa.¹³⁷ Zambia, on the other hand, mainly exports regionally to the Democratic Republic of Congo.¹³⁸ However, in the period 2011-2016 there was almost no importation of sugar into Zambia.¹³⁹ Generally, there is limited regional trade in sugar among sugar producers in southern Africa. This may be due to certain factors. First, the sugar industry is highly protected against the distorted global sugar market.¹⁴⁰ Secondly, in Zambia's case, the production capacity adequately meets the local demand.¹⁴¹ A contrary view is that the reduction in importation is caused by the vitamin A fortification requirement and the bureaucratic processes associated with enforcing compliance.¹⁴² There is also the suggestion that Zambia is using the vitamin A requirement to shield Zambia Sugar Plc (the dominant market share holder)¹⁴³ and the superficially highly priced Zambia sugar against competition from like cheap imports.¹⁴⁴

¹³⁶ *US - COOL* (Appellate Body Report 2015) at para 477.

¹³⁷ *Das Nair et al* (2017) at 18.

¹³⁸ *Das Nair et al* (2017) at 19.

¹³⁹ *Das Nair et al* (2017) at 20.

¹⁴⁰ Article 2(a) Annex VII; *Das Nair et al* (2017) at 21-22.

¹⁴¹ *Das Nair et al* (2017) at 20.

¹⁴² Chisanga B, Meyer F. H, Winter-Nelson N & Sitko NJ, Does the Current Sugar Market Structure Benefit Consumers and Sugarcane Growers? (2014) at 3.

¹⁴³ It is reported that Zambia Sugar Plc production output ranges from 200 000 to 450 000 tons African Financials "Zambia Sugar Plc" at <https://africanfinancials.com/company/zm-zmsg/> (accessed 5 August 2020).

¹⁴⁴ See Chisanga B, et al (2014) at 1; Karen et al (2010) at 3-4.

It is notable that before the vitamin A fortification programme, Malawi had reached almost 25 per cent consumption share in Zambia's domestic market but that that percentage reduced after 2001.¹⁴⁵

Sometime in July 2009, Malawi lodged a complaint against Zambia's vitamin A sugar fortification requirement on the COMESA-EAC-SADC online mechanism for Reporting, Monitoring and Eliminating Non-Tariff Barriers (RME Mechanism).¹⁴⁶ Zambia's sugar fortification measure was declared to be non-discriminatory because it applied to both domestic and foreign household sugar.¹⁴⁷ In July 2011, Malawi notified the SADC TCS that it would also most possibly adopt mandatory standards for Vitamin A.¹⁴⁸ Then in 2015 Malawi introduced such a measure with regard to raw and refined sugar.¹⁴⁹ Similar mandatory measures were also adopted in Mozambique and Zimbabwe.¹⁵⁰ The SADC Food and Nutrition Security Strategy 2015-2025 acknowledges the prevalence of vitamin A deficiency in the region, plus the inadequacy and inconsistency of regional fortification programmes.¹⁵¹ This is evidence of a fragmented sugar regime in the southern African region. The consequential cost of this is usually passed onto the private sector. Actually, the Swaziland Sugar Association has already

¹⁴⁵ Brian C, Nicholas JS, Ferdinand HM, Alex W Price transmission in the Zambian sugar sector : an assessment of market efficiency and policy implications (2015) 54(4) *Agrekon* at 120.

¹⁴⁶ COMESA-EAC-SADC "Reporting, monitoring and eliminating mechanism" (accessed 15 May 2021).

¹⁴⁷ COMESA-EAC-SADC "Reporting, monitoring and eliminating mechanism" (accessed 15 May 2021).

¹⁴⁸ Southern Africa Trade Hub, Technical Report: 2012 Audit of the Implementation of the SADC Protocol on Trade, (June 2012) at 70 https://satradehub.org/images/stories/downloads/pdf/technical_reports/tech20120531_sadc_trade_audit_report.pdf (accessed 7 October 2021).

