



MAKUENI

NUTRITION INVESTMENT CASE

≡ KENYA

Despite progress, malnutrition in Makueni remains a severe public health problem. However, the County government has demonstrated a political commitment to prevent malnutrition by investing in the scale-up of nutrition interventions. With the support of Nutrition International, county leadership and policymakers developed the Makueni County Nutrition Action Plan (CNAP) 2019-2023, which sets ambitious targets for the scale-up of nutrition interventions over a five year period. The plan identifies priority multi-sectoral nutrition actions for each sector, defines targets for each intervention, and provides a monitoring and accountability framework as well as costing of interventions, which the county can use for subsequent planning and budgeting. This Investment Case highlights the potential health impacts and economic benefits of scaling up the high-impact preventative nutrition-specific interventions included in the Makueni County CNAP.¹

MAKUENI COUNTY CNAP (2019-2023)

TOTAL COST OVER FIVE YEARS: COST OF HIGH-IMPACT PREVENTATIVE INTERVENTIONS:

KSh1.2B

(US \$12.04M)

KSh254M

(US \$2.43M)

PROJECTED HEALTH IMPACT:

3,531 cases of stunting averted

571 child deaths averted

560 cases of adolescent anaemia averted

14,220 cases of anaemia in pregnancy averted

¹ While all costs and programs included in the CNAP are important, it is not possible to model the impact of nutrition-sensitive, public health and enabling environment interventions due to lack of evidence of their effects.

THE COST OF MALNUTRITION

HEALTH IMPACTS

The Cost of Hunger in Africa (COHA) Kenya study highlighted the high levels of child undernutrition and their lasting health and human capital consequences for the country. The COHA model was used to estimate the level of morbidity, mortality, school repetition, school dropout and reduced physical capacity that can be directly associated to a person's undernutrition before the age of five. It is estimated that 28% of children under the age of five (GBD,2015), which is equivalent to 38,922 children in Makueni, were stunted. Moreover, malnutrition causes an estimated 11,707 cases of low birth weight and underweight annually. Overall, undernutrition in Makueni costs the health system approximately KSh 174.34M per year (US \$1.67M.)

HUMAN CAPITAL AND ECONOMIC IMPACTS

In addition to the impacts stunting has on the health of individuals, it can also affect cognitive development in children – and, in turn, reduce a child's educational performance, resulting in increased grade repetition and dropouts. It is estimated that there are 549 cases of grade repetition in Makueni annually due to stunting, which costs an estimated KSh 6.80M (US \$65,000) annually to the education system and families.

In addition, stunting affects future economic productivity via increased mortality (i.e. loss of workforce) and lowered labour productivity. Based on the latest data available, it is estimated that the annual losses in economic productivity due to malnutrition in Makueni were KSh 236.41M (US \$2.27M.) Overall, the annual cost of malnutrition in Makueni is KSh 418M (US \$4M), which represents 0.60% of its GDP.

THE COST OF MALNUTRITION

ANNUAL HEALTH COST

KSH174.34M
(US \$1.67M)

ANNUAL EDUCATION COST

KSH6.80M
(US \$65,000)

ANNUAL PRODUCTIVITY COST

KSH236.41M
(US \$2.27M)

