



MATERNAL, NEWBORN, AND CHILD HEALTH IN TANZANIA: COSTS AND IMPACTS OF THE ONE PLAN II

Brief

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Overview

Tanzania's sustained development and transition to middle-income status depend on the health of its people. In recognition of this fact, the Government of Tanzania (GOT) has prioritized reproductive, maternal, newborn, child, and adolescent health (RMNCAH), adopting a broad foundation of policies to inform RMNCAH programming. Yet, in recent years, progress toward achieving Millennium Development Goal (MDG) targets for child, maternal, and neonatal health has been uneven, in large part due to funding and implementation challenges. To overcome these challenges and accelerate progress, the GOT developed a *National Road Map Strategic Plan to Improve Reproductive, Maternal, Newborn, Child and Adolescent Health in Tanzania (2016-2020): One Plan II*. In 2015, the USAID-funded Health Policy Project (HPP) conducted an analysis to project the costs and health impacts of achieving the government's new commitments outlined in the *One Plan II*, and to identify the remaining challenges for implementing the plan.

The Status of Maternal, Newborn, and Child Health in Tanzania

Tanzania has made significant progress toward reducing child mortality (MDG 4) by lowering the under-five and infant mortality rates. This reduction has come at an average annual rate of 7.1 percent and 8.5 percent from 2000 to 2013, respectively [1].

However, progress in improving newborn survival has been slower. Neonatal deaths account for 40 percent of all deaths among children under age five and are mostly due to preventable causes. The leading causes of neonatal deaths in Tanzania as of 2012 were asphyxia (31% of all neonatal deaths), prematurity (25%), and sepsis (20%) [1].

Finally, despite recent gains, Tanzania is off-track to meet the MDG 5 target for maternal health. Although the maternal mortality ratio (MMR) decreased from 870 to 410 deaths per 100,000 live births from 2000 to 2013,

this rate of decrease is insufficient to meet the 2015 target of 193 maternal deaths per 100,000 live births [1]. Maternal deaths, based on regional estimates, are also mostly preventable and primarily a result of indirect causes (29% of all maternal deaths), including post-partum hemorrhage (25%) and hypertensive diseases (16%) [1].

Contributing factors and challenges to improving maternal, newborn, and child health

Several factors have contributed to both the successful achievement of the MDG 4 target for child health and the slower progress for newborn and maternal health. An evaluation of Tanzania's health system suggests that while key child health programming (vaccines, malaria, HIV) has been prioritized globally and implemented with high coverage in Tanzania, implementation of complex maternal health and family planning (FP) programs have been less comprehensive in scope and coverage [1]. Many maternal and newborn lifesaving interventions require access to more advanced systems with timely delivery of emergency services, compared to critical child health interventions. Demand-side efforts, such as exemptions and waivers for user fees, that should help to ease barriers to accessing care for women and poor households have been inconsistently funded and implemented, and results do not match goals [2].

Addressing funding and implementation challenges of maternal, newborn, and child healthcare will be critical as Tanzania moves toward Vision 2025 and the new Sustainable Development Goals that call for universal access to essential health services. In light of this, the GOT is setting new RMNCAH goals, outlining priority interventions and services, and aiming to rapidly scale-up coverage of RMNCAH services to meet targets for maternal, child, and newborn health.

The status of RMNCAH policy in Tanzania

Tanzania has adopted a broad foundation of policies to inform RMNCAH programming. In April 2014, the GOT launched the *Sharpened One Plan* to fast-track RMNCAH progress over a 500 day period [3]. Under the Big Results Now initiative, the GOT is striving to

expand coverage and improve the quality of emergency obstetric and newborn care services in five priority regions from 2015 to 2018 [4]. RMNCAH services and activities are also prioritized in the *Health Sector Strategic Plan IV 2016-2020 (HSSP IV)* [5].

