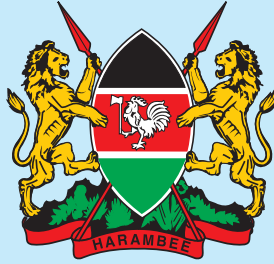


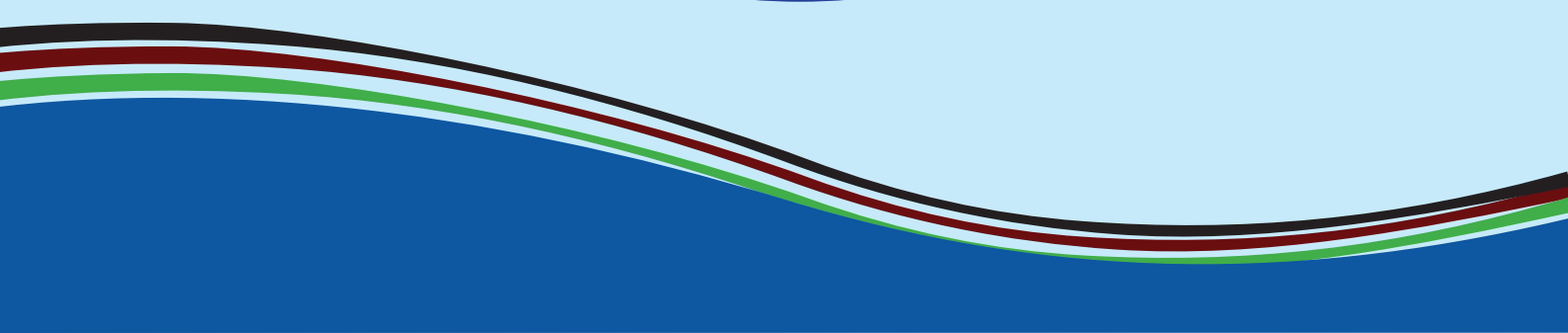
REPUBLIC OF KENYA



MINISTRY OF HEALTH

# Kenya National Food Fortification Strategic Plan

2018-2022





## FOREWORD

The Kenya National Food Fortification Strategic Plan (2018-2022) mirrors the vision of the Kenya Health Sector Investment Plan (2013 - 2017) and extends its activities in line with Vision 2030 of the Government of Kenya. One of the goals of the Kenya Health Policy 2012 – 2030 is “attaining the highest possible health standards in a manner responsive to the population needs.” The policy aims to achieve this goal through supporting provision of equitable, affordable and quality health and related services at the highest attainable standards to all Kenyans.

In Kenya, malnutrition remains a public health concern that negatively impacts the foundations of economic, social and cultural life of the country. Statistics show that under-nutrition – especially stunting – is still high in children under 5 years both in rural (29%) and urban areas (20%). Overall, Protein Energy Malnutrition remains high in Kenya, with stunting rates of 26%, wasting at 4%, and under-weight at 11%, with wide regional variations. (Kenya Demographic and Health Survey, 2014).

Despite Kenya having made significant progress toward the World Health Assembly targets for wasting and underweight for children under 5 years, results show that the country has not met the targets for stunting. Kenya is also faced with the double burden of malnutrition with the issue of over-nutrition on the rise especially in urban areas. The proportion of Kenyan women who are overweight or obese in urban areas is 43% compared to the national average of 26% (KDHS, 2014). The prevalence of non-communicable diseases has also increased significantly over the years, which can be attributed partly to poor nutrition habits.

In order for Kenya to achieve the Sustainable Development Goals (SDGs) and Vision 2030, nutrition must be given greater priority and investments towards nutrition programmes must be increased. The National Food Fortification Strategic Plan provides the Ministry of Health with the medium-term focus, objectives and priorities to facilitate increased production and consumption of quality fortified foods. The plan is not restricted to the actions of the Health Ministry but includes other related institutions and sectors whose actions have an impact on health and nutrition, particularly relating to food security. It will guide both National and County governments on the operational priorities in food fortification.

**Mr. Peter K. Tum, OGW**

Principal Secretary,  
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## PREFACE

This five-year National Food Fortification Strategic Plan (NFFSP) (2018-2022) is the first one to be developed by the Government of Kenya (GoK) as a key instrument to fight against micronutrient deficiencies in the country. Many Kenyans, especially children, pregnant women and women of reproductive age (15 - 49 years) are at high risk of deficiencies of vitamin A, iron, zinc, iodine and folate, among others. As a consequence of these micronutrient deficiencies, millions of Kenyans do not realize their full potential.

The development of the strategic plan started with a desk review and stakeholder consultations. With support from the Ministry of Health, Nutrition and Dietetics Unit (MoH-NDU), the consultant made consultations with public sector agencies, private sector organizations and development partners supporting food fortification in the country. The organizations consulted were: MoH-NDU, Jomo Kenyatta University of Agriculture and Technology (JKUAT), Kenya Bureau of Standards (KEBS), National Public Health Laboratory (NPHL), Nutrition International (NI), Technoserve Kenya Ltd, Global Alliance for Improved Nutrition (GAIN), United Nations Children's Fund (UNICEF), World Food Programme (WFP), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), and United States Agency for International Development (USAID).

Based on the desk review report and the stakeholder consultations, a framework for developing the NFFSP was prepared and agreed upon by stakeholders. This paved the way for the development of the zero draft of the strategic plan, which was reviewed by relevant stakeholders in a five-day planning workshop held on June 19 - 23, 2017. In that workshop, programme activities were revised, targets were defined and activities were costed. This was followed by a second stakeholder meeting in which the revised draft strategic document was presented. This orchestrated revision based on the feedback given by stakeholders on the content, design and grammatical correctness. The revised document was then given to a technical reviewer for editing, checking content and finalization. The implementation of the strategic plan is estimated to cost **KES 903,230,305**.

**Dr. Kioko Jackson K., OGW, MBS**

Director of Medical Services,  
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## ACKNOWLEDGEMENTS

The Ministry of Health through the Nutrition and Dietetics Unit, would like to thank everyone who was involved in the development of the National Food Fortification Strategic Plan (2018- 2022). The NFFSP could not have been realized without the support from the government of Kenya through the Ministry of Health, Kenya Bureau of Standards, Food Safety Laboratory, National Public Health Laboratory as well as local administration in the various Counties.

A special appreciation goes to the development partners for their technical and financial support. These include Nutrition International (NI), the European Union, Global Alliance for Improved Nutrition (GAIN), United Nations Children’s Fund (UNICEF) and World Food Programme (WFP), among others. The role of academic institutions particularly Jomo Kenyatta University of Agriculture and Technology is greatly appreciated.

Sincere thanks to food industry players (salt, maize flour, wheat flour, and the vegetable fats and oil industries) for providing honest information on current industry practices.

A special thanks to the consultant Dr. Wilfred Enzama who supported the development of the plan and the technical reviewer Prof. Daniel N. Sila for the great effort towards finalization of the document. This work would not have been possible without the technical and financial support from Nutrition international.

Lastly but not least, we are indebted to entire multi-sectoral team for successfully steering the development of the NFFSP.

A handwritten signature in black ink, appearing to read 'V. Kirogo'.

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## LIST OF ABBREVIATIONS AND ACRONYMS

BCC	Behaviour Change Communication
CBO	Community Based Organization
CHS	Community Health Strategy
DPs	Development Partners
EAC	East African Community
FAO	Food and Agriculture Organization of the United Nations
GAIN	Global Alliance for Improved Nutrition
GAM	Global Acute Malnutrition
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
FSU	Food Safety Unit
GoK	Government of Kenya
IDD	Iodine Deficiency Disorders
IYCN	Infants and Young Children Nutrition
KDHS	Kenya Demographic and Health Survey
KEBS	Kenya Bureau of Standards
KEMRI	Kenya Medical Research Institute
KESH	Kenya Shillings
KNBS	Kenya National Bureau of Statistics
KNFFA	Kenya National Food Fortification Alliance
M&E	Monitoring and Evaluation
MoH	Ministry of Health
MND	Micronutrient Deficiency



MoH-NDU	Ministry of Health-Nutrition and Dietetic Unit
NDU	Nutrition and Dietetic Unit
NFFSP	National Food Fortification Strategic Plan
NGO	Non-Governmental Organization
NI	Nutrition International
NMS	National Micronutrient Survey
NNAP	National Nutrition Action Plan
NPHL	National Public Health Laboratory
OT	Opportunities and Threats
PS	Private Sector
QC/QA	Quality Control and Quality Assurance
SDGs	Sustainable Development Goals
SMEs	Small and Medium Enterprises
SUN	Scaling Up Nutrition
SW	Strengths and Weakness
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USI	Universal Salt Iodization
VAD	Vitamin A Deficiency
USDA	United States Department of Agriculture
WFP	World Food Programme
WHO	World Health Organization



## GLOSSARY OF TERMS

**Advocacy:** continuous lobbying to persuade concerned stakeholders to create an enabling environment for implementation and sustainability of food fortification interventions.

**Behaviour Change Communication (BCC):** a process of interaction with communities to develop tailored messages and approaches using a variety of communication channels to develop and maintain positive behaviour, promote and sustain individual community and societal behaviour change.

**Evaluation:** the process of collecting data on an on-going, completed or yet-to-start programme, analyzing and interpreting the data for purposes of determining the value of the programme.

**Fortification:** the practice of deliberately increasing the content of an essential micronutrient, i.e. vitamins and minerals (including trace elements) in a food, to improve the nutritional quality of the food and provide a public health benefit with minimal risk to health.

**Fortification standards:** specification for the amount of micronutrient premix that will be safe and nutritious to consume.

**Impact:** the effect of the programme intervention on the beneficiaries. This includes immediate short-term outcomes as well as broader and longer-term effects. These can be positive or negative, planned or unforeseen.

**Information, Education and Communication (IEC):** the development of communication strategies and support materials based on formative research and targeted at influencing behaviours among specific population groups. Information and ideas are shared in a culturally sensitive and acceptable manner to the community using appropriate channels, messages and methods.

**Iodine:** an essential nutrient that occurs naturally in the soil and water. The body needs iodine to make the thyroid hormone, which controls the normal body growth and development. The main source of iodine in modern diets is iodized table salt.

**Iron:** a mineral the body requires for many functions. It is a part of haemoglobin, a protein which carries oxygen from the lungs throughout the body. It helps muscles store and use oxygen. Iron is also part of many other proteins and enzymes. Too little or too much iron in the body portends challenges.

**Mass fortification:** the addition of one or more micronutrients to edible products that are consumed regularly by the general public, such as cereals, vegetable oils and fats, salt, milk, and condiments, among others. It is usually initiated, legislated and regulated by government. It is also referred to as universal fortification.

**Mass Media:** technology that is intended to reach a mass audience. It is the primary means of communication used to reach the vast majority of the general public. Mass media is used for public awareness campaigns like informing the public about fortification activities or entry of a new product



for a specific purpose. The most common platforms for mass media are newspapers, magazines, radio, television, Internet, and more recently, mobile phones.

**Micronutrient:** a chemical substance, such as a vitamin or mineral, that is essential in minute amounts for the proper growth and metabolism of a human being.

**Monitoring:** the continuous collection and review of information on programme implementation activities for the purposes of identifying problems (such as non-compliance) and taking corrective actions so that the programme fulfils its stated objectives.

**Outcomes:** changes in behaviours/practices in the community as a result of programme activities. The outcome is expected to influence the problem, as defined initially.

**Outputs:** all products, goods and services delivered to the target population by a programme. Programme inputs have to be transformed into outputs.

**Premix:** mixture of a micronutrient(s) and another ingredient (often the same food that is to be fortified) that is added to the food vehicle to improve the distribution of the micronutrient mix within the food matrix and to reduce the separation (segregation) between the food and micronutrient particles.

**Quality Assurance:** the process of implementing planned and systematic activities necessary to ensure that products or services meet quality standards.

**Quality Control:** the techniques and assessments used to document compliance of the product with established technical standards, through the use of objectively measurable indicators.

**Stunting:** height-for-age index which provides an indication of the linear growth retardation and cumulative growth deficits of an individual or population. Stunting reflects failure to receive adequate nutrition over a long period of time and is also affected by recurrent and chronic illnesses.

**Supplementation:** periodic administration of pharmacologic preparations of nutrients as capsules, tablets, oil solutions or food, as well as by injection when substantial or immediate benefits are necessary for the group at risk.

**Targeted Fortification:** the fortification of foods designed for specific population subgroups, such as complementary weaning foods for infants, foods for institutional programmes aimed at schoolchildren or pre-schoolers, and foods used under emergency situations.

**Voluntary Fortification:** fortification carried out on the initiative of a manufacturer where fortification of that particular food is not by law, a mandatory process.

**Zinc** an essential trace mineral. Present in all tissues, zinc is a compound of many enzyme systems that regulate tissue growth, immunity and metabolism of carbohydrates.



## EXECUTIVE SUMMARY

Kenya has a long history of food fortification, dating back to 1972 when voluntary salt fortification started; mandatory legislation on salt iodization was enacted in 1978. However, in the last decade, the amendment of the Food, Drugs and Chemical Substances Act of the Laws of Kenya CAP 254, Notice No 62 of June 2012, Kenya made fortification of wheat flour, maize flour, vegetable oils and fats mandatory (GoK 2012). This law was amended again in July 2015 under CAP 254, Notice No. 157 (GoK 2015) to include fortification standards for maize and wheat flour, vegetable oil and fats.

Food fortification is a cost-effective strategy for prevention and management of micronutrient deficiencies, and it allows for high population coverage. With support from the government and development partners, Kenya has made some good progress in fortification, which includes – but is not limited to – the following:

- Regulations were developed for mandatory fortification of salt, wheat flour, maize flour, vegetable oil and fats.
- A multi-sectorial food fortification alliance (Kenya National Food Fortification Alliance (KNFFA)) was established in 2005 to plan, implement and monitor fortification initiatives in the country.
- Premix suppliers and distributors are certified by Kenya Bureau of Standards (KEBS) and registered annually by Ministry of Health, Nutrition and Dietetics Unit.
- Training modules were developed to build capacity of industry leaders and production staff on quality assurance and quality control.
- Social marketing and behavioural change communication strategy was developed in 2012 to increase consumer awareness and demand for fortified foods. This was a one-time effort.
- Monitoring and evaluation framework for food fortification programme was developed for 2012-2017, and is under review
- The number of industries fortifying mandated foods has increased and the proportion of fortified foods in the market has also increased

Over the last decade, the number of industries fortifying the selected food vehicles has increased in parallel to the proportion of fortified foods available. Current data indicates that 24 wheat millers are



fortifying about 80% of wheat flour in the market, 47 maize millers are fortifying 37% of maize flour in the market, 14 oil processors are fortifying 87% of the vegetable oil and fats in the market, and three large-scale salt processors are fortifying 99.9% of salt produced in the country (KEBs, 2017).

