FUNDING REQUEST

Tailored to Material Change

SUMMARY INFORMATION			
Applicant	**CCM, GHANA**		
Component(s)	**HIV/TB**		
Principal Recipient(s)	**MOH/GHS, WAPCAS**		
Envisioned grant(s) start date	**JANUARY 1, 2018**	**Envisioned grant(s) end date**	**DECEMBER 31, 2020**
Allocation funding request	***USD 78,106,402 million*** *TB – USD 14,891,925* *HIV – USD 63,214,477*	**Prioritized above allocation request**	**USD 24,873,221**

IMPORTANT:

To complete this funding request, please**:**

- Refer to the accompanying ***Funding Request Instructions: Tailored to Material Change***;
- Refer to the *Information Note* for each component as relevant to the funding request, and other guidance available, found on the Global Fund website;
- Ensure that all mandatory attachments have been completed and attached. To assist with this, an application checklist is provided in Annex of the Instructions;
- Ensure consistency across documentation before submitting.

Applicants are encouraged to submit a joint funding request for eligible disease components and resilient and sustainable systems for health (RSSH).

Joint TB/HIV submissions are compulsory for a selected number of countries with highest rates of co-infection. See the related guidance for more information.

This funding request includes the following sections:

Section 1: Context related to the funding request
Section 2: Program elements proposed for Global Fund support, including rationale
Section 3: Planned implementation arrangements and risk mitigation measures
Section 4: Funding landscape, co-financing and sustainability
Section 5: Prioritized above allocation request

SECTION 1: CONTEXT

This section should capture in a concise way relevant information on the country context and highlight the need for material change to programming. It should refer to the existing and latest sources of information available, particularly (but not limited to) national health plans and other national strategy documents. This information is critical for justifying the choice of interventions under the funding request.

To respond, refer to additional guidance provided in the *Instructions.*

1.1 Background: Material Change triggers

Indicate below the area(s) of change that most accurately describes the need for revising the programming of certain areas.

Refer to the *Instructions* and the *Operational Policy Note on Access to Funding and Grant-making* (*forthcoming*) for material change definition and triggers.

1. Epidemiological contextual updates	
Are there any relevant changes in the country's epidemiological context as compared to the previous funding request (e.g. important changes in trends in incidence/notification rates or prevalence, key drivers of the epidemics, emerging high risk behaviours, drug/insecticide resistance, or coverage of interventions in the general population or specific key populations based on the latest surveys or other data sources)?	☒ Yes ☐No
2. National policies and strategies revisions and updates	
Are there new approaches adopted within the national policy or strategy for the disease program (e.g. Test and Treat guidelines for HIV, short-term regimens for MDR-TB, shift in interventions from Malaria control to pre-elimination, expanded role of the private sector)?	☒ Yes ☐ No
3. Investing to maximize impact towards ending the epidemics	
Referring to available evidence and inputs from technical partners and key stakeholders, does the current program continue to be relevant, and is it progressing and generally on track to achieve results and impact?	☐ Yes ☒ No
4. Alignment with 2017 – 2022 Global Fund Strategy Objectives 2 and 3	
Objective 2 to Build Resilient and Sustainable Systems for Health	
Are changes in Resilient and Sustainable Systems for Health (RSSH) investments needed in order to maximize Reproductive Maternal Neonatal and Child Health impact, (RMNCH) or other RSSH areas?	☒ Yes ☐ No
Objective 3 to Promote and Protect Human Rights and Gender Equality	
Is there a need for intensifying efforts to address human rights and gender-related barriers to services and to ensure appropriate focus on interventions that respond to key and vulnerable populations?	☒ Yes ☐ No
5. Effectiveness of implementation approaches	
Are the current implementation arrangements effective to deliver on the program objectives and anticipated impact (including the Principal Recipient and the main sub-recipients)?	☐Yes ☒ No

6. Sustainability, transition and co-financing	
Are there changes in domestic or international financing (e.g. due to withdrawal of a major donor or significant increase in domestic allocation/funding), resulting in material impact on funding availability for programmatic interventions and sustainability?	☒ Yes ☐ No
Is your country's 2017-2019 Global Fund allocation for the disease component significantly lower as compared to the current grants' spending levels[1]?	☐ Yes ☒ No
7. Others:	
Specify:	

1.2. Summary of country context
Given the above, a) Describe the reasons for programmatic changes which form the basis of your funding request, as applicable (e.g. refocusing to high impact interventions, epidemiological changes, alignment with the latest normative guidelines, changes to funding landscape, etc.) b) As applicable, specify how these changes relate to key and vulnerable populations and human-rights and gender considerations; c) Describe how the request builds on lessons-learned from existing and other donors' programs. **(maximum 1 page per component)**

[1] **We suggest to compare the new allocation amount with the current spending on a yearly basis, past and/or forecasted. For example using the last year spending multiplied by 3.**

Reasons for material changes to the HIV programme

1. **Antenatal HIV sentinel surveillance data (HSS 2016) shows a change in the regional burden of disease despite an overall reduction in linear trend analysis (Figs 1 & 2).** In the current funding cycle, interventions have been prioritised to four regions based on having highest prevalence of HIV. Two non-priority regions now have the highest prevalence of HIV, therefore, the current prioritization of four regions based on HIV prevalence is no longer valid. For the past two years, there has been a consecutive increase in ANC prevalence while the national prevalence remains stable at 1.6%.
2. **In 2016, Ghana adopted the WHO 2015 anti-retroviral treatment guidelines and developed a Roadmap to achieve the 90-90-90 HIV targets by 2020.** Programmatic data shows that from 2010 to 2015, when there were eligibility criteria, about 14,000 PLHIV were initiated on ART annually. This number is expected to rise to 26,000 annually from 2018 with implementation of the "Treat All" policy and Roadmap. This requires substantial scale-up in ART centres from the existing 245 with prioritization based on district burden because several districts outside the four currently prioritized regions have higher patient load than some districts in the four prioritized regions. Given the relatively low prevalence of HIV in Ghana and available resources, testing to achieve the first 90 will target: (a) pregnant women, as part of efforts to eliminate mother-to-child transmission of HIV; (b) key populations because they have an HIV prevalence that is 3-8 times that of the general population; and (c) TB patients among whom the prevalence of HIV was 22% in 2016. See **Table 1** for testing-to-treatment cascade in 2016 for these target populations. Routine offer of HIV testing will continue in health facilities. Outreach testing in the general population will not be done because of low yield.
3. **PMTCT coverage is stagnant.** The number of pregnant women tested for HIV has increased by 43% from 492,622 in 2013 to 702,381 in 2016. However, **Figure 3** shows that HIV testing coverage in 2016 (62%) is similar to what was achieved in 2011 (63%). PMTCT coverage (pregnant women given ARVs) is low and flat over time ranging from 30-40% (**Figure 4**) because there are only 245 ART centres compared to over 3,000 antenatal clinics, due to a physician-led ART policy. At facilities that do not co-locate HIV testing and treatment, HIV-positive pregnant women are referred elsewhere for anti-retroviral treatment and often do not go. The same problem arises when HIV-positive pregnant women are asked to go to the HIV clinic for their supply of ART even when both the antenatal clinic and HIV clinic are in the same health facility. Coverage of Early Infant Diagnosis (EID) is also low at 19% due to limited DBS collection and transport services.
4. **Low TB/HIV collaborative programme efficiency.** Since 2012, only 37-43% of TB patients newly diagnosed with HIV also received anti-retroviral treatment (**Figure 5**). Again, this is due to a physician-led ART policy which means 15% of health facilities with DOTS also provide ART. TB patients referred to other facilities for ART often do not go.
5. **Current KP programmes are costly and low-yielding with poor linkages to HIV care and treatment.** The adoption of the 90-90-90 Roadmap and lessons from USAID KP programmes have necessitated a change in emphasis of KP programmes as follows: (a) prioritization of activities to 15 districts based on yield; (b) redefinition of "KP reached" as KP who have received condoms and an HIV test, as a minimum; (c) improving linkage of HIV positive KP to care and ART; and (d) improving alignment between GF-funded and USAID-funded KP programmes.
6. **Availability of new resources from external and domestic sources.** In 2016, PEPFAR committed $23.7 million to support ART targets in the 90-90-90 Roadmap in 2017 and 2018. Additionally, the USG provides $12.45 million annually for HIV programming in Ghana (PEPFAR COP 2017-2018). The contribution of the Government of Ghana to HIV programming is expected to increase from $22 million in 2018 to $53 million in 2020 (USG-GoG MoU, Nov. 2016).

Additional lessons learned are that: (i) a physician-led ART programme is inadequate to achieve 90-90-90 targets; (ii) nurses can successfully initiate ART and follow-up PLHIV on ART; and (iii) segregated HIV clinics are a barrier to ART uptake. (iv) Differentiated care models hold the potential for improved efficiency and quality in patient care within ART settings. (v) Integrating PMTCT in MNCAH care through harmonized service delivery and

data collection systems e.g. single mother-baby records etc facilitates efficiency and improved coverage as is currently being operationalized.

Figure 1: Regional prevalence of HIV among pregnant women in 2015 and 2016 based on antenatal HIV sentinel surveillance (HSS)

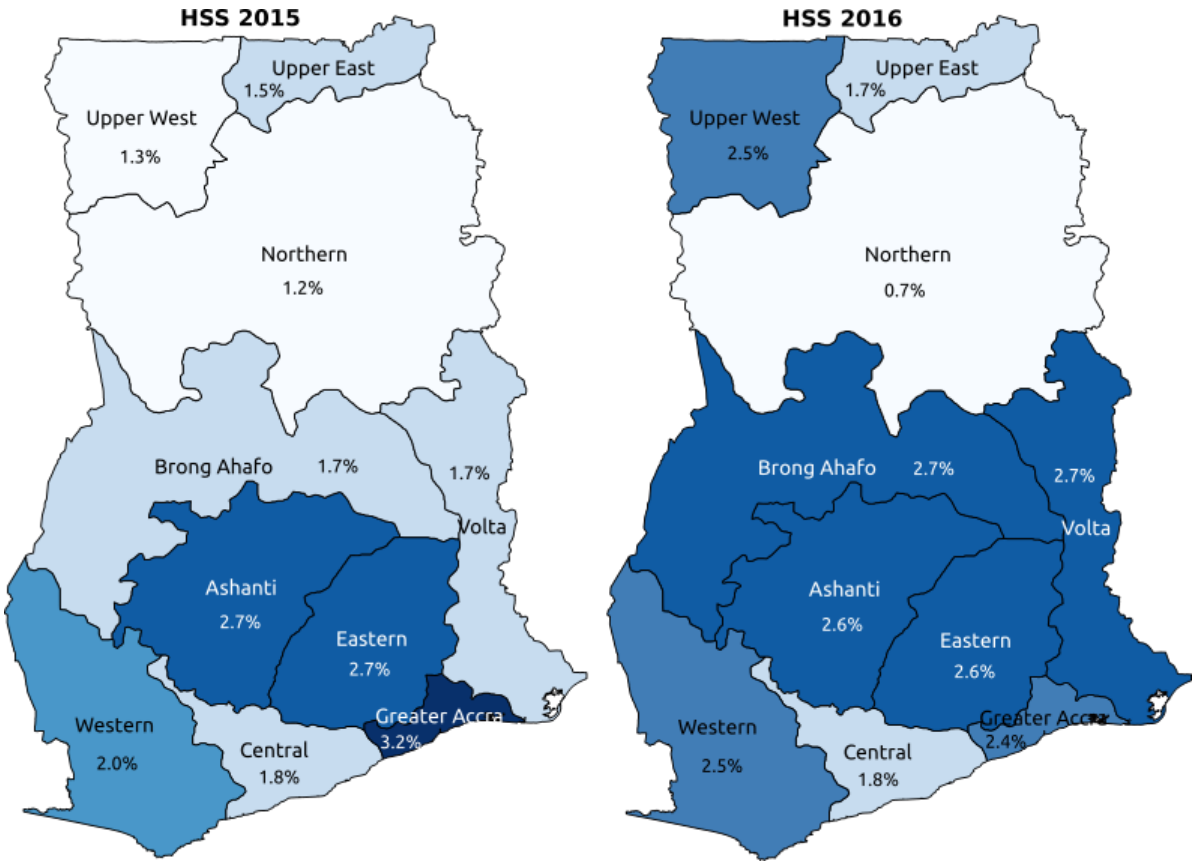


Figure 2: Median HIV prevalence 2001-2016 with linear trend (HSS)