¹⁴⁹ Obare L, Adede E, Ong'elleh H & Mutambi F "Assessment of consumption monitoring systems fortified and nutritious foods in the East, Central, and Southern Africa (ECSA)" Regional Final Report USAID ECSA GAIN (2017) at 23 available at <https://www.gainhealth.org/sites/default/files/publications/documents/gain-usaid-assessment-of-consumption-of-monitoring-systems-fortified-and-nutritious-foods.pdf> (accessed 7 October 2021).

¹⁵⁰ Zimbabwe, see Regulations 4-7 of the Food Fortification Regulations, Statutory Instrument No 120 of 2016; Mozambique, Decree No 9 of 2016 approving the Regulation for Food Fortification with Industrially Processed Micronutrients available at <https://extranet.who.int/nutrition/gina/en/node/23876> (accessed 4 August 2021); USAID & GAIN *Harmonization of food fortification inspection guidelines in the ECSA Region*, Workshop Report, Entebbe, Uganda (November 7-10, 2016) 7-8 available at <http://ecsahc.org/wp-content/uploads/2017/12/FINAL-ECSA-FC-REPORT-CT10022017.pdf> (accessed 15 May 2021).

¹⁵¹ See SADC *Food and nutrition security strategy 2025-2020* (2014) 10-11 available at <https://www.nepad.org/publication/sadc-food-and-nutrition-security-strategy-2015-2025> (accessed 9 June 2020).

raised its concern about the increasing costs of compliance as a result of the varying terms of the emerging national sugar standards.¹⁵²

In the light of the preceding views and facts, it is notable that there is generally limited intra-regional trade within the southern African region due to a number of reasons. In that context, it cannot be said with certainty that the limited sugar imports into Zambia and the reduced competitive opportunities for foreign like products is caused by the mandatory sugar fortification requirement. In that regard, it cannot be concluded herein that the sugar fortification requirement is trade restrictive.

4.3.3 *Equivalent degree of contribution by alternative measures*

Are there alternative food fortificants that could achieve an equivalent degree of fulfilment of the legitimate objective? Vegetable cooking oil has been suggested as a suitable food vehicle for a substantial increase in the amount of vitamin intake¹⁵³ because it is reasonably available and accessible by most households in Zambia.¹⁵⁴ The structural set-up of the oil industry makes it able to handle quality and safety control measures.¹⁵⁵ It has been suggested that maize meal can also act as an alternative food fortificant because it is consumed by the majority of Zambians.¹⁵⁶ The efficacy of using maize meal is questionable considering that the majority of the maize meal consumed is processed by hammer mills; yet, fortification is rarely done in these mills.¹⁵⁷ There is only a small percentage of the population that consumes fortified maize meal. In one study that percentage stands at only 23% of the population¹⁵⁸ and in another, it is less than 30%.¹⁵⁹ Despite the disparity in the preceding figures, I do think that a value less than 50% is small and inadequate to cause significant changes in VAD levels.

Another challenge with the use of maize meal as an alternative food fortificant is the organizational structure and system of operation of hammer mills. They are not only small and numerous but are also built on operating simple and less advanced technology¹⁶⁰, which raises concerns about quality and safety. Notably, two of the factors that influenced the choice of sugar as a food fortificant for vitamin A in the 1990s

¹⁵² South African Institute of International Affairs "Swaziland Sugar Association" available at <https://saiia.org.za/saiia-toolkit/swaziland-sugar-association/> (accessed 26 April 2020).

¹⁵³ See Fiedler et al (2013) at 498.

¹⁵⁴ Obare et al (2017) at 80-81.

¹⁵⁵ Obare et al (2017) at 80-81.

¹⁵⁶ Fiedler et al (2013) at 482.

¹⁵⁷ See Fiedler et al (2013) at 482-484.

¹⁵⁸ Fiedler et al (2013) at 497.

¹⁵⁹ Obare et al (2017) at 79-80.