However, micronutrient malnutrition in the country is still at levels of public health concern. According to the demographic and health survey of 2014, stunting, wasting and underweight rates for children under 5 years of age were 26%, 4% and 11% respectively. Vitamin A deficiency among the children under 5 years of age and pregnant mothers were 61.8% and 27.0% respectively. Zinc deficiency stands at 83.3%, 68.3% and 82.3% for children under 5 years of age, pregnant women, and women of reproductive ages respectively.

The goal of this strategic plan is to reduce the prevalence of Micronutrient Deficiency (MND) among the population. This goal will be attained by meeting the following **strategic objectives**:

- To improve the enabling environment for food fortification by improving policy, leadership and governance for food fortification;
- To increase production of adequately fortified salt, maize flour, wheat flour and vegetable oil and fats;
- To strengthen regulatory monitoring of fortified foods at industry and market level;
- To increase demand and consumption of adequately fortified foods; and
- To monitor and evaluate food fortification programme performance at industry, market and household levels.

Achieving the strategic objectives will require a combination of the following outputs of the National Food Fortification Strategic Plan (NFFSP) in the next 5 years.

i. ***Enabling regulatory and coordination environment for food fortification in Kenya improved***

- The number of industries fortifying selected food vehicles increased through advocacy and technical support to industry leaders and their associations;
- Coordination mechanism within the government at national and county level strengthened to make fortification inclusive and sustainable;
- Food fortification advocacy to policy-makers at national and county level effected in order to mobilize resources and sustain food fortification.



- ii. ***Production capacity for industries fortifying selected food vehicles expanded***
  - Capacity of all the producers of fortified products (large, medium and small) assessed and enhanced through training of industries to comply to standards, and scaling up fortification to include small, medium and large-scale industries;
  - Adoption and commercialization of technologies for small and medium scale industries improved through technical and financial support.
- iii. ***Regulatory framework for monitoring food fortification at industry and market level strengthened***
  - Quantity of fortified salt, wheat and maize flours, vegetable oil and fats produced in Kenya assessed;
  - Level of market compliance to standards ascertained through regular monitoring and information sharing;
  - Industry compliance to fortification standards increased through enforcement of the regulation, and building capacity of industries to undertake internal quality assurance and quality control of fortified foods; and
  - Enforcement of regulations at industry and market level by government inspectors strengthened by equipping public health laboratories at national and regional levels to strengthen county-level market surveillance.
- iv. ***Demand and consumption of fortified foods by the population increased***
  - Awareness of fortified foods among the general population created;
  - Strengthening social marketing and behavioural change among the population;
  - Nutrition education through formal education courses and advocacy activities with the general population.
- v. ***Consumption of fortified foods monitored and impact on the population assessed***
  - Progress of fortification programme regularly assessed;
  - Consumption, access and reach of fortified foods assessed;
  - Impacts of food fortification assessed.





The argument for the above output and strategies is that, if these outputs and outcomes are achieved, the end result will be increased intake of micronutrients by the population contributing to reduction of micronutrient deficiencies in the country. The total budget estimates for the five-year strategic plan is **KES 903,230,305**. The budget is expected to be financed by government and development partners.



# CHAPTER 1

## INTRODUCTION

### 1.1 Background

This five-year National Food Fortification Strategic Plan (2018-2022) has been developed by Government of Kenya (GoK) as one of the key instruments for use in the fight against micronutrient deficiencies in the country. Many Kenyans, especially children (both under 5 years and school age children), pregnant women and women of reproductive age (15-49) are at high risk of deficiencies of vitamin A, iron, zinc, iodine and folate, among others. As a consequence of these micronutrient deficiencies, millions of Kenyans are not able to reach their full potential, which has a negative impact on their health status and consequently on the larger economy.

In Kenya, food fortification dates back to 1972 when voluntary salt iodization began. In 1978, the GoK made the iodization of salt mandatory. This has led to decline in the prevalence of total goitre from 35% in 1999 to 6% in 2004 (KEMRI and UNICEF 2004). Following the success of universal salt iodization, some industries (such as Unga Ltd.) started to voluntarily fortify maize and wheat flour. The last decade has seen increased efforts and resources directed towards shifting from voluntary to mandatory fortification. The amendment of the Food, Drugs and Chemical Substances Act of the Laws of Kenya CAP 254, Notice No 62 of June 2012, Kenya, provided for addition of vitamin A (retinol) in vegetable oils and fats, as well as the addition of vitamin A (retinol), iron and zinc among other micronutrients in wheat and maize flours (GoK 2012). A second amendment was undertaken in July 2015 under CAP 254, Notice No. 157 to include fortification standards for wheat flour, maize flour and edible oil and fats (GoK 2015). In 2012, Kenya adopted East African Community (EAC) standards that were developed in 2006. This aimed at harmonizing requirements that govern food commodity trade for vegetable oil and fats (fortification with vitamin A), wheat and maize flour (fortification with iron, zinc, folic acid, niacin, vitamin B<sub>1</sub> and B<sub>12</sub> and vitamin A). By 2006, standards for iodization of salt were already in place. The characteristics of each of the selected food vehicles are briefly described below.

**Wheat Flour:** According to statistics from United States Department of Agriculture (2017), consumption of wheat products in Kenya has grown significantly from 1,625,000 metric tonnes (MT) of wheat grain in 2012 to 1,900,000MT in 2016. The rate is higher in the higher income groups. However, 85.5% of wheat grain is imported. There are 24 registered wheat flour millers in Kenya (KEBS database, 2017) most of which are located in major towns.



**Maize Flour:** There is a downward trend in local production of maize from 3,390,000MT in 2012 to 2,850,000MT in 2016 (USDA, 2017). However, consumption of maize has increased from 3,250,000MT to 3,450,000MT over the same period. The deficit is managed through imports of maize grain. Despite the increase in the total consumption of maize grain, per capita consumption has decreased from 98kgs/year about 10 years ago (FAOSTAT 2014) to about 73.7kg/year in 2017. This is due to the high rate of population growth. There are 103 registered maize millers, 47 of which are fortifying 37% of maize brands on the market (KEBS database, 2017).

**Vegetable Oil and Fats:** Consumption of vegetable oils and fats has increased from 490,000MT in 2012 to 620,000MT in 2016 (KEBS data base, 2017). Apart from small production of sunflower oil, Kenya's vegetable oil and fats are derived from imported crude palm oil. Vegetable oils and fats are processed by seven large-scale and seven medium-scale companies (KEBS database 2017). Crude palm oil imports have increase from 590,000MT in 2012 to 650,000MT in 2016. Most of the oil is locally consumed with only 40,000MT exported in 2016.

**Salt:** Considered the best vehicle for increasing intake of iodine, iodized salt is produced by three large companies that supply the local market and the wider East African region. To date, 99.9% of the salt in the Kenyan market is iodized (MoH 2011).

## 1.2 The National Food Fortification Strategic Plan (NFFSP)

Kenya has mandatory food fortification regulation and quality standard for salt, wheat flour, maize flour, and edible oils and fats production. However, the country has never had a National Food Fortification Strategic Plan. This is the first strategic plan for fortification in Kenya which provides long-term solutions to address the bottlenecks in food fortification in the country. It provides an overarching framework for resource mobilization and programme coordination while integrating the food fortification agenda into government planning and budgeting. This strategic plan provides the national road map to enhance food fortification between 2018 -2022. More importantly, it also provides strategic direction for developing appropriate business models to support food fortification by small and medium scale industries across the country. It provides mechanisms for strengthening enforcement of the mandatory regulations for increased compliance. Additionally, the NFFSP provides a framework for engaging devolved governments (County Governments) and for learning from community-based strategies such as Community Health Strategy (CHS), which are instrumental in reaching the population with health information.



### 1.2.1 Goal of the NFFSP

To contribute to reduction of the prevalence of Micronutrient Deficiency (MND) among the population to levels deemed acceptable by WHO.

### 1.2.2 Strategic Objectives of the NFFSP

- The NFFSP has five key strategic objectives geared towards increasing industry and market compliance and household intake of key micronutrients through enhancing coordination, advocacy, production capacity, consumer awareness, and monitoring and evaluation of the fortification programme. These are: To improve the enabling environment for food fortification by improving policy, leadership and governance for food fortification;
- To increase production of adequately fortified salt, maize flour, wheat flour and vegetable oil and fats;
- To strengthen regulatory monitoring of fortified foods at the industry and market levels;
- To increase demand and consumption of adequately fortified foods; and,
- To monitor and evaluate food fortification programme performance at the industry, market and household levels.

## 1.3 Aligning Food Fortification with Government Agenda

The above goal and strategic objectives are aligned with the broader Kenyan government agenda as espoused in the Constitution, Vision 2030, the National Food and Nutrition Security Policy and the Kenya National Nutrition Action Plan. A brief mention of the alignment in each of these documents is captured below.

Article 43 (c) of the **Constitution of Kenya 2010** proposes an economic and social bill of rights “to be free of hunger and have adequate food of acceptable quality” as well as “the right to life at conception”. Further to this, Article 53 also states that “children have the right to basic nutrition and health care.” This gives the government greater responsibility in ensuring that the rights are enjoyed by Kenyans and necessitating that policies should be aligned to these rights. The relevant ministries are, therefore, required to be more sensitive to nutrition. This includes the Ministry of Health, Ministry of Agriculture and Livestock, Ministry of Education, Ministry of Environment and Natural Resources and Ministry of Industrialization.



The socio-economic blueprint of the government of Kenya (**Vision 2030: GoK 2014**) aims to transform Kenya from a third-world country to a middle-income country, and make it a globally competitive and prosperous nation with a high quality of life. The Government of Kenya has demonstrated strong commitment by embedding fortification of staples in its Vision 2030 policy framework. This has become the main anchor for Kenya's Scaling up Nutrition (SUN) initiative (i.e., by 2030, Kenya should be a country free from malnutrition in all its forms).

The **National Food and Nutrition Security Policy (2012)** was developed to address food and nutrition security in the country. The policy is built around the multiple dimensions of food security and nutritional improvement. To address micronutrient deficiencies, the policy identifies four key interventions. These are: *dietary diversification*, *food fortification* with vitamins and minerals, *biofortification* and vitamin and mineral *supplementation*. Therefore, the goal and strategic objectives of this National Food Fortification Strategic Plan are aligned to the broader government agenda of improving food security and health of all Kenyans.

**Kenya National Nutrition Action Plan (KNNAP: 2012-2017)** provides a framework for coordinating implementation of Kenya's commitment to human nutrition. The KNNAP articulates several strategic objectives for combating micronutrient deficiency in Kenya, particularly among the vulnerable groups (pregnant and lactating mothers, and infants and young children). The NFFSP will inform the preparation of the National Nutrition Action Plan II (2018-2022).

All these initiatives mirror the government's efforts toward the attainment of Sustainable **Development Goals (SDGs)**. The NFFSP will contribute to the attainment of SDG 2, to "... *achieve food security and improved nutrition...*", and SDG 3, to "*ensure healthy lives and promote well-being for all at all ages*". It is also linked to Food and Agriculture Organization of the United Nations (FAO) initiative of achieving zero hunger by working with governments and partners to mainstream food security, nutrition and sustainable agriculture in public policies and programmes.

## 1.4 Components of the NFFSP

### 1.4.1. Governance and Operations

The core elements of governance and operations include two interconnected and important aspects; creation of a favourable business environment and sustaining it. Firstly, creation of a conducive policy environment to guide fortification is critical through development of facilitative policies, regulations, guidelines and plans. This should reflect the government's commitment to legislate and enforce broad



food safety and quality aspects. Secondly, sustainability of the fortification programme is required. This calls for creation of an environment for an effective multi-sectoral and multi-level planning, implementation, supervision and evaluation of food fortification strategy. The buy-in and leadership of the government and its commitment to financial, human and other resources, for food fortification is paramount for the success of the strategy. This component also entails coordination with county governments, civil society organizations, donors and community-based organizations that are more accessible to the targeted population for fortified foods.

#### **1.4.2. Production of Fortified Foods**

For the production of adequately fortified foods, it is crucial that industries have the right technical and infrastructural capacity in terms of the right human resources, technology and sustainable premix procurement plans, etc. Economies of scale lead to a more cost-effective fortification implementation. However, an inclusive programme that includes small-, medium- and large-scale industries is required. This calls for development of technologies that are facilitative to all the players in the production chain. More importantly, access and distribution of premixes and dossiers should be improved to facilitate production of fortified foods. Industries need to have in place (or continue to improve) commercial distribution systems for fortified foods to reach the consumers across the country. On the other hand, government and/or non-government organizations (NGO) must increase the awareness of the benefits of fortification among the population.

#### **1.4.3. Regulatory Monitoring**

Regulatory monitoring aims to control and ensure food quality and safety for all foods consumed by the general population. Food quality control and safety is fundamental if food fortification is to be successful. This can be done internally by the industry (quality control and quality assurance) and monitored externally by regulatory agencies (external monitoring). In general, regulatory monitoring consists of four steps: certification of premix, internal monitoring (quality control and quality assurance) by the industry, external monitoring (inspection and auditing) in factories and importation sites by government officers, and commercial monitoring (verification of compliance to standards) at distribution centres and retail stores by Food Safety Unit.

#### **1.4.4. Consumer Awareness and Demand creation**

Increasing consumer awareness and knowledge of fortified foods through Behavioural Change Communication (BCC) can influence the demand and consumption of fortified foods. Awareness and



positive change in perception towards consumption of fortified foods affects the preference for fortified foods. Therefore, communicating the benefits of consuming fortified foods to the general population is crucial. This communication should be paired with information on the burden of micronutrient deficiency. Every national fortification programme should continuously educate the public sector – particularly the consumers – on the importance and benefits of consuming fortified food products using targeted advocacy campaigns transmitted by the most appropriate media of communication. This should be a concerted effort between government, research organizations, NGOs, consumer organizations, development partners and the food industry.

