National Action Plan for Acceleration of Malaria Elimination 2020-2026 (Revision)

Directorate General of Disease Prevention and Control

Ministry of Health of The Republic of Indonesia

2023

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ABREVIATIONS AND ACRONYMS

ABER	: Annual Blood Examination Rate
ACD	: Active Case Detection
ACT	: Artemisinin Combination Therapy
ADD	: Village Allocation Fund
ANC	: Antenatal Care
APBD	: Budget Revenue at Province and District Level
APBD	: Local Budget Revenue and Expenditure
APBN	: Budget Revenue at National Level
API	: Annual Parasite Incidence
ARSADA	: Indonesian Local Hospitals Association
ARSSI	: Indonesian Private Hospital Association
B/BTKL	: Central/Regional Technical Environmental Health Units
Balitbangkes	: National Institute of Health Research and Development
Bapelkes	: Health Training Centre
BAPPEDA	: Local Planning and Development Agency
BAPPENAS	: National Development and Planning Agency
BBLK	: Center of Health Laboratory
BCC	: Behavior Change and Communication
BOK	: Health operational assistance
BPJS	: Social Security Management Agency
BPOM	: National Agency of Drug and Food Control
BUMN	: State-owned enterprises
CCM	: Country Coordination Mechanism
CDC	: Communicable Disease Control
CEHEDC	: B/BTKL (Central/Regional Technical Environmental Health Units)
CFR	: Case Fatality Rate
CHL	: Center of Health Laboratory
CMW	: Community Malaria Worker
CSO	: Civil Society Organization
CSR	: Corporate Social Responsibility
CUF/CU5	: Children under five
DAK	: Specific Allocation Fund
DFAT	: Department of Foreign Affairs and Trade (Australia)
DHIS2	: District Health Information System 2
DHO	: District Health Office
DHP	: Dihydroarteminisinin +Piperaquine
DOTs	: Direct observed treatments
ECAMM	: External Competency Assessment for Malaria Microscopist
EWARS	: Early Warning, Alert and Response System
Farmalkes	: Directorate General of Pharmacy and Medical Devices
FNGM	: National Roll-back Malaria Forum
GF ATM	: Global Fund AIDS TB Malaria
HDI	: Human Development Index
iCCM	: integrated community case management

IDES	: Integrated Drug Efficacy Surveillance
IKN	: The nation's capital
IPTp	: I*ntermittent Preventive Treatment in Pregnancy*
IDI	: Indonesian Medical Association
IMCI	: Integrated Management of Childhood Illness
IRS	: Indoor residual spraying
IVM	: Integrated Vector Management
JMD	: Village Malaria Worker
K1	: First visit of ANC
KAP	: Knowledge, Attitude and Practice
KAP survey	: Knowledge, Attitude, and Practice Survey
KIE	: Information Education Communication
KKP	: Port Health Office
KLB	: Outbreak
KSP	: Presidential Staff Office
LLIN	: Long Lasting Insecticide-treated Net
LPSE	: Electronic System Procurement Service
MBS	: Mass Blood Survey
MMP	: Mobile Migrant Population
MoH	: Ministry of Health
Monev/M&E	: Monitoring and Evaluation
MoU	: Memorandum of Understanding
MTBS	: Integrated Management of Childhood Illness
MTR	: Mid Term Review
NCAMM	: National Competence Assessment of Malaria Microscopist
NCD	: Non-Communicable Disease
NGO	: Non-Governmental Organization
NMCP	: National Malaria Control Program
NMTDP	: National Medium- Term Development Plan
NSP	: National Strategic Plan
NTB	: West Nusa Tenggara
NTT	: East Nusa Tenggara
OAM	: Anti-Malaria Drug
ORS	: Outdoor residual spraying
P4I	: Indonesian Parasitic Control Association.
PAPKI	: Association of Indonesian Clinical Parasitologists
PATELKI	: Indonesian Medical Laboratory Technology Expert Association
PCR	: Polymerase Chain Reaction
PDSPATKLIN	: Association of Clinical Pathology Specialists and Laboratory Medicine in Indonesia
PEKI	: Association of Indonesian Health Entomologists
PELKESI	: Indonesia Christian Association for Health Services
PERDHAKI	: Association of Voluntary Health Services of Indonesia
PHC/Puskesmas	: Primary Health Care
PHO	: Province Health Office
PLA	: Participatory Learning and Action
POLRI	: Indonesian National Police
PPM	: Pooled Procurement Mechanism

PPM	: Public-Private Mix
PR	: Positive Rate
QA	: Quality Assurance
RAN	: National Action Plan
RDT	: Rapid Diagnostic Test
RISKESDAS	: Basic Health Research
RPJMN	: National Medium-term Development Plan
SDGs	: Sustainable Development Goals
SEARO	: South-East Asia Regional Office
SISMAL	: Malaria Information System
SKDR	: Early Warning and Response Systems
SOP	: Standard Operating Procedure
SWOT	: Strengths, Weakness, Opportunities, Threats
TES	: Therapeutic Efficacy Study
TNI	: Indonesian Armed Force
ToT	: Training of Trainers
TWG	: Technical Working Group
ULP	: Procurement service unit
UNDP	: United Nations Development Program
UNICEF	: United Nations Children's Fund
UPKS	: Private Health Care Unit
UPT	: Technical implementation units
UPT BLK	: Technical Implementation Unit of Vocational Training Centers
USAID	: United States Agency for International Development
WB	: World Bank
WHO	: World Health Organization
WMR	: World Malaria Report
1-2-5	: 1st day of case confirmation must be reported, 2nd day is epidemiological investigation and the 5th day is response.

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FOREWORD FROM THE DIRECTOR GENERAL

We understand that planning is an essential component in the implementation of an organisation and a programme as an effort to achieve goals. The National Action Plan for Acceleration of Malaria Elimination (NAP-AME) 2020-2024 is an essential planning document summarised and revised by the writing team of all stakeholders and actors relevant to malaria control efforts in Indonesia. Various steps and actions in malaria control and prevention during the 2020-2022 period have been carried out, therefore is necessary to evaluate the achievement during that period and adjust targets for subsequent years to achieve the national malaria-free goal in 2030.

The malaria prevention and control program is a national priority program. In recent years, the malaria program has shown various innovations in malaria control, including efforts to accelerate malaria elimination in Papua and IKN, reduce the number of cases, and protect most Indonesian residents from malaria transmission. However, the reduction of the number of cases and area elimination of malaria transmission have shown stagnation in several areas and may jeopardize the achievement of the national malaria-free goal

The NAP-AME 2020-2024 period is a critical period that will influence the future course of the disease and the malaria elimination status in the next period. In this period, more aggressive and massive efforts are needed to reduce cases and stop malaria transmission in high-endemic malaria areas towards achieving a national malaria-free target. Support and contribution across programmes and sectors, including educational institutions, professional organisations, civil society organisations and the private sectors, are vital to implementing this action plan and the identified efforts.

Hopefully, the NAP-AME 2020-2024 revision will become a reference in planning and implementing malaria prevention and control for all stakeholders and related parties, both at central and regional levels. The NAP-AME revision also includes an interim plan for implementing malaria control and prevention for 2025-2026.

Lastly, I thank all stakeholders who have been involved in preparing the NAP—AME 2020-2024 revision. May God Almighty always give His grace and accompany our every step.

Jakarta, February 2023
Director General of DCP

Dr. dr. Maxi Rein Rondonuwu, DHSM, MARS

PREFACE

Praise and gratitude be to the presence of God Almighty for the completion of the National Action Plan for Acceleration of Malaria Elimination of Indonesia (NAP-AME) 2020-2024 revision. We extend our highest gratitude and appreciation to the writing team and all stakeholders taking an active role in completing this NAP-AME 2020-2024.

The development of NAP-AME 2020-2024 was carried out to understand the achievement of malaria control during 2020-2024 and to review targets for subsequent years up to 2024 that adjusted to the current malaria epidemiological situation and the national health system in Indonesia. Besides that, it also became the basis for the interim plan for implementing NAP-AME for the 2025-2026 period. Before this NAP-AME, the Malaria Programme conducted the Mid-Term Review Malaria Program 2022 involving external reviewers from the US CDC, WHO, Global Fund and several reviewers from Indonesia. The situation analyses and recommendations by the Mid-Term Review Malaria Program 2022 as a basis for updating the malaria prevention and mitigation strategy in the NAP-AME 2020-2024. A team with personnel from the Malaria Working Team and the Global Fund ATM Country Coordination Mechanism Technical Working Group has revised this National Action Plan.

During the development of the NAP-AME revision, several workshops and discussions were conducted, engaging various programmes, sectors, malaria experts, international partner organisations, community organizations, non-governmental organizations (NGOs), professionals, academics and private sectors. The various programmes include the Program and Information Working Team, the Vector Control Working Team, the Directorate of Health Promotion and Community Empowerment, the Directorate of Public Health Management, the Directorate of Nutrition and Maternal and Child Health, the Directorate of Pharmaceutical Management and Services, the Directorate of Health Personnel Utilization, the Directorate of Surveillance and Health Quarantine, Planning Bureau, Health Development and Policy Agency, and FDA Agency. While the cross-sectoral consists of the National Development Planning Agency, Cabinet Secretariat, Ministry of Home Affairs, Ministry of Social Affairs, Ministry of Village, Development of Disadvantaged Regions and Transmigration, Ministry of Environment and Forestry, Ministry of Energy and Mineral Resources, Indonesian National Police Medical and Health Centre, and the Health Centre of the Indonesian National Armed Forces. Partner organisations such as the World Health Organisation, United Nations Children's Fund (UNICEF) and United Nations Development Programme (UNDP) were also involved. Community organizations and civil society organisations included the Association of Voluntary Health Services of Indonesia (PERDHAKI), KOMPAK, Sumba Foundation, Tahir Foundation, Tanoto Foundation, Aisyiah, PKK, Pelangi Foundation, GAPAI, Rotary NTT, PT Freeport Indonesia and Oxford University Clinical Research Unit Indonesia (OUCRU-ID). In addition, several professional organizations were also involved in the various workshops and discussions in the writing process of this document, including the Indonesian Medical Association (IDI), Indonesian Clinical Pathology and Laboratory Medicine Association

(PDSPATKLIN), Indonesian Clinical Parasitologist Association (PAPKI), Indonesian Medical Laboratory Technology Association (PATELKI), Indonesian Medical Entomology Association (PEKI), and Indonesian Parasitic Control Association (P4I).

Hopefully, the revised NAP-AME 2020-2024 will become a reference more in line with the targets for all sectors and actors in accelerating malaria elimination in Indonesia in the 2023-2024 period. Indeed, nothing is perfect, and we hope every shortcoming in this document be rectified in the future during the implementation of this action plan.

Finally, hopefully, the NAP-AME 2020-2024 revision, the efforts to realise malaria-free Indonesia in 2030 will proceed well.

Jakarta, February 2022

Director of CDPC

dr. Imran Pambudi, MPHM

CHAPTER I
INTRODUCTION

Source: OUCRU-ID, 2022

CHAPTER I. INTRODUCTION

Malaria elimination is a global and regional commitment. At the global level, the Sustainable Development Goals (SDGs) require countries in Asia to eliminate malaria by the latest 2030. At the regional level, at the 9th East Asia Summit in 2014[1], Asia Pacific countries' leaders also committed to eliminating malaria by 2030. Welcoming said commitment, the World Health Organisation (WHO) then outlined the technical strategy for malaria 2016-2030[2].

The government of Indonesia's commitment to be malaria-free by 2030 has been set out in the National Development Priorities 2020-2024[3]. National Development Priorities aim to harmonise all resources in nurturing the 2045 Indonesian golden generation, of which one priority was building quality human resources. Specifically, for the health sector, two efforts aim to reduce infant and maternal mortality rates and malaria control (MoH Strategic Plan 2020-2024[4]). Considering the importance of these efforts, the National Development Planning Agency (BAPPENAS) and the Presidential Staff Office (KSP) position the Malaria Elimination Programme under their supervision as a delay in malaria elimination can lead to fatigue of health workers and re-allocation of funding for other diseases.

The implementation of the 2030 malaria-free commitment needs a National Action Plan for Acceleration of Malaria Elimination (NAP-AME). This NAP is a strategic document to be referred to in planning, funding, implementation, monitoring and evaluation by all relevant stakeholders concerning malaria elimination programmes, which include central, provincial and district governments, the private sector, partners, donor organisations, societies and communities. The NAP is an instrument that will be available to mobilise funds and harmonise activities by the central government. In the regions, the NAP is hoped to be the reference for composing the draft national expenditure budget and the regional expenditure budget, as well as developing regional action plans in each province and district[5].

[1]http://www.aplma.org/blog/8/East-Asia-Summit-adopts-unprecedented-regional-malaria-goal.html.
[2] World Health Organization. 2015. Global Technical Strategy for Malaria 2016-2030.
[3] Ministry of National Development Planning/National Development Planning Agency. 2019. Mid-term Development Plan 2020-2024.
[4] Ministry of Health. 2022. Minister of Health Regulation Number 13 of 2022 for Alteration of Minister of Health Regulation Number 2021 of 2020 for Ministry of Health Strategic Plan Year 2020-2024.
[5] Ministry of Home Affairs Regulation Number 33 of 2019 on Guideline for Drafting Regional Revenue and Expenditure Budget for the 2020 Budgetary Year.

Since the NAP-AME implementation in 2020, there has been significant disruption on a global scale due to the COVID-19 pandemic. This forces governments worldwide, including Indonesia, to adapt policies and develop concepts to change people's way of life. One form of adjustment includes changing the organizational structure of the Ministry of Health at the first level along with the description of the main tasks and functions[4]. Changes in the organization and work procedures of the Ministry of Health are stated in Minister of Health Regulation Number 5/202[6] and the Decree of the Director General of Disease Prevention and Control Number HK.02.02/C/6/2023[7]. The regulation influenced the organizational structure of the management of the malaria program, which was previously under the Malaria Sub-Directorate under the Directorate of Prevention and Control of Vector-borne Diseases and became the Malaria Working Team under the Directorate of Communicable Disease Prevention and Control.

The COVID-19 pandemic has awakened all health stakeholders that health is a priority issue and emphasized the importance of health system resilience and systemic problems that must be corrected. This encourages the Ministry of Health to reform the national health system as directed by the President of the Republic of Indonesia. The Ministry of Health translates this into health transformation with the vision of creating a healthy, productive, independent and justice society. The manifestation of the transformation of the health system is outlined in the six main pillars, which include[4]:

1. Primary Service Transformation, including comprehensive promotive and preventive efforts, expanding antigen types, immunization, strengthening capacity and screening in primary services, increasing access, human resources, drugs and service quality, as well as strengthening laboratory services for the detection of diseases or risk factors that impact the community.

   Activities include: (a) educating the population, (b) primary prevention, (c) secondary prevention by screening the 14 highest causes of death for each age group, stunting screening, and early detection of tuberculosis, HIV and malaria according to the epidemiological situation of the disease and increasing ANC for maternal and infant health (d) increasing the capacity and capability of primary services.
2. Referral Service Transformation, by improving the referral mechanism and increasing access and quality of hospital and public health laboratory services.
3. Transformation of the Health Resilience System in dealing with the outbreak (KLB)/pandemic/public health emergencies through the independence of pharmaceuticals and medical devices, strengthening adequate surveillance based on

[4] Ministry of Health. 2022. Minister of Health Regulation Number 13 of 2022 for Alteration of Minister of Health Regulation Number 2021 of 2020 for Ministry of Health Strategic Plan Year 2020-2024.
[6] Ministry of Health, 2022, Minister of Health Regulation Number 5 on Organization and Working Procedure Ministry of Health.
[7] Ministry of Health, 2023, Decree of the Director General of Disease Prevention and Control Number HK.02.02/C/6/2023 on Formation of a Working Team within The Directorate General of Disease Prevention and Control

community and laboratory, and also strengthening disaster and health emergency management systems.

4. Health Financing Transformation, to ensure funding that is always available, transparent, effective, efficient, and fair.
5. Human Resources of Health Transformation, to ensure the availability and equity of the number, type and capacity of Human Resources of Health.
6. Health Technology Transformation, which includes: (1) integration and development of health data systems, (2) integration and development of health application systems, and (3) ecosystem development (health technology (regulations/policies that support, provide convenience/facilitation, mentoring, guidance and supervision that facilitates or supports the process of developing and utilizing sustainable health technology) accompanied by improvements in health governance and policies.

Within the changes, it is necessary to revise the NAP-AME 2020-2024 to improve the strategy to be implemented, including acceleration and innovation in malaria prevention. In addition, this document also includes an interim plan for the implementation of the NAP-AME for the 2025-2026 period

CHAPTER II
SITUATION ANALYSIS

Source: MoH, 2022

population in the world. Around 274 million residents inhabit about 2,300 out of 17,000 islands in Indonesia. One of the challenges of being an archipelagic state is land, sea and air transport to reach isolated areas of inhabitation. Millions of people perform travels within or across islands each year by land, sea and air (Fig 2.1).

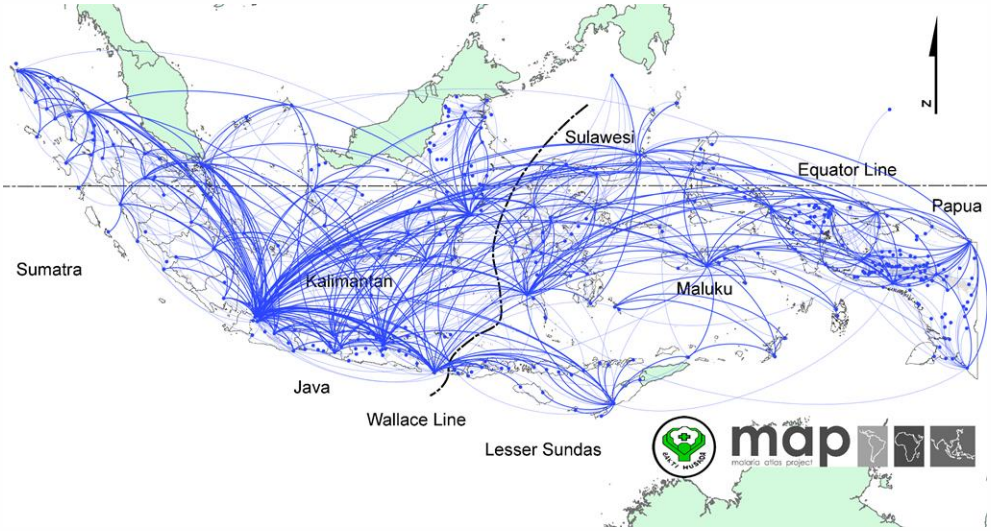

Figure 2. 2 Inter- island connectivity in Indonesia

Data source: Elyazar, I, Djaafara, BD..2015. Airport connectivity in Indonesia

The quality of Indonesian human resources in Indonesia still needs to be improved. Indonesia's Human Development Index (HDI)[8] in 2018 placed Indonesia at 111th position out of 189 countries. Life expectancy rose only by six years in the past 20 years. In eastern Indonesia, a relatively high proportion of residents are still illiterate, living in poverty and substandard dwelling. Most of the population (~50%) works in agriculture, forestry, fishery and trade.

Indonesia adopted a decentralised system of government with a partial delegation of authorities from the central government to the regional government. From top to bottom, the levels of administration are province, district (*kabupaten*)/city (*kota*), subdistricts (*kecamatan*), and village (*desa*)/administrative village (*kelurahan*). There are 34 provinces, 514 districts, 7,094 subdistricts and 87,935 villages/administrative villages in Indonesia.

At the beginning of 2022, Law No. 3 of 2022 on the National Capital was named Nusantara. The future is referred to as the Nusantara Capital (IKN) as a special regional government unit at the provincial level whose territory is the national capital. IKN is located in a land area of approximately 256,142 ha and sea land covering an area of about 68,189 ha, which borders three districts/cities in East Kalimantan Province, Penajam Paser Utara District, Balikpapan City, and Kutai Kertanegara District. The construction and development of IKN and

[8] United Nations Development Program. 2019. Human Development Report 2019: Beyond income, beyond averages, beyond today: inequalities in human development in the 21st century.

supporting areas are planned in stages until 2042. The administration of government in this IKN area is carried out by the IKN Authority (a ministry-level institution)[9].

In addition to the law related to IKN, on 25 July 2022, four laws related to the establishment of new provinces in Papua were also passed, namely Law No. 14 of 2022 concerning the Establishment of South Papua Province, Law No. 15 of 2022 concerning the Establishment of Central Papua Province, Law No. 16 of 2022 concerning the Establishment of Mountainous Papua Province, and Law No. 22 of 2022 concerning the Establishment of Southwest Papua Province. Thus, the land of Papua currently consists of six provinces, namely Papua Province with the capital city of Jayapura, West Papua Province with the capital city of Manokwari, South Papua Province with the capital city of Merauke, Central Papua Province with the capital city of Nabire, Papua Mountains Province with the capital city of Jayawijaya and Southwest Papua Province with the capital city of Sorong[10]. There are 38 provinces with a fixed number of districts/cities.

2.2. Epidemiology of Malaria

2.2.1 General description

Indonesia's climate is tropical, with two seasons (the wet and the dry seasons). Surveillance data in high-endemic areas show that malaria transmission is concentrated in the middle of the wet season, which lasts from December to June. In Papua, rain falls year-round, so malaria transmission is not seasonal. It differs from low- and moderate-endemic areas where malaria case reports are sporadic. The season does not seem to have a very significant influence compared with that in high-endemic areas. Climate change may affect the incidence of malaria cases in Indonesia due to changes in malaria vector ecology.

The malaria elimination programme is moving towards the crucial and most challenging phase. In the past decade, the number of malaria cases has been reduced by more than 35% from 465,764 cases (API 1,96‰) in 2010 to 304,607 cases (API 1,12‰) in 2021 (Figure 2.2). However, malaria case reduction has remained stagnant since 2014, which indicates that intervention in elimination program interventions as implemented is not sufficient to reduce cases significantly reduce the number of cases. The WHO reports an estimated 1 million cases (World Malaria Report, 2019), 4.5 times higher than the MoH-reported number of cases of 220 thousand in 2018. WHO's estimation incorporated factors of report completeness, malaria examination, and community treatment behaviour. To ascertain the actual number of malaria cases, the programme could use more aggressive efforts to reach all people with malaria who have not accessed health care facilities and strengthen surveillance systems.

Mortality registration systems due to malaria also need attention. The MoH routine surveillance data report 34 deaths due to malaria in 2018. On the other hand, the WHO estimated 1,785 deaths due to malaria. This significant difference indicates the need for more intensive efforts to reinforce mortality registration systems at the community level and health

[9] President of Indonesian Republic, 2022, Law Number 3 Years 2022 on National Capital
[10] Cabinet Secretariat of Indonesian Republic, 2022, Development of Three New Province in Papua, accessed online in link https://setkab.go.id/pembentukan-tiga-provinsi-baru-di-papua/

care and to expand the public-private reporting network and Social Security Agency (BPJS) coverage.

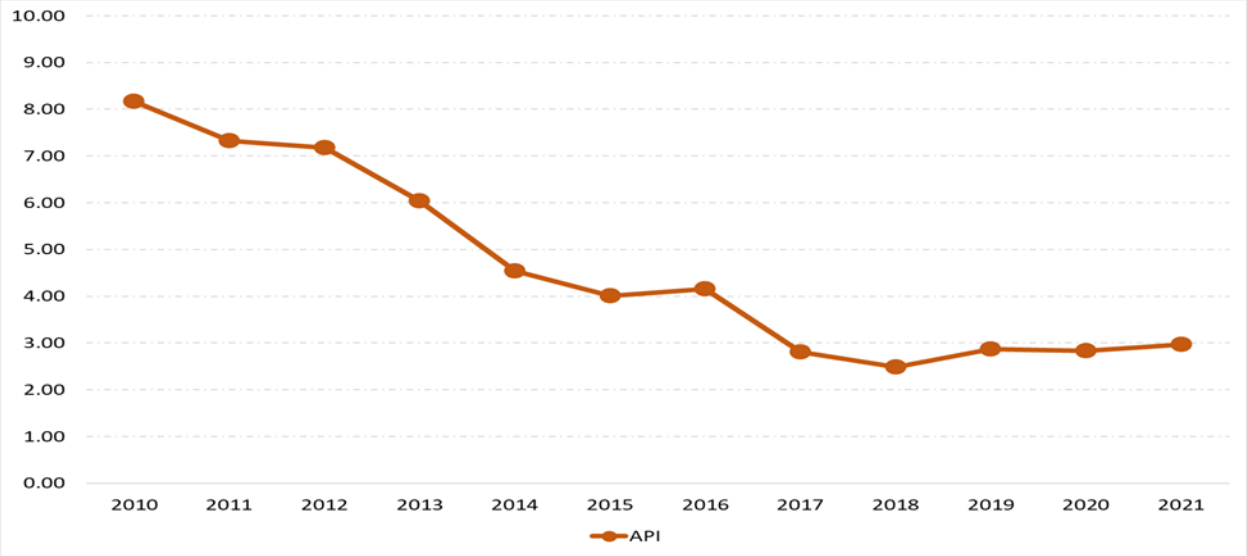

Figure 2. 3 Number of estimated malaria cases per 1,000 population (annual parasite incidence- API) years 2010-2021
Data source: World Malaria Report, 2022

Reporting and case findings have improved substantially, as evidenced by the narrowing gap between WHO's estimated number of cases and the number of cases reported from 2010 to 2021 (Figure 2.3). This narrowed gap reflects improved reporting completeness, better active case finding, and more private health facilities' involvement in reporting cases.

This national perspective masks progress in western Indonesia, where two-thirds of Indonesia's districts attained malaria elimination by 2022, this has been offset by increases in incidence in some districts in Papua, particularly Mimika District, which presently has an API of over 400. Nearly 92% of cases were in Papua province. Papua and West Papua combined contribute almost 94% of Indonesia's malaria cases despite having only 2% of Indonesia's population.

The dichotomy in progress within Papua (light green) and outside of Papua (dark green) is illustrated in figure 2.4. The figure vividly shows that while excellent progress is being made outside of Papua, these gains are primarily offset by a deterioration in progress in Papua. Papua reported cases have remarkably doubled over the past six years. Some of this may be due to improved reporting, but poor programme quality is the most likely factor.

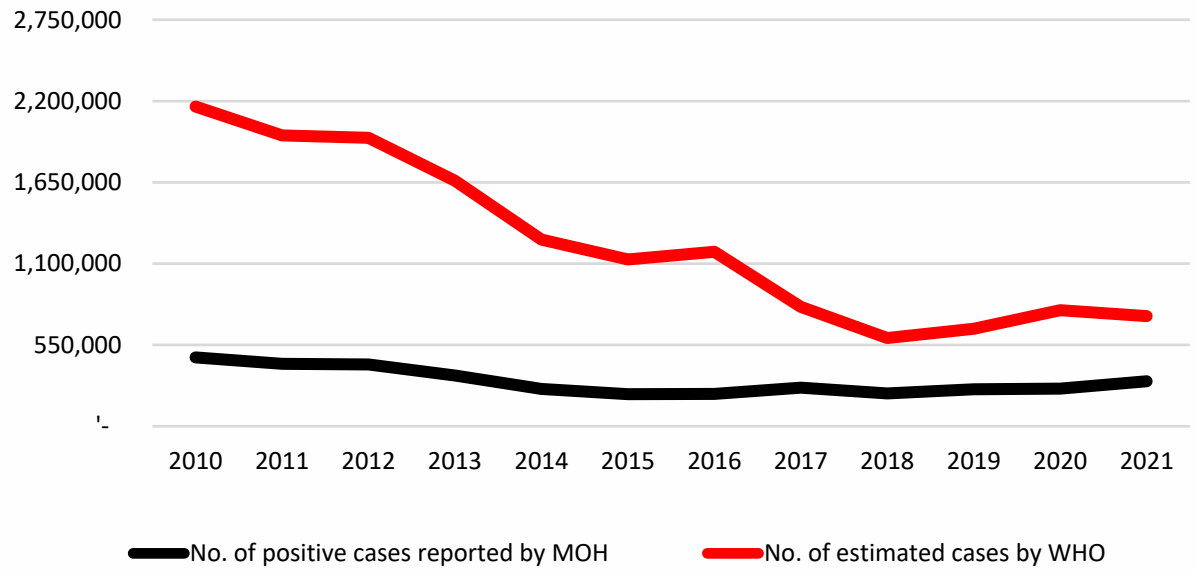

Figure 2. 3 Trend of malaria cases in Indonesia, year 2010-2021 (reported vs estimates). Data source: NMCP report and World Malaria Report.

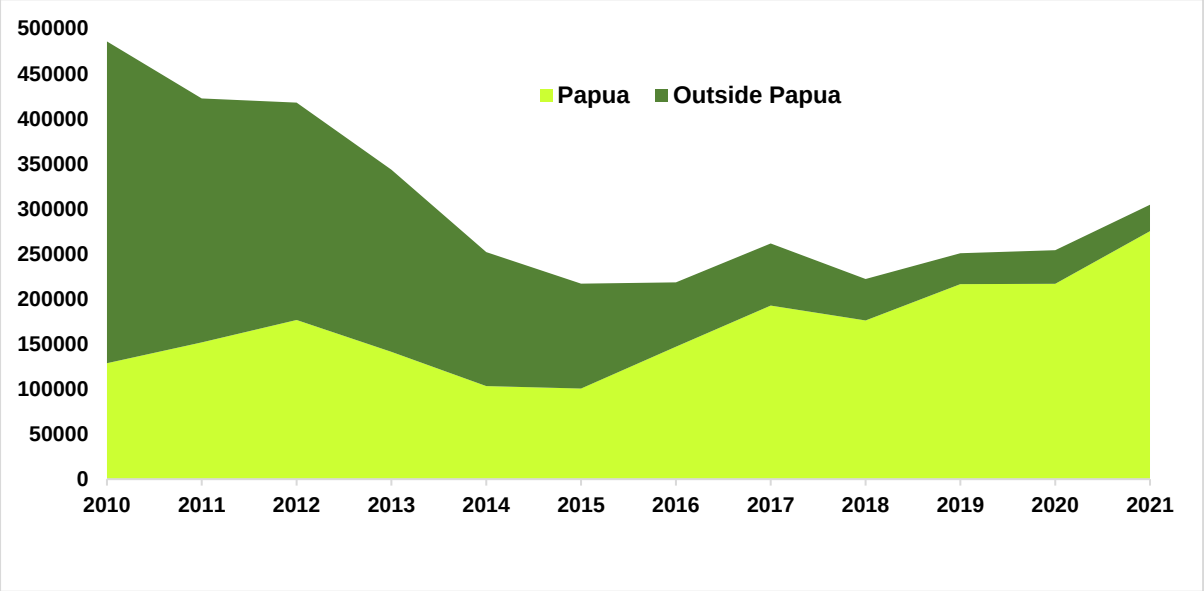

Figure 2. 4. Reported malaria cases in Indonesia showing the contrast between Papua (light green) and outside-Papua (dark green) cases.

In contrast, western Indonesia shows good progress. Figure 2.5 shows the improvement in west Indonesia, with 'white' districts certified as malaria-transmission-free by the Minister of Health. Aside from many districts in Papua and West Papua province, several districts in East Nusa Tenggara (NTT) and East Kalimantan province are also categorized as high-endemic areas for malaria, as shown by the red colour on the map.

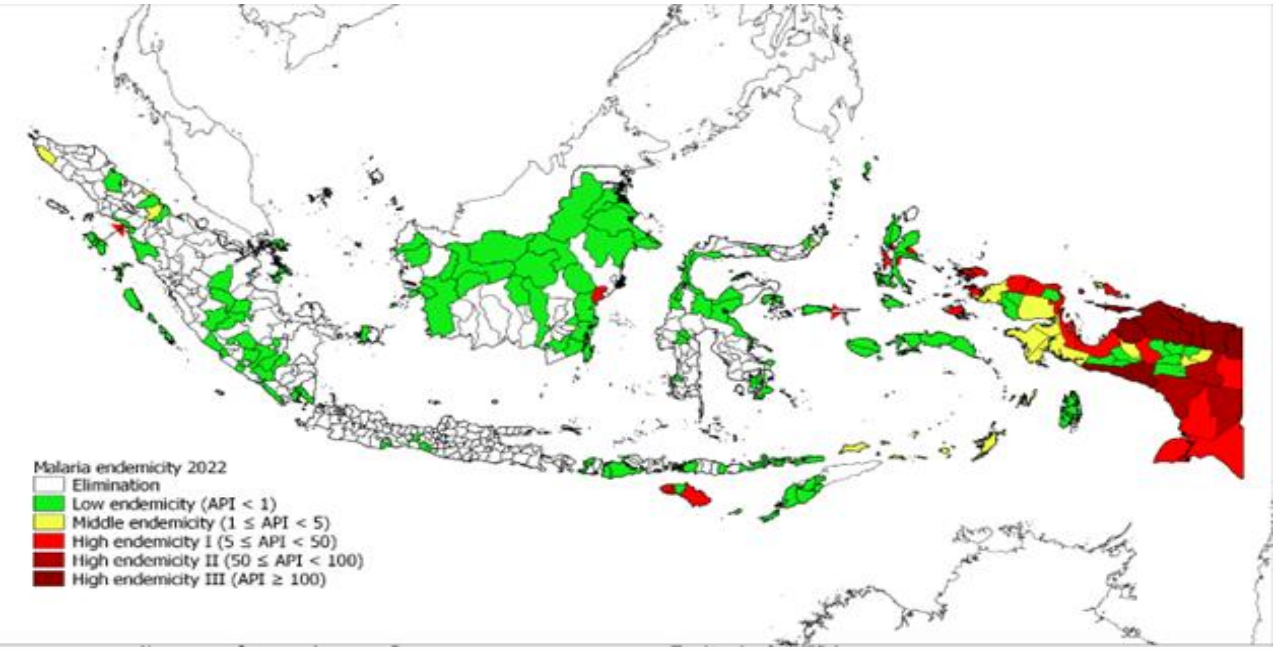

Figure 2. 5. Map of Indonesia showing districts that have achieved elimination (white) and those that are approaching elimination (green) by 2022. Data source: NMCP report, 2023

2.2.2. Forecast of malaria cases

WHO Geneva, based upon sophisticated modelling techniques using data from Indonesia, forecasts that if progress continues to stagnate in Papua, Indonesia will not reach its goal of malaria elimination by 2030 (Figure 2.6). The forecast assumes that the trend of the last 15 years will continue in the coming year. Changing the trend will require more aggressive efforts to accelerate the reduction of cases in Papua, especially in the high-endemic districts in the lowlands of Papua.

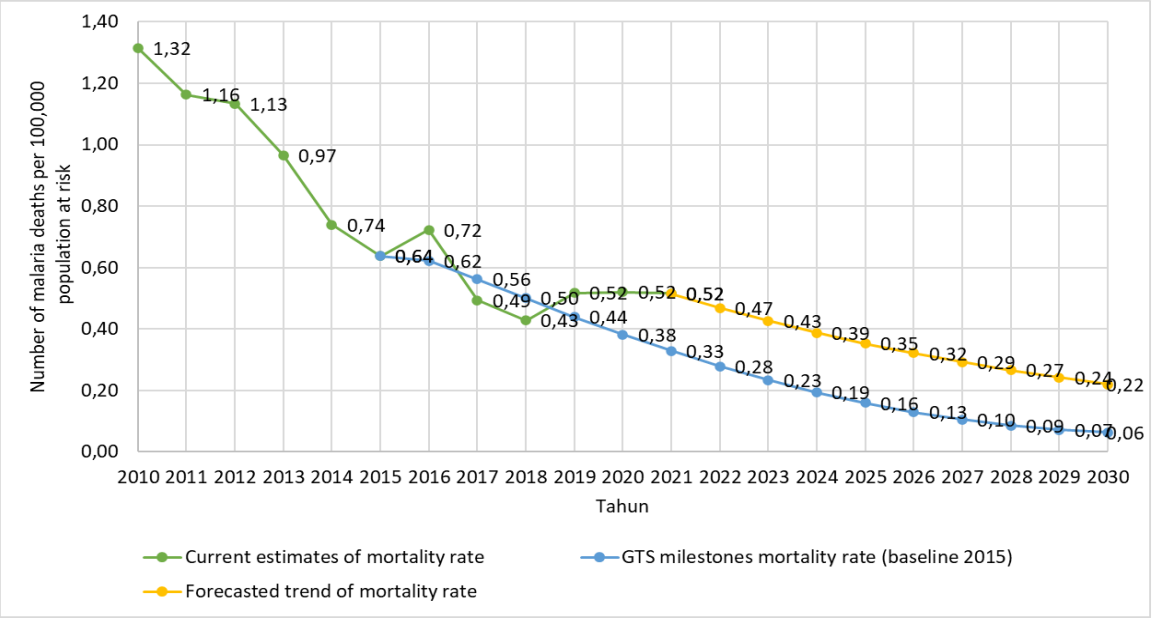

Figure 2.6 The forecast malaria deaths per 100,000 population at risk. The blue line shows the Global Technical Strategy milestones, while the green and yellow lines show Indonesia's projected pathway assuming present trends continue.
Data source: WHO Indonesia, 2023.

In addition to the national projection, WHO and the Ministry of Health also estimated case screening and the number of cases for 2022-2026 by district/city (Annex 1). The overall estimated total annual testing until 2026 is 4,329,067 examinations, which will be achieved gradually through increased access to active case finding by CMW, outreach to difficult areas without CMW, and improved services at private health facilities. Data submitted to the SISMAL report for 2022 (data as of 1 March 2023) shows the number of new examinations reached 3,368,447 (77.6% of the expected estimate) examinations with 443,530 positive cases (60.6% of the estimate). With the estimation data per district/city, it is hoped that in the future, it can be a reference for the regions to be implemented so that the number of cases reported is more accurate.

2.2.3 Host factors and demographics

Other basic descriptors of malaria in Indonesia are consistent with a nation moving towards elimination, with cases skewed slightly towards males (55% of cases) and older, active people aged 15 or greater (over 60% of cases). Consistent with this, in elimination, low-endemic and moderate endemic settings, the proportion of cases in males predominates and has increased over time. Conversely, the proportion of male and female cases in high endemic districts is similar (Figure 2.7).

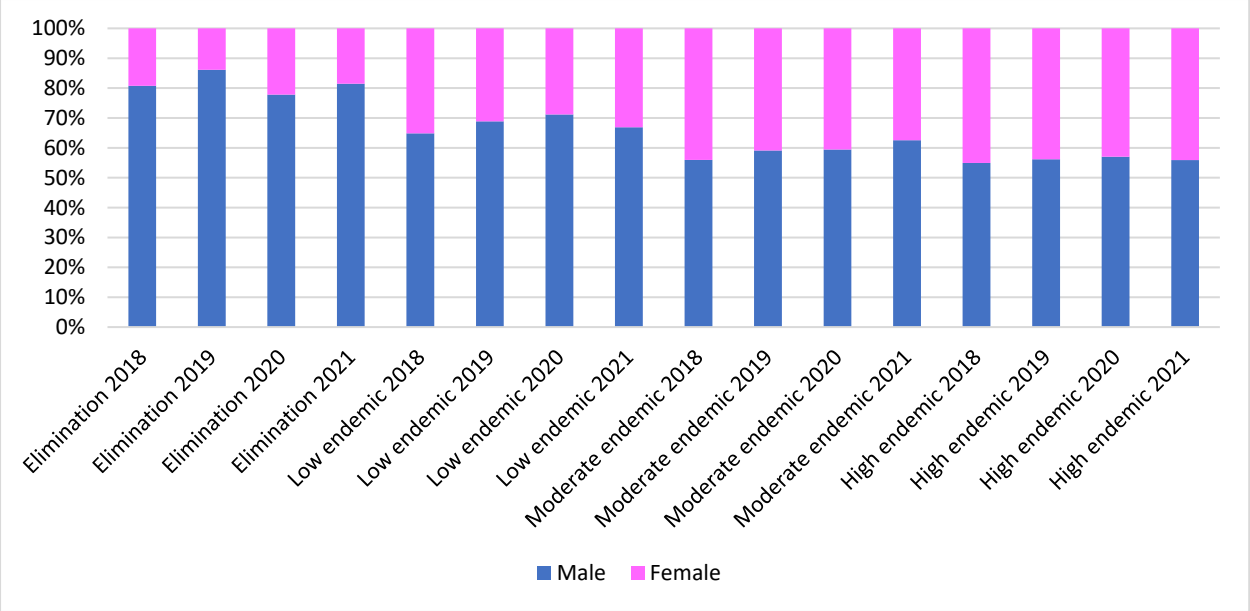

Figure 2.7. The proportion of malaria cases by gender by endemicity in 2018 and 2021. Data source: SISMAL V2.

Malaria cases in productive ages (15 to 64 years) have been gradually increasing, with a notable proportion of childhood malaria in areas of high endemicity. As expected, childhood malaria cases have decreased in low-endemic districts (Figure 2.8).

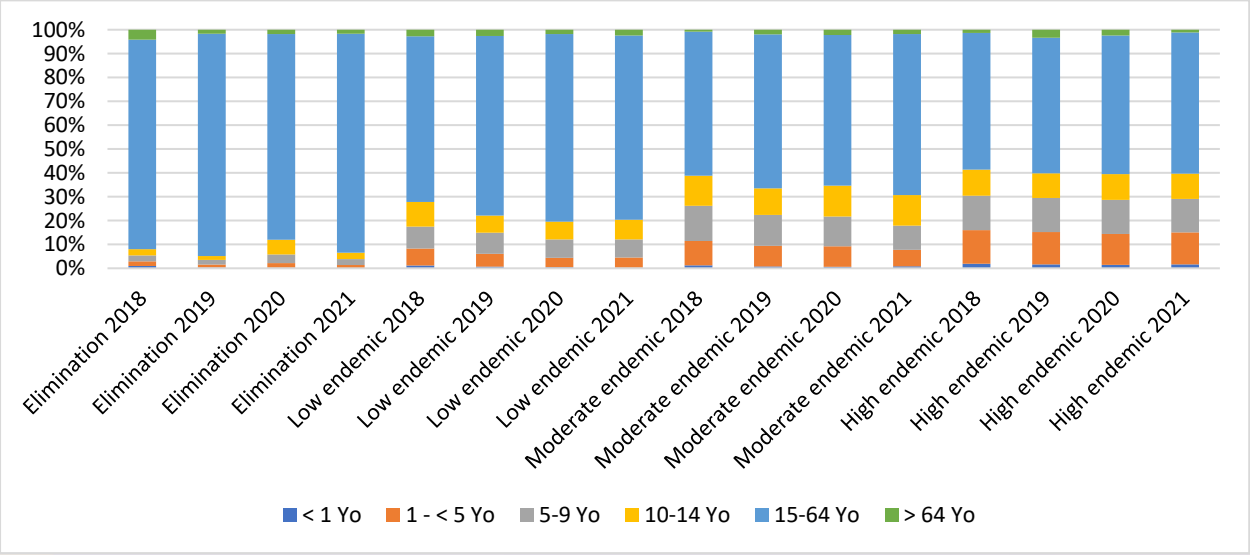

Figure 2.8. The proportion of malaria cases by age group by endemicity in 2018 and 2021. Data source: SISMAL V2.

Based on the occupation of malaria patients at the national level in the year 2021, the highest proportion of cases belonged to students (28%), followed by unemployed individuals

(27%) and housewives (16%). In low endemic districts, a more significant proportion of cases is found in miners, temporary lodgers, and farmers.

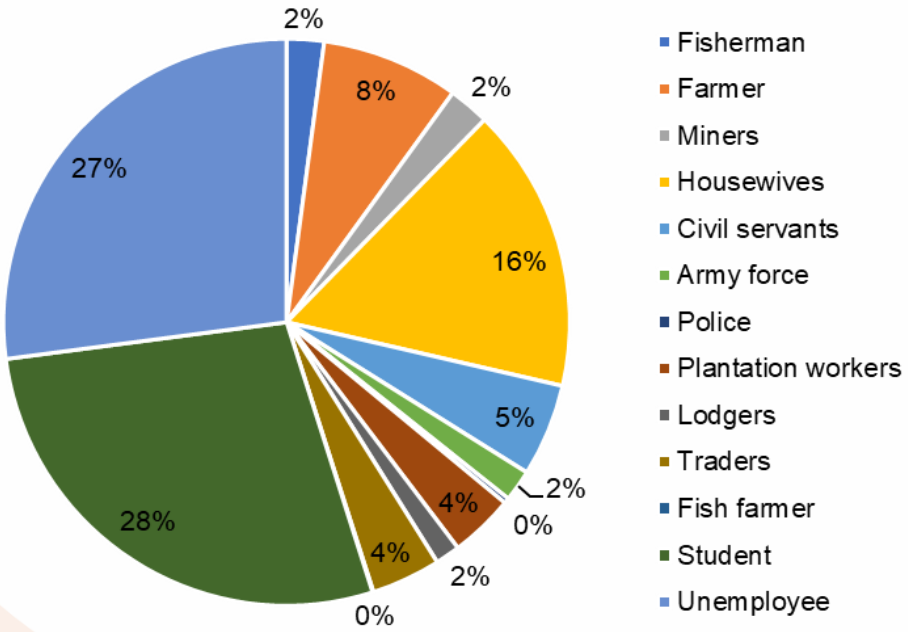

Figure 2.9. The proportion of malaria cases by occupation in the year 2021.
Data source: SISMAL V2.

According to the national data in 2021, the proportion of malaria caused by *P. falciparum* and non-falciparum (*P.vivax,* mixed infection, *P.ovale, P.malariae, and P.knowlesi*) was similar, accounting for 49.3% and 51.7% of total cases, respectively. A slight downward trend in the proportion of *P.falciparum* infection has been observed from approximately 56.8% in 2019 to 49.3% in 2021. However, Figure 2.10 shows that the proportion of *P.vivax* dominates in elimination, low endemic, and moderate endemic areas.

In addition to human malaria parasites, several hundred human infections with the zoonotic *P.knowlesi* have been reported in Kalimantan and Sumatra. The presence of this parasite complicates surveillance for human malaria, as it is challenging to identify microscopically such that definitive identification is via PCR.

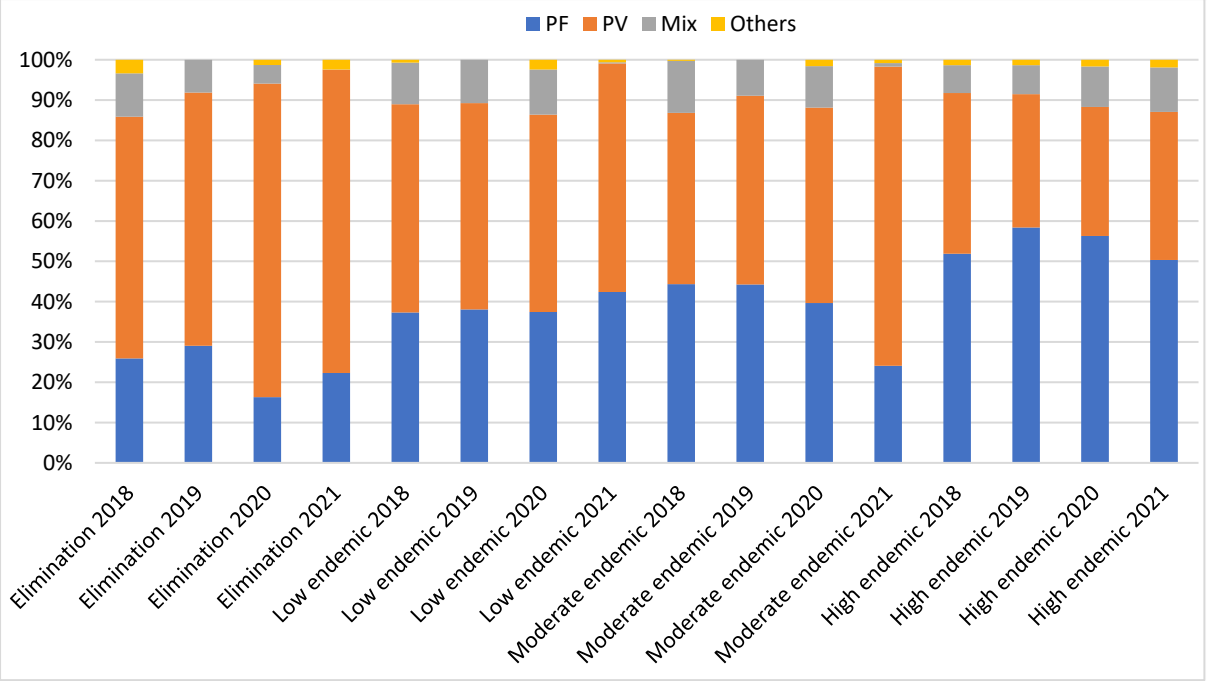

Figure 2.10. Proportion of Plasmodium species by endemicity in Indonesia in years 2018 and 2021. Data source: SISMAL V2.

2.2.4 Vector distribution

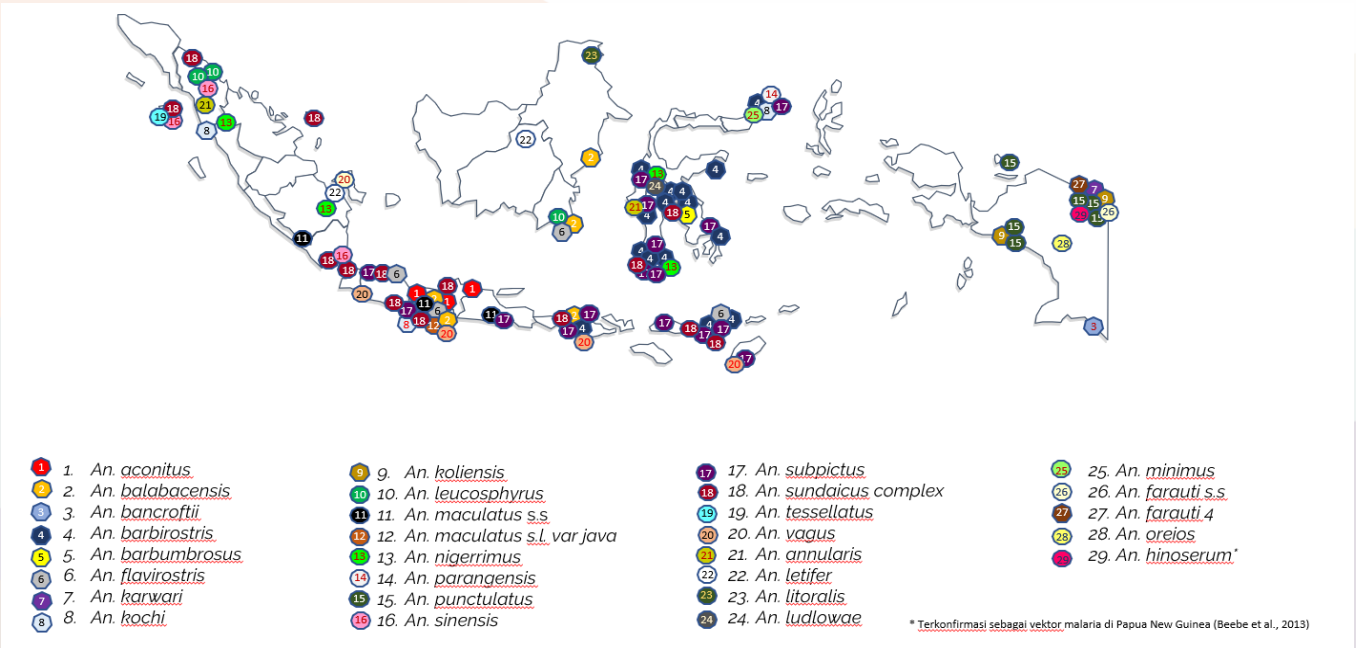

Figure 2.11. The distribution of malaria vector in Indonesia. Data source: MoH, 2022

Indonesia has a variety of Anopheles species and characteristics. Twenty-six species of Anopheles mosquitoes have been confirmed as malaria vectors in Indonesia and are distributed

throughout Indonesia (Figure 2.11). If added with variants in certain species, there are 29 species (additionally*, An.maculatus s.s, An.maculatus s.l var java, An.farauti s.s*, and *An.farauti 4*). Geographically, the distribution of Anopheles is divided into two zones/areas of distribution, namely the oriental region (Asia) and the Australian region. The oriental distribution of Anopheles mosquitoes covers central and western Indonesia, such as *An.aconitus, An.subpictus, An.sundaicus, An.barbirostris, An.kochi, An.nigerrimus, An.parangensis, An.balabacensis, An.leucosphyrus, An.tesselatus, An.vagus, An.karwari, An.sinensis, An.flavirostris, An.maculatus, An.minimus, An.letifer, An.annularis, An.ludlowae, An.umbrosus, An. barbumbrosus, and An.peditaeniatus*. While the distribution of Australian Anopheles mosquitoes in Papua, Maluku, and North Maluku, such as *An.bancrofti, An.koliensis, An.punctulatus and An.farauti*. Anopheles mosquitoes can be found sucking blood inside and outside the house.