Linked to the *HSSP IV*, the GOT recently developed the *One Plan II*—a draft medium-term strategy for RMNCAH that serves to guide and coordinate RMNCAH programs across Tanzania's health system. The plan aims, “to promote, facilitate and support in an integrated manner, the provision of comprehensive, high impact and cost effective RMNCAH services, along the continuum of care, to accelerate reduction of maternal, newborn and child morbidities and mortality” [6].

The *One Plan II* sets several RMNCAH targets to be reached by 2020, including reducing the

- MMR from 410 to 292 deaths per 100,000 live births
- Neonatal mortality rate from 21 to 16 deaths per 1,000 live births
- Infant mortality rate from 45 to 25 deaths per 1,000 live births
- Under-five mortality rate from 54 to 40 deaths per 1,000 live births

To achieve these goals, the *One Plan II* calls for the rapid scale-up of institutional deliveries; hospitals and health centers providing comprehensive and basic emergency obstetric and newborn care services (CEmONC and BEmONC); and women receiving antenatal and post-natal care. The plan also emphasizes immunization, HIV services for pregnant women and children, reproductive health services, and adolescent-friendly services.

Projected Cost of Expanding RMNCAH Services

Using the OneHealth Tool, a model for medium- to long-term strategic planning in the health sector, HPP estimated the costs, human resource constraints, and impact of implementing the *One Plan II*. The results of the analysis include RMNCAH program management and commodity costs. Program management costs are the costs of program-specific

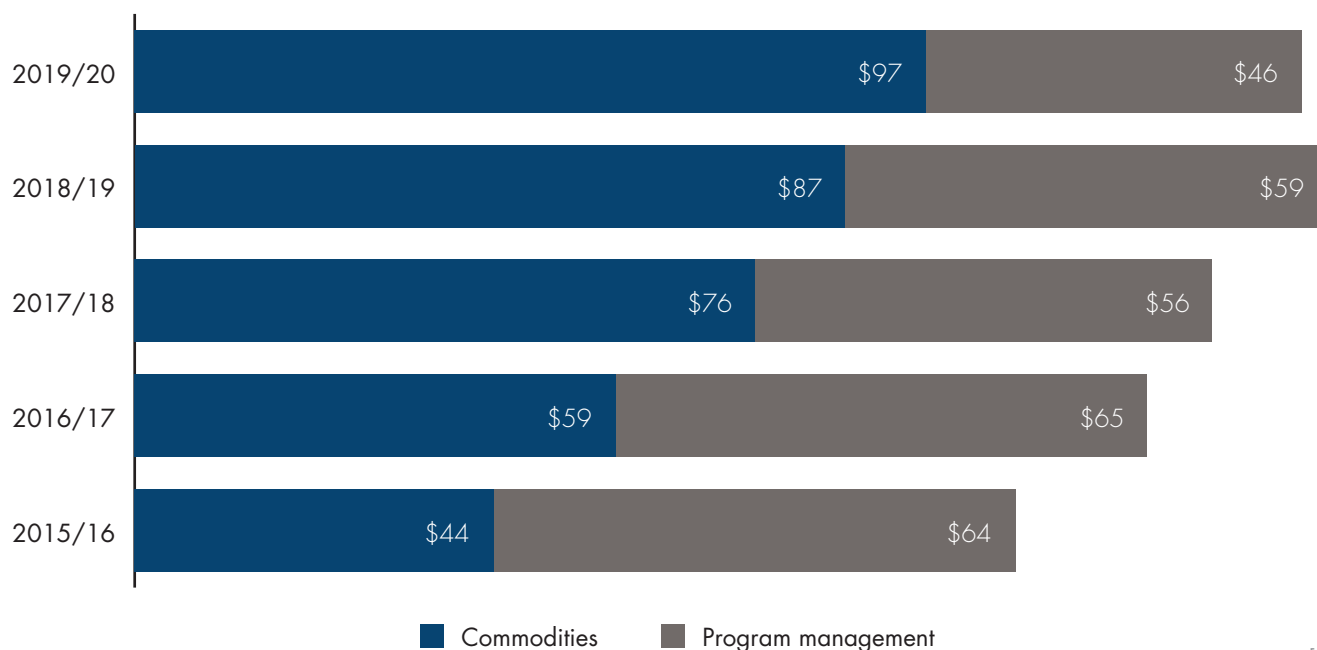
human resources; training; supervision; monitoring and evaluation; infrastructure and equipment; transport; communication, media, and outreach; and advocacy. These program management costs are overseen by the Reproductive and Child Health Section in Tanzania’s Ministry of Health and Social Welfare and are conducted at national and sub-national levels. RMNCAH commodity costs are the costs of the drugs and supplies needed to provide clinical RMNCAH interventions and exclude freight, quality assurance, wastage, and other procurement and supply chain management costs. To determine commodity costs, the study team estimated the costs of delivering 48 RMNCAH interventions across the continuum of care (exclusive of vaccines). Through a multi-stakeholder prioritization exercise for the *HSSP IV*, interventions across all health programs were classified as vital, essential (first to third priority sub-ratings), or non-essential. Vital and first-priority essential interventions assume increases in coverage from fiscal years (FYs) 2015/16 to 2019/20, whereas all other interventions have flat coverage over time. Of the 48 RMNCAH interventions, 43 were classified as vital or first-priority essential interventions. Health systems costs that cut across programs, such as the cost of human resources for health and facility operating costs, are calculated separately in the OneHealth Tool and are not reported