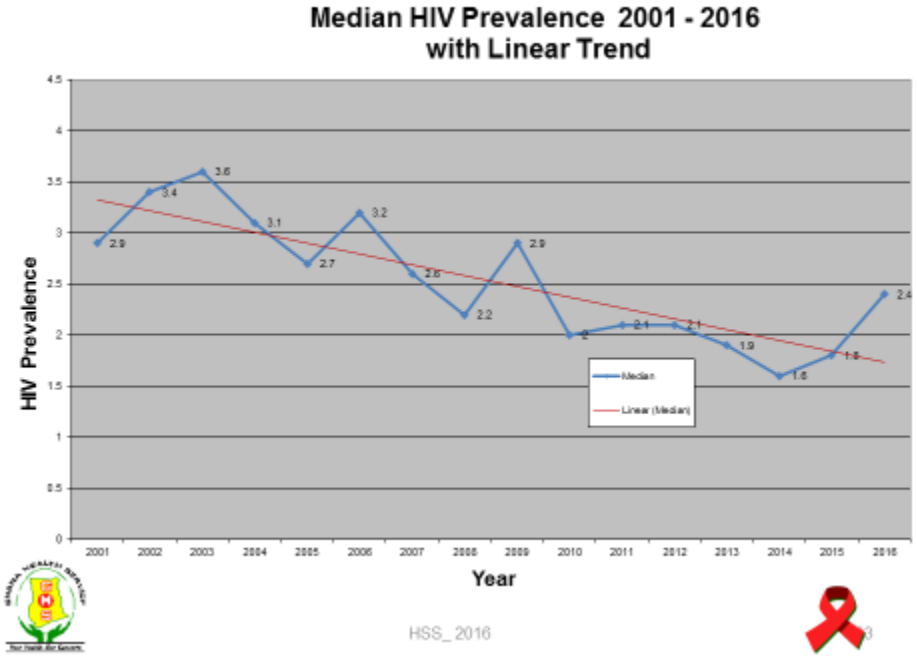


Table 1: Testing-to-treatment cascade for target populations in 2016 based on programmatic data

Target population	Estimated total population	Tested	Positive	Initiated on ART
Pregnant women	1,132,332	702,381	18,116	9,680
Female sex workers	65,052	20,623	1,130	396
Men who have sex with men	30,579	6,372	639	185
Patients with tuberculosis	14,675	12,275	2,838	1,207

Figure 3: Number of pregnant women tested for HIV and testing coverage from 2010 to 2016 based on routine programme data

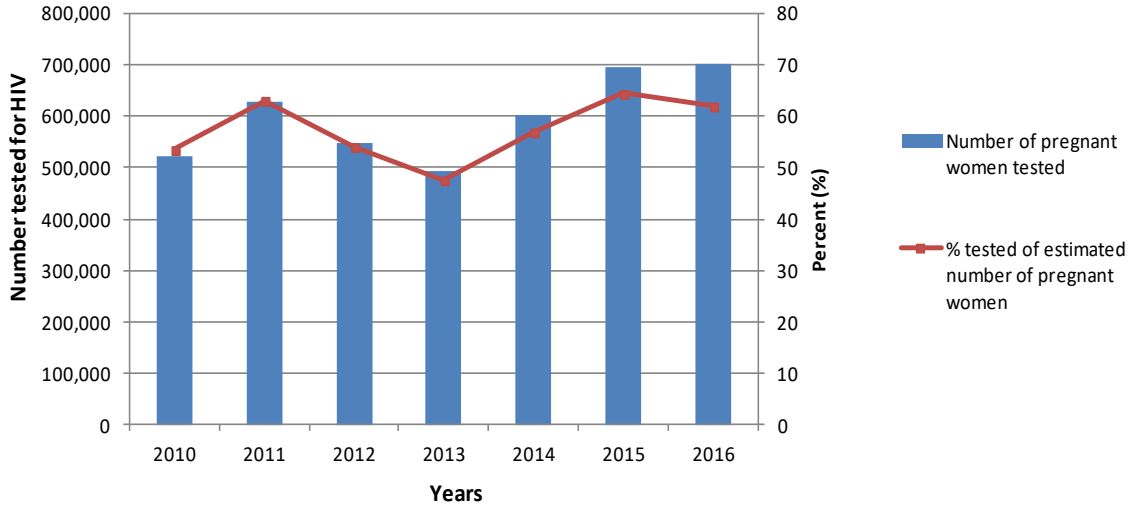


Figure 4: PMTCT coverage and programme efficiency from 2010 to 2016 based on routine programmatic data

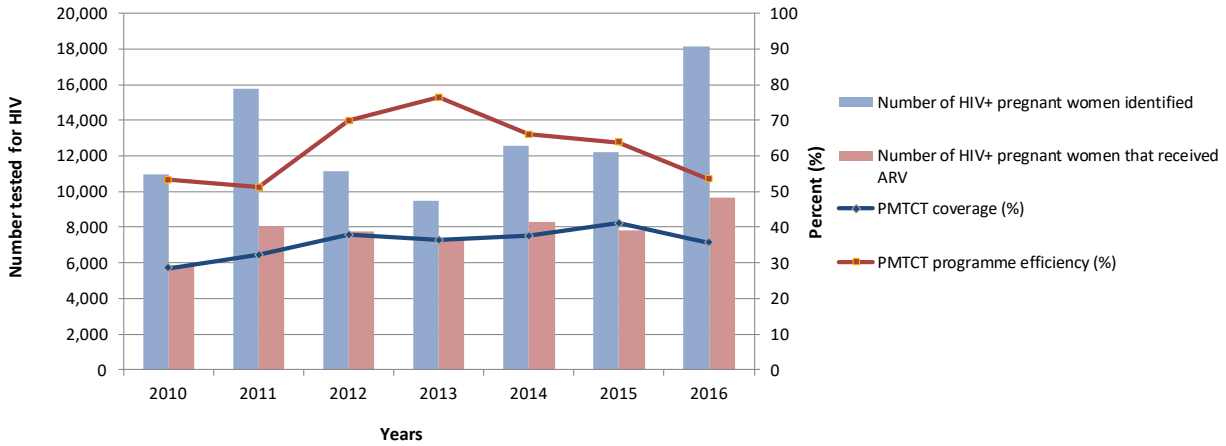
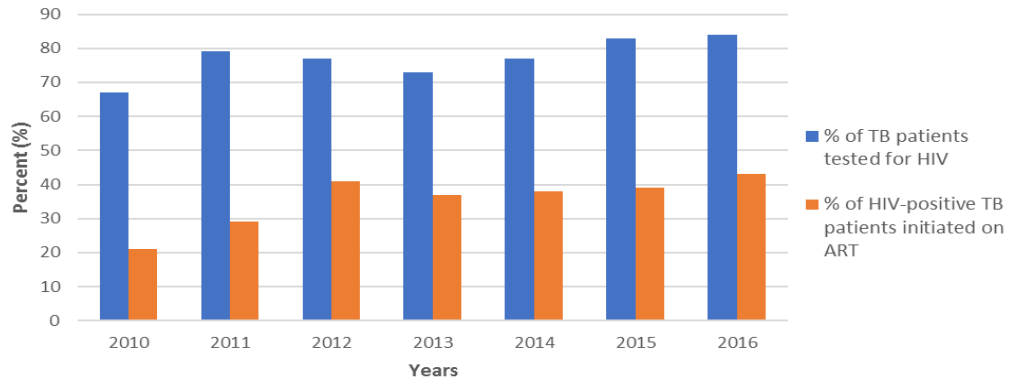


Figure 5: HIV testing and treatment coverage among TB patients from 2010 to 2016 based on routine programmatic data



The TB Programme

In the current grant cycle the programme is systematically addressing key findings from 2013 National prevalence survey. The overall disease burden was higher (4x), showing a case detection rate of 33% instead of the projected 80%. TB burden was higher in males than in females. Prevalence of bacteriologically positive cases was higher than smear positive cases. The TB epidemic was generalized with no distinct geographical locus in the general population. The minority elderly population had a much higher prevalence than the majority younger population. Among symptomatic survey cases who sought care, 75% were not offered TB screening in government facilities and 85% in private facilities. Consequently eighty (80%) per cent of confirmed survey TB cases who sought care were missed in health care facilities.

Within limited budgetary constraints, current grant has prioritized a systematic intensified case finding strategy integrated into health care settings, as the main intervention in 113 prioritized districts out of 216 due to limited resources; and to gradually expand in a phased approach to include comprehensive **enhanced** interventions in TB/HIV, childhood TB, MDR-TB, high risk population screening (mines & prisons) and contact investigation. TB stigma reduction activities were included later in 2016 through reprogramming to empower and facilitate efforts to reach out to women perceived to have low access to care. The remaining 103 districts offer **routine** services.

The country epidemiological indices (prevalence, incidence, mortality etc.) have not changed significantly. The budget however to continue implementation has reduced by 39% compared to previous allocation (from $26 to $16.6 million). The next grant cycle approach therefore is to refocus on higher impact interventions and align with recently available normative guidelines on TB screening (diagnostic algorithms) and newer treatment regimens (MDR-TB shorter regimen and new paediatric formulation) for quality improvement and efficiency.

