

# POLICY BRIEF

## SAFE TRADITIONAL VEGETABLES FOR INCREASED INCOME, FOOD SECURITY AND NUTRITION



### INTRODUCTION

Smallholder farmers produce all the traditional vegetables for the Kenyan market and up to 70% of the exotic vegetables. The earnings from traditional vegetables are also much higher than those from the exotic ones (Figure 1). In addition, these vegetables contain high levels of vitamins, minerals and antioxidants than other vegetables <sup>(1,2,3)</sup> all of which are important for nutrition and health, and in preventing cancer, and diabetes, and in the management of HIV/AIDS.

However, there are emerging concerns on the safety and quality of these vegetables because of unregulated production and handling practices leading to lack of quality control for the produce sold in domestic markets. This has made it difficult for the small scale farmers to access high paying markets, hence decreased incomes obtained from the sale of the vegetables. Since 2014 the safety

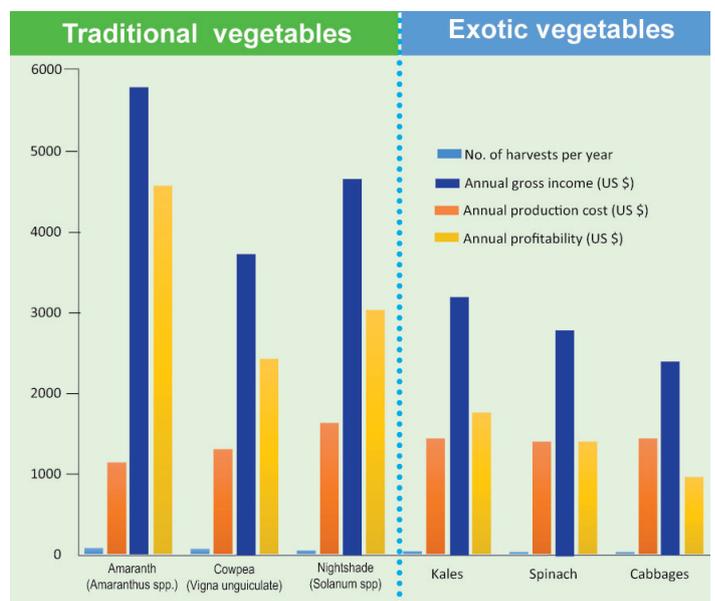


Figure1: Annual income analysis based on ¼ acre (0.1ha) of vegetables (source: Mumbi et al. (2006))

concerns about traditional vegetables produced and consumed in the domestic markets <sup>(6)</sup> have been the subject of several reports.

These vegetables contain high levels of pesticide residues, heavy metals, toxins and microbial contamination. Small-scale farmers and traders supply these vegetables with little or no hygiene controls. The contamination occurs in three ways:

**- When the crops are growing:** This arises from contaminated irrigation water, application of poorly composted animal manure, excessive use of pesticides and fertilizers, use of abandoned garage sites <sup>(6)</sup> and road sites in urban and peri urban production;

**- During transportation:** The vegetables are transported in open trucks and contaminated bags; unhygienic handling contributes to this;

**- In the market:** In informal markets, vegetables are often placed on the ground and on walkways in contact with dirt and garbage bins or waste piles. In formal markets such as supermarkets and green grocers, although more organized, staff lack training in hygiene and food safety (Figure 2).



## Why Contamination Occurs

More people are growing traditional vegetables for food and to increase their incomes, especially in urban and peri-urban areas. The scarcity of land and clean water has led to use of abandoned garage sites leading to heavy metal contamination. The use of waste/sewage water that has led to contamination by disease causing organisms such as E. coli, Salmonella and Vibrio cholera leading

to disease outbreaks such as cholera. To increase leaf yields, the producers use excessive amounts of nitrogen fertilizers and pesticides leading to nitrate and pesticide contamination beyond the safe limits. Further, weak enforcement/ implementation of good agricultural practices (GAPs), good hygiene and handling practices during production, transportation and marketing have worsened the situation.