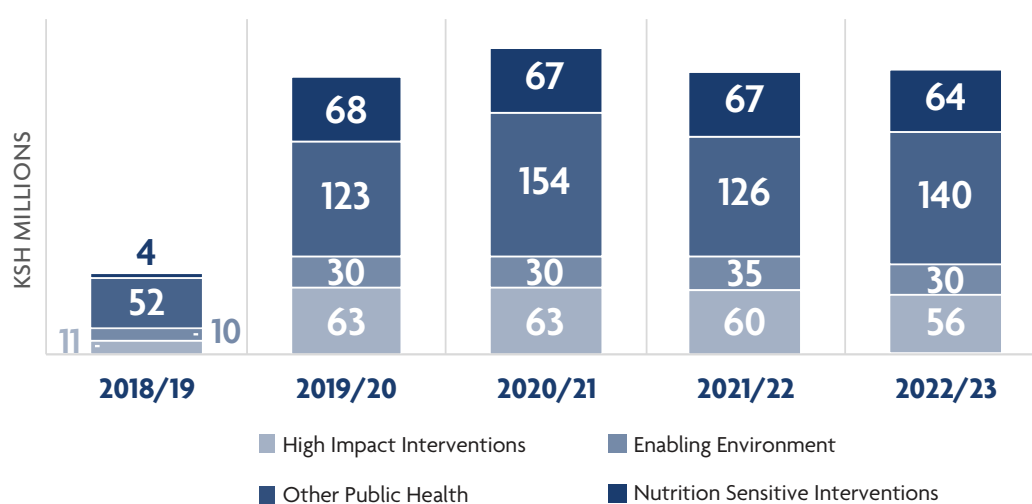
MAKUENI'S COUNTY NUTRITION ACTION PLAN

TOTAL COST OVER FIVE YEARS

The total public investment required to deliver the Makueni CNAP is estimated to be KSh 1.25B (US \$12.04M) between 2019 and 2023. Within the CNAP, 20.2% is allocated to high-impact nutrition interventions, 21.5% to nutrition-sensitive interventions, 47.4% to other public health interventions, and 10.8% to health and nutrition system and infrastructure costs (enabling environment.) This average annual cost of the CNAP is KSh 250.74M (US \$2.41M) per year.

Category	Total Cost (KShB)	Total Cost (US \$M)	Total cost (%)
High-impact interventions (with severe acute malnutrition treatment)	0.25	2.43	20.2%
Enabling environment	0.14	1.30	10.8%
Other public health interventions	0.59	5.71	47.4%
Nutrition-sensitive interventions	0.27	2.59	21.5%
Total	1.25	12.04	100.0%

CNAP COSTS BY CATEGORY





COST OF HIGH-IMPACT NUTRITION INTERVENTIONS

Within the package of evidence-based high-impact preventative nutrition interventions included in the Makueni CNAP, the total cost for each preventative intervention over five years is KSh 19.76M (US \$0.19M) for vitamin A supplementation (VAS), KSh 15.75M (US \$0.15M) for iron and folic acid supplementation (IFAS) in pregnancy, KSh 34.41M (US \$0.33M) for infant and young child feeding (IYCF), KSh 2.82M (US \$0.03M) for weekly iron and folic acid supplementation (WIFAS) for adolescent girls, and KSh 49.26M (US \$0.47M) for other high-impact interventions. In addition, the CNAP estimates that KSh 131.54M (US \$1.26M) is needed for the treatment of severe acute malnutrition.

ANNUAL COST OF HIGH-IMPACT NUTRITION INTERVENTIONS:

PER CAPITA

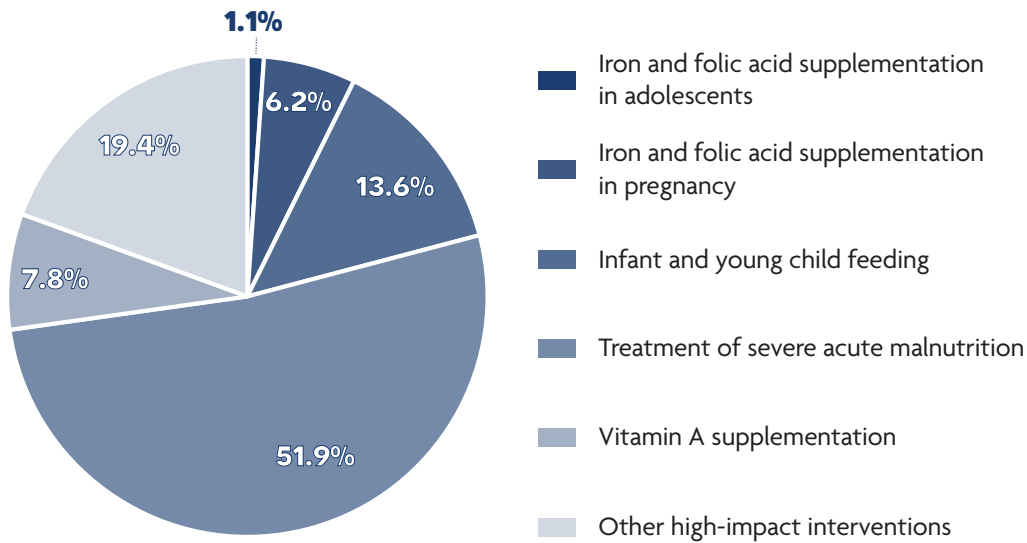
KSH 51.79
(US \$0.50)