Lessons from the Prevalence survey has shown that less than a third[2] of expected cases would be detected using symptom screening and sputum smear microscopy. Therefore, with technical assistance, the NTP has revised screening algorithms for PLHIV, children, TB contacts and high-risk populations (miners and prisoners) to address the needs of vulnerable population and to increase yield. At the moment, there are 105 GeneXperts in ART clinics out of a total 245. Ninety-(90) of the GeneXperts are located in the prioritized districts. The remaining prioritized districts would be covered by reprogrammed budget to acquire 23 new GeneXperts by the end of 2017. Further access to GeneXpert diagnostic services will be increased through a system for sputum collection and transportation. The strategy of systematic screening at OPD is ensuring increased absorption of Xpert cartridges. Sensitization and training of a critical mass of health staff in the facilities ensures continuous

[2] **Prevalence Survey Report 2013.**

utilization of Xpert cartridges. Xpert machine installation and end user training for 90 sites was completed in December 2016 and all sites started testing in first quarter of 2017. The uptake of tests is expected to be high in second quarter. A system of monitoring of GeneXpert utilization is in place. In the first quarter of 2017, 8,685 Xpert tests were reported round the country with no expiry of cartridges. This data is manually collated and fraught with errors hence the plan is to introduce the automated GXAlert application to improve the quality of data collection and monitoring uptake and utilization of cartridges.

With a revised screening algorithm introducing digital X-rays to triage and Gene Xpert for testing, the case notification of bacteriologically positive TB cases will improve along with drug resistant TB.

Finding the missing TB cases

Systematic screening interventions integrated in health care settings and routinely offered are a sustainable strategy with marginal cost to the service. In the current grant, uptake and integrating systematic screening, as part of outpatient services has been slow as expected owing to health systems bottlenecks. This has since been resolved. Some critical health system strengthening factors that militated against rapid deployment of TB screening activities as routine services are mostly addressed. It included increased laboratory workload; human resource capacity at busy OPDs, and high staff turn-over. Laboratory technicians and task shifting officers were recruited as short-term measure for smooth implementation, while in the long term the health system is working to absorb them. Task shifting officers are located at triage desks in very busy OPDs to augment screening of all attendants and ensure all those screening positive reach the laboratory for testing. Laboratory technicians are placed in institutions without technicians or few staff. Sustaining staff motivation remains an outstanding challenge in the absence of performance-based incentives.

The programme has shown good treatment outcomes, with treatment success rates above 85% consistently over the last five years and declining adverse outcomes, with the exception of case fatality rate that remained at 7-10%.

It is evident from the initial Intensified case finding (ICF) implementation that the proposed interventions could double the reported number of cases. We need to address the health systems bottlenecks to enable the health staff to perform optimally. The health system bottlenecks directly affecting ICF implementation include non-prioritization of TB services at operational levels, weak supportive supervision, poor time management, lack of documentation of activities, high staff turn-over, low staff morale, apparent (not real shortages) stock out of programme commodities and poor knowledge and skills for TB service delivery. Primarily, the described health systems strengthening bottlenecks would be resolved through targeted intensified working visits, supervision and technical support to all operational levels. Key to success is timely availability of programme commodities and effective supply chain systems. Targeted supervision will be used to mentor and coach health staff on the job instead of formal training sessions. Training will be kept at the minimum for the adoption of newer treatment regimen such as shorter MDR-TB regimen and new paediatric formulation. The TB component of the funding request is therefore based on **lessons** and **results** and from current grant cycle implementation of supportive supervision, TB/HIV activities, contact investigations, prisons, ICF in health care facilities (2016) as shown in **Table 2** below and prevalence survey findings. The main result is that **only 48% of eligible patients (presumed to have TB) are tested for TB and this gave a yield of slightly over 7,000 TB cases. If all (100%) eligible were tested, with a similar yield or more, we would find a total of 14,000+.** Also, 13.3% of confirmed TB cases were not initiated on treatment. This was largely due to stock-out of TB medicines during the third quarter of 2016, which was related to procurement and supply chain challenges that will be addressed under the RSSH application. However, all these patients have since been enrolled onto treatment subsequently.

Integrating screening into antenatal clinics, ART (TB/HIV), diabetics and in-patient facilities has commenced. However, this needs to be enhanced, sustained and improved in quality. The proportion of clients eligible for testing who are not offered is significant in all specialized clinics. In-patients screening on hospital wards gives the highest yield of TB cases **(See Table 2).**

Contact Investigations

Contact investigations had previously been conducted in Accra alone. Currently we have been implementing in four other regions, and in 2016, 863 household contacts were tested and yielded 131 TB cases. Household contact investigations is not systematically done and poorly documented. This will be addressed under new grant especially in the 113 prioritized districts.

MDR-TB

There has been a steady increase in the number of DR-TB cases enrolled on treatment from 14 in 2014 to 77 in 2016. The number is expected to go up as we plan to offer GeneXpert test as part of triaging for all cases.

Treatment success rate among RR-TB and MDR-TB patients enrolled on second line treatment was 62% for 2014 cohort. However, there have been challenges with adherence to treatment as a result of long duration of the treatment using the standard regimen. Preparations for newer short course regimen have started in 2017, and will be continued.

TB/HIV

Of all TB cases notified, 84% were tested and documented for HIV. 43% of the co-infected were enrolled on ART in 2016. With the new application we seek to achieve 100% HIV tests and 100% enrolment of co-infected on ART, through specific TB/HIV collaborative interventions.

Screening Risk population

Majority of TB cases are found in the general population where the prevalence is low. The number needed to screen to find one case is high (306)[3], so is the cost involved. The cost savings from our high impact interventions above will be targeted for use to screen high-risk populations (miners, known high TB transmission zones, Prisons) and support screening of TB contacts in communities using mobile digital X-rays and mobile laboratory. An initial screening conducted under the current grant in three mining communities demonstrated high yield of bacteriologically confirmed TB with a prevalence of 2.5%, which is much higher than the general population[4].

The infrastructure cost (X-rays machines, vehicles, mobile laboratories, etc.) for these activities are already in place and what is left is operational cost for the teams to work.

Without complementary household level educational and mass media support, stigma will serve as one of the major obstacles to implementation.

This funding request seeks to maximize synergies from existing services; equipment and infrastructure to improve TB case detection and care. Other financing mechanisms like the ORIO Project – a collaborative arrangement between Governments of Ghana and The

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3 **Prevalence Survey Database 2013**

4 **FA Bonsu, F Dzata, NN Hanson, Y. Adusi-Poku, FK Afutu, ZA Wagaw. Tuberculosis screening in high risk populations using digital radiography with computer Aided Detection Software. Lessons from the field**

Netherlands – will complement this funding request's efforts to improve TB case detection by providing 48 digital x-rays.

Table 2: Results of intensified case finding in Ghana in 2016

Health service delivery point	New attendants	Number with respiratory symptoms	Number of presumed TB cases	% Presumed TB of new attendants	Number of presumed TB tested	% Tested of eligible (presumed TB)	Number diagnosed with TB	% diagnosed with TB of those tested	Number initiated on TB treatment	% initiated on TB treatment
General out-patients clinic	5,848,430	569,178	52,769	0.9	26,109	49.5	4,831	18.5	4,375	90.6
Antenatal clinic	556,767	71,653	4,060	0.7	1,965	48.4	58	3.0	40	69.0
Others: Lab + Prison	340,802	41,528	8,384	2.5	3,244	38.7	812	25.0	579	71.3
Peadiatric clinic/ward	195,607	17,676	1,471	0.8	596	40.5	171	28.7	147	86.0
ART clinic	139,539	47,822	6,182	4.4	3,112	50.3	466	15.0	419	89.9
Female Ward	135,324	27,050	2,878	2.1	1,456	50.6	422	29.0	338	80.1
Diabetic clinic	134,718	27,698	2,017	1.5	857	42.5	60	7.0	25	41.7
Male Ward	99,938	17,994	2,709	2.7	1,488	54.9	552	37.1	486	88.0
Household contact investigation	25,895	14,860	2,077	8.0	863	41.6	131	15.2	99	75.6
Total	**7,477,020**	**835,459**	**82,547**	**1.1**	**39,690**	**48.1**	**7,503**	**18.9**	**6,508**	**86.7**

SECTION 2: FUNDING REQUEST (Within Allocation)

This section should describe and provide a rationale for the program elements proposed for this funding request. Attach and refer to completed **Programmatic Gap Table(s), Funding Landscape Table(s), Performance Framework and Budget.**

To respond, refer to additional guidance provided in the *Instructions.*

2.1 Funding request

Describe the funding request for the disease program(s) by specifying the changes to the current funded program, taking into account the existing programmatic and financial gaps that now need to be addressed, and how the changes in certain program areas affect the scope/scale of the Global Fund investments.

Additionally, outline in particular:

a) The changes to the (i) Performance Framework such as impact on targets, geographic coverage, or the diversity/quality of the service packages, (ii) budget

b) How the proposed revisions will ensure:
- **i.** continued scale up where feasible;
- **ii.** effective and efficient use of Global Fund investments;
- **iii.** maximum impact for ending epidemics HIV/AIDS, TB and malaria;

c) How the proposed investment ensures appropriate focus on building resilient and sustainable systems for health, and key and vulnerable population programs as applicable.

For joint applications: ensure the answer appropriately reflects the separate disease programs in addition to cross-cutting modules where appropriate, and expected coordination and resulting efficiencies and impact achieved from the joint programming.

Ensure also that that the funding request meets the focus of application requirement[4] as outlined in the allocation letter

(maximum 3 pages per component)

[4] **Refer to the Global Fund 2017 Eligibility List for income level. LMI and UMI countries have specific requirements in terms of the focus of applications as set forth in the Global Fund Sustainability, Transition and Co-Financing Policy.**

HIV REQUEST

The main components of the current HIV funding cycle 2015-2017 are: (a) HIV testing services; (b) Key population (KP) and prison programmes; (c) PMTCT services; (d) ART services; (e) Blood safety; (f) TB/HIV collaboration. These will continue.

A total of USD 63.24 million is being requested to support the overarching goal of this funding request which is to eliminate Mother-To-Child Transmission (MTCT) of HIV. Based on analysis of general population and KP programmatic data, GDHS, Spectrum estimates, bio-behavioural surveys for KP, the elimination of MTCT is being used as the gateway to achieving 90-90-90 for the following reasons:

1. The relatively low general population prevalence of HIV in Ghana (1.6%) which means untargeted testing to identify HIV-positive individuals will be too costly.
2. The relatively small contribution of KP of **3-5% to the total PLHIV population** despite their higher prevalence of HIV means that even if all HIV-positive KP are identified and put on treatment, ART coverage will only improve by 5%, at most.
3. The absence of any other readily identifiable and reachable high prevalence population group. According to the Modes of Transmission Study 2014, **64% of new HIV infections** occurred in stable heterosexual couples and casual heterosexual sex compared to **2.9%** in FSW and **3.6%** among MSM.
4. The **high antenatal coverage rate of 97%** and high acceptance of HIV testing by pregnant women means that they are easily accessible ("low hanging fruit") for testing and initiation on ART. **Table 1** shows how much is being achieved through PMTCT compared to the other target populations.
5. HIV testing (ever tested) rate among **women (49%)** is twice that of **men (22%)** entirely due to testing during pregnancy. Consequently, **73% of adult PLHIV on ART are women** since far more HIV-positive women are identified.
6. The low sero-discordance rate of 1.7% where the woman is the positive partner means there are 20,000 to 30,000 missing HIV-positive men annually (spouses/partners of HIV pregnant women) who are potentially reachable.
7. Expanding access to ART for HIV-positive pregnant women in practice means expanding access to ART for all PLHIV including HIV-positive KP and TB patients.