Of note, however, is that the highly anthropophilic *An.farauti* group of mosquitoes occurs in Indonesia Papua. This species' behaviour and longevity are major contributors to the high incidence of malaria in lowland Papua. Further, unlike other parts of the archipelago, Papua experiences monthly rainfall, resulting in year-round malaria transmission. For instance, Mimika District's driest month is October, but an average of 293 mm of rain falls that month, with rain falling an average of 13 days in the month, as shown in Figure 2.12.

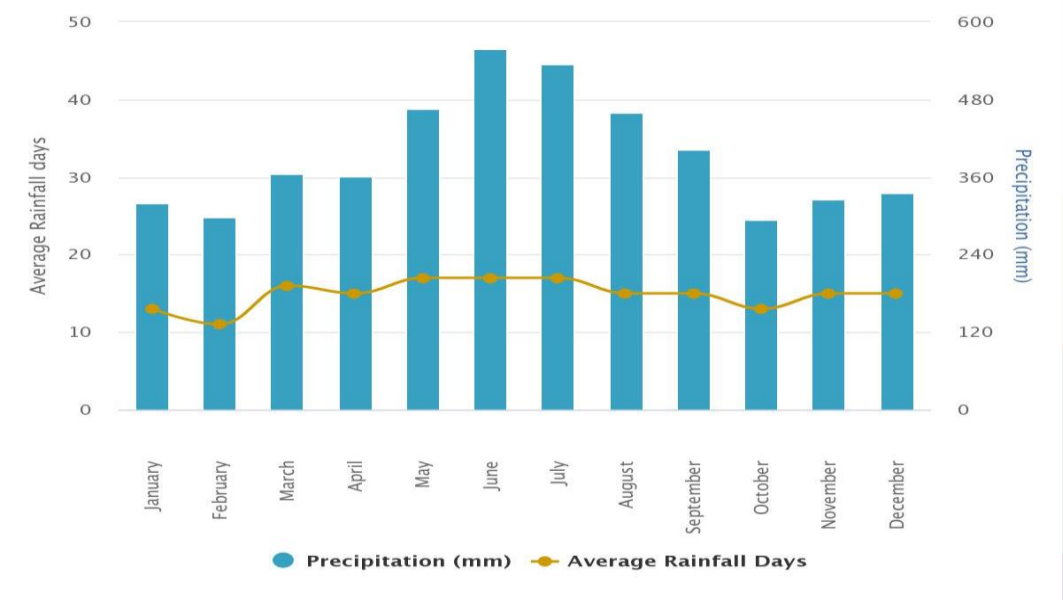

Figure 2.12. Mean month precipitation and an average number of days with rain in Mimika District, Papua. Data source: worldweatheronline.com cited from MTR report, 2022

2.3. Impact of the COVID-19 pandemic on the malaria program

The Ministry of Health and UNICEF's rapid survey in 2020 showed a decline in essential health services at the beginning of the COVID-19 pandemic. More than 75% of public health centres did not provide services, and more than 41% of home visits stopped. Most public

health centres reported less than 10% disruption in service delivery[11]. This has certainly impacted the implementation of health programmes, including malaria prevention and control. The COVID-19 pandemic was associated with a detectable decline in malaria testing and case reporting in 2020 and 2021, as shown in Figure 2.13. and 2.14. This reduction in testing and reporting is due to two related factors caused by the pandemic – finance and human resources in health.

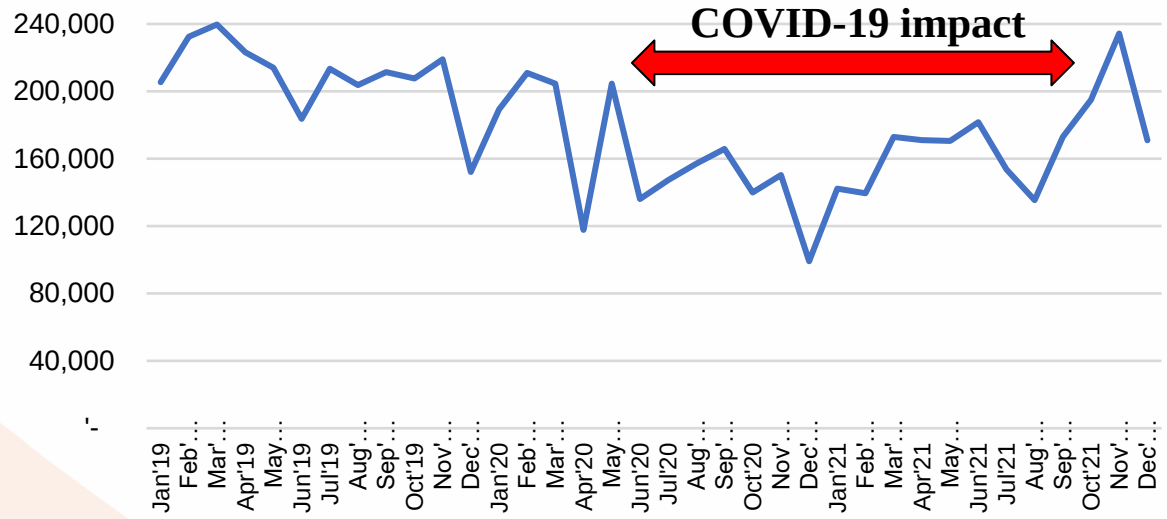

Figure 2.1. Malaria testing month-wise in Indonesia from January 2019 to December 2021. Data source: SISMAL

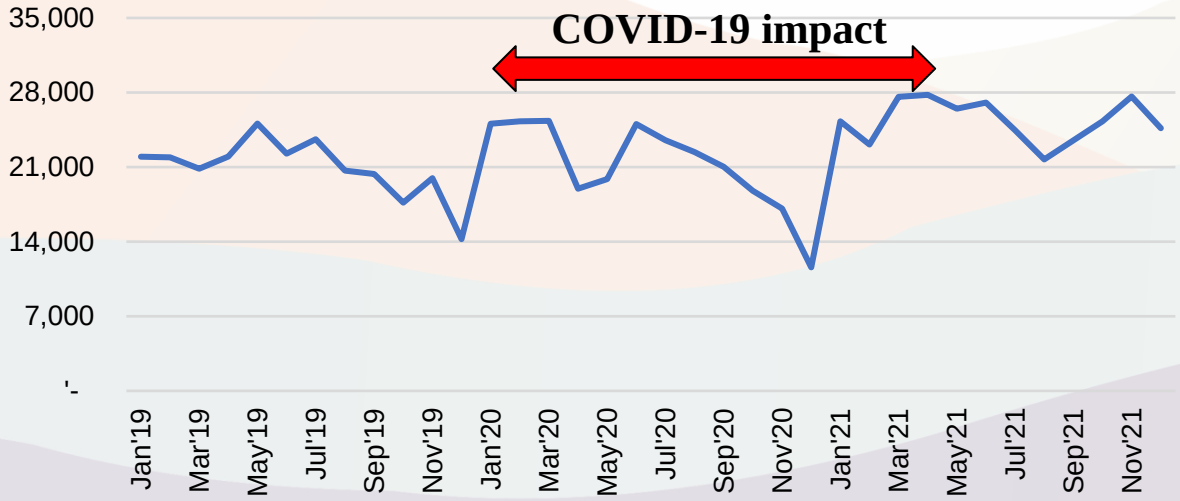

Figure 2.14. Malaria cases were reported month-wise in Indonesia from January 2019 – December 2021. Data source: SISMAL

[11] Ministry of Health Republic Indonesia and UNICEF, 2020, Rapid Assessment of COVID-19 Pandemic on Immunization Services in Indonesia.

The COVID-19 pandemic has not only resulted in a decrease in the number of malaria tests and an increase in the number of confirmed malaria cases but also in the change of endemicity status in several districts. Fourteen districts classified as low endemic districts (API <1 per mil) became moderate endemic districts (API >1 per mil) consist North Sumatra (2 districts), Central Kalimantan (1 district), East Kalimantan (3 districts), Maluku (1 district), NTT (4 districts), and Papua (3 districts). In Papua, two low-endemic districts became high-endemic, and two moderate-endemic districts became high-endemic (Supiori and Biak Numfor districts). While in West Papua, two districts (Raja Ampat and Sorong City) went from moderate endemic to high endemic (API >5 per mil). In five high endemic districts with API >100, malaria incidence in 2021 increased by around 20-50% compared to 2019 data, including Mimika (API 374 in 2019 vs API 544 in 2021), Yapen Islands (API 61 in 2019 vs 115 in 2021), Jayapura district (API 163 in 2019 vs API 205 in 2021), Keerom (API 383 in 2019 vs API 401 in 2021), and Memberamo Raya (API 320 in 2019 vs 411 in 2021).

In addition, there has been a shift in human resources. Who was initially assigned to the malaria programme and then shifted to assist in implementing the COVID-19 control programme, including implementing vaccinations as a rapid response at the peak of the pandemic. This shift occurred at all health system levels from the central to regional levels in 2020-2021. By 2022, health workers will return fully to their primary duties with adequate funding for programme needs.

The pandemic situation has also impacted the health financing system. Domestic funding for malaria programmes declined sharply during the pandemic. In 2020, the projected requirement from domestic sources for the malaria programme was estimated at USD 68 million, while the actual allocation was USD 7.8 million or 11.5% of the projected need. Similarly, in 2021, the projected requirement from domestic sources is 71.4 million USD, while the actual allocation is 11.3 million USD or 15.8% of the projected need. GFATM partially filled the gap in 2020 with an allocation of 18.2 million USD and in 2020 with an allocation of 13.2 million USD. Although not explicitly indicated from the available data, it is likely that funds originally intended for malaria activities were diverted to Indonesia's aggressive COVID-19 vaccination campaign. This is what the Ministry of Health has prioritised during 2020 and 2021 as part of the pandemic response. As we recover from the pandemic situation, nationally, there has been a significant increase in funding allocations in 2022. The need is expected to decrease over time as more districts achieve malaria elimination.

2.4. Malaria Elimination Program Situation

The health system is operated through the management of health administration, health information, health resources, health service delivery, health funding, community participation and empowerment, health science and technology, and the provision of integrated and inter-supporting health laws[12][13]. A comprehensive review of the Indonesian health system has been conducted, including its organisation, funding, human resources, care

[12] Presidential Regulation No. 72 of 2012 on National Health System.
[13] Minister of Health Decree No. 374/MENKES/SK/V/2009 on National Health System.

provision, and health policy reform. In general, challenges faced are also relevant to the situation of the malaria elimination programme, namely the impact of decentralisation, which is supposed to allow opportunities to regional governments to fulfil their commitment to the health needs of the community. In addition, the ability is needed to re-orient policies in facing epidemiological changes is required[14].

2.4.1. SWOT Analysis

SWOT analysis on the malaria elimination programme identifies a list of supporting factors (strengths and opportunities) and hindering factors (weaknesses and threats) which will affect the attainment of malaria elimination programme targets at the central and regional levels. Some examples of the lessons can be found in Annex 2.

Strengths

- Malaria programme indicators and targets were monitored at the national level in the NMTDP 2015-2019, KSP and MoH Strategic Plan.
- Malaria elimination regulations are in place (Minister of Health Decree Number 22 of 2022).
- Malaria elimination acceleration strategy update plan in place.
- A draft document malaria elimination communication strategy is in place.
- Policies and regulations on malaria prevention in particular situations (remote or difficult) by village malaria workers (Minister of Health Decree Number 41 of 2018)
- Human rights law 39/1999 is in place
- There is a regulation related to Gender Mainstreaming in Development No 9 of 2000.
- Village Law Number 6 of 2014 regulates the involvement of women in village development.
- In the NMTDP 2020-2024, the Gender Mainstreaming policy is the basis for realising quality, inclusive and sustainable development.
- Regional commitments related to malaria elimination efforts are in the form of regional and other regulations as well as the establishment of malaria centres.
- A team of malaria experts who are members of the National Forum for Malaria Elimination Movement (FNGM) and technical working groups (TWG) at the national and provincial levels actively support the malaria programme.
- The malaria elimination and maintenance of elimination assessment teams at the national and provincial levels consisting of internal and external elements, play an active role in validating and verifying the data submitted by districts/cities.
- The commitment of local governments and cross-sectors' involvement in malaria control has reduced endemicity in various regions.
- As of December 2022, 372 out of 514 districts/cities have achieved malaria elimination.

[14] World Health Organization. 2017. The Republic of Indonesia: Health System Overview.

- Malaria logistics management is included in the implementation of one gate policy for malaria drugs and integrated management of consumables at the provincial and district/city levels.
- Malaria logistics specifications that meet WHO standards and national programmes are listed in the logistics management SOP.
- Procurement methods follow applicable regulations, one of which is through e-catalogue.
- Malaria RDTs are included in the post-market quality assurance by the Directorate General of Pharmaceutical and Medical Devices
- Allocation of funds from the government with menus for malaria activities available as a reference for request funding for activities.
- Increased case findings by involving community malaria worker (CMW) in high endemic areas with special populations and malaria-receptive areas.
- An electronic malaria information system (SISMAL) was developed, based on the web and android, which can be accessed online and offline.
- SISMAL was developed with increased coverage and includes private and community services.
- SISMAL development with the addition of data analysis features down to the village level.
- Surveillance of insecticide resistance and mosquito net efficacy began to be carried out routinely.
- Programme technical assistance in high and persistent endemic areas has strengthened programme performance.

Opportunities

- Malaria control counts as a supporting factor in the reduction of cases of stunting
- Malaria control efforts are part of Indonesia's climate change adaptation action plan document, in the draft revision of Law No. 3/2022 on the National Capital City and the master plan for accelerating Papua's development (RIPP) 2022 - 2041.
- Availability of technical assistance, operational funding and logistics support from partners, donors and the private sector.
- The availability of village fund allocations for infectious disease control activities, including malaria at the community level, as stipulated in Regulation of the Minister of Villages, Development of Disadvantaged Regions, and Transmigration Number.8/2022 on village fund priorities for 2023.
- The existence of Ministry of Home Affairs Regulation Number 59/2021 and Ministry of Home Affairs Circular Letter Number 906/2114/SJ/2022 regarding the ATM (AIDS, TB and Malaria) budget menu for regional fund allocations.
- Some regions have organised malaria logistics using local funds.

- Collaboration with various research institutions and universities for scientific evidence and utilisation of research results for policy making.
- Support from international organisations and strong networks/alliances at global and regional levels.
- The MOU between the Minister of Health and the Commander of the Armed Forces is the basis for increased cooperation at the regional level.
- The support of the Health Office Association (ADINKES) in increasing the commitment of local governments to sustain the malaria programme.
- Involvement of the Coordinating Ministry for Human Development and Cultural Affairs in coordination across ministries and institutions at the national level.
- Coordination with the IKN Authority in malaria prevention in the IKN region.

Weaknesses

- Health human resources policies and programme planning on malaria have been integrated with the Human Resources of Health Information System (SISDMK), but the utilization is not optimal yet.
- High turn-over rate among trained workers. It requires a regular competency improvement system.
- As of December 2022, 55 low-endemic districts have not been able to reach the elimination phase for five consecutive years (stagnancy), which needs intensified approach and innovation.
- Challenges in procurement and logistical distribution of commodities (quinine injection, primaquine, larvicide, insecticide, LLINs) due to manufacturing, administration and bidding failure factors.
- Some regions depend on donors (GFATM), and the utilization of allocated central funds has not been optimum.
- Delay in hospital case notification, and not all positive cases have been investigated epidemiologically.
- Case reporting completeness is still low, especially in hospitals and the private sector.
- Malaria treatment in private health care is still found, which does not meet the national treatment standards.
- The utilisation of LLINs is still low in some areas.
- Receptivity mapping is still low.
- Migration surveillance on MMPs (Mobile Migrant Populations) has not been optimum.
- Communication between malaria programmes and researchers is still limited.
- LLIN campaign does not get sufficient support for behavioural change communication activities and low net utilisation monitoring.
- Behavioural change communication is not sufficiently measured and monitored.
- Microscopy officer and cross-checker competence need to be standardised, and quality assurance needs to be implemented.

- Stakeholders, heads of villages, public health centres, and heads of district health offices are not committed enough.
- Regulations related to the level of domestic components for medical equipment and consumables have not met WHO standards.
- There is less than optimal cross-border coordination with Papua New Guinea, Timor Leste and Malaysia.
- Financial administration systems are too rigid for implementing activities in areas with limited infrastructure.
- The existence of gender norms that disadvantage women's access to malaria services, one of which is due to the majority of decision-making in the family by men.
- Human rights and gender-related barriers to women's access to malaria services.

Threats

- Malaria programme indicators are not included in the minimum standards for services.
- Leadership and staff turnover affect policy and budget changes.
- Commitment and funding decline as cases decline and malaria elimination is being achieved.
- The issue of malaria is still confined to the health sector, not yet a concern for other related sectors.
- People in high endemic areas perceive malaria as not a health threat resulting in low prevention and treatment-seeking practices.
- The ongoing practice of deforestation (legal and illegal) and illegal mining without considering environmental impacts.
- High population mobility within the country and between countries.
- Insecticide resistance is starting to be observed in many districts/cities with a limited choice of insecticides available.
- Population migration has not been optimally coordinated with the local government.
- Unavailability of local government funds to support malaria control programmes in some areas.
- The local government's procurement of malaria logistics, such as RDTs, is not following WHO standards, resulting in uncertain quality of test results.
- The long bureaucratic process to procure malaria commodities by the Ministry of Trade.
- A lengthy permit process for the import of grant-funded medical devices by the Ministry of Health.
- The situation is not conducive to health services in several districts/cities in Tanah Papua
- A robust patriarchal culture that women also support.
- Power relations

2.4.2. Components in Elimination Programme System Analysis

2.4.2.1. Regulation

The implementation of the elimination programme needs binding regulation to involve various programmes and sectors. Several regulations deemed necessary are Presidential Regulation Number 18 of 2020 on the National Medium-term Development Plan for 2020-2024, Minister of Health Regulation Number 13 of 2022 on the Amendment to Regulation of the Minister of Health Number 21 of 2020 on Ministry of Health Strategic Plan 2020-2024, Minister of Health Decree Number 293 of 2009 on Elimination of Malaria in Indonesia, Minister of Health Circular Number HK.02.01/Menkes/584/2018 on Acceleration of Malaria Reduction in Malaria-endemic Areas, Minister of Health Regulation Number 41 of 2018, Minister of Health Regulation Number 68 of 2015 on Guidelines for Malaria Laboratory Network and Quality Assurance and Minister of Health Decree Number 556 of 2019 on Medical Care National Guidelines for Malaria Procedure. The recent one is Minister of Health Regulation Number 22 of 2022 on Malaria Countermeasure.

Minister of Health Regulation Number 41 of 2018 is vital in expanding the reach of malaria detection, examination and treatment. This regulation confers upon trained CMW (community-based health worker) the authority to conduct early detection and to administer anti-malaria medicine in areas of special settings, namely areas without available care facilities, medical workers and supplies and areas intensifying their malaria elimination efforts but with only limited access to care facilities, medical workers and supplies.

Minister of Health Regulation Number 22 of 2022 is a highly expected regulation which comprehensively regulates malaria control by considering the epidemiological approach, policies and strategies for malaria activities. This regulation also defines the sharing of roles and authorities between the central government and local governments by considering the principle of decentralisation. With this regulation's availability, malaria control programmes can be better implemented in all provinces and districts/cities so that Indonesia can eliminate malaria by 2030.

At the regional level, regulations related to the acceleration of elimination and maintenance of malaria-free areas in the 2020-2022 period have been prepared and ratified in 55 districts/cities. It is expected that with the issuance of these regulations, local governments can continue to commit to supporting the technical implementation of malaria prevention in the regions.

2.4.2.2. Assessment for sub-national elimination certification

The attainment of the number of districts certified malaria-free by the Minister of Health aligns with the NMTDP target. Although affected by COVID-19, the progress in achieving elimination shows a positive trend. Banten is one province that has completed provincial-level certification. 5 other provinces in the Java Bali region have succeeded in eliminating malaria. NMCP is still encouraging Central Java to achieve elimination, especially Purworejo District. As of December 2022, 372 districts/cities have achieved malaria elimination status, with 87 low endemic districts/cities, 27 moderate endemic districts/cities and 28 high endemic districts/cities (Table 2.1). Those means that 89% of Indonesia's population lives in malaria-free

areas, including one district in West Papua Province. South Sorong District has obtained a malaria elimination certificate by 2022, encouraging Papua Land to move towards elimination. Some areas that have achieved malaria elimination (maintenance phase) have experienced local case re-transmission, such as Rokan Hilir District, Serdang Bedagai District and Kulon Progo District. Rapid countermeasures need to be carried out to reduce transmission.

The assessment for malaria elimination certification is conducted in tiers at the district, province and national levels. District-level assessment for certification is conducted by a provincial assessment team, assisted by a national assessment team. A national assessment team conducts the provincial-level assessment. By 2022, six provinces in Java and Bali – had declared their readiness to be assessed because they had managed to free all their districts from malaria transmission. The instrument and method of the malaria-free certification assessment at the sub-national level refer to the WHO guidelines[15]. Provincial and national assessment teams must be consolidated and strengthened, and documentation completeness must be assured according to WHO guidelines in preparation for the national-level certification assessment process.

Table 2. 1 District stratification by endemicity in 2021-2022

No	Endemicity	Population 2021		District 2021		Population 2022		District 2022	
		#	%	#	%	#	%	#	%
1	Malaria-free	232.867.904	86%	347	68%	243.796.793	89%	372	72%
2	Low-endemic (API < 1 per 1000)	34.060.564	13%	124	24%	22.004.854	8%	87	17%
3	Moderate-endemic (API 1-5 per 1000)	2.290.271	1%	17	3%	5.457.056	2%	27	5%
4	High-endemic (API > 5 per 1000)	3.029.715	1%	26	5%	3.600.391	1%	28	5%
Total		272.248.454		514		274.859.094		514	

Data source: Routine data (NMCP, 2023)

2.4.2.3. Human Resources

The malaria elimination programme requires the involvement of various skills and competencies, including skills and abilities to collect, analyse, update and adjust age, sex, gender, cultural, geographical and socio-economic disaggregated data. At the health care facility level, human resources related to the malaria programme include the head of public health centres/hospitals, programme managers, doctors, midwives, nurses, microscopists, trained entomologists, health promotion officers, surveillance officers, and pharmacists. At the district and province levels, they include heads of health services, heads of disease prevention

[15] World Health Organization. 2017. A framework for malaria elimination.

and control divisions, heads of disease control sections, programme managers, microscopists as cross-checkers, entomologists, health promotion officers, surveillance officers and pharmacists. Additionally, there are several technical institutions which commonly support diagnostic cross-checking and entomological activities are several technical institutions, whether they belong to the province (vocational training centres (UPT BLK) and regional health laboratories) or the central government (Central Health Laboratories (BBLK), Central Technical Environmental Health Units (B/BTKL) and Health Policy Development Agency (BKPK).

In the malaria elimination programme, there are two essential training: malaria programme management and malaria elimination re-orientation workshop. By September 2022, the basic training curriculum for malaria programme management has been registered in the Training Accreditation Information System (SIAKPEL) of the Human Resources of Health Agency (PPSDM). Malaria programme management training has been conducted intensively since 2003, but the training data has been routinely collected since 2016. Malaria elimination re-orientation workshops for maintenance areas have been undertaken since 2017. However, not all provinces and districts have received both trainings. Malaria programme management training has reached only 56% of officers at the provincial level, whereas malaria elimination re-orientation training have reached 79%. At the district level, the training has reached 21% of elimination districts, 82% of low-endemic districts, and 15% of moderate-endemic districts. By 2022, 41 high and moderate endemic districts were trained in basic malaria programme management and 50 stagnant districts were re-oriented malaria programmes. Malaria re-orientation training, following malaria programme priorities, is intended for low-endemic areas so they can expedite the achievement of the elimination status, explaining the high number of district officers trained compared to areas of other endemicities.

In early 2020, the malaria programme held a workshop for facilitators of elimination communication strategies. This workshop was intended to enhance malaria programme managers' knowledge in identifying effective communication channels and media for elimination programme campaigns and promotion with target certain groups as audiences. These groups include the primary groups, such as those in malaria-endemic areas; secondary groups, such as local leaders or community counsellors; and tertiary groups, such as regional leaders and policy-makers.

2.4.2.4. Procurement and Supply Chain Management

Malaria logistics management follows the logistics management cycle in Indonesia, which includes planning, procurement, storage, distribution and utilisation. Generally, the policy under which the goods/service procurement system operates refers to Presidential Regulation Number 16 of 2018 on Goods and Service Procurement. Procurement is typically conducted once annually to fulfil 18 month-needs. Procurement and distribution of anti-malaria drugs are undertaken by the DG of Pharmacy and Medical Devices Development under a one-gate policy. Local procurements for other logistics are made through the Electronic Procurement Service System (LPSE) by the procurement service unit (ULP). On the other hand, the procurement of LLINs and RDTs, which are sourced from Global Fund grants,

is made through international bidding in the Wambo system administered through the Pooled Procurement Mechanism (PPM), which is the procurement mechanism of the Global Fund.

In 2020-2022, several commodities were stockouts, including anti-malarial drugs and RDTs in various districts/cities. Figure 2.15 shows that in 2021 provinces with a high malaria burden were more likely to experience stockouts of ACTs. Almost half of the health facilities in Papua experienced stockouts, followed by West Nusa Tenggara, East Kalimantan, North Sulawesi and North Sumatra. The stock out is due to several reasons: in March-April 2022, and there is a time gap for ACT procurement from China due to the COVID-19 situation in the region; there are new regulations from the Ministry of Trade related to import permits stipulated in the Regulation of the Minister of Trade no 25/2022 which has an impact on extending the lead time for import permits from 14-20 days to 10-32 days (if submitted using the online system) and no sooner than one month (if submitted using the manual system); and delays in transportation for distribution in Indonesia. This illustrates the dependency of the malaria programme on the global supply chain. The national authorities need intensified coordination with the Directorate General of Pharmaceuticals and Medical devices also the Ministry of Trade regarding import permits to ensure the availability of these malaria commodities.

Figure 2.15. The proportion of health facilities that no stock out of ACT based on health facilities which reported to SISMAL by province 2021.
Data source: SISMAL 2021

Another aspect to consider is estimating needs based on previous consumption, especially for RDTs and ACTs. Malaria has an unstable transmission, so the 2022 mid-term review (MTR) team recommends that the Ministry of Health uses the WHO method to estimate the need for ACTs and RDTs. In addition, the specifications of logistics procurement

by private hospitals/clinics or independent practitioners need to be considered because some are not following national standards.

2.4.2.5. Funding

The central, regional governments and international funds support the malaria programme. Through provincial and district health services, the government carries out the malaria programme with the support of the regional government budget (the regional revenue and expenditure budget/APBD). APBD is not the only funding source for this regional activity; direct fund transfer also occurs from the central government to the regions (*Dana Perimbangan*/Fiscal Balancing Fund). In addition to the Village Fund, direct funds from the central government to each village for the development of the sub-district could also be utilised for funding[16]. Another opportunity is also obtained from the support of corporate social responsibility (CSR) funds from the private sector.

In the implementation of the NAP-AME 2020-2022, several policies support the financing of malaria programmes, including Regulation of the Minister of Villages, Development of Disadvantaged Regions, and Transmigration Number.8/2022 on village fund priorities for 2023 for infectious disease control activities, including malaria at the community level, and Regulation of the Minister of Home Affairs Number 59/2021 and Ministry of Trade Circulars Letter Number 906/2114/SJ/2022 on the ATM (AIDS, TB, and Malaria) budget menu for regional fund allocations. However, dissemination of the regulation on using these funds to support malaria control activities must continue to be carried out to the regions, including utilising central-level funds directed to districts or provinces, such as special allocation funds (DAK) and BOK funds (public health centre operational funds).

As mentioned earlier, in 2020-2021, domestic health funding has been prioritised for COVID-19 control activities. This resulted in expected domestic financing for malaria being less than 15% of what was needed during the year. Global Fund support fills some of the gaps, but significant shortfalls remain. Figure 2.16 shows the gap between funding allocations and programme needs in 2020-2022. A substantial increase in allocations will occur in 2022 as Indonesia begins to recover from the COVID-19 pandemic.

[16] Ministry of Villages, Development of Disadvantaged Regions, and Transmigration Regulation Number 16 of 2018 on Priorities for Village Fund Utilization 2019.

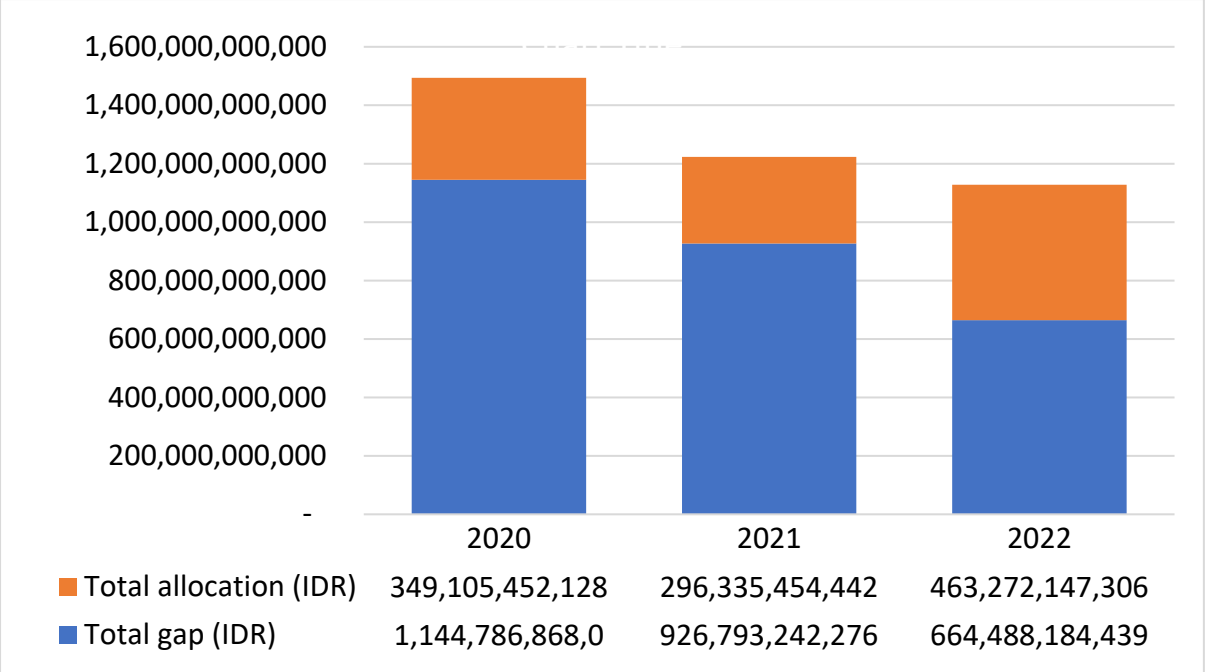

Figure 2.16 Proportion of budget allocation for malaria program year 2020-2022
Data source: NMCP, 2022

Regarding financing sources, the trend of domestic funding sources shows an increase, although the proportion of funding from the Global Fund is still high due to the support of mass mosquito net campaigns in 2020 and 2022 (Table 2.2). A concern for further improvement is the completeness of the data; not all provinces and districts/municipalities routinely collect regional financing data every year. Not all provinces and districts/municipalities reported financing allocations for malaria activities. In 2021-2022, only nine provinces reported a downward trend for provincial funding (APBD I) (Figure 2.17). Meanwhile, the district/city level shows an increase in the number reporting from 178 districts/municipalities in 2021 to 221 districts/municipalities in 2022, with a 3-fold increased amount of financing for APBD II funding (Figure 2.18.).

Table 2.2 Identification of budget sources for financing malaria control in 2020-2022
(In IDR)

BUDGET SOURCE	YEAR					
	2020		2021		2022	
	Estimation	Allocated	Estimation	Allocated	Estimation	Allocated
Domestic Budget	400,536,015,968	61,633,878,962	409,024,156,477	88,688,647,782	420,880,755,039	49,139,386,263
National revenue and expenditure, also decentralized fund	110,074,485,000	14,997,122,000	111,019,628,000	56,897,561,000	112,684,111,900	28,914,786,000
Anti-malarial drugs (DG of PMDD)	27,722,781,000	12,679,783,952	2,950,502,900	11,866,557,699	20,655,452,610	11,866,557,699
Capitation fund from the Social Security management agency	177,629,254,650	-	182,394,763,640	-	186,745,332,489	-
District and Province local fund (APBD I dan II)	85,109,495,319	33,956,973,010	92,659,261,937	19,924,529,083	100,795,858,039	8,358,042,564
Other donors	23,800,000,000	-	23,800,000,000	-	23,800,000,000	-
WHO	5,600,000,000	-	5,600,000,000	-	5,600,000,000	-
UNICEF	14,000,000,000	-	14,000,000,000	-	14,000,000,000	-
Others (DFAT, USAID, WB, M2030)	4,200,000,000	-	4,200,000,000	-	4,200,000,000	-
Another domestic fund	268,218,937,512	-	305,990,909,388	-	306,299,054,857	-
Another ministry	2,400,000,000	-	2,520,000,000	-	2,646,000,000	-
Private sector	3,469,437,512	-	3,642,909,388	-	3,825,054,857	-
Village fund	262,349,500,000	-	299,828,000,000	-	299,828,000,000	-
The Global Fund	246,493,183,860	287,471,573,166	-	207,646,806,660	-	414,132,761,043
Total	**939,048,137,340**	**349,105,452,128**	**738,815,065,865**	**296,335,454,442**	**750,979,809,896**	**463,272,147,306**

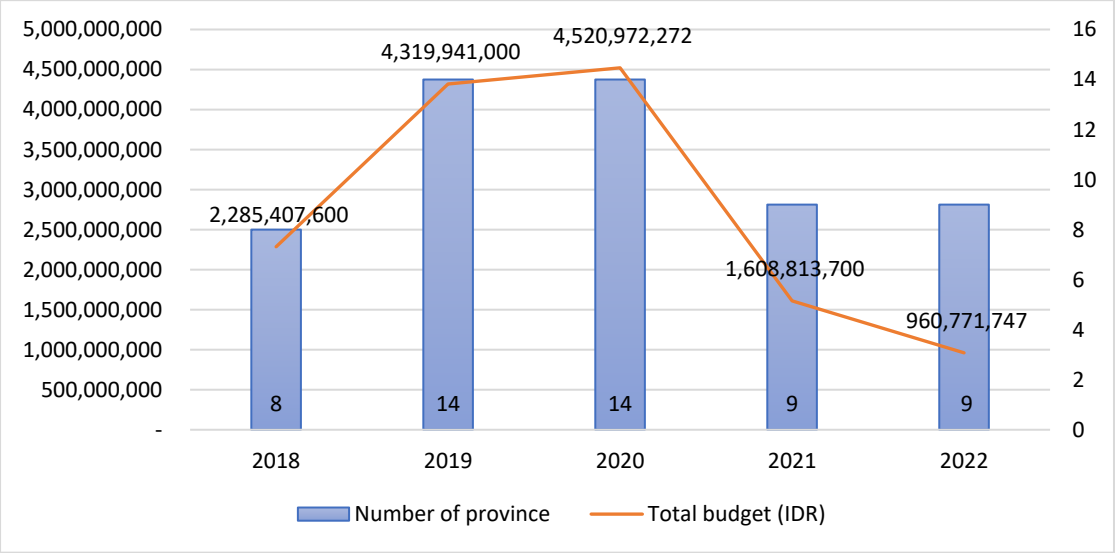

Figure 2.17. The budget trend for malaria activities from the local, provincial fund (APBD I) year 2018-2022. Data source: NMCP, 2022

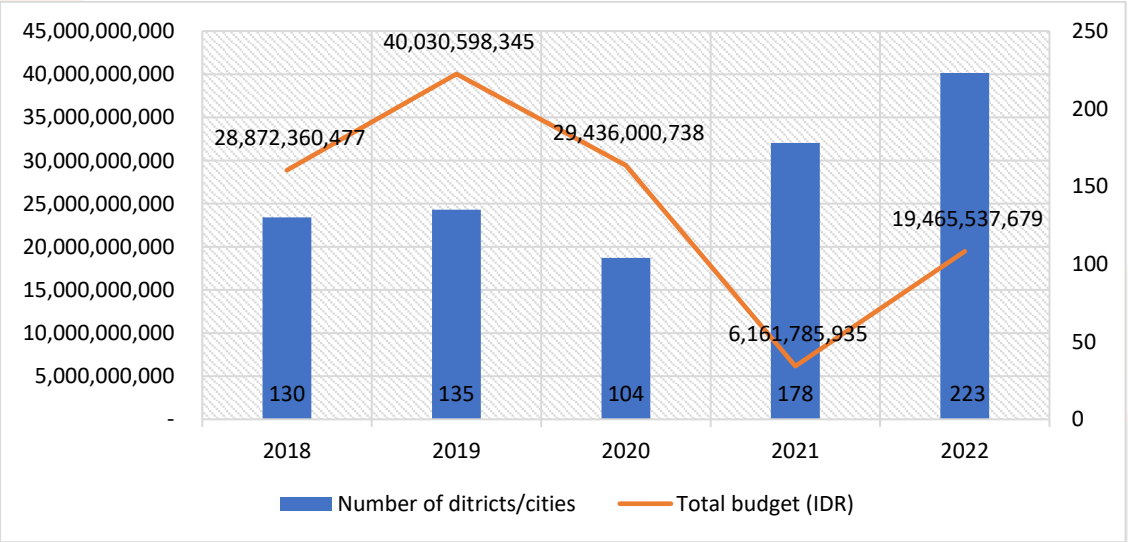

Figure 2.18. The budget trend for malaria activities from districts/municipalities local fund (APBD II) year 2018-2022. Data source: NMCP, 2022

2.4.2.6. Health Care Accessibility and Quality

The Agency for National Health Research and Development or recently recognized as Health Policy Development Agency (BKPK) conducted health facility research in 2019 . This national research was conducted to understand the up-to-date supply availability of health care, namely government/regional government general hospitals, community health centres and independent medical laboratories. The supplies included buildings, clean water, electricity, vehicles, equipment, medicines, human resources, guidelines, budgets etc.,

required for the administration of public and individual health efforts in said facilities. This research found that health care facilities and health workers have not been evenly distributed throughout the country. Provinces outside Java-Bali suffer from a severe lack of health workers. Three provinces with the highest percentage of doctor shortages are Maluku (64%), Papua (60%), and West Papua (56%). Residents in several areas in eastern Indonesia where malaria is the main problem have to travel more than 30 kilometres to reach health services (> 1 hour). Special populations such as isolated tribal communities, migrant populations, illegal loggers and miners also encounter hindrances in obtaining health care. Outreach to these communities also requires considerable time and money. The establishment of forest malaria posts in forest areas needs to be expanded, and outreach with CMW from these communities should also be encouraged to bring access to health services closer.

The results of the formative study by UNICEF and Empatika 2021, showed that communities living far from health centres have to pay for transportation to get to the health centres, some health centres do not have staff who can conduct microscopic tests, some health centres have restrictions on malaria tests and some health centres washes slides that have been used with negative test results.Health care quality is still a top issue in eastern Indonesia. Many health care providers have not been accredited, such as in Papua (83%), West Papua (69%) and Maluku (58%). Preparedness of malaria care at the community health centre level in high-endemic areas is lower than desired. A World Bank study (Magnani R et al., 2018) indicates that 30-40% of community health centre staff and private doctors in malaria-endemic districts had never received diagnosis and treatment training, even though the majority of malaria prevention and treatment programmes in the community is conducted in public health centres.

In addition to health infrastructure, public service facilities such as proper and large-capacity training centres are limited in Eastern Indonesia. It has led to the need for flexibility in implementation and financial systems to deliver capacity-building activities for health workers and communities for malaria control programmes.

2.4.2.7. Malaria Diagnosis

Indonesia utilises rapid diagnostic tests (RDTs) and microscopes. Malaria transmission is rising each year in high-endemic areas (Table 2.3). However, there are still districts with low examination coverage (< 2%). Malaria examination coverage is still lower than the examination target in moderate-endemic areas. The number of cases finding activities is decreasing in low-endemic areas. Vigilance is required regarding elimination due to the possible increase of local malaria cases due to this low rate of active case finding. Another challenge is that at the national-level, episodes of people contracting malaria once to twice yearly are at 83%. In addition, the positivity rate (PR) is still high, with 346 out of 374 (92.5%) targeted districts achieving PR < 5% by 2022.

Table 2. 2 ABER and PR average and range by endemicity in 2020-2022

Endemicity	Indicator	Average (range)		
		2020	2021	2022
High endemic	ABER	31,8% (1,03-89,3%)	37% (1-100%)	56% (3-100%)
	PR	32,8% (4,57 – 98,3%)	25,6% (4,3-94,9%)	19,4% (1,72-62,39%)
Moderate endemic	ABER	5,3% (0,35-3,4%)	5% (0-21%)	8% (0- 81%)
	PR	11,3% (0,74-100%)	13,8% (0,75-63%)	13,34% (0,12-66,6%)
Low endemic	ABER	1,6% (0-13,2%)	2% (0-31%)	2% (0-20%)
	PR	5,2% (0-100%)	4,5% (0-100%)	6,5% (0-100%)
Malaria free	ABER	0,29% (0-8,06%)	0,14% (0-14%)	1% (0 – 14%)
	PR	16,6% (0-100%)	17,54% (0-100%)	19,85% (0-100%)

Data source: Routine data (NMCP, 2023)

In addition, the quality of RDTs used must also be monitored. Quality-assured RDTs are obtained through the Global Fund, with appointed agencies regularly sent to Manila. Meanwhile, locally produced RDTs have not been assessed according to WHO standards. By 2022, national reference laboratories have been assessed by the WHO to carry out quality testing of RDTs independently, but some recommendations still must be made.

Regarding personnel, of the 4,018 health care facilities submitting a report, 3,603 (89%) facilities have 3,992 microscopists. Of the registered microscopists, only 50% have been trained, and only 27% meet the minimum competency requirements for microscopists in health facilities (level 3). Nationally for Indonesia, only 2% of the microscopists at the health facility level meet the level 3 minimum competency requirement. As for cross-checkers at the district level, only 36 people (7%) satisfy the level 2 competency requirement, whereas, at the province level, 24 (71%) fulfil the level 1 competency requirement that distributes in 20 provinces. Of participants in the training of trainers held in 2016-2018, only 48% met the required competency level. Regarding microscopists and cross-checkers participating in training held in 2016-2019, only 30% of the microscopists and 27% of the cross-checkers meet the required competency level. The distribution of diagnostic personnel can be found in Annex 3.

In the 2020-2022 period, there are additional ECAMM competency tests 2020 and 2022 for 34 provinces. Twelve districts and one province that has received malaria laboratory QA management training. The curriculum for malaria diagnosis training in e-learning has been developed. Still, the learning management system (LMS) development has not been completed and needs to be coordinated again with the Human Resource Management Centre (PPSDM). The blended learning method for malaria diagnosis has been implemented for several provinces, including Bangka Belitung, North Sumatra, Central Kalimantan, South Sulawesi and Southeast Sulawesi. This method was chosen because if implemented entirely online, participation was less than 60%. Therefore, the quality of such diagnostic training must be evaluated, including the material curriculum and methodology, also strengthening the quality management in the health laboratory network.

2.4.2.8 Malaria Treatment

The first line of malaria treatment is artemisinin-based combination therapy (ACT) co-administered with primaquine. Malaria treatment coverage in public health services rose from 93% in 2018 to 98% in 2021, and it declined again by 93% in 2022. In other words, most patients infected with *P.falciparum* have received Dihydroartemisinin + Piperaquine (DHP) treatment for three days. However, the data have not been available on the compliance of patients infected with *P.vivax* to take primaquine for 14 days. The current Malaria Information System (*Sistem Informasi Malaria*/SISMAL) captures <40% of patients completing full treatment. Improving adherence to medication continued, including the innovative malaria corner at the Mimika District health centre, which encouraged people to take the first day of DHP in front of the health worker. The effort has improved medication adherence in the community.

Another area of concern is the limited availability of quinine as the second line of malaria treatment. The company that used to manufacture quinine is no longer supplying it due to low demand. Thus, it is necessary to consider other alternative drugs as the second line of malaria management that are easier to access. In addition, it is essential to advocate globally for the continued availability of the essential programme drugs, which are very limited when procured locally.

The malaria programme performing its duties and functions is assisted by a group of experts in the Commission of Experts for Malaria Diagnosis and Treatment, strengthened by Minister of Health Decree Number 259/2017 on Malaria Diagnosis and Treatment Working Group. In addition to the national level, by the end of 2022, 16 provinces also have a Commission of Experts for Malaria Diagnosis and Treatment established by a decree of the local health service, such as North Maluku, Maluku, Papua and West Papua Provinces.

In 2020-2022, a national curriculum for medical education regarding malaria management was developed jointly by the Ministry of Health, WHO and P4I. Furthermore, there is still a need for implementation in the universities in 2023-2024.

Studies on the efficacy of ACT have been conducted since 2004. Routine surveillance monitoring of the efficacy of the DHP treatment involving regional laboratories such as Regional Technical Environmental Health Units (BTKL) started in 2018. The efficacy studies show that the ACT failure rate for *P. falciparum* infection is still safe. Results show that 2.3% of study patients involved in the 2016 research in Timika and 2.1% in Keerom in 2017 re-contracted the disease on day 42 (WHO unpublished data). The efficacy study on DHP ACT against *P.vivax* in Papua (Timika and Keerom), East Nusa Tenggara and Jambi did not find therapeutic failure (WHO unpublished data). This study has not been conducted since the pandemic period. For this reason, in the future, it needs to be re-organised on a bi-annual basis.

2.4.2.9. Malaria Surveillance

Completeness recording and reporting in the SISMAL must be enhanced as soon as possible and to the furthest extent possible. SISMAL is an instrument for routine data collection from government and private healthcare facilities, district health services and provincial health services, covering all malaria mitigation activities and programme

management (logistics, funding, and human resources). In 2021, 11,188 (90.5%) from total 12,368 health facilities reported cases through SISMAL V2. The available data shows that government health facilities reported 67.7% of malaria cases, followed by 30.4% from private services and 1.9% from military/police health services. In malaria-free areas, some health facilities do not report to SISMAL. The top five provinces where health services did not report to SISMAL V2 include DIY (37.8%), West Nusa Tenggara (35.3%), Central Sulawesi (24.1%), Papua (23.3%) and Banten (21.1%) (Figure 2.18). 128 of 551 total health facilities (23%) in Papua did not report cases to SISMAL V2, including 31% of private health facilities. More than 12,000 health facilities from the private sector, including hospitals, clinics, and private practices, serve communities across Indonesia, but only around 1,500 are registered in SISMAL V2 (12.5%). The low participation of private health facilities in the SISMAL V2 database may have influenced the high reporting rate of these facilities, requiring careful interpretation of the data.

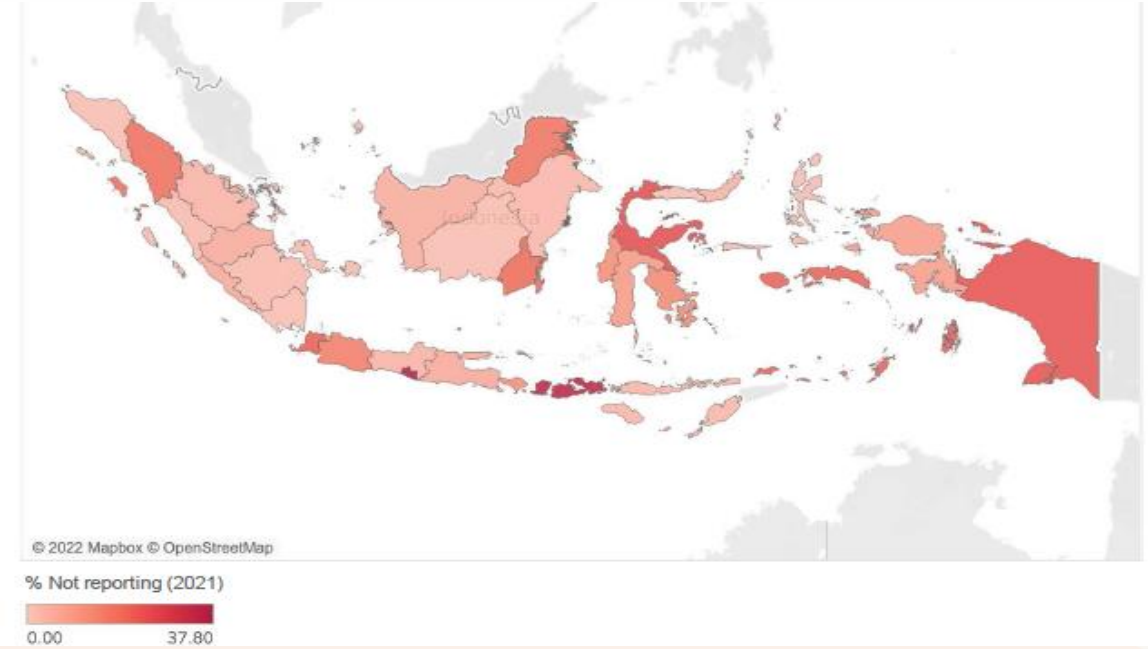

Figure 2.19. The proportion of health facilities that were not reported to SISMAL V2 by the province year 2021. Data source: NMCP, 2022.

Currently, the development of SISMAL V2 to V3 continues with several improvements, including:

a. Customising reporting forms to the needs of different endemicity levels - for example, in areas of Papua where malaria is still high, basic individual-level information on tests, test result, age, sex, and residence may be sufficient. However, in malaria elimination or free areas, case classification and detailed case-based information are required;
b. Diversity of data reporting platforms - adopting a mobile-based multi-OS system will improve reporting efficiency, offline capability and connectivity;
c. Enhancing the ease of use and reliability - the development process focuses on the user experience to improve efficiency and effectiveness (usable); ensuring reporting platforms

are easy to use (functional); clear instructions on how to record and access information (findable);

d. Updates to data sets, data standards, and metadata;
e. The addition of data validation features;
f. Interactive and informative data visualisation and analysis tailored to the needs of different levels of users; and
g. Data integration and governance - SISMAL V3 will seek to integrate Population Registration Number (NIK) data information to ensure more comprehensive individual-level case surveillance. The standardisation of metadata across various related platforms will also be implemented.

   By the end of 2022, SISMAL V3 will have been piloted and trained to provincial representatives. It is currently in the transition process, where all regions will run SISMAL V3 in stages.

In Indonesia, imported malaria cases occur yearly in low-endemic areas or areas that have achieved elimination status. Many factors contribute to these imported malaria cases, such as migration from high-endemic regions to low-endemic areas, failure to conduct migration surveillance by local health workers and late notification of cases between areas. In addition, the occurrences of several natural disasters are also contributing factors. In disasters, many residents remain out of their houses and stay in new mosquito breeding sites, such as in West Nusa Tenggara after an earthquake in 2018. Imported malaria cases indeed pose an elimination challenge. Surveillance related to imported malaria should be strengthened. Each positive case in low-endemic and malaria-free areas should be followed up with a malaria case and focus epidemiological investigation with the 1-2-5 method. The coverage of the number of confirmed cases investigated and classified is 80% (2020) and increase into 88% (2021). The results of the epidemiological investigation of cases and focus using the 1-2-5 method (PE 1-2-5) found that most cases found in low-endemic areas and elimination areas were imported malaria cases. However, there is still a need to improve cross-notification, especially between districts. Integration and coordination with the early warning system (EWARS) and coordination between malaria and surveillance staff should be enhanced due to the increasing number of malaria-free areas.