# WHAT IS IN THE AMARANTH THAT YOU ENJOY IN EVERY MEAL?

The amaranth (local names mchicha, terere, emboga, murere) produced and consumed in the domestic markets in Kenya (Nairobi, Machakos, and Nakuru) is heavily contaminated with:

- Microorganisms which are linked to the increased episodes of cholera and typhoid fever
- The pesticide dimethoate that has long been banned for use in fruits and vegetables
- **200%** more lead than the safe limits
- Nitrate concentrations which are about 160% higher than the safe limits.

*5% of all consumed nitrate converts to nitrite that impairs the ability of blood to transport oxygen to the body tissues and organs such as brain and liver that leads to damage.*

*Pesticides and heavy metals contamination are linked to health problems such as nerve damage, attack on internal organs and cancer that occur over a long period of consumption of contaminated foods.*



## DISEASE BURDEN:

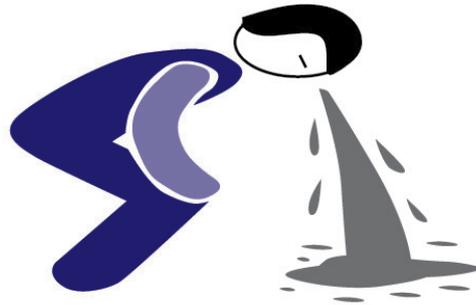
### Treatment without prevention is unsustainable

Due to the contamination of the vegetables as a result of excessive use of pesticides, use of contaminated water and poor handling after harvest, food borne diseases remain a big problem in Kenya. For example, the country experiences cholera outbreaks every year. In 2017, there were 3967 confirmed cases with 76 deaths. Twenty of the 47 counties (43%) reported

cholera cases. In 2018, 817 cases have been confirmed with 10 deaths ([www.reliefweb.int/report/Kenya](http://www.reliefweb.int/report/Kenya); [www.unicef-kenya](http://www.unicef-kenya) report). In 2001, cholera outbreak was reported in 9 districts with 1001 cases and 55 deaths while 294 cases of typhoid were reported with 23 deaths. Diarrheal outbreaks (Figure 3), especially among children under 5 years old have been linked to *Escherichia coli* <sup>(7)</sup>.



Stomach ache



Vomiting



Diarrhea

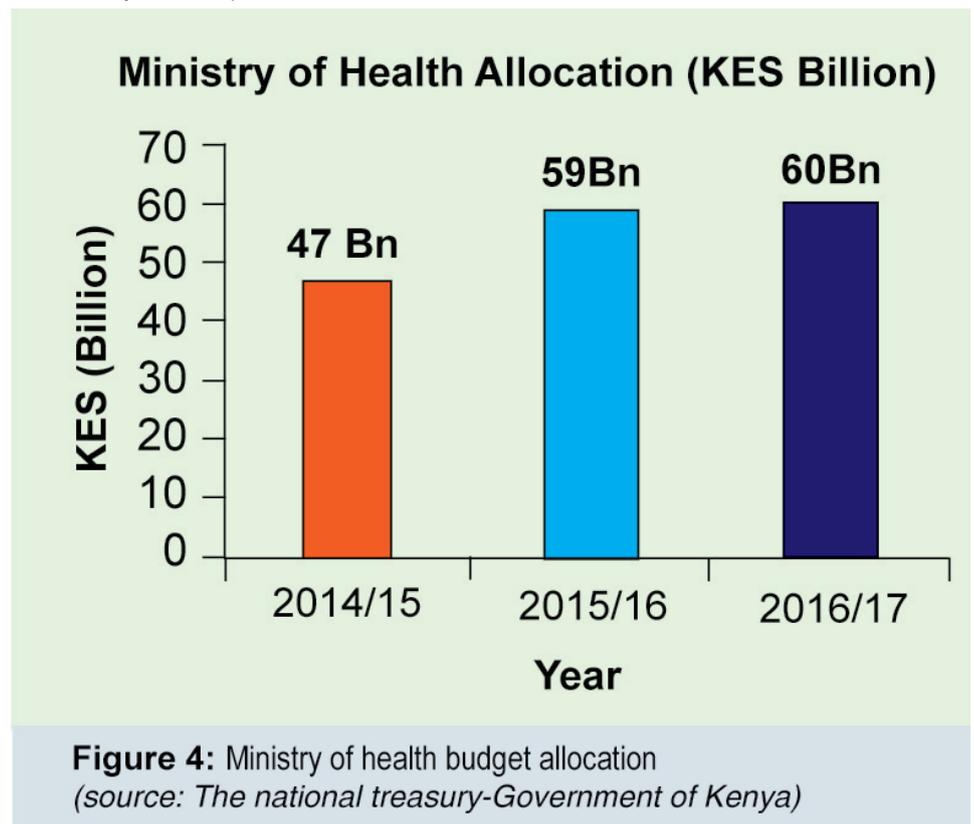
**Figure 3:** Symptoms of attack after eating unsafe food (Source: googleimages.com)