Given the foregoing, the intention is to leverage EMTCT interventions and other interventions to: (a) identify HIV-positive men and children in the general population; and (b) improve ART uptake and retention among TB-HIV co-infected patients, key populations and the general population. The material changes described in this funding request are expected to: (i) increase PMTCT-ART coverage from 36% in 2016 to 82% in 2020; (ii) increase the percentage of HIV-positive TB patients on ART from 43% in 2016 to 82% in 2020; and (iii) increase ART initiation among HIV-positive KP from 29% among MSM and 35% among FSW in 2016 to 82% in both groups in eight selected districts in 2020.

As shown in the HIV Programmatic Gap Tables, these targets are consistent with targets in Ghana's 90-90-90 Roadmap and UNAIDS target for the second 90. Given the relatively low prevalence of HIV in Ghana and available resources, testing to achieve the first 90 will target: (a) pregnant women, as part of efforts to eliminate mother-to-child transmission of HIV (facility-based); (b) key populations because they have an HIV prevalence that is 3-8 times that of the general population (facility-based and outreach); and (c) TB patients among whom the prevalence of HIV was 22% in 2016 (facility-based). Routine offer of HIV testing will continue in health facilities. Outreach testing in the general population will not be done because of low yield but will continue for KP. Efforts to achieve the third 90 focus on improving access to ART, ART adherence and viral load testing coverage.

The specific material changes are described below.

1. Treat All policy adopted in 2016 to increase ART coverage. The Joint UN Team on AIDS (JUTA) provided support to: revise National HIV guidelines for ART and testing

algorithms; develop the task-sharing policy; and implement the task-sharing policy developed following the realisation that the existing physician-led approach to ART cannot support progress towards 90-90-90. Currently the Treat All policy has been initiated in four priority regions namely Ashanti, Greater Accra, Eastern and Western regions and would be scaled up with reprogrammed funds to the remaining six regions of Ghana. To improve service quality and efficient enrolment of new clients on ART, PEPFAR has provided technical support through EQUIP to enhance client care at 10 of the busiest ART centres while the Global Fund will support another 10 in 2017 using reprogrammed funds. Due to the limited budget, continued GF funding for this has been captured in the prioritized above allocation request (PAAR). The approaches to improving quality of ART care will involve implementation of Differentiated Models of Care (DMOC). Reprogrammed funds are also being used to provide technical support from the Liverpool School of Tropical Medicine to facilitate integration of HIV and TB services into antenatal and postnatal care. Again, due to the limited budget, continued funding for this has been added to the PAAR. This technical support is a follow on of current integration processes being undertaken in the current grant with the support of JUTA. Some of these include the harmonisation of registers and reporting tools, development of mother baby pair records (Road-to-health and antenatal cards) to enhance EID & mother-baby pair monitoring and the development of SOPs for integration.

2. Increase PMTCT coverage from 36% in 2016 to 82% in 2020 by ensuring HIV-positive pregnant women are initiated on ART and continue treatment in the antenatal clinic without referral to the HIV clinic. This will be achieved by training nurses and midwives in antenatal clinics to initiate ART for HIV-positive pregnant women and provide follow-up care. This has become possible because of the adoption of task-shifting and will eliminate the main barriers to ART in pregnancy, namely: (a) being referred to ART centres from antenatal clinics in health facilities which do not have ART centres; and (b) stigma associated with visiting a stand-alone HIV clinic.

Early infant diagnosis (EID) coverage will be increased through integration of dried blood spot (DBS collection) and transport with the EPI component of MNCH. Child Welfare Clinic nurses will be trained to offer DBS collection during the postnatal/immunization visit. The samples will be transported and results received through a specimen referral system currently being developed with the support of CDC, Global Fund and JUTA.

This focus on expanding access to ART for pregnant women provides the opportunity to perform **targeted testing for children to identify paediatric HIV cases** since almost all paediatric HIV cases are due to mother-to-child transmission (Paediatric Acceleration Plan for HIV and AIDS in Ghana, 2016). It also provides the opportunity to perform **targeted testing of men in the general population with very high yield by offering HIV tests to husbands/male partners of HIV-positive pregnant women** given that the sero-discordance rate is only 1.7% when the woman is the positive partner (GDHS 2014). However, experience from the current funding cycle shows that efforts at couple counselling and testing at antenatal clinics have been largely unsuccessful. The best way to approach testing of husbands/male partners and even children of HIV-positive pregnant women in Ghana is uncertain. Therefore, the targeted testing of children and male partners of HIV-positive pregnant women will be explored through operational research in the first year of the grant. The research findings will guide the development of strategies and activities that will lead to optimal uptake of HIV testing and treatment in children and male partners of HIV-positive pregnant women.

At the end of pregnancy, this funding request seeks to facilitate ART retention by enabling recently pregnant HIV-positive women to continue to receive their ART at the same health facility where they received antenatal care. To achieve this, nurses and medical assistants in the general outpatient clinics of health facilities that offer PMTCT but not ART will be trained to initiate ART and provide ART care.

The following new activities will be undertaken: (1) Training of midwives/nurses and medical assistants to initiate ART, provide ART care, collect EID samples and screen for TB at health

facilities that offer HIV testing for pregnant women; (2) Capture PLHIV data in the eTracker component of DHIMS 2 (HMIS) to enable individual patients to be tracked for continuum of care, adherence and retention. Alerts will be generated for missed appointments; (3) Follow-up on missed appointments using a variety of means including phone calls; and (4) Training District Health Team staff to support HIV and TB care, especially in the context of task-shifting.

A total of $1,436,558 is being requested to train staff at 400 health facilities that had 83% of HIV-positive pregnant women in 2016 (see approach to prioritization below) and District Health Team staff. The eTracker will become operational in mid-2017. Funding is being requested to strengthen the supply chain system to ensure no stock-outs (last mile distribution) and no expiry of drugs (logistical management information system) through an RSSH request submitted with the Malaria funding request. The JUTA is also providing support for roll out of the Paediatric HIV Acceleration Plan as well as integration of EID and PMTCT into MNCH and EPI services, including development of standard operating procedures. JUTA is also supporting monitoring activities and efforts to improve timeliness of reporting of EID results for quick decision-making through the use of short messaging services. The expansion of PMTCT-ART coverage calls for studies on ART retention among women initiated on ART during pregnancy. The PAAR includes $1.5 million to cover this study.

2. Prioritized expansion of ART care to PMTCT sites will be based on HIV burden at district level and patient load at facility level. This approach is different from the existing approach that prioritizes four regions – Ashanti, Eastern, Greater Accra and Western. The change is necessary because of the 2016 HSS and programmatic data. HSS shows changes in regional disease burden. Programmatic data shows that some districts and health facilities in non-prioritized regions have higher disease burden than some districts and health facilities in prioritized regions. For instance, of the 216 districts in Ghana, districts in Brong-Ahafo, Northern and Volta Regions rank in the top ten districts with respect to number of HIV-positive pregnant women. Similarly, the top 20 hospitals in terms of number of HIV-positive pregnant women include hospitals in Brong-Ahafo, Central, Volta and Northern Regions. Therefore, moving prioritization from regional to district and health facility levels is necessary to achieve 82% PMTCT coverage by 2020. It is also more cost-effective because resources are being committed to districts and facilities with the highest burden of disease. Based on this approach, a total of 400 out of 2,890 health facilities that provide HIV testing for pregnant women have been prioritized. They are distributed across 163 districts in 10 regions.

3. Since this scale-up plan effectively converts health facilities that provide PMTCT into ART sites, the intended added benefit is **an increase in geographic access to antiretroviral treatment for PLHIV in the general population (adults and children), HIV-positive TB patients, as well as key populations – FSW/MSM and prisoners.** This is expected to have a **significant impact on ART uptake and retention** by reducing the distance travelled to obtain ART, which has been a major barrier to uptake and retention of ART. To reduce stigma, these new ART sites will not have stand-alone HIV clinics. HIV care will be provided in the general outpatient clinic such that individuals attending the clinic cannot be perceived as being HIV-positive simply by sitting in the waiting area. The improved access is also expected to lead to decongestion of existing ART centres, thereby, reducing staff work load. Staff may then be able to improve the quality of care they provide, especially, adherence counselling. Nurses trained under Material Change 1 above will include nurses that provide TB treatment. On completion of TB treatment, these PLHIV will continue to receive ART in the same facility as is planned for HIV-positive pregnant women at the end of their pregnancy.

Viral load coverage is low because it is currently being used to guide decisions on change of regimen. With adoption of 90-90-90 coverage will increase through the implementation of a viral load scale-up plan that is being developed with CDC support. Implementation of the plan is scheduled to begin in the third quarter of 2017 supported by reprogrammed funds. The plan is to scale this up in 2018-2020 to match the scale-up in ART sites described above. Funding for this is being requested for in the PAAR.

At selected ART sites PLHIV known as Models of Hope support the provision of ART services by providing peer adherence counselling, psychosocial support, and tracing PLHIV who are lost to follow-up. Given the limited budget, $108,191 has been allocated to support the Models of Hope within the allocation and additional funds of $753,836 added to the PAAR.

The Global Fund has provided a grant to the International Treatment Preparedness Coalition to empower NAP+ Ghana to systematically collect and analyse quantitative and qualitative data on barriers to access to HIV treatment and services. To complement this, networks of people affected by TB, such as the Ghana National TB Voice Network, will be strengthened to monitor, provide peer support and report on beneficiary views and experiences related to access to and quality of care, under the RSSH request.

This funding request seeks $44.64 million to provide ART care (ART and laboratory tests) for 104,000 existing PLHIV each year from 2018-2020. This will be complemented by PEPFAR funding for 57,531 PLHIV on ART in 2018 and Government of Ghana funding to continue support for these and new ART clients totalling 83,531 in 2019 and 109,793 in 2020, as shown in the HIV Programmatic Gap Tables and Funding Landscape spread sheet.

This planned approach to scaling up ART and improving ART retention is an effective and efficient application of the limited funding that is available. It is expected to lead to impact through demonstrable progress towards eliminating mother-to-child transmission of HIV and the 90-90-90 UNAIDS aspirational targets within current national strategic plan 2016-2020.

4. Improve ART initiation rates for HIV-positive female sex workers and men who have sex with men in 8 priority districts, by strengthening linkages to care. Following discussions between PEPFAR and The Global Fund, this funding request will support KP programmes in eight of the 15 districts. See **Figure 5** for a map of the districts. The number of districts supported was reduced to 15 following analysis of programmatic data that showed low yield of HIV-positive KP in some districts. This contributed to making the KP programme costly in terms of resources spent to find HIV-positive KP.