#### **1.4.5. Consumption Monitoring and Impact Evaluation**

Consumption monitoring is the periodic assessment of the household coverage and consumption of adequately fortified foods. It includes the additional micronutrients provided to the population via fortified foods. Impact evaluation is the assessment of the change in nutritional or health status (predefined end points) within the target population that can be attributed to the fortification programme. The objectives of monitoring and evaluation are to track the provision of, access to and utilization of fortified foods by individuals, as well as to estimate the population reach (or coverage of) a food fortification programme. This is a responsibility of units responsible for nutrition epidemiology studies, such as national and local nutrition departments or agencies, or nutrition research institutes within the country.

## **1.5 Situational Analysis**

### **1.5.1 Profile of Kenya**

The economic survey of 2017 showed that Kenya's economy grew from 5.4% in 2014 to 5.8% in 2016, and an estimate for 2017 was that the economy grew by 6.1%. The total gross domestic product (GDP) stands at US\$ 71.6 billion. The population was estimated to be 46.8 million in 2016 with a life expectancy of 64 years, and 60% of the population is younger than 25 years of age (KNBS, 2017). The health sector accounted for 5.7% of the government budget expenditure for 2014. National Government budget for health was only 1.7% in 2016, a drop from 2.8% in 2015 (GoK 2017). The total County expenditure for health was 22.2% in 2016 and is estimated to increase to 32% in 2017. The implication is that more of public expenditure for health is being devolved to the Counties, making Counties increasingly vital in scaling up food fortification. In the following sections, the current status of micronutrient deficiencies and fortification efforts are discussed.





## 1.5.2 Nutrition Status of the Population

### *Micronutrient Deficiency Prevalence in Kenya*

Micronutrient deficiencies are of public health concern due to their devastating effect on the physical and mental well-being of the population. The most common deficiencies are of iron, folate, zinc, iodine and vitamin A. They are risk factors for increased morbidity and mortality among children under five years, as well as pregnant and lactating women. Data from KNMS of 2011 showed improvements in micronutrient deficiency prevalence in Kenya when compared to KNMS of 1999.

There has been a decline in iron deficiency rates among children under 5 years and pregnant women from 73% and 55% in 1999 to 13.3% and 26% in 2011 respectively (MoH 2011, GoK 2014). However, the latest prevalence rates are still of public health concern. According to KNMS of 2011, of women in reproductive age (15-49), 30.9% were deficient in folate and 34.7% were deficient in vitamin B<sub>12</sub>. Folate deficiency was found to be higher in women with no formal education (45.8%) than those with formal education (26%). Vitamin B<sub>12</sub> deficiency was found to be higher among women aged 15-19 (47%) than older ones (31.5%). Prevalence of zinc deficiency among the population increased by 30% between 1999 and 2011; since then it has increased further to affect 80% of the total population. Zinc deficiency has been shown to increase the risk of miscarriages stillbirth and stunted growth (MoH 2011).

Iodine deficiency has reduced from 36.8% in 1999 to 27% in 2011. Iodine deficiency levels are observed to be higher in rural than urban areas (MoH 2011).

There is overall reduction in vitamin A deficiency rates among children under 5 and pregnant women decreased significantly from 75.9% and 38.7% in 1999 to 61.8% and 27% respectively. However, these figures still demonstrate serious negative health impacts for those affected (MoH 2011).

### *Stunting, Wasting and Underweight*

Stunting (short height for age) and wasting (low weight for length/height) are important public health indicators. Underweight (low weight for age) combines information about linear growth retardation and weight for length/height. Stunting reflects failure to receive adequate nutrition over a long period of time and is affected by recurrent and chronic illness (MoH 2011). Height-for-age, therefore, represents the long-term effects of malnutrition in a population and is not sensitive to recent, short-term changes in dietary intake.





The Kenya Demographic and Health Survey (KDHS) of 2014 showed a decline in the rates of stunting, underweight and wasting among the under-5 children from 35%, 16% and 7% in 2008 to 26%, 11% and 4% respectively in 2014. Stunting is highest in children in the age of 18-23 months (36%) and 24-35 months (34%). Stunting levels are also shown to be higher among boys (30%) than girls (22%) and among rural children (29%) than urban children (20%). The survey also revealed that 30.6% of women of reproductive age (15-49) are thin while 18.7% are overweight. The statistics also shows that 77.6% of newborns were below normal weight at birth, which is influenced by the nutrient intake of mothers. Spatial comparisons show that the highest stunting rates occur in coastal areas (31%), Rift Valley and Eastern region (30% each). At the county level, KDHS 2014 reveals that West Pokot and Kitui have the highest proportions of stunted children (46% each). Other Counties reporting high proportions of stunting include Kilifi (39%), Mandera (36%) and Bomet (36%).

### 1.5.3 Status of Food Fortification in Kenya

In general, food fortification in Kenya is an ongoing programme. The number of industries taking part in mandatory fortification has been steadily increasing over the last decade. Data from KEBS shows that by mid-2017, there were 24 wheat millers estimated to be fortifying 80% of wheat flour in the market, three large-scale salt producers and a number of salt packers iodizing salt (**Table 1**). The Kenya Demographic and Health Survey (KDHS) of 2014 showed that 99.9% of all table salt is iodized. In effect, the target for salt iodization has been achieved. There are 14 registered vegetable oil processors estimated to be fortifying about 87% of vegetable oil, while 47 maize millers registered are fortifying 37% of the maize flour consumed in Kenya.

**Table 1: Status of Food Fortification in Kenya**

S.No	Food Vehicles	Number of registered companies fortifying	Percentage market share of fortified products (KEBS 2017)	Annual production in (MT)	Reference for production data
1	Salt	3	99.9%	300,000	KEBS, 2017
2	Vegetable oil and fats	14	87%	190,054	MoH/GAIN, 2015
3	Wheat flour	24	80%	789,474	MoH/GAIN, 2015
4	Maize flour	47	37%	1,052,632	MoH/GAIN, 2015

According to a recent MoH market surveillance report, which was conducted by KEBs and the Food Safety Unit, compliance to food fortification standards is low in the six Counties that were sampled (MoH 2017). According to that survey, less than half (38%) of the salt samples complied with the national standard/East African standard of 50 – 84mg/kg, while 17% and 27% of the samples were



below and above the East African Community (EAC) regulatory level respectively. In maize flour, the highest level of vitamin A was 0.8mg/kg with only 23% of the samples complying with regulatory levels of 0.5 – 1.4mg/kg. All maize samples had detectable levels of zinc with 34% of the samples complying with the EAC regulatory level of 33 – 65mg/kg. Almost half of the samples (46%) have fortification levels below the standard. In milled maize meal, fortification with iron had the highest percentage of compliance of 49%, with only 17% of the samples having fortification levels below the standard of 21 – 41mg/kg total iron. Of the 177 maize samples only 16% samples complied with the regulatory provisions for both zinc and vitamin A, while 5% and 12% showed compliance to both iron and vitamin A, and zinc and iron requirements respectively. Only 2% of samples showed compliance to the provisions of all the regulatory requirements for all the three fortificants. This points to poor compliance to standards for maize meal.

In the case of wheat flour, all the samples had detectable levels of zinc with the least being 5.98mg/kg and highest 104.40mg/kg. However, only 27% complied with EAC regulatory level Standard of 40 – 80mg/kg and more than half of the samples (65%) had zinc levels below the minimum regulatory level of 40 mg/Kg for zinc in fortified milled wheat products. Almost all the wheat samples (97%) showed compliance with EAC regulatory level standard of not less than 20mg/kg total iron. In general, only 27% of the wheat samples complied with the legal provisions for both zinc and iron. Comparison for the iron and vitamin A; zinc and vitamin A; zinc, iron and vitamin A levels showed compliance of 18% for either of the combinations. Generally, it can be concluded that compliance to food fortification standards in Kenya is poor – and in some cases worrying. There is an urgent need to strengthen the ongoing food fortification initiatives if the gains obtained in the last 10 years are to be sustained. To do this effectively, information on the exact tonnage of fortified food produced in Kenya is needed. Differentiation between large-, medium- and small-scale industries in terms of compliance to fortification standards is needed in order to develop strategies that resonate with every industrial cluster. This should be twinned with increased consumer awareness. To date, there are fragmented efforts to increase consumer awareness. This needs to be well coordinated for increased consumer awareness and better health.

## 1.6 The Structure of the Plan

The strategic plan starts with an executive summary. **Chapter 1** provides background information of the strategic plan which includes the goals and objectives, as well as the current situation of food fortification. **Chapter 2** presents information on the strengths, weaknesses, opportunities and threats

<sup>1</sup> The members of the KNFFA include Ministry of Health (Nutrition and Dietetic Unit, National Public Health Laboratory, Food Safety Unit), Kenya Bureau of Standards, Kenya Medical Research Institute, the industry representatives, development partners (GAIN, Nutrition International, UNICEF, Technoserve, USAID and WFP) and consumer organizations.



to food fortification. It also highlights the key roles of stakeholders involved in food fortification. **Chapter 3** is the core of the strategic plan; it presents the detailed strategies towards attainment of outputs. Each strategy is described using a set of interventions. **Chapter 4** highlights the institutional arrangement for implementing the strategy, assigning responsibilities to critical stakeholders according to their stake in fortification. The funding modalities and summary of the five-year budget is presented in **Chapter 5**. **Chapter 6** discusses the proposed monitoring and evaluation mechanisms while **Chapter 7** has brief concluding remarks. The detailed action plans, budgets and monitoring and evaluation frameworks are presented in the **Annex**.



## CHAPTER 2

### INTERNAL AND EXTERNAL CONTEXT

This chapter will look at the strengths, weaknesses, opportunities and threats (SWOT) for implementing food fortification in Kenya. It will start by evaluating the internal environment to identify the strengths and weaknesses before looking for possible opportunities and threats. Offensive strategies will be defined by combining strengths and opportunities, while matching weaknesses with threats will help in defining defensive strategies.

#### 2.1 Internal environment (Strengths and Weaknesses Analysis)

While assessing the internal environment within the food fortification programme cycle management, the strategic planning process identified several strengths that the plan can build on and weaknesses that need to be addressed to improve performance. These were identified through stakeholder interviews and focus group discussions.

##### 2.1.1 Strengths

###### *Conducive policy environment for fortification*

The government has created a conducive policy environment for mandatory food fortification. The relevant legal framework for food fortification has been put in place for use by the private sector and other players. Salt iodization became mandatory in 1978. In 2012, mandatory fortification of wheat flour, maize flour and edible oil and fats was enacted (CAP 254, Notice No 62) and the law was amended in 2015 to include standards. In 2012, Kenya adopted the East Africa Community (EAC) fortification quality standards for wheat flour, maize flour and vegetable oil and fats, which are being used to date.

###### *A multi-sectoral coordination organization established*

A multi-sectoral coordination mechanism was developed with the creation of Kenya National Food



Fortification Alliance (KNFFA) in 2006. KNFFA is comprised of diverse public and private sector agencies and development partner representatives.<sup>2</sup>The KNFFA is instrumental in coordinating the fortification activities for all the food vehicles including wheat and maize flour, salt, cooking oils and fats, sugar and other fortified foods. It provides guidance and advisory services during development and revision of standards.

### ***Operational manuals for market monitoring and technical fortification handbook for industries developed***

Guidelines for market level monitoring of salt, wheat flour, maize flour and oils and fats were developed in 2010 and reviewed in 2013. The market monitoring protocols standardized the process of collecting samples, testing and reporting. Commercial monitoring is done by the Food Safety Unit (FSU), National Public Health Laboratory (NPHL) and County Governments. In addition to the guides, a technical handbook for fortification was produced for use by industries and industry inspectors in fortification.

### ***Adoption of fortification by industries***

Food industries actively participated in the design and development of the regulations for food fortification thus making it easy for them to appreciate and adopt fortification. The industries are willing to cooperate with other partners. Some of the industries have invested their own resources in procurement of fortification equipment, human resource development and procurement of premix. This has created jobs for many Kenyans. Industries have also integrated social marketing in their commercial marketing strategy by adopting fortification logo on packaging materials.

### ***Technical and logistical capacity of national public officers to support fortification enhanced***

Existing institutions such as KEBS, NPHL, FSU and NDU have very clear mandates for food fortification. The technical and laboratory capacity of KEBS has been strengthened and staff members are constantly trained to undertake industry level inspection and audits. Industry monitoring has now been integrated into KEBS internal procedures and activity budgets. The staff of NPHL, FSU and NDU have been trained. Modern laboratory equipment has been installed at NPHL to effectively undertake market monitoring and household assessments.

### ***Quality Assurance and Quality Control (QA/QC) procedures at industry levels developed***

MoH and KEBS developed training modules for quality assurance and quality control (QA/QC) at the

<sup>1</sup>The members of the KNFFA include Ministry of Health (Nutrition and Dietetic Unit, National Public Health Laboratory, Food Safety Unit), Kenya Bureau of Standards, Kenya Medical Research Institute, the industry representatives, development partners (GAIN, Nutrition International, UNICEF, Technoserve, USAID and WFP) and consumer organizations



industrial level. Through the training provided to industry staff, the majority of the trained industries have established standard operating procedures for internal QA/QC. Records of food fortification, premix supplies and usage, laboratory tests and analysis reports are available in some of the industries.

### ***Presence of premix suppliers***

Registration of premix suppliers is done annually by NDU with support from KEBS. Guidelines for importation of premix have been developed to check and certify premix consignments. Three different certificates are issued: certificate of analysis, certificate of country of origin and certificate of “conformity” to Kenya standards. Premix quality is controlled by assessing and certifying suppliers annually.

### ***Success in salt iodization***

Successful salt iodization provides a point of reference to leverage fortification efforts in flours and vegetable oils and fats. There is a shared belief that it is possible to manage micronutrient deficiencies through fortification, which increases the motivation to invest more resources in the food fortification.

### ***The participation of private sector organizations in fortification***

Most of the fortifying industries belong to one or more of organizations such as producers’ associations, national manufacturers associations, etc. Increased engagement of private sector bodies provides facilitative institutional environment within which individual industries can fortify their food products. The associations are reference point for acquisition of capital and can undertake joint procurement of equipment and premixes.