2.4.2.10. Vector Mosquito Control

Indonesia's primary vector control interventions are the distribution of LLINs and indoor residual spraying (IRS) in selected areas. LLINs are distributed in high-endemic areas through the mass campaign and routine distribution for pregnant women and children in antenatal care and immunisation. Mass and focused mosquito net coverage in 2020 showed 9 out of 16 target provinces had high coverage (>95%), four had sub-optimal coverage (80-95%), and two had low coverage (<80%). Mass mosquito net distribution is followed by monitoring using the 1-1-3 method, which is one week, one month and three months to improve community compliance in mosquito nets. The results of monitoring the distribution of mosquito nets in 2020 in the first

week of coverage reached 77%, the first month of coverage increased to 86% and the third month reached 88%.

IRS is carried out in high-endemic villages (API > 20 per 1,000 residents) or in response to the outbreak. On the other hand, interventions for environmental management are intended to modify mosquito habitats to be unsuitable for malaria mosquito breeding. Environmental management involving the community has been conducted in South Halmahera and Pangandaran District by transforming mosquito habitats to benefit the public, such as sports fields and residential areas.

The two mentioned previously are primary insecticide-based interventions. Therefore, the effectiveness of insecticides needs to be monitored and maintained. Systematic analyses of the results of insecticide resistance tests in the past 20 years find that pyrethroid-class insecticides, namely deltamethrin and lambda-cyhalothrin, have been most frequently tested for resistance. Most resistance testing used phenotypic tests, and very few used genotypic tests. All provinces have conducted insecticide vulnerability tests, covering 181 districts, most of which are locations in Java, Bali and Sumatra. Very few tests have been undertaken against malaria vector mosquitoes from Papua and Nusa Tenggara. Of the approximately 30 *Anopheles* species tested, 12 showed some insecticide resistance: *An. aconitus*, *An. barbirostris*, *An. farauti*, *An. kochi*, *An. maculatus*, *An. nigerrimus*, *An. parangensis*, *An. peditaeniatus*, *An. subpictus*, *An. sundaicus*, *An. tesselatus*, and *An. vagus*, but the most recent results from Papua Province showed very little resistance. Pyrethroid resistance has been detected in several provinces across Indonesia, including Papua, which relies on routine mass LLIN campaigns (Figure 2.20.). IRS is conducted with carbamate or organophosphate insecticides, but coverage is too low to substantially reduce pyrethroid resistance. Furthermore, the residual effects of the carbamate bendiocarb are short-lived.

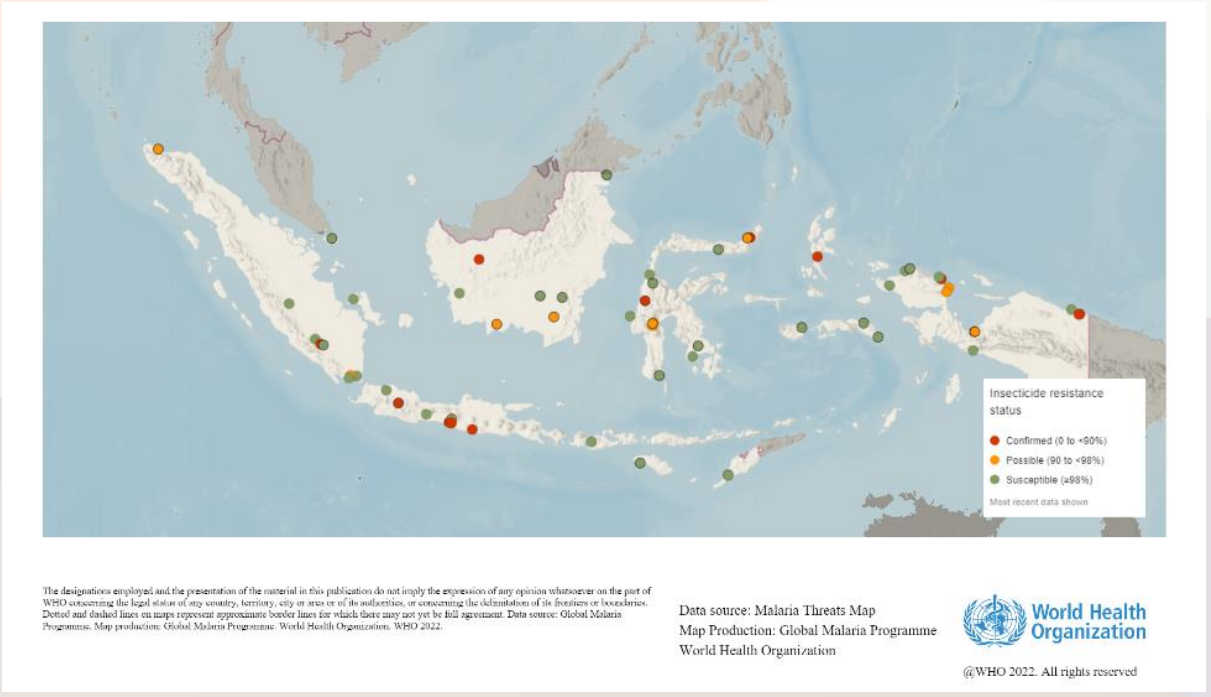

Figure 2.20. Pyrethroid resistance map for Anopheles spp in Indonesia 2016-2020.
Data source: WHO threat map, extracted on 13 September 2022

In anticipation of variation in testing methods, the Vector Control working group issued a guideline for insecticide resistance monitoring in 2018[17]. This guideline provides advice on location, time, equipment, performance, analysis and reporting of results. This guideline has been introduced to malaria programme managers, vector managers and Port Health Authorities at the provincial and district levels. The Vector Control working group renewed the insecticide resistance status data by engaging 10 BTKLs to spearhead regional insecticide resistance monitoring.

Field visits during the 2022 MTR showed that larval source management had not been implemented. Recent studies suggest that environmental management can be implemented with the involvement of communities in a particular situation, and environmental management is recorded in at least two sites. In particular, larval source management (including larvicides if necessary) should be implemented in high-endemic villages in Papua as an additional intervention based on village-level API surveillance mapping in lowland Papua. The use of logistics - particularly Methoprene and easy-to-apply, long-lasting insect growth regulators - will initially be difficult, but more accurate quantification will be required as the programme progresses. Central-level funding through GFATM should be used to support these activities, including developing operational guidelines for larval source management in Papua. Nationally, the vector surveillance system (SILANTOR) is still not optimally used, and up-to-date mapping is not available through databases maintained in Indonesia.

The availability and distribution of entomologists are challenging for effective and on-target vector control. Minister of Health Regulation Number 50/2017 on standards for environmental health and health requirement on vector and disease-carrying animals and the control thereof stipulates that control of vectors and diseases spread through animals is to be carried out by health entomology workers. Entomologists' role is strengthened by Minister of Health Regulation Number 49 of 2016 on Technical Guideline for Organising Provincial and District Health Services. By those regulations, each public health centre is to have one skilled health entomologist and one expert health entomologist. At the provincial health service level, 50 trained entomologists are spread over 30 provinces, with only one expert entomologist. At the district health service level, 349 trained health entomologists are in 144 districts. Among them, 37 are skilled health entomologists, and 19 are expert health entomologists. In several provinces, in addition to the health services, central technical implementation units (UPTs) such as the Port Health Authority and the Central Technical Environmental Health Unit (B/BTKL) have 81 trained entomologists, 19 of whom are skilled health entomologists and 25 expert health entomologists. Both central UPTs' roles in vector control in their areas are assisting in implementing vector control activities at the provincial and district levels, especially priority activities such as mapping the malaria-receptive regions and mitigating the outbreak. The shortage of functional expert health entomologists may hinder the effectiveness of vector control. The entomologist's distributions can be found in Annex 4.

[17] Vector-borne and Zoonotic Disease Prevention and Control Directorate. 2018. Vector-borne and Zoonotic Disease Prevention and Control Directorate: Guideline for monitoring vector resistance against insecticide.

In 2021, training of trainers (TOT) for entomologists was conducted in Makassar, and training was also implemented in Papua and Sumba. As for entomologist workers at the primary health care level, 412 districts/municipalities have been budgeted through BOK funds from non-physical central funding.

2.4.2.11. Behaviour Change Communication

Malaria transmission risk can be triggered by behaviours and practices in the community, such as keeping livestock at home, the habit of outdoor gatherings with neighbours at night, farmers sleeping in forest fringes, open defecation at night or in the morning, reluctance to use mosquito nets, improper mosquito net maintenance, self-medication of malaria (without consultation with medical personnel) and non-compliance with taking anti-malarial drugs. The KAP survey showed that bed-net use on the night of the previous survey increased from 60.5% (in 2019) to 89.6% (in 2022). The results of the formative study in 2021 showed that women and children (including toddlers) used mosquito nets more often when sleeping. Meanwhile, adolescent boys and adult men rarely or even do not use mosquito nets when sleeping.

Anti-malarial drug-taking must be monitored for patients with P.vivax to ensure compliance, as P.vivax can cause relapses due to dormant parasites in liver cells (hypnozoite) not being thoroughly rid of. Currently, anti-relapse treatments rely on primaquine with a 15 mg/day dose for 14 days. The duration of this malaria treatment negatively impacts treatment completion.

2.4.2.12. Special Population Groups – Mobile Migrant Population (MMP)

Special population refers to a population group with higher risks of malaria infection than other population groups and requires a custom prevention and control strategy. Several occupations, such as loggers, plantation workers, illegal miners, fishers, and military/police members, have higher risks of malaria than others due to their work. The Ministry of Forestry estimates that 3.9 million people work in the forestry sector[18]. Other special population groups include isolated tribal communities and tourists. The Ministry of Social Affairs estimates that 500,000 people belong to isolated tribal communities in 205 districts[19].

These special populations have been identified as a challenge in achieving malaria elimination. Existing public health services often do not adequately serve these populations, which may directly impact public health. The malaria working team with Oxford University Clinical Research Unit Indonesia (OUCRU-ID) and WHO studied the characteristics of mobile and migrant populations in Indonesia. The team also developed a framework for the most effective interventions to eliminate malaria. Based on online survey of malaria managers in all provinces and districts/municipalities (71% response rate) identified distribution of five group of special populations groups consisted of miners (144 districts/municipalities), forest

[18] https://investor.id/agribusiness/sektor-kehutanan-serap-39-juta-tenaga-kerja
[19] Ministry of Social Affairs. 2017. Distribution of isolated tribal community empowerment locations. Results of 2017 database review.

workers (154 districts/municipalities), plantation workers (177 districts/municipalities), remote indigenous communities (41 districts/municipalities) and temporary migrants (186 districts/municipalities) (Figure 2.21).

In these groups, malaria cases were reported in various levels of endemicity, including 26 high endemic districts, 17 moderate endemic districts, 115 low endemic districts and 220 malaria-free districts. In addition, malaria cases were reported based on type of special populations groups, including mining sites (29 districts/municipalities), forest workers (33 districts/municipalities), plantation workers (27 districts/municipalities), among remote indigenous communities (12 districts/municipalities), and temporary migrants (51 districts/municipalities).

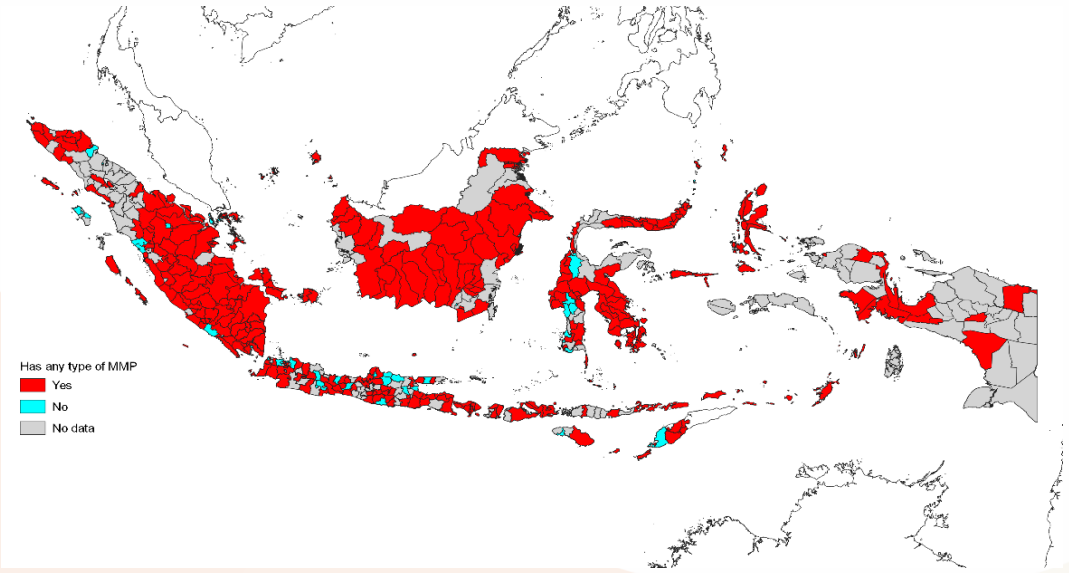

Figure 2.21. Spatial distribution of special population group activities based on online survey of malaria managers. Data source: OUCRU-ID and WHO, 2023

Mining sites are relatively far from health facilities, with distances varying with a maximum of 180 km from the nearest health centres. Most mining areas are travelled in 1-3 hours by car and motorbike with rocky, muddy and damaged road conditions. As for forest locations, the maximum distance is 500 km from the nearest health centres. Some can only be reached by foot due to the difficulty of accessing the site. Health workers in reaching these locations usually use motorbikes or cars with funding support from the public health centre fund (BOK), the local provincial fund (APBD I), the central fund (APBN), and GF. The majority of respondents said that CMWs do not receive transport support. Very few respondents mentioned transport support (<Rp 250,000) from the village or district budget. The 2021 formative study showed that men do not use mosquito nets when they overnight in the forest to harvest sago, collect forest products or hunt.

Online surveys and data analysis from SISMAL show *P.vivax* infection is a significant problem in malaria-free and low-endemic districts. Malaria managers reported that common

malaria interventions include insecticide-treated bed nets, larvicides, IRS, health promotion and outreach through CMWs. Meanwhile, malaria programme managers rated insecticide-treated bed nets and health promotion as the most effective in controlling malaria in special populations. Not all districts in malaria-free or low-endemicity areas conduct migration surveillance. About 60% of districts that reported the presence of short-term migrants had implemented migration surveillance. In addition, more than half of districts reporting other types of special populations, such as miners, forest workers, plantation workers, and remote indigenous communities, reported that they already conducting migration surveillance.

Access difficulties, lack of budget, lack of coordination, absence of CMWs, migratory populations, difficulty in follow-up, non-reporting of migrants, and difficulty in recording migrants are common barriers to malaria control in special populations. To overcome these problems, most respondent intend to implement and maintain migration surveillance, improve cross-sectoral coordination and cooperation, and conduct malaria screening.

Indonesian military and police personnel face challenges in their placement in malaria-endemic areas. For example, the placement of soldiers from non-endemic areas in Java to border areas in Papua carries risks of malaria infection. *P. falciparum* infection can cause severe malaria disease or death if care fails to be administered promptly to the patient. *P.vivax* infection, without completed treatment, can result in relapses months after return to the area of origin. To overcome these problems, the Ministry of Health has established a cooperation agreement with the Indonesian National Armed Forces and the Indonesian National Police, including prevention efforts using LLINs, improvement of examination quality and treatment coverage.

Based on the study findings, the proposed intervention recommendations based on endemicity stratification and special population types are shown in Table 2.4.

Table 2.4. Proposed interventions based on the malaria elimination phase, key interventions and special population types.

Type of MMP	Activities	Phases of malaria elimination			
		Acceleration	Intensification	Elimination	Maintenance
Miners	*Chemoprevention*			*Reactive drug administration*	
	Vector control	• Larval habitat modification • Optimal compliance of LLIN use • IRS for working camp • Camp screening			
	Case management	Targeted testing and treatment		• Targeted drug administration • Routine testing and treatment at points of entry • Testing and treatment of identifiable group of arriving/returning from endemic area	

	Surveillance	CMW of miners' worker	• Reactive case detection and treatment • CMW of miners' worker
Plantation workers	*Chemoprevention*	- -	- -
	Vector control	• Larval habitat modification • Optimal compliance of LLIN use • IRS for working camp	
	Case management	Targeted testing and treatment	• Targeted drug administration • Routine testing and treatment at points of entry • Testing and treatment of identifiable group of arriving/returning from endemic area
	Surveillance	CMW of plantation worker	• Reactive case detection and treatment • CMW of plantation worker
Indigenous communities	*Chemoprevention*		
	Vector control	Optimal compliance of LLIN use (personal or family full-size)	
	Case management	Targeted testing and treatment	Targeted drug administration
	Surveillance	CMW of indigenous	• Reactive case detection and treatment • CMW of indigenous

Source: MMP study report by OUCRU-ID and WHO, 2023

2.4.2.13. Community Empowerment

In the health sector, the *Gerakan Pemberdayaan dan Kesejahteraan Keluarga* (Family Empowerment and Well-being Movement) can be utilised to encourage the participation of members of the public[20]. Community empowerment in health includes improving individual, family and community knowledge, awareness and ability to participate in health efforts actively[21]. As a national population with a communal spirit, the Indonesian people have a strong sense of care and response in community involvement in mitigating malaria. For example, cadres visit homes to conduct blood examinations and monitor malaria drug taking. These home cadres are an implementation of Minister of Health Regulation Number 41 of 2018 on early detection and anti-malaria drugs by malaria cadres in special situations.

Findings from formative research conducted by Empatika in 2021 (with UNICEF support) in four high endemic districts (Southwest Sumba, Mimika, Manokwari and Jayapura) are (a) **People's motivation to act**. People no longer consider malaria to be a serious or fatal

[20] Presidential Regulation Number 99 of 2017 on Family Empowerment and Well-being Movement.
[21] Ministry of Health Regulation Number 8 of 2019 on community empowerment in health.

disease. Acquired immunity, especially among men who have been infected multiple times, has led people to downplay its seriousness. Overall, people indicate that malaria is endemic and they have learned to live with it and have no expectation that it can or will be eliminated; (b) **People's capability to act**. Few communication programmes are designed to raise awareness of malaria prevention and treatment that are currently active. Children mainly had not been taught about malaria at school. Knowledge was mostly acquired through direct experience with the disease when relatives and those residing in the area for a long time were the first sources of information and advice. At points of service for testing and treatment, people are given instructions and have acquired knowledge of different types of malaria and treatment regimens. However, the appeals for early testing and medication completion have not been internalized. These behaviour changes require people to understand why these measures are important for their health and to break the transmission cycle; (c) **People's opportunity to act**. People do have relatively good access to testing and treatment facilities. In urban areas, there is a wide choice of services and convenient opening hours. In some rural areas, people depend on cadres (as community health centres may be distant), and the study indicates they offer personal and effective testing and treatment. Supply-side inefficiencies, weak planning and coordination exist to respond to seasonal malaria peaks. Still, more problematic is that people delay seeking tests and may not adhere to treatment regimens. The study also mentioned that people do not frequently take preventive measures, only use mosquito nets when mosquitoes are numerous, and there is no IRS a few months before.

Women are important in empowering the community and social mobility in malaria prevention and control. Women make up a majority (57%) of malaria cadres in high-endemic areas such as Lembata district, East Nusa Tenggara and 93% in Keerom district, Papua. The involvement of women in preventing and mitigating malaria in the community is a good practice. Women play an important role in building collective awareness that malaria interventions are more effectively received if combined with science- and local knowledge-based interventions.

2.4.2.14. Partnership with The Private Sector

Generally, healthcare facilities such as government hospitals, private hospitals and private healthcare units (UPKS) such as private medical practitioners and clinics have significant potential to detect patients with malaria. However, compared to public health centres, they are limited in providing patient care and monitoring treatment until completion. Therefore, collaboration and networking among healthcare facilities and health services are necessary.

In some districts in eastern Indonesia, private health facilities are one of the preferred treatment places for individuals with malaria. A national behavioural survey conducted in 2017 showed that 38% of malaria cases nationally were treated at private health facilities. Up to 20% of individuals in Papua, West Papua, and East Nusa Tenggara (NTT) provinces were treated at private health facilities. These healthcare facilities are more accessible to the community, including private pharmacies, medical centres, company clinics, and private

hospitals or clinics. On the other hand, the proportion of malaria case finding from the private sector reached 25% of the total number of case finding in Indonesia in 2021. Those show the large role of the private sector in malaria case finding and management. However, based on annual reporting in SISMAL, there is still underreporting of malaria cases and unstandardised malaria treatment reported by some private healthcare facilities. In addition, purchasing antimalarial drugs without confirmation of diagnosis (presumptive treatment) can also affect the quality of the standardised malaria treatment received by patients.

The malaria programme has conducted meetings to introduce a public-private mix (PPM) for malaria control in Java, Bali and West Nusa Tenggara. The resulting agreement is that private health care follows the malaria case procedure according to the national guidelines on malaria treatment as annexed to Minister of Health Regulation Number 5 of 2013 and is to monitor/evaluate treatment. The provincial and district health services are requested to disseminate information and share experience on malaria management at community health centres, hospitals, workplaces, communities, professional societies, and other sectors. The health services are also requested to build a health care network related to malaria diagnosis and treatment (especially regarding logistical needs) with hospitals, community health centres, laboratories, pharmacies or health care providers such as independently-practising doctors in the area health services. This network will be built under the guideline of a public-private mix network in malaria control. Private healthcare facilities must examine blood smears using a microscope and or RDTs if a malaria suspect is detected. Without these instruments, the patient is to be referred immediately. Provincial/district health services are requested to be coordinated by forming such a malaria care network with other related programmes and sectors and the private sector in the form of an MoU.

Based on the draft PPM technical guidelines for 2022, the functions of the PPM network include (1) malaria case management: diagnosis, treatment and monitoring services between health facilities, including recording and reporting (2) prevention of malaria transmission and vector control: including vector control services (environmental modification and manipulation, IRS, LLIN, use of personal protective equipment from mosquitoes, e.g., repellents) and malaria prevention health education. Socialisation and networking of PP continue to be carried out by the Ministry of Health, including activities in 4 districts/municipalities in Papua (Mimika District, Kota Jayapura City, Jayapura District and Keerom District), North Sumatra, South Sumatra, Jambi, Riau, Bengkulu and North Maluku.

2.4.2.15. Cross-border Cooperation

Cross-border cooperation between Indonesia and neighbouring countries such as Timor Leste, Papua New Guinea and Malaysia is an important component of preventing the entry and exit of patients with malaria. The Indonesian and Timor Leste ministries of health have signed an MoU for the 2022 – 20226 period and a cross-border action plan (February 2019). The scope of this cooperation includes malaria examination and treatment, health training and maternal and child health service, immunisation and nutrition. One of the goals of the cross-border action plan with Timor Leste is to eliminate malaria in border areas,

especially in all six regencies on the island of Timor. Each state is requested to submit basic data and exchange data related to epidemiology, entomology, surveillance, outbreak, insecticide, drug resistance and behaviour change strategies. Cooperation and MoU discussions have not yet been held with Malaysia and Papua New Guinea.

In addition to cross-national border cooperation, cross-provincial or cross-district border cooperation also merit attention. Several cross-area border area regulations or meetings have been in place. For example, Minister of Health Decree Number 498 of 2017 instructs the formation of a malaria control team in Menoreh Hill, which covers Purworejo and Magelang Regencies (Central Java Province) and Kulon Progo district (Special Region of Yogyakarta Province). In addition, cross-border meetings among three provinces – Jambi, Bengkulu and South Sumatra – have been conducted to discuss malaria elimination among the Anak Dalam tribe, who live along the Bukit Barisan ridge. A meeting has also been held between Cilacap district (Central Java Province) and Pangandaran (West Java Province) to agree on case notification and exchange of information from interventions that have been carried out. Routine monitoring and evaluation of the impacts of cross-border cooperation need to be performed together with national and local stakeholders.

2.4.2.16 Gender Equality, Equity and Human Rights

A rights-based approach refers to malaria policies and programmes that prioritize the needs of communities, especially those furthest behind (leave no one behind). Gender mainstreaming and equality need to ensure a health system that promotes availability, accessibility, acceptability and quality (AAAQ), in line with the SDGs[22] and UHC principles[23]. In January 2023, WHO, the Indonesian Ministry of Health, and RBM conducted a community, human rights, and gender assessment (CRG) in Timika and Paser regions. This is one of the initial studies used to investigate specific barriers to malaria elimination using a CRG lens. Malaria interventions need to be gender responsive, people centered, integrated with human rights, and aligned between national and sub-national responses. Several principles of the Global Fund strategy will be applied, including[24]:

a. Ensure the optimization of malaria vector control and malaria interventions that are people-centred, inclusive, and integrated at both the national and sub-national levels, from planning, budgeting, implementation, to monitoring and evaluation.
b. Develop equitable malaria health services from the public, private, and community sectors, tailored to the needs of local communities, without forgetting factors such as availability, accessibility, acceptability, and quality of services.

[22] World Health Organization. 2019. *Universal Health Coverage*, online accessed on 22 Februari 2023 with link: https://apps.who.int/gb/ebwha/pdf_files/WHA72/A72_12-en.pdf.
[23] Department of Economic and Social Affairs Sustainable Development, United Nations. Sustainable Development Goals (SDGs), online accessed on 22 Februari 2023 with link: https://sdgs.un.org/goals.
[24] Global Fund. 2002. Technical Brief Equity, Human Rights, Gender Equality and Malaria Allocation Period 2023. online accessed on 22 Februari 2023 with link: https://www.theglobalfund.org/media/5536/core_malariagenderhumanrights_technicalbrief_en.pdf.

c. Support the identification of barriers to the implementation of malaria elimination programmes, on a regular basis and integrated with existing monitoring and evaluation systems in each region.
d. Ensure cross-sectoral collaboration, central/local, government/non-government, public/private, and other sectors.

It is likely that not all contexts of discrimination and injustice have been captured in one assessment process, but existing assessments can certainly be useful in programme development and further assessment. Some additional issues that need to be documented are the impact of the environment and conflict on malaria management and the health sector as a whole, including individuals far from health facilities, such as indigenous people, undocumented/unregistered workers, and others. In the future, equity assessment tools such as malaria matchbox can be used to identify groups or individuals who are more vulnerable to inequities in malaria programmes, and explore recommendations for appropriate interventions. Some of the things that can be developed are contained in the recommendations of the Malaria CRG Assessment can be seen in appendix 5.

Gender mainstreaming in accordance with Presidential Instruction No. 9/2000, is a strategy to integrate a gender perspective into development by all government ministries and institutions, including the health sector, starting from policy formulation, planning, budgeting, implementation, and monitoring and evaluation. Gender mainstreaming in the health sector aims to realize gender equality thus to create health development that is more just and equitable for the entire Indonesian population. Gender equality can be achieved by reducing disparities in access to and control of health resources, increasing participation in all health development processes including involvement in decision-making, and all can benefit from health development outcomes.

The Central Bureau of Statistics (BPS) and the Ministry of Women's Empowerment and Child Protection have released the results of the 2021 National Women's Life Experience Survey (NWLES). NWLES adopts the World Health Organization (WHO) 'Women's health and life experiences' questionnaire, which shows that 26.1 per cent or 1 in 4 women aged 15-64 years have experienced physical and/or sexual violence during their lifetime. The issue of violence against women, children and other vulnerable groups is a multi-stakeholder responsibility, because their safety and security determine the welfare and strength of the nation. The prevalence of violence against women and children is one of the indicators of the 2020-2024 National Medium-Term Development Plan (RPJMN).

The malaria eliminations depend on the successful delivery of health services to the most vulnerable populations and the most vulnerable groups including from exploitation, violence, and sexual abuse. Malaria programmes can contribute to the achievement of the 2020-2024 National Medium-Term Development Plan indicators by ensuring safe spaces free from exploitation, violence, and sexual and other abuse for the areas they serve. According to WHO, some of the sociocultural factors that prevent vulnerable groups, especially women, from accessing the benefits of quality health services and achieving the best level of health

include unequal power relations; social norms that reduce opportunities for education and paid work; an exclusive focus on women's reproductive roles; and the potential for or experience of physical, sexual and emotional violence against vulnerable groups.

2.4.2.17. Integration with Maternal and Children Health

Special care is provided for vulnerable groups, such as pregnant women and children under 5. Malaria severely impacts the health of pregnant women and babies, triggering severe malaria disease in pregnant women, premature birth, anaemia or death in the infant. In Papua, 34% of anaemia cases in an infant are caused by malaria. This prevalence is higher than anaemia in the general population (16%). Among the 350,000 pregnant women screened, around 1,800 were identified as malaria-positive (PR 0.4%). A majority came from Papua Province (72%). Most infections (58%) were caused by *P. falciparum*, 34% by *P.vivax* and 8% by coinfection with the two species. A study conducted in Mimika District showed that malaria in pregnancy was 16.8%, with asymptomatic falciparum at 77.7% and *P.vivax* malaria at 93.7%. Those have adverse effects, including severe anaemia, congenital malaria, LBW, premature birth and perinatal death. The results of the formative study stated that pregnant women still died due to delays in treatment in the Jayapura area. While in the Sumba region, suspected malaria deaths occurred in children under five years old also due to delays in carrying them to the hospital. There is still a belief among Papuans who live in forest areas that malaria is inherited from mother to child through pregnancy and breast milk.

Care for pregnant women in high-endemic areas is provided through the integration of the maternal and child health programme in the first visit (K1) with malaria screening and treatment for those detected positive and distribution of mosquito nets. Malaria screening for pregnant women was carried out in all provinces but has been redirected towards high-endemic districts in the past few years. The achievement of malaria screening in pregnant women shows suboptimal coverage, which is 38% in 2021 and increases to 42% in 2022. Meanwhile, malaria screening for sick children under five only reached 43% in 2021 and 39% in 2022. Those encourage the need for routine joint evaluation of MCH and malaria services to improve coverage.

In addition to these interventions, a study on intermittent preventive treatment for pregnant women (IPTp) was conducted in Mimika district. This study provides DHP, three tablets, to pregnant women for three days, every four weeks, during ANC starting at week 13 (second and third trimester). The results showed that IPTp reduced malaria incidence in pregnancy by 77% compared to screening pregnant women at the first visit and administering treatment only. Adherence to the three-day DHP was 87%. IPT administration does not increase the risk of having LBW babies and cardiac toxicity. The effect of long-term IPT administration on infants can reduce the risk of anaemia in infants until 12 months of age by 36%. The side effect of vomiting was within normal limits.

The study was implemented in 10 public health centres under the leadership of the Mimika District Health Office from February 2022 - November 2023. This strategy was adapted to be called the Strategy for the Prevention of Malaria in Pregnant Women Periodically with malaria drug (PEMILA OAM) to be more easily conveyed to the community.

Strategies implemented include: campaigning for mosquito nets among pregnant women, conducting malaria screening and treatment immediately, and conducting periodic prevention with DHP. Since this strategy is a new concept, its implementation requires a gradual and systematic approach to be accepted by providers and pregnant women. In its implementation, several provisions must be considered. It consists of pregnant women >= 13 weeks with contraindications are not provided with preventive DHP; involvement of cadres for promotion and referral of IPTp-DHP services; midwives can provide preventive DHP under the supervision of a physician; assignment of a person in charge of IPTp-DHP for education, supervision of the first dose of drugs and reporting; provision of preventive DHP in the MCH clinic room; the use of stickers as a sign that the mother is participating in the IPTp-DHP programme; and recording and reporting in the MCH book, mother's card and SISMAL[25].

The implementation study also included several evaluations, including effectiveness and compliance; scalability; quality improvement with meetings every three months; process evaluation, pharmacovigilance, cost-effectiveness, surveillance of pregnancy outcomes and monitoring the efficacy of DHP therapy. The implementation study was hampered by a drug stockout that occurred in mid-2022 but was able to proceed in October 2022.

Stunting is a major problem which is currently a central focus in Indonesia[26]. In addition to chronic malnutrition, recurrent infection such as malaria is a substantial cause of stunting, especially for children under two years living in malaria-endemic areas. Anaemia due to malaria infection hinders development in infants and children. A study on children aged 3-24 months in Ghana concluded that 1-episode malaria raises stunting the risk of stunting by 32%. For that reason, all children under 5 in high-endemic areas are screened for malaria through the integrated child disease management of illness children under five programme (ICCM). In 2018, almost all provinces reported having carried out such MTBS activities.

2.4.2.18. Monitoring and evaluation

Malaria programme monitoring and evaluation (M&E) are important to measure and assess programme impacts. Monitoring and evaluation are performed in tiers, from the district to the province and then to the national levels. Unfortunately, documentation and follow-up on the supervision results have not been performed well. At the national level, M&E meetings are held at least once annually. The topics discussed include policies for control, evaluation of the achievement of priority programme indicators, budget utilisation evaluation, and planning and funding for programmes and activities in the following year. M&E meetings to accelerate elimination have also been conducted, involving provinces and districts in Java where indigenous malaria transmission still occurs. The malaria programme performs e-SISMAL data validation each year to ensure data completeness and quality.

[25] Jeanne Rini Poespoprodjo, 2023, Strategy of Malaria Prevention in Pregnant Women Periodically with Anti Malaria Drugs (PEMILA OAM) Mimika District.

[26] Republic of Indonesia Vice Presidential Secretariat. 2019. National Committee on Poverty Reduction: National strategic on acceleration stunting prevention 2018-2024

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During the pandemic, monitoring and evaluation activities were mostly carried out online and organised based on 3 regional areas: western, central and eastern. Western region: Java-Bali, NTB; central region: Sumatra, Kalimantan, Sulawesi and eastern region: Maluku, North Maluku, NTT, Papua-West Papua.

The formative study results stated that disaggregated data based on age, sex and gender roles are not yet fully available. This disaggregated data is used as eye-opener data, as mandated by the Presidential Instruction related to gender mainstreaming through the Gender Analysis Pathway (GAP), where gender analysis is needed to conduct targeted and effective interventions, including gender role transformation.

Programme monitoring and evaluation also involve external review and analysis. National programme review engaged international and national reviewers in September 2019 and 2022 to review programme achievements and provide input for the planning of subsequent programmes. Other activities were surveys and research to measure programme impacts, such as through the Basic Health Research in 2018 and 2020, also research supported by research institutions and universities. Thus far, only the results of the routinely-held study with certain themes have been disseminated, such as diagnosis and case procedure. Such dissemination is made in meetings of the commission of experts, and several policies have been adopted based on the research results. Dissemination of research results with other themes, such as research operations, has rarely been conducted.

2.4.2.19. The special situation for Papua and National Capital Region (IKN)

a. Papua

The lowland areas of Papua province have the highest incidence of malaria in Indonesia. Despite having only 2% of Indonesia's population, Papua and West Papua provinces account for more than 90% of malaria cases nationally. Twelve districts - Mimika, Keerom, Jayapura, Sarmi, Waropen, Yapen, Memberamo Raya, Boven Digoel, Mappi, Asmat, Yahukimo, and Jayapura City - have an API >100 per mil each year. This situation is partially due to biology and climate. The main mosquito vectors are the *An.farauti* complex and the *An.punctulatus* group, which includes several highly anthropophilic species. These species are characteristic of Papua, Papua New Guinea and the islands further east. Furthermore, rainfall occurs throughout the year, increasing malaria transmission continuously. Papua's limited health infrastructure exacerbates this natural situation compared to the rest of Indonesia and a shortage of staff serving a widely dispersed population. Security issues also make service delivery problematic, although these challenges are more common in Papua's low-endemic highlands.

The Ministry of Health has provided several strategies for universal malaria prevention and case management coverage, including integrated malaria and antenatal care for pregnant women and childhood disease management (IMCI) in 22 districts. Active case finding in communities and additional vector control activities - particularly larval source management and larvicides - is recommended to accelerate the reduction of malaria incidence in Papua. District-level technical assistance from UNICEF was provided to improve programme management. Despite this special attention, malaria remains high and even increasing in

Papua Province. Therefore, more aggressive and targeted interventions are needed to reduce malaria incidence in Papua.

b. National Capital Region (IKN)

The relocation of the national capital from DKI Jakarta Province to East Kalimantan Province has become a state agenda that will be carried out in several phases. In the development and the relocation process, it is necessary to pay attention to health issues, including malaria, considering that the location of the national capital is on the border of three districts, including Penajam Paser Utara (PPU), Kutai Kertanegara and Balikpapan City (Figure 2.21). PPU district is a high-endemic area outside Eastern Indonesia with an API of 8.8 per 1000 population and 2-3 deaths yearly. Transmission is suspected to occur in the forest in the population of legal and illegal loggers in the Paser District. Still, many cases are found in PPU District due to easier access. In addition to loggers, malaria transmission also occurs in villages near the forest, including around the construction site of the new capital city.

Species-wise, more than half of the cases were *P.vivax* followed by *P.falciparum*. Vector bionomic data around high transmission areas found several Anopheles species, including *A.vagus, A.hyrcanus, A.subpictus, A.kochi, and A.nigerrimus.*

Since 2019, the Sotek Health Centre (PPU District) has established the Forest Malaria Post (Posmalhut) to detect and treat malaria among forest loggers. The Posmalhut service also provides insecticide-treated bed nets to the loggers. Unfortunately, although it is located strategically, the utilisation of Posmalhut has not been optimal. Some companies have private clinics around the forest entrance, so collaboration with them should be more intensive. Funding support for malaria control activities from regional sources is minimal, although there is already a PPU Regent regulation for malaria prevention and control. The East Kalimantan Provincial Government also requires encouraging cross-border meetings in border districts.

In the preparation stage of the IKN development, initial discussions with the IKN special authority did not include malaria risk assessment in development planning yet. Two cases of indigenous malaria in workers around IKN seeking treatment at Semoi PHC (PPU District) in August 2022 have been reported. Unfortunately, an epidemiological investigation could not be conducted due to limited access to the area. In mid-November 2022, collaboration with cross-sector stakeholders in the IKN region and East Kalimantan Province held a workshop to prepare IKN to be malaria-free. This activity resulted in a joint commitment between the central, provincial and district governments to achieve malaria-free IKN, whose activities will be under the management of the Malaria-Free IKN Task Force.

Recommendations provided by the 2022 mid-term review of this IKN region include:

a) Allocating funds from the central government to improve case finding, surveillance and vector control in PPU and Paser districts.
b) Advocacy to the Regent and Governor of East Kalimantan, in collaboration with the Ministry of Forestry, to leverage and access some funds through corporate social responsibility (CSR) from timber companies around the IKN area.

c) Provide input to the IKN special authority regarding malaria risk to ensure the design of the IKN area drainage system is free from malaria mosquito larvae habitat.

d) Counting and mapping legal and illegal forest encroachers (MMP) to develop an activity plan and budget for 1) Assessing and deploying sufficient cadres for early case finding and treatment, 2) Purchasing sufficient logistics - RDTs, ACTs, insecticide-treated bed nets, and repellents.

e) Develop testing guidelines for identifying *P.knowlesi* and establish a provincial laboratory network for PCR confirmation.

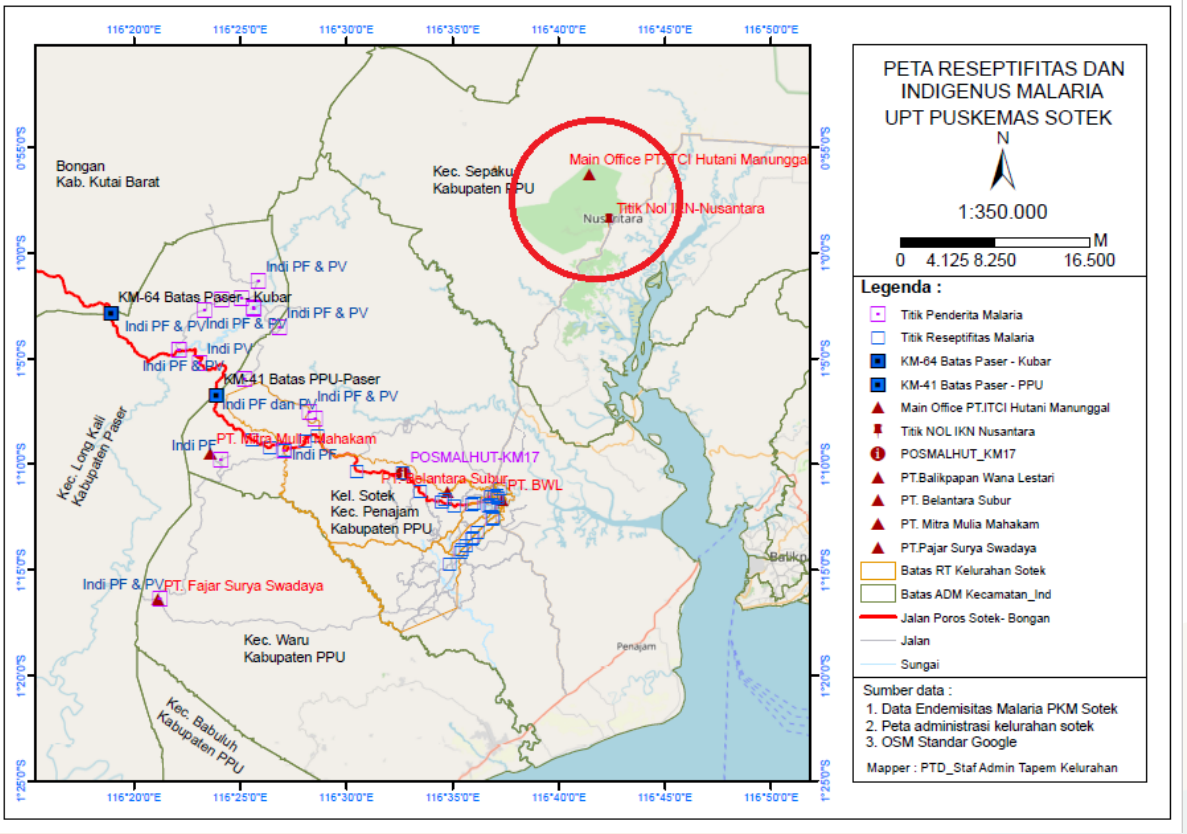


Figure 2.22. The Map of the new National Capital City (IKN) location is marked with a red circle in the northeast, while the purple circle is the single access to and from the logging site located in the northwest. Data source: Penajam Paser Utara District Health Office, 2022

2.5 Priority Recommendations based on the Results of the Mid-Term Malaria Programme Review, 2022

The joint malaria programme review was conducted in September 2022, involving a collaborative team of the Ministry of Health and a group of national and international experts. The malaria programme review produced a lot of practical technical recommendations. The result of as follows:

a. Malaria in Mimika District in Papua is out of control. Mimika reported cases over 400 per thousand population annually, despite the exhortations of central authorities to implement a rigorous programme and the availability of millions of dollars of CSR funding from PT Freeport, the world's largest and richest copper and gold mine, which is located in Mimika District. The team recommends some interventions such as:

- A top-down vertical attack on malaria in Mimika and other high endemic districts in Papua, managed by a centralized task force under the supervision of the NMCP and supported by WHO and UNICEF field staff funded by central level funds, CSR from PT Freeport, and the GFATM.
- Integrated interventions, coupled with the essential underpinning of a strong surveillance and monitoring and evaluation system, including:
    1. Mass Drug Administration to reduce burden,
    2. High coverage deployment of LLINs or high-quality IRS (high-quality IRS is difficult to implement, so should not be the first choice),
    3. Expansion of the network of VMWs with close attention to logistics supply for RDTs and ACTs to allow rapid case detection and treatment, and
    4. Accurate mapping of transmission hotspots so that larviciding or environmental management can be applied as a supplemental intervention.

    After malaria cases fall and become manageable, programmatic control may be returned to the DHO. This intervention package should be replicated and scaled up in other high-transmission districts of Papua.

b. For IKN, where the PPU DHO is technically competent and highly motivated, we recommend the provision of funding to the DHO and PHO for mapping and enumeration of forest goers, deployment of CMWs, and advocacy to ensure greater utilization of the Forest Malaria Post on the main logging road leading to the forest sites, thorough which all forest-goers must pass. In addition, we recommend that authorities responsible for the construction of IKN closely coordinate with entomologists from National Institute for Research and Development for Vector-Borne and Zoonotic Diseases (BBPPVRP) Salatiga or National Institute for Research and Innovation (BRIN) to ensure that drainage is sufficient to prevent the establishment of Anopheles larval habitat in the nation's new capital. We note that the lessons learned from PPU can be applied to other districts in Indonesia with transmission foci in MMPs.

c. For all districts in Indonesia, sustained funding is a challenge, especially when cases fall to very low levels. Funding for districts is available from the central level, but the mechanisms are many and processes that need to be followed to access these funds may be poorly understood by DHOs. For example, Indonesia's high-priority anti-stunting initiative lists 13 different central funding sources that may be accessed. We recommend that the NMCP work with BAPPENAS, the Ministry of Home Affairs, and ADINKES to educate DHOs on how to leverage these various funding sources.

CHAPTER III

STRATEGIC FRAMEWORK 2020-2024

Source: WHO, 2022

CHAPTER III STRATEGIC FRAMEWORK 2020-2024

3.1 Directions and Policies

3.1.1 Malaria Elimination Strategic Direction

The malaria elimination strategy is directed towards:

- Efforts to stop the malaria epidemic by 2030[27].
- Efforts to achieve national malaria elimination status by 2030 and maintain malaria elimination (free) status[28]
- Efforts to implement five interventions, namely[29]:
  a) Ensuring universal access to malaria prevention, diagnosis and treatment;
  b) Accelerating the achievement of the malaria-free status district and maintaining it;
  c) Transforming malaria surveillance into primary intervention;
  d) Creating an environment conducive to malaria elimination by strengthening health system capacities, mobilization of political commitment, public mobilization and promotion of partnership support; and
  e) Enhancing care by utilizing innovation and research.
- Efforts to eliminate malaria in 105 districts by the end of 2024[30].
- Efforts to increase public health, with goals of[31]:
  a) Improving quality and universal health care coverage,
  b) Improving disease prevention and control and public health emergency management, and
  c) Realizing a healthy and fit community through community empowerment and health mainstreaming.

3.1.2 Policies

The priority policies in achieving malaria elimination are as follows[29]:

- Malaria elimination is implemented through the strengthening of the health system at the sub-national level (district) integrated based on primary health care principles, namely fairness, cross-sectoral cooperation, community empowerment and efficient
- Integration of malaria elimination into the health system and national and sub-national developments have consequences that involve multifunctional human resources and need cross-sectoral cooperation.
- Health-related sectors are expected to create policies promoting or raising health (Health in all policies).

[27] Target 3.3 of Sustainable Development Goals (SDGs) 2015-2030
[28] Ministry of Health Regulation Number 22 Year 2022 on Malaria Elimination
[29] The Global Malaria Technical Programme 2016-2030 and the WHO SEARO Regional Action Plan 2017-2030 strategy
[30] National Medium-Term Development Plan 2020-2024
[31] Ministry of Health. 2020. Draft Ministry of Heath Strategic Plan Year 2020-2024.

- The central government and sub-national governments are responsible for the achievement of malaria elimination as malaria elimination are in the public interest.
- Malaria elimination policies and implementation need basic research, operational support, and efficient technology development.
- Planning and implementing malaria elimination activities are based on district endemicity stratification.

3.2 Objectives

General objectives:

75% of the Indonesian territory will be free of malaria transmission, and reduced high-endemic districts to less than 3% by the end of 2024.

Specific objectives:

1. Achieved the number of districts with API>1‰ from 61 in 2018 (baseline) to 20 at the end of 2024.
2. Reduced the positivity rate for Papua Province (along with the newly created province) from 32% (2021) to 17% at the end of 2024.
3. Increased the number of malaria-free districts from 285 districts in 2018 to 405 districts by the end of 2024.
4. Malaria elimination status is maintained in districts determined to achieve malaria elimination.

Table 3. 1 Malaria elimination achievement by district API, 2020-2024

API	Baseline 2018	2020	2021	2022	2023	2024
		Target/ Achievement	Target/ Achievement	Target/ Achievement	Target/ Target Revision	Target/ Target Revision
Total districts API>1	61 districts	48 districts	39 districts	29 districts	~~17 districts~~	~~13 districts~~
		47 districts	43 districts	58* districts	29 districts	15 districts
Total districts API <1	168 districts	141 districts	130 districts	120 districts	~~112 districts~~	~~96 districts~~
		149 districts	124 districts	84* districts	100 districts	94 districts
Total district with malaria elimination	285 districts	325 districts	345 districts	365 districts	385 districts	405 districts
		318 districts	347 districts	372 districts		

*data per 1 February 2023

3.3 Strategies

The strategies to achieve these objectives by 2024 are as follows:

1) Ensuring universal access to malaria case management and prevention to remove gender and human rights barrier
2) Transforming malaria surveillance as the core intervention of malaria elimination
3) Improve enabling environment to ensure malaria elimination achievement through BCC and community engagement.
4) Strengthening the health system to achieve the malaria elimination program based on equity, human right and no one left behind.

Table 3.2. The specific objective and priority area based on the proportion of malaria cases

Specific Objective	Priority Area	The Proportion of Malaria Cases
1. Achieved the number of districts with API>1‰ from 61 in 2018 (baseline) to 20 at the end of 2024. **2.** Reduced the positivity rate for Papua Province (along with the newly created province) from 32% (2021) to 17% at the end of 2024.	58 districts (include IKN)	96,7% (402.786 of 416.568 positive malaria cases)
3. Increased the number of malaria-free districts from 285 districts in 2018 to 405 districts by the end of 2024.	84 districts	1,2% (5.131 of 416.568 positive malaria cases)
4. Malaria elimination status is maintained in districts that have been determined to achieve malaria elimination.	372 districts	2,1% (8.651 of 416.568 positive malaria cases)

Note: data per 1 February 2023

Figure 3. 1 General Objective, Specific Objectives and Strategies of Malaria Elimination 2020-2024

Objectives

General Objective:

75% of the Indonesian territory will be free of malaria transmission, and reduced high-endemic districts to less than 3% by the end of 2024.

Specific Objectives:

1. Achieved the number of districts with API>1‰ from 61 in 2018 (baseline) to 20 at the end of 2024.
2. Reduced the positivity rate for Papua Province (along with the newly created province) from 32% (2021) to 17% at the end of 2024.
3. Increased the number of malaria-free districts from 285 districts in 2018 to 405 districts by the end of 2024.
4. Malaria elimination status is maintained in districts determined to achieve malaria elimination.

Strategies

1. Ensuring universal access to malaria case management and prevention to remove gender and human rights barrier	2. Transforming malaria surveillance as core intervention of malaria elimination	3. Improve enabling environment to ensure malaria elimination achievement through BCC and community engagement.	4. Strengthening the health system to achieve the malaria elimination program based on equity, human right and no one left behind

Key Interventions

Key interventions:

1. Diagnosis: Increase access to malaria laboratory examination in all health facilities both public and private.
2. Diagnosis: Improve quality assurance of malaria diagnosis (microscopic and RDT)
3. Treatment: Improve access to standard malaria treatment in all healthcare facilities and communities by trained staff.
4. Treatment: Integration of malaria services with maternal and child health
5. Vector control: Universal protection of LLINs in malaria endemic areas
6. Vector control: Protection with IRS in selected villages.
7. Vector control: Improve community-based vector control, including integrated vector management
8. Acceleration of malaria burden reduction in Papua
9. Intervention package for IKN and its borders

Key interventions:

1. Increase malaria case finding
2. Strengthen malaria data system and data management
3. Strengthen epidemiological investigation (case and foci investigation)
4. Strengthen early warning system and emergency response.
5. Malaria drug efficacy surveillance
6. Strengthen malaria migration surveillance
7. Malaria prevention in special populations - mobile migrant populations (MMPs)
8. Population-wide parasite clearance: MDA
9. Strengthen *P.knowlesi* surveillance
10. Strengthen vector surveillance

Key interventions:

1. Strengthen inter-sectoral and inter-program coordination and support for malaria elimination including private sectors
2. Behavior change communication
3. Strengthen roles of community in malaria control and elimination

Key interventions:

1. Strengthen the commitment and leadership of central and regional governments to accelerate malaria prevention, elimination and prevention of re-introduction
2. Strengthen malaria program management in context of overall health system
3. Improving malaria elimination certification management
4. Increased cross-border cooperation among countries, provinces, and districts
5. Operational research to support policy development and program implementation.

