The Global Fund
To Fight AIDS, Tuberculosis and Malaria

STANDARD CONCEPT NOTE

Investing for impact against HIV, tuberculosis or malaria

A concept note outlines the reasons for Global Fund investment. Each concept note should describe a strategy, supported by technical data that shows why this approach will be effective. Guided by a national health strategy and a national disease strategic plan, it prioritizes a country's needs within a broader context. Further, it describes how implementation of the resulting grants can maximize the impact of the investment, by reaching the greatest number of people and by achieving the greatest possible effect on their health.

A concept note is divided into the following sections:

Section 1: A description of the country's epidemiological situation, including health systems and barriers to access, as well as the national response.

Section 2: Information on the national funding landscape and sustainability.

Section 3: A funding request to the Global Fund, including a programmatic gap analysis, rationale and description, and modular template.

Section 4: Implementation arrangements and risk assessment.

IMPORTANT NOTE: ***This template and core tables are subject to minor changes pending further decisions to be taken in early 2014.***

Applicants should refer to the Standard Concept Note Instructions to complete this template.

SUMMARY INFORMATION			
Applicant Information			
Country	**Indonesia**	**Component**	**Malaria**
Funding Request Start Date	**1 January 2015**	**Funding Request End Date**	**31 Dec 2017**
Principal Recipient(s)	**Ministry of Health, Republic of Indonesia and Persatuan Karya Dharma Kesehatan Indonesia (PERDHAKI)**		

Funding Request Summary Table

A funding request summary table will be automatically generated in the online grant management platform based on the information presented in the programmatic gap table and modular templates.

SECTION 1: COUNTRY CONTEXT

This section requests information on the country context, including the disease epidemiology, the health systems and community systems setting, and the human rights situation. This description is critical for justifying the choice of appropriate interventions.

1.1 Country Disease, Health and Community Systems Context

With reference to the latest available epidemiological information, in addition to the portfolio analysis provided by the Global Fund, highlight:

a. The current and evolving epidemiology of the disease(s) and any significant geographic variations in disease risk or prevalence.

b. Key populations that may have disproportionately low access to prevention and treatment services (and for HIV and TB, the availability of care and support services), and the contributing factors to this inequality.

c. Key human rights barriers and gender inequalities that may impede access to health services.

d. The health systems and community systems context in the country, including any constraints.

2-4 PAGES SUGGESTED

a. Indonesia is the world's largest entirely tropical country spanning 5,200 km from west to east and encompassing two of the world's major biogeographic zones, the Oriental and Australasian regions. Indonesia's extraordinary biological diversity is reflected in its malaria epidemiology, with more than 21 confirmed mosquito vectors of malaria and five *Plasmodia* commonly infecting humans. Indonesia has equally impressive cultural diversity, with over 600 languages from two major language phyla. Politically, Indonesia is a young democracy with a highly decentralized system of governance. Economically, the country has made steady progress since its severe financial and political crisis of 1998.

Malaria transmission in Indonesia is unsurprisingly highly variable as well, as depicted in Figure 1, which shows malaria incidence by Indonesia's approximately 500 administrative districts.

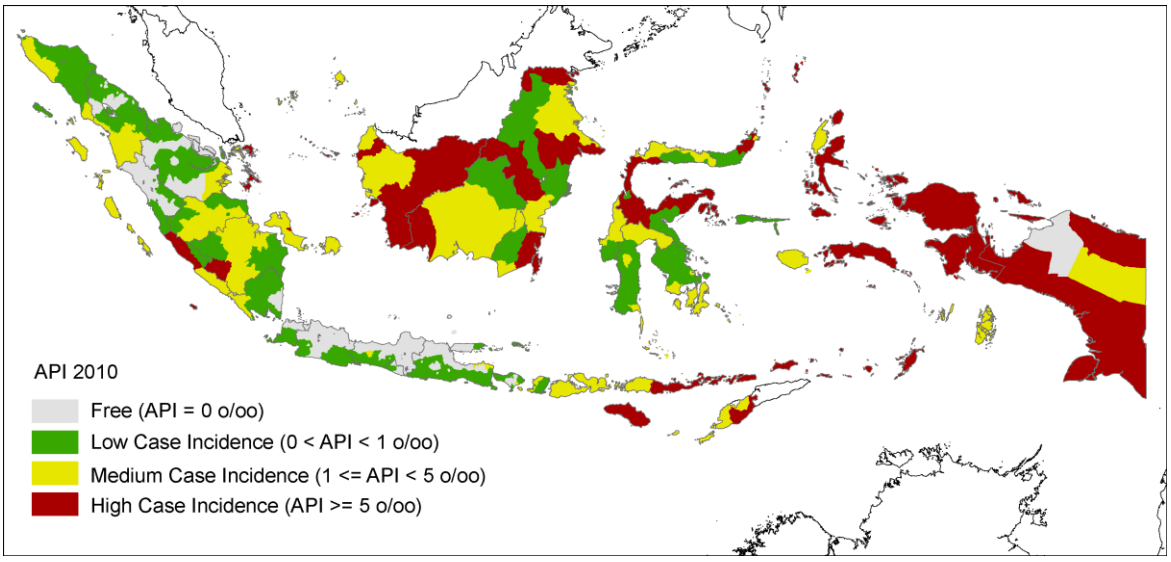

Figure 1. Map of malaria incidence in Indonesia, by administrative district, based upon laboratory-confirmed cases reported to the MOH in 2010. API is the annual parasite incidence, calculated as the number of malaria cases per 1000 population per year.

In the absence of complete and accurate malaria information, the Ministry of Health and the Malaria Atlas Project have collaborated to estimate malaria endemicity in Indonesia. Comprehensive

community-based malaria surveys, environmental covariates and a Bayesian model-based geostatistics approach was used to predict the baseline risk of *P. falciparum* and *P. vivax* malaria in Indonesia in 2010. Figure 2 depicts predicted prevalence of *P. falciparum* in 2010.

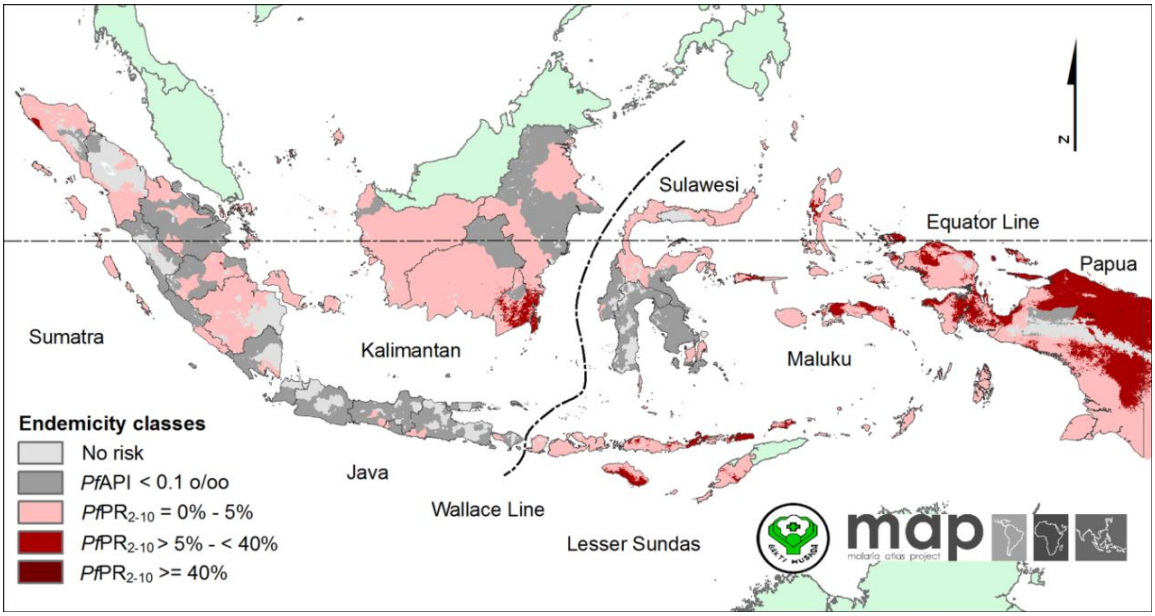

Figure 2. Predicted endemicity level of *P. falciparum* malaria in Indonesia in 2010, based upon multiple data sources and geostatistical modeling.

Visual comparison of the two maps shows similar general patterns, with low endemicity in Java and Bali, higher endemicity in the east, and a very mixed picture elsewhere. This exhaustive and detailed analysis carried out by the Malaria Atlas Project gives us greater confidence that our formally reported data reflect the actual malaria situation in Indonesia.

Within each district, malaria incidence varies by sub-district and by village. Over the past decade the MOH has made a concerted effort to collect malaria data by district for the entire country. Table 1 summarizes these data, for three broad regions of the country: 1. Java and Bali, 2. Sumatra, Kalimantan and Sulawesi, and 3. Eastern Indonesia, including Nusa Tenggara, the Malukus, and Papua. These regions roughly correspond to areas of the country in WHO-defined stages of malaria elimination, pre-elimination, and control.