### ***Active participation of knowledge institutions***

The interest and involvement of universities such as Jomo Kenyatta University of Agriculture and Technology (JKUAT) has provided the technical expertise required to undertake research and to develop innovative technologies and/or models that can be adopted or scaled up by food industries.

### ***Monitoring and Evaluation (M&E) strategy and reporting system in place***

The KNFFA developed a monitoring and evaluation (M&E) framework for food fortification for the period 2014-2017. The M&E framework contains relevant monitoring indicators for all aspects of fortification. In addition, a data collection and management systems were developed and a database set at MoH-NDU. Baseline data for fortification was obtained through the Kenya National Micronutrient



Survey conducted in 2011, which provided information used to develop this strategic plan.

### **2.1.2 Weaknesses**

#### ***Slow adoption of fortification by small and medium scale millers***

Although the law requires all industries producing the selected food vehicle to fortify, not all of them are fortifying. Small and medium scale maize millers encounter difficulties in accessing appropriate fortification technologies. Most of the equipment is imported and there are no local fabricators for specific parts of equipment except in few cases. Small and medium scale industries – particularly in maize milling – have inadequate knowledge and skills for implementing food fortification. However, the small and medium scale industries have a large consumer base. The law provides only for fortification of packaged flour, yet most of the small industries do not package their flour. This means that there is need for strengthening enforcement if the law is to be effective.

#### ***Weak enforcement of the standards and regulations***

The law requires all industries producing the selected food vehicles to fortify regardless of the operational and logistical capacity of the industries. However, enforcement of the law has been weak, which has led to low levels of compliance. As well, there are unfortified food brands on the markets that are competing with fortified brands.

#### ***Low consumer awareness and demand for fortified food***

Inadequate consumer knowledge and awareness on fortified foods is one of the core constraints facing food fortification. Consumers generally do not understand what the food fortification logo communicates, and they do not associate the food fortification logo with improved nutrient content.

#### ***Low levels of compliance despite existing QA/QC systems at industry level***

High turnover of trained staff and weak enforcement of the legislation by public health officers have been identified as causes of the inconsistencies in meeting quality standards by the industries. As well, there are a few specialized private sector players who undertake training on QA/QC. Where available, the training package is expensive. However, some of the equipment suppliers and premix suppliers offer after-sales service.





### ***Inadequate government financing of fortification programme***

There is limited funding from the government to plan and implement food fortification in Kenya. KNFFA activities and food fortification programmes are largely financed by development partners. The inadequate public financing for fortification activities has made food fortification more of a donor-driven project than a national government programme.

### ***Limited involvement of County government in market inspection and surveillance***

County governments' participation in market monitoring has been limited to salt iodization but has not been extended to flours and oil/fats. Fortification has largely been the national government agenda with limited or no devolved units. The structure of KNFFA does not provide for County government participation. As well, Counties have weak capacity for undertaking sampling, testing and analyzing fortified foods at the moment. In summary, County governments have not fully embraced fortification as part of their development agenda.

### ***Delays in generating information from the M&E database***

Stakeholders observed delays in collecting, analyzing, monitoring and evaluation of data from the Ministry of Health, Nutrition and Dietetics Unit (NDU) database. This limits the amount of the available data to stakeholders. Apart from household salt consumption monitoring, there has been no household consumption monitoring for other food vehicles.

## **2.2 External Environment (Opportunity and Threat Analysis)**

Fortification is undertaken in an external environment where there are several opportunities to take advantage of, and threats to guard against. These opportunities and threats will both contribute to enhancements and challenges in the food fortification programme operations.

### **2.2.1 Opportunities**

#### ***Support from the East African Community (EAC)***

Kenya and other member countries of the East African Community (EAC) have received technical support from the Community through the ECSA-HC. The EAC partners enacted an East African Standardization, Quality Assurance, Metrology and Testing Act (EAC SQMT Act 2006) to make provisions for ensuring standardization, quality assurance, metrology and testing of products produced in or originating from a third country, as well as trades in the community, in order to





facilitate industrial development and trade. This also targets helping to protect the health and safety of the society and the environment in the community. Kenya has adopted the EAC standards for food fortification, like other member countries. On the other hand, ECSA has developed technical manuals and protocols for regulatory monitoring at all levels, which have been contextualized by Kenya for use in market levels monitoring.

### ***Technical and financial resources from donors***

To date, technical and financial support from development partners against the backdrop of limited direct funding from the government has helped to sustain fortification initiatives. KNFFA thrives mostly on development project funding from external donors. Food fortification activities are influenced by donor interest and the funding timelines. The plan is to continue to solicit financial and technical support from development partners while exploring avenues for entrenching food fortification within the national government budget.

### ***Existing mandatory food fortification environment in neighbouring countries***

All member countries of the EAC except Burundi have mandatory legislation and standards for food fortification. With the increased trade of food commodities, including fortified foods, most of the countries in the East African region and in the larger Africa have initiated national programmes on oil fortification with vitamin A, as well as the fortification of wheat flour and maize flour with iron, zinc, folic acid, niacin, vitamin B<sub>1</sub> and B<sub>12</sub> and vitamin A. This removes the trade barriers between the countries on fortified food commodities as standards are harmonized.

### ***Devolution of health care delivery to county governments***

The creation of County Governments and structures that reach down to the households and health facilities provides avenues to reach communities with fortification messages in all parts of the country. These structures will be instrumental for strengthening market and household surveillance and any consumer studies.

## **2.2.2 Threats**

### ***Dependence on imports of raw materials***

The local production of wheat and maize grain does not meet the population's domestic need. There has been a decline in local production of maize and wheat grains over the last three to four years due to climate change, pests and diseases. This is driving grain prices upwards, which increases



production costs as well as the cost of flour. More maize and wheat grains are being imported to fill the gap. Most of the vegetable oil and fats are derived from imported raw materials. This increases the final product price.

### ***Importation of cheap unfortified brands***

Weak border controls exacerbated by porous borders aid informal importation of cheap unfortified wheat flour and oil/fats brands that compete with fortified foods on the local market.

### ***Limited access to fortification technology for small millers***

Difficulties in accessing dossers that are compatible with hammer mills limits scaling up efforts on food fortification. Hammer mills are very popular in rural areas. Besides access of dossers, most of the small-scale millers produce in small batches at a fee and there are no technologies for dossing. Access to, and distribution of, premixes is also a challenge.

### ***Devolution of functions to county governments***

The devolved system of government gives the county governments the responsibility of provision of health and social services. Devolution presents many opportunities to the fortification programme. This however, also comes with certain challenges, key among them, coordination of partners for the national food fortification programme.

## **2.3 Stakeholder Analysis**

This section highlights the key categories of stakeholders who have some level of control, influence and interest in all or specific aspects of food fortification in Kenya. They may act as individual organization or as groups/coalitions. A summary of information on the actors, their roles and responsibilities and the inter-relationship is provided (**Table 2**).



**Table 2: Key Stakeholders in Food Fortification in Kenya**

S.No	Actors	Roles/Responsibilities	Stake	How to Engage
1	National Government of Kenya	<ul style="list-style-type: none"> <li>Create an enabling environment for food fortification by food industries</li> <li>Allocate budget to promote food fortification</li> </ul>	<ul style="list-style-type: none"> <li>All residents in Kenya have access to adequate quality, nutritious and safe foods</li> <li>Healthy and productive population</li> </ul>	<ul style="list-style-type: none"> <li>Policy advocacy to ensure national ideals are incorporated into the development processes</li> <li>Resource allocation</li> </ul>
1.1	Ministry of Health - Nutrition and Dietetic Unit	<ul style="list-style-type: none"> <li>Coordinate networking and policy for nutrition and micronutrients.</li> <li>Secretariat to KNFFA</li> <li>Coordinate monitoring of fortified foods at household level</li> <li>Programme monitoring and evaluation</li> </ul>	<ul style="list-style-type: none"> <li>Fortification programmes and activities of the various actors in this country for the selected food vehicle are coordinated, harmonized and provided to the same standards</li> </ul>	<ul style="list-style-type: none"> <li>Lobbying and advocating for services for the poor and marginalized</li> <li>Nutrition education</li> <li>Information sharing</li> </ul>
1.2	Ministry of Health- National Public Health Laboratory	<ul style="list-style-type: none"> <li>Lab services to analyse all household and some market-based fortified food samples</li> <li>Serve as a reference lab to regional labs</li> <li>Provide technical support to regional labs</li> </ul>	<ul style="list-style-type: none"> <li>Ensure compliance of fortified foods at market and household levels to the required standards</li> <li>Quality test results</li> </ul>	<ul style="list-style-type: none"> <li>Lab analysis and reporting</li> </ul>
1.3	Ministry of Health - Food Safety Unit	<ul style="list-style-type: none"> <li>Enforce the Food, Drugs and Chemicals Substances Act Cap. 254 of the Laws of Kenya</li> <li>Market surveillance of fortified foods</li> </ul>	<ul style="list-style-type: none"> <li>Quality and safety of food consumed by the population</li> <li>Market compliance to regulations</li> </ul>	<ul style="list-style-type: none"> <li>Policy development and implementation levels</li> <li>Statutory body mandated by government to ensure food safety</li> </ul>
1.4	Kenya Medical Research Institute	<ul style="list-style-type: none"> <li>Analyze biomarkers for national surveys for impact assessment of interventions</li> <li>Facilitate scientific research and knowledge on micronutrients</li> </ul>	<ul style="list-style-type: none"> <li>Evidence-based planning and decision making</li> </ul>	<ul style="list-style-type: none"> <li>Adaptive research</li> <li>Impact monitoring levels</li> </ul>
1.5	Ministry of Industrialization - Kenya Bureau of Standards	<ul style="list-style-type: none"> <li>Develop and enforce national standards</li> <li>Offer testing services and help in creating awareness</li> <li>Carry out industry level surveillance of fortified foods</li> </ul>	<ul style="list-style-type: none"> <li>Compliance with standards</li> <li>Industry capacity for quality assurance and control</li> </ul>	<ul style="list-style-type: none"> <li>Policy development and implementation</li> <li>Regulatory levels</li> </ul>



S.No	Actors	Roles/Responsibilities	Stake	How to Engage
2	County Governments of Kenya	<ul style="list-style-type: none"> <li>Regulatory monitoring</li> <li>Impact assessment</li> <li>Create consumer awareness</li> <li>Monitor consumption</li> </ul>	<ul style="list-style-type: none"> <li>All residents in the county have access to appropriate services in various sectors</li> <li>Fortification programmes and activities in the country are coordinated, harmonized and provided to the same standards</li> </ul>	<ul style="list-style-type: none"> <li>Lobbying and advocating for services for the poor and marginalized</li> <li>Information sharing</li> </ul>
3	Private Sector/ Industry	<ul style="list-style-type: none"> <li>Produce and distribute adequately fortified foods to the consumers</li> <li>Mobilize resources to invest in fortification equipment, premixes and human resources</li> <li>Provide resources through corporate social responsibility programmes.</li> <li>Create consumer awareness</li> <li>Participate in the development of standards</li> </ul>	<ul style="list-style-type: none"> <li>Improving corporate image and making profit</li> </ul>	<ul style="list-style-type: none"> <li>Collaboration and partnerships in specific areas</li> <li>Resources mobilization for development work.</li> </ul>
4	Development Partners <ul style="list-style-type: none"> <li>Global Alliance for Improved Nutrition</li> <li>Nutrition International</li> <li>United Nations Children Education Funds</li> <li>Deutsche Gesellschaft für</li> </ul>	<ul style="list-style-type: none"> <li>Provide financial assistance to support food fortification, in particular for nutrition programmes broadly in the country</li> <li>Support the Government in capacity building of all the stakeholders</li> <li>Support the Government to undertake research in all aspects of fortification programme</li> <li>Support direct service delivery in various sectors including addressing acute malnutrition</li> <li>Support the Government in developing behaviour change communication messaging</li> </ul>	<ul style="list-style-type: none"> <li>The development assistance provided is put to good use by all recipients.</li> <li>All citizens of this country benefit from the development assistance provided.</li> </ul>	<ul style="list-style-type: none"> <li>Advocacy for policy change to include specific needs of the poor and marginalized</li> <li>Mobilization of resource for research and development work</li> <li>Establish partnership for coordination of fortification programmes</li> </ul>



S.No	Actors	Roles/Responsibilities	Stake	How to Engage
5	<p>Research and Training Institutions</p> <ul style="list-style-type: none"> <li>Jomo Kenyatta University of Agriculture and Technology</li> </ul>	<ul style="list-style-type: none"> <li>Technological innovations and trials</li> <li>Human resource development</li> <li>Biomarkers analysis/ impact surveys</li> </ul>	<ul style="list-style-type: none"> <li>Link academic research with practice to make knowledge generation demand driven and relevant</li> <li>Fortification programme is scientifically developed and assessed</li> </ul>	<ul style="list-style-type: none"> <li>Generation and dissemination of scientific knowledge</li> <li>Training stakeholders</li> <li>Technical backstopping for the industry and government</li> </ul>
6	<p>Civil Society Organizations</p> <ul style="list-style-type: none"> <li>NGOs</li> <li>CBOs</li> <li>Consumer Association</li> <li>Producer Associations</li> </ul>	<ul style="list-style-type: none"> <li>Community mobilization and education on the importance of fortification and benefits of consuming fortified foods</li> <li>Build capacities of counties, sub-counties and facilities to provide health education and messages on fortification to communities</li> <li>Undertake research and information management and documentation</li> </ul>	<ul style="list-style-type: none"> <li>Fortified foods reach and improve micronutrient uptake for the most vulnerable and marginalized groups and communities</li> <li>Empower communities to take charge of their nutritional status</li> </ul>	<ul style="list-style-type: none"> <li>Establish partnership for execution of programmes in all aspects of fortification</li> <li>Networking and information sharing with various actors</li> </ul>
7	Media	<ul style="list-style-type: none"> <li>Disseminate information</li> <li>Educate the population on benefits of consuming fortified foods</li> </ul>	<ul style="list-style-type: none"> <li>Informed and enlightened population that can appreciate fortified foods</li> <li>Informed and vibrant community that holds its leaders (at all levels) accountable for fortification</li> </ul>	<ul style="list-style-type: none"> <li>Strategic partnership in packaging and dissemination of the right information to the people</li> </ul>
8	Consumers	<ul style="list-style-type: none"> <li>Demand and consume fortified foods in the households, and in public and private institutions</li> </ul>	<ul style="list-style-type: none"> <li>Increased uptake of essential micronutrients</li> </ul>	<ul style="list-style-type: none"> <li>Consultation and inclusion in fortification programmes</li> </ul>



# CHAPTER 3

## THE STRATEGIES

### 3.1 Introduction

This chapter highlights in detail the strategies for achieving each output. The strategies are presented logically to ensure that every strategic objective is met. Overall, the chapter lays down the general progression of interventions that lead to outputs, the related outcomes and the projected impact at national level. More specifically, the Chapter has five strategic objectives/components that will be discussed with relevance to the key outputs and the respective interventions. A snapshot review of the activities is indicated in **Annex 1**.