PER PREGNANT WOMAN, ADOLESCENT
GIRL AND CHILD (UNDER FIVE)

KSH 239.23
(US \$2.30)



BREAKDOWN OF THE COSTS OF HIGH-IMPACT NUTRITION INTERVENTIONS

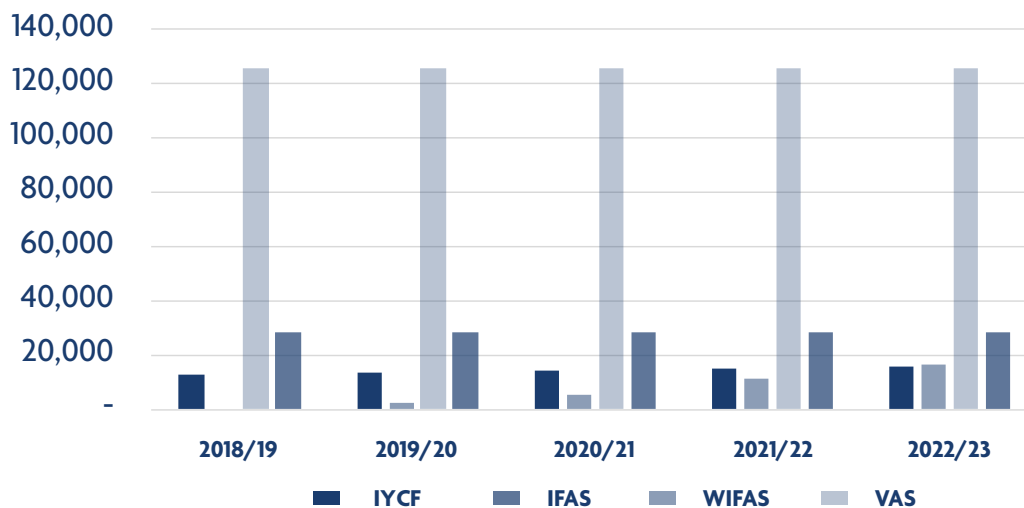


THE HEALTH AND ECONOMIC BENEFITS OF INVESTING IN NUTRITION

INTERVENTION REACH

The preventative high-impact nutrition interventions within the CNAP will reach an average of 179,900 newborns, children, adolescent girls and pregnant women annually. The interventions with the highest reach over five years are VAS, WIFAS and IFAS in pregnancy.

