SCALING UP NUTRITION IN THE DEMOCRATIC REPUBLIC OF CONGO: WHAT WILL IT COST?

A POLICY BRIEF

by Meera Shekar, Max Mattern,
Luc Laviolette, Julia Dayton Eberwein,
Wendy Karamba, and Jonathan Kweku Akuoku

WORLD BANK GROUP

This policy brief presents cost estimates for implementing key nutrition interventions in the Democratic Republic of Congo (DRC) and compares the cost-effectiveness of several scale-up options.[1] The goal of the analysis is to aid the Government of the DRC in setting priorities by identifying the most cost-effective packages of interventions and by leveraging additional resources from domestic budgets and development partners.

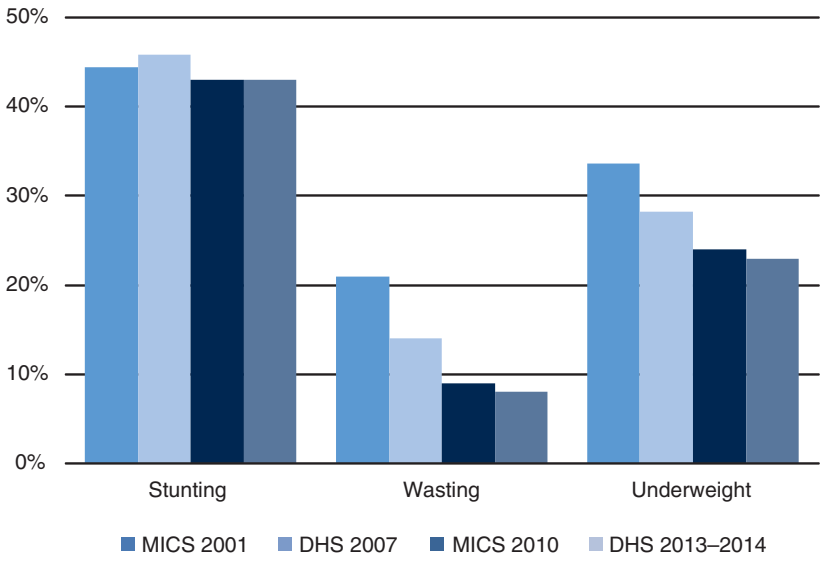
MALNUTRITION IN THE DRC

Malnutrition, particularly in very young children, leads to increased mortality rates, increased illness, and longer-term effects on cognitive abilities. These result in irreversible losses to human capital that contribute to later losses in economic productivity. Undernutrition is responsible for about one-half of under-five child mortality and one-fifth of maternal mortality in developing countries. Children who have been malnourished early in life are more likely to experience cognitive deficiencies and poor schooling outcomes. Longer term, stunting results in a loss of 10 to 17 percent in wages earned over a lifetime. It is estimated that vitamin and mineral deficiencies in the DRC collectively add up to an estimated loss of over $100 million in gross domestic product (GDP) every year (World Bank 2011).[2]

Despite being home to only 1 percent of the world's population, the DRC is one of the five countries responsible for half of all deaths globally among children under five years of age (WHO 2012).[3] Between 2001 and 2014, the prevalence of stunting among children under five in the DRC—about 43 percent—remained practically unchanged in the country, in spite of reductions in the prevalence of underweight and wasting (Figure 1). Micronutrient deficiencies (*hidden hunger*) are also prevalent, with particularly high vitamin A deficiency and anemia rates.

A number of interventions are effective in reducing malnutrition and are consistently identified as being among the most cost-effective development actions, with huge potential to reduce poverty and boost prosperity. Investing in nutrition can increase a country's GDP by between 3 and 11 percent annually (Horton and Steckel 2013).[4] Cost-benefit analysis shows that nutrition interventions are highly effective (World Bank 2010; Hoddinott et al. 2013).[5] Investments in early nutrition have the potential to boost wage rates by 5 to 50 percent and make children 33 percent more likely to escape poverty in the future, as well as to address gender inequities.

FIGURE 1 STUNTING, WASTING, AND UNDERWEIGHT IN CHILDREN UNDER FIVE IN THE DRC, 2001–2014



Sources: Multiple Indicators Cluster Survey (MICS) 2001, 2010; Demographic Health Survey (DHS) Program 2007, 2013–2014. See the full HNP Discussion Paper *Scaling Up Nutrition in the Demographic Republic of Congo: What Will it Cost?* for source information.

INTERVENTIONS TO REDUCE MALNUTRITION

This policy brief presents the cost of scaling-up effective interventions in the DRC and compares different scale-up scenarios to examine which scenario produces the best results for the lowest cost. The analysis considers 10 nutrition-specific interventions that have been shown to be effective in reducing malnutrition (Box 1). The expected results include lives saved, cases of stunting averted (for some scenarios), and life years adjusted for disability saved as a result of the interventions. *Cost-effectiveness* is measured as the cost per life saved, cost per stunting case averted, and cost per life year adjusted for disability saved. We estimate the total costs for scaling up all 10 interventions nationwide, and also three more modest scale-up options: (1) focusing on only the regions with the highest burden of malnutrition, (2) scaling up only a subset of interventions, and (3) scaling up a subset of interventions only in the regions with the highest burden of malnutrition. We also estimate the cost of scaling up six nutrition-sensitive interventions in the agriculture and education sectors that have shown some potentional for improving nutritional outcomes.