in this brief. Staff from the Ministry’s Reproductive and Child Health Section provided all cost assumptions and set targets by geographical zone. All costs are in 2014 dollars.

Total projected RMNCAH costs

The financial resources needed for RMNCAH programming under the *One Plan II* and *HSSP IV* are projected to increase by nearly one-third from US\$108 million in FY 2015/16 to US\$143 million in FY 2019/20 (Figure 1). The total cost of RMNCAH commodities and program management from FYs 2015/16 to 2019/20 is estimated at US\$653 million (TZS 1.3 trillion). Over half (56%) of the total costs are for commodities, with the remaining costs going toward program management. This is because commodity costs increase as coverage is scaled up, while program management costs decline due to initial investments in training, advocacy, monitoring and evaluation, and program-specific infrastructure and equipment that are made at the onset. RMNCAH costs represent a significant proportion of the total *HSSP IV* resource requirements. By FY 2019/20, in terms of resources required, RMNCAH could represent 12 percent of health services cost and be the third highest-cost program within the *HSSP IV*, following HIV and AIDS and non-communicable diseases [7].

Figure 1. Total RMNCAH Costs by Year (US\$M)



Source: [7]

Box 1. 16 Rapidly Scaled-Up RMNCAH Interventions

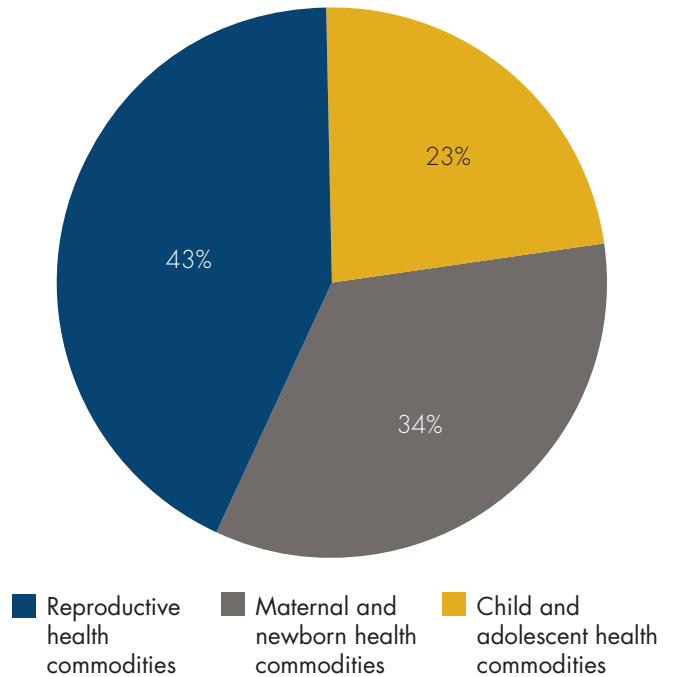
- Management of anemia (maternal)
- Management of pre-eclampsia (magnesium sulfate)
- Management of eclampsia (magnesium sulfate)
- Management of obstructed labor
- Treatment of postpartum hemorrhage
- Neonatal resuscitation (institutional)
- Newborn sepsis (injectable antibiotics)
- Vitamin K1 and iron supplementation for low birth weight babies
- Kangaroo mother care
- Preventive postnatal care (within 2 days)
- Treatment of anemia (child and adolescent)
- Management of moderate acute malnutrition (MAM) in children
- Management of severe acute malnutrition (SAM) in children
- Treatment of severe anemia (child and adolescent)
- Diarrhea treatment (zinc)
- Deworming (children)