3.4 Key interventions by strategy

3.4.1 Strategy 1: Ensuring universal access to malaria case management and prevention to remove gender and human rights barrier

Key Interventions

1. **Diagnosis: Increase access to malaria laboratory examination in all health facilities, both public and private**

   The provision of malaria testing services is adjusted to the endemicity stratum. Malaria testing services can be accessed at all public health facilities in high and medium-endemic districts. In contrast, in low-endemic and malaria-free districts, it can be accessed at designated health services based on a decree from the head of the local office. Therefore, logistics must also support the activities of malaria testing laboratory services.

   To ensure that communities can access quality testing services, training and socialization of diagnosis to both microscopists and other health workers should be implemented based on national guidelines. Capacity building of microscopists requires significant funding. Therefore, the development of blended learning curricula and material combined with classroom skills practice should be continued to support this action plan. The malaria working team collaborates with the Board for Development and Empowerment Human Resources of Health MoH (BPPSDMK) to organize this activity. This essential intervention supports the spirit first pillar of health transformation, namely primary care transformation.

2. **Diagnosis: Improve quality assurance of malaria diagnosis (microscopic and RDT)**

   To ensure quality malaria testing, internal quality assurance includes the provision of SOPs and examination equipment and external quality assurance carried out by a cross-testing system, panel tests with standard slide preparations and supervision. The implementation of quality assurance activities is expected to collaborate with the Directorate of Public Health Governance along with the implementation of the first pillar of health transformation. In this key intervention, this quality assurance system can likely support the performance of competent microscopists at least equivalent to level 3 at the health service level, level 2 as a cross-checker at the district level, and level 1 as a cross-checker at the provincial level carried out by public health laboratories (BBLK /BTKL). In addition, briefings related to microscope maintenance also need to be included in the organised training system. This is conducted to ensure that the examination equipment is in good condition. This quality assurance system must also be socialised to many related parties, including professional analysts (PATELKI), clinical pathologists and parasitologists.

   Quality assurance for RDTs is carried out by routinely carrying out RDT tests by cross-checker officers at least equivalent to level 2 in the district, through a surveillance system and implementing pre- and post-marketing surveillance/lot testing to determine the quality of RDTs after distribution and storage. With the increasing use of RDTs due to increased case-finding targets, especially in health facilities with unqualified microscopists, RDT quality assurance must be implemented, at least at the integration services for

pregnant women and children under five and at the community level. Currently, the national reference laboratory is trying to fulfil the recommendations of the WHO assessment to organise lot of testing in the country. So far, the implementation of RDT lot testing is still being sent to Manila.

A network of public and private malaria laboratories must be built and function primarily at the national and regional reference laboratories. The national reference laboratory functions to provide assessment, technical assistance, implementation of external quality assurance, training, validation of standardised preparations and monitoring and evaluation of provincial reference laboratories. This national reference laboratory must also coordinate with the surveillance section to strengthen the public health laboratory network, quality assurance of examination services with the accreditation section of health centres and hospitals, and cooperation with research institutions. Regional reference laboratories perform functions in stages to districts and health service facilities, especially for cross-checking and monitoring evaluation.

3. Treatment: Improve access to standard malaria treatment in all healthcare facilities and communities by trained staff.

In line with the implementation of malaria testing, treatment services are also tailored to the endemicity strata. Guidelines and SOPs for managing uncomplicated and severe malaria are available and socialized to relevant medical personnel, general practitioners, internal medicine, pediatrics and obstetrics, and paramedics in all healthcare facilities. To ensure understanding of malaria management and its sustainability, collaborative development is needed to update the malaria curriculum and teaching materials with medical institutions, nursing education, midwifery education, and laboratory analysts. It also includes the use of online media for learning.

Uncomplicated antimalarial drugs must be available in all health facilities in districts that have not yet eliminated malaria. In contrast, antimalarial drugs are only available in designated health facilities in districts that have achieved malaria elimination. For districts with CMW in special situations (who provide malaria testing and drug administration services), drug re-packaged according to body weight should be facilitated. Several districts in West Papua Province have carried out re-packaging practices, including Teluk Bintuni District.

Health facilities with difficult access will be provided with pre-referral drug stocks for severe malaria, especially in districts that have not yet eliminated malaria. In addition, severe malaria drugs must also be provided at referral or designated health facilities. Drug availability is expected to be continuous without stockouts. To overcome the limitations of quinine as the second line of malaria treatment, the results of the malaria diagnosis and management expert commission meeting in January 2023 considered lumefantrine artemether as an alternative or second-line regimen. With the changes that have occurred, updating the existing guidelines is necessary. The activities continued with regular socialization to health care facilities and collaboration with professional organizations such

as IDI, IDAI, POGI and PAPDI, and included in the education curriculum for doctors and other health workers such as nurses (PPNI) and midwives (IBI).

Post-treatment monitoring based on the guidelines should be implemented in low-endemic and malaria elimination districts. During the management of malaria patients, health workers should also be equipped with IEC media for interpersonal communication to provide a better understanding to patients both for management and prevention of re-infection.

Case management working groups at provincial and district/city levels are expected to support diagnosis and management efforts in their working areas and encourage internal networking of malaria services in hospitals and external networking with public-private mix (PPM) schemes. Health offices build networks between public and private health services through this PPM mechanism. In the draft technical guidelines for PPM in 2022, PPM is expected to have three modes of partnership networking: surveillance through active case finding and migration surveillance; case management through early detection of suspected cases, diagnosis and therapy; and prevention through environmental modification and vector control. In the surveillance mode, partnerships are exemplified by cooperation with companies through officers/CMW appointed by the company to conduct outreach to at-risk workers and early detection. In the case management mode, private services will also receive information related to the procurement of quality RDTs according to WHO standards and get malaria drugs for free according to national standards and are required to provide malaria reports to the PHC or district health office. Meanwhile, in the prevention mode, the private sector can play a role in modifying mosquito breeding sites, procuring vector control tools and materials, implementing and monitoring IRS spraying activities, and distributing mosquito nets. The implementation of PPM is also supported by technical guidance and evaluation from the provincial/district health office and working group at the provincial level. The draft PPM technical guidelines must be finalized and socialized to relevant stakeholders.

4. Treatment: Integration of malaria services with maternal and child health.

Malaria services for vulnerable groups, such as pregnant women, are carried out by screening for malaria using RDTs and confirmed with slides during the first ANC visit and by providing mosquito nets. Malaria screening for children under five also uses RDTs and is confirmed by slides in all sick children under five through IMCI. These two integrated services are implemented in all high-endemic districts and focus areas in moderate endemic districts. Increasing the capacity of midwives for services to pregnant women and nurses for services to sick children should be done to ensure the quality of implementation is good. In addition, the socialization of the integration programme also needs to be carried out to MCH managers at the district and provincial levels to get full support for implementing activities. Technical guidance is needed, support for the availability of logistics, especially RDT and mosquito nets, and monitoring and evaluation for this integrated activity, including for IPTp administration activities.

The implementation of IPTp in the PEMILA-OAM programme for pregnant women in Mimika District, described in section 2.4.2.17, encourages the gradual expansion of implementation to districts with API > 100 per 1000 at-risk population. The results of the PEMILA-OAM implementation research, planned to be disseminated in the third quarter of 2023, will be used as a lesson learned in the implementation phase in other districts. The series of IPTp expansion activities began with a consultation meeting with an expert commission related to IPTp administration, followed by updating the technical guidelines for malaria and MCH integration to include the technical activities of this IPTp activity. The drug used was DHP, three tablets, for three days, every four weeks at ANC starting in week 13 (second and third trimester). The next step is to socialize the technical guidelines to 9 districts/municipalities with API > 100 per 1000 at-risk populations and provide supporting logistics. Implementation will be carried out in stages, with the first year (2023) implemented in 3 districts/municipalities other than Mimika District, consist Keerom District, Jayapura District and Jayapura City. If the monitoring and evaluation results are good, it will be expanded to 5 other districts, namely Boven Digoel, Asmat, Sarmi, Memberamo Raya, and Yapen Islands. Implementation is carried out for a minimum of three years to see the impact of the intervention, of course with regular monitoring and evaluation.

5. **Vector control: Universal protection of LLINs in malaria-endemic areas.**

Primarily vector control efforts utilizing LLINs mainly focus on high endemicity districts, and village focus on moderate endemic districts. The insecticide-treated bed net campaign carries the theme of rejuvenation and simultaneous installation of new mosquito nets, which will be carried out every two years (based on the results of the mosquito net efficacy study). It's supported by assistance and mentoring mainly in high-endemic districts in eastern Indonesia (Papua, West Papua and NTT). In preparation for the campaign, the campaign technical guidelines and training on the utilization/maintenance of bed nets need to be updated according to the conditions when the campaign will be implemented. In addition, the implementation of campaign microplanning assistance in the target areas needs to be carried out. After the performance of the rejuvenation campaign and the utilization of mosquito nets simultaneously carried out, periodic evaluation monitoring of LLINs with a 1-1-3 strategy, namely one week, one month and three months. In its implementation, the distribution and monitoring of bed net use is supported by CMW, along with education related to malaria prevention. To anticipate that residents have not received nets during the campaign necessary to provide routine LLIN that the community can access through CMW or health workers. The amount of top-up LLIN provided is 10-20% of the campaign nets.

6. **Vector control: Protection with IRS in selected villages.**

Standardized IRS will only be conducted in areas with evidence of pyrethroid resistance, API >20 per 1000 at-risk populations, low LLIN coverage following health

promotion activities and used in outbreak response efforts. IRS in these areas should be conducted three times yearly for three years, followed by monitoring and evaluation. As part of the preparation for IRS implementation, IRS training according to national guidelines will be conducted primarily in high endemic areas (including nine accelerated districts in Papua) and procurement of non-pyrethroid insecticides for IRS implementation. In the process of IRS implementation, CMW can support the preparation and monitoring of IRS activities in their areas.

7. **Vector control: Improve community-based vector control, including integrated vector management.**

Stimulations community empowerment in vector control will be one of the key interventions. Integrated vector management by utilizing methods other than bed nets and IRS as bed net supplements such as repellents, larvicides and environmental management led by CMW and key stakeholders in the community is prioritized in high and moderate endemic areas. As for low endemic and malaria-free regions, the primary intervention is larval source management (breeding sites) by larviciding, modifying and manipulating the environment based on epidemiological evidence implemented by health workers and communities. Regular environmental checks should be carried out mainly in high-endemic and moderate-endemic areas with special populations. The provision of larvicides in districts that will carry out these activities. In addition, communication, information and education on vector control through mass and interpersonal media will also be carried out so that the community will be encouraged to participate more actively.

8. **Acceleration of malaria burden reduction in Papua**

To rapidly reduce malaria cases, it is necessary to carry out systematic acceleration activities, especially in Tanah Papua, especially with API > 100 per 1000 at-risk populations (9 districts/municipalities). These activities include intervention packages in villages with API > 250 per 1000 at-risk populations in the form of mass drug administration (MDA), accompanied by fever screening of school children by trained teachers or health workers through the integration of school health programmes, active case finding by CMW, strengthening malaria service networks in private and government health facilities through PPM, strengthening surveillance systems (including drug efficacy surveillance), and integrated vector control, especially the use of insecticide-treated nets, IRS, larvicides and community-based environmental management (Figure 3.2.).

The intervention package started with consultations with the expert commission regarding the implementation of acceleration efforts. The results of the last expert commission discussion suggested that the administration of MDA using DHP in three rounds with a 1-month difference for each wave could be implemented on a small scale (piloting) first with close supervision. As described in Figure 3.2, the intervention package will include the distribution of insecticide-treated bed nets that will be renewed every

two years or IRS every 3-4 months according to the type of insecticide and integrated mosquito breeding environment management; home visits by CMW to all home every two weeks to screen for symptoms, especially fever and other illness symptoms; PCD with strengthening of the PPM network and implementation of three round of MDA that will be evaluated to assess whether it needs to be repeated the following year and adjust to the peak season of malaria transmission in the location of the activity. MDA will be implemented for all six months or older in villages with an API>250 per 1000 at-risk populations. The DHP drug regimen will be given for three days, and primaquine will be administered on the first day under the supervision of a health worker or CMW. In the first and third weeks, blood samples will also be collected for examination by CMW according to the home visit schedule. The same activities will be conducted in the second and third months. At the end of the 6th month, a situation assessment and epidemiological analysis will be conducted. Fever screening of school children will also be conducted periodically through trained teachers or integrated with the school health programme. This activity will be implemented in 9 districts/municipalities in Papua, and if the results are good, it will be implemented in other districts in Tanah Papua with special consideration. To prevent drug resistance, drug efficacy surveillance should be implemented in areas implementing MDA and IPTp.

Of course, activities need to be supported by detailed technical instructions, socialization of technical instructions and provision of adequate logistics. For hard-to-reach areas in Tanah Papua, an outreach intervention package can be provided: implementation of mass blood surveys, management and vector surveys. This package requires special costs as these locations are difficult to reach, usually requiring helicopters or walking for several days. Monitoring and evaluating all these intervention packages should be carried out regularly to see the outcomes and impact of the implemented activities.

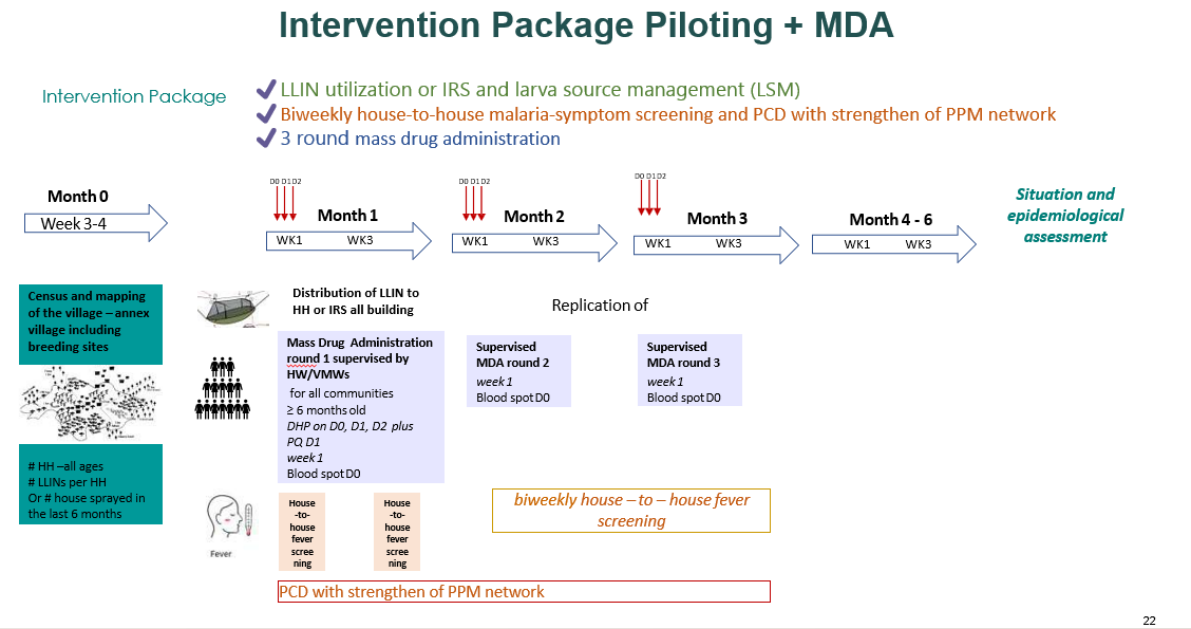


Figure 3.2 Intervention packages to accelerate case reduction and elimination in Papua.

9. Intervention package for IKN and its borders

IKN, as a new area as a future national capital that gradually built and developed, requires comprehensive intervention to prevent malaria transmission. This activity begins with raising commitment through the formation of a cross-sector and cross-program task force; preparation of an action plan or technical guidelines towards a malaria-free IKN; advocacy for partnerships and community empowerment in the IKN and cross-border areas; support for infrastructure and human resources of health centres and referral hospitals; strengthening integrated systems and planning including programme management and strengthening malaria programme management cooperation in collaboration with the IKN authority.

Technical activities to be carried out include the implementation of regular malaria screening for IKN workers and other migrants; complete treatment through supervision of taking medication with the supervision of special population CMW in IKN and cross-border areas; preparation of procedures for access to diagnosis, treatment and referral; development of PPM networks; optimization of forest malaria posts in cross-border areas; receptivity mapping including identification of mosquito breeding environments; identification of activities at risk of malaria transmission: IKN area workers, forest encroachers and plantations; implementation of surveillance and epidemiological investigations; integrated vector control including the distribution of insecticide-treated nets to at-risk populations in IKN, periodic integrated monitoring and evaluation for IKN and cross-border areas to achieve IKN malaria-free.

The Ministry of Health in collaboration with the East Kalimantan Provincial Health Office and three District Health Offices in the IKN border area (PPU, Paser and West Kutai) with support from WHO, will implement a pilot service intervention package for special populations in the forests of the IKN cross-border area. The intervention package will include insecticide-treated bed nets, administration of preventive drugs to target populations in forest villages or forest edges for 1 - 2 round; intermittent preventive treatment for forest goers who will enter the forest and move to do their work every month for 3-5 months by forest CMW or health workers; and active case finding or mobile clinics every 2 weeks by forest CMW or health workers. After the intervention package is delivered, an evaluation will be conducted to assess the impact on malaria case reduction. If there is a good impact, the forest intervention package will be expanded to other areas in Indonesia with similar epidemiological situations.

3.4.2 Strategy 2: Transforming malaria surveillance as the core intervention of malaria elimination

Key interventions

1. Increase malaria case finding

The active role of CMW supports efforts to increase the finding of suspected malaria cases. Following Ministry of Health Regulations Number 41/2018, CMWs who are assigned are trained CMWs. Therefore, requires training/refreshing/socialization of

diagnosis using RDT and treatment by CMW, especially in high, moderate and low endemic areas. Training needs to be supported by training modules that are compiled and updated regularly to get competent CMW. Issues related to gender, equality and human rights will be inclusively included in the CMW training module.

For high and moderate endemic areas (including outreach to special populations), case finding is conducted through regular home visits and reactive case detection (RACD) by conducting blood tests on family members living in the same household for every positive case. In health centres with API >1‰, this activity is carried out by officers assisted by CMW. Specifically for Papua Province, case finding is expected to remain high until 2026. Increased malaria case finding is also carried out massively in health services by examining all patients visiting health facilities in districts/municipalities with API >100‰. The same activities are conducted in low-endemic areas for all cases with fever from active and inactive focal villages or a history of visits from endemic areas; who visit health services are tested for malaria. Malaria cases found in services should be informed to CMW in the area to be followed up with treatment monitoring and contact survey. According to the guidelines, post-treatment monitoring must also be informed to malaria-positive patients. Health workers assisted by CMW carry out the implementation of monitoring. To ensure good performance of CMW, technical guidance, supervision, monitoring and evaluation of activities should be carried out at the appropriate level using developed supervision instruments.

Improving case finding and management for hard-to-reach populations is also needed, especially for high-endemic, moderate and low-endemic special populations. Of particular concern is outreach to prison populations, especially in high-endemic areas, which can be integrated or collaborated with activities in TB and HIV programmes that have already been implemented. Of course, this activity must be supported by adequate logistics. ABER targets in high endemic areas are as follows

a. ABER target of ≥50% in districts with API > 50 ‰
b. ABER target of ≥30% in districts with API 20-50 ‰
c. ABER target of ≥10% in districts with API 1-19 ‰

It is necessary to screen blood donation facilities to prevent malaria transmission through blood donation. It also needs to be supported by the provision of logistics.

2. Strengthen malaria data system and data management

Malaria programme managers will continue to use the malaria information system (SISMAL) as a routine data collection tool for planning, monitoring and intervention. Currently being developed and implemented is SISMAL V3 which is expected to meet the needs of the programme, including recording and reporting activities carried out by the community.

The development and integration of SISMAL using the DHIS2 platform and the “Satu Sehat” application including technical assistance and infrastructure upgrades will be carried out to ensure its sustainability and continuity in the future. It aligns with the spirit

of health technology transformation (pillar 6) with the expectation of integrating and developing health data systems.

As the malaria recording and reporting system continues to develop, module updates and socialization of its use are also encouraged. Reporting obtained in SISMAL certainly needs to be validated, analyzed, and used for monitoring and further interventions. Feedback also needs to be done to provide input to the services that provide the reports. Generally, the centre and regions can utilize SISMAL to implement risk-based management. Strengthening the surveillance system is needed in terms of human resources, infrastructure, and continuity of training so that the competence of surveillance personnel can be improved.

The Ministry of Health plans to integrate all reporting information systems into the "Satu Sehat" and/or ASIK application, starting with the electronic medical record system and environmental health data. This integration plan will be carried out in stages, with the initial development for the Java-Bali region, while the Papua region will be developed later. The malaria programme certainly supports this integration of data and information, making it easier to identify cases of double infection, such as malaria patients infected with HIV/TB or other diseases. However, the phasing of development starts from the Java-Bali region and other western and central Indonesian regions, contributing only 6% of the total malaria cases nationally. Therefore, the malaria programme should consider using SISMAL to support the Satu Sehat/ASIK application to minimize the under-reporting of malaria cases.

3. Strengthen epidemiological investigation (case and foci investigation)

Epidemiological investigations using the 1-2-5 method will be implemented gradually in moderate endemic areas with non-focus villages and widely in districts with low endemicity and malaria elimination. In addition, contact surveys of all cases and mass blood surveys will be conducted in active focal villages as part of the epidemiological investigation 1-2-5 response. For malaria elimination areas, case finding will focus on contact surveys and active case finding in receptive areas. Vulnerable area mapping is carried out both low endemic and malaria-free. Its ensures that no transmission occurs from indigenous and imported cases found. The implementation of activities needs to be supported by trained personnel, adequate logistics for investigation and response, technical guidance and mentoring because investigations require adequate skills and monitoring and evaluation of the quality of epidemiological investigation 1-2-5.

Transmission dynamics surveys will be conducted in high-endemic areas with stagnant conditions and persistent foci. As for moderate endemic, low endemic and malaria elimination areas, the survey is conducted in persistent focus villages. Strengthening the case notification network from hospitals to health offices or health centres, especially in low-endemic and malaria-free areas, must be implemented to prevent outbreaks.

4. **Strengthen early warning system and emergency response**

Lessons learned from the previous outbreak occurred in areas that have been eliminated or not, and in areas affected by disasters, several things will be done. It includes coordination with surveillance officers at each level, preparation of contingency plans for malaria prevention in disaster-prone areas, situation analysis of malaria risk factors in disaster-prone districts/municipalities, prevention and control following the results of the situation analysis in the disaster area and the provision of adequate logistical buffers according to the contingency plan. In addition, epidemiological investigation activities will be carried out in villages with increased cases and changes in risk factors and appropriate countermeasures, for example, by distributing insecticide-treated nets or environmental modifications need to be carried out to prevent outbreaks.

Another lesson learnt from the COVID-19 pandemic is that there may be future threats of outbreaks or pandemics of diseases other than malaria. It encourages malaria programmes to prepare pandemic preparedness plans, including modifying protocols for implementing malaria case finding and management by considering transmission. In pandemics of diseases with direct transmission, it is important to minimize the contact of health workers/CMW with patients; the use of RDTs for testing is preferred; the provision of selected therapies to minimize the severe effects of other treatments in cases with multiple infections; investigations by phone and the application of personal protective equipment for both health workers and CMW.

5. **Malaria drug efficacy surveillance**

First-line malaria treatment (ACT) is monitored and evaluated through efficacy surveillance in cooperation with FDA with the Therapeutic Efficacy Study (TES) method in selected districts with API >1 and partnership with the regional laboratory to conduct Integrated Drug Efficacy Surveillance (iDES) method in selected districts with API <1. Guidelines for logistics provision will be drawn up. The Malaria Working Group and WHO will provide technical assistance and conduct supportive supervision and evaluation to ensure that the activities proceed per the standards.

6. **Strengthen malaria migration surveillance**

Activities to strengthen migration surveillance will focus on low-endemic districts and malaria elimination. It includes identifying migratory communities and related stakeholders, including members of Indonesia National Armed Forces (TNI) / Indonesian National Police (POLRI); conducting monthly screening and post-arrival monitoring of migrants from malaria endemic areas in the community and TNI/POLRI after a minimum of 6 months of assignment and implementing positive case notification in the area or country of origin of migrants. The experience in the field is that screening at the beginning of arrival may give negative malaria test results, but in the following months, show symptoms of relapse from previous infections, especially in malaria vivax infections. Therefore, periodic monitoring is necessary.

Screening also needs to be carried out on migrants from malaria-endemic areas at airport entrances, harbors and cross-border posts. It is necessary to increase the capacity of health centre officers, health services, TNI/ POLRI and health port office, provide logistics and implement coordination among the relevant stakeholders.

7. Malaria prevention in special populations - mobile migrant populations (MMPs).

As described in the situation analysis in section 2.4.2.12, special population mapping could only be identified in 412 districts spread across a range of malaria endemicity. The mapping activity needs to be continued for other districts/municipalities, along with an analysis of the malaria burden in these populations. In addition, identification and coordination across relevant sectors in malaria control in these populations are also needed, as they vary widely from region to region.

To help reach these special populations, trained CMWs from these special populations can help. For this reason, training/refreshing/socialization for examination and treatment by CMW is needed, especially for low-endemic and malaria-free areas with special populations. Discovery activities with cadre visits need to be supported by adequate funding, provision of CMW kits and other logistics.

During this period, it is planned to implement a package of interventions for special populations that includes: chemoprevention with targeted drug administration (TDA), intermittent preventive treatment for forest goers (IPTf), twice-weekly fever screening by CMW, provision of insecticide-treated bed nets and topical repellents to populations at risk of MMP in selected low endemic areas and chemoprophylaxis to Indonesia National Armed Forces (TNI)/Indonesian National Police (POLRI) in 216 districts/municipalities that assign their members to high endemic areas. The activity began with a consultation with the expert committee, and the results of the initial discussion recommended piloting first, given the lack of experience related to this activity package. The drug regimens considered were DHP for special populations through TDA or IPTf intervention and Mefloquine for TNI/POLRI through chemoprophylaxis intervention with a specific dose and frequency of administration. Two methods to consider include: a) during the stay in the area at risk of malaria transmission and, b) a month before and after returning to the home location which is a low endemic or malaria-free area. The selection of locations and participants must also consider the monitoring activities that will be carried out and accompanied by pharmacovigilance and evaluation activities. Before implementing activities, it is necessary to develop clear technical guidelines, socialize with relevant stakeholders and provide adequate logistics.

The intervention package includes outreach for screening and treatment, active case finding by forest malaria cadres or forest malaria posts, and provision of topical repellents and insecticide-treated bed nets of various sizes and shapes according to the needs of this special population type. It is also necessary to monitor and evaluate all activities that have been and will be implemented in this special population by involving

relevant stakeholders. This intervention will be piloted in the IKN area covering 3 districts as described in strategy one key intervention 9. If the results are good, they will be applied to other areas with the same epidemiological situation.

8. **Population-wide parasite clearance: MDA**

This activity is focused on pockets of transmission (active focus) of low-endemic areas with persistent and stagnant transmission to eliminate indigenous cases and cut the chain of local transmission. The stages of intervention using MDA will be consulted with an expert commission, followed by the preparation of technical guidelines, provision of logistics and socialization to implementers and relevant stakeholders. The drug regimen considered is DHP with a specific dose and frequency of administration. The implementation of activities should be closely monitored, followed by pharmacovigilance and evaluation.

9. **Strengthen *P.knowlesi* surveillance**

Along with the detection of *P.knowlesi* in several districts in Kalimantan and Sumatra, the finalization of guidelines that are integrated with other Plasmodium surveillance, training/socialization, the establishment of networks, strengthening diagnosis with PCR confirmation and strengthening quality assurance both at the central and regional levels including the involvement of regional health laboratories in areas with potential for *P.knowlesi* transmission will be carried out. Logistical support for *P.knowlesi* surveillance targeting districts/municipalities where suspected cases of *P.knowlesi* are found is also required.

10. **Strengthen vector surveillance**

Implementing vector surveillance will require skilled health entomologists at the health centre level and experts at the district/city and provincial levels. Therefore, the number of entomological personnel will be increased according to the level, mainly in high-endemic districts/municipalities with a minimum of 2 people per province and 2 people per district/city. This activity begins with implementing TOT for health entomologists at the central level in collaboration with Health Training Centre (BAPELKES). After training, the entomologists can carry out vector surveillance activities at the health centre level with supervision, monitoring and evaluation from the district health office.

Vector control in low-endemic areas with focal villages will be conducted based on the results of epidemiological investigations or transmission dynamics surveys. Vector surveillance is conducted routinely in receptive and vulnerable areas. Malaria officers at health centres are expected to be able to estimate focal areas of transmission. Focal area control responses will be implemented with insecticide-treated bed nets and environmental management.

Longitudinal surveys will be conducted in 2 locations representing low (coastal) and midland (plantation/ rice fields) high and moderate endemic areas to monitor changes in vector ecology. In addition, vector resistance surveys will be conducted yearly in high-endemic areas and in selected stagnant districts in moderate endemic areas. Monitoring evaluation and durability of mosquito net efficacy will be carried out yearly in high-endemic districts/municipalities, especially in areas of accelerated case reduction in Papua.

3.4.3 Strategy 3: Improve enabling environment to ensure malaria elimination achievement through BCC and community engagement.

Key interventions

1. **Strengthen inter-sectoral and inter-program coordination and support for malaria elimination, including private sectors**

   Support mobilization from cross-programme and cross-sectors, including the private sector at the local level, will be implemented through the establishment of a coordination forum for accelerating and maintaining malaria elimination, development and production of advocacy strategies, advocacy materials/media and advocacy kits tailored to the local situation, and advocacy roadshows to influence the support of policymakers and the public, advocacy to cross-sectors for the provision of a menu of activities that contribute to malaria elimination, and periodic meetings in planning, implementation, monitoring and assessment.

2. **Behavior change communication**

   To influence changes in community behavior to support malaria elimination using the communication strategy that has been developed previously. As a follow-up, previous TOT of behavior change communication plans (BCC plans) will be conducted, and implementation of BCC plans at the district/city level, capacity building for BCC malaria for health workers, CMW and community. Follow-up activities of the BCC include the development of IEC media, IEC media trials in several locations at the central, provincial and district levels and implementing IEC campaigns using various communication media. The involvement of the targeted community is needed to increase active participation in the behavior change process. Implementing the IEC campaign will focus on high endemic, moderate endemic and low endemic areas that report special populations. A review and evaluation of the implemented communication strategy will be conducted to assess the effectiveness of the implemented BCC.

   To evaluate the campaign results in addition to routine data, a Knowledge, Attitude and Practice (KAP) survey related to the use and maintenance of mosquito nets and other community-based vector control will be conducted. This activity will be carried out at the mosquito net distribution sites representing each endemicity. The

survey results are used to improve the implementation of the following year's campaign.

3. **Strengthen roles of the community in malaria control and elimination**

The implementation of activities by health workers and CMW needs to be monitored and evaluated by the community, especially for case finding, management, vector monitoring and mosquito net use. Community empowerment and strengthening local leadership in malaria control in the future need to be encouraged. One form of activity that runs is village discussions to describe the situation of malaria cases and breeding places and find solutions to the problems.

In addition, strengthening the role of the community needs to be supported by the establishment, strengthening and sustainability of local civil society organizations, especially those led by the community (informal and formal), led by key populations, led by women, led by people living with or affected by malaria, community networks and associations. Of course, these activities must be supported by capacity and leadership development efforts for local civil society organizations, community networks and associations.

3.4.4 Strategy 4: Strengthening the health system to achieve the malaria elimination program based on equity, human right and no one left behind.

Key interventions

1. **Strengthen the commitment and leadership of central and regional governments to accelerate malaria prevention, elimination and prevention of re-introduction.**

The commitment and leadership of national and sub-national governments are one of the keys to malaria elimination. At the central level, research on policies will be conducted to support the development of regulations for malaria elimination as a more binding legal umbrella. Furthermore, policy development in several related ministries will be promoted in support of malaria elimination, such as the Ministry of Home Affairs regulation concerning district-level malaria mitigation, Ministry of Villages, Disadvantaged Regions and Transmigration concerning the allocation of village funds for malaria mitigation, Ministry of Tourism regulation concerning malaria-free condition in tourist attractions and Ministry of Education policy on malaria lesson materials in malaria-endemic areas.

At the sub-national level, advocacy will be undertaken for the introduction of regulations for the acceleration of malaria elimination, including for malaria-free maintenance areas. Regional action plans will be drafted to help the implementation of activities for the acceleration of malaria achievement, which plans refer to the national-level action plan.

2. Strengthen malaria program management in the context of the overall health system.

In order to strengthen programme management, programme management orientation activities will be held for all heads of health offices, heads of PHC and village heads. The expectation from this activity is that districts/municipalities or provinces can better manage the acceleration of elimination and maintenance of malaria-free programmes supported by regionally sourced budget allocations.

Malaria programme implementers must achieve competency standards following their main tasks and functions. To achieve and maintain the standards competency of human resources implementing the malaria prevention programme, capacity-building facilities are organized through training, e-learning, on-the-job training, and socialization. The competency standards and training for malaria personnel can be seen in annex 6. The training modules to be implemented will also inclusively include material related to gender, equality and human rights with examples of its application. The number of human resources implementing the programme at each level is arranged based on endemicity, i.e., in high and moderate endemicity, the service is carried out at all health facilities, while in low endemicity and free areas, it is carried out at designated health facilities (annex 7).

Capacity-building activities for programme managers began with a review of the basic training curriculum and modules and programme reorientation and implementation of activities based on the updated curriculum. Technical assistance through mentoring from both the malaria working team and partner organizations such as WHO, UNICEF, UNDP and NGOs will be implemented in districts with API>1, especially in Papua, West Papua, Maluku, NTT, IKN areas and in stagnant API<1 district.

Future logistics management will focus on providing guidelines for malaria logistics, coordinating and monitoring the evaluation of planning, procurement, distribution and storage according to standards at the central level, especially with health facilities and at the regional level.

Monitoring and evaluation are important to measure and assess the impact of malaria control programmes at every level. The monitoring and evaluation system that will be developed includes situation analysis of monthly data from SISMAL and identification of problems, visits or districts/municipalities at the appropriate level, discussion of results at the district/city and provincial levels and provision of feedback on results in a documented form. To determine the progress of activities by cadres, monitoring and evaluation of cadres will be carried out by the PHC. The development of integrated supervision instruments is required so that there is the standardization of activity implementation. The tools can be made in the form of a web-based electronic application so that the results of activities can be analyzed and monitored at a higher level and can be followed up immediately. This process will be summarized at the district/city, provincial and national annual monitoring and evaluation meeting (Figure 3.3).

To provide quality support for implementing activities at the provincial and district/city levels, it is necessary to establish malaria elimination working groups at each of these levels, which are derived from the expert commissions at the national level. This working group comprises experts from across sectors and programmes related to malaria control. It includes those in charge of diagnosis, management, vector control, surveillance, programme management and operational research. Regular meetings are also needed for the expert commission at the national level and the malaria working groups at the provincial and district/city levels.

The revitalization of the National Forum for Malaria Movement should be implemented immediately after a long hibernation. This forum covers diagnosis and management, vector control, surveillance and priority operational research. Expert commission meetings for each thematic area and joint meetings at the national level to review ongoing activities and new policies need to be held regularly. A national malaria programme review is conducted to assess the progress of the malaria programme and evaluate the strategies and policies implemented in three years with a mid-term review and five years with a joint programme review. The review will also discuss gender, equality and human rights issues. During this period, an action plan for accelerating malaria elimination for 2025-2029 and a malaria transmission prevention plan will also be developed as more districts and municipalities achieve malaria elimination.

Lessons learnt in accelerating the elimination and maintenance of malaria-free areas between districts, and provinces need to be implemented and disseminated. In addition, learning about innovative interventions implemented by other countries will also provide ideas and lessons learnt to implement better interventions for this country. To this end, a knowledge management system will be designed, and the lessons learnt will be collected through research and other methods, synthesized and packaged into compelling information and publicized to the public and other relevant targets.

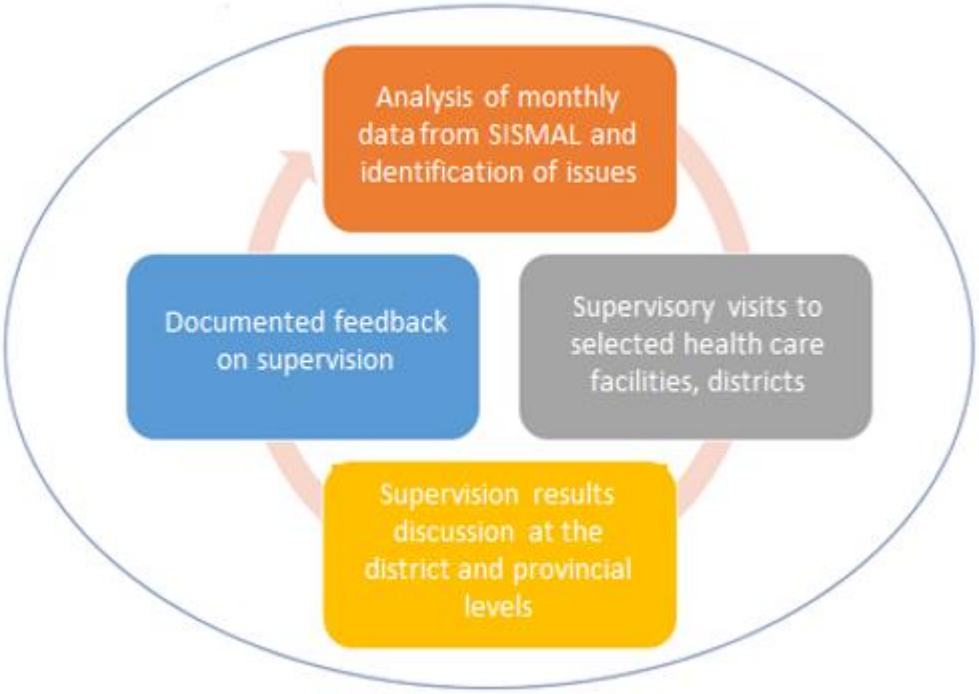


Figure 3. 3 Annual Monitoring and Evaluation System

3. Improving malaria elimination certification management

The future management of malaria elimination certification is directed at the provincial and regional levels following the elimination targets set. It includes regional monitoring and evaluation meetings; the formation of provincial verification and certification teams; provincial and regional assistance in preparation for WHO verification and certification; pre-assessment of certification and verification by the provincial team for districts/municipalities that apply mainly in low-endemic areas and monitoring and evaluation of the provincial verification and certification team.

At the central level, activities to be implemented include reorientating the national elimination commission every two years and implementing the Java Bali verification in 2024. In the context of guidance and supervision, Ministry of Health Regulation Number 22 of the Year 2022 states that the Minister of Health can give a written warning and retraction of the malaria elimination certificate. A written reprimand is given to the governor or regent/mayor if local transmission occurs again for two consecutive years in the maintenance phase. Retraction of the malaria elimination certificate is carried out if the province or district/city that is in the maintenance stage has recurrent local transmission in the same active focus area with the same parasite type for three consecutive years. It is expected that districts/municipalities that have achieved malaria elimination will continue to intensify elimination maintenance activities with migration and receptivity surveillance.

4. **Increased cross-border cooperation among countries, provinces, and districts**

Activities to be implemented include increased cross-border coordination with Malaysia, Timor Leste and Papua New Guinea to share information related to epidemiology, entomology, surveillance, outbreaks, insecticides, drug resistance and behavior change strategies. At the regional level, more cross-border coordination between provinces and districts is encouraged, especially regarding case notification and the exchange of information from interventions that have been carried out. Harmonizing intervention types and timing in cross-border areas is necessary to maximize the impact of interventions on parasite and *Anopheles* mosquito populations.

5. **Operational research to support policy development and program implementation**

During the 2019 JMPR and 2022 MTR, several operational research topics prioritized by the malaria programme have been developed (Annex 9). Hopefully, government agencies, academics, research institutions and other interested organizations can carry out the prioritized operational research. Biannual Malaria Research Indonesia (AMRI) will be held to disseminate the research results, led by the Operational Research Working Group under The National Forum for Malaria Movement. The activities and policies taken by the government will be based on research evidence that continues to develop in the future.

CHAPTER IV

BRIDGING PLAN 2025-2026

Source: UNICEF, 2022

CHAPTER IV BRIDGING PLAN 2025-2026

4.1 Directions and Policies

4.1.1 Malaria Elimination Strategic Direction

The malaria elimination strategy is directed towards:

- Efforts to stop the malaria epidemic by 2030[28].
- Efforts to achieve national malaria elimination status by 2030 and maintain malaria elimination (free) status[29]
- Efforts to implement five interventions, namely[30]:
  a) Ensuring universal access to malaria prevention, diagnosis and treatment;
  b) Accelerating the achievement of the malaria-free status district and maintaining it;
  c) Transforming malaria surveillance into primary intervention;
  d) Creating an environment conducive to malaria elimination by strengthening health system capacities, mobilization of political commitment, public mobilization and promotion of partnership support; and
  e) Enhancing care by utilizing innovation and research.
- Efforts to increase public health, with goals of[32]:
  a) Improving quality and universal health care coverage,
  b) Improving disease prevention and control and public health emergency management, and
  c) Realizing a healthy and fit community through community empowerment and health mainstreaming.

4.1.2 Policies

The priority policies in achieving malaria elimination are as follows[29]:

- Malaria elimination is implemented through the strengthening of the health system at the sub-national level (district) integrated based on primary health care principles, namely fairness, cross-sectoral cooperation, community empowerment and efficient
- Integration of malaria elimination into the health system and national and sub-national developments have consequences that involve multifunctional human resources and need cross-sectoral cooperation.
- Health-related sectors are expected to create policies promoting or raising health (Health in all policies).
- The central government and sub-national governments are responsible for the achievement of malaria elimination as malaria elimination are in the public interest.
- Malaria elimination policies and implementation need basic research, operational support, and efficient technology development.
- Planning and implementing malaria elimination activities are based on district endemicity stratification.

4.2 Objectives

General objectives:

86% of the Indonesian territory is free of malaria transmission, and no district with annual parasite incidence (API) ≥ 1 per 1000 at-risk populations by the end of 2026.

Specific objectives:

1. Increased in number of malaria-free districts from 347 districts in 2022 to 445 districts in 2026.
2. Achieved positivity rate for Papua province (along with the newly created province) <5% by the end of 2026.
3. Malaria elimination status is maintained in districts that have been determined to achieve malaria elimination.

Table 4. 2 Malaria elimination achievement by district API 2022-2026

API	Baseline 2022	2023	2024	2025	2026
		Target	Target	Target	Target
Total districts API>1	58 districts	29 districts	15 districts	9 districts	0 districts
Total districts API <1	84 districts	100 districts	94 districts	80 districts	69 districts
Total district with malaria elimination	372 districts	385 districts	405 districts	425 districts	445 districts

4.3 Strategy

In general, the strategies that will be implemented to achieve the objectives in 2026 are continuing the previous strategies, including the following:

1) Ensuring universal access to malaria case management and prevention to remove gender and human rights barrier
2) Transforming malaria surveillance as the core intervention of malaria elimination
3) Improve enabling environment to ensure malaria elimination achievement through BCC and community engagement.
4) Strengthening the health system to achieve the malaria elimination program based on equity, human right and no one left behind.

In summary, there are three priorities:

1. Continuation of the programme in Papua in an effort to keep malaria cases declining. The surveillance system must be strengthened, especially in villages with high malaria incidence, by:
   a. CMW equipped with RDT and DHP logistics. Logistics must be maintained and the workload of the CMW must be adjusted to their abilities.

b. Implementation of environmental management and larvicide (Altosid is recommended as it is easy to apply and long lasting) according to village conditions.
c. Monitoring of LLIN coverage and utilization with a minimum coverage of 85% per village.
d. If IRS is implemented, it should be monitored for quality and at least two rounds per year.
e. For villages where malaria incidence is not decline, consideration should be given to whether the MDA should be repeated or the management of the underlying intervention should be improved.
f. Monitoring and assistance by Ministry of Health personnel and implementing partners to support activities implemented by health personnel in provinces and districts.
g. Monitoring of drug effectiveness should be done with TES.
h. Insecticide sensitivity monitoring should be conducted annually, especially for major vectors.
i. Strengthening management and logistics for Papua through third party assistance.

2. Focus on special populations and migrants (MMPs) in Eastern Indonesia, Kalimantan, Sulawesi and Sumatra.

   MMP outside Java work as labourers, forest encroachers, temporary forest farmers, miners and others. Some work with formal companies, and many work in the informal sector. They are an at-risk group and need effective interventions. The number of special populations is always changing and shifting. Districts should calculate the size of these populations and map their locations at least annually or more frequently to ensure continuity of activities and intervention packages (RDTs, ACTs, LLINs, repellents etc.). CMW for these special populations should be trained and their numbers adjusted according to the type of MMP and their behavior. For MMPs that are difficult to reach, several approaches can be considered:

   a) MDAs in low-incidence, hard-to-reach transmission foci.
   b) TDA for MMPs who enter the forest but the transmission focus in the forest is widespread, MMPs can be given ACT treatment taken monthly. Or 'standby treatment' can be considered.

   In areas particularly in Sumatra and Kalimantan, PCR-based surveillance systems should be developed to identify *P.knowlesi* parasites. The availability of molecular testing helps to confirm that transmission is still ongoing or has stopped.

   The model of intervention package in IKN areas after impact assessment, and proven successful, may be applied to special populations in other districts.

3. Strengthen surveillance systems in districts that have achieved elimination.

   After obtaining an 'elimination' certificate, there is a tendency for malaria surveillance systems to weaken. Therefore, each district/municipal is expected to:

a. Understand the receptivity in their area - whether there are Anopheles mosquitoes and larvae that can transmit malaria in the district.
b. Understand susceptibility/vulnerability - whether there are parasites imported (in humans) from endemic districts or from abroad.
c. For receptive and vulnerable districts, there needs to be a surveillance system as well as a response system (including drugs and LLINs) to prevent re-introduction. If importation will occur and is slow to be discovered then an outbreak will occur, so it is expected that districts are prepared to cope immediately.

Accelerations Strategy in Papua Land

Objectives

- There are no moderate and high endemic districts/cities in Papua Land by the end of 2026.
- Reduce the positivity rate of Papua Province (along with the newly created province) from 32% (2021) to <5% by the end of 2026.

Strategies and key interventions

1) Ensuring universal access to malaria case management and prevention to remove gender and human right barrier

- Increase access to malaria laboratory diagnosis in all health facilities (public and private) and provision of logistics has to support the activities.
- Improve quality assurance of malaria diagnosis (microscopic and RDT) to all health facilities fit the performance of level 3-equivalent competent microscopists at the health care facility level, level 2 microscopists as cross-checkers at the district level, and level-1 cross-checkers at the provincial level at public health laboratories (Central Health Laboratories (BBLK)/ Central Technical Environmental Health Units (BBTKL).
- Strengthen integrated malaria services for pregnant women and under-five children with MCH services:
    a. Screening pregnant women in 1st ANC services and sick under-five in all district with API > 5 ‰ for 2021-2026 and periodic evaluation of the activities.
    b. LLINs distribution for pregnant women in 1st ANC services in all district with API > 5 ‰ for 2021-2026 and periodic evaluation of the activities.
- LLINs mass campaign in 22 districts (using API > 5 ‰ data 2019) covering all populations in 2020, 2023 and 2025. This activity will be evaluated periodically.
- The LLINs focus campaign on districts that not included on mass campaign, except in highland districts where no malaria transmission has been proven during 2020, 2023 and 2025. These activities will be evaluated periodically.
- Implementation of Papua's accelerated malaria case reduction and elimination package: MDA, school-child screening, IPTp and integrated vector control mainly in districts with API > 100‰.
- Provincial working groups to improve the quality of diagnosis, treatment and management networks in all districts, including public and private health care facilities (PPMs).

2) Transforming malaria surveillance as core intervention of malaria elimination

- 1-2-5 epidemiological investigations in moderate endemic areas that have inactive foci, low endemic and malaria-free.
- Quality assurance on Therapeutic Efficacy Study (TES) in 2 districts as sentinel sites in the period 2022-2026.
- Vector surveillance including annual monitoring of insecticide resistance in selected districts, monitoring of physical durability and efficacy of LLINs, and longitudinal surveys of vectors in two sites.

3) Improve enabling environment to ensure malaria elimination achievement through BCC and community engagement.

- Behavior changes communication campaign (BCC) to accelerate malaria elimination including treatment-seeking behavior, LLINs use, community-based vector control in all districts during 2021-2026.
- Active malaria case finding and treatment using house-to-house visits by CMW in all districts/cities during 2021-2026 and periodic activity evaluation.
- Community-based vector control in all districts/city during 2021-2026 and periodic evaluation of activities.
- Encourage the active role of business, private, and non-government sectors in malaria case reporting, referral, and preventive measures.

4) Strengthening the health system to achieve the malaria elimination program based on equity, human right and no one left behind.

- Advocacy and collaboration across sectors including collaborative partners and the private sector to support the acceleration of malaria elimination.
- Provide regulations to support the acceleration of malaria elimination.
- Strengthen integration of programme management with health systems at the provincial and district/city levels.
- Establishment and regular meetings of malaria elimination working group at provincial and district/city levels.
- Monitoring, evaluation and supervision support to the health centre and CMW level.
- Technical assistance from WHO for research: Therapeutic Efficacy Study (TES) of anti-malarial drugs, insecticide surveillance, durability and efficacy of LLINs.
- Technical assistance from UNICEF to build a network of CMW, ensuring basic management of malaria diagnosis and treatment and vector control - especially LLINs - is done correctly and consistently.

CHAPTER V
IMPLEMENTATION FRAMEWORK

Source: UNICEF, 2022

CHAPTER V IMPLEMENTATION FRAMEWORK

5.1 Work Plan

The malaria program work plan for 2020-2026 describes four malaria prevention strategies to achieve general and specific objectives carried out by districts or municipalities and stratified by malaria endemicity. The work plan is presented in Annex 8.

5.2 Implementation Plan

5.2.1 Malaria Control Planning

The malaria planning system follows the National Long-Term Development Plan (RPJPN) and the National Medium-Term Development Plan (RPJMN), which is then detailed in the annual plan of program activities. The National Long-and Medium-Term Development Plan guides the regions in making their Regional Long-and Medium-Term Development Plans. The annual planning of the malaria program follows the national planning mechanism, which is carried out with the provinces and districts/municipalities. Annual planning with the provinces is utilized to plan the implementation of malaria program activities at the provincial level and is funded by Deconcentration Fund with the district/city locus. Annual planning with the district/municipalities is used for Special Allocation Funds (DAK) activities in the form of physical DAK and non-physical DAK/health operational assistance (BOK), which is distributed directly to districts/municipalities to primary health care (Puskesmas). The Deconcentration Fund and the Special Allocation Fund (non-physical) are used for malaria operational activities. At the same time, the Special Allocation Fund (physical) is allocated for the procurement of tools and materials. Annual planning at the village level provides input for implementing malaria activities using village funds, where the planning of village funds is discussed in village development planning meetings (Musrenbangdes). The donor funds planning is aimed at covering the program gap by considering the priority of the malaria program.