BOX 1: NUTRITION-SPECIFIC AND NUTRITION-SENSITIVE INTERVENTIONS CONSIDERED IN THE ANALYSIS

Nutrition-specific interventions address the immediate determinants of child nutrition:

1. Community nutrition programs for growth promotion
2. Vitamin A supplementation
3. Therapeutic zinc supplement with oral rehydration salts
4. Micronutrient powders
5. Deworming
6. Iron-folic acid supplementation for pregnant women
7. Iron fortification of staple foods
8. Salt iodization
9. Public provision of complementary food for the prevention of moderate acute malnutrition
10. Community-based management of severe acute malnutrition in children

Nutrition-sensitive interventions are delivered through sectors other than health and have the potential to improve nutrition indirectly:

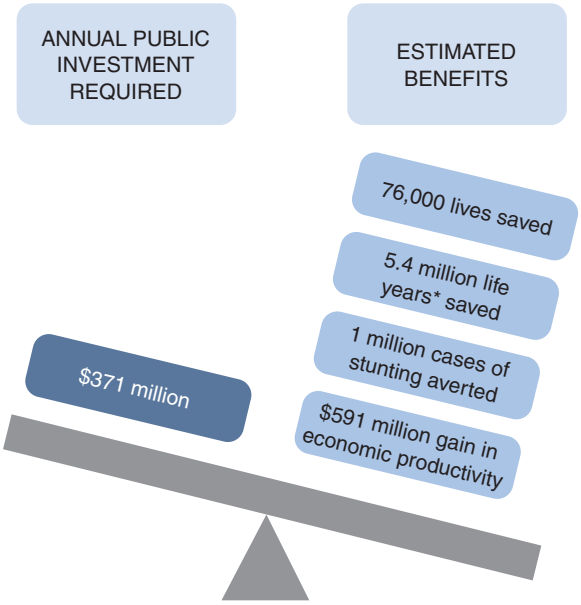
1. Biofortification of cassava
2. Aflatoxin control in maize and groundnuts through biocontrol
3. Promotion of the wetting method for konzo control
4. School-based based deworming
5. School-based promotion of good hygiene
6. Water, sanitation, and hygiene infrastructure

NUTRITION-SPECIFIC INTERVENTIONS

Implementing 10 nutrition-specific interventions in all regions of the DRC would cost $371 million annually and has the potential to increase economic productivity by $591 million each year over the productive lives of the beneficiaries (Figure 2), as well as to yield an impressive internal rate of return on the investment of 13.6 percent. Most of the 10 interventions are very cost-effective, with the exception of the public provision of complementary food for the prevention of moderate acute malnutrition, which is not cost-effective.

Given resource constraints, achieving immediate full national coverage is probably not possible, so we consider various scale-up options.

FIGURE 2 COSTS AND BENEFITS OF SCALING UP 10 NUTRITION-SPECIFIC INTERVENTIONS IN DRC



*Life years adjusted for disability (DALYs).

Based on total resource requirements and the cost-effectiveness of scaling up a subset of the most cost-effective interventions in the highest burden provinces,[6] the three options presented here achieve the best outcomes for the lowest cost (Box 2). Because all three of these options have similar costs per life year saved, the choice between them will depend largely on the resources available to fight undernutrition in the DRC.

The costs of the interventions estimated here are likely to be slight overestimates, while the benefits are likely to be underestimated. In many cases, actual program costs will be lower than estimated because they can be added to existing programs. Experience shows that the incremental costs of adding to a program that already exists are lower because existing implementation arrangements can be used, thus containing costs for staffing, operations, and training. In effect, we do not account for all of the expected economies of scale. With respect to the benefits, our estimates are

BOX 2: THREE COST-EFFECTIVE SCALE-UP OPTIONS

If full coverage is not immediately feasible, the three most cost-effective gradual scale-up scenarios are:

1. **Most cost-effective:** Scale up a subset of the most cost-efficient interventions in nine high-burden provinces:
   - **$185 million** required
   - 3.6 million life years saved*
   - 44,000 lives saved
   - ***cost per life year saved = $48***
2. **Lowest cost:** Scale up the same subset of the most cost-efficient interventions in the five highest-burden provinces:
   - **$97 million** required
   - 1.8 million life years saved*
   - 22,000 lives saved
   - ***cost per life year saved = $50***
3. **Greatest benefits, very cost-effective:** Scale up a subset of the most cost-efficient interventions in all provinces:
   - **$279 million** required
   - 5.3 million life years saved*
   - 66,000 lives saved
   - ***cost per life year saved = $49***

*Life years saved adjusted for disability (DALYs)

likely to be underestimates of the true benefits since, because of methodological limitations, we are not able to estimate the benefits of some of the interventions we cost.