Table 3.4. Stratification of districts in elimination, pre-elimination, and control regions of Indonesia

Indicators by region	Elimination	Pre-elimination	Control
	Java, Bali	Sumatra, Kalimantan, Sulawesi, West Nusa Tenggara	East Nusa Tenggara, Malukus, Papua
No. provinces	7	21	5
No. districts	127	289	81
No. districts with malaria (%)	44 (35%)	249 (86%)	67 (83%)
API $\leq$ 1	41	178	5
1 < API $\leq$ 5	3	59	16
API > 5	0	12	46
Population	143,918,794	89,314,532	11,542,471
Population at risk (%)	22,045,292 (15%)	64,318,862 (72%)	10,881,477 (94%)

The table documents some basic demographic and epidemiological facts. Java and Bali have a dense population, many malaria-free districts, but still have 22 million people living with low malaria risk. Sumatra, Kalimantan and Sulawesi have fewer people in total, but a greater proportion of those live in areas with malaria, such that 65 million people in this region live with a predominately low – to – medium level of malaria risk. Eastern Indonesia is relatively sparsely populated, but most

of the 11 million Indonesians living in this region experience high levels of malaria incidence.

Broadly, present malaria epidemiology in Indonesia reflects past control efforts and level of economic development. Historically, the cultural and political heart of Indonesia is Java and Bali, home to 60% of Indonesia's population. This region enjoys Indonesia's highest living standards and its best public health infrastructure. During the first half of the 20th century, Dutch workers effectively controlled malaria in coastal areas of Java, while in the 1960s the Government of Indonesia launched an effective regime of DDT house spraying and treatment with chloroquine which greatly reduced malaria incidence throughout Java and Bali. Today, Java has several pockets of low level malaria transmission, mostly in hilly areas poorly served by health services, while the government of Bali has reported no indigenous malaria transmission since 2012. However, as many inhabitants of Java may seek their fortunes in the mines and forests of more highly malaria endemic parts of Indonesia, the risk of importation of malaria into previously malaria-free areas is ever-present. The focus of the malaria program in most of the districts in Java and Bali is to sustain the malaria elimination already achieved there.

The so-called 'outer islands', including Sumatra, Kalimantan, Sulawesi, and the eastern region including Papua are less developed than Java and Bali, have sparser populations, poorer infrastructure, and more malaria. The outer islands are rich in natural resources – timber, oil, gas, coal, copper, nickel, bauxite, and gold – and thus are a magnet for migrants, both legal and illegal. Since the political upheaval of 1998, and the initiation of decentralized government, the health priorities of the outer islands have received more attention from authorities in Jakarta. Indeed, support from the GF to the MOH in Indonesia's Round 1 grant dating from 2004 represented the beginning of broad, sustained attention paid to malaria control in the outer islands of Indonesia. Prior to that time, malaria control outside of Java and Bali was focused on transmigrant communities from Java or were ephemeral project-based efforts.

The large islands of Sumatra, Kalimantan, and Sulawesi (plus the small province of West Nusa Tenggara, located east of Bali) have complex malaria epidemiology. This vast area has, in general, more malaria than Java and Bali, but less malaria than the far eastern provinces. Its economic development and health infrastructure is not as good as Java, but better than the east. Malaria transmission is highly variable, with pockets of high transmission as well as areas were no transmission is detectable. For instance, in Aceh province, home to 4.5 million people, the small district of Aceh Java with less than 200,000 people (one of 23 districts and municipalities in Aceh), contributes 60% of the malaria cases in the province. Similarly, North Sulawesi province has only two districts that have significant malaria transmission. A similar trend holds for most of this region, with circumscribed regions contributing a disproportionate share of malaria transmission. The focus of the malaria program in this region is on moving from control to elimination phase; thus most districts in the region are in pre-elimination phase.

The five easternmost of Indonesia's 33 provinces – Papua, West Papua, East Nusa Tenggara, Maluku and North Maluku – have only 8% of the country's population but 70% of its malaria cases; most of the districts with sustained high transmission of malaria are here. Eastern Indonesia is the least developed region of Indonesia. While rich in resources, it was neglected by the central government prior to the revival of democracy in 1998 and decentralization in 2000. Much of the region also happens to fall in the Australasian biogeographic zone, which has more anthropophilic malaria vectors than elsewhere in Indonesia. The combination of relative poverty plus anthropophilic mosquitoes has the predictable outcome of high levels of malaria transmission. This region is simple to classify: it is mostly in malaria control mode, aiming to reduce incidence and prevent malaria mortality.

b. As in the rest of world, the burden of malaria in Indonesia falls heavily on the rural poor. Though humanitarian priorities place a greater emphasis on prevention of malaria in pregnant women and children in Indonesia, the main factors contributing to malaria risk are poverty and residence in eastern Indonesia or remote areas of Sumatra, Kalimantan, or Sulawesi regardless of gender or age. In addition to this, migration plays a significant role. This may be local or long-distance. Local or seasonal migration includes farmers who may spend days or months at a time in poor quality housing to guard crops during harvest season. Such behavior increases the risk of contracting malaria because of greater exposure to mosquito biting. Long distance migration is also common in Indonesia. People from central Java seek work on plantations in Kalimantan; miners from west Java seek work in illegal mines in Aceh, Sulawesi, Kalimantan, and Maluku; whilst fishermen from Maluku may occasionally work on plantations in Papua, and so on. The improving Indonesian economy has created greater economic opportunity for the rural poor, while at the same time increasing the probability of importation of malaria to areas either malaria free or with low levels of transmission. This migrant sector presents a particular challenge for malaria control, as migrants are less likely to be reached by formal government services, which is designed to serve people

living in fixed residences registered with the local authorities. Unfortunately, few data exist on the burden of malaria in migrant populations; collecting such data is a recent priority of the NMCP.

c. The primary barriers to access for malaria control services are economic, geographic, and social. Malaria in Indonesia is more prevalent in poor, geographically isolated people. Illegal migrants who work in forests as miners and loggers also have reduced access to services. As poor people living on the margins of Indonesia, response of the formal health sector to their complaints and demands may be sub-optimal. The formal health sector is weakest in eastern Indonesia, where facilities may exist, but the few staff that are posted in such facilities may be poorly trained. In this part of the country, NGOs and FBOs play a more important role in outreach to the main risk groups -- the rural poor and migrants -- than in the rest of Indonesia. In this part of the country as well, the importance of 'task shifting', or diagnosis and treatment of disease at community level rather than in facilities is more important. Indonesia is fortunate to have a range of primarily faith-based NGOs which have the ability to manage programs, have close ties with communities, and a broad geographic reach. Importantly, these organizations are also able to coordinate well with government authorities and adhere to international and national standards as prescribed by the MOH.

d. After decades of centralized governance, in 2000 Indonesia formally decentralized authority for implementation of programs to district and municipality level. This has led to challenges in ensuring adherence to norms and standards, particularly for well-established programs such as immunizations that had thrived under the previous centralized system. Similar constraints affect the malaria program, where adherence to treatment standards is not yet optimal, the quality of malaria diagnosis and case reporting remains uneven, and problems related to supply chain management have become more evident. The inconsistency and unreliability of Indonesia's malaria data has been highlighted by WHO, though it is worth remembering that the NMCP has essentially developed a new program covering over 100 million people outside of Java and Bali in the space of 10 years. The NMCP recognizes the problem, and is working to develop both better reporting systems and systems to ensure higher quality malaria diagnosis. Management of logistics varies by type of commodity (drugs, supplies, LLINs, insecticides) and by source of procurement (offshore or domestic). As the program has evolved, the specific challenges involved with supply chain management for each category of commodity has become more clear, allowing us to better devise solutions. The MOH's rapidly developing "One Gate" policy is helping to re-focus procurement efforts towards a more unified system, which should improve efficiency. Recent increased technical support, particularly through bilateral programs, is targeted at strengthening SOPs, skills, and sharing of best practices in supply chain management.

If decentralization has been detrimental to development of top-down surveillance and logistics systems, it has benefitted malaria control in endemic areas as district authorities are more likely focus greater resources on locally endemic diseases such as malaria. Similarly, in a decentralized system, local governments are able to carry out creative programs that might not otherwise have been promulgated under a more rigid centralized system. Examples for malaria include community based environmental management in South Halmahera in North Maluku Province and active case detection to eliminate malaria in Sabang Municipality in Aceh. Subsequent replication of successful innovations requires coordinated advocacy from all levels of government and partners.

The private sector's role in malaria control in Indonesia is changing and expanding. Initially, efforts were made to ensure that private hospitals conform to malaria treatment standards. In the past year, several ACTs have been registered with the Indonesian FDA, allowing sale of these drugs in pharmacies. At the same time, chloroquine and SP continue to be available in small shops and larger pharmacies throughout the country.

WHO has supported many studies of therapeutic efficacy monitoring which have provided reasonable coverage nationally over the past two decades. Similarly, information on insecticide resistance is *ad hoc* and dependent upon academic partners. Though these networks have to date not detected any diminution in the efficacy of ACT or pyrethroid resistance that might foreshadow programmatic failure, these academic networks depend upon the goodwill of partners and external funding. The Indonesian CDC has a network of regional laboratories whose primary job is monitoring and surveillance; with funding from this proposal we hope to leverage the capacity of these labs to develop robust systems for drug efficacy monitoring, LLIN durability monitoring, and insecticide resistance. Significantly, these labs are immediately able to share funding for this effort, unlike academic partners.