Despite restrictive laws, KPs receive HIV testing at rates that are higher than the general population. In the 2015 IBBSS, 72% female sex workers had ever had an HIV test while 53% had a test in the 12 months preceding the survey. In comparison, 48.5% of women in the general population had ever had a HIV test and 12.9% had one in the 12 months preceding the survey. Among men in the general population, the figures were 22% and 6% respectively. Ghana AIDS commission data combining GF and PEPFAR programmatic data shows that 50% of MSM and 74% of FSW reached received a HIV test in 2016. Prisoners are offered a HIV test twice a year. The HIV tests among key populations are conducted by staff of Ghana Health Service and will continue. This funding request also provides for condom distribution through peers to continue as well as training and support for peer educators/navigators who facilitate uptake of HIV testing.

According to the KPIS Study 2016 and Stigma Index Study 2014, barriers to ART for KP are similar to those for PLHIV in general and include: (1) transport costs (distance) to the limited number of ART sites; (2) preponderance of standalone ART clinics that facilitates and sustains stigma because anyone stepping into these clinics is assumed to be HIV+; (3) random discriminatory attitudes of some health workers towards PLHIV and KPs, including prisoners; and (4) the cost and periodic non-availability of baseline tests required for ART initiation.

To address these issues, the programme plans to: (1) integrate HIV care in routine out-patient clinics at the new ART sites in the PMTCT expansion plan outlined above to reduce travel costs and stigma associated with stand-alone HIV clinics; (2) utilize trained health facility nurses as case managers for HIV-positive KP to improve linkages to care informed by lessons learned from the USAID LINKAGES project implemented by WAPCAS in addition to the KPIS 2016 study; and (3) sensitize health facility workers on appropriate attitudes

towards patients irrespective of their sexual orientation, gender, legal status, HIV status and medical condition. This will be incorporated in the training of staff of the 400 health facilities described earlier.

A total of USD 4 million is being requested for this KP programme. Antiretroviral drugs for KP are budgeted for under the general ART budgets of the GF, PEPFAR and GoG JUTA is supporting stakeholder engagement with CHRAJ, CSO capacity strengthening to address stigma reduction, and dissemination of key anti-stigma provisions of the Ghana AIDS Commission Act 2016. The restriction of programming support to 15 districts by PEPAR and the GF means that there is a large programmatic gap by 2020 of 57% for FSW and 67% for MSM.

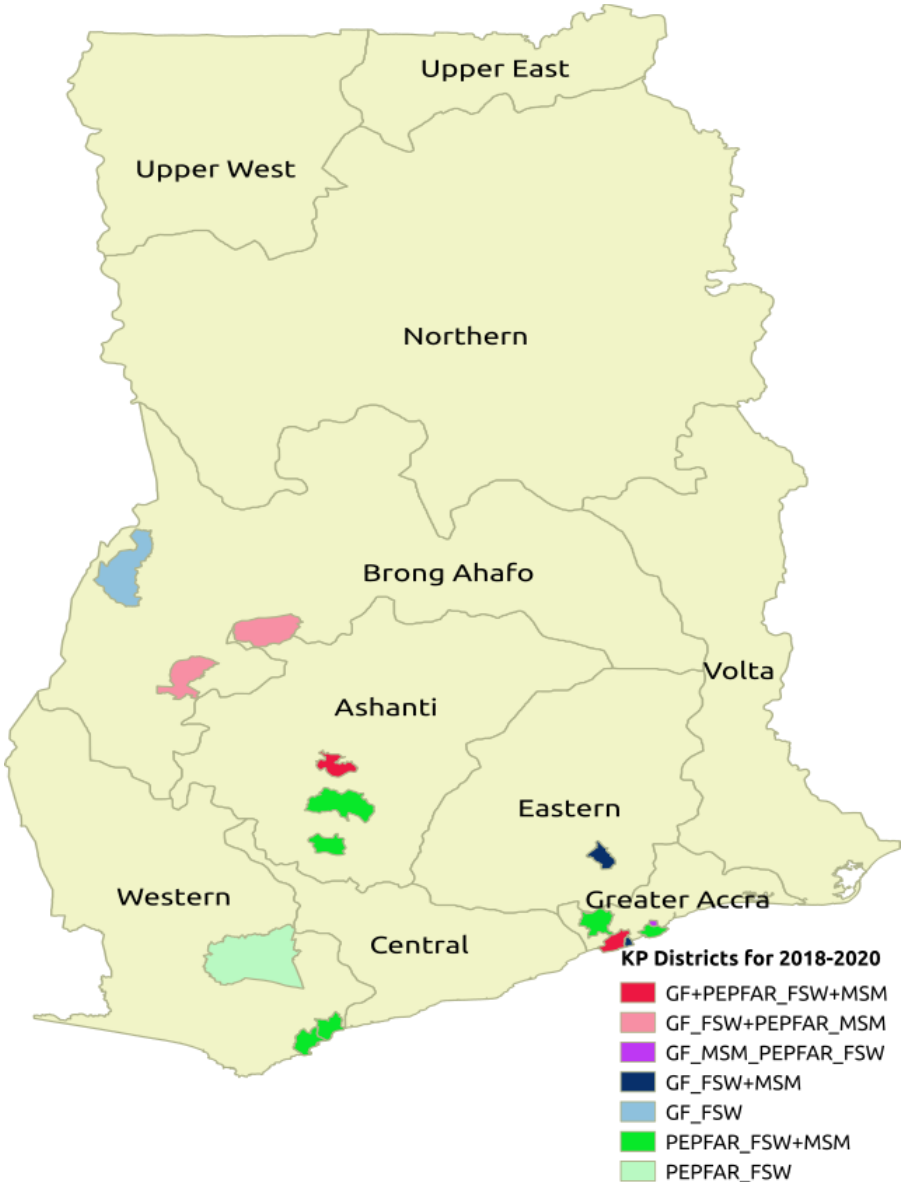
Although available evidence suggests there are no systematic human rights constraints to services, there are various barriers that can exist and may deter KP from seeking testing and ART. For instance, in 2016, 21 of 78 reports by PLHIV and KP to the Commission on Human Rights and Administrative Justice (CHRAJ), were complaints about disclosure of confidential health information compared to three reports of denial of health services. The CHRAJ report does not provide additional context but the KPIS 2016 study indicates that such disclosures of personal health information are often made by one KP to another and discourages KP from any activity that may expose their HIV status to their peers.

Assessments of human rights issues and the quality of service for KPs have been planned for the third quarter of 2017 under the current 2015-2017 funding cycle. The findings will inform further actions and a request for catalytic funding to reduce barriers to access to HIV services for PLHIV and KP. For instance, although a Patient's Charter was adopted in 2002 as a key innovation for ensuring health, non-discrimination and dignity for all, including people living with HIV, a recent study[5] has shown limited awareness of its contents by health workers and no awareness of its existence among patients. The catalytic funding will help operationalize the Charter nationwide to end stigma and discrimination in health care settings; facilitate compliance with the anti-stigma and discrimination provisions of Act 938 of 2016 and strengthen the work of the CHRAJ. Furthermore, $57,000 has been allocated to develop braille materials for blind students under the School HIV programme. The PAAR includes a request for $150,000 to explore the HIV vulnerabilities and human rights barriers experienced by physically challenged individuals.

The sum of USD 300,000 has been committed within allocation for matching funds. While this is not sufficient, it represents a substantial increase on the current USD 80,000 and there is little or no room to commit more because the HIV funding request is highly commoditized. For this reason, the CCM will request a waiver of the 1:1 requirement.

5 Yarney L, Buabeng T, Baidoo D, Baw ole JN. Operationalization of the Ghanaian Patients' Charter in a Peri-urban Public Hospital: Voices of Healthcare Workers and Patients. Int J Health Policy Manag. 2016 Apr 23;5(9):525-533. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5010655/

Figure 5: Spatial distribution of 15 districts where PEPFAR and the GF will support KP programmes



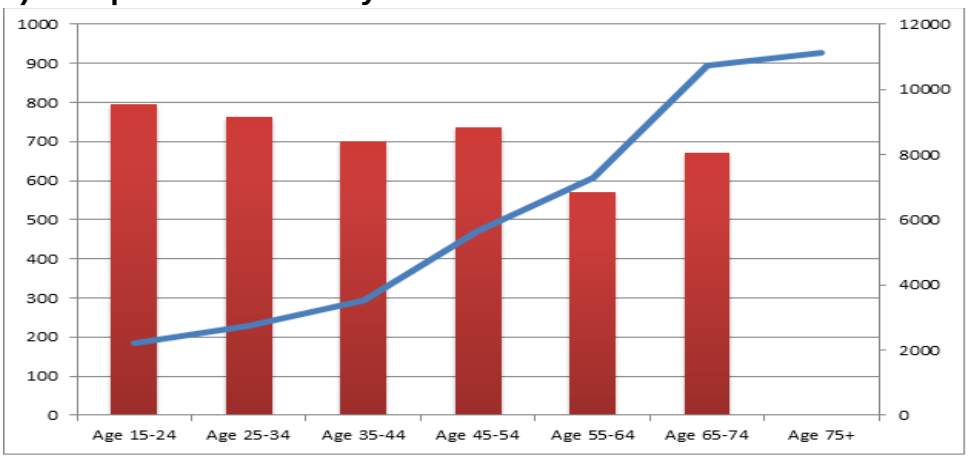
TB REQUEST

Structures to confirm and manage TB cases have been developed over the years through Programme implementation. This is supported by evidence of consistent trend of good treatment outcomes and declining adverse treatment outcome except for death rate. Firstly, the issue of death rate is addressed through medical officers' engagement and capacity building for improved quality of clinical care for the management of TB co-morbidities. Secondly, through community mobilization and education to support those affected to seek early treatment.

Our biggest challenge is finding the missing TB cases. We know where to find the missing TB cases through prevalence survey study findings. The Programme is missing cases, both in health care facility and in the communities; 80% of symptomatic survey cases are missed, even though they have visited government and private facilities.

Absolute TB burden spreads across all age groups in community with the highest in younger populations (Fig. 6). Finding the missing cases in the younger population that has low bacteriological prevalence is daunting and costly. The calculated number needed to screen to find one TB case in the general population during the prevalence survey was 306. Hence, the programme approach of prioritizing focusing on healthcare facilities where more cases are missed (low hanging fruit) and with the potential to double the number of reported cases.

Figure 6: Prevalence rate of B+ TB (blue line) vs burden estimated number of cases (red bars) 2013 prevalence survey



Programmatic Gap Analysis shows a case detection gap of 60% and the funding landscape shows TB is underfunded. Current proposed interventions in three years is expected to increase case notification from 55 per 100,000 to 62 per 100,000. Previous efforts have led government to contract a loan to support TB control but there is more to do. Hence the next grant (2018-2020), has a strategy for a National TB Ambassador to lead a campaign to advocate for more resources for TB.