Preparation of malaria program operational plans, implementation, monitoring and evaluation involve cross-program coordination in the Ministry of Health, intergovernmental, non-governmental organizations and communities. Table 5.1 illustrates the main stakeholders in the preparation and implementation of a malaria program operational plan

Table 5. 1 Main Stakeholders in the Preparation of Operational Planning, Implementation, and Monitoring and Evaluation of Malaria Program

	Planning	Implementation	Monitoring and Evaluation
Cross-Health Program	Planning Bureau	Health service (Community Health Centre), Hospital, district/municipality Health Laboratory, Central Technical Environmental Health Units (B/BTKL)	Center of Data and Information (PUSDATIN) and National Institute for Research and Innovation
Cross Sectoral	Development Planning Agency at Sub-National Level (BAPPEDA), National Development Planning Agency (BAPPENAS) (table 5.3 details cross-cutting roles)	Cross-cutting related sectors (table 5.3 details cross-cutting roles)	Development Planning Agency at Sub-National Level (BAPPEDA), National Development Planning Agency (BAPPENAS), Central Bureau of Statistics (BPS), International Organization's
NGO and community	Faith-based organizations, community organizations, private/public company		

5.2.2 Program Implementation

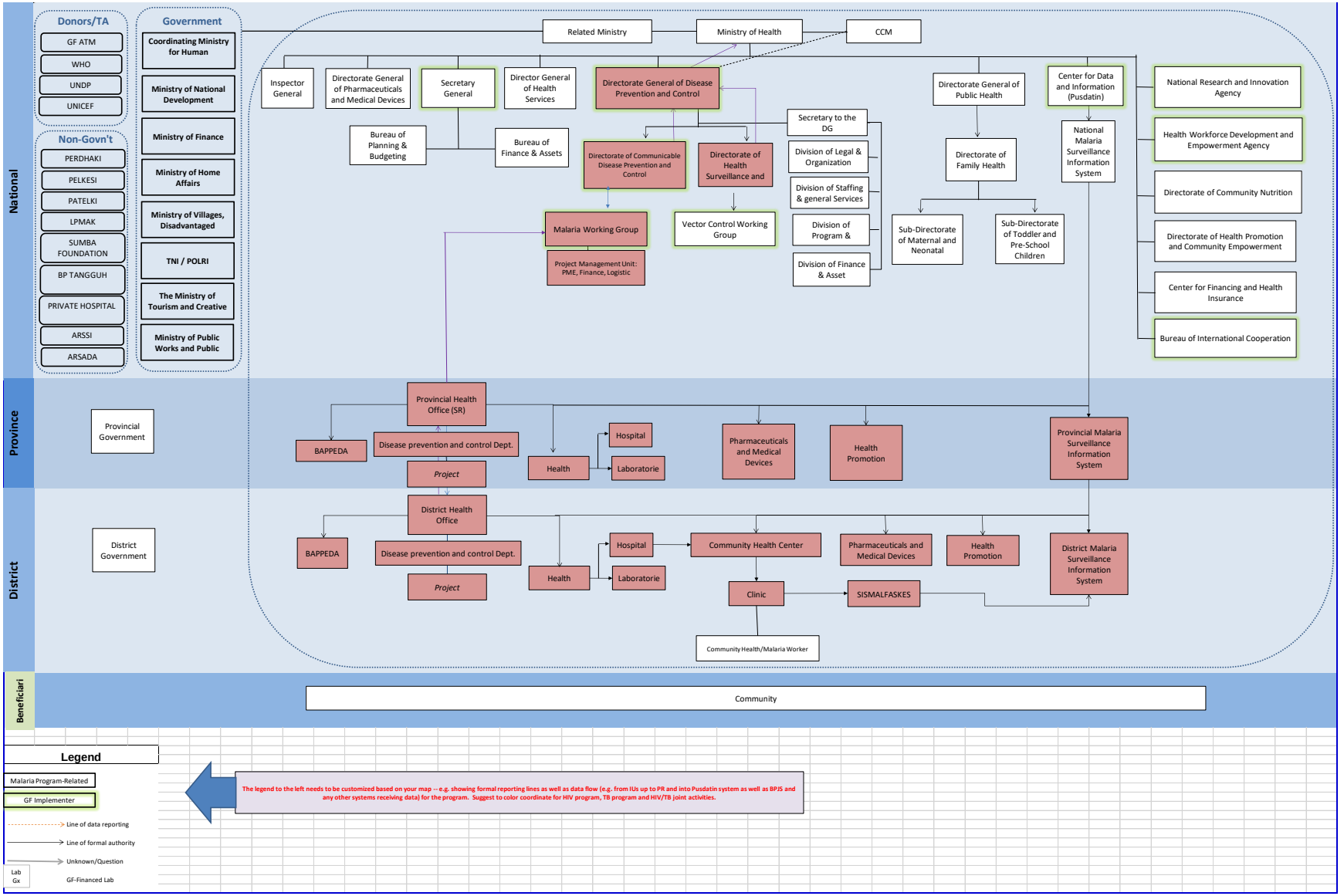
The implementation of the malaria management work plan 2020-2026 apportioned into an annual program activity plan is implemented by all stakeholders at the central and regional levels. Synchronization and synergy of program implementation activities are undertaken during the planning, coordinating, collaborative implementation, monitoring, and evaluation activities. The performance of the malaria program provides resources for malaria, including human resources and logistical and financial resources, and is strengthened by a commitment to perform prevention and control activities based on evidence-based strategies and interventions that have been proven effective and efficient.

The program's implementation requires political commitments through regulations that can guarantee the sustainability of the program implementation at the central and regional levels until the final target of the program is accomplished.

5.2.3 Chart of Cross-Organizations Relationships of Malaria Programme Implementers

Malaria control and elimination is not only the responsibility of the Malaria Programme Implementers' health sector but involves cross-program, cross-sectoral including both government and private sectors as well as mainstreaming of health in all policies. Implementing activities in malaria control and elimination are shown in Figure 5.1.

Figure 5. 1 Organogram of Cross-Organizational Relationships of Malaria Programme Implementers



Tables 5.2, 5.3 and 5.4 show the identification and roles of cross-program, cross-sectoral government, and the private sector and community in malaria control and elimination.

Table 5. 2 Cross- health sector program involvement in malaria

Cross Program Unit	Role
Directorate General of Community Health	1. Family health a. Malaria service for pregnant women through an integrated ANC b. Malaria services for sick children in Integrated Management of Childhood Illness (IMCI). c. Healthy Indonesia Programme with a Family Approach (PISPK) in communicable and non-communicable disease indicators. 2. Health promotion a. Health promotion activity components (advocacy, knowledge attitude and practice changes and community empowerment) for malaria, including collaboration with cross-sectors (Ministry of Villages assistance). b. School children screening through school health unit activities, particularly in a high endemic area. c. Healthy Community Movement (GERMAS) 3. Strengthening primary health care through individual health efforts (UKP) and community health efforts (UKM).
Directorate General of Health Services	1. Provision of malaria health services according to the standards in the health facility and its network, including private health facilities 2. Provision of logistics and malaria laboratory quality assurance. 3. Reporting on cases of malaria morbidity and mortality from health facilities, including private hospitals and private health services 4. Monitoring of malaria laboratory equipment and materials through the application of ASPAK (Application for monitoring of Health Facilities and Equipment) 5. Placement of trained medical and medical support personnel as needed
Directorate of Communicable Disease Prevention and Control	1. Environmental health a. Improved sanitation and environment in malaria-endemic areas. b. Utilization of sanitarians to assist with vector control. c. Clean and healthy living behaviour (PHBS) campaigns. 2. Vectors a. Vector surveillance, including insecticide resistance monitoring b. Vector control c. Integrated vector management (IVM)
Secretariat General	1. Planning Bureau: malaria program financing 2. PUSDATIN: development and strengthening of malaria information systems 3. Health Crisis Center: prevention and control of malaria in disaster/crisis

	4. Center for Financing and Health Insurance: a. Facilitating malaria case referral mechanism in malaria-free areas b. Malaria program financing 5. Staff turnover is carried out following programme needs and staff competencies.
Pharmacy and medical devices	1. Ensure the availability of antimalarial drugs in health services equitably and timely. 2. Development of a pharmaceutical information system (e-logistics) to monitor the stock of drugs, RDTs and mosquito nets at the health centre level. 3. Provision of malaria RDTs. 4. Post-market surveillance (RDTs and malaria testing reagents). 5. Ensuring the availability of insecticides and larvicides. 6. Addition of G6PD testing kits 7. Facilitate import permit/SAS authorization for grant goods
Directorate of Health Surveillance and Quarantine	1. Routine surveillance and EWARS 2. Quarantine maintenance area (cross-border health) 3. Conduct malaria screening for prospective pilgrims from malaria-endemic areas.
Directorate of Immunization	Identify potential malaria vaccine implementation (when available)
Board for Development and Empowerment Human Resources of Health (BPPSDM)	Standardization of curricula, training modules and accreditation for the following activities: 1. Training of entomologists/assistant entomologists/co-assistant entomologists 2. Addition of entomology study programmes 3. Training and certification of microscopists 4. Training in malaria diagnosis and management by distance learning (blended course) 5. Development of a regional malaria workforce strategy 6. Programme management training for programme managers at the central, provincial and district/ municipal levels 7. Training on malaria logistics management
Health Policy Development Agency (BKPK)	1. Conduct operational research on malaria control 2. Become a national reference laboratory for malaria species confirmation. 3. Establishing a network of malaria testing laboratories. 4. Implementation of laboratory human resource competency testing. 5. Development of standardized malaria slides for all health facilities. 6. Creation of the genome mapping of malaria parasites in Indonesia. 7. Conduct quality testing of malaria RDTs. 8. Conducting identification studies *of P.knowlesi*-specific antigens for RDT manufacturing. 9. Identification of locally made anti-malarial drug production

Food Drug Administration	1. Supervise the circulation and withdrawal of non-standard malaria drugs and medical devices. 2. Monitoring the distribution of malaria programme drugs to ensure they are not sold over-the-counter. 3. Post-marketing surveillance of antimalarial drugs (drug quality). 4. Quality assurance of antimalarial drugs 5. Antimalarial drug efficacy monitoring (drug resistance). 6. Pharmacovigilance of antimalarial drugs. 7. Innovation in the manufacture of domestically produced antimalarial drugs.
Social Security Organization (BPJS)	1. Sharing malaria morbidity and mortality data from Social Security Organization (BPJS) data 2. Sharing data on the value of Social Security Organization (BPJS) claims for malaria, both outpatients and inpatients.

Cross Government Sector Involvement

Table 5. 3 Cross-sector involvement in malaria

Cross-Sector Name	Role
National Development Planning Agency (BAPPENAS)	• Based on epidemiological data, discuss and agree on malaria as a national priority programme. • Increase human resource capacity in malaria programme planning in all regions. • Control and allocate budget for malaria programme as a national priority. • Overseeing the development of malaria-free IKN. • Ensure the acceleration of malaria elimination as part of the master plan to accelerate Papua's development 2021-2041.
Cabinet Secretariat	• Issuance of a presidential regulation on malaria elimination • Ensure bureaucratic simplification of the OAM import process. • Monitoring the achievement of malaria elimination in Indonesia by 2030.
Ministry of Home Affairs	The issuance of Ministry of Home Affairs Regulation and related regulations of local budgets planning in malaria control and elimination
Coordinating Ministry for Human Development and Cultural Affairs	Coordination and harmonization of government administration related to malaria control and elimination
Ministry of Village	• Provision of regulations for village funds allocation and utilize of village facilitators to village activities in malaria prevention from the local fund. • Provide rural community infrastructure (bathroom/toilet, drainage, etc.)
Ministry of Social Service	Assistance to stop malaria transmission insolated indigenous tribes

Ministry of Education and Culture	Facilitate: • Development of a local curriculum on malaria • Student participation in malaria prevention activities • Optimizing the function of school health units (UKS) in the early detection of malaria among students and school community members.
Ministry of Religious Affairs	Facilitate: • Delivering information on malaria prevention and control to the community through religious approaches. • Coaching malaria prevention and control to educational institutions under the Ministry of Religious Affairs.
Ministry of Public Work	Implement environmental management through activities: • Construction/improvement of waterways to prevent puddles • The stockpiling of malaria mosquito breeding sites • Creating constructions (canals) for mixing salty water with fresh water or sea water
Ministry of Agriculture	Implementing integrated vector control through: • Farmer training on healthy behaviours and vector control Irrigation regulation with periodic draining of paddy fields • Spreading fish in rice fields (mina padi) that act as larvae eaters of malaria mosquitoes • Licensing and supervising the distribution of insecticides
Ministry of Tourism	• Provide information to travellers about malaria prevention in public places (airports, train stations, bus stations, tourist attractions, etc.). • Encourage tourism operators to keep tourist areas and their surroundings free of malaria larvae and mosquito breeding sites. • Collaborate with appropriate professional organizations (Tourism Medicine Association-PERKEDWI).
Ministry of Energy and Mineral Resources	Supervise and manage mining areas to minimize the risk of malaria transmission.
Ministry of Environment and Forestry	• Supervise and guide forest and conservation areas to reduce the risk of malaria transmission. • Support migration surveillance activities for visitors, workers and communities around the forest.
Ministry of Maritime and Fisheries Affairs	• Conduct IEC activities related to malaria transmission to fishermen and related workers. • Encourage mangrove reforestation, migration surveillance in fishermen, and fish stocking in biological control.
Ministry of Transportation	• Conduct vector control activities.

	• Provide IEC media related to the risk of malaria transmission. • Ensure airports and harbours are free of mosquito breeding sites (zero larvae and mosquitoes).
Ministry of Communication and Informatics	Dissemination of malaria communication and information media
Indonesia National Armed Forces (TNI)/Indonesian National Police (POLRI)	• Collaboration in malaria control activities includes: a. case finding b. case management c. vector control d. migration surveillance • Conducting malaria transmission prevention activities in the TNI/POLRI serves the population in malaria-endemic areas. • Conduct additional malaria health service activities in cross-border areas.
Ministry of State-Owned Enterprises	Allocated corporate social responsibility for the malaria program
Ministry of Trade	Facilitate import licenses for malaria commodity grants
Customs clearance	Facilitate the exemption of entry charges on malaria commodity grants
National Agency for Disaster Countermeasures	Supporting malaria prevention measures in disaster areas
Community and indigenous organizations	Facilitate policy-making for malaria control programmes in the region (e.g. Papuan traditional council).

Role of the Private Sector

Development of malaria control units in their respective business areas:

1. Early detection of malaria
2. Treatment of malaria cases
3. Reporting of malaria cases
4. Environmental management
5. Vector control
6. Behavior change campaign

Private sector participation can assist in the response and acceleration of malaria elimination through upstream and downstream resource mobilization. Upstream, the private sector can play a role in malaria prevention and early detection through environmental management to prevent mosquito breeding due to their business activities; providing protection to workers and communities around their business premises from malaria vector bites; engaging in awareness and behavior change campaigns. Downstream, the private sector can assist in

malaria treatment and reporting for workers and communities. The private sector that provides/owns healthcare facilities is expected to collaborate with the health office to develop a public-private mix (PPM) and be able to conduct medical check-ups (MCU), including malaria screening of employees regularly in malaria-endemic areas.

Table 5. 4 Role of the private sector in malaria control and elimination

Business Type	Motivation	Involvement
Labour-intensive industry, agriculture and mining	▪ Reduce the risk of malaria morbidity and mortality among workers ▪ Improve labour productivity ▪ Ensure a healthy environment for the worker, the worker's families and the surrounding community ▪ Improve company reputation ▪ Attracting investment ▪ Stronger national business environment	▪ Provide funding or human resources/logistics for malaria prevention and treatment in the work area and surrounding communities. ▪ Sponsoring malaria prevention and treatment activities in the community ▪ Disseminate malaria messages in the work site and surrounding areas ▪ Prevention of breeding places for malaria vectors
Telecommunication financial service, transportation service and retail business	▪ Reduce excess health spending on malaria in the community ▪ Increase economic productivity and people's purchasing power	Disseminate malaria messages for awareness, behaviour change, and communication in the campaign context.
Tourism: hotel, restaurants, tourism destination	▪ Protect staff and customers from morbidity and mortality due to malaria ▪ Maintain an excellent reputation as a tourism destination	▪ Training the workers for malaria prevention. ▪ Prevent malaria breeding places in the perimeter of their business site (around 300 meters) ▪ Conducting vector control (IRS or fogging)
Private health care: hospital/private clinic, private doctor, private laboratory.	▪ Provide malaria diagnosis services ▪ Provide malaria treatment services according to national standards ▪ Receive free antimalaria drugs ▪ Reporting on malaria cases	Establish a public-private mix, ratified through an MoU / Cooperation Agreement, through which private health services provide regular case reports.

Role of Community Organizations in Malaria control

Community organizations and Non-Governmental Organizations (NGOs) have a role in mobilizing the community to strengthen and expand malaria prevention and treatment, especially in high malaria endemic areas with limited health resources. Community organizations and NGOs are expected to enhance the health system in their work areas with the following roles:

- Increase community knowledge and ability to prevent health-seeking behaviour.
- Increase public awareness of malaria through community mobilization
- Advocacy to stakeholders
- Build and strengthen partnerships and participation across sectors, community organizations, community organizations, and the private sector
- Increased utilization of local resources for malaria prevention and control; and
- Integrate programs, activities, or community empowerment institutions that engage in activities and work together to prevent and eliminate malaria

Some community organizations and NGOs identified in malaria prevention and control are Aisyiyah, Nahdlatul Ulama, Wahana Visi Indonesia, PERDHAKI and Save the Children.

5.2.4 Management of Malaria Logistics

The management of malaria logistics starts with planning needs, procurement, competitive and quality product selection, distribution and storage, also stock management. The malaria programme and the pharmaceutical work unit at the central and regional levels carry out these activities jointly. Quality assurance is conducted through post-marketing surveillance of RDTs and anti-malarial drugs in collaboration with FDA, DG Pharmaceuticals and Health Policy Development Agency (BKPK). Improvement of the logistics management information system in SISMAL and integration with one data through SMILE is carried out to monitor tiered distribution and stock and strengthen supervision of the beneficiaries. Logistics planning for the next period is based on case projections that have been made to maintain the continuity of logistics availability at each service level.

The roles and responsibilities of providing malaria logistics by each level of program implementers are described in table 5.5.

Table 5. 5 Responsibility distribution in providing malaria logistics

Thematic	Equipment and Material	Provider*
Diagnosis	Basic Lab (mikroskop, giemsa, slide, methanol, emersion oil)	District/municipality Province and central government: *buffer stock*
	RDT for CMW, diagnosis among pregnant women and MMP	The central government, province, district/municipality
	RDTs for routine use and Papua acceleration	District/municipality Province and central government: *buffer stock*
Treatment	ACT/DHP	Central government
	Dispersible DHP	Central government
	Artesunate injectable	Central government
	Quinine	The central government, province and district/municipality
	Primaquine	The central government, province and district/municipality
	Doxycycline	The central government, province and district/municipality
	ACT/Artemether Lumefantrine	Central government
Prevention	Mefloquine	Central government
Vector Control	Mass LLIN campaign	Central government
	Routine LLIN distribution for pregnant women	The central government, province and district/municipality
	LLINs for case investigation 1-2-5, outbreaks, and disasters	The central government, province and district/municipality
	LLINs for MMP	The central government, province and district/municipality
	Repellent for MMP	The central government, province and district/municipality
	Larvicide, mist blower	District/municipality Province and central government: *buffer stock*
	IRS (Spraycan and insecticide)	District/municipality Province and central government: *buffer stock*

Note *: Provider may change regarding changes in policies and regulations

5.3 Budget Needs for Malaria Program Interventions

The strategic funding needs of the malaria programme are calculated using a budgeting approach, which involves developing and agreed-on budgeting for the programmes/activities of the malaria programme's strategic interventions that will be implemented over the next five years. Three specific objectives and four strategies will be implemented, as described in chapter 3. For each of these interventions, key interventions and a series of activities will be developed, and each activity's unit cost and volume will be calculated. The volume of activities is adjusted to the target coverage area per endemicity.

The total planned strategic funding needs for the malaria programme will likely decrease over 2020-2026 based on the NAP-AME document prepared in 2020. The decrease in funding is assumed to occur if the number of regions that have achieved the malaria programme elimination target increases yearly from 285 in 2018 to 405 in 2024, so the funding needs will decrease. Based on the specific objectives, the proportion of malaria programme funding is evenly distributed, with a 31-35% percentage for each objective. Objectives 1 and 2 covers 61 high malaria endemic areas with API>1 per 1000 population, where most activities include universal access to malaria case interventions. Goals 3 and 4 covers 141 and 325 low-endemics (API<1 per 1000) and malaria-free areas, respectively, where activities centre on surveillance as a core intervention.

The updated data in the NAP-AME for the 2023-2026 period, based on the results of the Mid-Term Review and Epidemiological Review conducted in 2022, influenced the estimated funding for the national malaria programme for the next four years. It is related to changes in endemicity after the acceleration of malaria case finding in high malaria endemic areas. The increase in case finding has resulted in an increase in the number of endemic districts with an API>1 per 1000 population, which was previously targeted to decrease gradually by 2022.

With the changing situation and approach in programme implementation, especially in active case-finding activities in accelerated areas in Papua and IKN, the budget requirement in 2023 increased by 20% from the planning in the previous NAP-AME. Furthermore, in 2024 there was a decrease of up to 13% from the previous planning due to the peak of activities driven in 2023. In 2025, there is again an increase in the estimated financing needs related to the repeated mass distribution of mosquito nets.

The malaria programme is largely allocated to transform malaria surveillance into the core of malaria elimination interventions. In 2023-2026, the budget composition declines gradually from 439 M to 398 M. However, this value is high compared to other strategies, given that the programme needs to maintain the intensity of active case finding by CMW in villages and special populations.

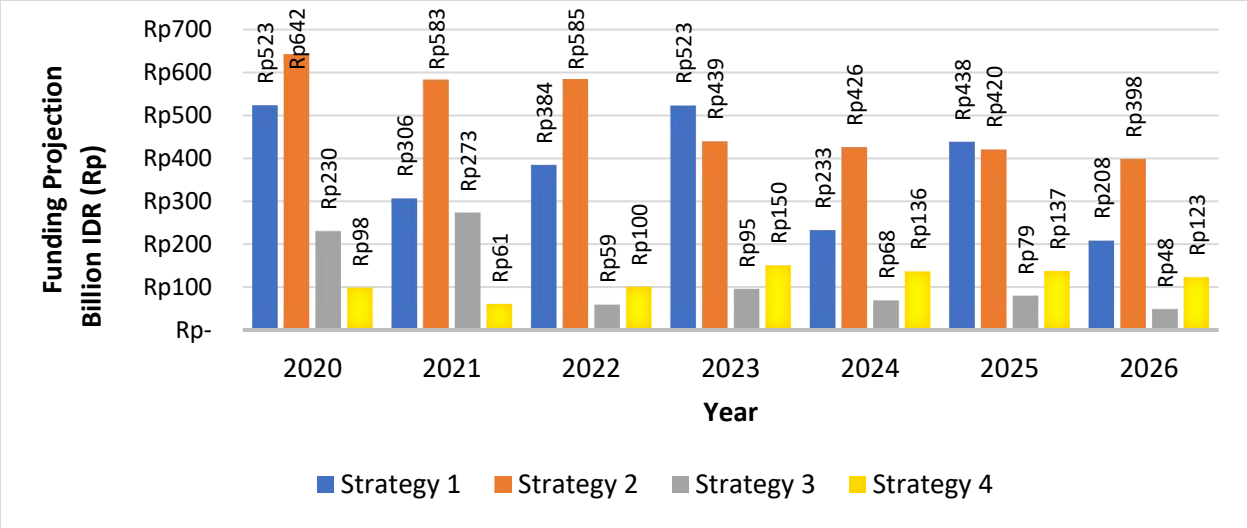


Figure 5.2 Projected Malaria Programme Funds by Strategy, 2020-2026 (in billion IDR)

5.3.1 Funding Gap

2020-2026 is a critical period for the malaria programme to achieve the goal of a malaria-free Indonesia by 2030. Thus, ensuring the availability of funding needs for this period is crucial. The budget requirement for this period is 2.5 times that of the 2017-2020 NAP-AME period. This increase is due to strengthening the surveillance system from high and medium-endemic districts to low-endemic and malaria-free districts. With the increase in the intensity of malaria case-finding activities that began with the issuance of Minister of Health Regulation No. 41/2018 on the Implementation of Early Detection and Administration of Anti-Malaria Drugs by CMW in Areas with Special Situations, the budget requirements for surveillance activities increased.

The revised NAP-AME also includes a policy on MDA (Mass Drug Administration) as one of the new interventions to support the acceleration of malaria elimination, especially in endemic areas with high transmission rates. This activity is paired with vector control activities, including mass mosquito net campaigns targeting pregnant women with mosquito nets, house wall spraying (IRS), and larviciding.

Table 5. 6 Projected availability and funding needs of the malaria program, 2020-2026
(In IDR)

	YEAR				
	2023	2024	2023	2024	TOTAL
Available Funds	**Rp 722.586.408.443**	**Rp 446.173.006.328**	**Rp 446.566.838.707**	**Rp 458.709.624.255**	**Rp 2.074.035.877.733**
Domestic Funding	Rp 329.075.594.986	Rp 340.281.668.348	Rp 340.318.783.828	Rp 352.087.016.633	Rp 1.142.203.851.730
Central Government, Deconcentration, Special Allocation Funds	Rp 114.431.819.995	Rp 120.153.410.995	Rp 114.431.819.995	Rp 120.153.410.995	Rp 335.394.699.990
Antimalarial Drugs	Rp 19.117.767.200	Rp 19.117.767.200	Rp 19.117.767.200	Rp 19.117.767.200	Rp 74.648.433.750
Health Insurance	Rp 85.836.360.543	Rp 85.836.360.543	Rp 85.836.360.543	Rp 85.836.360.543	Rp 445.057.396.475
Local Government, Special Allocation Funds, BOK	Rp 109.689.647.248	Rp 115.174.129.610	Rp 120.932.836.091	Rp 126.979.477.895	Rp 287.103.321.515
Other donor	Rp 23.800.000.000	Rp 23.800.000.000	Rp 23.800.000.000	Rp 23.800.000.000	Rp 119.000.000.000
WHO	Rp 5.600.000.000	Rp 5.600.000.000	Rp 5.600.000.000	Rp 5.600.000.000	Rp 28.000.000.000
UNICEF	Rp 14.000.000.000	Rp 14.000.000.000	Rp 14.000.000.000	Rp 14.000.000.000	Rp 70.000.000.000
Other (DFAT, USAID, WB, M2030)	Rp 4.200.000.000	Rp 4.200.000.000	Rp 4.200.000.000	Rp 4.200.000.000	Rp 21.000.000.000
Other Domestic	Rp 81.751.607.600	Rp 82.091.337.980	Rp 82.448.054.879	Rp 82.822.607.623	Rp 744.523.847.337
Other Ministries	Rp 2.778.300.000	Rp 2.917.215.000	Rp 3.063.075.750	Rp 3.216.229.538	Rp 13.261.515.000
Private Companies	Rp 4.016.307.600	Rp 4.217.122.980	Rp 4.427.979.129	Rp 4.649.378.085	Rp 19.170.832.337
Village Funds	Rp 74.957.000.000	Rp 74.957.000.000	Rp 74.957.000.000	Rp 74.957.000.000	Rp 712.091.500.000
The Global Fund	Rp 287.959.205.857	Rp -	Rp -	Rp -	Rp 470.552.400.177
Projected Needs	**Rp 1.207.154.580.000**	**Rp 862.982.700.000**	**Rp 1.075.173.425.000**	**Rp 777.452.305.000**	**Rp 3.922.763.010.000**
Financial gap	**-Rp 484.568.171.557**	**-Rp 416.809.693.672**	**-Rp 628.606.586.293**	**-Rp 318.742.680.745**	**Rp 1.848.727.132.267**
	-40%	**-48%**	**-58%**	**-41%**	**47%**

The results of the projections of funding availability and needs for the 2020-2022 period show that the largest malaria programme funding gap is still quite high, at 63% in 2020 and 2021 and 47% in 2022. The budgets identified during this period are still quite minimal, which does not reflect the true gap in malaria programme funding. The figures in table 5.6. above is a combination of reported figures from both central and local sources. However, some figures sourced from the national health insurance scheme (JKN), other donors, other ministries, the private sector, and village funds are still unidentified estimates.

For 2023-2026, the gap is estimated to be 40% in 2023, 48% in 2024, 58% in 2025, and 41% in 2026. This figure is based on the assumption of budget availability from sectors other than the health budget for malaria. The gap will be corrected when the Global Fund grant budget for 2024-2026 is approved. Government contributions are expected to increase, especially from local government budgets (APBD) at the province and district levels that have been streamlined during the COVID-19 pandemic, including village fund budgets expected to support more sustainable community mobilisation activities.

The distribution of domestic funding allocation is mostly from low-endemic and malaria-free districts where more than half of these districts have medium and high fiscal capacity. Districts with API>1 have the low fiscal capacity and weak health systems, so donor contributions are prioritised to fill the gaps in these districts.

5.3.2 Strategic funding opportunities

Funding for malaria control should consider sustainability, capacity and cost efficiency. Various strategies will be used to explore the potential of domestic funding sources, including:

1) Defining clear roles of the central and regional governments to avoid duplication of financing activities. Thus, the local government is expected to allocate a budget for the malaria program from their local budget (APBD). For this reason, the choice of activity strategies menu has been prepared according to the category of intervention area as listed in Annex 8. The detail of funding strategies for each level of government can be seen in table 5.7.
2) Identifying potential funding sources for malaria programs at the local level, for instance, village transfer fund centres, known as village allocation funds (ADD) or using corporate social responsibility (CSR) funds from companies. and special autonomy funds. The government requires every company, especially state-owned enterprises, to allocate around 10 per cent of their profits to this CSR fund. Addition of a menu of malaria activities sourced from village funds by the village development fund (PMD) at the provincial and district levels.
3) Increase community participation in the malaria program, especially in supporting and strengthening surveillance programs in their respective residence areas with funding from their sources. In parallel, the malaria working team will develop advocacy materials and carry out advocacy missions - guided by the gap analysis mentioned above - to ensure that national and regional domestic resources are available to minimize risks to the malaria program.

4) Identification of funding sources and potential partnerships have to be carried out. The program's contribution is largely unknown but is estimated to be significant, especially for inpatient services. For this reason, the malaria working team will collaborate with financing and health insurance centres (P2JK), other disease control programs (TB, HIV and NCD) and the Center of Data and Information (PUSDATIN) to look for epidemiological data and financing options from the National Health Insurance Program (JKN).

5) Strengthening the multi-sectoral framework for malaria elimination programs in Indonesia which will be developed to support advocacy to the Ministry of Finance, the Ministry of Home Affairs, the Ministry of Villages, and others. In connection with this effort, we will work with the Local Planning Development Agency (BAPPEDA) and local malaria elimination forums to coordinate multi-sector activities, including coordination between NGOs, the government and the private sector. The formulation and planning of policies for the transition of the malaria program and the development of national norms, standards and criteria will be coordinated by the Malaria Sub-Directorate with support from development partners.

Table 5. 7 Identification of malaria management program activities and sources of funding

Level and Activity	Responsibility
Central Government	
Establish malaria prevention policies	Central budget from the Ministry of Health
Provide drugs, tools, and materials for malaria prevention and control activities	Central budget from the Ministry of Health
Increase the capacity of human resources	Central budget from the Ministry of Health
Conduct advocacy and cooperation with relevant policy makers/stakeholders	Central budget from the Ministry of Health
Develop and provide communication, information, and education media	Central budget from the Ministry of Health
Develop and organize malaria surveillance information systems	Central budget from the Ministry of Health
Monitoring the efficacy and resistance of anti-malarial drugs	Central budget from the Ministry of Health
Conduct monitoring of the efficacy and resistance of insecticides against malaria vectors	Central budget from the Ministry of Health
Establish, strengthen, and implement a quality monitoring system for malaria laboratory networks	Central budget from the Ministry of Health
Supporting operational research that can be used as a basis for determining programme policy	Central budget from the Ministry of Health
Supporting malaria outbreak response activities	Central budget from the Ministry of Health

Province Government	
Determine and implement malaria control activities in the provincial area referring to the national malaria control policy.	Local Budget Revenue and Expenditure (APBD)
Support the provision and distribution of anti-malarial drugs	Local Budget Revenue and Expenditure (APBD)
Provide and distribute tools and materials for malaria control activities	Local Budget Revenue and Expenditure (APBD), General Allocation Fund (DAU). Specific Allocation Fund (DAK) and special autonomy funds.
Increase the capacity of human resources at the provincial level	Local Budget Revenue and Expenditure (APBD)
Conduct advocacy and cooperation with relevant policy makers/stakeholders at the provincial level	Local Budget Revenue and Expenditure (APBD)
Develop and provide communication, information, and education media following local conditions (locally specific)	Local Budget Revenue and Expenditure (APBD)
Organizing and strengthening malaria surveillance information systems at the provincial level	Local Budget Revenue and Expenditure (APBD)
Implement and support the monitoring of anti-malarial drug efficacy and resistance	Local Budget Revenue and Expenditure (APBD)
Carry out and support monitoring of the efficacy and resistance of insecticides against malaria vectors	Local Budget Revenue and Expenditure (APBD)
Establish, strengthen, and implement a quality monitoring system for malaria laboratory networks at the provincial level	Local Budget Revenue and Expenditure (APBD)
Support malaria outbreak response activities	Local Budget Revenue and Expenditure (APBD)
Determine and implement malaria control activities in the provincial area referring to the national malaria control policy.	Local Budget Revenue and Expenditure (APBD)
Support the provision and distribution of anti-malarial drugs	Local Budget Revenue and Expenditure (APBD)
Provide and distribute tools and materials for malaria control activities	Local Budget Revenue and Expenditure (APBD)
Increase the capacity of human resources at the provincial level	Local Budget Revenue and Expenditure (APBD)
Support malaria outbreak response activities	Local Budget Revenue and Expenditure (APBD)
District/Municipalities Government	
Determine and implement malaria control activities in the district/municipality referring to the national malaria control policy	Local Budget Revenue and Expenditure (APBD)
Support the provision and distribution of anti-malarial drugs to health service facilities.	Specific Allocation Fund (DAK)
Provide and distribute tools and materials for malaria control activities to health centres.	Local Budget Revenue and Expenditure (APBD) and Specific Allocation Fund (DAK)

Increase the capacity of human resources at the district/municipality and health centre levels	Local Budget Revenue and Expenditure (APBD) and Health operational assistance (BOK)
Conduct advocacy and cooperation with relevant policy makers/stakeholders at the district/municipal level	Local Budget Revenue and Expenditure (APBD) and Health operational assistance (BOK)
Develop and provide communication, information, and education media following local conditions (locally specific)	Local Budget Revenue and Expenditure (APBD)
Organizing and strengthening malaria surveillance information systems at the district/municipality level	Local Budget Revenue and Expenditure (APBD)
Implement and support the monitoring of anti-malarial drug efficacy and resistance	Local Budget Revenue and Expenditure (APBD)
Carry out and support monitoring of the efficacy and resistance of insecticides against malaria vectors	Local Budget Revenue and Expenditure (APBD) and Health operational assistance (BOK)
Establish, strengthen, and implement a quality monitoring system for malaria laboratory networks at the district/municipal level.	Local Budget Revenue and Expenditure (APBD) and Health operational assistance (BOK)
Implement malaria outbreak response activities	Local Budget Revenue and Expenditure (APBD) and Health operational assistance (BOK)
Promote clean and healthy living behaviours that support the prevention of malaria transmission	Self-funding
Conduct prevention activities and malaria vector control efforts;	Self-funding
Improving the capacity of CMW and supporting the provision of routine cadre needs (kits and operations)	Self-funding
Support the implementation of active case finding by trained CMW	Self-funding
Screen mobile migrant populations and implement migration surveillance activities.	Self-funding
Encourage individuals or groups who have the potential to contract malaria and/or who come from endemic areas to malaria-free areas to check themselves at a health care facility	Self-funding

CHAPTER VI

MONITORING EVALUATION FRAMEWORK

Source: PHO West Papua, 2023

CHAPTER VI. MONITORING AND EVALUATION FRAMEWORK

The framework for monitoring and evaluation (M&E) of the malaria elimination programme describes the M&E process, indicators and targets adopted to measure the progress of interventions and the impacts of malaria mitigation activities on the reduction of morbidity and mortality rates and the status of malaria elimination. Several selected monitoring indicators include impact, outcome and output (Table 6.1). The process and input indicators are monitored to support the analysis of the previous indicators. The indicators are listed in annex 8.

To monitor the mitigation programme's impact and validate routine reports, surveys are used according to the characteristics of the respective indicators. To monitor the progress of the programme, data are routinely collected through the Malaria Information System (SISMAL) in a tiered manner. Data recorded on SISMAL will be studied for epidemiological analysis and planning (Figure 6.1).

Data collected through SISMAL cover all malaria mitigation measures (case register, focus villages, case detection activities, laboratory examination, treatment and other surveillance) and programme management (logistics, funding, and human resources). Government and private healthcare facilities submit data and report to SISMAL within a time limit determined per the endemicity level. Healthcare facilities prepare original documents properly and upload the same to the database. The district and province will validate reports from health care facilities and report district- and provincial-level activities. The feedback from the central level to the province and district level implement periodically every 3-4 months. Besides that, it’s necessary to develop a yearly fact sheet and quarterly bulletin as media information to update the malaria program situation.

Furthermore, mid-term programme reviews on the National Action Plan for Acceleration of Malaria Elimination (NAP-AME) were conducted in 2022. This review assesses the programme's progress based on activities undertaken according to the NAP-AME and gives input for program implementation in the second half-term of NAP-AME 2023-2024. At the end of the NAP-AME period, it will review again by 2024. The results there will be used for drafting NAP-AME 2025-2029.

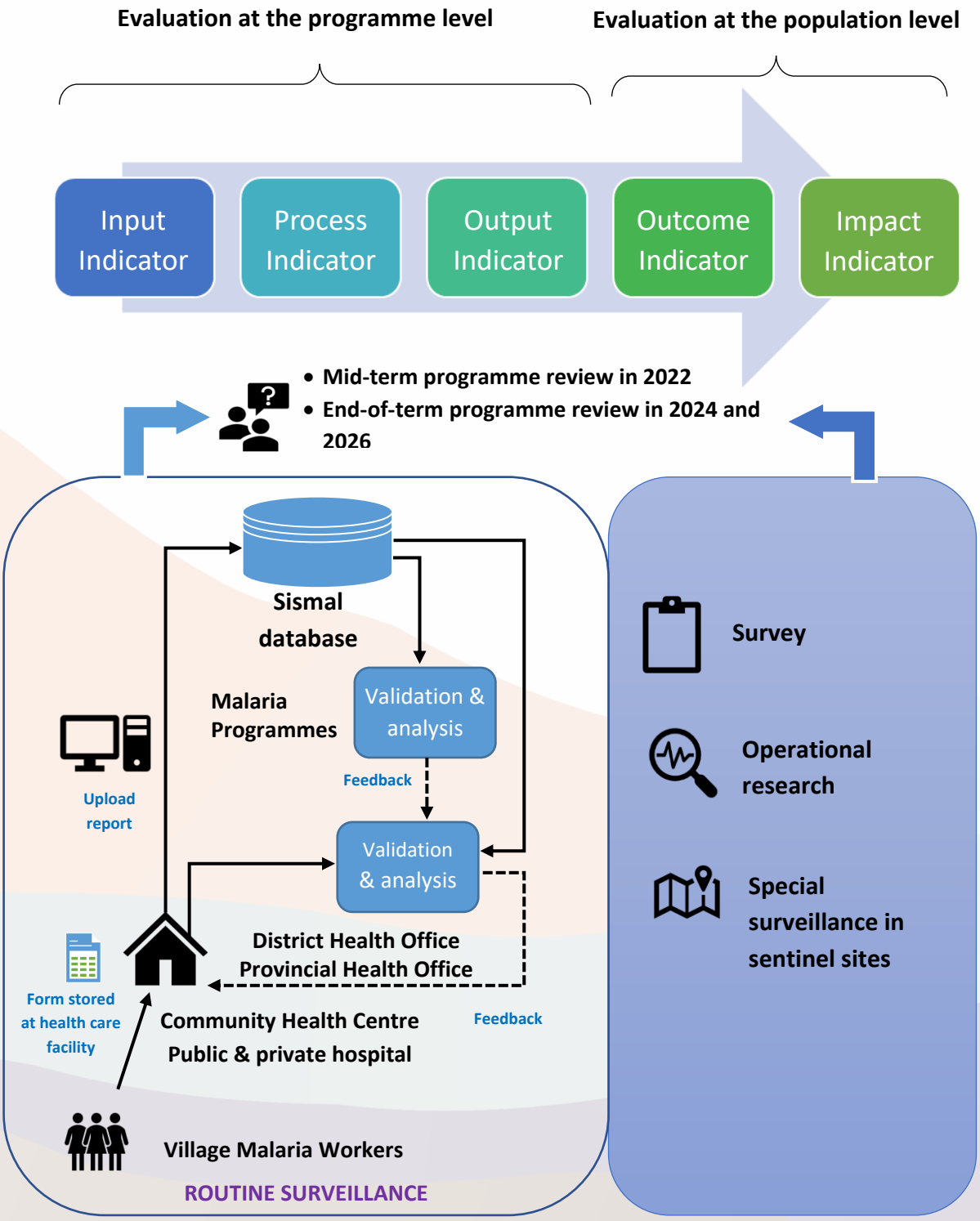


Figure 6. 1 Monitoring and evaluation framework of NAP-AME 2020-2024

Table 6. 1 Malaria programme 2020-2026 indicators

Indicators	Baseline		Target dan Achievement		Baseline revision	Target				Operational Definition	Data Source	Report Frequency	Remark
	Number	Year	2020	2021	2022	2023	2024	2025	2026				
IMPACT													
I.1 Number of districts achieving elimination	300	2019	325 318	345 347	365 372	385	405	425	425	Number of districts which have received elimination status from the Indonesia Ministry of Health	Elimination assessment	Annual	
I.2. National Annual Parasite Incidence (API)	0.84	2018	0.85 0.94	0.76 1.12	0.84 1.51 Number of cases based on SISMAL 415,140 (per 31 Jan 2023)	1.79 Expected number of cases: 495,652 cases	2.02 Expected number of cases: 565,683 cases	1.29 Expected number of cases: 363.721 cases	0.65 Expected number of cases 185,004 cases	(n) Number of laboratory-confirmed malaria cases (d) 1000 residents at risk	Routine report	Annual	
OUTCOME													
O.1. Proportion	95%	2018	95%	95%	95%	95%	95%	95%	95%	(n) Number of malaria suspects	SISMAL	Annual	

of suspected malaria cases that receive a parasitological test			97%	96%	98% (per 31 Jan 2023)					examined at the laboratory (microscope/RDT) (d) Number of all malaria suspects Data are disaggregated on examination at public, private and community healthcare facilities			
O.2. Proportion of confirmed malaria cases receiving standard antimalarial treatment	93%	2018	95%	95%	95%	95%	95%	95%	95%	(n) Number of malaria cases receiving standard treatment (d) Total number of malaria cases Data are disaggregated on examination at public, private and community healthcare facilities.	Routine Report/ SISMAL	Annual	
			95%	98%	93%								
O.3 Proportion of suspected *P.knowlesi* confirmed by PCR in sentinel lab *P. knowlesi*	19%	2019	25%	25%	100%	100%	100%	100%	100%	(n) Number of Pk suspects confirmed with PCR (d) Number of all Pk suspects resulting from microscopist examinations Data from	Report from sentinel lab *P. knowlesi*	Annual	
			100%	100%	100%								

										sentinel lab *P. knowlesi*			
API> 5‰													
O.4 % *Annual Blood Examination Rate* (ABER)	• District with API > 50‰: 38.7% • District with API 20-50 ‰: 10.2% • District with API 1-19‰: 5.4%	2018	District with API > 50 ‰ : target ABER ≥50% District with API 20-50 ‰ : target ABER ≥30% District with API 1-19 ‰ : target ABER ≥10%		District with API > 50 ‰ : target ABER ≥50% District with API 20-50 ‰ : target ABER ≥30% District with API 5-19 ‰ : target ABER ≥10%	District with API > 50 ‰ : target ABER ≥50% District with API 20-50 ‰ : target ABER ≥30% District with API 5-19 ‰ : target ABER ≥10%%				(n) Number of people examined for malaria (microscopist/RDT) (d) Number of residents at risk (residing in areas with malaria transmission)	Routine Report	Annual	
			District with API > 50‰ : ABER 51,7% District with API 20-50‰: ABER 14,2% District with	District with API > 50‰ : ABER 56,8% District with API 20-50‰: ABER 28,9% District with	District with API > 50‰ : ABER 84% District with API 20-50‰ : ABER 39% District with API 5-19‰ : ABER 28%								

			API 1-19‰ : ABER 6%	API 1-19‰ : ABER 7,4%									
O.5 Positivity rate						11%	6,5%	4%	2%	(n) Number of confirmed malaria case (d) Number of suspected malaria cases that were examined for malaria (microscopist/RDT)	Routine Report	Annual	
			32.8%	25.6%	21%								
O.6. Proportion of pregnant women receiving screening with a malaria test at first ANC visit in high endemic districts.	23%	2019	50%	60%	70%	70%	70%	70%	70%	(n) Number of pregnant women on first visit (K1) of ANC screened for malaria (d) Number of all women on ANC K1	Routine Report	Annual	
			26%	38%	50% (data per 31 Jan 2023)								
O.7. Proportion of sick under-five children presenting to health care receiving screening with malaria	22%	2019	40%	50%	60%	70%	70%	70%	70%	(n) Number of ill CU5 screened for malaria (d) Number of all ill CU5	Routine Report	Annual	
			22%	43%	39% (data per 31 Jan 2023)								

test in endemic malaria districts.													
O.8. Proportion of residents sleeping under a mosquito net the previous night	60.5%	2019		85% 84.70%	Using data 2021		85%		85%	(n) Number of residents sleeping under a mosquito net during the night before the survey (d) Number of all residents in the area surveyed	KAP Survey	Post LLIN campaign	The survey conducted post-LLIN campaign
O.9. Proportion of the population that slept under an insecticide-treated net the previous night from the population who received an insecticide-treated net	95%	2019		95% 89.60%	Using data 2021		95%		95%	(n) Number of residents sleeping under a mosquito net during the night before the survey (d) Number of all residents accessed in the area surveyed	KAP Survey	Post LLIN campaign	The survey conducted post-LLIN campaign
O.10 Proportion of pregnant women sleeping under a mosquito net	69.9%	2019		85% 90.23%	Using data 2021		85%		85%	(n) Number of pregnant women sleeping under a mosquito net during the night before the survey	KAP Survey	Post LLIN campaign	The survey conducted post-LLIN campaign

										(d) Number of all pregnant women in the area surveyed			
O.11. Proportion of CU5 sleeping under a mosquito net	68.8%	2019		85% 94.61%	Using data 2021		85%		85%	(n) Number of CU5 sleeping under a mosquito net during the night before the survey (d) Number of all CU5 in the area surveyed	KAP Survey	Post LLIN campaign	The survey conducted post-LLIN campaign
API ≥ 1-5‰ dan API <1‰													
O.12. Positivity rate			District with API ≥ 1-5‰: 11,3% District with API < 1‰: 5.2%	District with API ≥ 1-5‰: 13,8% District with API < 1‰: 4.5%	District with API ≥ 1-5‰: 13.3% District with API < 1 ‰ : 6.5%	50% reduction from the previous year	50% reduction from the previous year	50% reduction from the previous year	50% reduction from the previous year	(n) Number of confirmed malaria case (d) Number of suspected malaria cases that were examined for malaria (microscopist/RDT)	Routine Report	Annual	
O.13. Number of indigenous cases					District with API ≥ 1-5‰: 6619 cases District with	25% reduction from the previous year	25% reduction from the previous year	25% reduction from the previous year	25% reduction from the previous year	Number of indigenous cases from the epidemiological investigation	Routine Report	Annual	Not all districts have implemented

					API < 1 ‰ : 2690 cases								case classification
O.14. % Of confirmed cases fully investigated and classified						District with API ≥ 1-5‰: 80% District with API < 1 ‰ : 100%				n) Number of malaria cases which epidemiological investigation and classified (d) Number of all reported malaria cases	Routine Report	Annual	
					District with API ≥ 1-5‰: 70.9% (7786/10973) District with API < 1 ‰ : 84.7% (4102/ 4838)								
O.15 Proportion foci mapping in district						District with API ≥ 1-5‰: 80% District with API < 1 ‰ : 100%				(n) Number of districts which implement foci mapping in their respective area (d) Number of districts as API target (endemicity classification)	Routine Report	Annual	It should update the foci mapping

					District with API ≥ 1-5‰: 87% (26 of 30 district) District with API < 1 ‰ : 93% (77 of 83 districts) Data per 8 January 2023							
O.16 Proportion of malaria outbreak response					100%	100%				(n) Number of districts which implemented malaria outbreak response in their respective area (d) Number of districts that reported malaria outbreaks in their respective area	Routine Report	Annual	
					One of 1 district (Merangin)								
Eliminated malaria													
O.17. % Of confirmed cases fully investigated and classified						100%				(n) Number of import malaria cases which epidemiological investigation and classified (d) Number of all	Routine Report	Annual	

										reported malaria cases			
					84% (7377 of 8778 cases)								
O.18. Proportion foci mapping in district						100%				(n) Number of districts which implement foci mapping in their respective area (d) Number of districts as API target (endemicity classification)	Routine Report	Annual	It should update the foci mapping
					74,7% (278/372)								
O.16 Proportion of malaria outbreak response						100%				(n) Number of districts which implemented malaria outbreak response in their respective area (d) Number of districts that reported malaria outbreaks in their respective area	Routine Report	Annual	
					100% (Rokan Hilir, Kulon Progo, Serdang Bedagai, Magelang)								

OUTPUT													
K1.1. % of health facilities providing diagnostic services participate in quality assurance systems.	13.5%	2019	17% 9%	20% 11%	25% 12% (539/4469)	30%	35%	40%	45%	n) Number of healthcare facilities undertaking QA activities (cross-checking/panel examination during supervision/proficiency test) (d) Number of all health care facilities designated to perform malaria examination (target: 7,232 health care facilities to conduct malaria microscopist examination)	Routine Report	Annual	
K1.2 % Percentage of health facilities with ACT available on	94%	2019	94% 69%	94% 87,40%	94% 80%	95%	95%	95%	95%	(n) Malaria treatment-providing health care facilities with ACT available on the day of reporting	Routine Report	Annual	

the day of reporting										(d) Number of healthcare facilities providing malaria treatment			
K2.1. % % Completeness of healthcare facility monthly reports through SISMAL	79.25%	2019	80% 75%	82.21% 88%	85.6% 92% (data per 6 Feb 2023)	92%	92%	92%	92%	(n) Number of reports from health care facilities sent within a pre-determined time through SISMAL (d) Total number of reports expected from healthcare facilities	SISMAL	Annual	By 2023, there will be the transition of SISMAL V2 to V3
K2.2. % Timeliness of monthly healthcare facility reports through SISMAL on the day of reporting	NA	2019	20% 42,70%	40% 51,50%	60% 63,8% (data per 6 Feb 2023)	65%	70%	75%	80%	(n) Number of monthly health care facility reports through SISMAL on the determined day of reporting (d) Total number of monthly healthcare facility report inputted to SISMAL	SISMAL	Annual	
K2.3. % Proportion of cases validated among all cases reported through the	NA	2019	30% NA	50% 88%	60% 100%	100%	100%	100%	100%	(n) Number of validated malaria cases reported in EWARS (d) Number of malaria cases reported in EWARS	EWARS data	Annual	

EWARS system													
K3.1. Number of Provincial Malaria Elimination Forums established	5	2019	6	12	21	7	12	17	22	Number of provinces with cross-sectoral (assessment/M&E team/working group) coordination forum for malaria elimination (evidenced with a Decision Letter) (Cumulative)	Routine report	Annual	
			3	4	5								
K3.2. The proportion of active VMW					80%					(n) Number of active VMW (d) Number of trained	Routine report	Annual	
					90% (data from the high endemic area: Papua, Papua Barat dan NTT)								
K3.3. % malaria service delivery report for VMW that integrated to SISMAL in the high	64%	2019	70%	75%	80%	85%	90%	90%	90%	(n) Number of monthly malaria care reports from malaria cadres integrated into SISMAL by community health centres	SISMAL	Annual	
			98%	62%	73%								

endemic area										(d) Number of monthly malaria care reports from malaria cadres			
K4.1. Number of provinces and districts with the official endorsement of malaria elimination and maintenance.	Eight provinces and 21 district	2019	25	20	20	20	20	20	20	Number of provinces and districts with the official endorsement of malaria elimination and maintenance	Routine report	Annual	
			2 Prov, 38 districts	3 Prov, 54 districts	10 Prov, 63 districts								
K4.2. Number of the province and district-allocated budgets for malaria elimination	150 districts	2019	325	345	365	385	405	425	445	Number of provinces and districts allocating malaria elimination funds from the regional budget	Routine Report	Annual	
			104	178	175								
K4.3. The number of cross-border coordination meetings conducted.	5	2019	6	6	6	6	6	6	6	Number of meetings for international and inter-province/-district cross-border activity coordination	Routine Report	Annual	Two meetings with Timur Leste; 1 inter Province /District in Lampung. Sumsel,
			NA	2	6								

													Jambi, Babel and Bengkulu; 1 in IKN; 1 in Menoreh
K4.4. Number of Bi-Annual Malaria Research in Indonesia meetings conducted.	1	2016	1 1	-	1 0	1		1		Number of Bi-Annual Malaria Research in Indonesia meetings conducted.	Routine Report	Bi-annual	
PROCESS													
P1.1. % of health facilities able to perform malaria examination (RDT and microscopic)	73.9%	2019	80% 50.50%	85% 50%	90% 54% (6451/12032)	92%	95%	95%	95%	n) Number of health facilities conducting malaria examinations (RDT/ microscopy) (d) The total number of health facilities appointed	Routine Report	Annual	
	50%	2019	55%	60%	65%	80%	85%	85%	85%			Annual	

P1.2. % of Army Force and Police health facilities and the private sector join malaria networks			55,6%	76,9%	Using data 2021					n) Number of private health facilities joining malaria networks (d) Number of targeted private health facilities = 542 health facilities (Assumption: 1 health facility in each non-high endemic district/municipalities (486 districts/municipalities) + 2 health facilities in 28 high endemic districts/municipalities (56).	Routine Report		
P2.1. Availability of surveillance data on antimalarial drug efficacy in selected areas	10	2018	X 2		X 2		X		X	Data on drug efficacy surveillance in sentinel areas is available	Report	Incidental	

P2.2. % Proportion of low and free endemic districts carrying out migration surveillance	24%	2019	30% 41%	35% 37%	40% 44%	45%	50%	50%	50%	(n) number of districts/municipalities reporting laboratory examinations through migration control (d) Number of districts/municipalities with API <1 and free transmission	Routine Report	Annual	
P2.3. % Percentage of districts conducting outreach malaria services to MMPs among districts with MMPs	49%	2019	55% NA	60% NA	60% 43,30%	65%	70%	75%	80%	n) Number of districts/municipalities that provide outreach services for special (d) Number of districts/municipalities that have special populations	Routine Report	Annual	Data 2022: 153 districts in moderate, low endemic and free malaria which reported outreach activities. 353 districts reported MMP in their area (in moderate, low endemic

													and free malaria districts)
P2.4. Availability of data on insecticide resistance in high endemic districts.	43%	2019	50%	60%	3	4	4	4	4	Number of selected high endemic districts which have data on insecticide resistance as a national guideline	Routine Report	Annual	
			31%	0%	Sorong Selatan, Manokwari, Sumba Barat								
P2.5. The proportion of low endemic and free malaria districts carrying out mapping of receptivity	24%	2019	25%	30%	40%	50%	60%	60%	60%	((n) Number of districts/municipalities that map the receptivity (d) Number of districts/municipalities with API <1 and free transmission	SISMAL	Annual	
			14%	25%	23%								
P2.6. Availability of data on physical durability and efficacy of anti-mosquito nets	1	2019	1	1	1	1		1		Data on the physical durability and efficacy of anti-mosquito nets, at least from 1 sentinel location in Papua, are available	Routine report	Incidental	
			NA	1	NA								
P2.7. Availability of longitudinal	0	2019	0	availabl e	available	2 locations	2 locations	2 locations	2 locations	Data longitudinal vector surveillance minimal two	Routine report	Annual	

vector surveillance data in high endemic districts			0	Keerom	Sumba Barat					sentinel locations in high endemic districts available			
P4.1. The proportion of districts with staff trained in malaria program management	Elimination: 39 % (117/300)	2019	X	Elimination 61% (212/345)	Elimination 83% (302/365)	Elimination 100% (385/385)	Elimination 100% (405/405)	Elimination 100% (425/425)	Elimination 100% (445/445)	(n) Number of districts/municipalities having staff trained in malaria program management (d) Number of districts/municipalities	Routine report	Annual	
				22%	27%	36%							
P4.2. Availability of malaria best practices documentation in Indonesia	NA		X	NA	X	1 document	1 document	1 document	1 document	Documents of malaria best practices from various districts/municipalities or provinces are available	Routine report	Annual	
					7								

CHAPTER VII
CONCLUSION

Source::UNICEF, 2022

CHAPTER VII. CONCLUSION

This National Action Plan for Acceleration of Malaria Elimination (NAP-AME) 2020-2024 and interim plan 2025-2026 is supported by international and local experts also available evidence-based research data and orients malaria elimination in Indonesia. At the national level, the national malaria programme will use the action plan to identify programme and financial disparities and review, monitor and evaluate the success and progress of the programme towards elimination. On the other hand, provincial and district malaria programmes will use the action plan as a guideline for implementation towards elimination. The action plan can also be used to identify the support needed from the government and partners.