1.2 National Disease Strategic Plans

Withclearreferences to the current **national disease strategic plan(s)**and supporting documentation (include the name of the document and specific page reference), briefly summarize:

a. The key goals, objectives and priority program areas.

b. Implementationto date, including the main outcomes and impact achieved.

c. Limitations to implementation and any lessons learned that will inform future implementation. In particular, highlight how the inequalities and key constraints described in question1.1are being addressed.

d. The main areas of linkage to thenational health strategy, including how implementation of thisstrategy impacts relevant disease outcomes.

e. For standard HIV or TB funding requests[1], describe existing TB/HIV collaborative activities, including linkages between the respective national TB and HIV programs in areas such as: diagnostics, service delivery, information systems and monitoring and evaluation, capacity building, policy development and coordination processes.

f. Country processes for reviewing and revising the national disease strategic plan(s) and results of these assessments. Explain the process and timeline for the development of a new plan(if current one is valid for 18 months or less from funding request start date), including how key populations will be meaningfully engaged.

4-5PAGES SUGGESTED

a. As a specific target of MDG 6, reduction of malaria incidence is a national priority for Indonesia. To attain the goal of a national annual parasite incidence (API) of 1 confirmed case per 1000 population per year, a focused effort to reduce transmission in the five provinces of eastern Indonesia, where the API per province is 5 to 100 times the national target, will be required. As noted above, eastern Indonesia has 70% of Indonesia's malaria cases, but only 8% of its population. In Indonesia's National Strategic Plan (NSP), eastern Indonesia therefore receives special attention and priority, as it is still in 'acceleration' – or more conventionally – in the 'control' phase of WHO. MDGs are time bound: the prescribed reduction in national API must be achieved by the end of 2015.

Longer-term, Indonesia has committed to malaria elimination nationally, as per a Ministerial Decree issued in 2009. In this decree, the national government states that malaria elimination should be achieved in Bali, Java and Aceh by the end of 2015, in the remainder of Sumatra, Kalimantan and Sulawesi by 2020, and in eastern Indonesia by the end of 2030. Achievement of these ambitious targets will depend to large extent on improvements in surveillance overall coupled with improvements in surveillance for migrant populations. In addition, more attention to heretofore neglected migrant groups working outside the formal sector will be needed.

Importantly, malaria elimination in western Indonesia and reduction of the present levels of high malaria incidence are interdependent: without marked reductions in source populations in the east

[1]Countries with high co-infection rates of HIV and TB must submit a single concept note for HIV and TB. Countries with high burden of TB/HIV are considered to have a high estimated TB/HIV incidence (in numbers) as well as high HIV positivity rate among people infected with TB.

and in remaining pockets of high incidence in Sumatra, Kalimantan and Sulawesi, the pressure of continued importation of malaria from high incidence regions into areas with no or low levels of malaria will continue to spark outbreaks that might lead to reestablishment of stable malaria transmission. Achievement of malaria elimination will therefore require a coordinated national program that both intensifies efforts to further reduce transmission primarily via LLIN distribution in the east and in high-endemic pockets elsewhere, while at the same time improving the quality of surveillance, case follow-up and rapid treatment in low endemic areas aiming to achieve elimination.

The suite of activities needed in the broad areas in 'elimination' and 'intensification' phase – in WHO terms, 'elimination' and 'pre-elimination' -- are consistent with WHO guidelines for malaria elimination.

Clearly, the long term sustainability of this effort is contingent upon the success of malaria elimination. The NSP aims to drive down transmission everywhere in the country while at the same time guarding against reintroduction in areas that reduced indigenous transmission to zero. Ultimately, cross border collaboration with Papua New Guinea, Timor Leste, and Malaysia will be required ensure that Indonesia sustains its malaria free status.

b. Prior to 2004, malaria treatment was based upon symptoms and treated with chloroquine. Housespraying was the main preventative measure aimed at adult mosquitoes. In certain areas, larval control via environmental management and larvivorous fishes are used. As noted in section 1, the emphasis of the NMCP was on malaria control in densely populated Java and Bali.

In 2004, with the commencement of support from GF Round 1, two major changes occurred: laboratory confirmed treatment with ACT was introduced and priority was given to malaria control in high endemic eastern Indonesia. In the decade since these strategic shifts, the proportion of suspected cases that are laboratory confirmed has increased from near zero in eastern Indonesia to 93% nationally in 2013, while the proportion of laboratory confirmed cases treated with ACT has increased from 0 to 84% in 2013. Decline in malaria incidence is somewhat harder to quantify over this period because of the change in indicator caused by introduction of laboratory diagnosis (from 'annual malaria incidence' or AMI, based upon symptomatic cases to 'annual parasite incidence' or API, based upon laboratory confirmed symptomatic cases). Nonetheless, provincial level data from the east show clear declines in API during the past decade.

Beginning in 2006, the wide availability of long-lasting insecticide treated mosquito nets (LLINs) and rapid diagnostic tests (RDTs) enabled the NMCP to a make strategic shift towards integration of malaria control with antenatal care and immunizations programs in high endemic areas. This effort was piloted in cooperation with UNICEF with expansion of the program via GF Round 6 funding. The program addresses the problem of malaria in pregnancy via a screening and treatment approach, which is more appropriate than simple presumptive treatment (IPT) with sulphadoxine-pyrimethamine (SP) due to the ineffectiveness of this drug in treating *P. vivax* and the lower prevalence of malaria in Indonesia as compared to Africa. Integration of screening, treatment, and LLIN distribution with antenatal care also synergistically increases demand for such maternal health services, of critical importance in Indonesia as it struggles to reduce its maternal mortality ratio. The NMCP also seeks synergy with the immunizations program, by offering LLINs at the time of measles vaccination (on condition that other vaccines are up-to-date) thereby increasing lagging demand for routine immunizations services. These two integrated programs take advantage of pre-existing high ANC and EPI coverage where such exists, and catalyzes increases in coverage where coverage is sub-standard[2].

While these routine programs are useful for protecting pregnant women and young children, they do little to address the epidemiological reality that in Indonesia all age groups and both sexes are susceptible to malaria infection and malaria mortality. To this end, the MOH, working in partnership with the Red Cross (Indonesian Red Cross, American Red Cross, International Federation of the the Red Cross and Red Crescent Societies), UNICEF, and WHO securing funding in past years to carry out mass integrated campaigns with LLINs in Aceh and the remainder of Sumatra, and in selected districts in Papua. With GF Round 8 funding, similar campaigns were carried out in high endemic areas of Kalimantan and Sulawesi; many of these nets are being replaced in 2014 with SSF funding while the remainder in high endemic areas will be replaced in 2015 with NFM support. Planning for a mass campaign in 52 of the most malaria endemic districts in eastern Indonesia is underway, with the campaign scheduled for August 2014. Surveys conducted in 2012 in our Round 8 coverage area where mass campaigns were done in 2011 show coverage 90% and reported use

[2] IDHS 2012 reports 88% of mothers attend ANC four times; 66% of children completely immunized.

of 73% for the total population and 82% for pregnant women.

Such campaigns are popular and useful, and serve to reduce indoor transmission of malaria. Reduction of risk of malaria transmission outdoors requires alternative measures. These fall into three categories: 1. Use of repellants or insecticide treated materials or clothing while out of doors. 2. Area wide reduction of malaria risk via anti-larval measures and 3. In low endemic settings, use of active case detection to reduce the risk of transmission from humans to mosquitoes, thereby reducing risk of onward transmission to humans.

Interventions in the first category, which aim to reduce mosquito-human contact, are promulgated primarily by asking agriculturalists that live part time near their fields during harvest season to bring their LLIN with them for use while away from home. The NMCP also encourages use of repellants, but these are marketed entirely via the private sector.

Interventions aimed at larvae have been broadly applied in Java and Sumatra since the pioneering work of the Dutch biologist Swellengrebel in the 1920s and 1930s. Methods of environmental management (known at the time as 'species sanitation') were developed for the rice field species *An. aconitus* and the brackish water species *An. sundaicus*. These methods are still used today, but their effectiveness is very much species specific and have limited application in eastern Indonesia. To address this gap, the MOH, in collaboration with local authorities in North Maluku and with limited seed money from UNICEF, pioneered community based larval control of *An. punctulatus* group lagoon-breeding species in remote coastal villages. Such lagoons are often large, and as such present tempting targets for larval control. Rolled out in combination with other interventions, malaria mortality declined to near zero over five years and malaria incidence was cut in half. The intervention is presently being expanded to other districts in Maluku and North Maluku where this species group is present. More broadly, the MOH promulgates the use of larvivorous fishes for control of a variety of difficult species, especially the broadly distributed and difficult to control *An. barbirostrus.* However, the effectiveness of this intervention is not well understood.

In several low-endemic settings, active case detection (ACD) has been successfully used to nearly eliminate or eliminate malaria transmission by prevention of the transmission of malaria from humans to mosquitoes. In Wonosobo District, central Java, local authorities have reduced transmission to near zero with focused indoor residual spray (IRS), coupled with a system of local volunteers who screen fever cases for malaria and treat immediately. As people from this district frequently work in malaria-endemic Kalimantan, a village based migration surveillance system has been established to screen those returning from work there. In Sabang, Aceh, local authorities have successfully linked community health workers, community health center surveillance staff, hospital staff, and private physicians to allow rapid detection and treatment of malaria such that no indigenous cases of malaria have been detected since 2012. Imported cases from elsewhere in Aceh continue to be detected, but thus far the surveillance system has been sufficiently responsible to eliminate the parasite before onward transmission. Notably, elimination of subpatent parasitemias has also been confirmed by surveys carried out by academic partners using PCR[3].