¹⁶⁰ Fiedler et al (2013) at 482-484.

were: first, the centralised sugar production under the auspices of the only sugar producer (then), Zambia Sugar Co (now, Zambia Sugar Plc), and secondly, the industrial buy-in from the only sugar producer. Coincidentally, in South Africa., maize meal fortification has been embraced successfully by the millers due to their cooperation and political buy-in. That success emanates from the fact that the maize millers view food fortification as the industry's contribution to nutrition and not just as a matter of compliance.¹⁶¹ To conclude, for vitamin A fortification to succeed in Zambia, an organised structure as well as political buy-in from most of the millers are crucial. Until then, it is difficult to see how maize meal can be a suitable alternative fortificant for vitamin A.

4.3.4 Trade restrictiveness of the alternative measures

Is the alternative measure trade restrictive? Considering the available data, the analysis under this sub-heading focuses only on the regulation of the maize meal trade. There is a maize production deficiency in the SADC , and Zambia, which produces a large number of tons of maize emerges as the major maize meal producer in the region.¹⁶² Zambia's trade in maize is also known to be the most controlled and regulated. The government's Food Reserve Agency plays an active role in setting maize prices. In addition , there is the stringent permit application processes coupled with a history of restrictions through export bans.¹⁶³ Even though the bans have been lifted, because of Zambia's dominance and market control of this industry, it has been argued that there is no certainty and predictability that such restrictions may not be enforced any time in the future.¹⁶⁴ This creates skepticism about the suitability of maize as an alternative delivery mechanism for fortificants.

5 CONCLUSION

The article examined the main question as to what extent Zambia's fortification requirement complies with the principle of necessity in Article 2(2) of the WTO TBT and TBT Annex? In addressing this question, the article established that the legislative history of the requirement to fortify household consumption sugar with vitamin A was introduced to address the prevalence of VAD especially among children under five years

¹⁶¹ Adopted from an email response from Boikanyo Mokgatle, Executive Director, National Chamber of Milling, South Africa.

¹⁶² Collier E *Zambia: Maize market fundamentals* (2017) Few's Net USAID at 16 & 20 available at https://fews.net/sites/default/files/documents/reports/ZAMBIA%20MFR_20171221_Final.pdf (accessed 8 August 2020); World Bank Group *Zambia Economic Brief: Promoting Trade and Competitiveness-What Can Zambia Do?* (2014) 3(88863) at 12-20 available at http://documents1.worldbank.org/curated/en/284511468334910130/pdf/888630NWP0REPL020B_ox38524500PUBLIC0.pdf (accessed 8 August 2020).

¹⁶³ See Collier (2017) at 21; World Bank Group (2014) at 26-28.

¹⁶⁴ See World Bank Group (2014) at 27 & 38-39.

of age and women of child-bearing age. At the time, the then only sugar producer agreed to fortify sugar on condition of a ban on the sale and importation of unfortified sugar. That spirit is still implicit in the current legal requirement that obliges a manufacturer, seller, supplier or importer to comply with the compulsory sugar standards before they can supply, sell, manufacture or import household consumption sugar within Zambia.

Despite its legitimate objective, it is notable that since the implementation of the law on sugar fortification commenced in 2000, there has been a limited positive impact of the measure on the VAD status. This means that the measure has only achieved its objective to a lesser degree. There is a suggestion that the measure at issue is also responsible for the reduction in the import volumes of household consumption sugar into Zambia. However, there is no compelling evidence to support the view that the measure is responsible for such a reduction in competitive opportunities for like imported products. Further, that the measure is applied to both domestic and foreign manufacturers and products means that the measure is non-discriminatory. It has been suggested that for greater impact in changing the VAD status, maize meal could be used as an alternative food fortificant. As good as this may sound, it is difficult for it to succeed within the current industrial organisational structure and operating systems of hammer millers, and the maize meal consumption patterns of the majority of Zambians. Another challenge is the uncertainty and unpredictability in the regulatory space due to strong government involvement in, and control of, the maize meal trade. For a significantly remarkable change in the VAD status in Zambia, a lot more needs to be done for maize meal fortification to succeed. In summary, the sugar fortification requirement cannot be said to be more trade restrictive than is necessary under the TBT Annex and Article 2(2) of the TBT Agreement.