### 3.2 Strategic Objectives

#### **3.2.1 Governance and Operations: To improve the enabling environment for food fortification by improving policy, leadership and governance for food fortification**

This objective addresses the problems associated with the policy, leadership and coordination environment. The government of Kenya has a Food and Nutrition Security Policy and a National Nutrition Action Plan. In both documents, food fortification has been identified as one of the key strategies for reducing micronutrient deficiencies. The Government of Kenya has also put in place the appropriate legal and regulatory frame work to implement food fortification. Food fortification standards have been developed and shared with the industry. However, enforcement of law is weak and the coordination between the National and County governments needs to be strengthened. Changes brought by devolution of health care services to Counties, for example, create new needs that require vertical coordination. The current KNFFA structure does not include County governments. KNFFA's roles and responsibilities must be revised to include devolved government functions.

Sustainability and stability of the national fortification programme is important if the desired impact will be obtained. Therefore, there is need for sustained financing of food fortification from the government and development partners. At the moment, government allocation to KEBS, FSU, NPHL, NDU and KEMRI is not adequate to implement the planned programme activities. Most of the fortification activities are mostly funded by development partners through projects. This is not



sustainable. There is need to develop a concrete resource mobilization strategy that includes funding from national government.

### **Output 3.2.1.1: Commitment by National and County governments to food fortification increased**

To achieve this objective, four key strategies are proposed and explained below:

#### ***Strategy 1: Food fortification advocacy to policy-makers at national and county level***

Sustainability of mandatory fortification can largely be achieved through increasing public financing to support fortification. Here there is need to advocate for inclusion of food fortification in the government medium-term expenditure framework and budgets. It also requires County governments to integrate fortification in their development plans and budgets.

#### **Planned Interventions**

- Develop policy briefs for high level national and county government leaders on the status of fortification and remedial action expected from government
- Conduct sensitization/advocacy meetings with policy-makers at the national and county level
- Incorporate fortification as an agenda in the devolved government functions and responsibilities
- Integrate fortification programme into the national government planning and budgeting framework

#### ***Strategy 2: Strengthen coordination of fortification programme at national and county level to make fortification inclusive and sustainable***

This strategy reviews the structure and mandates of the KNFFA taking into consideration the devolved governments. KNFFA will become a body with full mandate to plan and implement fortification programmes at national and county levels. It will strengthen coordination between National and County governments and with the respective private sector partners, more especially industry and consumer associations organizations. Capacity of fortification programme managers and leaders will be built to plan, implement and monitor programme performance.



### **Planned Interventions**

- Recruitment/renewal of membership in KNFFA to include other stakeholders
- Revise and disseminate Terms of References for KNFFA in line with its new mandate
- Get a gazette notice from the government to position KNFFA under the MoH as a statutory body for food fortification
- Develop operational work plan for KNFFA coordination and monitoring activities to be integrated into MoH-NDU plans and budgets
- Identify and strengthen relevant existing coordination mechanism at the county level

### ***Strategy 3: Enhance the policy environment for strengthening food fortification***

This strategy seeks to create an enabling environment for achieving the government's goal of reducing micronutrient related health burdens by using diverse food fortification routes. By reviewing the existing policies and developing actionable work plans, a level playing field will be created in which food industries will be supported to increase compliance to food fortification standards. Clear guidelines for implementing food fortification will be provided.

### **Planned Interventions**

- Review of the existing National Nutrition Action Plan (2012-2017)
- Develop the next National Nutrition Action Plan (2018- 2022) in which food fortification will be included
- Amend the existing legislations to address any foreseen gaps in food fortification
- Strengthen regulatory monitoring at industry and market levels

### ***Strategy 4: Widely disseminate information on food fortification standards and regulations to industries***

The strategy involves disseminating the mandatory food fortification regulations to all industries, especially those not yet fortifying. This will increase level of awareness of fortification regulation and standards among industries especially small and medium scale maize millers that do not fortify. The advocacy will clarify the misconceptions and fears on industrial food fortification and lay the groundwork to explore innovative ways to support small scale fortification.





### Planned Interventions

- Develop advocacy briefs targeting potential industries to fortify
- Conduct sensitization and awareness creation meetings with industry leaders on the benefits of fortification, regulations and standards

### 3.2.2 Production: To increase production of adequately fortified salt, maize flour, wheat flour and vegetable oil and fats

Although Kenya has already adopted mass fortification of salt, wheat flour, maize flour and vegetable oils and fats, there are still gaps that are food vehicle specific and that vary with the process employed. This strategic objective is associated with the quest for increasing the quantity of fortified salt, maize and wheat flours, vegetable oil and fats. With increased enforcement of food fortification, the number of compliant brands will increase at industry and market level and this will result in better health outcomes.

#### Output 3.2.2.1: Enhanced roduction of adequately fortified wheat flour, maize flour, vegetable oils and fats, and salt

##### *Strategy 1: Mapping of wheat flour, maize flour, oil and fats, and salt industries*

The industries involved in the production of the specific food vehicles will be profiled and mapped. This will include collection of information on the total number of industries that fortify their products, their installed and operation capacity, among others. This is vital for prudent planning and allocation of resources. As well, it will provide information to assess the progress so far made to ensure provision of fortified foods across the country.

### Planned Interventions

- Develop tools for assessing status of industries producing the selected foods
- Conduct a study to assess location, size and fortification status of industries producing wheat flour, maize flour and oil and fats and salt packers in Kenya
- Make fortification database to determine the quantity of fortified foods and amount of premix used at industry level in a given period of time



### ***Strategy 2: Build production capacity of industries to scale up food fortification***

The capacity to scale up the fortification initiative needs to be expanded beyond large scale industries. This means targeted enhancement of the capacity of small and medium scale industries. For those already fortifying, continuous capacity development of the production staff will be required to reduce the incidences of poor quality assurance and control. This will require sustainability strategies that will strengthen the companies to continue fortifying. For industries that are not fortifying, the strategy will include feasible options of integrating fortification in existing installations, followed by continuous improvement towards compliance. Short courses tailored towards enhancing the capacity of industry will be developed and delivered. To reduce high staff turnover experienced by most industries, the industries may need to finance capacity development for their own staff or create incentives to retain staff.

#### **Planned Interventions**

- Draft strategies for capacity improvement
- Develop curriculum/modules for training industry leaders and technical staff
- Conduct training of industry leaders and technical staff
- Support procurement, installation and maintenance of fortification equipment and premix

### ***Strategy 3: Research to develop innovative technologies and services that will allow industries to enhance their fortification programmes***

The long-term strategy to promote fortification by small, medium and large scale industries involved in food fortification should include creation of an enabling environment for food fortification. These could either be through provision of subsidies/tax waivers to acquire dossers, training of staff, and/or ensuring that the fortificants are accessible to all the players in the industry at every location in Kenya. Mechanisms will have to be built within the support to develop capacity of the industries to acquire subsequent batches of premix and equipment on their own. This will be done through innovative technical and business models. Advocacy to industry leaders to invest in acquisition and maintenance of technologies and sustainable premix procurement plans is needed.

#### **Planned Interventions**

- Conduct a study to profile existing technologies for small and medium scale maize flour millers



- Profile suppliers of premix and the local distribution networks
- Re-design existing technologies to make them adaptable by potential small and medium scale industries
- Design new technologies with the help of universities and research organizations
- Pilot testing of the improved technologies with selected small and medium scale maize millers
- Develop sensitization messages/manuals/advocacy briefs to industries and distributors of fortified foods
- Disseminate the innovative technologies to scale up fortification across the country
- Support to promote commercialization of developed technologies

### **3.2.3 Regulatory Monitoring: To strengthen regulatory monitoring of fortified foods at industry and market level**

This objective seeks to improve compliance to standards and regulation at the factory and commercial levels through improving internal QA/QC practices. It also aims to reduce or eliminate unfortified brands from the market.

#### **Output 3.2.3.1: Industry compliance to fortification regulation and standards increased**

##### ***Strategy 1: Build capacity of industries to comply with standards***

The existing training curriculum and operational handbook for industrial fortification for the different foods will be reviewed for use by industry managers and quality controllers. This will harmonize the processes, procedures, standards and product qualities across industries producing the same food product.

##### **Planned Interventions**

- Regular supervision and mentoring visits to industry managers and production staff
- Train industry players on developing and maintaining sustainable QA/QC systems
- Monitor the quality of premix along the supply chain from production to the dossier



### ***Strategy 2: Equip public health laboratories at national and regional levels to strengthen surveillance***

This strategic intervention takes into account the significant human and capital investment required for effective monitoring of the programme at the county level. The human resource, technical and logistical capacity of County health inspection and county nutrition departments to undertake effective surveillance will be assessed and enhanced. □ Training of police and the Judiciary to enhance enforcement of the mandatory regulation will be paramount. Of specific interest is increasing the number of testing sites by establishing regional laboratories. This decentralization of analytical centres will ensure speedy testing and dissemination of results to industries for any remedial actions.

- Planned Intervention Train NPHL staff on lab quality management systems
- Develop quality management tools for the national public health laboratory
- National public health laboratory assessment by external assessors
- ISO accreditation of the NPHL
- Train county regulatory officers such as public health officers, police officers and officers in the Judiciary
- Lobby County governments to strengthen enforcement by increasing financial allocation to departments that support fortification
- Establish public laboratory services at regional level to increase speed of analysis and reporting
- Strengthen the capacity of the public laboratories at the county through training of staff and establishing mini-labs at the county for quick checks with confirmatory tests to be done at the regional or national labs
- Sensitize traders and their organizations on fortification regulations and their roles and responsibilities in increasing access to fortified foods

### ***Strategy 3: Market inspection for selected food vehicles across the country***

Market inspection is the verification of legal compliance of fortified foods sold in retail supermarkets, markets, grocery stores, and wholesale stores. It also includes inspection at bakeries as a convenient sampling site for fortified foods – namely, salt, sugar, flour and oil. This monitoring allows for the



detection in the market of brands that are not approved by the Ministry of Health or do not comply with fortification regulations. It also helps to confirm whether brands that have previously been inspected in factories and importation sites are indeed fulfilling the requirements as claimed by inspectors during the external monitoring process.

### **Planned Interventions**

- Compile compliance data/records from routine market surveillance
- Conduct market surveillance to determine level of compliance for each food vehicle
- Share information on compliance levels with relevant stakeholders

### **3.2.4 Consumer Awareness and Demand Creation: To increase demand and consumption of adequately fortified foods**

This objective addresses the current low levels of awareness and knowledge on fortification among the population. It aims to integrate social mobilization, education and advocacy activities in the relevant government programmes and align messages with other public health information systems.

#### **Output 3.2.4.1: Awareness of food fortification among the general population improved**

##### ***Strategy 1: Assess the level of knowledge, attitudes and practices of the population towards fortification***

Fortification programme managers will have data on the level of knowledge, attitudes and practices. This will help in preparing social marketing messages relevant for each target group.

##### **Planned Intervention**

- Develop tools for determining knowledge, attitudes and practices of the population on food fortification
- Conduct a study to establish Knowledge, Attitudes and Practices on purchase and consumption of fortified foods

##### ***Strategy 2: Strengthen social marketing and behavioural change among the population.***

After assessing the knowledge gap, the next strategy is to increase consumer knowledge and awareness on fortification. This is aimed toward increasing demand for fortified foods across the country. The current social mobilization and communication strategy for food fortification will be reviewed to cover all selected food vehicles.



## Planned Interventions

- Review the current social marketing and behavioural change strategy for progress challenges and lessons learned in fortification over the years
- Develop and review existing IEC materials on food fortification to incorporate emerging issues
- Disseminate the IEC materials and social marketing strategies across the county
- Organize promotional activities for fortified foods
- Hold advocacy and awareness creation meeting with consumer associations to include messages on benefits of fortified foods to their members
- Identify champions to promote knowledge and consumption of fortified foods

### 3.2.5. Consumption Monitoring and Impact Evaluation: To monitor and evaluate food fortification programme performance at industry, market and household levels

This objective addresses lack of consistent monitoring mechanisms on the availability and use of fortified foods. Since scaling up of fortification from salt iodization to flours (maize, wheat) and vegetable oils and fats began a decade ago, there was only one national micronutrient survey undertaken in 2011 as a baseline study. This objective is geared towards frequent monitoring at industry, market and household level to assess the effectiveness of the food fortification programme. The provision, utilization and coverage of fortified foods will be used as an indicator of success/failure of the programme. Impact will be evaluated using a National Micronutrient Survey.

#### Output 3.2.5.1: Programme effectiveness and consumption of fortified foods at household level assessed

##### *Strategy 1: Regular monitoring of programme effectiveness*

This is to ascertain whether or not the objectives of the strategic plan are being achieved. To ensure that the planned impact is achieved, the programme operational performance must be monitored. This is best achieved through a system of continuous data collection at key delivery points. It helps to redirect goals and objectives if programme is reported out of track. This will help to inform the re-design and planning of the programme, resource allocation and – if necessary – review of supporting policies and regulations.



- Planned Interventions Research, documentation and application of new technologies
- Monthly data collection on production and use of fortificants and premixes by each of the food vehicles
- Revise of the monitoring and evaluation (M&E) framework for food fortification
- Annual review of the strategic plan, interventions and budgets

***Strategy 2: Periodic monitoring household consumption of fortified foods***

This strategy deals with measuring the provision, coverage and consumption of fortified foods among the population. It calls for regular research and surveillance to generate reliable evidence on consumption of fortified foods. It answers the question of accessibility, quality, purchase and sufficiency of consumption of fortified foods. All of the related evaluation activities should provide feedback to the national stakeholder for review and remedial action.