In recent years, the private sector has been encouraged to comply with international standards in malaria treatment in hospitals. More recently, regulations allowing sale of ACTs have been passed so that public access to effective antimalarial drugs is improved.

In summary, the past decade has been one of significant accomplishment for the NMCP: malaria incidence and mortality have declined markedly, innovative integrated programs have been established that serve to strengthen health systems in remote areas, and new methods for community engagement in larval control and malaria elimination have been pioneered.

c. The primary challenges to effective implementation are geography, culture, and governance. Indonesia has over 5,000 inhabited islands and a diverse, traditionally independently minded, and mobile population. The authority of central government over local governments is limited and local populations show variable levels of compliance with health standards. The process of developing malaria control (or any public health program) in Indonesia is a slow, steady process of negotiation, consensus building, demand creation, and persuasion. Over the past decade, the NMCP and its partners have become more adept at facilitating this process of development, which requires engagement of both the formal health sector responsible for program implementation, local governments responsible for budgeting, and communities. At the same time, Indonesia's physical infrastructure has developed such that field visits by central and provincial authorities to remote areas has become somewhat cheaper and more cost effective, thereby improving dissemination of new policies and practices. Despite this, many people in the archipelago are physically remote

[3] Herdiana et al., manuscript in preparation.

from the formal health system. Others may be socially removed, such as forest dwelling people in Kalimantan that have little contact with the government. Most difficult are those working in the informal (or illegal) mining and forestry sectors that according to regulations may have no right to receive services from local authorities. Over the past years, outreach to forest people have been effectively done via FBOs (as by PERDHAKI in west Kalimantan), while screening and treatment of illegal workers have been done by government workers in a mine in Aceh -- responsible for 60% of the province's malaria burden, and exported far and wide -- after recognition of this epidemiological reality by the health office and high level intervention from the governor's office.

d. The NSP for malaria is linked to both MDGs and the Government of Indonesia's Medium Term Development plan. With its focus on high endemic eastern Indonesia, the NSP aims to reduce malaria in its most vulnerable populations, which also suffer from high levels of maternal and child mortality. The effort against malaria is thus explicitly linked with equity goals for MDGs 4 (child mortality) and 5 (maternal mortality), both overtly via efforts to reduce malaria in these groups and synergistically via integration of malaria control with routine child and maternal health programs. It is also noteworthy that recent change in policy for prevention of mother to child transmission of HIV (PMTCT) to Option B+ allows integration of screening for HIV, malaria, and syphilis in areas where these diseases overlap.

The GoI has also explicitly made development of eastern Indonesia and remote areas a priority for its development plan; the NSP is in line with and supports this effort. The formation of the Ministry for Development of Remote and Disadvantaged Areas reflects the commitment of the GoI to eastern Indonesia and poverty reduction there.

The NSP is consistent with the GoI's long term goal of malaria elimination. It aims to move towards malaria elimination in low endemic areas by improving surveillance (including surveillance of migrants from medium to high endemic areas), more accurate diagnosis to allow better mapping of this spatially heterogeneous disease and thereby better targeting of interventions while at the same time giving priority to attacking the disease where it is most prevalent – the far eastern part of Indonesia.

e. not applicable (for HIV/TB applications)

f. Indonesia's present NSP covers the period 2010-2014. The updated five year plan will cover the period from 2015-2019. The present draft plan (attached to this application) is a result of discussion with NMCP, the Malaria TWG, WHO, UNICEF, PERDHAKI, and academic partners from the Eijkman Institute of Molecular Biology and the Faculty of Public Health of the University of Indonesia. The document has been shared with WHO SEARO and incorporates comments from the WHO Regional Malaria Advisor. The document is partly based upon an exhaustive review of government documents and published literature in both Indonesian and English, carried out as part of the PhD training of Indonesian epidemiologist who is key member of the team drafting the document. Other NGOs with representatives from eastern Indonesia have also been consulted; these NGOs have members and leadership who come from eastern Indonesia and are thus legitimate representatives of malaria-affected populations there.. The draft has been initially prepared in English for the convenience of the GFATM but will be finalized, after comment, revision, and further discussion, in Indonesia's official language, Bahasa Indonesia. We expect that this process will be complete by end of 2014 and the formation a new government after elections this year.

SECTION 2: FUNDING LANDSCAPE, ADDITIONALITY AND SUSTAINABILITY

To achieve lasting impact against the three diseases, financial commitments from domestic sources must play a key role in a national strategy. Global Fund allocates resources which are far from sufficient to address the full cost of a technically sound program. It is therefore critical to assess how the funding requested fits within the overall funding landscape and how the national government plans to commit increased resources to the national disease program and health sector each year.

2.1 Overall Funding Landscape for Upcoming Implementation Period

In order to understand the overall funding landscape of the national program and how this funding request fits within this, briefly describe:

a. The availability of funds for each program area and the source of such funding (government and/or donor). Highlight any program areas that are adequately resourced (and are therefore not included in the request to the Global Fund).

b. How the proposed Global Fund investment has leveraged other donor resources.

c. For program areas that have significant funding gaps, planned actions to address these gaps.

1-2 PAGES SUGGESTED

While overall funding for malaria has increased over the past five years, significant shortfalls still exist. Total funding needed by the malaria program for the period 2015-17 is about 169 million dollars or about 56 million dollars annually. The contribution from the Government of Indonesia over this period is expected to be nearly 57 million dollars, including 100% of procurement of drugs for malaria treatment, all salaries for government personnel, and some operational costs. The government contribution at central level is mostly for drugs, LLINs, and RDTs, while at district and provincial level the contributions are for salaries and operations. Contributions from partners (WHO and UNICEF, with USAID providing substantial support via UNICEF) are about 3.9 million dollars annually. Much of the WHO and UNICEF support is for technical assistance, but these funds also provide support for integrated programming (particularly for links with maternal and child health programs), support for community mobilization activities, piloting of innovative programs, advocacy for more efficient budgeting and programming, and some strategic operational research.

Our funding gap for the coming three year period is 169 million – 57 million from the GoI – 12 million from partners = about 100 million dollars. In this proposal, we request 63 million dollars for the three year period 2015-2017, which, if agreed upon by the GFATM, would leave us with an unfunded gap ("unfunded quality demand", in GF terminology) of 37 million dollars.

The near term strategic priority is reduction of malaria incidence in eastern Indonesia so as to allow achievement of our MDG target and to minimize malaria mortality. At the same time, we aim to leverage the malaria program to improve the quality of services in remote areas by integration with maternal and child health programs broadly. Another key priority is improving data quality and surveillance.

Our NFM request aims to support primarily eastern Indonesia and ensures that our network of FBOs and NGOs continues to receive funding, as these have no access to government support. In 2015, we will carry out LLIN campaigns in selected areas of districts not covered by this year's LLIN campaign. We also want to ensure continuation of LLIN distribution via routine systems. Thus, the single largest item in the budget for our NFM will be for LLIN procurement. We also will aim to fund integrated training for pilot efforts for community based case management in remote areas not served by health staff (in collaboration with UNICEF, the NMCP and the Directorate for Child Health in the MOH); this effort will reduce mortality to malaria, diarrhea, and pneumonia, with the latter two being leading causes of death of children in Indonesia. We note that timers, drugs, ORS, and personnel will be funded by the child health directorate; the GF is asked to fund integrated training rather than merely training in malaria case management.

This proposal also requests funding for specific national strategic activities related to malaria elimination that are difficult to fund with central funding, specifically efforts to better map and measure malaria in migrant populations, development of central level GIS database for malaria, improved surveillance for artemesinin resistance, and better decentralized capacity for routine therapeutic efficacy monitoring, insecticide resistance, and LLIN durability.

b. The primary donors supporting malaria in Indonesia – WHO, UNICEF, and USAID – are active and committed members of the CCM and the Malaria TWG. Support from the GF and these organizations are well coordinated with the NMCP. While we do not expect markedly increased support from these organizations, all recognize that a long-term commitment is needed; the good use of GF resources increases the probability of continued moderate to low level donor support. The fact that this GF proposal has as its focus the five easternmost provinces of Indonesia helps secure future UNICEF support, as UNICEF gives priority to this region its programming as part of it focus on equity. Donors, along with the GF, recognize that the GoI has both increasing capability to

manage its own programs and increasing resources to fund its health programs. Indeed, WHO, UNICEF, and USAID no longer self-identify as 'donors' in Indonesia, but prefer to be viewed as partners providing strategic support to the government and its partners.

c. Thus, the goal of the GF and its partners is to work with the NMCP to ensure that reliable, appropriate and sustainable financing is available. This takes this form of engagement at all levels of the MOH, testimony to local parliaments, and discussion with local planning boards. In the complex and ever changing area of health care financing in Indonesia, there is no simple path to achievement of this goal, but the NMCP and its partners are every year better positioned to effect change. That the interventions supported partly by the GF over the past decade clearly and measurably work provides the basis for effective advocacy.