REACH OF HIGH-IMPACT NUTRITION INTERVENTIONS





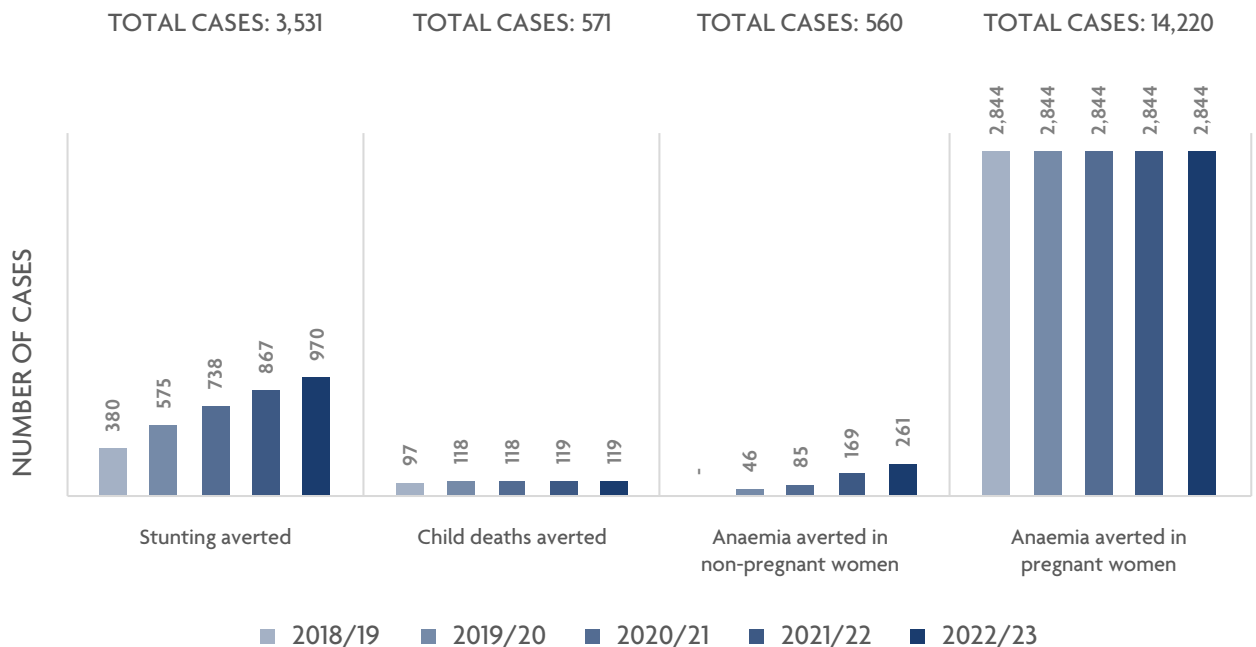
Intervention	Total reach over five years
WIFAS	35,750
IFAS	140,967
IYCF	71,437
VAS	627,495

HEALTH IMPACTS

The nutrition interventions within the Makueni CNAP are projected to have a significant impact on the health of newborns, children, adolescent girls, and pregnant women. The interventions are projected to result in 3,531 additional alive, non-stunted children (a reduction of the prevalence of stunting by approximately 3.6% within five years.) The interventions are projected to result in 14,781 cases of anaemia averted, including 560 in adolescent girls and 14,220 in pregnant women. This impact will reduce the prevalence of anaemia in pregnant women by approximately 10.8%. In addition, the interventions projected to result in 3,633 cases of wasting averted, which will reduce the prevalence of wasting in children under five by 3%.

Overall, the interventions are projected to result in 571 child deaths averted. The sum of these health impacts results in a potential 38,208 Disability Adjusted Life-Years (DALYs)² averted. In addition to the health impact, these interventions will lead to cognitive and human capital impacts over time such as increased IQ and educational attainment.

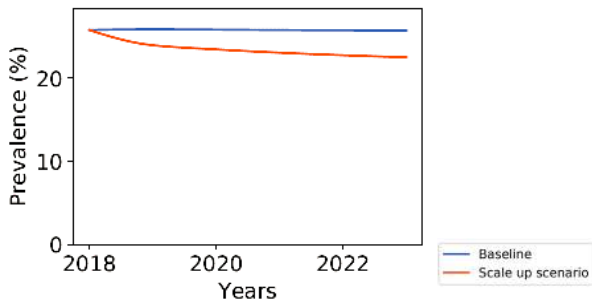
HEALTH IMPACTS OF HIGH-IMPACT INTERVENTIONS



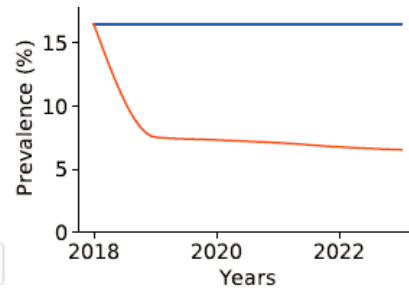
²A Disability-Adjusted Life-Year (DALY) averted can be thought as one lost year of "healthy" life.