BIBLIOGRAPHY

Books

Richard FO *Legal aspects of economic integration in Africa* Cambridge : Cambridge University Press (2011).

Journal articles

Besa EM "Fortification of sugar in Zambia" (2001)22(4) *Food and Nutrition Bulletin* 419.

Brian C, Nicholas JS, Ferdinand HM, Alex W Price transmission in the Zambian sugar sector : an assessment of market efficiency and policy implications (2015) 54(4) *Agrekon* 113.

Clement N "SADC law: building towards regional integration" (2012)2 *SADC Law Journal* 124.

Fiedler JL, Lividini K, Zulu R, Kabaghe G, Tehinse J & Bermudez IO "Identifying Zambia's fortification options: toward overcoming the food and nutrition information gap-induced impasse" (2013) 34(4) *Food and Nutrition Bulletin* 480.

Greene MD, Kabaghe G, Musonda M & Palmer AC "Retail sugar from one Zambian community does not meet statutory requirements for vitamin A fortification" (2017) 38(4) *Food and Nutrition Bulletin* 594.

Kalinda T & Chisanga B "Sugar value chain in Zambia: an assessment of the growth opportunities and challenges" (2014) 6(1) *Asian Journal of Agricultural Sciences* 1.

Mathew GD, Kabaghe G, Musonda M & Palmer AC "Retail sugar from one Zambian community does not meet statutory requirements for vitamin A fortification" (2017) 38(4) *Food and Nutrition Bulletin* 594.

Mkambula P, Mbuya MNN, Rowe LA, Sablah M, Friesen VM, Chadha M, Osei AK, Ringholz C, Vasta FC & Gorstein J "*The unfinished agenda for food fortification in low and middle-income countries: quantifying progress, gaps and potential opportunities*" (2020) 12(354) *Nutrients* 1.

Norbert LWW "Clarifying the alphabet soup of the TBT and the SPS in the WTO" (2004)8 *Drake Journal of Agricultural Law* 703.

Legislation and regulations

Compulsory Standards Act 3 of 2017.

Control of Goods Act 12 of 1954.

Control of Goods (Import and Export) (Agriculture) (Amendment) Order SI 69 of 2006.

Control of Goods (Import and Export) (Agriculture) Order SI 96 of 1995.

Control of Goods (Export and Import) (Agriculture) Regulations Cap 421 SI 73 of 1970.

Food and Drugs Act 22 of 1972.

Food and Drugs Regulation 22 of 1972.

Food and Safety Act 7 of 2019.

Standards Act 4 of 2017.

Treaties and Conventions

Agreement on the Application of Sanitary and Phytosanitary Measures 1994.

Agreement on Technical Barriers to Trade 1994.

Marrakesh Agreement Establishing the WTO 1994.

Protocol on Trade in the Southern African Development Community (SADC) Region 1996.

Sanitary and Phytosanitary (SPS) Annex VIII to the SADC Protocol on Trade.

Technical Barriers to Trade (TBT) Annex to the SADC Protocol on Trade Adopted by the SADC Committee of Trade Ministers on July 12 2008.

Technical Barriers to Trade (TBT) Annex to the SADC Protocol on Trade Adopted by the SADC Committee of Trade Ministers on July 17 2014.

Treaty Establishing the African Economic Community 1991.

Treaty of the Southern African Development Community 1992.

Case law

Brazil Measures Affecting Imports of Retreaded Tyres, (adopted 17 December 2007) Appellate Body Report WT/DS332/AB/R DSR 2007: IV 1527.

European Communities-Measures Affecting Asbestos and Asbestos-Containing Products (adopted 5 April 2001) Appellate Body Report WT/DS135/AB/R DSR 2001: VII 3243.

European Communities-Trade Description of Sardines (adopted 23 October 2002) Appellate Body Report WT/DS231/AB/R DSR 2020: VIII 3359.