2.2Counterpart Financing Requirements

Complete the Financial Gap Analysis and Counterpart Financing Table (Table1). The counterpart financing requirements are set forth in the Global Fund Eligibility and Counterpart Financing Policy.

a. Indicate below whether the counterpart financing requirements have been met. If not, provide a justification that includes actions planned during implementation to reach compliance.

Counterpart Financing Requirements	Compliant?	If not, provide a brief justification and planned actions
i. Availability of reliable data to assess compliance	☒Yes ☐ No	
ii. Minimum threshold government contribution to disease program (low income-5%, lower lower-middle income-20%, upper lower-middle income-40%, upper middle income-60%)	☒Yes ☐ No	
iii. Increasing government contribution to disease program	☒Yes ☐ No	

b. Compared to previous years, what additional government investments are committed to the national programs (TB and HIV) in the next implementation period that counts towards accessing the willingness-to-pay allocation from the Global Fund. Clearly specify the interventions or activities that are expected to be financed by the additional government resources and indicate how realization of these commitments will be tracked and reported.

c. Provide an assessment of the completeness and reliability of financial data reported, including any assumptions and caveats associated with the figures.

2-3 PAGES SUGGESTED

a. refer to willingness to pay annex

b. For the malaria financial gap analysis, figures from the MOH's central budget, UNICEF, and WHO are accurate, easily available, and easy to verify. As noted above, figures from districts represent only a small sample of districts. Further, within districts there are multiple sources of funds that could be used for malaria control, including 1. Formal district budgets; these allocations are relatively easy to verify, and are the focus of intense advocacy from the central government so as to ensure effective use. 2. special autonomy funds – these are specific to Papua and are not reported to the central government, making verification difficult, 3. Village development funds – these may be used for infrastructure or activities, with decision making occurring at village level. Community empowerment activities (funded by UNICEF and districts) aim to ensure that malaria control activities are supported. These can be verified in particular districts, but are difficult to verify broadly. 4. Health center operational funds – these are funds allocated directly to health centers for operations, with a focus on preventive activities such as immunizations, maternal and child health, or malaria control. Decisions as to fund allocation are made by the head of the health center. Many health centers in malaria endemic regions use these funds for malaria control, but reporting lines are such that direct sampling of health centers would be required to verify these expenditures.

Because of the difficulties and guesswork involved in assessing district, village, and health center spending, and the fact that these expenditures may rise or fall as leadership changes occur, it is very likely that our financial gap analysis underestimates the GoI financial commitment to malaria control. Even with this underestimation, we reckon that the GoI contributes 42% of costs for malaria control.

SECTION 3: FUNDING REQUEST TO THE GLOBAL FUND

This section detailsthe request for funding and how the investment is strategicallytargeted to achieve greater impact on the disease and health systems**.**It requests an analysis of the key programmatic gaps, which forms the basis upon which the request is prioritized. The modular template (Table 3) organizes the request to clearly link the selected modules of interventions to the goals and objectives of the program, and associates these with indicators, targets, and costs.

3.1 Programmatic Gap Analysis

A programmatic gap analysis needs to be conducted for the three to six priority modules within the applicant's funding request.

Complete a programmatic gap table (Table2) detailing the quantifiable priority modules within the applicant's funding request. Ensure that the coverage levels for the priority modules selected are consistent with the coverage targets in section D of the modular template (Table3).

For any selected priority modules that are difficult to quantify (i.e. not service delivery modules), explain the gaps, the types of activities in place, the populations or groups involved, and the current funding sources and gaps.

1-2 PAGES SUGGESTED – *only for modules that are difficult to quantify*

Elements of the proposal that are difficult to quantify are focused on data quality, surveillance, programmatic integration, and program monitoring. None of these elements can be easily characterized by coverage indicators. For instance, we know from anecdotal evidence that migrant populations, both legal and illegal, are at risk for

malaria infection and constitute sources of reintroduction of malaria into areas from which the disease has been eliminated. However, we have very little data on the location of these populations or the prevalence of malaria in them. In our proposal, we aim to leverage capacity of NGOs and FBOs to reach these groups and organize the needed surveys. We also ask for limited support to pilot community-based follow-up for primaquine treatment for *P. vivax*.

Over the past decade, the NMCP has made tremendous progress in transitioning from clinical diagnosis to laboratory-confirmed malaria diagnosis. However, the quality of microscopy is uneven. The poor quality of data has been noted by WHO in Indonesia's malaria program evaluation of several years ago. We therefore ask for funding to support activities associated with improvement of data quality via development of cross-checking systems. At the same time, we aim to develop central capacity to map and monitor data nationally through a good quality GIS system. In this way, inconsistent or aberrant data can be promptly flagged for follow-up.

Our proposal also asks for support for development of the Indonesian CDC's regional laboratory network to carry out therapeutic efficacy surveillance for ACTs, insecticide resistance surveillance, and surveys of LLIN coverage and durability. These activities are within the basic function of the BTKL (*Balai Teknik Kesehatan Lingkungan* – Environmental Health Technical Unit) network, which includes laboratories in Makassar, Manado, and Ambon in eastern Indonesia. Our aim is spur the development of these laboratories to become part of the routine malaria surveillance system within the CDC.

We also ask for support for Indonesia's initial assessment of the efficacy of artemesinin in carefully controlled studies in the District Hospital in Timika in eastern Indonesia. Staff at this hospital are internationally recognized malaria researchers, physicians, and epidemiologists. Though tolerance of malaria parasites to artemesinin has not been detected in Indonesia, we have not yet carried out the needed sensitive surveys. Associated with this is development of center of excellence for case management of malaria in Timika, which will allow for expanded training of physicians to ensure compliance of hospitals with Indonesian and international standards.

3.2 Applicant Funding Request

Provide a strategicoverview of the applicant's funding request to the Global Fund,including both the proposed investment of the allocationamount and the request above this amount. Describehow it addresses the gaps and constraints described in questions1, 2 and 3.1. If the Global Fund is supporting existing programs, explain how they will be adapted to maximize impact.

4-5 PAGES SUGGESTED

Given the size and complexity of Indonesia and its ambitious goal of malaria elimination by the end of 2030, our funding gap is considerable. Our anticipated costs are roughly 57 million dollars annually whilst MOH funds are estimated at 17-21 million dollars annually over the next three years. Our funding gap for the next three years is roughly 100 million dollars. This has two implications: First, we must be determined and effective in leveraging funding from districts for malaria control. This will be the primary means by which the funding gap will be narrowed. Second, the considerable investment of the GoI and its partners must be used strategically and intelligently so as to achieve maximum

impact. In this section we describe how GF funds will be used so as to continue to move forward as rapidly as possible the malaria control agenda in Indonesia.

We are not requesting funding for drug procurement, routine IRS, or environmental management, all of which will be funded by the central MOH or by local government. Our primarily commodity request is for LLINs, some replacement microscopes, and RDTs. We also ask for funding of several strategic activities related to outreach to high-risk groups, data quality, and key surveillance activities vital to the sustainability and long term success of Indonesia's malaria control effort.

a. LLIN distribution and associated issues. As we have noted, the highest incidence of malaria in Indonesia is in its five easternmost provinces. This year, a mass campaign will cover the 52 highest endemic districts in this area, and will protect with LLINs a total of 6.3 million people. In 2015, we wish to conduct focused campaigns in remaining high endemic villages in eastern Indonesia, Sulawesi, Kalimantan, and Sumatra, as coverage in these areas will still be sub-optimal. Based upon present data, we estimate that 4.5 million people live in such areas; the total number of LLINs required for the 2015 campaign is about 2.5 million nets. As for August 2014 campaign, we will to the extent possible integrated LLIN distribution with distribution of vitamin A, deworming medicine, mass drug administration for lymphatic filariasis, and immunizations. The 3.5 million LLINs distributed in 2014 should be replaced in 2017. We expect that the number of LLINs required will be reduced due to declining malaria incidence; we therefore plan to distribute 2.8 million LLINs to 5 million people in 2017, should funding be available. At present, funding for this this campaign is categorized as 'unfunded quality demand', since we are ineligible for above indicative funding.

We also require LLINs to maintain routine distribution programs in the high and medium endemic districts where such programs make sense. About 24 million people (including approximately 555,000 pregnant women and 505,000 infants) live in these districts, with a yearly LLIN requirement of about one million to 1.1 million LLINs (anticipating a decline in incidence as the program proceeds), or approximately 3.1 million LLINs for routine programs. We anticipate that the NMCP will procure 600,000 LLINs years to cover part of the total need, leaving the balance purchased with GF funds.

With the large investment in LLINs made by the GF and the MOH over the past 8 years, it is important to gather evidence on how long the nets last in the field under various circumstances. Information on insecticide effectiveness is also needed, particularly since IRS is used for outbreak control and for routine programs in some districts. Information is needed on the following:

1. Insecticide resistance profiles of major mosquito vectors of malaria from western and eastern Indonesia. To date, various researchers collect such data on an *ad hoc* basis, but a systematic database is not yet available. We will ask the Subdirectorate for Vector Control in the MOH to coordinate data collection with regional laboratories (BTKL) under the Indonesian CDC. Regional laboratories will be funded to develop the needed insectaries and field and laboratory skills needed to carry out this testing.