The action plan for malaria elimination is not a static document. The understanding of malaria elimination and the unique epidemiological environment in Indonesia develops through research and evaluation that the elimination strategy will be revised and adjusted. The success of elimination in Indonesia will depend on adaptive and innovative approaches to implement high-impact interventions.

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ANNEX 1. ESTIMATION OF EXAMINATION AND POSITIVE CASES OF MALARIA IN 2022 – 2026 BASED ON DISTRICT IN INDONESIA

NO	Province	District	Estimation number of malaria examination 2023-2026	Reported number of malaria examination in 2022 final by 1 March 2023	% Reporterd number of malaria examination in 2022 comparing estimation	Reported number of positive malaria cases in 2022 final per 1 March 2023	Estimation number of indigenous cases 2023*	Estimation number of indigenous cases 2024*	Estimation number of indigenous cases 2025*	Estimation number of indigenous cases 2026*
1	ACEH	SIMEULUE	3.857	4.284	111,1%	-	-	-	-	-
2	ACEH	ACEH SINGKIL	1.256	7	0,6%	-	-	-	-	-
3	ACEH	ACEH SELATAN	3.680	3.778	102,7%	10	-	-	-	-
4	ACEH	ACEH TENGGARA	2.193	15	0,7%	5	-	-	-	-
5	ACEH	ACEH TIMUR	4.422	4.677	105,8%	2	-	-	-	-
6	ACEH	ACEH TENGAH	4.302	4.921	114,4%	3	-	-	-	-
7	ACEH	ACEH BARAT	2.124	1.096	51,6%	4	-	-	-	-
8	ACEH	ACEH BESAR	5.164	6.123	118,6%	7	-	-	-	-
9	ACEH	PIDIE	2.266	68	3,0%	1	-	-	-	-
10	ACEH	BIREUEN	4.772	2.049	42,9%	4	-	-	-	-
11	ACEH	ACEH UTARA	4.408	856	19,4%	3	-	-	-	-
12	ACEH	ACEH BARAT DAYA	770	-	0,0%	-	-	-	-	-
13	ACEH	GAYO LUES	950	-	0,0%	-	-	-	-	-
14	ACEH	ACEH TAMIANG	3.008	643	21,4%	7	-	-	-	-
15	ACEH	NAGAN RAYA	1.689	74	4,4%	11	-	-	-	-
16	ACEH	ACEH JAYA	7.669	6.674	87,0%	32	29	26	14	-
17	ACEH	BENER MERIAH	5.538	474	8,6%	21	-	-	-	-
18	ACEH	PIDIE JAYA	3.263	2.779	85,2%	-	-	-	-	-
19	ACEH	KOTA BANDA ACEH	2.270	2.839	125,1%	9	-	-	-	-
20	ACEH	KOTA SABANG	5.341	1.269	23,8%	11	-	-	-	-
21	ACEH	KOTA LANGSA	5.632	1.252	22,2%	5	-	-	-	-
22	ACEH	KOTA LHOKSEUMAWE	2.519	2	0,1%	2	-	-	-	-

23	ACEH	KOTA SUBULUSSALAM	1.840	-	0,0%	-	-	-	-	-
24	SUMATERA UTARA	NIAS	4.064	640	15,7%	5	5	4	2	-
25	SUMATERA UTARA	MANDAILING NATAL	4.567	2.166	47,4%	-	-	-	-	-
26	SUMATERA UTARA	TAPANULI SELATAN	1.693	36	2,1%	-	-	-	-	-
27	SUMATERA UTARA	TAPANULI TENGAH	3.285	676	20,6%	1	1	1	0	0
28	SUMATERA UTARA	TAPANULI UTARA	3.063	140	4,6%	-	-	-	-	-
29	SUMATERA UTARA	TOBA SAMOSIR	1.849	2	0,1%	2	-	-	-	-
30	SUMATERA UTARA	LABUHAN BATU	6.460	763	11,8%	273	246	221	122	-
31	SUMATERA UTARA	ASAHAN	15.595	5.615	36,0%	2.155	2.263	2.376	1.307	719
32	SUMATERA UTARA	SIMALUNGUN	425	170	40,0%	1	-	-	-	-
33	SUMATERA UTARA	DAIRI	2.856	314	11,0%	2	-	-	-	-
34	SUMATERA UTARA	KARO	2.171	39	1,8%	-	-	-	-	-
35	SUMATERA UTARA	DELI SERDANG	2.899	489	16,9%	-	-	-	-	-
36	SUMATERA UTARA	LANGKAT	5.060	1.827	36,1%	44	40	36	20	11
37	SUMATERA UTARA	NIAS SELATAN	3.921	221	5,6%	10	9	8	4	-
38	SUMATERA UTARA	HUMBANG HASUNDUTAN	972	21	2,2%	-	-	-	-	-
39	SUMATERA UTARA	PAKPAK BHARAT	515	65	12,6%	-	-	-	-	-
40	SUMATERA UTARA	SAMOSIR	2.538	2.982	117,5%	7	-	-	-	-
41	SUMATERA UTARA	SERDANG BEDAGAI	6.164	1.092	17,7%	820	-	-	-	-
42	SUMATERA UTARA	BATU BARA	12.775	11.323	88,6%	730	767	805	443	243

43	SUMATERA UTARA	PADANG LAWAS UTARA	1.437	17	1,2%	-	-	-	-	-
44	SUMATERA UTARA	PADANG LAWAS	1.493	69	4,6%	-	-	-	-	-
45	SUMATERA UTARA	LABUHAN BATU SELATAN	1.788	17	1,0%	-	-	-	-	-
46	SUMATERA UTARA	LABUHAN BATU UTARA	11.134	2.167	19,5%	715	751	788	434	238
47	SUMATERA UTARA	NIAS UTARA	4.197	287	6,8%	110	99	89	49	27
48	SUMATERA UTARA	NIAS BARAT	2.471	892	36,1%	65	59	53	29	16
49	SUMATERA UTARA	KOTA SIBOLGA	876	244	27,8%	26	-	-	-	-
50	SUMATERA UTARA	KOTA TANJUNG BALAI	1.804	31	1,7%	14	-	-	-	-
51	SUMATERA UTARA	KOTA PEMATANG SIANTAR	2.593	21	0,8%	21	-	-	-	-
52	SUMATERA UTARA	KOTA TEBING TINGGI	1.691	51	3,0%	15	-	-	-	-
53	SUMATERA UTARA	KOTA MEDAN	11.584	333	2,9%	209	-	-	-	-
54	SUMATERA UTARA	KOTA BINJAI	1.421	-	0,0%	-	-	-	-	-
55	SUMATERA UTARA	KOTA PADANGSIDIMPUAN	1.151	53	4,6%	-	-	-	-	-
56	SUMATERA UTARA	KOTA GUNUNGSITOLI	2.635	174	6,6%	1	1	1	0	0
57	SUMATERA BARAT	KEPULAUAN MENTAWAI	4.360	4.211	96,6%	124	130	137	75	41
58	SUMATERA BARAT	PESISIR SELATAN	4.729	4.907	103,8%	-	-	-	-	-
59	SUMATERA BARAT	SOLOK	1.899	36	1,9%	1	-	-	-	-
60	SUMATERA BARAT	SIJUNJUNG	2.481	365	14,7%	-	-	-	-	-
61	SUMATERA BARAT	TANAH DATAR	1.749	29	1,7%	1	-	-	-	-
62	SUMATERA BARAT	PADANG PARIAMAN	2.108	31	1,5%	-	-	-	-	-

63	SUMATERA BARAT	AGAM	2.504	72	2,9%	-	-	-	-	-
64	SUMATERA BARAT	LIMA PULUH KOTA	1.959	-	0,0%	-	-	-	-	-
65	SUMATERA BARAT	PASAMAN	1.445	1	0,1%	1	-	-	-	-
66	SUMATERA BARAT	SOLOK SELATAN	896	-	0,0%	-	-	-	-	-
67	SUMATERA BARAT	DHARMAS RAYA	1.329	-	0,0%	-	-	-	-	-
68	SUMATERA BARAT	PASAMAN BARAT	3.275	1.910	58,3%	18	-	-	-	-
69	SUMATERA BARAT	KOTA PADANG	4.922	87	1,8%	19	-	-	-	-
70	SUMATERA BARAT	KOTA SOLOK	744	-	0,0%	-	-	-	-	-
71	SUMATERA BARAT	KOTA SAWAH LUNTO	639	272	42,6%	-	-	-	-	-
72	SUMATERA BARAT	KOTA PADANG PANJANG	556	27	4,9%	2	-	-	-	-
73	SUMATERA BARAT	KOTA BUKITTINGGI	1.365	-	0,0%	-	-	-	-	-
74	SUMATERA BARAT	KOTA PAYAKUMBUH	1.411	104	7,4%	31	-	-	-	-
75	SUMATERA BARAT	KOTA PARIAMAN	912	3	0,3%	-	-	-	-	-
76	RIAU	KUANTAN SINGINGI	2.257	197	8,7%	4	-	-	-	-
77	RIAU	INDRAGIRI HULU	6.655	278	4,2%	1	1	1	0	0
78	RIAU	INDRAGIRI HILIR	1.805	3	0,2%	-	-	-	-	-
79	RIAU	PELALAWAN	2.895	791	27,3%	2	-	-	-	-
80	RIAU	SIAK	2.449	247	10,1%	-	-	-	-	-
81	RIAU	KAMPAR	4.414	32	0,7%	7	-	-	-	-
82	RIAU	ROKAN HULU	1.811	11	0,6%	-	-	-	-	-
83	RIAU	BENGKALIS	3.974	39	1,0%	3	-	-	-	-
84	RIAU	ROKAN HILIR	7.274	3.819	52,5%	1.717	-	-	-	-
85	RIAU	KEPULAUAN MERANTI	1.891	137	7,2%	1	-	-	-	-

86	RIAU	KOTA PEKANBARU	5.802	104	1,8%	68	-	-	-	-
87	RIAU	KOTA DUMAI	2.169	385	17,7%	8	-	-	-	-
88	JAMBI	KERINCI	2.394	157	6,6%	-	-	-	-	-
89	JAMBI	MERANGIN	11.696	6.061	51,8%	212	191	172	94	52
90	JAMBI	SAROLANGUN	9.181	8.258	89,9%	5	5	4	2	-
91	JAMBI	BATANG HARI	8.146	2.189	26,9%	25	23	20	11	6
92	JAMBI	MUARO JAMBI	4.546	56	1,2%	1	-	-	-	-
93	JAMBI	TANJUNG JABUNG TIMUR	2.144	483	22,5%	-	-	-	-	-
94	JAMBI	TANJUNG JABUNG BARAT	3.368	245	7,3%	2	-	-	-	-
95	JAMBI	TEBO	6.853	2.907	42,4%	-	-	-	-	-
96	JAMBI	BUNGO	3.045	964	31,7%	-	-	-	-	-
97	JAMBI	KOTA JAMBI	6.025	8.028	133,3%	19	-	-	-	-
98	JAMBI	KOTA SUNGAI PENUH	886	226	25,5%	-	-	-	-	-
99	SUMATERA SELATAN	OGAN KOMERING ULU	5.662	2.484	43,9%	2	-	-	-	-
100	SUMATERA SELATAN	OGAN KOMERING ILIR	2.132	7	0,3%	-	-	-	-	-
101	SUMATERA SELATAN	MUARA ENIM	9.825	6.756	68,8%	10	9	8	4	-
102	SUMATERA SELATAN	LAHAT	6.247	466	7,5%	-	-	-	-	-
103	SUMATERA SELATAN	MUSI RAWAS	6.221	3.124	50,2%	1	-	-	-	-
104	SUMATERA SELATAN	MUSI BANYUASIN	3.334	1.008	30,2%	3	-	-	-	-
105	SUMATERA SELATAN	BANYU ASIN	1.098	12	1,1%	-	-	-	-	-
106	SUMATERA SELATAN	OGAN KOMERING ULU SELATAN	5.576	2.297	41,2%	-	-	-	-	-
107	SUMATERA SELATAN	OGAN KOMERING ULU TIMUR	3.447	647	18,8%	-	-	-	-	-

108	SUMATERA SELATAN	OGAN ILIR	2.194	62	2,8%	2	-	-	-	-
109	SUMATERA SELATAN	EMPAT LAWANG	2.561	333	13,0%	1	-	-	-	-
110	SUMATERA SELATAN	PENUKAL ABAB LEMATANG ILIR	1.950	91	4,7%	-	-	-	-	-
111	SUMATERA SELATAN	MUSI RAWAS UTARA	1.970	832	42,2%	1	-	-	-	-
112	SUMATERA SELATAN	KOTA PALEMBANG	5.154	323	6,3%	18	-	-	-	-
113	SUMATERA SELATAN	KOTA PRABUMULIH	1.941	15	0,8%	-	-	-	-	-
114	SUMATERA SELATAN	KOTA PAGAR ALAM	1.415	29	2,0%	-	-	-	-	-
115	SUMATERA SELATAN	KOTA LUBUKLINGGAU	2.396	376	15,7%	2	-	-	-	-
116	BENGKULU	BENGKULU SELATAN	5.259	1.303	24,8%	5	5	4	2	-
117	BENGKULU	REJANG LEBONG	2.739	1.759	64,2%	6	-	-	-	-
118	BENGKULU	BENGKULU UTARA	4.606	2.046	44,4%	1	1	1	0	0
119	BENGKULU	KAUR	1.238	153	12,4%	-	-	-	-	-
120	BENGKULU	SELUMA	1.985	744	37,5%	-	-	-	-	-
121	BENGKULU	MUKOMUKO	1.892	865	45,7%	-	-	-	-	-
122	BENGKULU	LEBONG	1.167	48	4,1%	-	-	-	-	-
123	BENGKULU	KEPAHIANG	1.416	332	23,4%	-	-	-	-	-
124	BENGKULU	BENGKULU TENGAH	2.419	1.369	56,6%	-	-	-	-	-
125	BENGKULU	KOTA BENGKULU	3.752	1.680	44,8%	-	-	-	-	-
126	LAMPUNG	LAMPUNG BARAT	3.075	1.332	43,3%	1	-	-	-	-
127	LAMPUNG	TANGGAMUS	3.050	105	3,4%	-	-	-	-	-
128	LAMPUNG	LAMPUNG SELATAN	5.152	3.845	74,6%	-	-	-	-	-
129	LAMPUNG	LAMPUNG TIMUR	5.307	387	7,3%	8	-	-	-	-
130	LAMPUNG	LAMPUNG TENGAH	3.904	508	13,0%	6	-	-	-	-
131	LAMPUNG	LAMPUNG UTARA	3.108	1.527	49,1%	-	-	-	-	-

132	LAMPUNG	WAY KANAN	2.293	222	9,7%	-	-	-	-	-
133	LAMPUNG	TULANGBAWANG	2.309	122	5,3%	2	-	-	-	-
134	LAMPUNG	PESAWARAN	13.595	14.630	107,6%	431	388	349	192	106
135	LAMPUNG	PRINGSEWU	2.033	72	3,5%	3	-	-	-	-
136	LAMPUNG	MESUJI	2.023	211	10,4%	1	-	-	-	-
137	LAMPUNG	TULANGBAWANG BARAT	2.771	496	17,9%	1	-	-	-	-
138	LAMPUNG	PESISIR BARAT	3.301	1.721	52,1%	-	-	-	-	-
139	LAMPUNG	KOTA BANDAR LAMPUNG	10.889	10.232	94,0%	250	225	203	111	61
140	LAMPUNG	KOTA METRO	1.721	301	17,5%	11	-	-	-	-
141	KEPULAUAN BANGKA BELITUNG	BANGKA	3.373	3.099	91,9%	6	-	-	-	-
142	KEPULAUAN BANGKA BELITUNG	BELITUNG	1.898	195	10,3%	-	-	-	-	-
143	KEPULAUAN BANGKA BELITUNG	BANGKA BARAT	7.678	7.100	92,5%	109	98	88	49	27
144	KEPULAUAN BANGKA BELITUNG	BANGKA TENGAH	1.961	2.112	107,7%	4	-	-	-	-
145	KEPULAUAN BANGKA BELITUNG	BANGKA SELATAN	2.098	1.028	49,0%	1	-	-	-	-
146	KEPULAUAN BANGKA BELITUNG	BELITUNG TIMUR	1.294	758	58,6%	-	-	-	-	-
147	KEPULAUAN BANGKA BELITUNG	KOTA PANGKAL PINANG	2.126	1.440	67,7%	3	-	-	-	-
148	KEP. RIAU	KARIMUN	2.381	-	0,0%	-	-	-	-	-
149	KEP. RIAU	BINTAN	4.937	1.913	38,7%	46	41	37	20	11
150	KEP. RIAU	NATUNA	806	123	15,3%	-	-	-	-	-
151	KEP. RIAU	LINGGA	2.710	794	29,3%	-	-	-	-	-
152	KEP. RIAU	KEPULAUAN ANAMBAS	1.305	113	8,7%	-	-	-	-	-

153	KEP. RIAU	KOTA BATAM	1.543	4	0,3%	-	-	-	-	-
154	KEP. RIAU	KOTA TANJUNG PINANG	2.184	454	20,8%	-	-	-	-	-
155	DKI JAKARTA	KAB. ADM. KEPULAUAN SERIBU	1.029	1.188	115,5%	-	-	-	-	-
156	DKI JAKARTA	KOTA ADM. JAKARTA SELATAN	1.147	634	55,3%	19	-	-	-	-
157	DKI JAKARTA	KOTA ADM. JAKARTA TIMUR	1.468	1.003	68,3%	50	-	-	-	-
158	DKI JAKARTA	KOTA ADM. JAKARTA PUSAT	1.597	1.465	91,7%	48	-	-	-	-
159	DKI JAKARTA	KOTA ADM. JAKARTA BARAT	1.847	366	19,8%	17	-	-	-	-
160	DKI JAKARTA	KOTA ADM. JAKARTA UTARA	1.838	876	47,7%	14	-	-	-	-
161	JAWA BARAT	BOGOR	1.820	11	0,6%	11	-	-	-	-
162	JAWA BARAT	SUKABUMI	10.108	7.055	69,8%	28	-	-	-	-
163	JAWA BARAT	CIANJUR	1.747	2	0,1%	2	-	-	-	-
164	JAWA BARAT	BANDUNG	1.887	146	7,7%	7	-	-	-	-
165	JAWA BARAT	GARUT	1.322	20	1,5%	9	-	-	-	-
166	JAWA BARAT	TASIKMALAYA	1.622	29	1,8%	29	-	-	-	-
167	JAWA BARAT	CIAMIS	910	1	0,1%	1	-	-	-	-
168	JAWA BARAT	KUNINGAN	822	2	0,2%	1	-	-	-	-
169	JAWA BARAT	CIREBON	993	3	0,3%	3	-	-	-	-
170	JAWA BARAT	MAJALENGKA	1.534	2	0,1%	2	-	-	-	-
171	JAWA BARAT	SUMEDANG	1.476	25	1,7%	6	-	-	-	-
172	JAWA BARAT	INDRAMAYU	2.195	21	1,0%	10	-	-	-	-
173	JAWA BARAT	SUBANG	1.983	3	0,2%	3	-	-	-	-
174	JAWA BARAT	PURWAKARTA	1.673	3	0,2%	3	-	-	-	-
175	JAWA BARAT	KARAWANG	1.769	5	0,3%	4	-	-	-	-
176	JAWA BARAT	BEKASI	1.961	4	0,2%	4	-	-	-	-
177	JAWA BARAT	BANDUNG BARAT	1.690	1	0,1%	1	-	-	-	-
178	JAWA BARAT	PANGANDARAN	4.053	4.505	111,1%	6	-	-	-	-

179	JAWA BARAT	KOTA BOGOR	1.939	39	2,0%	39	-	-	-	-
180	JAWA BARAT	KOTA SUKABUMI	1.651	9	0,5%	9	-	-	-	-
181	JAWA BARAT	KOTA BANDUNG	1.932	818	42,3%	41	-	-	-	-
182	JAWA BARAT	KOTA CIREBON	1.596	1	0,1%	1	-	-	-	-
183	JAWA BARAT	KOTA BEKASI	1.528	25	1,6%	25	-	-	-	-
184	JAWA BARAT	KOTA DEPOK	1.868	209	11,2%	209	-	-	-	-
185	JAWA BARAT	KOTA CIMAHI	1.519	43	2,8%	43	-	-	-	-
186	JAWA BARAT	KOTA TASIKMALAYA	1.706	1	0,1%	1	-	-	-	-
187	JAWA BARAT	KOTA BANJAR	942	36	3,8%	-	-	-	-	-
188	JAWA TENGAH	CILACAP	1.393	235	16,9%	24	-	-	-	-
189	JAWA TENGAH	BANYUMAS	1.096	400	36,5%	20	-	-	-	-
190	JAWA TENGAH	PURBALINGGA	1.749	217	12,4%	10	-	-	-	-
191	JAWA TENGAH	BANJARNEGARA	6.948	8.361	120,3%	14	-	-	-	-
192	JAWA TENGAH	KEBUMEN	1.460	94	6,4%	2	-	-	-	-
193	JAWA TENGAH	PURWOREJO	14.327	13.444	93,8%	570	513	462	254	140
194	JAWA TENGAH	WONOSOBO	6.326	3.823	60,4%	18	-	-	-	-
195	JAWA TENGAH	MAGELANG	6.516	6.294	96,6%	17	-	-	-	-
196	JAWA TENGAH	BOYOLALI	1.854	278	15,0%	8	-	-	-	-
197	JAWA TENGAH	KLATEN	1.217	27	2,2%	7	-	-	-	-
198	JAWA TENGAH	SUKOHARJO	3.913	18	0,5%	17	-	-	-	-
199	JAWA TENGAH	WONOGIRI	1.206	7	0,6%	-	-	-	-	-
200	JAWA TENGAH	KARANGANYAR	1.478	260	17,6%	-	-	-	-	-
201	JAWA TENGAH	SRAGEN	1.238	11	0,9%	5	-	-	-	-
202	JAWA TENGAH	GROBOGAN	1.741	437	25,1%	17	-	-	-	-
203	JAWA TENGAH	BLORA	1.421	65	4,6%	23	-	-	-	-
204	JAWA TENGAH	REMBANG	1.593	5	0,3%	5	-	-	-	-
205	JAWA TENGAH	PATI	1.325	44	3,3%	18	-	-	-	-
206	JAWA TENGAH	KUDUS	3.427	16	0,5%	2	-	-	-	-
207	JAWA TENGAH	JEPARA	1.590	387	24,3%	-	-	-	-	-
208	JAWA TENGAH	DEMAK	1.050	19	1,8%	17	-	-	-	-

209	JAWA TENGAH	SEMARANG	1.569	354	22,6%	6	-	-	-	-
210	JAWA TENGAH	TEMANGGUNG	1.478	2	0,1%	-	-	-	-	-
211	JAWA TENGAH	KENDAL	1.506	258	17,1%	6	-	-	-	-
212	JAWA TENGAH	BATANG	1.678	3	0,2%	3	-	-	-	-
213	JAWA TENGAH	PEKALONGAN	1.756	198	11,3%	-	-	-	-	-
214	JAWA TENGAH	PEMALANG	1.752	18	1,0%	2	-	-	-	-
215	JAWA TENGAH	TEGAL	1.572	268	17,1%	4	-	-	-	-
216	JAWA TENGAH	BREBES	1.919	88	4,6%	-	-	-	-	-
217	JAWA TENGAH	KOTA MAGELANG	1.456	-	0,0%	-	-	-	-	-
218	JAWA TENGAH	KOTA SURAKARTA	1.438	370	25,7%	16	-	-	-	-
219	JAWA TENGAH	KOTA SALATIGA	2.200	56	2,5%	32	-	-	-	-
220	JAWA TENGAH	KOTA SEMARANG	1.207	72	6,0%	68	-	-	-	-
221	JAWA TENGAH	KOTA PEKALONGAN	1.016	157	15,4%	-	-	-	-	-
222	JAWA TENGAH	KOTA TEGAL	1.312	-	0,0%	-	-	-	-	-
223	DI YOGYAKARTA	KULON PROGO	11.068	13.950	126,0%	102	-	-	-	-
224	DI YOGYAKARTA	BANTUL	2.189	175	8,0%	8	-	-	-	-
225	DI YOGYAKARTA	GUNUNG KIDUL	1.056	119	11,3%	1	-	-	-	-
226	DI YOGYAKARTA	SLEMAN	3.164	137	4,3%	19	-	-	-	-
227	DI YOGYAKARTA	KOTA YOGYAKARTA	2.221	24	1,1%	17	-	-	-	-
228	JAWA TIMUR	PACITAN	2.229	1.780	79,9%	5	-	-	-	-
229	JAWA TIMUR	PONOROGO	1.096	1	0,1%	1	-	-	-	-
230	JAWA TIMUR	TRENGGALEK	1.749	566	32,4%	40	-	-	-	-
231	JAWA TIMUR	TULUNGAGUNG	1.310	8	0,6%	8	-	-	-	-
232	JAWA TIMUR	BLITAR	1.460	3	0,2%	3	-	-	-	-
233	JAWA TIMUR	KEDIRI	2.381	9	0,4%	9	-	-	-	-
234	JAWA TIMUR	MALANG	3.296	104	3,2%	100	-	-	-	-
235	JAWA TIMUR	LUMAJANG	1.309	17	1,3%	17	-	-	-	-
236	JAWA TIMUR	JEMBER	1.854	14	0,8%	14	-	-	-	-
237	JAWA TIMUR	BANYUWANGI	1.217	55	4,5%	13	-	-	-	-

238	JAWA TIMUR	BONDOWOSO	3.913	5.240	133,9%	2	-	-	-	-
239	JAWA TIMUR	SITUBONDO	1.206	7	0,6%	5	-	-	-	-
240	JAWA TIMUR	PROBOLINGGO	1.478	9	0,6%	8	-	-	-	-
241	JAWA TIMUR	PASURUAN	1.238	14	1,1%	13	-	-	-	-
242	JAWA TIMUR	SIDOARJO	1.741	11	0,6%	8	-	-	-	-
243	JAWA TIMUR	MOJOKERTO	1.421	-	0,0%	-	-	-	-	-
244	JAWA TIMUR	JOMBANG	1.593	8	0,5%	7	-	-	-	-
245	JAWA TIMUR	NGANJUK	1.325	5	0,4%	5	-	-	-	-
246	JAWA TIMUR	MADIUN	3.427	5.302	154,7%	18	-	-	-	-
247	JAWA TIMUR	MAGETAN	1.590	-	0,0%	-	-	-	-	-
248	JAWA TIMUR	NGAWI	1.050	-	0,0%	-	-	-	-	-
249	JAWA TIMUR	BOJONEGORO	1.569	7	0,4%	5	-	-	-	-
250	JAWA TIMUR	TUBAN	1.478	1	0,1%	1	-	-	-	-
251	JAWA TIMUR	LAMONGAN	1.506	10	0,7%	10	-	-	-	-
252	JAWA TIMUR	GRESIK	1.678	5	0,3%	5	-	-	-	-
253	JAWA TIMUR	BANGKALAN	1.756	1	0,1%	1	-	-	-	-
254	JAWA TIMUR	SAMPANG	1.752	-	0,0%	-	-	-	-	-
255	JAWA TIMUR	PAMEKASAN	1.572	9	0,6%	-	-	-	-	-
256	JAWA TIMUR	SUMENEP	1.919	4	0,2%	2	-	-	-	-
257	JAWA TIMUR	KOTA KEDIRI	1.456	8	0,5%	8	-	-	-	-
258	JAWA TIMUR	KOTA BLITAR	1.438	17	1,2%	8	-	-	-	-
259	JAWA TIMUR	KOTA MALANG	2.200	38	1,7%	24	-	-	-	-
260	JAWA TIMUR	KOTA PROBOLINGGO	1.207	5	0,4%	5	-	-	-	-
261	JAWA TIMUR	KOTA PASURUAN	1.016	2	0,2%	2	-	-	-	-
262	JAWA TIMUR	KOTA MOJOKERTO	1.312	-	0,0%	-	-	-	-	-
263	JAWA TIMUR	KOTA MADIUN	1.780	139	7,8%	139	-	-	-	-
264	JAWA TIMUR	KOTA SURABAYA	2.189	170	7,8%	88	-	-	-	-
265	JAWA TIMUR	KOTA BATU	1.056	5	0,5%	5	-	-	-	-
266	BANTEN	PANDEGLANG	3.067	325	10,6%	9	-	-	-	-
267	BANTEN	LEBAK	3.278	238	7,3%	11	-	-	-	-

268	BANTEN	TANGERANG	1.924	12	0,6%	6	-	-	-	-
269	BANTEN	SERANG	1.895	28	1,5%	6	-	-	-	-
270	BANTEN	KOTA TANGERANG	1.137	4	0,4%	4	-	-	-	-
271	BANTEN	KOTA CILEGON	1.119	1	0,1%	-	-	-	-	-
272	BANTEN	KOTA SERANG	1.239	157	12,7%	19	-	-	-	-
273	BANTEN	KOTA TANGERANG SELATAN	1.831	28	1,5%	28	-	-	-	-
274	BALI	JEMBRANA	2.820	2.944	104,4%	-	-	-	-	-
275	BALI	TABANAN	2.258	312	13,8%	-	-	-	-	-
276	BALI	BADUNG	1.778	182	10,2%	6	-	-	-	-
277	BALI	GIANYAR	2.618	51	1,9%	2	-	-	-	-
278	BALI	KLUNGKUNG	1.807	1.870	103,5%	-	-	-	-	-
279	BALI	BANGLI	1.150	3	0,3%	-	-	-	-	-
280	BALI	KARANG ASEM	2.104	1.119	53,2%	3	-	-	-	-
281	BALI	BULELENG	2.342	65	2,8%	7	-	-	-	-
282	BALI	KOTA DENPASAR	2.494	17	0,7%	10	-	-	-	-
283	NUSA TENGGARA BARAT	LOMBOK BARAT	10.228	8.702	85,1%	75	68	61	33	18
284	NUSA TENGGARA BARAT	LOMBOK TENGAH	4.924	244	5,0%	11	-	-	-	-
285	NUSA TENGGARA BARAT	LOMBOK TIMUR	24.884	32.678	131,3%	5	-	-	-	-
286	NUSA TENGGARA BARAT	SUMBAWA	14.273	10.374	72,7%	137	123	111	61	34
287	NUSA TENGGARA BARAT	DOMPU	2.651	403	15,2%	7	-	-	-	-
288	NUSA TENGGARA BARAT	BIMA	15.268	21.269	139,3%	19	-	-	-	-

289	NUSA TENGGARA BARAT	SUMBAWA BARAT	9.599	9.946	103,6%	152	137	123	68	37
290	NUSA TENGGARA BARAT	LOMBOK UTARA	15.508	25.523	164,6%	91	82	74	41	22
291	NUSA TENGGARA BARAT	KOTA MATARAM	2.583	1	0,0%	-	-	-	-	-
292	NUSA TENGGARA BARAT	KOTA BIMA	1.838	49	2,7%	-	-	-	-	-
293	NUSA TENGGARA TIMUR	SUMBA BARAT	96.501	116.894	121,1%	1.903	2.093	2.303	1.382	829
294	NUSA TENGGARA TIMUR	SUMBA TIMUR	99.363	119.241	120,0%	5.540	6.094	6.703	4.022	2.413
295	NUSA TENGGARA TIMUR	KUPANG	23.953	30.768	128,4%	50	45	41	22	12
296	NUSA TENGGARA TIMUR	TIMOR TENGAH SELATAN	42.503	51.625	121,5%	696	731	767	422	232
297	NUSA TENGGARA TIMUR	TIMOR TENGAH UTARA	31.009	35.296	113,8%	26	23	21	12	6
298	NUSA TENGGARA TIMUR	BELU	27.197	29.670	109,1%	19	17	15	8	5
299	NUSA TENGGARA TIMUR	ALOR	18.729	23.552	125,8%	411	432	453	249	137
300	NUSA TENGGARA TIMUR	LEMBATA	17.820	21.686	121,7%	25	23	20	11	6
301	NUSA TENGGARA TIMUR	FLORES TIMUR	38.974	55.985	143,6%	191	172	155	85	47

302	NUSA TENGGARA TIMUR	SIKKA	38.778	48.434	124,9%	515	541	568	312	172
303	NUSA TENGGARA TIMUR	ENDE	13.761	30.703	223,1%	6	-	-	-	-
304	NUSA TENGGARA TIMUR	NGADA	8.366	9.331	111,5%	2	-	-	-	-
305	NUSA TENGGARA TIMUR	MANGGARAI	6.960	8.598	123,5%	10	-	-	-	-
306	NUSA TENGGARA TIMUR	ROTE NDAO	8.365	8.690	103,9%	261	274	288	158	87
307	NUSA TENGGARA TIMUR	MANGGARAI BARAT	25.816	38.830	150,4%	10	-	-	-	-
308	NUSA TENGGARA TIMUR	SUMBA TENGAH	33.572	68.573	204,3%	89	93	98	54	30
309	NUSA TENGGARA TIMUR	SUMBA BARAT DAYA	137.517	162.959	118,5%	5.730	6.303	6.933	4.160	2.496
310	NUSA TENGGARA TIMUR	NAGEKEO	17.814	19.879	111,6%	8	-	-	-	-
311	NUSA TENGGARA TIMUR	MANGGARAI TIMUR	4.378	7.358	168,1%	5	-	-	-	-
312	NUSA TENGGARA TIMUR	SABU RAIJUA	6.137	7.245	118,0%	2	2	2	-	-
313	NUSA TENGGARA TIMUR	MALAKA	11.863	13.085	110,3%	273	287	301	166	91
314	NUSA TENGGARA TIMUR	KOTA KUPANG	4.583	4.150	90,6%	40	-	-	-	-
315	KALIMANTAN BARAT	SAMBAS	5.426	3.096	57,1%	1	-	-	-	-

316	KALIMANTAN BARAT	BENGKAYANG	5.506	3.301	59,9%	-	-	-	-	-
317	KALIMANTAN BARAT	LANDAK	5.368	2.272	42,3%	1	-	-	-	-
318	KALIMANTAN BARAT	PONTIANAK	2.674	792	29,6%	-	-	-	-	-
319	KALIMANTAN BARAT	SANGGAU	4.787	2.791	58,3%	4	-	-	-	-
320	KALIMANTAN BARAT	KETAPANG	7.362	6.158	83,6%	4	-	-	-	-
321	KALIMANTAN BARAT	SINTANG	5.962	2.333	39,1%	28	25	23	12	7
322	KALIMANTAN BARAT	KAPUAS HULU	5.671	859	15,1%	11	10	9	5	-
323	KALIMANTAN BARAT	SEKADAU	3.042	1.413	46,4%	1	-	-	-	-
324	KALIMANTAN BARAT	MELAWI	3.193	880	27,6%	-	-	-	-	-
325	KALIMANTAN BARAT	KAYONG UTARA	3.459	1.935	55,9%	-	-	-	-	-
326	KALIMANTAN BARAT	KUBU RAYA	2.939	2	0,1%	-	-	-	-	-
327	KALIMANTAN BARAT	KOTA PONTIANAK	6.588	8.874	134,7%	1	-	-	-	-
328	KALIMANTAN BARAT	KOTA SINGKAWANG	3.439	3.183	92,6%	2	-	-	-	-
329	KALIMANTAN TENGAH	KOTAWARINGIN BARAT	1.563	31	2,0%	-	-	-	-	-
330	KALIMANTAN TENGAH	KOTAWARINGIN TIMUR	2.296	519	22,6%	1	-	-	-	-
331	KALIMANTAN TENGAH	KAPUAS	7.277	1.404	19,3%	4	4	3	-	-
332	KALIMANTAN TENGAH	BARITO SELATAN	1.392	820	58,9%	-	-	-	-	-
333	KALIMANTAN TENGAH	BARITO UTARA	1.321	1.094	82,8%	2	-	-	-	-
334	KALIMANTAN TENGAH	SUKAMARA	784	659	84,0%	-	-	-	-	-
335	KALIMANTAN TENGAH	LAMANDAU	987	875	88,6%	-	-	-	-	-

336	KALIMANTAN TENGAH	SERUYAN	2.102	808	38,4%	-	-	-	-	-
337	KALIMANTAN TENGAH	KATINGAN	1.749	534	30,5%	1	-	-	-	-
338	KALIMANTAN TENGAH	PULANG PISAU	1.282	622	48,5%	14	-	-	-	-
339	KALIMANTAN TENGAH	GUNUNG MAS	3.538	1.971	55,7%	7	-	-	-	-
340	KALIMANTAN TENGAH	BARITO TIMUR	1.262	453	35,9%	4	-	-	-	-
341	KALIMANTAN TENGAH	MURUNG RAYA	3.575	2.179	61,0%	172	181	190	104	57
342	KALIMANTAN TENGAH	KOTA PALANGKA RAYA	2.910	1.788	61,5%	11	-	-	-	-
343	KALIMANTAN SELATAN	TANAH LAUT	3.483	1.414	40,6%	83	-	-	-	-
344	KALIMANTAN SELATAN	KOTA BARU	6.949	1.358	19,5%	52	47	42	23	13
345	KALIMANTAN SELATAN	BANJAR	5.952	1.481	24,9%	19	-	-	-	-
346	KALIMANTAN SELATAN	BARITO KUALA	2.208	363	16,4%	-	-	-	-	-
347	KALIMANTAN SELATAN	TAPIN	1.927	221	11,5%	4	-	-	-	-
348	KALIMANTAN SELATAN	HULU SUNGAI SELATAN	2.372	468	19,7%	10	-	-	-	-
349	KALIMANTAN SELATAN	HULU SUNGAI TENGAH	2.718	436	16,0%	20	-	-	-	-
350	KALIMANTAN SELATAN	HULU SUNGAI UTARA	2.376	261	11,0%	3	-	-	-	-
351	KALIMANTAN SELATAN	TABALONG	5.157	4.389	85,1%	134	-	-	-	-
352	KALIMANTAN SELATAN	TANAH BUMBU	5.536	2.012	36,3%	31	28	25	14	8
353	KALIMANTAN SELATAN	BALANGAN	3.994	1.909	47,8%	67	60	54	30	16
354	KALIMANTAN SELATAN	KOTA BANJARMASIN	3.571	58	1,6%	2	-	-	-	-
355	KALIMANTAN SELATAN	KOTA BANJAR BARU	2.735	1.303	47,6%	74	-	-	-	-

356	KALIMANTAN TIMUR	PASER	12.777	2.911	22,8%	638	670	703	387	213
357	KALIMANTAN TIMUR	KUTAI BARAT	4.509	3.906	86,6%	65	59	53	29	16
358	KALIMANTAN TIMUR	KUTAI KARTANEGARA	5.478	2.330	42,5%	90	-	-	-	-
359	KALIMANTAN TIMUR	KUTAI TIMUR	9.310	2.311	24,8%	553	581	610	335	184
360	KALIMANTAN TIMUR	BERAU	6.982	3.693	52,9%	278	292	306	169	93
361	KALIMANTAN TIMUR	PENAJAM PASER UTARA	10.054	5.331	53,0%	1.228	1.351	1.486	892	535
362	KALIMANTAN TIMUR	MAHAKAM HULU	802	695	86,6%	11	10	9	5	-
363	KALIMANTAN TIMUR	KOTA BALIKPAPAN	3.212	545	17,0%	61	-	-	-	-
364	KALIMANTAN TIMUR	KOTA SAMARINDA	4.300	961	22,3%	128	-	-	-	-
365	KALIMANTAN TIMUR	KOTA BONTANG	3.656	342	9,4%	211	-	-	-	-
366	KALIMANTAN UTARA	MALINAU	2.641	505	19,1%	13	12	11	6	-
367	KALIMANTAN UTARA	BULUNGAN	4.036	1.936	48,0%	75	68	61	33	18
368	KALIMANTAN UTARA	TANA TIDUNG	732	812	110,9%	1	-	-	-	-
369	KALIMANTAN UTARA	NUNUKAN	1.445	443	30,7%	7	-	-	-	-
370	KALIMANTAN UTARA	KOTA TARAKAN	2.103	1.171	55,7%	17	-	-	-	-
371	SULAWESI UTARA	BOLAANG MONGONDOW	2.527	2.273	90,0%	17	-	-	-	-
372	SULAWESI UTARA	MINAHASA	3.436	2.796	81,4%	81	-	-	-	-
373	SULAWESI UTARA	KEPULAUAN SANGIHE	3.963	1.475	37,2%	142	149	157	86	47
374	SULAWESI UTARA	KEPULAUAN TALAUD	4.191	4.993	119,1%	33	30	27	15	8
375	SULAWESI UTARA	MINAHASA SELATAN	4.437	3.410	76,9%	58	-	-	-	-

376	SULAWESI UTARA	MINAHASA UTARA	2.041	2.247	110,1%	108	-	-	-	-
377	SULAWESI UTARA	BOLAANG MONGONDOW UTARA	816	497	60,9%	8	-	-	-	-
378	SULAWESI UTARA	SIAU TAGULANDANG BIARO	2.016	381	18,9%	26	23	21	12	6
379	SULAWESI UTARA	MINAHASA TENGGARA	6.836	1.298	19,0%	67	60	54	30	16
380	SULAWESI UTARA	BOLAANG MONGONDOW SELATAN	674	493	73,2%	1	-	-	-	-
381	SULAWESI UTARA	BOLAANG MONGONDOW TIMUR	733	222	30,3%	17	-	-	-	-
382	SULAWESI UTARA	KOTA MANADO	6.064	3.463	57,1%	146	131	118	65	36
383	SULAWESI UTARA	KOTA BITUNG	6.706	3.239	48,3%	223	201	181	99	55
384	SULAWESI UTARA	KOTA TOMOHON	2.181	2.266	103,9%	80	-	-	-	-
385	SULAWESI UTARA	KOTA KOTAMOBAGU	1.321	1.423	107,7%	62	-	-	-	-
386	SULAWESI TENGAH	BANGGAI KEPULAUAN	3.574	1.110	31,1%	-	-	-	-	-
387	SULAWESI TENGAH	BANGGAI	3.859	2.626	68,1%	24	-	-	-	-
388	SULAWESI TENGAH	MOROWALI	3.740	433	11,6%	-	-	-	-	-
389	SULAWESI TENGAH	POSO	5.565	1.025	18,4%	-	-	-	-	-
390	SULAWESI TENGAH	DONGGALA	5.890	2.594	44,0%	6	5	5	3	-
391	SULAWESI TENGAH	TOLI-TOLI	2.388	495	20,7%	2	-	-	-	-
392	SULAWESI TENGAH	BUOL	1.677	1.134	67,6%	21	-	-	-	-
393	SULAWESI TENGAH	PARIGI MOUTONG	7.061	2.582	36,6%	-	-	-	-	-

394	SULAWESI TENGAH	TOJO UNA-UNA	4.685	1.450	31,0%	76	68	62	34	19
395	SULAWESI TENGAH	SIGI	2.420	172	7,1%	-	-	-	-	-
396	SULAWESI TENGAH	BANGGAI LAUT	929	820	88,3%	3	-	-	-	-
397	SULAWESI TENGAH	MOROWALI UTARA	3.990	2.207	55,3%	27	24	22	12	7
398	SULAWESI TENGAH	KOTA PALU	2.240	796	35,5%	14	-	-	-	-
399	SULAWESI SELATAN	KEPULAUAN SELAYAR	1.361	944	69,4%	12	-	-	-	-
400	SULAWESI SELATAN	BULUKUMBA	2.068	707	34,2%	23	-	-	-	-
401	SULAWESI SELATAN	BANTAENG	1.892	421	22,3%	20	-	-	-	-
402	SULAWESI SELATAN	JENEPONTO	3.672	2.171	59,1%	108	-	-	-	-
403	SULAWESI SELATAN	TAKALAR	2.987	76	2,5%	15	-	-	-	-
404	SULAWESI SELATAN	GOWA	2.730	412	15,1%	28	-	-	-	-
405	SULAWESI SELATAN	SINJAI	2.455	175	7,1%	28	-	-	-	-
406	SULAWESI SELATAN	MAROS	3.573	198	5,5%	122	-	-	-	-
407	SULAWESI SELATAN	PANGKAJENE DAN KEPULAUAN	4.754	1.635	34,4%	89	-	-	-	-
408	SULAWESI SELATAN	BARRU	1.750	189	10,8%	25	-	-	-	-
409	SULAWESI SELATAN	BONE	2.652	632	23,8%	74	-	-	-	-
410	SULAWESI SELATAN	SOPPENG	2.295	1.012	44,1%	18	-	-	-	-
411	SULAWESI SELATAN	WAJO	4.061	3.506	86,3%	32	-	-	-	-
412	SULAWESI SELATAN	SIDENRENG RAPPANG	2.120	375	17,7%	39	-	-	-	-
413	SULAWESI SELATAN	PINRANG	3.811	3.236	84,9%	99	-	-	-	-

414	SULAWESI SELATAN	ENREKANG	2.100	1.943	92,5%	42	-	-	-	-
415	SULAWESI SELATAN	LUWU	3.699	1.123	30,4%	95	-	-	-	-
416	SULAWESI SELATAN	TANA TORAJA	5.030	2.060	41,0%	103	93	83	46	25
417	SULAWESI SELATAN	LUWU UTARA	3.181	1.056	33,2%	26	-	-	-	-
418	SULAWESI SELATAN	LUWU TIMUR	3.035	1.101	36,3%	57	-	-	-	-
419	SULAWESI SELATAN	TORAJA UTARA	7.118	1.270	17,8%	315	331	347	191	105
420	SULAWESI SELATAN	KOTA MAKASSAR	4.665	1.097	23,5%	208	-	-	-	-
421	SULAWESI SELATAN	KOTA PARE-PARE	1.471	305	20,7%	17	-	-	-	-
422	SULAWESI SELATAN	KOTA PALOPO	2.815	1.063	37,8%	141	-	-	-	-
423	SULAWESI TENGGARA	BUTON	2.150	619	28,8%	21	-	-	-	-
424	SULAWESI TENGGARA	MUNA	6.777	3.824	56,4%	105	95	85	47	26
425	SULAWESI TENGGARA	KONAWE	2.497	1.516	60,7%	6	-	-	-	-
426	SULAWESI TENGGARA	KOLAKA	1.892	490	25,9%	26	-	-	-	-
427	SULAWESI TENGGARA	KONAWE SELATAN	3.199	2.737	85,6%	21	-	-	-	-
428	SULAWESI TENGGARA	BOMBANA	1.844	1.826	99,1%	39	-	-	-	-
429	SULAWESI TENGGARA	WAKATOBI	1.028	961	93,5%	52	-	-	-	-
430	SULAWESI TENGGARA	KOLAKA UTARA	1.556	675	43,4%	31	-	-	-	-
431	SULAWESI TENGGARA	BUTON UTARA	636	383	60,2%	28	-	-	-	-
432	SULAWESI TENGGARA	KONAWE UTARA	650	65	10,0%	-	-	-	-	-
433	SULAWESI TENGGARA	KOLAKA TIMUR	1.403	1.233	87,9%	18	-	-	-	-