## THE ECONOMIC BURDEN:

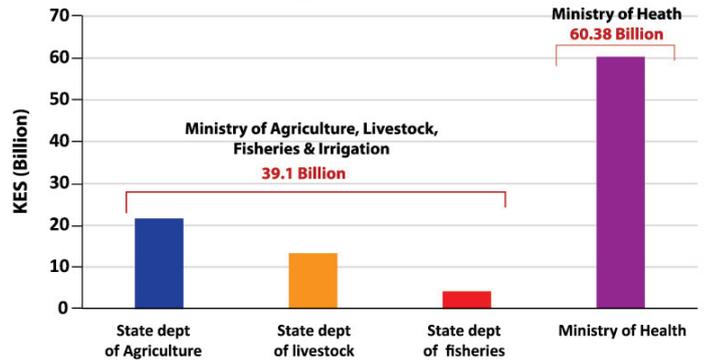
### We can change the story

As a result of the disease burden, the government spends more on medical expenses and on investigating outbreaks. For example, the government allocation for health has continued to increase over the years and in 2017/2018, the budget allocation was KES 60 billion (Figure 4). In addition, consumers including farmers spend more money on medical care and there is increased absenteeism from work and school as well as loss of confidence in the traditional vegetables offered as a cheap source of nutrition and health. The money spent by the Ministry of Health, consumers and farmers can be reallocated to increase productivity to achieve food security and nutrition if the food borne illnesses are prevented at farm level.

During the same period, the total allocation to the three state departments of agriculture, livestock and fisheries was KES 39.1 billion (Figure 5), yet this ministry plays a crucial role in the provision of quality nutritious foods necessary for the prevention of diseases.



## Budget allocation



**Figure 5:** Budget allocation to Ministry of Agriculture, Livestock and Fisheries compared to the allocation to Ministry of Health  
(Source: The National Treasury - Government of Kenya)

## REQUIRED ACTION:

### We can do things differently

The country must invest in better production methods, post-harvest care and quality to improve consumer acceptance of produce in order to attract high prices, increase incomes and ultimately attain food security, improved nutrition and livelihoods. The success of the Kenyan fresh fruits, vegetable and flower export sectors has occurred despite the weak sanitary and phytosanitary (SPS) management

capacity. This has happened through implementation of the food safety rules and regulations obtained from private systems of certification, for example the BRC Global Standard and EUREPGAP. These same measures can be applied in the domestic market of traditional vegetables and all other foods consumed locally that could be potential sources of food borne diseases. To achieve this, there is an urgent need to:

- Sensitize farmers to apply good agricultural practices and, better postharvest handling practices
- Develop rules and regulations to guide the production and handling of traditional vegetables produced and consumed in the domestic markets

- Invest in creating awareness of the consumers to demand safe traditional vegetables free from pesticide residues, heavy metals and harmful micro-organisms
- Train experts to implement food safety policies that guide the production and handling of traditional vegetables

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