2. Durability of LLINs of different types under different circumstances. Durability in this cases means both physical durability of the material – whether polyester or polyethylene – and durability of the insecticide on the net. Durability depends upon both the type of the net and manner in which communities use, wash, and manage their nets. We will ask the Subdirectorate for Vector Control to work partners to develop capacity of BTKL labs to carry out this needed monitoring of nets. Of note, BTKL labs will need to develop the skills needed to raise susceptible mosquitoes in their facilities to carry out cone bioassays. Relevant WHO guidelines will be consulted; we note that the Indonesian Malaria TWG has members who were consulted in the development of these guidelines.

b. Improving services for difficult to reach populations. In general, the more remote the population, the greater the malaria risk and the weaker the health infrastructure. We

propose using GF in several related ways to improve access to malaria prevention and treatment in populations in remote areas and in migrant populations.

Experience from R 8 shows that FBOs can be effective in reaching forest populations that may rarely access routine services. Perdhaki has made excellent progress in reaching these populations and bridging with MOH services in Kalimantan and Sulawesi. For the present grant, we ask for continued support for the MOH in the R8 project area while Perdhaki will focus its outreach efforts on eastern Indonesia. Intensified efforts will be made to ensure that work of Perdhaki caders in eastern Indonesia is well coordinated with that of the MOH, as has been done in Kalimantan and Sulawesi

In eastern Indonesia, we will work with UNICEF, the MOH and FBOs to develop community case management for malaria in areas not yet served by health staff. This will be rolled out under the umbrella of integrated case management to include treatment for the major childhood killers diarrhea and pneumonia. We ask that the GF fund integrated training of health staff and caders for these three diseases (not just malaria) and purchase the needed RDTs. Other needed logistics – ACTs, zinc, ORS, respiratory timers, and cotrimoxizole – will be provided by the MOH. The program has been discussed and agreed upon with the Child Health Directorate and with the subdirectorates responsible for pneumonia and diarrhea.

We will continue to support screening and treatment of malaria in eastern Indonesia. As eastern Indonesia also has high incidence of HIV, we will work with our counterparts in the HIV subdirectorate to ensure that PMTCT and screening of pregnant women for malaria is well-coordinated. The MOH has recently adopted option B+ for HIV screening, and has integrated HIV with that of syphilis. As the integrated malaria in pregnancy (MIP) screening and treatment program is relatively advanced compared to PMTCT, we will work to ensure that lessons learned from roll out of the MIP program are applied to priority areas in Papua.

Mapping of high risk migrant and illegal populations is badly needed but presents a difficult challenge. Different provinces show varying levels of commitment to these populations, and in each province a different government office may have taken the initiative to map the population. We will ask a university partner (likely the Faculty of Public Health of the University of Indonesia because of its proximity to the NMCP) to develop a questionnaire and method to begin mapping legal, quasi-legal, and illegal populations nationally in an effort to begin to systematically understand and quantify populations at risk for malaria and their role in increasing risk of importation into low risk areas of Indonesia. We expect that this outreach will require participation and expertise of PR PERDHAKI, which has links to remote communities. These data will be used for advocacy to local governments to provide needed prevention and treatment services in endemic areas, and for screening of populations upon their return home to low-endemic areas. Such screening can occur at port of entry at community level; Indonesia has experience in implementing both such systems.

Migration surveillance is needed to minimize and prevent outbreaks in low-endemic areas due to importation of cases. We anticipate, however, that outbreaks may continue to occur. While outbreak response is the responsibility of local governments, these vary in capability and competence. We therefore ask for modest GF support for developing capacity for outbreak response and investigation in collaboration with provincial colleagues and BTKL. Outbreak response will include some focused IRS. Insecticides used for IRS in Indonesia include several pyrethroids (lamba-cyhalotrin and deltamethrin) and bendicarb. Central control of which insecticides are applied is limited, though guidelines are promulgated.

Thanks in part to GF support, progress towards malaria elimination has been rapid in Sumatra, Kalimantan, and Sulawesi. As noted, these immense islands have highly heterogeneous malaria transmission, which require a stratified programming approach. For high endemic pockets, we plan to carry out small scale campaigns, followed by

routine integrated programming. For selected low endemic areas suitable for case-by-case mapping and epidemiological investigation of each case, we request support active case detection so that selected districts can serve as models for others in the region. In these areas as well, we will pilot a community-based effort to follow up treatment of *P. vivax* cases to increase compliance with primaquine use. Relapse is common in Indonesia due to non-compliance with the drug; thus, a community-based effort leveraging the network of caders already established by PERDHAKI in Kalimantan and Sulawesi is one possible method of dealing with the problem. The PR MOH will carry out this program in collaboration with PERDHAKI. Note that in Indonesia, NMCP policy does not require G6PD deficiency screening due to its low prevalence Indonesia.

c. Improvement in the quality of microscopy and surveillance. Over the past decade, Indonesia has made excellent progress in expanding the coverage of laboratory diagnosis such that now more than 90% of suspect malaria cases are diagnosed with either microscopy or RDTs. However, the error rate for microscopy remains high in many areas. Some microscopists have high false positive rates, others have false negatives, and many routinely misidentify parasite species. Such errors have serious implications for treatment of individual patients, for quantification of drug needs, for the evolution of drug resistance, and for mapping of malaria cases for program implementation, whether LLIN distribution or active case detect.

Improvement in data quality will require development of a system for cross-checking of the work of malaria microscopists. Malaria microscopy is a skill that requires meticulous and sustained practice. It can be lonely work, with microscopists asked to make judgments daily with no way to consult with a colleague when uncertain. To ameliorate this, microscopists are asked to send slides to district level for cross checking by a microscopist with presumably superior skills. The system depends upon having high quality, proven staff at district level with the time to rapidly check slides and provide prompt written or electronic feedback to health center laboratory staff. In addition to this, district microscopists need to periodically visit health center staff with a set of standard slides work for mentoring. To date, such systems have not been developed properly in any district, though some needed steps have been made – slide standards exist and most districts are at least aware that the cross-checking system requires development. However, a consistent method for evaluating and ensuring the quality of district microscopist cross checkers does not yet exist. This will require training of cader of expert microscopists at provincial level and a development robust system by which they provide timely feedback front line microscopists in the health centers. Feedback may be written, via cell phone, via visits to health centers, or via more formal refresher training. We ask the GF for support to continue our efforts to improve the quality microscopic data, with a focus on eastern Indonesia.

As data improves, we will work to develop a GIS at national, provincial and district level that updates regularly (eventually in real time) malaria cases nationally. Such a centralized database does not yet exist. We will ask the Eijkman Oxford Clinical Research Unit to lead this effort, as it has experience and expertise in malaria mapping.

A final important surveillance effort requires support from the GF. As is well known, artemesinin resistance has emerged in Mekong Region, thereby threatening malaria control worldwide. This resistance was not detected using the standard 28 day WHO resistance protocol, but was detected via every 6 hour monitoring of parasite clearance in hospital patients. Carrying out such studies requires a field hospital infrastructure in a malaria endemic area. In Indonesia, several such sites exist, but the site with the highest incidence is in Timika in Papua. We request GF funding to develop resistance surveillance at this site. We also request support to develop decentralized capacity for routine therapeutic efficacy monitoring via the regional BTLK network.

3.3 Modular Template

Complete the modular template (Table3).To accompany the modular template, for both the allocation amount and the request above this amount, briefly:

Explain the rationale for the selection and prioritization of modules and interventions.

a. Describe the expected impact and outcomes, referring to evidence of effectiveness of the interventions being proposed. Highlight the additional gains expected from the funding requested above the allocation amount.

3-4 PAGES SUGGESTED

Our biggest programmatic gap is lack of funding for LLINs to be distributed in 2017 to replace those distributed this year in 52 high endemic districts in eastern Indonesia. The cost of such a campaign to distribute the needed 3.68 million LLINs would be approximately 18 million dollars. Rather than request this amount as indicative funding in this proposal, we have chosen to invest in community outreach via NGOs and development of monitoring and surveillance systems essential to the long-term sustainability of Indonesia's malaria program. We also anticipate that eventually raising funds for a single integrated LLIN campaign will be easier than developing multiple proposals for systems and community outreach. In particular, we note that the GF is the only organization that is willing to provide substantial long-term funding to NGOs interested in supporting malaria control. Indeed, the proportion of funding allocated to our NGO PR has substantially increased in this proposal compared to our R8 submission.

Though we are not eligible for above-indicative funding, to highlight the need for replacement nets in 2017, we have listed the 18 million dollars needed for replacement nets as such. Eventually, we aim to have the funding needed for the 2017 campaign registered as unfunded quality demand.

Overall, our funding request has two primary aims: first, to quickly decrease malaria incidence via LLIN distribution in eastern Indonesian where such incidence is highest and second, to develop sustainable systems to ensure data quality, good surveillance, and program sustainability.

As an immense and heterogeneous nation, our funding request is based upon stratification of the country into zones malaria endemicity. Over the past few years, as the proportion of laboratory-diagnosed cases of malaria has increased, the NMCP has a better idea of passively reported malaria incidence. Such mapping is indicative only, as cases treated outside of the public sector are not reflected and the data are subject to all of the usual biases of facility-based data. To ameliorate the risk of wrongly targeting our interventions, we have enlisted the aid of the Eijkman-Oxford malaria program in Jakarta, which works closely with the Malaria Atlas project. Via geospatial modeling using extensive survey data, routine data, and environmental factors malaria risk has been calculated for the entire nation as depicted in the maps in section 1 of this proposal. The rough congruence of these maps gives us confidence that we attacking malaria incidence in the parts of the country with the highest incidence of the disease. We anticipate that we will drive prevalence down by about one-third in eastern Indonesia during the period of the proposal, primarily via mass distribution of LLINs. Our experience with previous district level mass campaigns in Jayapura district in Papua shows that this expectation is reasonable, and is in line with extensive evidence from southeast Asia and elsewhere as to effectiveness of insecticide treated mosquito nets. We also expect to reduce malaria deaths in the eastern provinces by one-third as well, though our data on malaria mortality are entirely hospital-based and very incomplete.