Tanzania plans to at least double the coverage rate of these interventions from 2015/16 to 2019/20.

Program management costs

The majority of RMNCAH program management costs are for in-service trainings, which account for 61 to 66 percent of annual RMNCAH program management costs. Program management costs for child and adolescent health will total US\$177 million across all five years, decreasing from US\$41 million in FY 2015/16 to US\$27 million in FY 2019/20. About two-thirds (64%) of these costs are for adolescent health activities. The vast majority (71%) of child and adolescent program management costs are for training,

Figure 2. Commodities Cost



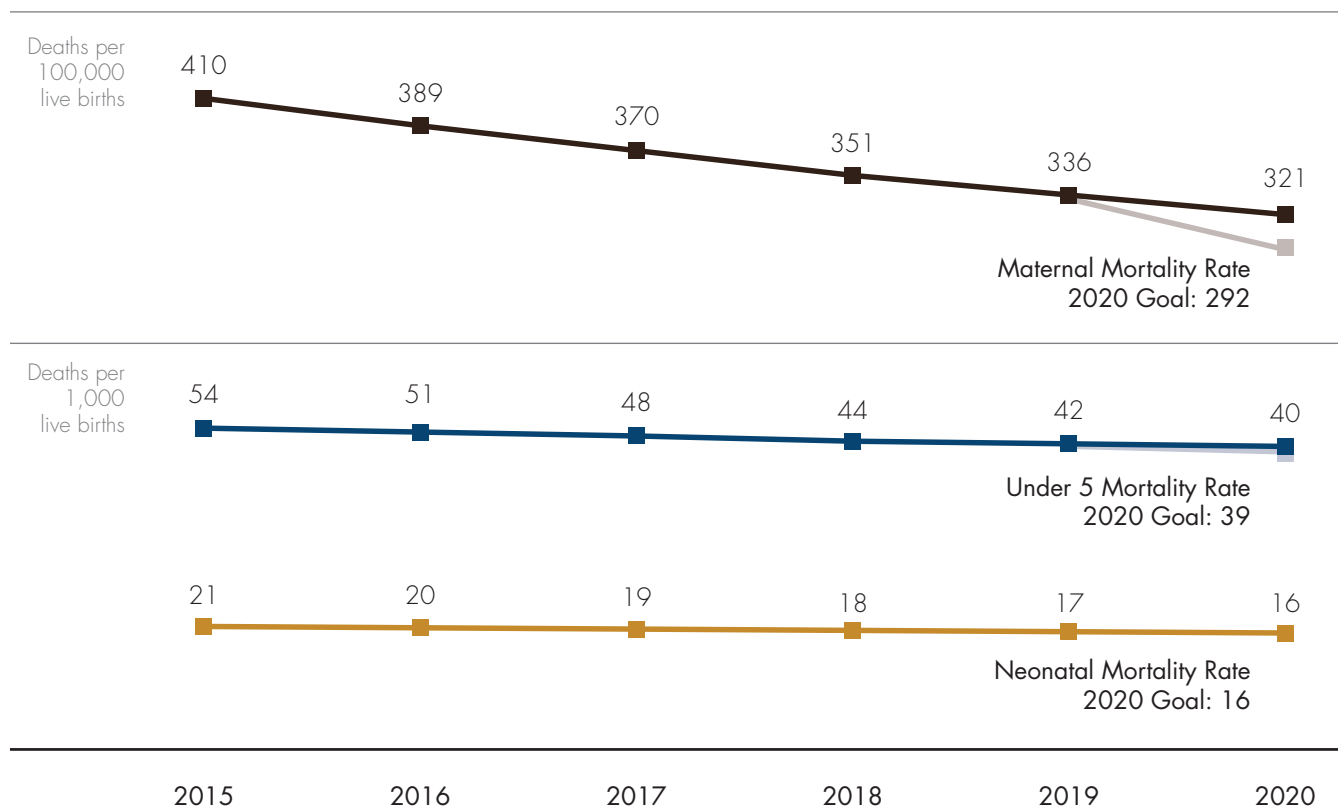
followed by communication, media, and outreach activities (13%). Program management costs for the maternal and newborn health program will range from US\$26 to US\$32 million, while program management for the FP program will range from US\$13 to US\$17 million per year.