**Planned Interventions**

- Conduct monitoring of consumption of quality fortified foods at household levels
- Develop and include fortification specific assessment indicators such as consumption indicators in DHS
- Periodic accurate updating of the food fortification database by all stakeholders
- Analyze reports of monitoring, testing and food fortification in the database



# CHAPTER 4

## INSTITUTIONAL ARRANGEMENTS FOR IMPLEMENTATION

### 4.1 Introduction

This chapter discusses fortification programme management and coordination to achieve a sustained reduction of micronutrient deficiency prevalence in Kenya. KNFFA has played – and will continue to play – a pivotal role in coordinating fortification programme activities. Currently, the main stakeholders of KNFFA include the MoH, private sector (PS) players, universities and development partners (DPs). KNFFA is currently chaired by the private sector with NDU acting as secretariat.

The complex nature of fortification requires multi-sectoral and multi-level coordination approaches, of which KNFFA and NDU in particular have a significant role to play. The design of the KNFFA multi-sectoral framework recognized this critical need. It then made elaborate provision for coordination arrangements between and within sectors through the choice of the steering committee members, organizing regular meetings and sharing of activity reports.

Another complexity in fortification programme management is that certain responsibilities for delivering outputs are often shared among more than one institution. This increases the need for synergy and collaboration to avoid duplication of efforts and resources. In this situation, a specific level of coordination is required which should be provided at the National and/or County governments. Part of the problem with coordination is the unclear functional relationship between the KNFFA and the County governments, since KNFFA was formed before devolution took place. The structure of KNFFA, therefore, does not take care of the County governments. However, it is important to note that counties can make big contributions in scaling up fortification and enhancing surveillance not only at the market levels, but also at small-scale producers/distributors in remote parts of the country where KEBS may not have regular visits.

### 4.2 The Structure for Fortification Programme Coordination

In the context of the mandatory food fortification programme and devolution, Kenya requires an agency that can coordinate national level initiatives and link with county level stakeholders. A review of KNFFA structure by stakeholders is on-going. The structure in **Figure 1** below presents a new structure to coordinate food fortification in the country. It aims to involve stakeholders who have direct influence or are directly affected by fortification interventions. It is also takes into consideration the new mandate of KNFFA as envisioned in the strategic plan.





The industries have been represented in the KNFFA by large-scale millers who may not necessarily represent the interests of all industries including medium and small scale producers. To be inclusive, it is proposed that the representation should be expanded such that an association of medium and small scale industries should be included KNFFA. Where associations do not exist, the programme should support their formation and functionality. The absence of consumer groups or consumer protection organizations in the food fortification programme is noteworthy. The proposed structure provides for consumer associations to be represented on KNFFA to address issues related to consumption and demand.

It will also help development partners to work easily with County governments. County governments are foreseen to form the new frontline for combating and preventing malnutrition in Kenya.

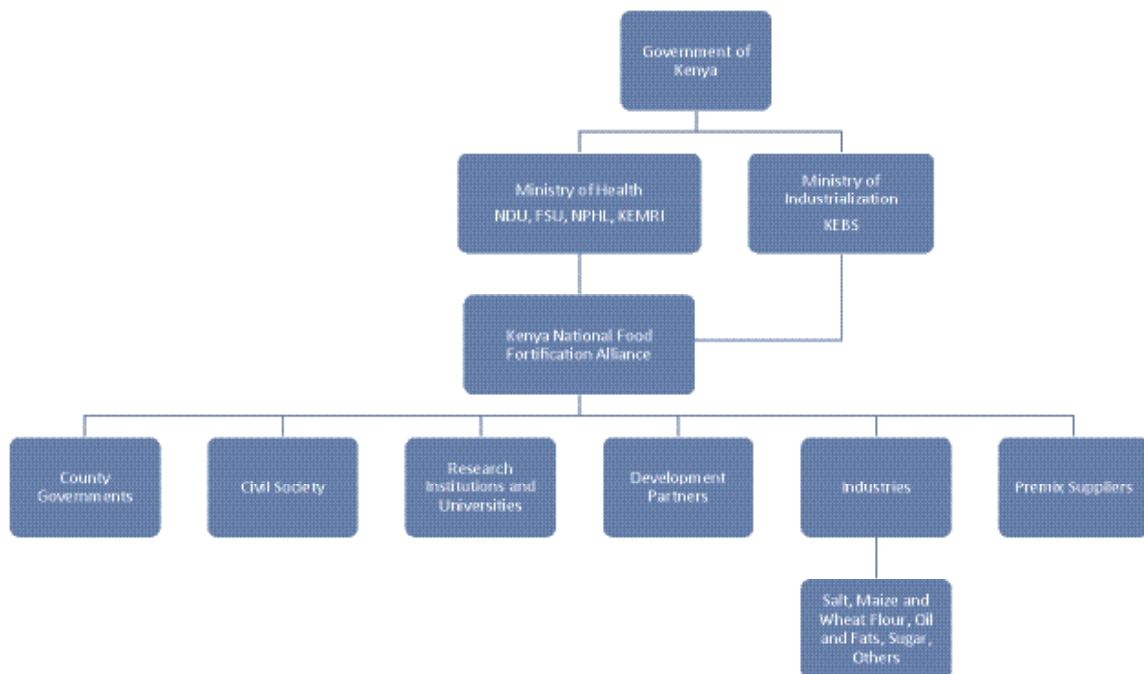


Figure 1. Proposed Governance and Operational Structure for Food Fortification in Kenya



## CHAPTER 5

### FUNDING MODALITIES

It is envisaged that the strategy will be financed through contributions from government, private sector, and development partners. Industries producing fortified foods will invest additional resources in acquisition of fortification equipment and the related operational technology, procurement of fortificants/premix, training staff and laboratory analysis. These costs are often transferred to consumers in terms of the end product price. To accelerate the process of fortification, seed capital investment and recurrent cost can be provided to most of the small and medium industries as incentives to fortify. It has been demonstrated that investment in fortification represents a very small rise in price of fortified foods under normal economic conditions. The per capita cost of fortification to consumers is affordable. The total budget for financing the five-year strategic considering all the key food vehicles is estimated to be **KES 905,230,305**. This has been summarized in **Table 3** below, and the specific details can be found in **Annex 2**.

Most of the ongoing activities in food fortification are funded by development partners. This includes activities such as building capacity of public officers, supporting industries with dossier acquisition, sample analysis and premix acquisition. Going forward, it is suggested that the government of Kenya should increasingly allocate funds for fortification programme. This will lead to sustainability of the programme and address all the gaps facing food fortification. For this to be successful, there should be increased lobbying and advocacy for increasing budget support for food fortification programmes from National and County governments. With the devolution of responsibilities and resources for health care delivery to County Governments, the County budgets and plans for fortification and nutrition generally are expected to increase. This will facilitate a more holistic approach to food fortification programming.

It is also recognized that financing part of the action plans through resources from development partners will continue to be important to scale up fortification and address some of the critical bottlenecks identified in the strategic plan. Such expenditure may include subsidies to small and medium scale millers to procure dossiers and premixes, and to train staff. The government will continue to take advantage of the existing initiatives by development partners to support food fortification. Some of the key development partners include Nutrition International, the European Union, USAID, UNICEF, GIZ and World Food Programme. The key implementing partners for some of the ongoing initiatives include JKUAT, Technoserve, the Nutrition and Dietetic Unit of the Ministry of Health, and KEBs, among others. Other potential global and regional funding opportunities will be sought through coordination with KNFFA.

**Table 3: Five-Year Budget Summary by Component**

Code	Components	Budget Estimates in KES x 1000					
		2018	2019	2020	2021	2022	Total
1	Governance and operations	43,036	32,968	33,325	33,067	33,460	175,855
2	Production	37,180	28,203	18,588	13,729	14,416	112,116
3	Regulatory monitoring	78,880	74,424	78,645	79,408	91,248	402,605
4	Consumer awareness and demand creation	34,292	5,494	19,042	6,057	23,072	87,955
5	Consumption monitoring and impact evaluation	23,764	22,968	25,990	25,322	28,654	126,698
<b>Total</b>		<b>217,152</b>	<b>164,056</b>	<b>175,590</b>	<b>157,583</b>	<b>190,850</b>	<b>905,230</b>



## CHAPTER 6

### MONITORING AND EVALUATION FRAMEWORK

This strategic plan will be implemented using a process approach. This means that at any single moment, care will be taken to assess the impact of fortification on the target population. A participatory performance assessment approach will be used to assess the progress of the fortification programme interventions. A detailed Monitoring and Evaluation framework which is aligned to this strategic plan has been developed (**Annex 3**).

Monitoring and Evaluation will be done using the Logical Framework Approach where SMART indicators have been developed at each of the specific objective level. On the basis of this framework, monthly or quarterly monitoring reports will be prepared by the MoH-NDU and the relevant stakeholders. These will form the basis for conducting annual reviews and providing corrective action. More specifically, lessons learned from the experiences (achievements and challenges) of the different stakeholders will be documented. The lessons learned will feed into the annual operational plans prepared by KNFFA for the subsequent years. On this basis, the strategic plan will be continuously reviewed in line with the programme environment and implementation dynamics. This will require an “action-learning-planning” approach so that new ideas and lessons are incorporated into the plan as and when they occur.

A more detailed review of the plan will be done during the third year (mid-term output to purpose review) and the outcome will inform programme activities for the rest of the strategic plan period. An evaluation will be done at the end of the five-year period to assess the overall impact of the plan. This will be a learning process for the stakeholders and lessons will feed into subsequent strategic planning processes.

Sustainability has been built into the overall strategy as the focus is on removing barriers to fortification interventions. Existing structures of coordination at the national and county levels have been reviewed to make them more efficient, able to include more stakeholders and mainstream food fortification into government programming and budgeting. When the leaders and structures – from the village level to the ministry level – are strengthened, they will not only be more efficient in delivering services, but will also help to sustain the outcomes (positive results) of the interventions undertaken. Ultimately, it should be cheaper and more sustainable to deliver fortified foods to the population across the country.



# CHAPTER 7

## CONCLUSIONS AND RECOMMENDATIONS

### 7.1 Conclusions

The NFFSP (2018-2022) is an inclusive framework for increasing the production, trade and consumption of fortified foods in order to reduce vulnerability to micronutrient deficiencies in Kenya. The thrust of the strategic plan is to establish an ongoing process making fortification an integral part of the daily routine for the industry and the public sector. It has recognized the complex nature food fortification that requires a multi-sectoral approach (inclusion of private sector, public sector and development partners) if the gains in food fortification are to be scaled up and sustainable.

The strategic plan has also developed costed action plans to set areas of priority for government, private sector and development partners. The strategic plan aims at firmly positioning food fortification on the government developmental agenda to effectively commit resources towards implementation. In this sense, the government will advocate for a significant and predictable increase in national budgetary allocation to support sustainable implementation at all levels with a well-rooted coordination and management structure. This will result in the intended outputs, outcomes and eventually the desired impact.

### 7.2 Recommendations

To ensure that all stakeholders are on the course in implementation of the strategic plan and that the strategic plan remains largely relevant to the programme, it must be reviewed at the mid-point and end-point of the plan. Based on the experiences and lessons learned, a new NFFSP must be developed after every five years.

The strategic plan also provides a framework for developing different programmes in line with the strategic objectives. This can further be cascaded per each of the food vehicles. The food vehicles can be expanded to include other important foods like sugar. Each programme can have a number of projects that are related to the key result areas. On this basis, the programmes and projects may be implemented by a variety of actors or stakeholders in the community and can be acted upon by individual stakeholders or in collaboration with the other stakeholders and/or government.

The need to solicit sustained financing from government and partners for planning, implementation and monitoring of programme activities cannot be overemphasized.



### Annex 1: Draft National Food Fortification Activity Plan 2018-2022

SN	Output Indicators	Planned Activities	Target				Level	Lead Agency	Others
			2018	2019	2020	2021			
<b>Strategic Objective 1: To improve the policy environment for food fortification in Kenya</b>									
<b>Specific Objective 1.1: To advocate for food fortification to policy-makers at national and county level</b>									
1.1.1	Number of policy briefs developed	Development of policy briefs	1	0	1	0	1	National/ County	MoH  Devt. Partners
1.1.2	Number of sensitization/ advocacy meetings held	□ Conduct sensitization/ advocacy meetings with policy maker at the national and county level	1	1	1	1	1	National/ County	MoH  Devt. Partners
<b>Specific Objective 1.2: To strengthen coordination mechanism within government at the national and county levels</b>									
□ 1.2.1	Number of newly recruited members within the 5 years	Recruitment/renewal of membership in KNFFA	5	3	2	1	1	National	MoH, KNFFA  Devt. Partners
1.2.2	Number of meeting held	Quarterly meetings of the KNFFA	4	4	4	4	4	National	MoH, KNFFA  Devt. Partners
1.2.3	Number of amendments	Revision of KNFFA Terms of References and dissemination	1	0	0	0	0	National	MoH, KNFFA  Devt. Partners
1.2.4	Number of workplans developed	Develop work plan for KNFFA	1	1	1	1	1	National	MoH, KNFFA  Devt. Partners

SN	Output Indicators	Planned Activities	Target				Level	Lead Agency	Others
			2018	2019	2020	2021			
1.2.5	Number of mechanisms	Identification of the relevant existing coordination mechanisms at the county level	1	0	0	0	0	MoH, KNFFA	County Gov'ts
1.2.6	Number of countries with budget allocation for food fortification	Incorporate fortification as an agenda in the county team Terms of References and workplan	15	15	10	7	0	MoH, KNFFA	Devt. Partners
<b>Specific Objective 1.3: To increase level of knowledge and awareness of the policy environment to industries</b>									
1.3.1	Number of briefs developed	Development of information and communication briefs for industries	1	0	1	0	1	MoH	KEBS
1.3.2	Number of sensitization meetings	Holding sensitization and awareness creation meetings with industry leaders	5	5	5	5	5	MoH	KEBS
<b>Strategic Objective 2: To increase production of adequately fortified salt, maize flour, wheat flour and oil and fats</b>									
<b>Specific Objective 2.1: To ascertain the status and operational capacity gaps of all producers of wheat flour, maize flour, salt and edible oil and fats</b>									
2.1.1	Number of industries (by food vehicle) assessed	Study to assess the status and operational capacity of industries (large and small): <ul style="list-style-type: none"> <li>Develop tools for study</li> <li>Pre-test of tools</li> <li>Data collection and analysis</li> </ul>	1	0	0	0	0	MoH	Devt. Partners