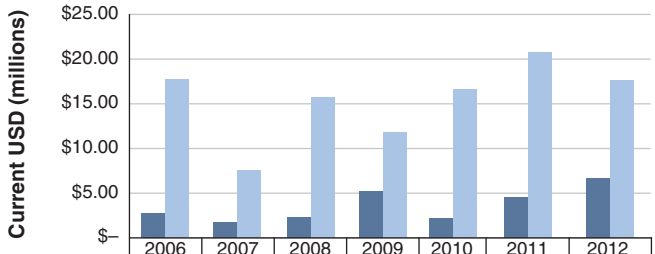
NUTRITION-SENSITIVE INTERVENTIONS

Evidence for the impact of nutrition-sensitive interventions is less conclusive than evidence for nutrition-specific ones, and therefore our estimates of costs and benefits are preliminary. The estimated annual costs are modest: $13 million for biofortication of yellow cassava; $31 million for aflatoxin control; $5 million for promoting the wetting method for controlling konzo; $2 million for school-based deworming; $13 million for school-based promotion of good hygiene, and $1.04 billion for the water, sanitation, and hygiene intervention. We were not able to estimate the benefits of these interventions because of data and methodological shortcomings. More robust data on nutrition-sensitive interventions are needed to inform future scale-up priorities.

FINANCING IMPROVEMENTS IN NUTRITION

The identification of sources of financing is a crucial next step in planning for the scale-up of nutrition interventions in the DRC. A large gap currently exists between what is being invested in nutrition interventions and the most modest of the scale-up scenarios proposed here. The country's development partners are the main source of financial support for health and nutrition interventions. The government of DRC currently allocates only approximately 4 percent of its total budget to health, only a fraction of which is for nutrition. Total donor financing for nutrition interventions is also low, but it has gradually increased from about $20 million annually in 2007 to $25 million in 2012 (Figure 3). More recently, the UK Department for International Development provided $7.3 million in support of nutrition interventions during 2013–2015, and the World Bank is planning $16.4 million for key nutrition interventions for 2015–2020. USAID contributes about $10 million a year to the treatment of severe acute malnutrition plus about $30 million a year for food assistance programs. ECHO, the Government of Belgium and the Government of Japan also support emergency nutrition services and community based management of severe acute malnutrition. Nevertheless, given that the most modest of the scenarios presented here would require $97 million in annual investment, identifying additional sources of funding must be a priority. Furthermore, current aid for nutrition is heavily focused on addressing wasting,

FIGURE 3 TRENDS IN DONOR FUNDING FOR NUTRITION (2006–2012)



	2006	2007	2008	2009	2010	2011	2012
Basic Nutrition ODA	$2.74	$1.93	$2.22	$5.10	$2.23	$4.75	$6.85
Humanitarian Nutrition Funding	$17.93	$7.89	$15.78	$11.95	$16.79	$20.90	$17.89

Sources: OECD. 2014. International Development Statistics (IDS) online databases. Accessed July 31, 2014. UNOCHA. 2014. Financial Tracking Services online database. Accessed July 31, 2014.

despite levels being low relative to stunting, and most current donor funding is supporting "supply side" interventions such as nutrition supplements and community-based treatment of severe acute malnutrition. Efforts to expand to demand-side interventions, such as behavior change campaigns that change the choices households make for good nutrition, are needed.

CONCLUSION

Overall, these findings point to a powerful set of nutrition-specific interventions and a candidate list of nutrition-sensitive approaches that represent a highly cost-effective approach to reducing the destructively high levels of child malnutrition in the DRC. Critical next steps are for the Government of the DRC and its partners to develop a road map of key actions to pursue and to identify milestones to be reached in addressing undernutrition in the country.

ENDNOTES

1. For the full report, see the 2015 HNP Discussion Paper *Scaling Up Nutrition in the Democratic Republic of Congo: What Will It Cost?*
2. All dollar amounts are U.S. dollars unless otherwise indicated. World Bank. 2011. *Congo—Nutrition at a glance. Nutrition at a glance.* Washington DC: World Bank.
3. WHO (World Health Organization). 2012. "Child Health" *Global Health Observatory data.* Geneva: WHO. http://www.who.int/gho/child_health/en/
4. Horton S. and R. Steckel. 2013. "Global Economic Losses Attributable to Malnutrition 1900–2000 and Projections to 2050." In *The Economics of Human Challenges*, ed. B. Lomborg, Cambridge, UK: Cambridge University Press.
5. World Bank. 2010. *Scaling Up Nutrition. What Will It Cost?* Washington, DC: World Bank; Hoddinott, J., H. Alderman, J. R. Behrman, L. Haddad, and S. Horton. 2013. "The Economic Rationale for Investing in Stunting Reduction." *Maternal and Child Nutrition* 9 (Suppl. 2): 69–82.
6. The subset of interventions includes micronutrient and deworming interventions; community nutrition programs for growth promotion, and community-based treatment of severe acute malnutrition.

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