Commodities costs

RMNCAH commodity costs (exclusive of procurement and supply chain management) are projected to increase from US\$44 to US\$97 million from FY 2015/16 to FY 2019/20. Of the original 43 RMNCAH interventions the study team classified as vital or priority, it is estimated that coverage will at least double for 16 of the interventions under the *OnePlan II* (Box 1). The five-year commodity costs for those 16 will total US\$140 million (38% of the total commodity costs).

Child and adolescent health represent 43 percent of the total RMNCAH commodity costs (Figure 2). Management of severe acute malnutrition is the largest cost driver of child health costs, accounting for 44 percent of child and adolescent health commodity costs and increasing from US\$3 million to US\$23 million between FYs 2015/16 and 2019/20. This is a result of the high cost of treatment per malnourished child and

Figure 3. Projected Impact on Maternal, Newborn, and Child Mortality



Source: [7]

proposed increases in coverage (2% to 10%) of severely undernourished children.

Maternal and newborn health is about one-third of total RMNCAH commodity costs. Management of normal labor and delivery is the highest-cost intervention, totaling US\$52 million from FY 2015/16 to FY 2019/20. These costs anticipate a gradual increase from 51 to 80 percent of women delivering in health facilities. While the unit cost of commodities for normal labor and delivery management is low (US\$7.26), this intervention represents a significant cost due to the large number of women projected to receive the intervention.

Reproductive health commodities account for 23 percent of the total RMNCAH commodity costs, increasing from US\$11 to US\$22 million per year between FYs 2015/16 and 2019/20. This is due to the projected increase in Tanzania's contraceptive prevalence rate (from 35–60%).

The Health Impact of Investing in RMNCAH Services

The maternal and child health impact of implementing the *HSSP IV* was estimated using the Lives Saved Tool (LiST), which projects changes in maternal and child mortality based on changes in healthcare coverage and built-in assumptions on the effectiveness of interventions to reduce the probability of an outcome or specific cause of maternal or child mortality. The model estimates that Tanzania can meet its 2020 targets for neonatal and under-five mortality rates if services are scaled-up as planned (Figure 3). However, Tanzania may not reach its *HSSP IV* maternal mortality target of 292 deaths per 100,000 live births by FY 2019/20. The modeling analysis projects the MMR to decrease from 410 to 321 per 100,000 live births from FY 2015/16 to FY 2019/20 based on currently planned scale-up of interventions under the *HSSP IV*.