SN	Output Indicators	Planned Activities	Target					Level	Lead Agency	Others
			2018	2019	2020	2021	2022			
<b>Specific Objective 2.2: To enhance human and infrastructure capacity of small and medium scale producers</b>										
2.2.1	Number of industries with capacity needs identified	Capacity building needs assessment of industries producing selected food vehicles	1	1	1	1	1	National/ County	MoH and Partners	Devt. Partners
2.2.2	Number of raining modules developed	Develop training curriculum/modules	1	0	0	0	0	National/ County	MoH and Partners	Devt. Partners
2.2.3	Number of industries and workers trained	Conduct training of industry staff and leaders	1	1	1	1	1	National / County	MoH and Partners	Devt. Partners
2.2.4	Number of feedbacks and follows ups	Receive feedback/follow ups on training for industry staff	1	0	1		1	National / County	MoH and Partners	Devt. Partners
2.2.5	Number of equipment and infrastructural changes installed	Procurement, installation and commissioning of equipment to subsidize inputs for industries	1	1	1	1	1	National / County	MoH and Partners	Devt. Partners
<b>Specific Objective 2.3: To improve the fortification technology for small and medium scale millers</b>										
2.3.1	Number of existing food fortification technologies	Profile existing fortification technologies to make them accessible to producers	1	0	0	0	0	National	MoH/ Partners	Devt. Partners
2.3.2	Number of technological improvements in design	Re-design existing technologies	1	1	1	1	1	National	MoH/ Partners	Devt. Partners
2.3.3	Number of new technologies designed	Design new technologies	1	1	1	1	1	National	MoH/ Partners	Devt. Partners





SN	Output Indicators	Planned Activities	Target				Level	Lead Agency	Others
			2018	2019	2020	2021			
2.3.4	Number of pilot tests conducted	Pilot testing of the improved technologies	1	1	1	1	National	MoH/ Partners	Devt. Partners
<b>Specific Objective 2.4: To improve mechanisms for increased adoption and commercialization of the technologies</b>									
2.4.1	Number of dissemination/ sensitization events Number of policy briefs developed	Develop sensitization messages/manuals/ advocacy policy briefs	1	0	1	1	National	MoH/ Partners	Devt. Partners
2.4.2	Number of technologies developed and adopted	Dissemination and outreach of the innovative technologies	1	1	1	1	National	MoH/ Partners	Devt. Partners
2.4.3	Number of the premix suppliers registered	Profile the suppliers of premix and their distribution network	1	1	1	1	National	MoH/ Partners	Devt. Partners
<b>Specific Objective 2.5: To assess the quantity of fortified salt, wheat and maize flours, oil and fats produced in Kenya</b>									
2.5.1	Number of producers of wheat flour, maize flour, salt and edible oils and fats profiled	Profile producers of fortified foods	1	1	1	1	National	MoH and industries	



SN	Output Indicators	Planned Activities	Target					Level	Lead Agency	Others
			2018	2019	2020	2021	2022			
<b>Strategic Objective 3: To strengthen regulatory framework for monitoring food fortification at industry and market level</b>										
<b>Specific Objective 3.1: To ascertain the current level of industry and market compliance to standards</b>										
3.1.1	Percentage (%) of industries complying to standards	Compile compliance data/ records	1	1	1	1	1	National/ County	MoH, KEBS	
3.1.2	Number of market surveillance studies conducted	Conduct market surveillance to determine level of compliance	4	4	4	4	4	National/ County	MoH, KEBS	
3.1.3	Number of documents shared	Share information on compliance at market levels with stakeholders	4	4	4	4	4	National/ County	MoH, KEBS	
<b>Specific Objective 3.2: To increase industry and market compliance to fortification standards</b>										
3.2.1	Number of mentoring sessions conducted	Regular mentoring visits to industry managers and production staff	4	4	4	4	4	National	MoH	
3.2.2	Number of industries trained on QA/QC	Training of industrial players on QA/QC	4	4	4	4	4	National	MoH	
3.2.3	Number of premix suppliers certified	Monitoring of the quality of premix/fortificants	1	1	1	1	1	National	KEBS	

SN	Output Indicators	Planned Activities	Target					Level	Lead Agency	Others
			2018	2019	2020	2021	2022			
<b>Specific Objective 3.3: To strengthen the enforcement of regulations at industry and market levels</b>										
3.3.1	Number of monitoring reports	Undertake industry level monitoring- collection and analysis of samples	4	4	4	4	4	National County Gov't	KEBS	
3.3.2	Number of training sessions conducted	Training of enforcers (public health officer, police officers and Judiciary)	2	2	2	2	2	National	MoH	
3.3.3	Number of laboratories strengthened	Strengthening the capacity of NPHL: ISO certification	1	0	1	0	0	National	MoH-NPHL	Devt. partners
3.3.4	Number of satellite laboratory facilities services established	Establishment and equipping eight (8) public laboratories at regional level	4	2	2	0	0	National	MoH	
3.3.5	Number of sensitization events conducted	Sensitize the business operators on fortification regulations	5	5	5	5	5	National	MoH	
3.3.6	Number of suppliers meeting the quality standards of premix	Monitoring the quality of premix	4	4	4	4	4	National	MoH	



SN	Output Indicators	Planned Activities	Target					Level	Lead Agency	Others
			2018	2019	2020	2021	2022			
<b>Strategic Objective 4: To increase demand and consumption of fortified foods</b>										
<b>Specific objective 4.1: To assess the level of knowledge, attitudes and practices of the population on fortification</b>										
4.1.1	Percentage (%) of household knowledgeable on fortification	Study to establish a Knowledge, Attitudes and Practices (KAP) on purchase and consumption of fortified foods	1	0	0	0	1	National	MoH-NDU	Partners
<b>Specific Objective 4.2: To increase awareness on fortified foods to general population</b>										
4.2.1	Number of social marketing events planned	Review the current social marketing and behavioural change strategy to provide for new developments and challenges in fortification over the years	1	0	0	0	1	National	MoH-NDU	Partners
4.2.2	Number of IEC materials and social marketing strategies developed and disseminated	Develop, review, validate and disseminate IEC materials on fortified foods	1	0	1	0	1	National	MoH-NDU	Partners
4.2.3	Number of Counties reached by promotional activities	Organizing promotional activities for fortified foods	1	1	1	1	1	National, County	MoH-NDU, KEBS	Partners
4.2.4	Number of awareness meetings with consumer organizations	Hold awareness creation meeting with consumer associations on benefits of fortified foods	1	1	1	1	1	National, County	MoH-NDU, FSU, KEBS	Partners

SN	Output Indicators	Planned Activities	Target				Level	Lead Agency	Others
			2018	2019	2020	2021			
4.2.5	Number of champions identified	Develop ToR for identification of champions	1	0	0	0	National, County	MoH-NDU	Devt. partners
4.2.6	Number of champions selected	Selection of champions	1	0	0	0	National, County	MoH-NDU KEBS and MoH- FSU	
<b>Strategic Objective 5: To assess household consumption of fortified foods and evaluate its impact on the population</b>									
<b>Specific Objective 5.1: To assess the fortification programme performance</b>									
5.1.1	Number of reviews undertaken	Annual review of fortification strategic plan implementation	1	1	1	1	National	MoH- KEBS	Devt. Partners
5.1.2	Number of research reports generated	Research and documentation of the experiences of stakeholders on application of new technologies	1	0	1	0	National	MoH-NDU	Devt. partners
5.1.3	Number of amendments in the current M&E strategy	Revise the current M&E strategy to make it more relevant	1	0	0	0	National	MoH-NDU	Devt. partners



SN	Output Indicators	Planned Activities	Target					Level	Lead Agency	Others
			2018	2019	2020	2021	2022			
<b>Specific Objective 5.2: To monitor consumption of fortified food at household level</b>										
5.2.1	Percentage of households consuming fortified foods	Conduct household level monitoring (sampling, analysis, report writing and dissemination of household monitoring report)	1	1	1	1	1	National and County	MoH-NDU	Devt partners, Counties
5.2.2	Functional food fortification database	Periodic updating of the food fortification database by all stakeholders	1	1	1	1	1	National	MoH	KEBS

## Annex 2: Five-Year Budget Estimates

### Strategic Objective 1: To improve the policy environment for food fortification in Kenya

Code	Description of input	BUDGET IN KES			
		2018	2019	2020	2021
1.1	To advocate for food fortification to the industries leadership and existing associations				
1.1.1	Development of advocacy briefs	190,000		209,475	230,946
1.1.2	Conduct sensitization and awareness creation meetings	897,500	942,375	989,495	1,038,968
1.2	To strengthen co-ordination mechanism within Government at the national and county level				
1.2.1	Recruitment/renewal of membership in KNFFA	0	0	0	0
1.2.2	Organization of KNFFA quarterly meetings	9,000	9,450	9,923	10,419
1.2.3	Revision of KNFFA Terms of References and disseminate	0	0	0	0
1.2.4	Develop work plan for KNFFA	15,000	15,750	16,538	17,364
1.2.5	Identification of the relevant existing co-ordination mechanism at the county level	2,082,000	0	0	0
1.2.6	Incorporate fortification as an agenda in the county team Terms of References and workplan	0	0	0	0
1.3	Enhance the policy environment for strengthening food fortification				
1.3.1	Review of the existing National Nutrition Action Plan (2012-2017): 1 consultant working for 60 days	3,000,000	0	0	0
1.3.2	Development of the next National Nutrition Action Plan (2018- 2022) in which food fortification : 1 consultant working for 90 days	4,500,000	0	0	0
1.3.3	Amend the existing legislations to address any foreseen gaps in food fortification: 2 conference packages for 30 persons	252,000	0	0	0
1.3.4	Strengthen regulatory monitoring at industry and market: Quarterly sampling and analysis	32,000,000	32,000,000	32,000,000	32,000,000
1.4	To advocate for food fortification to policy-makers at national and county level				
1.3.1	Development of policy briefs	90,000		99,225	109,396
1.3.2	Sensitization and awareness creation (See budget above 1.2.4)				
	<b>Total</b>	<b>43,035,500.00</b>	<b>32,967,575.00</b>	<b>33,324,656.00</b>	<b>33,066,751.00</b>
					<b>33,460,432.00</b>





## Strategic Objective 2: To expand production of fortified salt, maize flour, wheat flour and vegetable oil/fats

Code	Description of input	BUDGET IN KES				
		Years				
		2018	2019	2020	2021	2022
<b>2.1</b>	<b>To assess capacity gaps for all the producers of fortified products (large, medium and small)</b>					
2.1.1	Development of tools for capacity assessment: (1 consultant working 3 days) for 4 food vehicle	612,000				
2.1.2	Pre-test the tools	188,000				
2.1.3	Data collection and analysis	8,520,000				
2.1.4	Drafting strategies for capacity improvement (already done)					
<b>2.2</b>	<b>To enhance human and infrastructure capacity of small and medium scale producers</b>					
2.2.1	Identify the training needs (See 1 above)					
2.2.2	Develop training curriculum/modules for industry workers:	1,200,000	1,260,000	1,323,000	1,389,150	1,458,607.5
2.2.3	Conduct training	7,020,000	7,371,000	7,739,550	81,265,27.5	8,532,853.88
2.2.4	Receive feedback/follow-up (already covered)					
2.2.5	Procurement of equipment: 8 pieces of equipment per year for 5 regions	10,000,000	10,500,000			
2.2.6	Develop new infrastructure	1000,000	1,050,000	1,102,500	1,157,625	1,215,506
2.2.7	Install and commission equipment	500,000	525,000	551,250	578,813	607,753
<b>2.3</b>	<b>To improve the fortification systems among small and medium scale millers develop</b>					
2.3.1	To profile existing technologies (Baseline)					
2.3.2	To profile the suppliers of premix and the distribution network (Baseline)					
2.3.3	Re-design existing technologies	2,000,000	2,100,000	2,205,000		
2.3.4	Design new technologies	2,000,000	2,100,000	2,205,000		
2.3.5	Pilot testing of the improved technologies	1,000,000	1,050,000	1,102,500		
<b>2.4</b>	<b>To improve mechanisms for increased adoption and commercialization of the technologies</b>					
2.4.1	Develop sensitization messages/manuals/advocacy policy briefs	760,000	798,000	837,900	879,795	923,784.75
2.4.2	Develop commercialization strategies (Done at baseline)					
2.4.3	Dissemination and outreach of the innovative technologies	1,380,000	1,449,000	1,521,450	1,597,523	1,677,399
<b>2.5</b>	<b>To assess the quantity of fortified salt, wheat and maize flours, oil and fats produced in Kenya</b>					
2.5.1	Profile producers of fortified foods (Done at baseline)					
2.5.2	Determine the quantity of fortified foods at industry level through the food fortification database: software upgrade	1,000,000				
	<b>Total</b>	<b>37,180,000.00</b>	<b>28,203,000.00</b>	<b>18,588,150.00</b>	<b>13,729,433.50</b>	<b>14,415,904.13</b>



**Strategic Objective 3: To enhance and strengthen regulatory framework for monitoring food fortification at industry and market level**

Code	Description of input	BUDGET IN KES				
		Years				
		2018	2019	2020	2021	2022
<b>3.1</b>	<b>To ascertain the current level of industry and market compliance to standards</b>					
3.1.1	Compile compliance data/records					
3.1.2	Conduct market surveillance to determine level of compliance	29140000	30597000	32126850	33733192.5	35419852.13
3.1.3	Share information on compliance levels with relevant stakeholders	2160000	2268000	2381400	2500470	2625493.5
<b>3.2</b>	<b>To increase market and industry compliance to fortification standards</b>					
3.2.1	Regular mentoring visits to industry managers and production staff	2540000	2667000	2800350	2940367.5	3087385.875
3.2.2	Training of industrial players on QA/QC (cost by industry)					
3.2.3	Monitoring the quality of premix (cost by suppliers)					
3.2.4	Sensitize the business operators on fortification regulations (Cost by operators)					
<b>3.3</b>	<b>To strengthen the enforcement regulations at industry and market level</b>					
3.3.1	Undertake industry level monitoring-analysis of sample	16000000	16800000	17640000	18522000	19448100
3.3.2	Training of enforcers (public health officer, laboratory personnel, police officer and Judiciary)	18540000	19467000	20440350	21462367.5	22535485.88
3.3.3	Lobbying with county government to strengthen enforcement					
3.3.4	Strengthen the capacity of the national public health laboratory	3000000		500000		
3.3.5	Strengthening of public laboratory services at regional level: 8 regions, 2 pieces of equipment each (NPHL)	2500000	2625000	2756250	250000	8131250
3.3.5	Strengthening biomarker analysis for impact	5000000				
	<b>Total</b>	<b>78,880,000.00</b>	<b>74,424,000.00</b>	<b>78,645,200.00</b>	<b>79,408,397.50</b>	<b>91,247,567.38</b>