Prevalence of Stunting in Children



Prevalence of Iron Deficiency Anaemia in Pregnant Women



The CNAP is projected to make a relative reduction of 12.7% in the prevalence of stunting, of 25.9% in the prevalence of anaemia in pregnant women, and of 76.1% in the prevalence of wasting by 2023, which represent important gains towards the World Health Assembly Global Nutrition Targets.

COST-EFFECTIVENESS AND BENEFIT-COST

There is a strong evidence base demonstrating that the high-impact preventative nutrition interventions included in the Makueni CNAP are highly cost-effective. It is estimated that the cost per case of stunting in children is KSh 11,059.71 (US \$106.18.) Additionally, the cost per case of anaemia averted is projected to be KSh 1,012.44 (US \$9.72) for IFAS in pregnancy and KSh 2,807.11 (US \$26.95) for WIFAS for adolescent girls.

By translating this level of health impact into DALYs averted, it is estimated that investing in the high-impact nutrition interventions costs only KSh 6,634.96 (US \$63.70) per DALY averted. Using a Value of Statistical Life-Year for Kenya, the CNAP is also estimated to yield a benefit-cost ratio of 54:1 in the long-term, which is indicative of excellent value for money from this investment.

HIGH-IMPACT INTERVENTION COST-EFFECTIVENESS: VERY COST EFFECTIVE

COST PER DALY AVERTED

KSh6,635
(US \$64)

BENEFIT-COST RATIO

54:1

RECOMMENDATIONS

Recommendation 1:

County investment in nutrition is essential to reaching Kenya's national targets and the global Sustainable Development Goals.

To accelerate and scale up efforts towards the elimination of malnutrition as a public health problem, county governments must make adequate budget allocations to nutrition – critical nutrition interventions have not been implemented as a result of resource constraints. Dramatic improvements in funding are needed to meet nutrition targets and reach the World Bank's estimated US \$30 per child target (WB 2014.) County governments aim to improve planning and budgeting for nutrition and have endorsed the CNAPs. Counties should take on resource mobilization with more vigor, both supporting the tracking of national nutrition budgets and mobilizing domestic and external funding. Advocacy for increased resources for nutrition should realistically consider what governments can allocate for nutrition among competing priorities.

Recommendation 2:

County investment in the right evidence-based and cost-effective high-impact nutrition interventions should be prioritized to ensure health, human capital and economic benefits are generated.

The CNAP seeks to provide a roadmap for scaling up the nutrition sector at the county-level and improve service delivery reaching the most vulnerable population. It also serves as a reference document for stakeholders to design and prioritizing appropriate interventions. The CNAP identifies low-cost, high-impact interventions under the various key result areas, which counties can use for planning and budgeting purposes. It is important for counties to prioritize the high- impact preventative nutrition interventions identified by the Lancet Series on Maternal and Child Undernutrition (2013) amid competing demands to ensure that counties are making the most efficient use of scarce resources for reducing the burden of malnutrition on people's lives as well as the substantial economic implications associated with malnutrition incurred in health care, education, and labour productivity as outlined in the County Investment Case.

Recommendation 3:

Strengthen the enabling environment and coordination of nutrition interventions at county (sub-national) level

Most nutrition expenditures are undertaken at county-level, but there are no institutionalized frameworks for coordinating interventions from various sectors. The CNAP identifies coordination frameworks for nutrition at county and sub-county level. Counties should support the formation and functioning of multisectoral nutrition committees to oversee CNAP implementation. Increased engagements across sectors both internally and externally will facilitate improved coordination. Additionally, political commitment has been noted as a key driver in advancing plans and an essential element in prioritizing the fight against under nutrition. Counties are encouraged to promote continued advocacy and meaningful communication to people (particularly in leadership positions) not previously familiar with nutrition issues to mobilize sustainable actions. Sustained commitment will be required to address the complex and long-term challenges in the actual implementation of scale up plans.

Recommendation 4:

Improve data management for decision making

The CNAP defines a common results measurement and accountability framework for county actions. There is a clear need to routinely collect and collate nutrition data from various sectors to inform planning and budgeting and provide clarity on equity and efficiency issues. This data must be discussed in the various coordination meetings to inform county decisions.