European Communities-Trade Description of Sardines WT/DS231/R 29 May 2002.

United States-Certain Country of Origin Labeling (COOL) Requirements (adopted 23 July 2012) Appellate Body Report WT/DS384/AB/R/WT/DS386/AB/R DSR 2012: V 2449.

United States-Certain Country of Origin Labeling (COOL) Requirements Recourse to Article 21.5 of the DSU by Canada and Mexico (adopted 29 May 2015) Appellate Body Report WT/DS384/AB/R WT/DS386/AB/R.

United States-Certain Country of Origin Labeling (US-Cool) Requirements (18 November 2011) Panel Report WT/DS384/R WT/DS386/R.

United States-Gambling United States-Measures Affecting the Cross-Border Supply of Gambling and Betting Services (adopted 20 April) Appellate Body Report WT/DS285/AB/R 2005 DSR 2005: XII p 5663 (Corr 1 DSR 2006: XII 5475).

United States-Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products (adopted 13 June 2012) Appellate Body Report WT/DS381/AB/R.

Reports and unpublished works

Bibek D *The SPS and TBT agreements-implications for Indian policy*, (June 2005), Indian Council for Research on International Economic Relations available at <https://icrier.org/pdf/wp163.pdf> (accessed 6 October 2021).

Chomba C, Mwale M, Ibrahim A & Simpungwe E *Pathways for improved nutrition in Zambia: lessons from pro-vitamin A rich maize innovation platform* (2018) 2(14) FARA Research Report.

Collier E *Zambia: maize market fundamentals* (2017) Fews Net USAID available at https://fews.net/sites/default/files/documents/reports/ZAMBIA%20MFR_20171221_Final.pdf (accessed 7 October 2021).

Corporate Citizen *Illovo Sugar: Zambia Sugar Plc Socio-Economic Impact Assessment, Internal Management Report* (2017) available at https://www.illovosugarafrika.com/User_Content/Documents/Illovo-Impact-Report-Zambia-Dec17.pdf (accessed 5 August 2020).

Das Nair R, Nkhonjera N & Ziba F *Growth and development in the sugar to confectionery value chain* (2017) University of Johannesburg & CCRED available at <https://static1.squarespace.com/static/52246331e460a46e5f1b8ce5/t/5992f39cd482e9e6d3dcb892/1502802858230/Sugar+Research+Report.pdf> (accessed 25 May 2020).

Food and Agricultural Organisation *Nutrition country profile: the Republic of Zambia* (2009) available at <http://www.fao.org/publications/card/en/c/dad8c9bd-4653-4fd2-88ff-fda93c9a09c8/> (accessed 7 October 2021).

Haggblade S, Babu S, Harris J, Mkandawire E, Nthani D & Hendriks LS *Drivers of micronutrient policy change in Zambia: an application of the kaleidoscope model* (2016) 14 Feed the Future Innovation Lab for Food Security Policy Research Paper.

National Assembly of Zambia *The report of the committee on delegated legislation for the second session of the twelfth national assembly appointed on Thursday September 21st 2017, Final Report* (2018) available at <http://www.parliament.gov.zm/sites/default/files/documented/committee-reports/REPORT-%20DELEGATED%20LEGISLATION%202018%20FINAL%20COPY.pdf> (accessed 17 July 2020).

Obare L, Adede E, Ong'elleh H & Mutambi F *Assessment of consumption monitoring systems fortified and nutritious foods in the East, Central, and Southern Africa (ECSA) Regional Final Report* USAID ECSA GAIN (2017) available at <https://www.gainhealth.org/sites/default/files/publications/documents/gain-usaid-assessment-of-consumption-of-monitoring-systems-fortified-and-nutritious-foods.pdf> (accessed 7 October 2021).

Republic of Zambia General Statistical Office *Zambia in Figures 2018* (2018) at 31 available at <http://www.zamstats.gov.zm/phocadownload/Dissemination/Zambia%20in%20Figure%202018.pdf> (accessed 3 August 2021).