Working closely with technical partners the Programme has developed and tested comprehensive interventions to make an impact, improve quality, efficiency while recognizing the resource-constrained environment. In the process the Programme has carefully collected additional information to measure its performance as shown in Table 2 in Section 1.2. The data tells us the quality issues that need addressing for better results in next grant – not all presumed TB cases are tested, and not all confirmed cases are initiated on treatment.

The slow uptake of the planned phased interventions at health service delivery points as in Table 2 was deliberately accommodated to ensure full integration and sustained actions within the health system. This slow phase is now complete and the stage is set for accelerated action. Owing to the aggregated data, results from non-performing sites have masked the dramatic increase in TB case notification observed from sites that systematically screened and offered test. Examples from sites in the Volta Region of Ghana have shown

50% increase in reported TB case notification since the intervention started. Key lesson from these successful sites is the intense targeted supervision received by the facilities.[6] However in another region, Upper West Region, the comparative analysis shows non-ICF sites showed a 38% case notification increment against 30% in ICF facilities. Key lessons from this region are: health system bottlenecks were not overcome in the ICF designated sites attributable to lack of interest of health staff and inadequate supervision.[7]

Targeted supervision is therefore key to the ICF strategy combining with coaching and mentoring of staff on the job on new algorithms, treatment, and retooling. We anticipate that all cases (100%) identified would be initiated on treatment as compared to current 86.7%.
In the 113 districts implementing intensified case finding, more than half (51.9%) of those identified, as presumed TB cases through screening are **not tested** (Table 2). At the moment health facilities in these prioritized districts are supervised on quarterly basis. We envisage that with intensified monthly supervisory visits (12 visits per year) and systematic monitoring of this indicator, we will reduce it to less than 20%.

The current algorithm uses smear microscopy, which picks up 32% of patients with TB. It is envisaged that with change of algorithm, digital X-rays, dedicated GeneXpert machines and human resource in all 113 districts, we will detect and double the reported number of cases if all presumed TB cases are offered test.

The TB funding request will enhance and improve the quality of interventions in the next grant cycle, namely: (1) Intensified case finding (ICF) in 113 prioritized districts; (2) countrywide DR-TB and HIV/TB screening, diagnosis and treatment (3) Targeted Childhood TB screening; (4) Screening in high-risk populations; (5) Partnering private sector to increase TB case detection; and (6) TB stigma reduction activities.

Performance framework targets of case notification is adversely affected by the limited funds, however the programme will maximize impact by implementing the above innovations. Consequently, there would be:

i. Increase from current levels of 55 cases per 100,000 pop to 62 cases per 100,000 pop in 2020. The desired quantum change (90 per 100,000 pop) will take relatively longer to achieve because current allocation levels cannot support further expansion to cover remaining 103 districts.
ii. MDR-TB enrolment targets are higher than previous, owing to initial investment and expansion of GeneXpert from 15 in 2015 to 128 at the end of 2017. Provision is made to ensure all DR-TB cases receive adequate care and support.
iii. TB/HIV targets similarly are ambitious than previous targets owing to synergies with HIV programme. All logistics to meet targets is covered under HIV programme. As much as possible MDR-TB and TB/HIV activities will be countrywide, and so is targeted screening for high-risk population.

The 113 districts were prioritized based on case notification, TB/HIV co-infection rates, and available human resource, among others. The remaining 103 districts will receive routine support to cover all described areas. The infrastructure for TB control in 103 districts is relatively less developed and strategies in these areas are different and come at huge cost. Current allocation **may be thinly spread, if they are included and the impact will be less.**

An Important programme risk mitigation factor to prevent failure is to ensure there are right mix, quality and quantity of well-motivated workforce to deliver services. M&E officers, laboratory technicians and task shifting officers are maintained following from lessons from previous grant implementation.

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[6] **Gockah R, Bonsu, FA, Hanson-Nortey NN, Afutu FK, Wagaw ZA. Implementation of systematic screening for active TB in Volta region of Ghana: a promising experience to bridge gaps for TB case detection.**

[7] **Baah MA,, Bonsu FA, Wagaw ZA. Impact of intensified case finding intervention on tuberculosis case detection in the Upper West Region**

Programme commodities supplies to support targets are relatively well covered in this grant. They include laboratory reagents, and programme stationery.

Improving Contact Investigation

Household contact investigation is not done systematically and is poorly documented. To address this SOPs and tools were finalised in Feb. 2017. In the next grant, provision has been made and we plan to conduct household contact investigation for at least 50% of all bacteriologically confirmed new TB cases. This will be supported by effective sputum transportation system in collaboration with Civil Society Organizations (CSOs). To minimize non-screening of eligible household contacts of TB cases, in the 113 prioritized districts, a planned movement of mobile laboratory and digital x-rays will support screening for pooled household contacts at designated points.

A defaulter prevention strategy of home verification of newly diagnosed TB cases before treatment enrolment, will be combined with contact investigation in all 113 districts and recommended for all areas to adopt. Thus, all households with children would be screened for TB. Child contacts under 5 years of TB patients without TB would be provided isoniazid chemoprophylaxis.

Capacity for diagnosis of Childhood TB

An innovative strategy of integrating childhood TB screening into seasonal malaria chemoprophylaxis (SMC) of children under 5 years of the National Malaria Control Programme in the Upper West region was encouraging. Out of 157,210 children under 5 screened 149 were presumed and 18 were diagnosed for TB. Among older children 5-14 years, 70,745 were screened, 344 were presumed and 12 were diagnosed. The Programme would collaborate with Malaria Control Programme during annual SMC activities in Ghana to find more TB cases among vulnerable children within the malaria seasonal transmission zones.

Countrywide, the Programme would work with MNCH services to increase screening of children by monitoring growth charts. Children with faltering growth charts would be referred for further TB screening.

High-risk population

As previously described initial results from targeted screening of high risk population has shown higher yields. The programme is receiving two mobile vans equipped with CAD4TB enabled digital x-rays and laboratory to support high-risk population screening. The mobile vans will be complimented with mobile x-rays used in the Prevalence survey studies. Special high-risk population screening will target entire country. Recent screening among small-scale miners yielded 2.5% TB cases.[8]

A well-trained central level standing team will operate in partnerships with districts. The team will work in, Prisons, 21 mining districts and well-known high transmission zones, such as urban slums. Sputum specimen collection and transportation to the limited GeneXpert sites will cover entire country.

Drug Resistant TB

In the current grant, GeneXpert testing is being applied to all new cases including PLHIV. With the revised diagnostic algorithms, triaging with digital X-rays improves the efficiency and optimise the use of cartridges. With the increasing GeneXpert coverage we anticipate increasing numbers of RR-TB cases. All RR-TB cases will finally have a culture and DST to detect resistant to other drugs, and be enrolled unto treatment under the new shorter MDR-TB regimen. In 2016, of the 107 RR TB cases, 77 (72%) were put on second line TB treatment. Stock out of medicines was a major underlying reason. Stock out was due to

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[8] **Bonsu FA, Adusi-Poku, Hanson-Nortey NN, Afutu FK, Wagaw ZA. Health seeking behavior among people with chronic cough and missed opportunities at health facilities to diagnose tuberculosis in Ghana.**

apparent shortages of second line medicines attributable to supply chain bottlenecks. All bottlenecks with procurement issues are addressed under supply chain management systems (RSSH).

Preparations for newer short course regimen have started in 2017 and will be continued. Provision has been made under living support to address patients' critical needs such as health insurance, nutrition, transportation and supportive therapy for ancillary diseases developing during treatment.

TB-HIV Collaborative Interventions

Eighty-four percent (84%) of all new TB cases notified in 2016 had documented HIV test result of which 23% tested positive. Among those tested positive, 43% were put on ARV. The low enrolment rate of ART is attributable to a physician-led ART policy which addresses only 15% of health facilities with DOTS also provide ART.TB patients referred to other facilities for ART often do not go. We plan to test all new TB cases for HIV and to put all HIV positive TB patients on ART. With the support of NACP, DOTS sites will be capacitated to provide ART and nurses providing TB treatment will be trained to provide ART as described in the HIV component of this Funding Request.

Stigma reduction and community TB activities

A National TB ambassador will lead the stigma reduction campaign. The National TB Ambassador would engage fellow chiefs and traditional leaders in the National and Regional House of Chiefs to increase awareness on TB aimed at reducing TB-associated stigma and mobilize resources in support of TB. Chiefs and traditional leaders in all the districts would be empowered to conduct awareness activities within their areas of jurisdiction. CBOs and NGOs working within these areas ***as well as persons affected by the disease*** would be supported to compliment the activities of these traditional leaders to increase awareness. Continuous nationwide media campaign would be used to support this drive.

Private Sector Contribution

The Programme since 1999 has engaged the private sector, which has since notified reported cases to the programme. A collaborative partnership exists with the civil society.
Private sector contribution of 6% of total case notification falls short of expected target of 10%. This will be enhanced by the following activities: purposive selection of NGOs to reflect geographic coverage of high burden communities; capacity building for NGOs to utilize the revised diagnostic algorithms and create demand for use of GeneXpert; implementation of stigma reduction strategy at household level; partnership with health care workers to maximise patient care and support; community-based infection prevention and control, sputum handling and transportation to GeneXpert or other diagnostic sites; and capacity improvement for data recording and reporting would be undertaken.

Improve electronic data systems

DHIMS2 has been deployed for data recording and reporting. A patient eTracker system is in use in 113 districts to improve patient monitoring. Connectivity challenges associated with use of the DHIMS-2 platform limits timeliness of data entry and reporting. We plan to obtain an off-line mode of DHIMS-2. Capacity is also required to utilize the off-line mode as a means to reduce delayed data entry.

The total funding for this grant application is USD 14,891,925.

Module 1: TB Care and Prevention $8,408,185
In 2016, 14,152 new TB cases were notified. The expected number of new TB cases to be notified in 2018, 2019 and 2020 are 17,568, 18,243 and 18,929. This is expected to move the case detection from 55 to 62 per 100,000 population.

Related Gaps: The country gap for TB Care and Prevention is 60%, 58%, and 56% in 2018, 2019, and 2020 respectively. **Unless this gap is addressed it would be unlikely to reduce TB burden in the country.**
Key activities to be implemented include:

a. Targeted supervision to 113 prioritized intervention districts
b. Track all presumed TB cases from triaging areas to TB testing laboratories
c. Enroll all diagnosed TB cases on anti-TB treatment
d. Conduct household contact investigation for at least 50% of all bacteriologically confirmed new TB cases.
e. Build capacity for childhood TB diagnosis
f. Screen high risk populations such as prisoners, diabetics and small scale miners for TB

Application response to gap: The application will finance about 32% each year over the three-year period within allocation.

Module 2: MDR-TB $4,814,310
Case Detection and Diagnosis
In 2016, 107 DR-TB cases were diagnosed. The number of DR-TB patients to be diagnosed in the period are 405, 468 and 534 representing 27%, 30% and 34% of prevalent DR-TB cases in 2018, 2019 and 2020 respectively.