We have separate targets for western Indonesia; in this area we expect similar proportional declines in malaria prevalence, thanks to targeted LLIN distribution in high endemic pockets of the west. Nationally, we expect that our interventions in 2015 will allow Indonesia to reach its national goal of an annual parasite incidence of less than 1

case per 1000 population.

For outcomes, we aim to ensure that 90% of pregnant women and 90% of infants are living in high and medium endemic areas are protected by LLINs by the end of 2017. We also aim to improve IMCI to ensure that children under five years of age have better access to malaria diagnosis and treatment. We recognize that, as measured by national indicators, pregnant women and children are no more at risk that the general population. However, in parts of eastern Indonesia, malaria burden is measurably higher in these groups; furthermore, each of these integrated programs has synergistic effects – integrated antenatal care and PMTCT is improved, routine immunization coverage is increased, and diagnosis and treatment of the major childhood killers pneumonia and diarrhea is expanded and improved.

Our systems building components are less measurable in terms of immediate impact, but critical for long-term sustainability. As described previously, we aim to develop systems for better data quality, surveillance for drug, insecticide, and LLIN efficacy and durability. All of these elements are critical to long-term success of the NMCP at it moves Indonesia towards its ultimate goal of malaria elimination.

3.4 Focus on Key Populations and/or Highest-impact Interventions

This question is <u>not</u> applicable for low-income countries.

Describe whether the focus of the funding request meets the Global Fund's Eligibility and Counterpart Financing Policy requirements as listed below:

a. If the applicant is alower-middle-income country, describe how the funding request focuses at least 50 percent of the budget on underserved and key populations and/or highest-impact interventions.

b. If the applicant is an upper-middle-incomecountry, describe how the funding request focuses 100 percent of the budget on underserved and key populations and/or highest-impact interventions.

½ PAGE SUGGESTED

Approximately 90% of our budget request supports activities in rural areas outside of Java and Bali, with 70% aimed at the five easternmost provinces with the highest burden of malaria in Indonesia. The population targeted is 11.4 million people out of Indonesia's total population of 248 million. This population suffers by far the highest burden of malaria in Indonesia and as such is the definitive high risk population for this disease. They are also hard to reach – often accessible only by sea or by foot. In addition, we request funding for innovative interventions to reach the most difficult to reach population in these areas – those with little access to health services will be reached via 'task shifting' interventions engaging communities, while increased efforts will be made by the NMCP and its NGO and FBO partners to reach communities and migrants not well served by the health system.

SECTION 4: IMPLEMENTATION ARRANGEMENTSAND RISK ASSESSMENT

4.1 Overview of Implementation Arrangements

Provide an overview of the proposed implementation arrangements for the funding request. In the response, describe:

a. If applicable, the reason why the proposed implementation arrangement does not reflect a dual-track financingarrangement (i.e. both government and non-government sector Principal Recipient(s).

b. If more than one Principal Recipient is nominated, how coordination will occur between Principal Recipients.

c. The type of sub-recipient management arrangements likely to be put into place and whether sub-recipients have been identified.

d. How coordination will occur between each nominated Principal Recipientand its respective sub-recipients.

e. How representatives of women's organizations, people living with the three diseases, and other key affected populations will actively participate in the implementation of this funding request.

1-2 PAGES SUGGESTED

a. not-applicable.

b. The CCM has re-nominated the two PRs from the ongoing SSF grants: the Ministry of Health and the FBO PERDHAKI. These PRs have successfully coordinated activities for the past four years in Kalimantan and Sulawesi. We do not anticipate any problems as the focus of PERDHAKI's work shifts towards eastern Indonesia, while maintaining its gains in the R8 project area. The PRs meet regularly in Jakarta for central level coordination. At provincial level during R8 implementation, coordination meetings occurred regularly. TWG and CCM oversight visits during the past year to West Kalimantan and Central Sulawesi showed that coordination between the two PRs is excellent.

c. While the process of sub-recipient identification is ongoing, we expect that PR MOH will manage SRs from each of the five eastern Indonesia provinces, and several of the more highly endemic provinces in Sumatra, Kalimantan and Sulawesi. In addition, SRs will be identified to carry out needed surveillance for artemesinin resistance. The MOH will also likely manage several Islamic FBOs as SRs. We anticipate that PERDHAKI will have PELKESI as an SR in eastern Indonesia, most likely in East Nusa Tenggara and Papua. Whether smaller NGOs serve as SRs or implementing units remains to be determined.

d. Coordination between PRs and SRs will occur primarily at provincial and district levels, with the NMCP providing guidance on norms and standards. Over the past 4+ years, PR PERDHAKI has meet with the NMCP regularly, and its SRs at provincial and district level regularly meeting with government counterparts there. TWG FOV visits have confirmed that good coordination occurs at sub-national level.

e. People in eastern Indonesia will participate via community mobilization activities and via participation of village volunteers. Nearly all such volunteers are women. Volunteers working at village health posts (*posyandu*) will be the front line workers for implementation of many activities, while we expect that PR PERDHAKI will recruit hundreds of volunteers in eastern Indonesia for work in remote areas. This PR and its associated SR Pelkesi are rooted in eastern Indonesia and as such broadly represent the populations there.

4.2 Ensuring Implementation Efficiencies
Complete this question only if the Country Coordinating Mechanism(CCM) is overseeing other Global Fund grants.
Describe how the funding requested links to existing Global Fund grants or other funding requests being submitted by the CCM. In particular, from a program management perspective, explain how this request complements (and does not duplicate) any human resources, training, monitoring and evaluation, and supervision activities.
1 PAGE SUGGESTED The three PRs under the Indonesian CDC coordinate closely to minimize duplication of operational funding; this is verified by the LFA. We note that the head of the HIV program is former head of the malaria program, while the present head of the malaria program is a former section chief in the TB program. Because of these personal links and familiarity with operational details of sister programs, avoiding duplication is relatively easy. The malaria project complements existing grants for TB and HIV. The most direct link with HIV is via integrated antenatal care, whereby pregnant women in areas affected by HIV and malaria are screening during their first ANC visit for HIV, malaria, and syphilis. For PMTCT, the work on Malaria in Pregnancy supported in part by the GFATM provides a starting point through which screening and treatment for HIV and syphilis can be added to improved integrated antenatal care. The work on PMTCT in Sorong, where malaria and HIV significantly overlap, is partly supported both financially and technically by WHO and UNICEF. UNICEF staff based in Manokwari (West Papua) and Jayapura (Papua) who are tasked with improving maternal health and malaria work to ensure efficiencies at provincial, district, and Puskesmas level. TB and malaria diagnosis are often coordinated, with a single microscope used for diagnosis of both diseases in areas where the workload is insufficient to justify full time staff for each disease separately. Instances where two microscopes are situated in a single Puskesmas are now minimized, unless justified by workload. The planned HSS grant will provide support for integrated surveillance and mortality estimates heretofore unavailable. Warehouse renovations planned under the HSS grant will benefit all three diseases. The performance of the HSS grant to date has been less than exemplary, but we hope that closer consultation will result in benefits to the malaria program.

4.3 Minimum Standards for Principal Recipients and Program Delivery			
Complete this table for each nominated Principal Recipient. For more information on minimum standards, please refer to the concept note instructions.			
PR1 Name	Directorate of Vector-Borne Disease Control, MOH	**Sector**	Gov
Does this Principal Recipient currently manage a Global Fund grant(s) for this disease component or a cross-cutting health system strengthening grant(s)?		X Yes ☐No	
Minimum Standards		**CCM assessment**	
1. The Principal Recipient demonstrates effective management structures and planning		The PR has learned useful lessons from a decade of GF grant implementation.	