Serlemitos JA & Fusco H *Vitamin A fortification of sugar in Zambia 1998–2001* (2001) MOST USAID Micronutrient Programme.

Thorstensen VH & Viera AC *TBT, SPS and PS : are the wolves of protectionism disguised under sheep skin ?* (2015) available at <http://bibliotecadigital.fgv.br/dspace/handle/10438/16351> (accessed 16 May 2021).

United Nations Economic Commission for Africa *Assessing regional economic integration in Africa II: rationalising regional economic communities* (2006).

United Nations *Zambia Country Analysis* (2015) available at http://zm.one.un.org/sites/default/files/uncountry_analysis_report.pdf (accessed 8 June 2020).

USAID & GAIN *Harmonization of food fortification inspection guidelines in the ECSA Region*, Workshop Report, Entebbe, Uganda (November 7-10, 2016) available at <http://ecsahc.org/wp-content/uploads/2017/12/FINAL-ECSA-FC-REPORT-CT10022017.pdf> (accessed 15 May 2021).

World Bank Group *Zambia economic brief: promoting trade and competitiveness-what can Zambia do?* (2014) 3(88863) available at <http://documents1.worldbank.org/curated/en/284511468334910130/pdf/888630NWP0REPLO20Box38524500PUBLICO.pdf> (accessed 8 August 2020).

World Food Programme *Zambia annual country report 2018: country strategic plan 2018-2019* available at <https://docs.wfp.org/api/documents/WFP-0000104189/download> (accessed 8 August 2020).

Policy documents and working papers

Chisanga B, Meyer F. H, Winter-Nelson N & Sitko NJ *Does the Current Sugar Market Structure Benefit Consumers and Sugar Cane Growers?* (2014) 69 Policy Brief Indaba Agricultural Policy Research Institute available at <https://ideas.repec.org/p/ags/midcwp/188569.html> (accessed 7 October 2021).

Ministry of National Development and Planning (MNDP) *Seventh National Development Plan 2017-2021* (2017) available at <http://extwprlegs1.fao.org/docs/pdf/zam170109.pdf> (accessed 3 August 2021).

Ministry of Health, United States Agency for International Development, the National Food and Nutrition Commission of Zambia, & Food and Nutrition Technical Assistance *Zambia Nutrition Advocacy Plan 2017-2019* (2017) available at <https://www.fantaproject.org/node/1628> (accessed 7 October 2021).

Ministry of National Development and Planning *7 NDP implementation plan 2017-2021* (2018) available at <https://zambia.unfpa.org/sites/default/files/pub-pdf/Final%207NDP%20Implementation%20Plan%20-%209%20April%202018.pdf> (accessed 7 October 2021).

MOST, USAID *Zambian national strategy and plan of action for the prevention and control of vitamin A deficiency and anaemia*, Micronutrient Program (2004) available at <https://www.nfnc.org.zm/download/zambian-national-strategy-on-vitamin-a-and-anaemia/> (accessed 7 October 2021).

National Food and Nutrition Commission of Zambia *National food and nutrition policy* (2006) available at <https://www.nfnc.org.zm/policy-documents/> (accessed 7 October 2021).

National Food and Nutrition Commission of Zambia *National food and nutrition strategic plan for Zambia 2011-2015* (2011) available at <https://www.nfnc.org.zm/download/national-food-and-nutrition-strategic-plan-2011-2015/> (accessed 7 October 2021).

Southern African Development Community *Food and Nutrition Security Strategy 2015-2025* (2014) available at <https://www.nepad.org/publication/sadc-food-and-nutrition-security-strategy-2015-2025> (accessed 15 May 2021).

Tamara P *Regional Value Chains: Exploring Linkages and Opportunities in The Agro-Processing Sector Across Five SADC Countries*, Working Paper 4/2018, CCRED & University of Johannesburg available at <https://saiaa.org.za/wp-content/uploads/2019/03/EXPLORINGLINKAGESANDOPPORTUNITIESINTHEAGRO-PROCESSINGSECTORACROSSFIVESADCCOUNTRIES1.pdf> (accessed 4 May 2021).