Related Gap: The country gap for MDR-TB detection is 73%, 70% and 66% in 2018, 2019 and 2020 respectively. GeneXpert test coverage among new TB cases is expected to be 70%, 80% and 90% for the years 2018, 2019 and 2020 respectively and 100% among previously treated cases for the three-year period. Key activities to be implemented are:

a. Procure laboratory reagents and supplies for DR-TB diagnosis
b. Transport sputum to GeneXpert testing sites for rifampicin resistance testing

Application response to gap: The application will finance 27%, 30% and 34% of prevalent DR-TB cases in 2018, 2019 and 2020 respectively within allocation.

Treatment
In 2016, 77 (72%) of diagnosed DR-TB cases were enrolled on treatment. From 2018 to 2020 all diagnosed patients (100%) would be treated.

Related Gap: The new shorter regimen of second line treatment would be procured to treat all diagnosed DR-TB cases. Key activities to be implemented are:

a. Enroll all newly diagnosed drug resistant TB cases unto the new short course regimen
b. Provide patient support to meet critical needs of all DR-TB patients on treatment
c. Implement infection prevention and control activities to break transmission

Application response to gap: The application will finance 27%, 30% and 34% of prevalent DR-TB cases in 2018, 2019 and 2020. All (100%) diagnosed DR-TB patients would be enrolled on treatment within allocation.

Module 3: TB/HIV $171,176
TB patients with known HIV status
In 2016, 84% of TB patients were tested for HIV. The number of TB patients to be tested for HIV are 17,568, 18,243 and 18,929 in the years 2018, 2019 and 2020. This is 100% coverage.

Related Gap: The country gap to test for HIV of all expected new and relapse TB patients registered in 2018, 2019 and 2020 is 100% each year.
Among diagnosed TB cases, there would be 100% HIV testing for all diagnosed cases. Key activities to be implemented are:

a. Test all diagnosed TB cases for HIV as part of care
b. Implement infection prevention and control activities to break TB transmission

Application response to gap: The application will finance HIV testing of all expected new and relapse TB patients registered over the three-year period within allocation.

HIV positive TB patients on ART
In 2016, 43% co-infected TB patients were enrolled on ART. The number of TB patients expected to be enrolled on ART are 3,514, 3,648 and 3,786 in the years 2018, 2019 and 2020 at a 20% co-infection rate. All diagnosed co-infected persons (100%) would be enrolled on ART.

Related Gap: The country gap to enroll all expected HIV positive new and relapses TB patients registered in 2018, 2019 and 2020 on ART is 100% each year. With a 20% country co-infection rate, all co-infected persons diagnosed would be enrolled on ART. Key activities to be implemented include:
Enroll all TB/HIV co-infected persons on ART

Application response to gap: The application will finance 100% of expected HIV positive new and relapses TB patients registered in 2018, 2019 and 2020 to be enrolled on ART within allocation.

Programme specific RSSH $58,663

Programme management $2,499,153

SECTION 3: OPERATIONALIZATION AND RISK MITIGATION
This section describes the planned implementation arrangements and foreseen risks for the proposed program(s). To respond, refer to additional guidance provided in the *Instructions*.

3.1 Implementation arrangements summary	
Do you propose major changes from past implementation arrangements, e.g. in key implementers or flow of funds or commodities?	Yes ☒ No
If yes, **a)** Outline the reasons and the key changes from past implementation arrangements to give an understanding of grant operationalization. You can provide an updated **Implementation Arrangements Map**; **b)** Detail how representatives of women's organizations, key populations and people living with the disease(s) as applicable will actively participate in the implementation of this funding request; **c)** Include a description of procurement mechanisms for the grant(s). **(maximum ½ page)**	

[*Applicant response*]:

3.1 Implementation arrangements summary

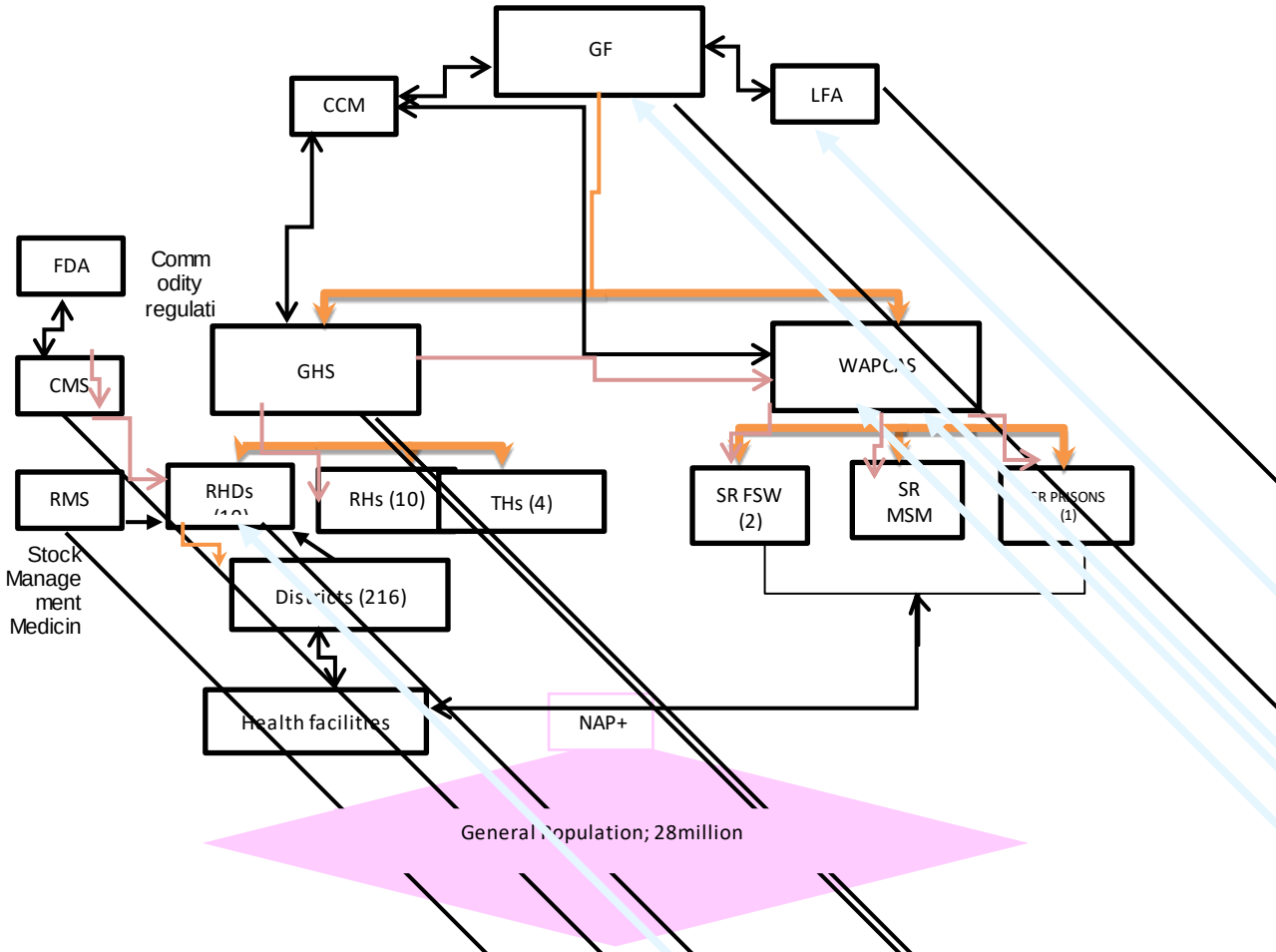
The current governance and managerial structures are considered inefficient with limited effectiveness. The three PRs for the KP are considered too many contributing to a costly KP programme. Therefore, the Technical Task team commissioned by the CCM recommended a reduction in the number of HIV PRs from four to two (Task Team Report). In Ghana Health Service (GHS), primary responsibility for the management of TB, HIV and malaria grants has been elevated to the Office of the Director General to improve grant performance. Based on the foregoing, the CCM selected MoH/GHS and WAPCAS as PRs for TB-HIV grants. Details can be found in the PR Selection Report section of the CCM Eligibility Criteria.

As in the previous funding cycle, the key implementation vehicle for all grants will be the national health delivery system. The MOH has a temporary Central Medical Store (CMS) from where health products are distributed through two approaches: a push system and a pull system. The current capacity permits occasional and limited distribution to regional levels, and to health facilities from where the end users access the commodities. i.e. from National, Regional, Districts, Facility levels. A conscious effort is made to involve persons living with HIV, key populations, and their networks involved in community mobilization and social accountability. Ghana Health Service will involve CSOs, and women's organizations to play active roles in HIV/TB advocacy at all levels. Models of Hope will be involved in tracking of PLHIVs/PLTB to help reduce lost to follow up. KP peer educators, and community navigators will provide information to key population in need of HIV care. This will be done in collaboration with such implementing partners as PPAG, JSI Care Continuum, WAPCAS, Prolink, CEPHRG, Maritime, Micdak, and others. The Stop TB Partnership, Ghana will be responsible for community TB care. These groups, and community lay have through the various country dialogues provided inputs to the development of this concept note. Details are given in the implementation map.

We pay heed to Global Fund's guidance on cost efficiency, programme implementation efficiency, and ethical procurement processes. The procurement processes of the MOH follow guidelines set out in the Public Procurement Act, 2003 (Act 663). Entity Tender Committee exists and manages the award of contracts and other procurement requirements. There are Procurement Units headed by experienced staff who guide the procurement processes. They have managed large multi-lateral and

bi-lateral donor funds including previous Global Fund grants. The PSM of MoH/GHS will be utilized for procurement and storage of HIV commodities

Figure 7. Implementation Arrangement Map



Key

GF - Global Fund

CCM – Country Coordinating Mechanism

LFA – Local Funding Agency

FDA – Food and Drugs Authority

CMS – Central Medical Stores

GHS – Ghana Health Service

WAPCAS – West African Project to Combat AIDS and STIs

RMS – Regional Medical Stores

RHDs – Regional Health Directorate

RHs – Regional Hospitals

THs – Teaching Hospitals

SR – Sub-recipient

3.2 Key implementation risks			
Using the table below, outline key risks foreseen, including those that were provided in the *Key Program Risks* table shared by the Global Fund during the Country Dialogue process. You can also add key operational and implementation risks, which you identified as outstanding from the previous implementation period, and the specific mitigation measures planned to address each of these challenges/risks to ensure effective program performance in the given context. Applicant response in the table below.			
Risk Category (Functional area)	**Key Risk**	**Mitigating actions**	**Timeline/Responsibility**
PSCM*	Supply chain master plan not implemented. 1) Stock out due to challenges with distribution to facilities (last mile) 2) Limited warehouses capacity	1) Implementation of last mile distribution is being addressed by RSSH. 2) Frequent distribution of commodities to lower levels due to lack of Central Medical stores. 3)Framework contracting will ensure savings from improved pricing to free funds for investment in warehousing infrastructure and equipment.	Ongoing
Human Resource	High attrition rate and Staff overburdened with work	Implementation of Task sharing policy and increasing ARV supply to stable and adherent clients from 3months to 6months	Sept 2017
Financial	Inadequate resources due to funding gap	Urgent need to operationalize the AIDS fund under the new ACT 938 as a potential and complementary funding source	GAC/December 2017
	Lack of political and funding commitment	The new government has demonstrated renewed commitment to financial obligation through the payment of outstanding indebtedness and budgetary allocation for commodity	MOH/GOG ongoing
	Low absorption	Improved CCM oversight has significantly increased absorption rate and will be sustained going forward. Secondly the elevation of primary grant management responsibility to the office of the Director General, Ghana Health Service in the new implementation arrangement for 2018-2020 is expected to ensure optimal absorption of funds.	GHS/Ongoing
	Financial management	This is to be improved under RSSH in this funding request.	GHS/Ongoing