	Management structures have been refined to improve efficiency, e.g., the structure no longer include SSRs; rather, IUs report directly to SRs. CCM is confident that PR will continue to plan ahead effectively and to generate "A" level grant ratings.
2. The Principal Recipient has the capacity and systems for effective management and oversight of sub-recipients (and relevant sub-sub-recipients)	Although Indonesia is a highly decentralized budgetary environment, with significant geographic challenges particularly in the eastern provinces, the PR has good working relationships and communication with SR and IU levels. Nonetheless, consistent minor issues with SRs at provincial level arise, requiring continued close oversight by the PR. The PR submits management action plans in response to audit reports and management letters. TWG Malaria also assists the PR to identify and follow up potential problems at the sub-national level.
3. The internal control system of the Principal Recipient is effective to prevent and detect misuse or fraud	The PR has worked to improve internal controls for fixed asset management, advance management, and payment documents in response to issues raised in Management Letters. CCM & TWG Malaria maintain sufficient oversight to help ensure that PR responds promptly to control issues raised by the LFA.
4. The financial management system of the Principal Recipient is effective and accurate	Financial management systems and capacity have improved considerably in recent years. CCM is confident that the PR will continue to ensure smooth funding flows and accurate financial management.
5. Central warehousing and regional warehouse have capacity, and are aligned with good storage practices to ensure adequate condition, integrity and security of health	Central warehousing is not a problem, as LLINs, RDTs and ACTs are delivered to

products	sub-national sites. Regional warehousing quality remains variable, but ongoing efforts to strengthen SCM throughout the MOH, with focused TA provided by in-country partners, are trending towards visible sector-wide improvements in SCM. There remains an unmet SC regarding assessment of district warehouses conducted last year. Data have been compiled, but due to promotion of MOH logistics staff to another section, data analysis is not yet complete. Analysis is expected to be complete by June; the PR has scheduled an appointment with the LFA to review then to fulfill the SC.
6. The distribution systems and transportation arrangements are efficient to ensure continued and secured supply of health products to end users to avoid treatment/program disruptions	Stock outs are less of a problem now than a few years ago, although maintaining RDT stocks in geographically challenging areas remains an issue due sometime poor logistics management at provincial and district level. The PR and the MOH are working to address this systemic issue. CCM expects that further work on the MOH's One Gate policy implementation will steadily improve distribution systems, and will reveal distribution and transportation components that require additional attention.
7. Data-collection capacity and tools are in place to monitor program performance	Sufficient tools and data-collection capacity are in place.
8. A functional routine reporting system with reasonable coverage is in place to report program performance timely and accurately	Reporting from IUs to SRs, and then to PR, is generally good, with some delays in reporting from more remote areas. CCM & TWG Malaria will encourage the PR to experiment with mobile communications technology as a way to improve reporting,

	particularly in the eastern provinces. Delays in roll-out of an electronic reporting system, e-sismal, continue to occur due to lack of internet access in some areas.
9. Implementers have capacity to comply with quality requirements and to monitor product quality throughout the in-country supply chain	PR and TWG Malaria are liaising with (a) HIV & TB programs and (b) the Promoting the Quality of Medicines (PQM) program, (supported by USAID) to introduce, refine and institutionalize QA testing throughout the supply chain. Efforts are at early stages for malaria, but significant progress has been made in the last 2 years particularly with QA testing for TB drugs, and CCM fully expects the PR will be able to access in-country QA testing for ACTs (and perhaps RDTs) before the end of the next Implementation Period. SOPs for RDT QA have been development but not yet implemented. We will request assistance from WHO/FIND to verify quality of implementation.

PR2 Name	PERDHAKI	**Sector**	FBO
Does this Principal Recipient currently manage a Global Fund grant(s) for this disease component or a cross-cutting health system strengthening grant(s)?		X Yes ☐No	
Minimum Standards		**CCM assessment**	
1. The Principal Recipient demonstrates effective management structures and planning		The central PR grant management unit is a cohesive and collaborative team. Good working relationships with PR1 and TWG Malaria are translating into clear and comprehensive joint planning for the next Implementation Period.	
2. The Principal Recipient has the capacity and systems for effective management and oversight of sub-recipients (and relevant sub-sub-recipients)		The PR is a tightly-run organization, and demonstrates close working relationships with its sub-PR structures. The	

	reporting stream from SSR to SR to PR flows smoothly and is typically up-to-date.
3. The internal control system of the Principal Recipient is effective to prevent and detect misuse or fraud	The LFA has noted minor internal control issues in previous Management Letters, but CCM is confident that the PR's overall system is sound.
4. The financial management system of the Principal Recipient is effective and accurate	The PR's financial management system is solid, again with minor errors noted occasionally by the LFA.
5. Central warehousing and regional warehouse have capacity, and are aligned with good storage practices to ensure adequate condition, integrity and security of health products	Warehousing for centrally procured items is sufficient. During the next Implementation Period, PR1 and PR2 will be jointly procuring LLINs to improve efficiency. PR2 may need to rent additional district-level warehousing space, and PR1 and TWG Malaria will assist.
6. The distribution systems and transportation arrangements are efficient to ensure continued and secured supply of health products to end users to avoid treatment/program disruptions	During the next IP, PR2 will be targeting hard-to-reach populations in very difficult geographic environments. PR1 and TWG Malaria will provide technical support to PR2 to introduce and strengthen distribution and transport arrangements where needed, and will establish direct collaboration between PR1 and PR2 where feasible.
7. Data-collection capacity and tools are in place to monitor program performance	Sufficient tools and data-collection capacity are in place.
8. A functional routine reporting system with reasonable coverage is in place to report program performance timely and accurately	Routine reporting is generally very good, with only minor delays from some areas. PR2 will also consider piloting mobile phone technologies for faster reporting.
9. Implementers have capacity to comply with quality requirements and to monitor product quality throughout the in-country supply chain	CCM & TWG Malaria anticipate that PR2 will be able to benefit from the rapid capacity development in in-country QA testing that is ongoing now. Over the course of

	the next IP, CCM & TWG Malaria will seek to identify "dual track" access to the QA testing protocols that are now being introduced through Badan POM and the MOH.

4.4 Current or Anticipated Risks to Program Delivery and Principal Recipient(s) Performance

a. With reference to the portfolio analysis, describe any major risks in the country and implementation environment that might negatively affect the performance of the proposed interventions including external risks, Principal Recipient and key implementers' capacity, and past and current performance issues.

b. Describe the proposed risk-mitigation measures (including technical assistance) included in the funding request.

1-2 PAGES SUGGESTED

Both PRs have a proven record in managing Global Fund grants, with recent ratings no lower than A2. The primary risk is that the central level has only moderate authority to impose discipline on provincial level SRs, and thus resorts primarily to 'soft diplomacy' to ensure compliance.

For the new NFM, the program will be restructured so as to reduce layers of bureaucracy. Most provincial SRs will be eliminated. Those remaining will be in the five high endemic districts of eastern Indonesia (Papua, West Papua, East Nusa Tenggara, Maluku and North Maluku) and the two highest endemic provinces of western Indonesia (Bangka Belitung and Bengkulu). Provinces in Kalimantan and Sulawesi, West Nusa Tenggara, and most provinces in Sumatra will be designated as implementing units, with no additional layers of bureaucracy below them. This measure will allow us to reduce management costs.

Both PRs have functional and capable financial, M&E and logistics staff. Staff are recruited based upon merit, and are young, motivated and productive.

The PRs are assisted in this effort by a well-functioning TWG, which includes both Indonesian and international experts on malaria treatment, diagnosis, program management, vector control, health information systems, and supply chain management. Communication between the PRs and TWG is fluid and informal, allowing rapid response to requests and well-informed and timely assessment of field activities.

During 2013, the TWG in particular re-introduced and strengthened the use of grant oversight dashboards. Currently, both MoH and PERDHAKI provide dashboards consistently on a quarterly basis, and the dashboards are jointly reviewed by the PRs and the TWG. The process has helped the TWG to identify potential problems before they might evolve into larger problems, and in particular has helped the TWG to assess whether funds are flowing in a timely manner from the PRs to their respective SRs.

The reporting chain has always been challenging, particularly in the eastern provinces of Indonesia, but TWG Malaria plans to introduce dashboards at the provincial level on a pilot basis during 2014 and 2015, and may experiment with more innovative reporting processes including mobile phone technology.

What is clear is that the relationship between TWG Malaria and the PRs is stronger and more collaborative than in the recent past, and we expect that this relationship will continue to improve over the next implementation period, which should result in more rapid

and carefully considered responses to grant implementation challenges that arise.

Risks associated with service quality and data quality remain evident. Some doctors, particularly in hospitals, still do not adhere to treatment guidelines. Populations living in remote areas underserved by MOH staff may receive substandard treatment. Efforts to ensure compliance with treatment standards for malaria are ongoing, including efforts to develop a center for excellent for malaria treatment for training of physicians in Papua described in this proposal; in addition, the PR has liaised with the Indonesian Food and Drug Regulatory Authority to remove chloroquine from the list of registered drugs for malaria treatment. Efforts to reach populations via NGOs that are underserved by MOH staff are described in this proposal as well; changes in regulations that allow screening and treatment for malaria by caders in such areas have already been promulgated by the MOH.

We also face risks associated with drug resistance, insecticide resistance, and durability of LLINs. Artemesinin resistance has emerged in the Mekong region but has not been detected in Indonesia; we describe here our initial efforts for surveillance. We note, thankfully, that sale of monotherapy is forbidden in Indonesia in contrast to the situation in the Mekong region. We also lack systematically collected data on insecticide resistance and LLIN durability (both physical durability and durability of insecticide efficacy); efforts to develop the needed systems are described in this proposal.

CORE TABLES, CCM ELIGIBILITY AND ENDORSEMENT OF THE CONCEPT NOTE

Before submitting the concept note, ensure that all the core tables, CCM eligibility and endorsement of the concept note shown below have been filled in using the online grant management platform or, in exceptional cases, attached to the application using the offline templates provided. These documents can only be submitted by email if the applicant receives Secretariat permission to do so.

- ☐ Table1: Financial Gap Analysis and Counterpart Financing Table
- ☐ Table 2: Programmatic Gap Table(s)
- ☐ Table3: Modular Template
- ☐ Table4: List of Abbreviations and Annexes
- ☐ CCM Eligibility Requirements
- ☐ CCM Endorsement of Concept Note