World Health Organisation & Food Agricultural Organisation of the United Nations, *Guidelines on food fortification with micronutrients* (Allen L, Bruno de B, Dary O & Hurrell R (eds) (2006) available at [https://www.who.int/nutrition/publications/guide food fortification micronutrients.pdf](https://www.who.int/nutrition/publications/guide%20food%20fortification%20micronutrients.pdf) (accessed 7 October 2021).

Internet sources

African Financials "Zambia Sugar Plc" available at <https://africanfinancials.com/company/zm-zmsg/> (accessed 5 August 2020).

COMESA-EAC-SADC "Reporting, monitoring and eliminating mechanism" available at https://www.tradebarriers.org/resolved_complaints/search:sugar (accessed 14 May 2021).

Gretchen HS, "Key principles of the SPS and TBT Agreements" available at <https://www.unescap.org/sites/default/files/2.%20SPS%20%26%20TBT%20Key%20Principles.pdf> (accessed 14 May 2021).

Southern African Development Community, "Toward a Southern African Development Community: declaration by the heads of state or government of southern African states" (1993) available at http://www.sadc.int/files/8613/5292/8378/Declaration_Treaty_of_SADC.pdf (accessed 14 May 2021).

THE NECESSITY FOR ZAMBIA'S VITAMIN A SUGAR FORTIFICATION

South African Institute of International Affairs "Swaziland Sugar Association" available at <https://saiia.org.za/saiia-toolkit/swaziland-sugar-association/> (accessed 26 April 2020).

Southern Africa Trade Hub, Technical Report: 2012 Audit of the Implementation of the SADC Protocol on Trade, (June 2012) at 70 https://satradehub.org/images/stories/downloads/pdf/technical_reports/tech20120531_sadc_trade_audit_report.pdf (accessed 7 October 2021).

United Nations "LDCs at a glance" available at <https://www.un.org/development/desa/dpad/least-developed-country-category/ldcs-at-a-glance.html> (accessed 13 May 2020).

World Bank "Data: Zambia" available at <http://data.worldbank.org/country/zambia> (accessed 8 June 2020).

World Health Organization "Micronutrient deficiencies: vitamin A deficiency" (accessed July 7 2020) available at <https://www.who.int/nutrition/topics/vad/en/#:~:text=The%20challenge,the%20risk%20of%20maternal%20mortality> (accessed 23 February 2021).

World Trade Organisation Committee on Sanitary and Phytosanitary Measures "Notification" G/SPS/N/UGA/118, 10 January 2020 available at <https://www.daff.gov.za/doaDev/sideMenu/Food%20Import%20&%20Export%20Standard/docs/NUGA118-Uganda-DUS%DEAS2010252019.%20Monitoring%20&%20sampling%20of%20premises%20and%20fortified%20foods%20-%20Guidelines.%20First%20Edition.pdf> (accessed 14 May 2021).

World Trade Organisation "Introduction: the sanitary and phytosanitary measures Agreement" available at https://www.wto.org/english/tratop_e/sps_e/spsund_e.htm (accessed 23 February 2021).

World Trade Organisation "Marrakesh agreement establishing the WTO" available at https://www.wto.org/english/docs_e/legal_e/04-wto_e.htm (accessed 23 February 2021).

World Trade Organisation "Operating the SPS notification authority", available at https://www.wto.org/english/tratop_e/sps_e/sps_handbook_cbt_e/c2s2p1_e.htm/ (accessed 23 February 2021).

World Trade Organisation "Regional trade agreements database: Southern African Development Community (SADC)" available at

<http://rtais.wto.org/UI/PublicShowRTAIDCard.aspx?rtaid=45> (accessed 23 February 2021).

World Trade Organisation "Trade policy review: Zambia" WT/TPR/S/340 (2016) at 9 available at https://www.wto.org/english/tratop_e/tpr_e/s340_e.pdf (accessed 23 February 2021).