		Current initiatives such as SOPs for timely financial reporting and increased financial monitoring and auditing will be continued	
Financial	Poorly funded NHIA	The new Government of Ghana has started clearing outstanding arrears and planning to restructure the NHIA to ensure efficiency.	GOG/Ongoing till end December 2017
Data Management	Inadequate resources (funds, human resource)	Allocate reprogrammed funds and RSSH to strengthen data management systems to improve data quality.	2017 – 2019
Implementation arrangements	Poor coordination of PRs and integration at service delivery	PRs have been reduced from four to two	2018-2020
KP Implementation	KP initiatives not optimised	Number of implementing districts reduced to 15 to improve yield. Also there is improved coordination between the GF and PEPFAR	PEPFAR/Global Fund. September 2017

*Procurement and Supply Chain Management

SECTION 4: FUNDING LANDSCAPE, CO-FINANCING AND SUSTAINABILITY
This section details trends in overall health financing, government commitments to co-financing, and key plans for sustainability. **Refer the Funding Landscape Table(s)** and supporting documents as applicable. To respond, refer to additional guidance provided in the *Instructions*.

4.1 Funding Landscape and Co-financing		
a) Are there any current and/or planned actions or reforms to increase domestic resources for health as well as to enable greater efficiency and effectiveness of health spending? **If yes,** provide details below.	☒ Yes	☐ No
b) Is this current application requesting Global Fund support for developing a health financing strategy and/or implementing health-financing reforms? **If yes,** provide a brief description below.	☐ Yes	☒ No
c) Have previous government commitments for the 2014-16 allocation been realized? **If not**, provide reasons below.	☐ Yes	☒ No
d) Do current co-financing commitments for the 2017-19 allocation meet minimum requirements to fully access the co-financing incentive, as set forth in the Sustainability, Transition and Co-financing Policy?[9] **If not**, provide reasons below.	☒ Yes	☐ No
e) Does this application request Global Fund support for the institutionalization of expenditure tracking mechanisms such as National Health Accounts? If yes or no, **specify** below how realization of co-financing commitments will be tracked and reported.	☒ Yes	☐ No
(maximum 2 pages)		

[*Applicant response*]:

a) In December 2016 the GAC ACT (938) was passed by the parliament of Ghana which establishes a National HIV and AIDS fund. This fund intends to provide financial resources for the national HIV and AIDS response target, in particular, HIV prevention, including the reduction of mother-to-child transmission, stigma reduction, treatment and the care and support of persons living with HIV. However, the modalities and implementation of this fund is yet to be determined under the direction of a new board which is yet to be constituted and would be chaired by the President.

c) The Budgetary allocation for the health sector witnessed a systematic decline due to limited fiscal space. The situation was further aggravated in 2015 when the Central Medical Stores of the MOH was gutted with fire leading to the destruction of commodities already procured by government of Ghana as part of its commitment. All these coupled with new financial obligations on government upon attainment of middle income status.

e) The National Health Accounts would be shared with the Global Fund and key partners to ensure visibility of government co-financing and expenditure during the grant period.

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9 **Refer to the Sustainability, Transition and Co-Financing Policy**

4.2 Sustainability
Describe below how the government will increasingly take up health program costs, and actions to improve sustainability of Global Fund financed programs. Specifically, **a)** Explain the costs, availability of funds and the funding gap for major program areas. Specify in particular how the government will increasingly take up key costs of national disease plans and/or support health systems; including scaling up investments in programs for key and vulnerable population, removal of human rights and gender-related barriers and enabling environment interventions. **b)** Describe actions to improve sustainability of Global Fund financed programs. Specifically, highlight key sustainability challenges of the program(s) covered by the funding request, and any current and/or planned actions to address them. **(maximum 1 page)**

The Government of Ghana is applying a multi-pronged approach to sustainability that involves: securing alternative sources of funding; sharing costs; and reducing costs.

Securing alternative sources of funding

As indicated in the previous section, resources intended to accrue through the AIDS fund currently established by ACT 938 are expected to complement budgetary allocations for HIV/TB activities as a medium to long term sustainable funding mechanism.

Sharing costs

The joint funding approach by the Government of Ghana ($18 million loan) and The Government of Netherlands ($6 million) to provide digital X-ray machines in 48 districts is an example of Government commitment to supporting TB control interventions.

For HIV, The Global Fund will cover the cost of ARV drugs for 66% of people on ART in 2018 declining to 56% in 2019 and 49% in 2020. PEPFAR will cover 34% in 2018 as a one off contribution while the Government of Ghana will cover 44% in 2019 rising to 51% in 2020. test kits and reagents and health system strengthening activities in 2018 to 2020.

Reducing costs

Interventions will be implemented at reduced cost through existing Government Health Facilities without the need for new human resource, infrastructure and equipment. In addition, collaborating with MNCH will ensure least cost integration into MNCH activities that continue routinely. Districts will be encouraged to budget for all successfully implemented interventions at district level led by DHMT to budget for these as part of their routine Government budget.

The programme of operational research that will be initiated through this funding request will also facilitate sustainability by identifying more efficient ways of delivering optimal services. Finally, scaling up coverage as proposed in this funding request contributes to a reduction in disease burden and, therefore, a reduction in costs.

SECTION 5.1: PRIORITIZED ABOVE ALLOCATION REQUEST
All applicants are requested to detail a prioritized above allocation request. To respond, refer to guidance in the *Instructi*

Provide in the table below a prioritized above allocation request which, following the TRP review, could be funded usi during grant-making or put on the register of UQD to be financed should additional resources become available. The abo clear rationale and should be aligned with programming of the allocation for maximum impact. In line with the Global Func end the epidemics, the prioritized above allocation request should be ambitious (for example, representing at least 30 amount).

Applicant response in the table below.

SECTION 5.0: PRIORITIZED ABOVE ALLOCATION REQUEST

Module	Interventions	Amount requested	Brief Rationale, including (how the reques
TB case detection: Scale up of ICF and xpert sites	**Procurement and use of 20 GeneXpert machines**	**7,600,000**	**Scale up of intensified GeneXpert tests are ke missed cases in Ghana interventions are limite budget will be used to GeneXpert machines w to be deployed in 20 dis increase the Geograph intervention sites by 10 decentralized ambulato GeneXpert MTB/RIF tes diagnosing drug resista**
TB case detection : Procurement of GxAlert	**Procurement and use of GxAlert**	**400,000**	**The investments made results still need to be service provider in a ti results are reported vi manual transcription a paper system limits the care and program mar Strategy, the use of emerged as a high qua improving the utilizatio infectious patients onto Implementation of GxA** a) Providing higher improving the ove care; b) Coordinating sup reduce cartridge w and to reducing lo c) Providing real-tim stakeholder(s) for assist in the linkag clinical algorithms
PMTCT	**Training of nurses and midwives in integrated ANC+4**	**3,000,000**	**Technical assistance by Medicine (LSTM) to inc coverage to 95% by 202 are tested, receive the treatment and are scree to facilitate achievemen impact on mother-to-ch childbirth, this interven positive women to cont**

			exposed infants receiv infant diagnosis.
PMTCT	Baseline cross-sectional survey of Hepatitis B and HIV co-morbidity in pregnant women	4,800,000	To ensure the quality c morbidity management undertaken to establish PMTCT clients to guide management in MNCAH WHO ART recommenda
ART – Viral load scale-up	Implementation of viral load sample collection, transportation and feedback system	731,076	Viral load is the key out 90. At present its use is request is necessary to the viral load scale-up for three years.
PMTCT - Early Infant HIV surveillance	Establishment of infant HIV sentinel surveillance	138,309	This will be undertaken rate at 6 weeks and at 1 opportunity to access t ART in pregnancy at th positive mothers and th up till 18 months to det positive children will be
ART - Differentiated Models of Care– adults and children	Training and mentoring in DMOC	1,500,000	Differentiated models c 2017 will be continued cycle by EQUIP at 20 ex will support 10 facilities Global Fund will suppo sites in 2019-2020. Give support for DMOC is be
ART - Models of Hope	Peer adherence counseling and tracing of PLHIV lost to follow up	753,836	Activities to contribute include intensifying pe provision of psychosoc centres and in the com are lost to follow-up; pr activities towards PMT and ART availability at
ART - Cohort analysis	Study – analysis of cohort of PLHIV initiated on ART	1,500,000	This study to be condu factors contributing to up and survival to comp tracker. This cohort ana initiated on ART during
GDHS 2019	Study – Ghana Health and Demographic Survey	2,000,000	The GDHS provides up demographic indices in among adults. This info making informed policy monitoring and evaluat strategies at national a improving the health of request includes funds among children under 1
ATM mortality study	Study – analysis of deaths attributable to AIDS, TB and malaria	600,000	First one done collecte follow-up study will be two periods for change AIDS, TB and Malaria a contribution these thre in the Ghanaian popula
HTS – self-testing: Assessment of Acceptability,	Study – Implementation research on HTS	1,200,000	Nationally representati adolescents to assess testing model in an effo testing in these two gro

feasibility and implementation of self-testing in Ghana			**its feasibility in selecte implementation researc phases 1 and 2, and wil regions.**
Assessment of HIV vulnerabilities among physically challenged individuals	**Study – Assessment of vulnerabilities and access to HIV services in a neglected population group**	**150,000**	**HIV vulnerabilities and services among the phy unknown. This study ai articulate options to ad addressing human righ**
Implementation of Paediatric Accelerated scale up plan	**Institutionalizing task shifting and task sharing policy to cover HIV testing and ART for children (0-19years) at all levels (referral, district, health center, and CHPS levels).** **Procurement of simplified formulations (dispersible forms of ARVs with simplified dosage regimen in weight bands) for paediatric ARVs for ease of dispensing by Health Care Workers** **Provision of simple guidelines and action points on how to initiate and dispense paediatric ARV and disseminate to all levels of the health delivery system**	**500,000**	**This would support the Accelerated scale up pl**
TOTAL AMOUNT		**24,873,221**	