#### Strategic Objective 4: To increase consumption and demand for fortified foods

Code	Description of input	BUDGET IN KES				
		Years				
		2018	2019	2020	2021	2022
4.1	To assess knowledge, attitudes and practices towards consumption of fortified foods.					
4.1.1	Study to establish a Knowledge, Attitudes and Practices on fortified foods	3380000				3380000
4.2	To create awareness on fortified foods to general population					
4.2.1	Review the current social marketing and behavioural change strategy to provide for new developments and challenges in fortification over the years	12300000				
4.2.2	Develop and review existing IEC materials on fortified foods.	12300000		12300000		12300000
4.2.3	Validation of revised IEC materials	400000		400000		400000
4.2.4	Disseminate the IEC materials and social marketing strategies to the counties	520000		573300		632063
4.2.5	Organize promotional activities for fortified foods (hiring artists, roadshows and promotions)	5144000	5401200	5671260	5954823	6252564.15
4.2.6	Hold awareness meeting with consumer associations to include messages on benefits of fortified foods.	88000	92400	97020	101871	106965
4.2.7	Develop ToR and selection of champions	160000				
	<b>Total</b>	<b>34,292,000.00</b>	<b>5,493,600.00</b>	<b>19,041,580.00</b>	<b>6,056,694.00</b>	<b>23,071,592.15</b>

**Strategic Objective 5: To assess programme coverage and consumption of fortified foods**

Code	Description of input	BUDGET IN KES				
		Years				
		2018	2019	2020	2021	2022
<b>5.1</b>	<b>To assess the fortification programme performance</b>					
5.1.1	Annual review of the NFFSP 2018-2022	2,160,000	2,268,000	2381,400	2,500,470	2,625,494
5.1.2	Researching and documenting experiences of stakeholders on application of new technologies	1,700,000		1,874,250		2,066,361
5.1.3	Workshop to review the current M&E strategy to realign it to the NFFSP	190,000				
<b>5.2</b>	<b>To assess consumption of fortified food at household level</b>					
<b>5.2.1</b>	Conduct household level monitoring					
	a) Sampling	18,352,000	1,9269,600	20,233,080	21,244,734	22,306,971
	b) Analysis	732,000	768,600	807,030	847,382	889,751
	c) Report writing	300,000	315,000	330,750	347,288	364,652
5.2.2	Periodic accurate updating of the food fortification database by all stakeholders-training on capacity to use the system	330,000	346,500	363,825	382,017	401,117
	<b>Total</b>	<b>23,764,000.00</b>	<b>22,967,700.00</b>	<b>25,990,335.00</b>	<b>25,321,891.00</b>	<b>28,654,346.00</b>



### Annex 3: Monitoring and Evaluation Framework

Code	Description	Indicator	Means of Verification	Baseline	Target	Data Collection Frequency	Institution Responsible
	<b>IMPACT</b>						
1	Micronutrient deficiencies in Kenyan population reduced						
	<b>OUTCOMES</b>						
1.1	Policy Environment Commitment by the National and County governments to food fortification increased	Number of new or revised legislations on food fortification Percentage increase in cumulative budget allocation on food fortification	Annual reports Annual report Budget estimates	0 <1%	3 5%	Within 5 years Annually	MoH, Partners MoH, Partners
1.2	Production of fortified foods that comply to standards by the food industries increased	Percentage of industries with all brands complying with food fortification standards Percentage increase of SALT brands that comply to fortification standards Percentage increase of MAIZE FLOUR that comply to fortification standards Percentage annual increase of WHEAT FLOUR brands that comply to fortification standards Percentage annual increase in OIL/FATS brands that comply with fortification standards	Annual report Annual report Annual report Annual report Annual report	Baseline Baseline Baseline Baseline Baseline	80% 70% 80% 80% 80%	Within 5 years Within 5 years Within 5 years Within 5 years Within 5 years	KEBS, Industries KEBS, Industries KEBS, Industries KEBS, Industries KEBS, Industries
1.3	Consumption of fortified foods by the Kenyan population increased	Percentage of the population consuming fortified foods Percentage of the population consuming fortified SALT Percentage of the population consuming fortified MAIZE FLOUR Percentage of the population consuming fortified WHEAT FLOUR Percentage of the population consuming fortified OIL/FATS	Survey Survey Survey Survey Survey	Baseline Baseline Baseline Baseline Baseline	70% 70% 70% 70% 70%	Within 5 years Within 5 years Within 5 years Within 5 years Within 5 years	KEBS, Industries KEBS, Industries KEBS, Industries KEBS, Industries KEBS, Industries



Code	Description	Indicator	Means of Verification	Baseline	Target	Data Collection Frequency	Institution Responsible
<b>OUTPUTS</b>							
1.1.1		Number of newly recruited KNFFA members	KNFFA reports/minutes	0	20	Within the five years	KEBS, Industries
		Number of amendments on food fortification regulations	Amended legislations, Annual report			Within the five years	MoH
		Percentage increase in national budget for food fortification	National Budget Estimates	<1%	5%	Annual	MoH, Counties
		Number of Counties that have adopted food fortification agenda in the nutrition multi-sectoral county forums	Annual reports	0	75%	Within the five years	MoH, Counties
		Number of Counties with budget allocation for food fortification	County Budget Estimates	0	47	Within five years	MoH
		Number of food fortification advocacy meetings (industry and government)	KNFFA reports	0	5	One annually	MoH, Partners
1.2.1	Production of fortified salt, maize flour, wheat flour, oil and fats enhanced	Percentage of foods that are fortified in the market					
		At least a 3.5% increase in the number of SALT brands that are fortified in the market annually	Annual reports	86%	100%	Within five years	Industries
		A minimum of 4% increase in the number of MAIZE FLOUR brands that are fortified in the market	Annual reports	66%	80%	Within five years	Industries
		At least a 4% increase in the number of WHEAT FLOUR brands that are fortified in the market annually	Annual reports	74%	90%	Within five years	Industries
		At least a 6% increase in the number of OIL/FATS brands that are fortified in the market annually	Annual reports	72%	90%	Within five years	Industries
		Quantity of fortified foods produced					
		Quantity of fortified SALT produced	Annual reports	300,000MT	All SALT fortified at industry level	Annual	Industries
		Quantity of fortified MAIZE FLOUR produced	Annual reports	1,052,632 MT	All MAIZE FLOUR fortified at industry level	Annual	Industries
		Quantity of fortified WHEAT FLOUR produced	Annual reports	789,474 MT	All WHEAT FLOUR fortified at industry level	Annual	Industries
		Quantity of fortified OIL/FATS produced	Annual reports	190,054 MT	All OIL/FATS fortified at industry level	Annual	Industries



Code	Description	Indicator	Means of Verification	Baseline	Target	Data Collection Frequency	Institution Responsible
1.2.2	Regulatory framework for monitoring food fortification at industry and market level strengthened	Number of operational satellite laboratories	Annual reports	0	8	Within the five years	MoH, Partners
		Number of trained personnel at satellite laboratory	Annual reports	0	25	Within the five years	MoH, Partners
		Number of qualified personnel trained on regulatory monitoring at KEBS, NPPLS and FSU	Annual reports	10	70% of employees	Within 5 years	MoH, Partners
		Reduction in turnaround time in days for sample analysis	Laboratory records, Annual reports	30	7	Within the five years	KEBS, NPPL, partners
		Percentage increase in fortified foods in the market complying with the standards	Annual reports	43%	80%	Within the five years	MoH, Partners
		A minimum of 13.5% increase of fortified SALT brands in the market complying with the standards annually	Annual reports	28%	80%	Within the five years	MoH, Partners
		At least 23.5% increase of fortified MAIZE FLOUR brands in the market complying with the standards annually	Annual reports	28%	80%	Within the five years	MoH, Partners
		At least 23.5% increase of fortified WHEAT FLOUR brands in the market complying with the standards per year	Annual reports	24%	80%	Within the five years	MoH, Partners
		A minimum of 27.5% increase of fortified VEGETABLE OIL AND FATS brands in the market complying with the standards annually	Study report	0	2	Baseline/End line	MoH, Partners
		1.3.1	Awareness of food fortification improved	Number of KAP studies on fortified foods undertaken	KNFFA report	0	47
Number of champions for food fortification identified	Activity reports			2	47	Annually	MoH, Counties, and Partners
Number of Counties reached by promotional activities	Survey report			Baseline	70%	Baseline/ midterm & end line	MoH, Counties, and Partners
Percentage of population aware of fortified foods	Annual reports			0	4	Quarterly	MoH, Counties, and Partners
Number of food fortification awareness meetings (industry and government)							



Code	Description	Indicator	Means of Verification	Baseline	Target	Data Collection Frequency	Institution Responsible
1.3.2	Consumption of fortified foods at household level assessed	Number of data collection tools developed Number of surveys that integrate fortification assessment indicators Percentage of households consuming fortified foods	Tools Survey report Survey report	0 0 Baseline	2 2 70%	Baseline & endline Baseline & endline Baseline & endline	MoH, Counties, and Partners MoH, Counties, and Partners MoH



## Annex 4: References

1. Allen, L, B. de Benoist, O. Dary and R. Hurrell (2006) Guidelines on food fortification with micronutrients, WHO and FAO publications
2. Darnton-Hill (2002) Fortification strategies to meet micronutrient needs: Successes and failures; Article in Proceedings of The Nutrition Society
3. Dary, Omar (2002) The importance and limitations of food fortification for the management of nutritional anemias
4. Enzama, W. (2016) Supply Chain Analysis; Maize Scoping Study for East and Southern Africa
5. GoK (2010) The Constitution of the Republic of Kenya 2010
6. GoK (2015) the Food, Drugs and Chemical Substances (Food Labelling Additives and Standards) (Amendment) (No. 2) Regulations, 2015.
7. Hoogendoorn A, Luthringe G, Parvanta I and Garrett G (2016) Food Fortification Global Mapping Study: Technical assistance for strengthening capacities in food fortification
8. Kenya National Bureaus of Statistics. 2017. Economic Survey.
9. Legal documents (laws and policies) pertaining to food fortification
10. Makhumula & Musyoka, M.P (2017a) Mapping of Medium and Small-Scale Maize Milling Industry in Kenya
11. Makhumula, P. & Musyoka, M.P (2017b) Status of Food Fortification in Kenya
12. Manitsky and McLachlan (undated), Accelerating food fortification in Kenya: A results-based approach to forming public-private partnership
13. MoEST & MoALF (2016) School Nutrition and Meals Strategy for Kenya
14. MoH (2008) The Kenya National Technical Guidance for Micronutrients Deficiency Control
15. MoH (2011) Kenya National Nutrition Survey





16. MoH (2012a) National Food and Nutrition Security Policy MoH (2012b) National Nutrition Action Plan (2012-2017)
17. MoH (2013) National Nutrition Monitoring and Evaluation Framework
18. MoH (2014a) Kenya Demographic and Health Survey
19. MoH (2014b) Monitoring and Evaluation Framework for Food Fortification, 2014-2017
20. MoH (2015). National Social Marketing and Communication Strategy for Food Fortification. Ministry of Public Health and Sanitation. Government Printers, Nairobi
21. MoH- Web Portal accessed
22. Mugambi (2015) Achievements; presentation slides
23. Mugambi, Gladys, Food Fortification in Kenya, partnerships with Achievements, Ministry of Health, Kenya
24. Pambo, K, D. Otieno and J. Okello (undated). Consumer Awareness of Food Fortification in Kenya: The Case of Vitamin-A-Fortified Sugar
25. Regan L Bailey et al. (2015) The Epidemiology of Global Micronutrient Deficiency, Ann NutrMetab, 66 (supplement 2):22-33
26. USAID (2008) Monitoring and Evaluating Food Fortification Programs: General Overview; Technical Consultation
27. USAID (2016) Kenya: Nutrition Profile
28. USDA (2017) 'Commodity'; retrieved from: <http://www.indexmundi.com/agriculture/?country=rw&commodity=corn&graph=production>
29. WFP, (2016) Fighting 'Hidden Hunger' Through Rural Food Fortification, Fact Sheet
30. WHO. Global nutrition targets 2025: anaemia policy brief (WHO/NMH/NHD/14.4). Geneva: World Health Organization; 2014.



## Annex 5: List of Persons Consulted

SN	Name	Institution and Position	Contact
1	John Maina Mwai	MoH-NDU Programme Officer, Food Fortification	0721449487
2	Ester Kwamboka	Nairobi County Nutritionist	0722895253
3	Brenda Obura	Food Safety Unit (Ministry of Health)	0711359009
4	Felistus Mutambi	ECSA-HC (GAIN) Regional Fortification Coordinator	0725559412
5	Dominic Dalacha Godana	GAIN, Nairobi	0720932262
6	Peter Mutua	KEBS	0722836425
7	Carol Tom	Technoserve	0722754728
8	Jairus Musumba	Nairobi County Deputy Director Public Health	0722 793258
9	Nancy Njine	NPHL, Ministry of Health	0722615299
10	Joshua Mukaya	GIZ Programme Coordinator - Affordable Nutritious Food for Women	0721908584
11	Christopher Wanyoike	Nutrition International	0729110200
12	Lucy Murage	Nutrition International	0729110201
13	Daisy Mundia	Nutrition International	0720457434
12	Sicily Matu	UNICEF	0704870756
13	Joyce Owigar	WFP Programme Officer Nutrition	0724521769
14	Jackline Gatimu	WFP	0707724839
15	Dr. Sila Daniel	Jomo Kenyatta University of Agriculture and Technology	0716238803
16	Bable Chanzu	Siaya County Public Health Officer	0722569724

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