434	SULAWESI TENGGARA	KONAWE KEPULAUAN	1.009	1.025	101,6%	25	-	-	-	-
435	SULAWESI TENGGARA	MUNA BARAT	2.488	1.929	77,5%	15	14	12	7	-
436	SULAWESI TENGGARA	BUTON TENGAH	1.865	1.957	104,9%	82	-	-	-	-
437	SULAWESI TENGGARA	BUTON SELATAN	2.405	1.829	76,0%	48	-	-	-	-
438	SULAWESI TENGGARA	KOTA KENDARI	2.009	437	21,8%	49	-	-	-	-
439	SULAWESI TENGGARA	KOTA BAU-BAU	2.574	2.288	88,9%	24	-	-	-	-
440	GORONTALO	BOALEMO	3.366	4.114	122,2%	6	-	-	-	-
441	GORONTALO	GORONTALO	7.518	7.864	104,6%	2	2	2	-	-
442	GORONTALO	POHUWATO	1.622	1.833	113,0%	3	-	-	-	-
443	GORONTALO	BONE BOLANGO	3.164	3.914	123,7%	3	-	-	-	-
444	GORONTALO	GORONTALO UTARA	4.492	5.087	113,2%	32	-	-	-	-
445	GORONTALO	KOTA GORONTALO	2.189	93	4,2%	6	-	-	-	-
446	SULAWESI BARAT	MAJENE	3.495	4.223	120,8%	156	-	-	-	-
447	SULAWESI BARAT	POLEWALI MANDAR	4.426	3.908	88,3%	20	-	-	-	-
448	SULAWESI BARAT	MAMASA	1.622	854	52,6%	16	-	-	-	-
449	SULAWESI BARAT	MAMUJU	3.002	2.070	68,9%	39	-	-	-	-
450	SULAWESI BARAT	MAMUJU UTARA	5.391	3.440	63,8%	8	7	6	4	-
451	SULAWESI BARAT	MAMUJU TENGAH	2.058	2.813	136,7%	2	-	-	-	-
452	MALUKU	MALUKU TENGGARA BARAT	9.010	7.257	80,5%	226	237	249	137	75
453	MALUKU	MALUKU TENGGARA	8.061	3.240	40,2%	255	268	281	155	85
454	MALUKU	MALUKU TENGAH	15.040	20.389	135,6%	126	113	102	56	31

455	MALUKU	BURU	8.809	8.824	100,2%	6	-	-	-	-
456	MALUKU	KEPULAUAN ARU	2.843	2.206	77,6%	89	80	72	40	22
457	MALUKU	SERAM BAGIAN BARAT	5.193	4.632	89,2%	53	48	43	24	13
458	MALUKU	SERAM BAGIAN TIMUR	5.121	4.284	83,7%	120	126	132	73	40
459	MALUKU	MALUKU BARAT DAYA	5.888	4.214	71,6%	117	123	129	71	39
460	MALUKU	BURU SELATAN	1.890	258	13,7%	7	6	6	3	-
461	MALUKU	KOTA AMBON	4.742	3.924	82,8%	96	-	-	-	-
462	MALUKU	KOTA TUAL	4.604	4.267	92,7%	24	-	-	-	-
463	MALUKU UTARA	HALMAHERA BARAT	3.556	991	27,9%	6	5	5	3	-
464	MALUKU UTARA	HALMAHERA TENGAH	1.706	582	34,1%	8	7	6	4	-
465	MALUKU UTARA	KEPULAUAN SULA	1.018	855	84,0%	14	-	-	-	-
466	MALUKU UTARA	HALMAHERA SELATAN	7.089	5.002	70,6%	54	49	44	24	13
467	MALUKU UTARA	HALMAHERA UTARA	5.850	1.916	32,8%	54	49	44	24	13
468	MALUKU UTARA	HALMAHERA TIMUR	2.922	1.679	57,5%	8	7	6	4	-
469	MALUKU UTARA	PULAU MOROTAI	686	348	50,7%	-	-	-	-	-
470	MALUKU UTARA	PULAU TALIABU	3.252	2.770	85,2%	59	62	65	36	20
471	MALUKU UTARA	KOTA TERNATE	2.391	1.681	70,3%	17	-	-	-	-
472	MALUKU UTARA	KOTA TIDORE KEPULAUAN	5.055	5.850	115,7%	12	-	-	-	-
473	PAPUA BARAT	FAKFAK	18.287	15.124	82,7%	159	167	175	96	53
474	PAPUA BARAT	KAIMANA	6.474	3.839	59,3%	282	296	311	171	94
475	PAPUA BARAT	TELUK WONDAMA	34.932	36.204	103,6%	938	1.032	1.135	681	409
476	PAPUA BARAT	TELUK BINTUNI	16.255	13.910	85,6%	205	215	226	124	68
477	PAPUA BARAT	MANOKWARI	102.162	113.847	111,4%	7.325	8.058	8.863	5.318	3.191
478	PAPUA BARAT	SORONG SELATAN	4.966	6.452	129,9%	21	-	-	-	-
479	PAPUA BARAT	SORONG	14.079	13.968	99,2%	355	373	391	215	118

480	PAPUA BARAT	RAJA AMPAT	14.655	8.609	58,7%	1.016	1.118	1.229	738	443
481	PAPUA BARAT	TAMBRAUW	8.930	5.786	64,8%	539	593	652	391	235
482	PAPUA BARAT	MAYBRAT	1.295	1.203	92,9%	4	4	3	2	-
483	PAPUA BARAT	MANOKWARI SELATAN	20.366	20.798	102,1%	489	538	592	355	213
484	PAPUA BARAT	PEGUNUNGAN ARFAK	1.032	377	36,5%	20	18	16	9	-
485	PAPUA BARAT	KOTA SORONG	20.012	14.547	72,7%	1.727	1.900	2.090	1.254	752
486	PAPUA	MERAUKE	61.872	51.590	83,4%	3.004	3.304	3.635	2.181	1.309
487	PAPUA	JAYAWIJAYA	21.088	17.610	83,5%	1.328	1.195	1.315	789	473
488	PAPUA	JAYAPURA	244.819	228.009	93,1%	47.953	55.146	63.418	41.222	20.611
489	PAPUA	NABIRE	76.317	61.514	80,6%	3.499	3.849	4.234	2.540	1.524
490	PAPUA	KEPULAUAN YAPEN	86.007	83.426	97,0%	20.204	23.235	26.720	17.368	8.684
491	PAPUA	BIAK NUMFOR	44.926	38.338	85,3%	3.097	3.562	3.918	2.351	1.410
492	PAPUA	PANIAI	8.562	4.564	53,3%	135	155	179	98	54
493	PAPUA	PUNCAK JAYA	7.042	623	8,8%	301	316	332	183	100
494	PAPUA	MIMIKA	414.531	399.656	96,4%	132.547	152.429	175.293	113.941	56.970
495	PAPUA	BOVEN DIGOEL	60.180	48.207	80,1%	15.966	18.361	21.115	13.725	6.862
496	PAPUA	MAPPI	63.211	61.908	97,9%	10.111	11.628	13.372	8.692	4.346
497	PAPUA	ASMAT	88.035	68.090	77,3%	20.996	24.145	27.767	18.049	9.024
498	PAPUA	YAHUKIMO	98.063	36.239	37,0%	22.567	25.952	29.845	19.399	9.700
499	PAPUA	PEGUNUNGAN BINTANG	23.008	3.893	16,9%	714	821	903	542	325
500	PAPUA	TOLIKARA	14.843	2.102	14,2%	236	248	260	143	79
501	PAPUA	SARMI	59.261	42.099	71,0%	17.727	20.386	23.444	15.239	7.619
502	PAPUA	KEEROM	155.053	83.867	54,1%	29.938	34.429	39.593	25.735	12.868
503	PAPUA	WAROPEN	40.950	30.957	75,6%	6.039	6.945	7.987	5.191	2.596
504	PAPUA	SUPIORI	6.229	7.321	117,5%	175	201	221	133	80
505	PAPUA	MAMBERAMO RAYA	56.762	36.306	64,0%	15.891	18.275	21.016	13.660	6.830
506	PAPUA	NDUGA	5.573	-	0,0%	-	-	-	-	-
507	PAPUA	LANNY JAYA	9.962	1.450	14,6%	151	174	200	110	60

508	PAPUA	MAMBERAMO TENGAH	8.069	1.783	22,1%	466	536	589	354	212
509	PAPUA	YALIMO	6.749	2.371	35,1%	184	193	203	112	61
510	PAPUA	PUNCAK	7.218	515	7,1%	343	360	378	208	114
511	PAPUA	DOGIYAI	4.937	210	4,3%	23	26	30	17	9
512	PAPUA	INTAN JAYA	5.137	245	4,8%	89	93	98	54	30
513	PAPUA	DEIYAI	3.811	38	1,0%	22	25	29	16	9
514	PAPUA	KOTA JAYAPURA	190.227	151.431	79,6%	40.095	46.109	53.026	34.467	17.233
	NATIONAL	**TOTAL**	**4.329.068**	**3.358.447**	**77,6%**	**443.530**	**495.652**	**565.683**	**363.721**	**185.004**

Note *: WHO estimation data as of 7 March 2023

ANNEX 2. MALARIA GOOD PRACTICE IN VARIOUS REGIONS

In achieving malaria elimination, many lessons from various districts and provinces by region include:

Region	District/Province	Lesson Learned
Java-Bali This region is targeted to achieve elimination in 20203. Currently, most districts have achieved elimination, leaving 11 (8.6%) districts in low endemicity. The lessons learned at the maintenance level relating mainly to surveillance (migration and vigilance related to the outbreak are illustrated in the following three regencies.	**Malaria outbreak in tourism areas during maintenance phase.** Malang, East Java Province (maintenance phase)	Malang district achieved elimination in 2014. Efforts undertaken during the elimination phase include migration surveillance by Bantur Community Health Centre together with the community under "**Gardu Bisma**" (Integrated Movement to Eradicate Malaria), consisting of forest village population institution (LMDH), Perhutani, public figures and various sectors. The activities include: • Encourage residents, especially migrant residents, to undergo malaria examination, • Educating the population, and • Cooperating in environmental management, such as ensuring water runs and cleaning lagoons. Malang District reports imported cases each year; in 2015, it reported 23 cases and in 2017, 70 cases. In 2018 four indigenous cases were found, and which risk factor was staying in a beach tourist spot, which was a receptive area and welcomed many tourists and students from eastern Indonesia. Due to this incident, Malang District raised its vigilance again, especially concerning migration surveillance and vector monitoring in receptive areas and cross-sectoral cooperation, especially in relation to tourism.
	Migration surveillance through key stakeholder approach. Pacitan, East Java Province (maintenance phase)	Pacitan District achieved elimination status in 2016. Efforts undertaken include strengthening migration surveillance by community health centre workers with the assistance of village malaria cadres every three months to screen migrant workers through data recording and blood smear collection and examination. Migrant workers were coordinated by "**Syeih**s"(people who find, gather and send workers to Kalimantan, Papua and Sumatra for six months to one year as labours in plantations, mines, etc.). The Syeihs inform community health centre workers of the return of the migrant workers so that community health centre workers can prepare to conduct the examination.
	Integrated vector control and migration surveillance as key interventions in the maintenance phase. Jembrana, Provinsi Bali (maintenance phase)	Jembrana District government started to be aware of malaria elimination in 2003 after a Malaria outbreak in 2002 in the Banyubiru neighbourhood, Pabuahan Village, Negara Sub-district, resulted in deaths. The risk factors include the neglect of environmental preservation, lagoons were not kept, and no village malaria cadre being present. It moved regional leadership and the health service of the district to improve risk factor control efforts, including • Removing mosses from the lagoons through village malaria cadres, • Applying larvicide on the lagoons, • Releasing mosquito larva-eating fish, and • Planting mangroves around the lagoons.

		Supported by regional budget allocation, these undertakings helped to achieve elimination certification in 2014. According to epidemiology data, the last indigenous case was found in 2011 involving three cases. Until now the Jembrana District government has remained consistent in undertaking vector control efforts as most of its territory is receptive and hosts inter-provincial and -island traffic. In addition, migration surveillance system is also strengthened.
Sumatera, Sulawesi, West Nusa Tenggara This region is targeted to achieve elimination in 2025. Currently only 150 (61%) districts have achieved elimination. The lessons learned in low-endemic areas and the challenges to achieve elimination with especial regards to special populations are illustrated in the following three districts.	**Integrated intervention in achieving malaria elimination.** Sabang, Aceh Province (maintenance phase)	In 2006 Sabang Municipalities's API stood at 76.4‰ (high case incidence). Thanks to various integrated activities, in 2013 no positive malaria case was found and certification was awarded in 2014. The activities undertaken were: • Case detection through a mass blood survey, the collection of blood smears of all residents of Sabang Municipalities. Those tested positives were treated with ACT; • Strengthening the quality assurance of the malaria diagnosis system; • Neighbourhood malaria cadres were trained through participation learning and action (PLA) and conducted active early detection after the mass blood survey and followed up with treatment; • Mapping receptive areas and vectors for all administrative villages of Sabang Municipalities; • Distributing a large number of LLINs to prevent mosquito bites and to reduce mosquito concentrations; and • Support for malaria elimination-related policies from regional leadership and all related stakeholders. The challenge currently faced is transmission of *P. knowlesi* which case confirmation requiring PCR.
	Health equity for isolated tribal communities Batanghari, Jambi Province (low-endemic phase)	A special population with health-related concerns is the Anak Dalam Tribe, who are spread in five community health centre areas of service, namely Durian Luncuk, Muara Tembesi, Penerokan, Sungai Rengas, and Aro community health centres. The efforts undertaken were: • Mobile teams were deployed by district health services five times in a year using district budgets. This activity involved various programmes and community health centres including in malaria blood smear examination, treatment and prevention efforts; • Durian Luncuk community health centre established effective communication with four tribal chiefs (*tumenggung*), who headed 600 members of the tribe; • Cooperation with WARSI, a CSO advocating for Anak Dalam Tribe; and • Development of village regulations regarding migration surveillance and village fund utilisation for community empowerment. Challenges remaining are mapping the size of the tribe, regular provision of health care for the tribe, and preventive measures for malaria and migration surveillance.
	Utilising village fund allocation to achieve malaria elimination	Innovative efforts on acceleration of elimination in Bombana districts are mainly intensification of case detection and treatment and migration surveillance, through among others:

	Bombana, Southeast Sulawesi Province (maintenance phase)	• Placement of nurses in malaria-endemic villages budgeted to the village fund allocation (*Alokasi Dana Desa*/ADD) in accordance with the MoU between the health service and the Agency for Village Community Empowerment; • Letters of appointment of village malaria post cadres by the village head for eight villages. Appointment was accompanied with funding from the Agency for Village Community Empowerment; and • Cooperation with private companies in the service area of Raro Watu Utara community health centre for malaria case examination for their employees. These measures took Bombana to elimination certification in 2018.
Kalimantan, Maluku, North Maluku and East Nusa Tenggara This region is targeted to achieve elimination in 2027. This region is entering a quite significant transition phase, which areas are still high- to low-endemic. The lessons learned on acceleration efforts to reduce malaria cases are illustrated in the following regencies.	**Control and prevention of malaria among the migrant population** Tabalong, South Kalimantan Province (low-endemic phase)	The main challenge in Tabalong District is malaria mitigation in border areas, mainly among illegal loggers. The measures taken were: • The Movement to Eradicate and Overcome Malaria in Forests (GEMA BERSINAR) since 2016. It established field malaria posts, which main activities were: a. Holding discussions with the local public figures and loggers, b. Collecting and examining blood smears for workers about to enter forests, and c. Distributing malaria transmission prevention materials such as LLIN and repellent. • Cross-district coordination and cooperation with Paser District, East Kalimantan, mainly on migration surveillance. These activities managed to reduce malaria cases in Tabalong District from an API of 7.4‰ in 2015 to 1.2‰ in 2017.
	Malaria centre as the motors of malaria control South Halmahera, North Maluku Province (low-endemic phase)	In 2003, a malaria outbreak broke in North Maluku Province, causing the death of 272 people, 204 of whom came from South Halmahera. This triggered malaria handling and control involving various sectors, leading to South Halmahera Malaria Centre in 2004. The Centre's flagship activities include: • Intensifying vector control with environmental management with community involvement through participatory learning action, • Malaria as a local school subject for elementary schools' which curriculum had been built under the guidance of the Regional Agency for Development Planning, Malaria Centre, education service and school representatives. The local subject was taught at 15 selected schools; • Malaria Case Rapid Reporting (LACAK) for rapid reporting and record-keeping of malaria cases and logistics through SMS, starting development in 2014; and • Plasmodia, a special care centre for malaria promotion and diagnosis in Labuha Municipalities, South Halmahera, established in 2013 by the Malaria Centre to provide care for cases referred by private doctor practices.

Papua, West Papua Currently, this region contributes a lot of cases in Indonesia. Case reduction measures in high-endemic areas are illustrated in the following district	**Cooperation with the private sector in malaria control** Teluk Bintuni, West Papua Province (medium-endemic phase)	In 2008, Teluk Bintuni District's endemicity was high with an API of 100.1‰. Within nine years, there happened very significant decrease with the achievement of 0.2‰ API in 2017 with a slide positive rate of 0.24% that this district is entering the elimination phase. Measures taken include: • Intensification of active patient detection and treatment through village malaria cadres, and • Cooperation with private companies through corporate social responsibility funding support for the training of company malaria cadres tasked with detecting suspected malaria cases among company employees and increasing malaria examination quality with microscopy through intensive training and guidance.

ANNEX 3. DATA ON MICROSCOPIST OF MALARIA DIAGNOSIS

No	Province	Number of Districts	Health Facilities*			Microscopists									
			Total	Reporting	% Reporting	Workers at province level (including vocational training centres and regional health laboratories)	Meeting require-ments (Level 1)	Workers at BBLKs, B/BTKLs, Health R&D, Health Poly-techniques	Meeting require-ments (Level 1)	Other non-governmental organisations	Meeting require-ments (Level 1)	Number of workers at district level	Meeting require-ments (at least level 2 or the equivalent)	Number of workers at health care facilities (hospitals and PHC)	Meeting require-ments (at least level 3 or the equivalent)
1	ACEH	23	417	211	51%	2	1	1	0			11	0	194	21
2	NORTH SUMATERA	33	802	46	6%	1	1	1	0			2	0	45	1
3	WEST SUMATERA	19	348	263	76%	2	0					32	0	229	13
4	RIAU	12	244	211	86%	1	0					2	0	187	0
5	JAMBI	11	238	37	16%	2	0					9	0	34	0
6	SOUTH SUMATERA	17	406	230	57%	0	0	5	1			33	0	74	0
7	BENGKULU	10	202	164	81%	1	0					9	0	132	4
8	LAMPUNG	15	343	190	55%	2	1	1	0			9	0	176	8
9	BANGKA BELITUNG	7	83	60	72%	2	0					5	0	60	15
10	RIAU ISLANDS	7	115	34	30%	0	0	2	1			23	0	33	5
11	JAKARTA SCR	6	532		0%	3	1	7	4	4	2				
12	WEST JAWA	27	1,402	18	1%	1	0			1	0	2	2	17	1
13	CENTRAL JAWA	35	1,162	416	36%	1	0	1	0			21	2	408	3
14	YOGYAKARTA SR	5	201	9	4%	1	0	1	1			5	1	9	1
15	EAST JAWA	38	1,355	25	2%	1	0	2	2			11	2	23	6
16	BANTEN	8	338	70	21%	1	0					2	0	63	0
17	BALI	9	183	68	37%	2	1					5	1	60	0
18	WEST NUSA TENGGARA	10	201	164	82%	2	0					10	0	162	1
19	EAST NUSA TENGGARA	22	533	519	97%	2	2	1	0	1	0	32	22	483	103
20	WEST KALIMANTAN	14	288	13	5%	1	0					1	0	13	0

21	CENTRAL KALIMANTAN	14	231	98	42%	1	1					6	1	93	5
22	SOUTH KALIMANTAN	13	278	75	27%	1	0	1	1			3	0	75	4
23	EAST KALIMANTAN	10	248	159	64%	1	1					3	0	155	1
24	NORTH KALIMANTAN	5	65	15	23%	1	0					2	0	15	2
25	NORTH SULAWESI	15	236	17	7%	2	1	1	0			3	0	8	0
26	CENTRAL SULAWESI	13	242	62	26%							4	0	60	6
27	SOUTH SULAWESI	24	517	299	58%			2	1			9	0	297	0
28	SOUTHEAST SULAWESI	17	314	100	32%	2	0					6	0	82	3
29	GORONTALO	6	107	92	86%	1	0					6	0	84	4
30	WEST SULAWESI	6	105	17	16%	1	0					2	0	17	7
31	MALUKU	11	245	32	13%	2	1	1	0	1	0	7	0	32	2
32	NORTH MALUKU	10	160	145	91%	1	0	1	0			8	2	144	4
33	WEST PAPUA	13	196	90	46%	2	1					12	1	87	5
34	PAPUA	29	533	69	13%	2	1					14	2	52	10
	INDONESIA	**514**	**12,870**	**4,018**	31%	45	13	28	11	7	2	309	36	3,603	235

ANNEX 4. DATA ON HEALTH ENTOMOLOGISTS

No	Province	Number of Districts	Entomologist										
			Province			District					PHA and B/BTKL		
				Functional title			Functional title					Functional title	
			Total workers	Expert Health Entomo-logist	Skilled Health Entomo-logist	Total workers	Expert Health Entomo-logist	Skilled Health Entomo-logist	District with workers	% District	Total workers	Expert Health Entomo-logist	Skilled Health Entomo-logist
1	ACEH	23	6	0	0	28	1	0	21	91%	10	4	0
2	NORTH SUMATERA	33	2	1	0	5	2	0	3	9%	3	0	2
3	WEST SUMATERA	19	1	0	0	13	0	0	9	48%	0	0	0
4	RIAU	12	0	0	0	2	0	0	2	17%	1	0	0
5	JAMBI	11	1	0	0	1	0	0	1	9%	2	1	1
6	SOUTH SUMATERA	17	5	0	0	32	3	0	16	94%	5	0	1
7	BENGKULU	10	2	0	0	13	3	10	2	20%	0	0	0
8	LAMPUNG	15	3	0	0	37	2	2	15	100%	5	2	1
9	BANGKA BELITUNG	7	0	0	0	0	0	0	0	0	0	0	0
10	RIAU ISLANDS	7	1	0	0	11	0	0	5	71%	7	2	3
11	JAKARTA SCR	6	1	0	0	1	0	0	1	17%	3	2	0
12	WEST JAWA	27	1	0	0	4	1	2	3	11%	1	1	0
13	CENTRAL JAWA	35	2	0	0	20	5	8	5	14%	6	2	2
14	YOGYAKARTA SR	5	1	0	0	3	0	0	1	20%	4	1	0
15	EAST JAWA	38	1	0	0	17	2	15	4	11%	4	4	0
16	BANTEN	8	1	0	0	1	0	0	1	13%	4	2	0
17	BALI	9	2	0	0	2	0	0	2	22%	4	0	4
18	WEST NUSA TENGGARA	10	0	0	0	1	0	0	1	9%	3	0	0
19	EAST NUSA TENGGARA	22	1	0	0	0	0	0	0	0	1	0	1
20	WEST KALIMANTAN	14	3	0	0	32	0	0	14	100%	2	0	0
21	CENTRAL KALIMANTAN	14	2	0	0	58	0	0	10	71%	1	0	0
22	SOUTH KALIMANTAN	13	1	0	0	0	0	0	0	0	2	2	0
23	EAST KALIMANTAN	10	1	0	0	1	0	0	1	10%	1	1	0

24	NORTH KALIMANTAN	5	0	0	0	2	0	0	2	40%	1	0	0
25	NORTH SULAWESI	15	1	0	0	0	0	0	0	0	4	0	3
26	CENTRAL SULAWESI	13	1	0	0	1	0	0	1	8%	0	0	0
27	SOUTH SULAWESI	24	2	0	0	1	0	0	1	4%	2	0	1
28	SOUTHEAST SULAWESI	17	1	0	0	1	0	0	1	6%	1	1	0
29	GORONTALO	6	1	0	0	1	0	0	1	17%	0	0	0
30	WEST SULAWESI	6	1	0	0	30	0	0	6	100%	N/A	N/A	N/A
31	MALUKU	11	1	0	0	0	0	0	0	0	2	0	0
32	NORTH MALUKU	10	1	0	0	22	0	0	10	100%	1	0	0
33	WEST PAPUA	13	1	0	0	0	0	0	0	0	1	0	0
34	PAPUA	29	2	0	0	9	0	0	5	22%	0	0	0
	INDONESIA	**514**	**50**	**1**	**0**	**349**	**19**	**37**	**144**	**29%**	**81**	**25**	**19**

ANNEX 5: RECOMMENDATION OF CRG ASSESSMENT IN TIMIKA AND PASER DISTRICT, 2023

FACTORS	CHALLENGE	RECOMMENDATION
Gender, pregnancy, and sociocultural-behaviours	Gender and social constructions make men and women vulnerable to malaria but in different narratives. Overall, men and women in high endemic areas like Timika perceive malaria as trivial, common and curable.	1. Addressing malaria requires the involvement of individuals across age, gender, education, occupation and other sociodemographic factors. Education and behaviour change approaches need to be community-based and gender-neutral. 2. The government and local communities have implemented a community-based approach using malaria cadres (village malaria workers). Education has also been carried out, especially from health facilities, cadres/communities, to houses of worship; however, the CRG lens needs to be deepened to explore existing inequities. 3. A community-based approach needs to be used to build local health care and awareness and reach communities that are hard to find from routine programme implementation. Discussion and Q&A sessions should be prioritised over one-way explanations. 4. CMW training should emphasise the principle of diversity when identifying potential cadres, for example, empowering male CMWs with occupations as miners to racial/tribal minorities in the area. 5. The approach must be gender-neutral, with men and women participating in malaria elimination. Men, women, children and adolescents should be supported to engage in social and behaviour change communication (SBCC) strategies. 6. In the future, routine monitoring and evaluation of each region needs to include CRG components that are explored and identified according to regional, community, cultural and family contexts; without forgetting the vulnerability of men, women and other minority groups. The malaria matchbox can
	Based on CRG findings, men are vulnerable due to poorer health-seeking behaviour than women. Men, as a group considered "strong" are less likely to access health services until they experience severe symptoms/sickness (which can be more than a few weeks after the onset of the first illness). Females, on average, will or are encouraged to access treatment as soon as they feel unwell.	
	Men are less likely to sleep under a mosquito net than women and children. The reasons often cited were heat, stuffiness, and bad odour. Some also choose to sleep unclothed.	
	In the assessment, there is a narrative discussion that women and men are now equally able to access health services, whenever they feel it is necessary. However, not when they are pregnant. When pregnant, women are expected to discuss with their husbands, especially in terms of taking medication and malaria prevention or treatment measures.	

	The tendency not to finish malaria medication if they think they are cured.	guide local health offices to organise interviews and FGDs as needed in collaboration with the central government. 7. Special attention is needed for malaria prevention in pregnant women, such as IPTp integrated with ANC, as well as support for wise decision-making in malaria management through the involvement of married couples in malaria-related discussions and education. Special attention needs to be given to marginalised women who are young, come from lower socioeconomic status, and lack decision-making power.
	The behaviour of storing or selling leftover malaria medication. In some cases in Timika, people came to several health facilities to get the same medicine; the medicine was then stored or sold when working in areas that were difficult to access or had no health facilities available.	Increased availability of services that can reach individuals and communities who live far from health facilities do not have health insurance/medical expenses.
Access to health information and literacy	There are inequalities in access to knowledge and information about malaria among groups separated by formal vs informal work sectors, documented vs undocumented, public vs private, young vs. old, migrants vs natives, living near health facilities vs far away, high vs. low-income levels, and others. The health centre in Paser has even attempted to contact local companies to discuss the context of health and malaria but has not necessarily received a positive response.	1. Collaborative efforts are needed to disseminate health information about malaria equally and equitably across government and private sectors through health and non-health services. Companies located in endemic areas should be required to provide health guidance following government guidelines. 2. By involving the target community in the capacity-building process, information media can be diversified according to the target community (considerations in terms of language, culture, education, and understanding). 3. In the context of promotion, information related to malaria can be disseminated in public places crowded with visitors, such as places waiting for transportation, schools, terminals, airports, and others. 4. Outreach through houses of worship, schools, and other social activities can be utilized but needs to be maximised with the right information. 5. To compensate for limited access to information, developing an online information platform that suits the needs of the local
	In low-endemic areas, malaria information dissemination is not as frequent as in high-endemic areas; for example, in Paser, information was mainly disseminated by health workers (including CMW), through social activities, but not in public facilities (e.g., schools). Meanwhile, in Timika, information dissemination has been done in public areas, such as houses of worship.	

	On the individual aspect, high-endemic areas generally tend to lag behind in education and development compared to low-endemic areas.	community can be considered, such as a hotline/contact that can be contacted regarding malaria information.
	People do not necessarily use social media or internet material for health-related information needs. They generally prefer to get information from health workers.	
Financial factor	The poor, undocumented migrant workers and other informal workers are vulnerable regarding economic (work compensation) and health insurance. Although the National Health Insurance (BPJS) claims to cover health-related financial needs, not all workers have an identity or BPJS.	1. Policy-making needs to emphasise cross-sectoral involvement. Without the involvement of government and non-government sectors (private and other), malaria elimination efforts will not be optimal. 2. Every worker has the right to get the best health care that can be accessed easily, without getting punitive actions from employers or reducing work compensation. It needs to be incorporated into national and local government policies to implement them. Policies must cover sickness compensation, handling of medical expenses, integration of health services (promotive, preventive, therapeutic, and rehabilitative), and other relevant policies. 3. Coordination of the health sector and the legal, employment, and worker empowerment sectors.
	Undocumented migrant workers in the informal sector generally do not have job security.	
	There are potential human rights violations in the neglect of employees who suffer accidents at work, for example, FGDs in Paser showed the neglect of individuals who should have received treatment after suffering work accidents while harvesting oil palms, but were not done immediately, so that the wounds on the patient's hands became infected.	
	The combination of the lack of regulation of working hours, wages, compensation, fair management, along with the lack of access/availability of health facilities in the surrounding area, means that workers in a low bargaining position choose not to seek treatment or delay treatment.	
	Lack of CMW compensation can affect malaria programme performance and achievements, especially for cadres who need to reach work areas far from the city, are difficult to penetrate, and lack transportation.	Optimize implementing programmes involving CMW by providing appropriate compensation that is adjusted to the workload related to the area/area of work, communication activities, education, and services provided. National and local governments need to invest

		in community-based health services, which are part of the health system.
Conflict	In conflict areas, such as Papua, access to healthcare can be significantly affected. For example, the burning of the hospital in Banti Village in the mountainous area of Timika in 2018 impacted health services; to date (as of January 2023), the construction process has restarted.	1. The state health system should serve all citizens without exception. A human rights-based approach prioritises the safety and health of every citizen over personal interests/conflict. It is necessary to build an agreement and harmonise commitments between parties to the conflict, so that health services, including malaria, can be implemented properly. 2. In conflict areas, health programmes such as IRS, LLINs, and therapy should be implemented. 3. Specialised interventions may be needed for populations alienated by conflict. For example, training CMWs from conflict groups in conflict situations can be one part of outreach activities to these vulnerable populations. 4. Aspects of medical privacy and the principle of do no harm need to be well implemented in every health service.
	In addition, the health situation can be affected by lack of mobility, internet disconnection and access to health services.	
	There is a growing distrust between citizens directly involved in conflict situations and health workers/government officials (and vice versa); for example, people involved tend to fear being arrested or identified if they register for treatment at government health services.	
Physical aspect	Based on the CRG assessment carried out by the Government of Indonesia in January 2023, health burdens and inequalities can be found to be greater in some hard-to-reach areas, such as the coastal and mountainous areas of Timika, as well as some villages in the Paser region that are far from the district centre area. Difficulties arise from the lack of health workers, limited work services (per labour contract cycle), lack of availability of health facilities, facilities, and infrastructure, and mobility (only accessible by boat and plane/helicopter).	1. Identify hard-to-reach areas and mobilise efforts to bring communities closer to health services, with or without health facilities. 2. Limited physical access and transport can be assisted by expanding services, including additional numbers and compensation for CMW and extended health facilities, such as axillary PHC in the local area. 3. Identify non-government partners, such as NGOs, in providing health services to hard-to-reach groups, for example, the work of the NGO YPMAK in Timika.
	Extra costs are required to access health facilities for people living far from health facilities, especially those without transport.	

	The structure of the houses and shelters for communities and workers using wooden boards has many gaps, making it very possible for mosquitoes to enter.	Evaluation of decent housing needs to be done, especially for individuals living near forest areas or areas with high vector distribution. The government must encourage equitable distribution of decent housing for working and non-working people.
Environmental aspect	Environmental aspects can influence malaria and vector control programmes. For example, some health workers suspect that a malaria outbreak in the Paser region in 2022 was triggered by deforestation for the development of a new capital city. In addition to the development context, land expansion, e.g., plantations and mining, can also potentially disrupt forest ecosystems and favour the spread of mosquitoes. Workers from non-endemic areas working in related projects are also at risk of exposure. Natural disasters, such as flooding in the Kalimantan region, also trigger limited access to healthcare.	1. Considering the close relationship of development expansion in the context of malaria, impact assessments should ideally be conducted to determine the impact of public and private sector development. Integration of data that can link environmental factors and malaria could be considered. 2. In the case of areas with high natural disasters, such as flood-prone and highly endemic areas, cadres should be drawn from the village's indigenous population to ensure that each village has a cadre who can help diagnose and treat malaria, to prevent delays in treatment.
Health system	In 2022, a shortage of malaria drugs was triggered by distribution factors. In the context of Paser, some health workers suspected that the malaria outbreak was triggered by deforestation for the development of the new capital city. Workers infected with malaria came directly to the hospital for treatment, while the hospital had limited supplies of first-line drugs. As a result, an injectable artesunate regimen was used. Regarding lack of data integration, according to information from Timika, there have been instances of malaria-infected individuals travelling to multiple health facilities for the same medication; the medication is then stored or sold when working in areas that are difficult to access or have no health facilities available.	1. Increased focus on providing access, acceptance, and quality of services, accompanied by increased health facilities, facilities, infrastructure, and adequate health personnel, utilising a community-led monitoring system. 2. Ensure drug stocks align with estimated community, primary, secondary, and tertiary malaria cases. Anticipation of outbreaks or special conditions that include environmental, conflict, geographical, and other aspects need to be considered and budgeted properly. 3. Health data integration needs to be a priority for the government to prevent double input and ensure the sustainability of targeted health services. 4. Strengthen UHC with policies that facilitate citizen identification and registration for the national health insurance agency and the labour insurance agency.

	Private health services are still an option for workers who find it difficult/unwilling to access the government health system; for example, workers who do not want to wait long at government health facilities or workers/individuals without clear documentation.	5. Encourage transparency in medical costs, especially for the private sector. 6. Sub-national level challenges need to identify problems in terms of CRGs to support the acceleration of the national malaria programme.
	Some areas far from health facilities have axillary PHC as an extended facility, but not necessarily equipped with continuously available health workers, medicines, or adequate facilities/infrastructure.	

ANNEX 6: COMPETENCY STANDARDS AND TRAINING FOR MALARIA PROGRAM OFFICER

Position	Community Health Care		Hospital		District/Municipalities		Province	
	Competency	Training	Competency	Training	Competency	Training	Competency	Training
Head of Division, Head of Section: Disease Control	Epidemiology of malaria, malaria intervention, Planning and advocacy, Monitoring and evaluation	Orientation	NA	NA	Epidemiology of malaria, malaria intervention, Planning and advocacy, Monitoring and evaluation	Orientation	Epidemiology of malaria, malaria intervention, Planning and advocacy, Monitoring and evaluation	Orientation
Program Officer	Management Program (malaria and intervention, surveillance, information systems, logistics systems, QA diagnostic, Behavior Change Communication, Advocacy, program planning, monitoring and evaluation)	1. Management Program Training for Malaria Officers in Community Health Care 2. Malaria Information System Training	NA	NA	Management Program (malaria and intervention, surveillance, information systems, logistics systems, QA diagnostic, Behavior Change Communication, Advocacy, program planning, monitoring and evaluation)	1. Management Program Training for Malaria Program Officers at District/Municipalities Level 2. Malaria Information System Training	Management Program (malaria and intervention, surveillance, information systems, logistics systems, QA diagnostic, Behavior Change Communication, Advocacy, program planning, monitoring and evaluation)	1. Management Program Training for Malaria Program Officer at Province Level 2. Malaria Information System Training
Microscopist	The result of the panel test>70 or Competency Assessment UKOM level 3	Malaria diagnostic training, panel test	The result of the panel test>70 or Competency Assessment UKOM level 3	Malaria diagnostic training, panel test	NA	NA	NA	NA
Cross checker	NA	NA	NA	NA	NCAMM level B (equal to level 2)	Malaria diagnostic training, panel	ECAMM level 1	Malaria diagnostic training,

						test, competency assessment		competency assessment (ECAMM WHO)
Trained entomologist	1. Identification of Anopheles larvae 2. Understanding of the breeding place 3. Vector surveillance 4. Vector control	Malaria vector entomologist training at Community Health Care level	NA	NA	NA	NA	NA	NA
Entomologist	NA	NA	NA	NA	1. Identification of Anopheles species 2. Understanding of the breeding place 3. Vector surveillance 4. Vector control	Malaria vector entomologist training at District/Municipalities Level	1. Identification of Anopheles species 2. Understanding of the breeding place 3. Vector surveillance 4. Vector control	Malaria vector entomologist training at Province Level
Health Promotion	Behaviour Change Communication and advocacy	Training of Behavior Change Communication and advocacy at the Primary health care Level			Behaviour Change Communication and advocacy	Training of Behavior Change Communication and advocacy at the District/Municipalities Level	Behaviour Change Communication and advocacy	Training of Behavior Change Communication and advocacy at the Province Level
Surveillance	1. Collection, analysis and interpretation of malaria epidemiological data and reporting	Epidemiological surveillance training and Early Warning and Response Systems	Collection, analysis and interpretation of malaria epidemiologic	Epidemiological surveillance training	1. Collection, analysis and interpretation of malaria epidemiological data and reporting 2. Epidemiological Investigation and	Epidemiological surveillance training and Early Warning and Response Systems	1. Collection, analysis and interpretation of malaria epidemiological data and reporting	Epidemiological surveillance training and Early Warning and Response Systems

	2. Epidemiological Investigation and response 3. Early warning system		al data and reporting		response 3. Early warning system		2. Epidemiological Investigation and response 3. Early warning system	
Pharmaceutical installation	1. Malaria logistic management 2. Recording and reporting	Malaria logistics management is included in the training of Primary healthcare pharmacy logistics	1. Malaria logistic management 2. Recording and reporting	Malaria logistics management is included in the training of Hospital pharmacy logistics	1. Malaria logistic management 2. Recording and reporting	Malaria logistics management is included in the training of district/municipalities' pharmacy logistics	1. Malaria logistic management 2. Recording and reporting	Malaria logistics management is included in the training of province pharmacy logistics
Medical doctor	Malaria case management	Case management training	malaria case management (with complication or without complication)	Case management training	NA	NA	NA	NA
Midwife	1. Malaria screening during ANC in a high endemic district 2. Malaria case management 3. Behavior change and communication	Pelatihan skrining malaria pada ANC dan tata laksana malaria Malaria screening training and case	NA	NA	NA	NA	NA	NA

		management screening in ANC						
Nurse	1. Malaria screening in Integrated Management of Childhood Illness 2. Malaria case management 3. Behavior change and communication	Training of malaria screening in Integrated Management of Childhood Illness and malaria case management	1. Malaria screening in Integrated Management of Childhood Illness 2. Malaria case management 3. Behavior change and communication	Training of malaria screening in Integrated Management of Childhood Illness and malaria case management	NA	NA	NA	NA
Team (Program Officer, Surveillance Officer, Health Promotion Officer, Health environmental officer/Sanitarian/trained entomologist/entomologist)	Able to work in a team to prevent and control malaria	Malaria re-orientation workshop	NA	NA	Able to work in a team to prevent and control malaria	Malaria re-orientation workshop	Able to work in a team to prevent and control malaria	Malaria re-orientation workshop

ANNEX 7: STANDARD NUMBER OF MALARIA HUMAN RESOURCE

Position	Endemicity	Province Health Office and Province Laboratory	Province Public Hospital	District/Municipalities Health Office	District/Municipalities Hospital	Community Health Care	Village
Malaria Program Officer	API>5	1		1		1	
	API 1-5	1		1		1	
	API <1	1		1		1	
	Elimination	1		1		1	
Microscopist	API>5		1		1	1	
	API 1-5		1		1	1	
	API <1		1		1	1	
	Elimination				1	One at appointed Primary health care	
Cross checker	API>5	1		1			
	API 1-5	1		1			
	API <1	1		1			
	Elimination	1		1			
Entomologist and entomology assistant	API>5	1		1		1	
	API 1-5	1		1		1	
	API <1	1		1		1	
	Elimination	1		1		1	
Surveillance	API>5	1	1	1	1	1	
	API 1-5	1	1	1	1	1	
	API <1	1	1	1	1	1	
	Elimination	1	1	1	1	1	
Malaria Cadre	API>5						1-2 (in special situation area or receptive area)
	API 1-5						1-2

							(in special situation area or receptive area)
	API <1						
	Elimination						
Pharmaceutical Industry	API>5	1	1	1	1	1	
	API 1-5	1	1	1	1	1	
	API <1	1	1	1	1	1	
	Elimination	1	1	1	1	1 at appointed Primary health care	
Health Promotion	API>5	1		1		1	
	API 1-5	1		1		1	
	API <1	1		1		1	
	Elimination	1		1		1	
Medical Doctor	API>5	-	2 (Internist/Pediatric/ Obsgyn, GP, Clinical Pathology)	-	2 (Internist/Pediatric/Obsgyn, GP, Clinical Pathology)	1	-
	API 1-5	-	2	-	1	1	-
	API <1	-	1	-	1	1	-
	Elimination	-	1	-	1	1 at appointed Primary health care	-
Midwife	API>5	-	-	-	-	1	1
	API 1-5	-	-	-	-	1	1
	API <1	-	-	-	-	1	1
	Elimination	-	-	-	-	-	-
Nurse	API>5	-	1	-	1	1	-
	API 1-5	-	1	-	1	1	-
	API <1	-	1	-	1	1	-
	Elimination	-	1	-	1	1 at appointed Primary health care	-

ANNEX 8. MALARIA ACCELERATION AND ELIMINATION ACTIVITIES PLAN 2020-2026

Strategy 1: Ensuring universal access to malaria case management and prevention to remove gender and human right barrier										Remaks
Key intervention	Activities	Target								
		Endemicity	2020	2021	2022	2023	2024	2025	2026	
1.1 Diagnosis: Increase access to malaria diagnosis in all health facilities both public and private	1.1.1. Conduct laboratory examination to confirm all suspected cases at all health facilities	API>1	61 districts/municipalities	48 districts/municipalities	39 districts/municipalities	58 districts/municipalities	29 districts/municipalities	15 districts/municipalities	9 districts/municipalities	
	1.1.2. Define malaria testing laboratories in health facilities (reinforced by a decree of the Head of Health Office).	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	
	1.1.3. Conduct laboratory tests to confirm suspected malaria cases at designated health facilities.	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	
	1.1.4. Provide diagnostic logistics for laboratory testing activities at health facilities	API>1	61 districts/municipalities	48 districts/municipalities	39 districts/municipalities	58 districts/municipalities	29 districts/municipalities	15 districts/municipalities	9 districts/municipalities	
	1.1.5. Provide diagnostic logistics for laboratory testing activities at designated health facilities	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	

	1.1.6. Develop guidelines on malaria diagnostics (including for on the job training):	All endemicity	Central Level	Central Level						
	a. Technical guidelines for malaria parasite testing									
	b. Malaria microscopy technical capacity building module									
	c. Technical guidelines for networking and strengthening the quality of malaria laboratories									
	d. Carry out reviews and updates related to malaria microscopy training modules, technical guidelines for networking and strengthening laboratory quality.					Central Level			Central Level	
	1.1.7. Training (including on the job training) in malaria diagnosis for microscopists and other health workers and competency testing at health facilities	API>1		48 districts/municipalities		58 districts/municipalities	29 districts/municipalities	15 districts/municipalities	9 districts/municipalities	
	1.1.8. Training (including on the job training) in malaria diagnosis for microscopists and other health workers and competency testing at designated (referral) health facilities	API<1		130 districts/municipalities		84 districts/municipalities				
		Elimination			365 districts/municipalities	100 districts/municipalities	100 districts/municipalities	100 districts/municipalities	100 districts/municipalities	

	1.1.9. Provision of bench aid (parasite atlas), technical guidelines and SOPs in all health facilities	All endemicity	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	
	1.1.10. Development of curriculum and e-learning materials for malaria diagnosis.	All endemicity	Central Level			Central Level				
	1.1.11. Development of combined remote and classroom (blended learning) training for malaria diagnosis	All endemicity	Central Level: partnership with of the Human Resources of Health Agency MoH (BPSDM)	Piloting: 2 cohort						
	1.1.12. Implementation of combined remote and classroom training for malaria diagnosis	All endemicity		Central Level	Central Level	Central Level	Central Level	Central Level	Central Level	
1.2 Diagnosis: Improve quality assurance of malaria diagnosis (microscopic and RDT)	1.2.1. Training of trainers for Provincial level microscopy	All endemicity		34 provinces			34 provinces			Includes 2 types: TOT for cross checkers and TOT for microscope maintenance officers

										(microscope workshops).
	1.2.2. Refreshing training of provincial cross-testers and public health laboratories (B/BTKL and BBLK).	All endemicity	34 provinces		34 provinces	24 provinces/lab Central Level/regional	24 provinces/lab Central Level/regional	24 provinces/lab Central Level/regional	24 provinces/lab Central Level/regional	
	1.2.3. Malaria laboratory quality assurance (QA) management training for districts and provincial level cross-checkers and managers	API>1		48 districts/municipalities dan provinces endemis tinggi			29 districts/municipalities			
		API<1		130 districts/municipalities dan provinces			100 districts/municipalities		80 districts/municipalities	
		Elimination				100 districts/municipalities	100 districts/municipalities	100 districts/municipalities	100 districts/municipalities	
	1.2.4. Determining malaria reference laboratories for cross-testing at health facilities (strengthened by decree of the Health Office Head)	All endemicity	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	
	1.2.5. Training and competency testing of districts cross-testers through NCAMM, and provincial, regional and national cross-testers through ECAMM.	API>1	61 districts/municipalities	48 districts/municipalities	39 districts/municipalities	58 districts/municipalities	29 districts/municipalities	15 districts/municipalities	9 districts/municipalities	
		API<1		23 provinces		84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination		3 provinces		372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	

	1.2.6. Carry out microscopic cross-examination in accordance with applicable regulations.	All endemicity	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	
	1.2.7. Carry out panel tests at least once a year	All endemicity	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	
	1.2.8. Monitoring and supervising malaria diagnosis activities (including laboratory logistics) in laboratory examination services in public and private health facilities	All endemicity	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	
	1.2.9. Manufacture and distribution of standardized slides for the implementation of QA of malaria laboratory diagnosis	All endemicity		Central Level		Central Level			Central Level	
	1.2.10 Monitoring and evaluating the quality of malaria RDTs procured and used in the regions (pre and post marketing surveillance/lot testing)	All endemicity	Pharmaceuticals and medical devices agency	Pharmaceuticals and medical devices agency	Pharmaceuticals and medical devices agency	Central Level (Public Health Governance)	Central Level (Public Health Governance)	Central Level (Public Health Governance)	Central Level (Public Health Governance)	
	1.2.11. Building laboratory networks to strengthen quality assurance of microscopy and RDTs	All endemicity	Central Level			Central Level	Central Level	Central Level	Central Level	Includes national reference lab activities for WHO RDT lot testing

	1.2.12. Dissemination of malaria diagnosis QA system through professional organizations: clinical pathology, clinical parasitology and PATELKI.	All endemicity	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	
1.3. Treatment: Improve access to standard malaria treatment in all health facilities and at community level by trained staff.	1.3.1 Provision and updating of treatment guidelines and standard operational procedures (SOPs) for uncomplicated and complicated malaria in every hospital and health facility at the districts and provincial levels (including management algorithms).	All endemicity	Central Level	Central Level	Central Level	Central Level	Central Level	Central Level	Central Level	
	1.3.2 Workshop on malaria treatment and standard operational procedures (SOPs) for general practitioners, internal medicine, paediatricians and obstetricians as well as other paramedical personnel in all health facilities.	All endemicity	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	This activity is a menu that can be taken by the regions. In 2022, for the implementation in the Province, there is no honorarium for the committee and

										civil servants, so only 10% of regions want to propose this activity.
	1.3.3. Provision of uncomplicated malaria drugs in all health facilities and malaria drugs with complications (severe) without stock outs for pre-referral in health facilities with difficult access	API>1	61 districts/municipalities	48 districts/municipalities	39 districts/municipalities	58 districts/municipalities	29 districts/municipalities	15 districts/municipalities	9 districts/municipalities	Stock out reports come from health facilities, not districtss. districts/ municipality data that can be pulled are those districtss /municipalities that reported stock outs.
	1.3.4. Provision of uncomplicated malaria drugs and malaria drugs with complications (severe) without stock outs for pre-	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	Stock out reports come from health facilities,
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	

	referral at designated health facilities									not districtss. districts/ municipality data that can be pulled are those districtss /municipalities that reported stock outs.
	1.3.5. Provision of malaria drugs with complications (severe) at referral health facilities without stock outs	API>1	61 districts/municipalities	48 districts/municipalities	39 districts/municipalities	58 districts/municipalities	29 districts/municipalities	15 districts/municipalities	9 districts/municipalities	
	1.3.6. Provision of malaria drugs with complications (severe) at designated health facilities without stock outs	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	
	1.3.7. Provision of re-packaged drugs for CMW in special situations	API>1	28 high endemic districts/municipalities & 33 moderate endemic districts/municipalities with special populations	20 high endemic districts/municipalities & 28 moderate endemic districts/municipalities with special populations	17 high endemic districts/municipalities & 22 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic	

						districts/municipalities with special populations	districts/municipalities with special populations	districts/municipalities with special populations	districts/municipalities with special populations	
		API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
	1.3.8. Provision of communication, information and education (IEC) media for health workers to provide interpersonal communication during malaria management.	All endemicity		Central Level		Central Level	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	
	1.3.9 Monitoring and evaluation of management activities at the provincial level, and in internal hospital networks, as well as cooperation of malaria services in public and private health facilities in provinces and districtss/municipalities	API>1	8 provinces	7 provinces	6 provinces	3 provinces		8 provinces	8 provinces	It is expected that the laboratory team will be involved in the monitoring and evaluation activities.
		API<1			23 provinces	13 provinces	16 provinces	19 provinces	23 provinces	
		Elimination	3 provinces				3 provinces	5 provinces	5 provinces	
	1.3.10 Existence of malaria service networking activities within hospitals	API>1	61 districts/municipalities	48 districts/municipalities	39 districts/municipalities	58 districts/municipalities	29 districts/municipalities	15 districts/municipalities	9 districts/municipalities	