Maternal mortality by delivery scenario

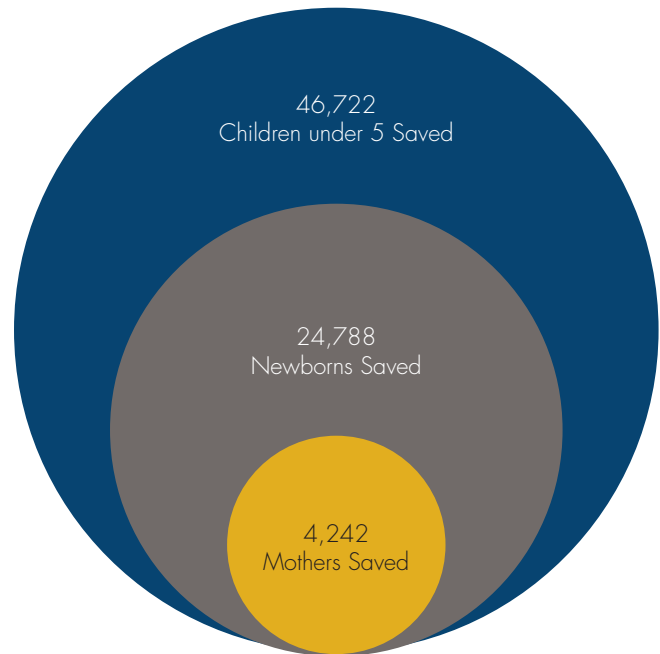
The effectiveness of certain maternal health interventions on averting maternal mortality is dependent on the place and type of delivery. For example, CEmONC is much more effective at addressing causes of death such as antepartum hemorrhage and hypertensive diseases than BEmONC and essential care. Therefore, the study team ran a separate analysis to assess the impact of skilled-birth attendant deliveries across three different scenarios: 1) essential care, 2) BEmONC, and 3) CEmONC. Across all three scenarios, skilled-birth attendant deliveries are scaled up from 50.5 to 80 percent of all deliveries.

The results indicate that the OnePlan II maternal mortality target can only be achieved under the CEmONC scenario. Under the CEmONC scenario, 816 additional maternal lives could be saved, compared to the essential care scenario. Similarly, under this scenario the MMR could be reduced to 284 per 100,000 live births by FY 2019/20. Despite the high impact of the CEmONC scenario, a cause of death analysis shows that complications requiring CEmONC could be prevented through improved skilled care, including antenatal care and active management of the third stage of labor.

Over 75,000 lives saved

Still, scale-up of health services under the *HSSP IV* is estimated to save many lives (Figure 4). From FYs 2015/16 to 2019/20, a total of 75,752 deaths could be prevented, with the annual number of lives saved growing each year of the five-year plan. Most of the lives saved (approximately 94%) would be among children under age five, 24,788 of which are neonates. Scale-up of labor and delivery management (19% of all neonatal lives saved), neonatal resuscitation (19%), and antenatal corticosteroids for pre-term labor (18%) have the largest impact on neonatal lives saved, while anti-malarial medicines (20% of all under-five lives saved), oral antibiotics (10%), and oral rehydration solution (9%) have the largest impact on saving lives of children under age five. Vaccinations will also be critical. While vaccinations seem to have a lower additional modeled impact in terms of lives saved past the baseline year (FY

Figure 4. Total Lives Saved 2015–2020



2015/16), their sustained high-coverage rates are key to meeting RMNCAH targets. Improved targeting of the therapeutic feeding interventions for acute malnutrition to the children most at need may improve cost-effectiveness vis-à-vis reductions in under-five wasting. Undernutrition is a significant cause of child morbidity and mortality, with 41 percent and 22 percent of children under five in Tanzania in need of treatment for moderate and severe malnutrition, respectively. At present, the moderate and severe acute malnutrition interventions contribute more than 50 percent of the commodity costs of child health interventions beginning in FY 2017/18.

From FYs 2015/16 to 2019/20, 4,242 maternal lives can be saved by meeting the coverage targets of the *HSSP IV* and *One Plan II*. Scale-up of five high-impact interventions—active management of the third stage of labor, labor and delivery management, maternal sepsis case management, contraceptive use, and management of eclampsia with magnesium sulfate—account for two-thirds of the maternal lives saved. About 25 percent of these maternal deaths can only be effectively averted through expanding the availability of, and timely access to, facility-based CEmONC.

Conclusion

Challenges in meeting Tanzania's RMNCAH goals

Although the GOT has strongly prioritized RMNCAH in the *HSSP IV*, and the *One Plan II* offers a detailed roadmap for meeting RMNCAH goals, implementation of the plan and achieving those goals may be a challenge due to fiscal space, human resources, and other constraints. For example, the number of nurses needed to provide RMNCAH interventions alone is estimated to grow from 37,665 in FY 2015/16 to 58,541 in FY 2019/20. This estimate is based on the time it takes to deliver RMNCAH services. Yet, the GOT estimates there will be only 57,074 nurses in the country in FY 2019/20 and they will be deployed to cover other health services as well. This means it is unlikely that Tanzania will have enough nurses to scale-up RMNCAH services as planned [7].

Further, while the GOT has committed to a comprehensive scale-up in RMNCAH services, allocation of the necessary funds will require concerted and coordinated efforts by the government and partners. While past funding shortfalls for RMNCAH have been hard to assess due to a lack of accurate cost and spending data across government and partners, they are likely to grow over time. Some analyses estimate RMNCAH funding levels, but they are limited in scope and do not provide enough detail on the types of RMNCAH costs covered. This means their funding estimates cannot be compared directly to the OnePlan II cost estimates to project the RMNCAH funding gap [8-11]. However, these analyses are useful as broad indications of what has been budgeted and spent on RMNCAH. *The National Health Accounts 2012/13* estimates that non-GOT expenditures on RMNCH totaled US\$86.4 million, representing 39 percent of total RMNCH (excluding adolescent health) spending [9]. A recent budget mapping exercise, across 24 development partners, estimated that US\$105 million was budgeted for RMNCH activities in FY 2013/14. This budget estimate did not include allocations for nutrition, vaccination, and healthcare workers [8]. Finally, a report on RMNCAH commodity security estimated that FP commodity needs are close to being met in 2015, but are unlikely to be met in 2016 based on currently-known FP commodity levels and

procurements [11]. More information is required on the funding for RMNCAH, and how local authorities are monitoring the implementation of user-fee exemptions for maternal health services, including financial arrangements with the Community Health Fund. Published evidence suggest that this exemption is inconsistently applied and pregnant women in rural areas are often paying at facilities for essential, delivery-related commodities [2,12].

New opportunities for expanding RMNCAH services

The Global Financing Facility in support of Every Woman Every Child (GFF), launched by various partners in September 2014, offers a new opportunity to fill a significant portion of RMNCAH funding gaps. This US\$4 billion initiative aims to end preventable deaths of women and children globally by 2030, and Tanzania is one of four initial countries to receive GFF support. Although the exact disposition of GFF funding for Tanzania is still unknown, Tanzania may be eligible to receive grant funds of up to US\$40 million from the GFF trust fund and up to US\$20 million from the Achieving Nutrition at Scale Multi-Donor Trust Fund across a five-year period from FYs 2015/16 to 2019/20 [13]. These funds will be aligned with US\$36 million in existing support from USAID for Eliminating Preventable Child and Maternal Deaths.

In addition, the recently agreed concessional loan from the World Bank of US\$200 million, which is linked to the GFF and will be used for strengthening primary healthcare, will be released annually through FY 2019/20 based on actual performance of the public health delivery structure. This loan will have a major role to play in supporting the scale-up of RMNCAH. Therefore, if the GOT's commitments, as outlined in the *One Plan II*, are matched with dedicated resource allocations from other sources, it may be possible to meet Tanzania's financing needs for RMNCAH. However, a detailed fiscal space analysis that considers GFF and other funding for RMNCAH is needed to assess the potential funding gap and to analyze if any programmatic shortfalls exist for specific needs (e.g., commodities, human resources, etc.). Policy implementation and assuring commodity security at the local level will also be essential to achieve Tanzania's goals.

In support of the GFF's overarching priorities, the GOT is increasing its domestic funding for health, strengthening institutional capacity, and incorporating results-based financing in the health sector. These reforms and the planned harmonization of health system programming by all stakeholders, together with continued strong policy development and implementation, will ultimately shape the success of the *One Plan II* goals and the health of women, newborns, and children in Tanzania.

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