	(diagnostics, management, pharmacy, and surveillance).	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	
	1.3.11. Developing cooperation in updating the malaria curriculum and teaching materials with medical education institutions, nursing education, midwifery education and laboratory analysts.	All endemicity	Central Level	Central Level	Central Level	Central Level	Central Level	Central Level	Central Level	
	1.3.12. Technical guidance and supervision of management by the centre, provinces and districtss/municipalities to public and private health facilities	API>1	61 districts/municipalities	48 districts/municipalities	39 districts/municipalities	58 districts/municipalities	29 districts/municipalities	15 districts/municipalities	9 districts/municipalities	
		API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	
	1.3.13. Developing curricula and training modules (combination of online and offline) on severe malaria management	All endemicity	Central Level	Central Level	Central Level	Central Level	Central Level	Central Level	Central Level	
	1.3.14. Workshop on updating severe malaria management in all hospitals in collaboration with professional organizations (IDI, IDAI, POGI, and PAPDI)	API>1	8 provinces		6 provinces	58 districts/municipalities	29 districts/municipalities	15 districts/municipalities	9 districts/municipalities	
		API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	

		Elimination	3 provinces		7 provinces	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	
	1.3.15. Dissemination of technical guidelines for malaria service networks in collaboration between the government and the private sector in the provision of malaria management services	All endemicity				514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	
	1.3.16. Establishment of malaria service networks in collaboration between the government and the private sector in the provision of malaria management services	API>1	8 provinces				5 provinces			
		API<1		23 provinces		3 provinces	3 provinces	3 provinces	4 provinces	
		Elimination	3 provinces			3 provinces	2 provinces			
1.4 Treatment : Integration of malaria services with maternal and child health	1.4.1. Malaria screening and provision of bed nets to all first contact pregnant women during antenatal care (ANC) in all high endemic districtss and selectively in moderate endemic districtss.	API>1	61 districts/municipalities	48 districts/municipalities	39 districts/municipalities	58 districts/municipalities	58 districts/municipalities	58 districts/municipalities	29 districts/municipalities	
	1.4.2. Training of midwives for malaria services for pregnant women.			28 districts/municipalities API>5	17 districts/municipalities API>5	58 districts/municipalities	58 districts/municipalities	58 districts/municipalities	29 districts/municipalities	
	1.4.3. Malaria screening of all sick children under five in high endemic districtss and selectively in moderate endemic districtss.		61 districts/municipalities	48 districts/municipalities	39 districts/municipalities	58 districts/municipalities	58 districts/municipalities	58 districts/municipalities	29 districts/municipalities	

1.4.4. Integrated management of sick children (IMCI) orientation for nurses and midwives on screening of sick children and malaria management.		28 districts/municipalities API>5	17 districts/municipalities API>5	58 districts/municipalities	58 districts/municipalities	58 districts/municipalities	29 districts/municipalities	
1.4.5. Provision of RDTs for screening pregnant women and sick children and routine insecticide-treated bed nets for pregnant women	61 districts/municipalities	48 districts/municipalities	39 districts/municipalities	58 districts/municipalities	58 districts/municipalities	58 districts/municipalities	29 districts/municipalities	
1.4.6 Provision of insecticide-treated bed nets for malaria services for pregnant women at first ANC contact	28 districts/municipalities	28 districts/municipalities	28 districts/municipalities	58 districts/municipalities	58 districts/municipalities	58 districts/municipalities	29 districts/municipalities	
1.4.7 Socialisation of integrated malaria services for pregnant women and children under five to districts and provincial MCH managers		48 districts/municipalities	39 districts/municipalities	58 districts/municipalities	58 districts/municipalities	58 districts/municipalities	29 districts/municipalities	
1.4.8. Monitoring and evaluation of malaria service integration activities with MCH (including mother's class and IPTp)		28 districts/municipalities and Central Level	17 districts/municipalities and Central Level	58 districts/municipalities	58 districts/municipalities	58 districts/municipalities	29 districts/municipalities	
1.4.9. Technical guidance on activities to integrate malaria services with MCH (including mother's class)	28 districts/municipalities	20 districts/municipalities	17 districts/municipalities	58 districts/municipalities	58 districts/municipalities	58 districts/municipalities	29 districts/municipalities	
1.4.10 Provision of intermittent preventive treatment for pregnant								

	women (IPTp) in high endemic areas									
	a. Meeting with expert commission for consultation on IPTp provision					Central Level				
	b. Update of technical guidelines for integration of malaria and MCH (to include IPTp)					Central Level				
	c. Socialization of the updated technical guidelines for malaria and MCH integration (incorporating IPTp)					API> 100: 9 districts/municipalities				
	d. Provision of logistics for IPTp					Central Level	Central Level	Central Level	Central Level	
	e. IPTp administration					API> 100: 4 districts/municipalities	API> 100: 9 districts/municipalities	API> 100: 9 districts/municipalities	API> 100: 9 districts/municipalities	Target implementation locus of at least 3 years to measure impact
1.5 Vector control : Universal protection of LLINs in malaria endemic areas.	1.5.1. Simultaneous rejuvenation campaign and utilization of new mosquito nets	API>1	61 districts/municipalities		39 districts/municipalities	68 districts/municipalities		22 districts/municipalities		

	1.5.2. Revised technical guidelines for simultaneous rejuvenation campaigns and use of new mosquito nets		Central Level							The type of mosquito net will depend on the needs of the region. The preferred type of mosquito net is white in colours and polyester material
	1.5.3. Multi-level dissemination of information on the use and maintenance of insecticide-treated bed nets.		61 districts/municipalities	48 districts/municipalities	39 districts/municipalities	68 districts/municipalities		22 districts/municipalities		
	1.5.4. Provision of mosquito nets for the implementation of the simultaneous campaign of rejuvenation and the utilization of mosquito nets		61 districts/municipalities		39 districts/municipalities	68 districts/municipalities		22 districts/municipalities		
	1.5.5. Assistance for microplanning of simultaneous campaign of rejuvenation and the utilization of mosquito nets		10 districts/municipalities in Papua, 2 districts/muni		10 districts/municipalities in Papua, 2 districts/muni		22 districts/municipalities			

			cipalities in Papua Barat, 4 districts/muni cipalities in NTT		cipalities in Papua Barat					
	1.5.6. Support from CMW to carry out distribution of insecticide-treated nets and education on malaria prevention.	API>1	18 districts/muni cipalities	43 districts/muni cipalities	39 districts/muni cipalities	28 high endemic districts/muni cipalities (includes 9 districts/muni cipalities acceleration in Papua) and 17 moderate endemic districts/muni cipalities with special populations	28 high endemic districts/muni cipalities (includes 9 districts/muni cipalities acceleration in Papua) and 17 moderate endemic districts/muni cipalities with special populations	28 high endemic districts/muni cipalities (includes 9 districts/muni cipalities acceleration in Papua) and 17 moderate endemic districts/muni cipalities with special populations	28 high endemic districts/muni cipalities (includes 9 districts/muni cipalities acceleration in Papua) and 17 moderate endemic districts/muni cipalities with special populations	
		API <1				115 in districts/muni cipalities with special populations	115 in districts/muni cipalities with special populations	115 in districts/muni cipalities with special populations	115 in districts/muni cipalities with special populations	
	1.5.7 Monitoring and evaluation of insecticide-treated bed net utilization (1-1-3)	API>1				68 districts/muni cipalities		22 districts/muni cipalities		
	1.5.8. Routine provision of bed nets to be distributed by CMW/health workers (top up)	API>1					68 districts/muni cipalities		22 districts/muni cipalities	Procurement of 10-20% of campaign

										mosquito nets
1.6 . Vector control : Protection with IRS in selected villages.	1.6.1. IRS training/refreshing according to standard	API>1		28 high endemic districts/municipalities & 33 moderate endemic districts/municipalities with special populations		Acceleration Papua (9 districts/municipalities)		Acceleration Papua (9 districts/municipalities)		
	1.6.2. Provision of non-pyrethroid insecticides for IRSs	All endemicity				Central Level, provinces and districts/municipalities				
	1.6.3. IRS spraying according to standard	All endemicity	In areas with pyrethroid-resistant mosquitoes or low bed net coverage after health promotion activities, and outbreak areas				In the area that was obtained: 1. API > 20. 2. low coverage of bed net use after health promotion activities. 3. outbreak/natural disaster areas.			
	1.6.4. Monitoring and evaluation of IRS implementation	All endemicity	Central Level, provinces and districts/municipalities				In the area that was obtained: 1. API > 20. 2. low coverage of bed net use after health promotion activities. 3. outbreak/natural disaster areas.			
	1.6.5. Support from CMW to preparation and monitoring for IRS implementation	All endemicity	In areas with pyrethroid-resistant mosquitoes or low bed net coverage after health promotion activities, and outbreak areas				In the area that was obtained: 1. API > 20. 2. low coverage of bed net use after health promotion activities. 3. outbreak/natural disaster areas.			API > 20 --> IRS routine 3 times per year for 3 years

1.7. Vector control: Improve community based vector control, including integrated vector management	1.7.1 Conduct integrated vector management (IVM) by utilising other methods as a supplement to LLIN nets such as repellents, larvicides, home modification and environmental management by health workers and or communities	API>1	28 high endemic districts/municipalities & 33 moderate endemic districts/municipalities with special populations	20 high endemic districts/municipalities & 28 moderate endemic districts/municipalities with special populations	17 high endemic districts/municipalities & 22 moderate endemic districts/municipalities with special populations	58 districts/municipalities	29 districts/municipalities	15 districts/municipalities	9 districts/municipalities	
	1.7.2. Conduct larval sources management (larviciding, environmental modification and manipulation, stocking of larvae-eating fish, etc.) based on epidemiological evidence by health workers and/or communities	API < 1 and elimination				456 districts/municipalities	485 districts/municipalities	499 districts/municipalities	505 districts/municipalities	
	1.7.3. Conduct environmental and mosquito breeding site inspections by health workers and CMW based on epidemiological evidence	API>1	28 high endemic districts/municipalities & 33 moderate endemic districts/municipalities with special populations	20 high endemic districts/municipalities & 28 moderate endemic districts/municipalities with special populations	17 high endemic districts/municipalities & 22 moderate endemic districts/municipalities with special populations	58 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua)	29 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua)	15 districts/municipalities	9 districts/municipalities	
		API< 1				115 in districts/municipalities with special populations	115 in districts/municipalities with special populations	115 in districts/municipalities with special populations	115 in districts/municipalities with special populations	

		Elimination				280 districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	
	1.7.4. Triggering community empowerment for vector control	API>1	28 high endemic districts/municipalities & 33 moderate endemic districts/municipalities with special populations	20 high endemic districts/municipalities & 28 moderate endemic districts/municipalities with special populations	17 high endemic districts/municipalities & 22 moderate endemic districts/municipalities with special populations	58 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua)	29 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua)	15 districts/municipalities	9 districts/municipalities	
	1.7.5 Communication, information and education on vector control including insecticide-treated bed nets/IRS/LSM in mass media and inter-personal settings	API>1	28 high endemic districts/municipalities & 33 moderate endemic districts/municipalities with special populations	20 high endemic districts/municipalities & 28 moderate endemic districts/municipalities with special populations	17 high endemic districts/municipalities & 22 moderate endemic districts/municipalities with special populations	58 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua)	29 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua)	15 districts/municipalities	9 districts/municipalities	
	1.7.6 Provision of larvicides as a supplement to vector control activities and reduction of receptivity	All endemicity	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	276 districts/municipalities	276 districts/municipalities	276 districts/municipalities	276 districts/municipalities	
1.8. Acceleration of malaria burden	1.8.1 Meeting with expert commission for Papua malaria case reduction and elimination acceleration package	API>1				9 districts/municipalities acceleration Papua				

reduction in Papua	1.8.2 Preparation of technical guidelines for the Papua malaria elimination and case reduction acceleration package					9 districts/municipalities acceleration Papua				
	1.8.3 Socialization of the implementation of the Papua malaria case reduction and elimination acceleration package					9 districts/municipalities acceleration Papua	districts/municipalities acceleration Papua Land			
	1.8.4 Provision of logistics for the Papua malaria case reduction and elimination acceleration package (MDA, screening of school children. IPTp and integrated vectors)					9 districts/municipalities acceleration Papua	districts/municipalities acceleration Papua Land	districts/municipalities acceleration Papua Land		
	1.8.5 Implementation of activities to accelerate the reduction of cases and elimination of Papuan malaria					9 districts/municipalities acceleration Papua	districts/municipalities acceleration Papua Land	districts/municipalities acceleration Papua Land		
	1.8.6 Logistical provision of malaria intervention packages for hard-to-reach populations (sustainable outreach services) by health workers: MBS, integrated management and vectors						20 districts/municipalities	20 districts/municipalities	20 districts/municipalities	
	1.8.7. Implementation of malaria intervention packages for hard-to-reach populations (sustainable outreach services) by health workers: MBS, integrated management and vectors						20 districts/municipalities	20 districts/municipalities	20 districts/municipalities	

	1.8.8. Monitoring and evaluation of the Tanah Papua malaria case reduction and elimination acceleration package					9 districts/municipalities acceleration Papua	districts/municipalities acceleration Papua Land	districts/municipalities acceleration Papua Land	districts/municipalities acceleration Papua Land	
1.9 Intervention package for IKN and its borders	1.9.1. Raising commitment through the establishment of a cross-sectoral task force for malaria-free IKN	IKN and its borders				IKN and its borders	IKN and its borders	IKN and its borders	IKN and its borders	
	1.9.2. Developing an action plan or technical guidelines towards malaria-free IKN.					IKN and its borders	IKN and its borders	IKN and its borders	IKN and its borders	
	1.9.3. Advocacy, partnerships and community empowerment in IKN and cross-border areas towards a malaria-free IKN.					IKN and its borders	IKN and its borders	IKN and its borders	IKN and its borders	
	1.9.4. Support for infrastructure and human resources of community health centres and referral hospitals.					IKN and its borders	IKN and its borders	IKN and its borders	IKN and its borders	
	1.9.5. System strengthening and integrated planning including malaria programme management towards malaria-free IKN.					IKN and its borders	IKN and its borders	IKN and its borders	IKN and its borders	
	1.9.6. Strengthening malaria programme management cooperation with IKN authorities.					IKN and its borders	IKN and its borders	IKN and its borders	IKN and its borders	
	1.9.7. Periodic screening of IKN workers (in-coming workers)					IKN and its borders	IKN and its borders	IKN and its borders	IKN and its borders	Special population of IKN workers

	1.9.8. Early and complete treatment through drug monitoring with cadre supervision of special populations in IKN and across borders					IKN and its borders	IKN and its borders	IKN and its borders	IKN and its borders	Special population of IKN workers
	1.9.9. Development of access to diagnosis, treatment and referral.					IKN and its borders	IKN and its borders	IKN and its borders	IKN and its borders	
	1.9.10. Development/strengthening of malaria service networks with public and private partnerships in the IKN region.					IKN and its borders	IKN and its borders	IKN and its borders	IKN and its borders	
	1.9.11. Optimisation of Malaria Forest Post services in cross-border areas.					IKN and its borders	IKN and its borders	IKN and its borders	IKN and its borders	
	1.9.12. Receptivity mapping including identification of mosquito breeding environments (puddles, truck ruts etc.)					IKN and its borders	IKN and its borders	IKN and its borders	IKN and its borders	
	1.9.13. Identification of activities at risk of malaria transmission: IKN area workers, forest and plantation encroachers					IKN and its borders	IKN and its borders	IKN and its borders	IKN and its borders	
	1.9.14. Implementation of surveillance and epidemiological investigation					IKN and its borders	IKN and its borders	IKN and its borders	IKN and its borders	
	1.9.15. Integrated monitoring and evaluation					IKN and its borders	IKN and its borders	IKN and its borders	IKN and its borders	

	of IKN and cross-border areas.									
	1.9.16. Integrated vector control, including distribution of insecticide-treated mosquito nets in the IKN area.					IKN and its borders	IKN and its borders	IKN and its borders	IKN and its borders	

Strategy 2: Transforming malaria surveillance as core intervention of malaria elimination										Remaks
Key intervention	Activities	Target								
		Endemicity	2020	2021	2022	2023	2024	2025	2026	
2.1. Increase malaria case finding	2.1.1 Development and updating of modules for CMW training	All endemicity				Central level		Central level		
	2.1.2. Training/refreshing/socialization of diagnosis using RDTs and treatment for CMW	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	5 districts/municipalities with no special populations	5 districts/municipalities with no special populations	5 districts/municipalities with no special populations	5 districts/municipalities with no special populations	
		API>1	9 districts/municipalities	18 districts/municipalities	28 districts/municipalities	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	

	2.1.3. Active case finding by officers and CMW through regular home visits	API>1	10 high endemic districts/municipalities and 28 moderate endemic districts/municipalities with special populations	2 high endemic districts/municipalities and 23 moderate endemic districts/municipalities with special populations	17 moderate endemic districts/municipalities with special populations	30 moderate endemic districts/municipalities with special populations	30 moderate endemic districts/municipalities with special populations	30 moderate endemic districts/municipalities with special populations	30 moderate endemic districts/municipalities with special populations	
			18 high endemic districts/municipalities and 5 moderate endemic districts/municipalities in Papua	18 high endemic districts/municipalities and 5 moderate endemic districts/municipalities in Papua	18 high endemic districts/municipalities and 5 moderate endemic districts/municipalities in Papua	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua)	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua)	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua)	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua)	
	2.1.4. Providing notification of positive malaria cases found at health facilities to relevant area CMW	API>1	10 high endemic districts/municipalities and 28 moderate endemic districts/municipalities with special populations	2 high endemic districts/municipalities and 23 moderate endemic districts/municipalities with special populations	17 moderate endemic districts/municipalities with special populations	30 moderate endemic districts/municipalities with special populations	30 moderate endemic districts/municipalities with special populations	30 moderate endemic districts/municipalities with special populations	30 moderate endemic districts/municipalities with special populations	

			18 high endemic districts/municipalities and 5 moderate endemic districts/municipalities in Papua	18 high endemic districts/municipalities and 5 moderate endemic districts/municipalities in Papua	18 high endemic districts/municipalities and 5 moderate endemic districts/municipalities in Papua	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua)	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua)	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua)	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua)	
	2.1.5. Conducting home contact surveys on every positive case (RACD) at PHC with API > 1‰ conducted by officers supported by CMW	API>1	28 districts/municipalities	20 districts/municipalities	17 districts/municipalities	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua)	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua)	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua)	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua)	
	2.1.6. Increase passive discovery by examining all cases with fever visiting health facilities from active and non-active focal villages.	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
	2.1.7. Increase passive discovery by examining all patients	API> 1				districts/municipalities with API>100 per mil	districts/municipalities with API>100 per mil	districts/municipalities with API>100 per mil		

	visiting health facilities.									
	2.1.8. Conduct antimalarial drug monitoring according to parasite type by health workers and trained CMW.	API>1	9 districts/municipalities	18 districts/municipalities	28 districts/municipalities	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	
		API<1	districts/municipalities with special populations	districts/municipalities with special populations	districts/municipalities with special populations	115 in districts/municipalities with special populations	115 in districts/municipalities with special populations	115 in districts/municipalities with special populations	115 in districts/municipalities with special populations	
	2.1.9. Conduct post-treatment monitoring in accordance with the guidelines	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	

	2.1.10 Supervise technical guidance on case management for CMW by health centres/districts	API>1	28 high endemic districts/municipalities and 33 moderate endemic districts/municipalities with special populations	20 high endemic districts/municipalities and 28 moderate endemic districts/municipalities with special populations	17 high endemic districts/municipalities and 22 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	
		API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination				372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	
	2.1.11. Improved case finding and management for hard-to-reach populations (sustainable outreach services) including in correctional institutions	API>1	28 high endemic districts/municipalities and 33 moderate endemic districts/municipalities with special populations	20 high endemic districts/municipalities and 28 moderate endemic districts/municipalities with special populations	17 high endemic districts/municipalities and 22 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with	

							special populations	special populations	special populations	
		API<1	districts/municipalities with special populations	districts/municipalities with special populations	districts/municipalities with special populations	115 in districts/municipalities with special populations	115 in districts/municipalities with special populations	115 in districts/municipalities with special populations	115 in districts/municipalities with special populations	
	2.1.12. Provision of CMW kits for malaria management	API>1	28 high endemic districts/municipalities and 33 moderate endemic districts/municipalities with special populations	20 high endemic districts/municipalities and 28 moderate endemic districts/municipalities with special populations	17 high endemic districts/municipalities and 22 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	
		API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	5 districts/municipalities with no special populations	5 districts/municipalities with no special populations	5 districts/municipalities with no special populations	5 districts/municipalities with no special populations	
	2.1.13. Implementing malaria screening in blood donation facilities	All endemicity				514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	

	2.1.14. Provision of logistics for malaria screening at blood donor facilities	API> 1				58 districts/municipalities	29 districts/municipalities	15 districts/municipalities	9 districts/municipalities	
2.2. Strengthen data systems and data management	2.2.1 Workshop/socialization/refreshing/training on malaria surveillance and information system (SISMAL) for all malaria managers in health facilities, districts/cities and provinces	All endemicity	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	
	2.2.2 Compilation and updating of SISMAL modules	All endemicity				Central level		Central level		
	2.2.3 Village mapping based on endemicity and focus	AP>1	61 districts/municipalities	48 districts/municipalities	39 districts/municipalities	58 districts/municipalities	29 districts/municipalities	15 districts/municipalities	9 districts/municipalities	
		API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	

	2.2.4. Recording and reporting of malaria cases through SISMAL by health facilities	All endemicity	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	
	2.2.5. Implementation of malaria data validation	All endemicity	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	
	2.2.6. Analyzing and interpreting SISMAL data for planning, monitoring and intervention including feedback to lower levels	All endemicity	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	
	2.2.7. Developing malaria profiles in districts/municipalities and provinces	All endemicity	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	
	2.2.8. Supervise supportive surveillance systems based on SISMAL data analysis	All endemicity	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	

	and interpretation									
	2.2.9. Review and evaluation of SISMAL	All endemicity	Central level	Central level	Central level	Central level	Central level	Central level	Central level	
	2.2.10 Development and integration of SISMAL and DHIS2 platforms in accordance with the One Health Data application including technical assistance	All endemicity	Central level	Central level	Central level	Central level	Central level	Central level	Central level	
	2.2.11. Establishing a malaria surveillance network	All endemicity	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	
	2.2.12. Community-implemented recording and reporting integrated into the community integration system and SISMAL	All endemicity	61 districts/municipalities	48 districts/municipalities	39 districts/municipalities	87 districts/municipalities	131 districts/municipalities	179 districts/municipalities	179 districts/municipalities	

2.3. Strengthen epidemiological investigation (case and foci investigation)	2.3.1. Epidemiological investigation training for all health centre managers in API<5 districts and API>5 districts in API<1 health centres.	API> 1	61 districts/municipalities	48 districts/municipalities	39 districts/municipalities	58 districts/municipalities	29 districts/municipalities	15 districts/municipalities	9 districts/municipalities	
	2.3.2. Epidemiological investigation training for all health centre and district managers	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	
	2.3.3. Mapping of vulnerable areas	API<1				84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination				372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	
	2.3.4. Implementation of case and focal epidemiological investigation as part of the 1-2-5 approach	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	
	2.3.5. Provision of malaria logistics for epidemiologica	All endemicity	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	

l investigation activities									
2.3.6. Transmission dynamics survey in districts/municipalities	AP>1	stagnant endemicity and persistent foci	stagnant endemicity and persistent foci	stagnant endemicity and persistent foci	stagnant endemicity and persistent foci	stagnant endemicity and persistent foci	stagnant endemicity and persistent foci	stagnant endemicity and persistent foci	
2.3.7. Transmission dynamics survey in persistent focal villages	API<1	in districts/municipalities with persistent foci villages	in districts/municipalities with persistent foci villages	in districts/municipalities with persistent foci villages	in districts/municipalities with persistent foci villages	in districts/municipalities with persistent foci villages	in districts/municipalities with persistent foci villages	in districts/municipalities with persistent foci villages	
2.3.8. Strengthening the case notification network from hospitals to health offices or health centres as well as out-of-area cases	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
	Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	
2.3.9. Contact survey (RACD) of all positive cases in the foci village as part of the response to epidemiologica	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
	Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	

	l investigation 1-2-5									
	2.3.10. Provision of malaria logistics to increase active case finding	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	
	2.3.11. Provision of mosquito nets for 1-2-5 and foci responses	API<1	in districts/municipalities with villages experiencing an increase in cases/change in risk factors	in districts/municipalities with villages experiencing an increase in cases/change in risk factors	in districts/municipalities with villages experiencing an increase in cases/change in risk factors	in districts/municipalities with villages experiencing an increase in cases/change in risk factors	in districts/municipalities with villages experiencing an increase in cases/change in risk factors	in districts/municipalities with villages experiencing an increase in cases/change in risk factors	in districts/municipalities with villages experiencing an increase in cases/change in risk factors	must be regularly available
2.4. Strengthen early warning system and emergency response.	2.4.1. Coordinate with surveillance officers at each level.	AP>1	61 districts/municipalities	48 districts/municipalities	39 districts/municipalities	58 districts/municipalities	29 districts/municipalities	15 districts/municipalities	9 districts/municipalities	
		API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	
	2.4.2. Develop a contingency plan for malaria control in disaster-prone areas	Elimination	in disaster-prone districts/municipalities			in disaster-prone districts/municipalities				
	2.4.3. Analyse the situation of malaria risk	Elimination	in disaster-prone districts/municipalities			in disaster-prone districts/municipalities				

	factors in disaster-prone areas				
	2.4.4. Conduct prevention and countermeasures according to the results of situation analysis in disaster-prone areas	Elimination	in disaster-prone districts/municipalities	in disaster-prone districts/municipalities	
	2.4.5. Provision of logistical buffers in accordance with the contingency plan for malaria prevention in disaster-prone areas	Elimination	in disaster-prone districts/municipalities	in disaster-prone districts/municipalities	
	2.4.6. Conducting epidemiological investigations in villages with increased cases and changes in risk factors	All endemicity	in districts/municipalities with villages that experienced an increase in cases/change in risk factors	in districts/municipalities with villages that experienced an increase in cases/change in risk factors	
	2.4.7. Conduct appropriate countermeasures (active case	All endemicity	in districts/municipalities with villages that experienced an increase in cases/change in risk factors	in districts/municipalities with villages that experienced an increase in cases/change in risk factors	

	finding and vector control).								
2.5. Malaria drug efficacy surveillance	2.5.1. Strengthening the capacity of public health laboratories (BTKL and BBLK) in conducting drug efficacy surveillance (TES in API>1 areas /iDES in API<1 areas).	API <1 and API> 1	Central Technical Environmental Health Units (BBTKL)		Central Technical Environmental Health Units (BBTKL)	Central Technical Environmental Health Units (BBTKL)		Central Technical Environmental Health Units (BBTKL)	
	2.5.2. Provision of logistics for drug surveillance implementation (TES in API>1 area /iDES in API<1 area)	API <1 and API> 1	Central Technical Environmental Health Units (BBTKL)		Central Technical Environmental Health Units (BBTKL)		Central Technical Environmental Health Units (BBTKL)		Central Technical Environmental Health Units (BBTKL)
	2.5.3. Development and updating of guidelines for drug surveillance implementation (TES in API>1 areas /iDES in API<1 areas)	API <1 and API> 1	Central level			Central level			

	2.5.4. Implementation of integrated drug surveillance (TES in API>1 area /iDES in API<1 area)	API <1 and API> 1	Central Technical Environmental Health Units (BBTKL)		Central Technical Environmental Health Units (BBTKL)		Central Technical Environmental Health Units (BBTKL)		Central Technical Environmental Health Units (BBTKL)	
	2.5.5. Technical guidance and assistance for drug surveillance implementation (TES in API>1 area /iDES in API<1 area)	API <1 and API> 1	Central Technical Environmental Health Units (BBTKL)	Central Technical Environmental Health Units (BBTKL)	Central Technical Environmental Health Units (BBTKL)	Central Technical Environmental Health Units (BBTKL)	Central Technical Environmental Health Units (BBTKL)	Central Technical Environmental Health Units (BBTKL)	Central Technical Environmental Health Units (BBTKL)	
	2.5.6. Supportive supervision on drug surveillance implementation (TES in API>1 /iDES in API<1 area)	API <1 and API> 1	Central level	Central level	Central level	Central level	Central level	Central level	Central level	
	2.5.7 Drug surveillance evaluation meeting (TES in API>1 area /iDES in API<1 area)	API <1 and API> 1		Central level			Central level	Central level	Central level	

2.6. Strengthen malaria migration surveillance	2.6.1. Identify migrating communities and relevant stakeholders including the Indonesia National Armed Forces (TNI) / Indonesian National Police (POLRI)	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	
	2.6.2. Conduct monthly screening and post-arrival monitoring of migrants from malaria endemic areas in the community and the Indonesia National Armed Forces (TNI) / Indonesian National Police (POLRI)	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	

	2.6.3. Carry out screening of migrants from malaria endemic areas at airport entrances, harbours and cross-border posts.	All endemicity				At airport entrances, harbours and cross-border posts: 51 health port office	At airport entrances, harbours and cross-border posts: 51 health port office	At airport entrances, harbours and cross-border posts: 51 health port office	At airport entrances, harbours and cross-border posts: 51 health port office	
	2.6.4. Coordinate the implementation of migration surveillance with the port health office, the Indonesia National Armed Forces (TNI) / Indonesian National Police (POLRI) and related stakeholders.	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	
	2.6.5. Implementation of positive case notification in the region/country of origin for migrants	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	

	2.6.6. Provision of migration surveillance logistics at airport entrances, harbours or cross-border posts	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	
	2.6.7. Workshop for port health office, the Indonesia National Armed Forces (TNI) / Indonesian National Police (POLRI) officers related to migration surveillance	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	
	2.6.8 Workshop for health centre staff on migration surveillance at community level	API<1				84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination				372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	
2.7. Malaria prevention in special populations - mobile migrant	2.7.1. Map and analyze the burden of malaria in special	API>1				17 moderate endemic districts/municipalities with special populations	17 moderate endemic districts/municipalities with	17 moderate endemic districts/municipalities with	17 moderate endemic districts/municipalities with	

populations (MMPs).	populations in all districts.						special populations	special populations	special populations	
		API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	115 districts/municipalities with special populations	115 districts/municipalities with special populations	115 districts/municipalities with special populations	115 districts/municipalities with special populations	
		Elimination	districts/municipalities with special populations	districts/municipalities with special populations	districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	
	2.7.2. Identification and coordination of relevant cross-sectors in the management of special populations	API>1				17 moderate endemic districts/municipalities with special populations	17 moderate endemic districts/municipalities with special populations	17 moderate endemic districts/municipalities with special populations	17 moderate endemic districts/municipalities with special populations	
		API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	115 districts/municipalities with special populations	115 districts/municipalities with special populations	115 districts/municipalities with special populations	115 districts/municipalities with special populations	
		Elimination	districts/municipalities with special populations	districts/municipalities with special populations	districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	
	2.7.3. Training/refreshing/socialization on RDT diagnosis and	API<1	districts/municipalities with special populations	districts/municipalities with special populations	districts/municipalities with special populations	115 districts/municipalities with special populations	115 districts/municipalities with special populations	115 districts/municipalities with special populations	115 districts/municipalities with special populations	

	treatment for CMW special population	Elimination	districts/municipalities with special populations	districts/municipalities with special populations	districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	
	2.7.4. Increase case finding through CMW visits in areas with special populations	API<1	districts/municipalities with special populations	districts/municipalities with special populations	districts/municipalities with special populations	115 districts/municipalities with special populations	115 districts/municipalities with special populations	115 districts/municipalities with special populations	115 districts/municipalities with special populations	
		Elimination	districts/municipalities with special populations	districts/municipalities with special populations	districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	
	2.7.5 Provision of special population CMW kits for malaria management	API< 1				115 districts/municipalities with special populations	115 districts/municipalities with special populations	115 districts/municipalities with special populations	115 districts/municipalities with special populations	
		Elimination				280 districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	
	2.7.6. Provision of logistics for malaria prevention and control in special populations	Elimination	districts/municipalities with special populations	districts/municipalities with special populations	districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	

	2.7.7. Monitoring and evaluation of the implementation of malaria prevention and control in special populations	API>1				17 moderate endemic districts/municipalities with special populations	17 moderate endemic districts/municipalities with special populations	17 moderate endemic districts/municipalities with special populations	17 moderate endemic districts/municipalities with special populations	
		API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	115 districts/municipalities with special populations	115 districts/municipalities with special populations	115 districts/municipalities with special populations	115 districts/municipalities with special populations	
		Elimination	districts/municipalities with special populations	districts/municipalities with special populations	districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	280 districts/municipalities with special populations	
	2.7.8. Intervention packages for MMP (TDA, IPTf, twice per week fever screening by special population CMW, insecticide-treated bed nets and repellents) and chemoprophylaxis in the Indonesia National Armed Forces (TNI) /	API >1 and API<1								

	Indonesian National Police (POLRI)									
	a. Meeting with expert commission for consultation on intervention package for MMP (TDA, IPTf, twice per week fever screening by special population CMW, insecticide-treated bed nets and repellents) and chemoprophyl axis in the Indonesia National Armed Forces (TNI) / Indonesian National Police (POLRI)					Central level				
	b. Development of intervention package technical guidelines for MMP (TDA,					Central level				

	IPTf, twice per week fever screening by special population CMW, insecticide-treated bed nets and repellents) and chemoprophyl axis in the Indonesia National Armed Forces (TNI) / Indonesian National Police (POLRI)									
	c. Piloting intervention packages for MMP (TDA, IPTf, twice per week fever screening by special population CMW, insecticide-treated bed nets and repellents)					Central level				

	d. Socialization of the technical guidelines for intervention packages for MMP (TDA, IPTf, twice per week fever screening by special population CMW, insecticide-treated bed nets and repellents) and chemoprophyl axis in the Indonesia National Armed Forces (TNI) / Indonesian National Police (POLRI)						Central level			
	e. Provision of logistics of intervention packages for MMP (TDA, IPTf, twice per week fever screening by special population CMW,					Central level	Central level	Central level	Central level	

	insecticide-treated bed nets and repellents)									
	f. Provision of intervention packages for MMP (TDA, IPTf, twice per week fever screening by special population CMW, insecticide-treated bed nets and repellents) and chemoprophyl axis in the Indonesia National Armed Forces (TNI) / Indonesian National Police (POLRI)						115 districts/municipalities with special populations	115 districts/municipalities with special populations	115 districts/municipalities with special populations	
	g. Provision of chemoprophyl axis to TNI/POLRI						216 districts/municipalities that deploy TNI/POLRI to high endemic areas	216 districts/municipalities that deploy TNI/POLRI to high endemic areas	216 districts/municipalities that deploy TNI/POLRI to high endemic areas	

	h. Pharmacovigilance for chemoprevention (TDA, IPTf) in MMP risk population						115 districts/municipalities with special populations	115 districts/municipalities with special populations	115 districts/municipalities with special populations	
	i. Pharmacovigilance for chemoprophylaxis administration in TNI/POLRI						216 districts/municipalities that deploy TNI/POLRI to high endemic areas	216 districts/municipalities that deploy TNI/POLRI to high endemic areas	216 districts/municipalities that deploy TNI/POLRI to high endemic areas	
	j. Monitoring and evaluation of chemoprevention (TDA, IPTf) administration in MMP risk population					Central level	Central level	Central level	Central level	
	k. Monitoring and evaluation of chemoprophylaxis administration in TNI / POLRI					Central level	Central level	Central level	Central level	
2.8. Population-wide parasite clearance: MDA	2.8.1. Meeting with expert commission for population wide parasite clearance package: MDA	API<1				Central level				

	2.8.2. Development of technical guidelines for the population wide parasite clearance package: MDA					Central level				
	2.8.3. Socialization of the implementation of the population wide parasite clearance package: MDA					Low endemic with persistent and stagnant transmission	Low endemic with persistent and stagnant transmission			
	2.8.4 Provision of logistics for the population wide parasite clearance package: MDA					Low endemic with persistent and stagnant transmission	Low endemic with persistent and stagnant transmission	Low endemic with persistent and stagnant transmission	Low endemic with persistent and stagnant transmission	
	2.8.5. Implementation of population wide parasite clearance package activities: MDA					Low endemic with persistent and stagnant transmission	Low endemic with persistent and stagnant transmission	Low endemic with persistent and stagnant transmission	Low endemic with persistent and stagnant transmission	
	2.8.6. Pharmacovigilance for the delivery of the population wide parasite					Low endemic with persistent and stagnant transmission	Low endemic with persistent and stagnant transmission	Low endemic with persistent and stagnant transmission	Low endemic with persistent and stagnant transmission	

	clearance package: MDA									
	2.8.7. Monitoring and evaluation of population wide parasite clearance package delivery: MDA					Low endemic with persistent and stagnant transmission	Low endemic with persistent and stagnant transmission	Low endemic with persistent and stagnant transmission	Low endemic with persistent and stagnant transmission	
2.9 . Strengthen *P. knowlesi* surveillance	2.9.1. Development of P.knowlesi surveillance guidelines	All endemicity	Central level			Central level				
	2.9.2. Training/socialization on P.knowlesi surveillance	All endemicity	in districts/municipalities where P.knowlesi cases were found	in districts/municipalities where P.knowlesi cases were found	in districts/municipalities where P.knowlesi cases were found	in districts/municipalities where P.knowlesi cases were found	in districts/municipalities where P.knowlesi cases were found	in districts/municipalities where P.knowlesi cases were found	in districts/municipalities where P.knowlesi cases were found	
	2.9.3. Establishment of P.knowlesi surveillance network	All endemicity	Central level			in districts/municipalities where P.knowlesi cases were found	in districts/municipalities where P.knowlesi cases were found	in districts/municipalities where P.knowlesi cases were found	in districts/municipalities where P.knowlesi cases were found	

	2.9.4. Strengthening of P.knowlesi diagnostics in selected districts/cities	All endemicity	Central level: PCR lab network strengthening Pk		Central level: PCR lab network strengthening Pk		Central level: Pk PCR lab network including provincial regional laboratories where Pk cases are frequent		Central level: Pk PCR lab network including provincial regional laboratories where Pk cases are frequent	
	2.9.5. Strengthening QA of P.knowlesi diagnostics	All endemicity					Central level: Pk PCR lab network including provincial regional laboratories where Pk cases are frequent		Central level: Pk PCR lab network including provincial regional laboratories where Pk cases are frequent	
	2.9.6. Provision of P.knowlesi surveillance logistics	All endemicity	in districts/municipalities where P.knowlesi cases were found	in districts/municipalities where P.knowlesi cases were found	in districts/municipalities where P.knowlesi cases were found	in districts/municipalities where P.knowlesi cases were found	in districts/municipalities where P.knowlesi cases were found	in districts/municipalities where P.knowlesi cases were found	in districts/municipalities where P.knowlesi cases were found	
2.10 . Strengthen vector surveillance	2.10.1. Training of trainers for entomologists (in collaboration with Health Training Center).	API>1	Central level			Central level				

	2.10.2. Training of entomologist in provinces and districts/cities	API>1	28 districts/municipalities and 4 provinces API > 5, minimum 2 persons per provinces and 2 persons per districts/municipalities			Central level				
	2.10.3. Training of skilled entomologist at health centres	All endemicity	Minimal 1 person/PHC in 28 districts/municipalities API > 5			412 districts/municipalities		206 districts/municipalities		
	2.10.4 Village mapping based on receptivity	API >1				58 districts/municipalities	29 districts/municipalities	15 districts/municipalities	9 districts/municipalities	
		API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	Currently, the operational definition used is that facilities in districts/municipalities that report receptivity, even if only one, are considered to be reporting.

	2.10.5. Conducting vector control based on epidemiological investigation results at the locus of transmission	API<1 and elimination	In districts/municipalities with foci village	In districts/municipalities with foci village	In districts/municipalities with foci village	In districts/municipalities with foci village	In districts/municipalities with foci village	In districts/municipalities with foci village	In districts/municipalities with foci village	
	2.10.6. Implementation of routine vector surveillance in receptive and vulnerable areas by the PHC	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	
	2.10.7. Supervision of vector control by health centre staff and district/municipality DHOs	API>1	28 high endemic districts/municipalities and 33 moderate endemic districts/municipalities with special populations	20 high endemic districts/municipalities and 28 moderate endemic districts/municipalities with special populations	17 high endemic districts/municipalities and 22 moderate endemic districts/municipalities with special populations	58 districts/municipalities	29 districts/municipalities	15 districts/municipalities	9 districts/municipalities	
	2.10.8. Monitoring and evaluation of malaria vector control	API>1	28 high endemic districts/municipalities and 33 moderate endemic	20 high endemic districts/municipalities and 28 moderate endemic	17 high endemic districts/municipalities and 22 moderate endemic districts/muni	58 districts/municipalities	29 districts/municipalities	15 districts/municipalities	9 districts/municipalities	

			districts/municipalities with special populations	districts/municipalities with special populations	cipalities with special populations					
	2.10.9. Longitudinal survey of vector ecology	API>1	3 locations representing lowland (coastal), midland (plantation/ rice field) and highland (mountain) ecologies			2 sites representing lowland (coastal) and midland (plantation/ rice field) ecologies				
	2.10.10 Monitoring of vector resistance (once a year)	API>1	61 districts/municipalities	48 districts/municipalities	39 districts/municipalities	Acceleration districts/municipalities in Papua (9 districts/municipalities) and 2 moderate endemicity districts/municipalities	Acceleration districts/municipalities in Papua (9 districts/municipalities) and 2 moderate endemicity districts/municipalities	Acceleration districts/municipalities in Papua (9 districts/municipalities) and 2 moderate endemicity districts/municipalities	Acceleration districts/municipalities in Papua (9 districts/municipalities) and 2 moderate endemicity districts/municipalities	
		API <1	In districts/municipalities with stagnant API for three years	In districts/municipalities with stagnant API for three years	In districts/municipalities with stagnant API for three years	In districts/municipalities with stagnant API for five years	In districts/municipalities with stagnant API for five years	In districts/municipalities with stagnant API for five years	In districts/municipalities with stagnant API for five years	
	2.10.11 Monitoring evaluation of durability of mosquito net efficacy	API>1	3 locations representing lowland (coastal), midland (plantation/ rice field) and highland (mountain) ecologies				Acceleration districts/municipalities in Papua (9 districts/municipalities)			

Strategy 3: Improve enabling environment to ensure malaria elimination achievement through BCC and community engagement.										Remarks
Key intervention	Activities	Target								
		Endemicity	2020	2021	2022	2023	2024	2025	2026	
3.1 Strengthen inter-sectoral and inter-program coordination and support for malaria elimination including private sectors	3.1.1. Establish a cross-programme, cross-sector and partner coordination forum to accelerate and maintain malaria elimination in the region.	All endemicity	28 high endemic districts/municipalities and 4 provinces (Papua, Papua Barat, NTT and East Kalimantan)	33 moderate endemicity districts/municipalities and provinces with special populations	districts/municipalities with stagnan endemicity and related provinces	128 districts/municipalities	128 districts/municipalities	128 districts/municipalities	128 districts/municipalities	Central Priority: low endemicity and stagnant districts/municipalities and related provinces, 9 accelerated districts of Papua and IKN
	3.1.2. Advocacy for cross-programme, cross-sector and working partners to provide a menu of activities that contribute to malaria elimination and maintenance.	API > 1	28 high endemic districts/municipalities	33 moderate endemic districts/municipalities	districts/municipalities with stagnan endemicity	9 acceleration districts/municipalities Papua and IKN	9 acceleration districts/municipalities Papua and IKN	9 high endemic districts/municipalities and 4 provinces (Papua, Papua Barat, NTT and East Kalimantan)	low endemic and stagnan districts/municipalities, and related province	
		API<1				Low endemicity and stagnant districts/municipalities with special populations and related provinces	Low endemicity and stagnant districts/municipalities with special populations and related	Low endemicity and stagnant districts/municipalities with special populations and related provinces	Low endemicity and stagnant districts/municipalities with special populations and related	

						provinces		provinces	
3.1.3. Organize regular meetings in planning, implementation, monitoring and assessment.	All endemicity	Annual meetings: Central, provinces and districts	Annual meetings: Central, provinces and districts	Annual meetings: Central, provinces and districts	Annual meetings: Central, provinces and districts	Annual meetings: Central, provinces and districts	Annual meetings: Central, provinces and districts	Annual meetings: Central, provinces and districts	
3.1.4. Develop and produce advocacy strategies, advocacy materials/media and advocacy kits for the acceleration and maintenance of malaria elimination.	All endemicity	Central level	Central level		Central level		Central level		
		Provinces and districts/municipalities (adaptation and replication)	Provinces and districts/municipalities (adaptation and replication)		Provinces and districts/municipalities (adaptation and replication)		Provinces and districts/municipalities (adaptation and replication)		
3.1.5. Conduct advocacy roadshows for the acceleration and maintenance of malaria elimination:	All endemicity	7 provinces	7 provinces	7 provinces	4 high endemic provinces that will implement bed net campaigns 9 acceleration districts/municipalities in Papua	9 acceleration districts/municipalities in Papua IKN	4 high endemic provinces that will implement bed net campaigns IKN		
a. Influencing policy makers (meetings, individual approaches, lobbying, field visits)			with an additional 3 provinces with high endemic districts that will implement the mosquito net campaign.						
b. Influencing public opinion (meetings, seminars, talk shows, workshops, mass media-journalism)									

	c. Influencing the regulatory process (meetings, seminars, public hearings/tests, lobbying)									
3.2 Behaviour change communication	3.2.1. Formative research on behaviour change communication (BCC) for malaria elimination	All endemicity		In 4 provinces with API>5 (1 district per province)	6 sites representing special populations (illegal mining (2), remote indigenous communities (2) and shifting cultivation (2)	6 sites representing 6 provinces with stagnant endemicity				
						5 sites representing 5 big islands with malaria-free districts				
	3.2.2. Training of trainers (ToT) for facilitators to develop BCC plans for districts/municipalities.	API>1	22 high endemic districts/municipalities and 28 districts/municipalities			2 provinces with high-endemic districts and 21 high-endemic districts/municipalities (Papua and NTT)	2 provinces with high-endemic districts and 7 high-endemic districts/municipalities (West Papua and East Kalimantan)			

		API<1		164 districts/municipalities (divided into 5 batches)		100 district/municipalities (divided into 4 batches)				
		Elimination		31 provinces (training at provincial level only)				30 provinces (training at provincial level only)		
	3.2.3. Develop district-level BCC plan	API>1	22 high endemic districts/municipalities and 28 districts/municipalities			2 provinces with high-endemic districts and 21 high-endemic districts/municipalities (Papua and NTT)	2 provinces with high-endemic districts and 7 high-endemic districts/municipalities (West Papua and East Kalimantan)			
		API<1		164 districts/municipalities (divided into 5 batches)		100 district/municipalities (divided into 4 batches)				
		Elimination		31 provinces (training at provincial level only)				30 provinces (training at provincial level only)		

	3.2.4. Capacity building for malaria BCC for health workers, cadres and community activists.	API>1	8 districts/municipalities (CMW)	27 districts with special populations (CMW) and 28 districtss (health workers at PHC)		58 districts/municipalities (includes 9 accelerations districts/municipalities in Papua)	29 districts/ municipalities (includes 9 accelerations districts/ municipalities in Papua)	15 districts/municipalities	9 districtss /municipalities	
		API<1			26 districts with special populations (CMW) and 164 districts (health workers at PHC)	84 districts/municipalities	100 districts/ municipalities	94 districts/municipalities	80 districts/ municipalities	
	3.2.5. Develop and provide IEC media	All endemicity	Central, provincial and districts			Central, provincial and districts (social media and television)		Central, provincial and districts (social media and television)		
	3.2.6. Testing IEC media at several sites	All endemicity	Central, provincial and district			High endemic districts/municipalities (Papua)	2 locations			

	3.2.7. Implementation of IEC campaigns using various communication media	API > 1		Conducted in conjunction with advocacy activities.	Campaign at national level	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations		
		API< 1				115 in districts/municipalities with special populations	115 in districts/municipalities with special populations	115 in districts/municipalities with special populations	115 in districts/municipalities with special populations		
	3.2.8. Review and evaluation of communication strategy	All endemicity		4 high endemic districts	5 districts/municipalities	Central level		5 districts/municipalities			

					representing 5 big islands			representing 5 big islands		
	3.2.9. KAP survey on the use and maintenance of mosquito nets and other community-based vector controls	API>1		1 time representing national data based on endemicity of mosquito net distribution locations			1 time representing national data based on endemicity of mosquito net distribution locations		1 time representing national data based on endemicity of mosquito net distribution locations	
3.3. Strengthen roles of community in malaria control and elimination	3.3.1 Community monitoring and evaluation of case finding, management, vector monitoring and CMW reporting by health centres/districts	API>1	28 high endemic districts/municipalities & 33 moderate endemic districts/municipalities with special populations	20 high endemic districts/municipalities & 28 moderate endemic districts/municipalities with special populations	17 high endemic districts/municipalities & 22 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with special populations	28 high endemic districts/municipalities (includes 9 districts/municipalities acceleration in Papua) and 17 moderate endemic districts/municipalities with	

						special populations		special populations	
	API<1	141 districts/municipalities	130 district/municipalities	120 district/municipalities	84 district/municipalities	100 district/ municipalities	94 district/municipalities	80 district/ municipalities	
3.3.2 Community evaluation monitoring of insecticide-treated bed nets (1-1-3) use	API>1	61 districts/municipalities		39 districts/municipalities	68 districts/municipalities		22 districts/municipalities		
3.3.3. Community empowerment and strengthening of local leadership in malaria control (e.g. village discussions, CMW jamborees)	All endemicity				514 districts/municipalities	514 districts/ municipalities	514 districts/municipalities	514 districts/ municipalities	
3.3.4 Establishment, strengthening and sustainability of local civil society organizations, particularly those that are community-led (informal and formal), key population-led, women-led, led by people living with or affected by malaria, community networks and associations	All endemicity				High endemic districts/municipalities	High endemic districts/ municipalities and districts/ municipalities with special populations	High endemic districts/municipalities and districts/municipalities with special populations	High endemic districts/ municipalities and districts/ municipalities with special populations	

	3.3.5 Capacity and leadership development for local civil society organizations, community networks and associations	All endemicity					High endemic districts/ municipalities (Papua and IKN) and district/ municipalities with special populations	High endemic districts/municipalities and district/municipalities with special populations	High endemic districts/ municipalities and district/ municipalities with special populations	

Strategy 4: Strengthening the health system to achieve the malaria elimination program based on equity, human right and no one left behind.										Remarks
Key intervention	Activities	Target								
		Endemicity	2020	2021	2022	2023	2024	2025	2026	
4.1 1. Strengthen the commitment and leadership of central and regional governments to accelerate malaria prevention, elimination and prevention of re-introduction	4.1.1. Policy research related to malaria elimination and maintenance of malaria elimination.	All endemicity		In 4 provinces with API>5 (1 districts per province)	6 sites representing special populations (illegal mining (2), remote indigenous communities (2) and shifting cultivation (2)	6 sites representing 6 provinces with stagnant endemicity				
						5 sites representing 5 big islands with malaria-free districts				
	4.1.2. Development of Presidential Regulation for the Elimination of Malaria	All endemicity	Central level	Central level	Central level	Central level	Central level	Central level		Presidential regulation expected to be finalised by 2025
	4.1.3. Development of Ministry of Home Affairs Regulation on malaria prevention at districts/city level	All endemicity	Central level	Central level		Central level				Encourage a letter from the Ministry of Home Affairs to utilise existing budget allocations -> ADINKES. Follow up on previous meeting minutes.
	4.1.4. Development of a Ministry of Village Regulation regarding the allocation of village funds for malaria prevention	All endemicity		Central level	Central level	Central level				Encourage additional circulars for an additional menu of malaria-related activities

	4.1.5. Development of the Ministry of Tourism Regulation concerning malaria free in tourist areas	All endemicity		Central level	Central level	Central level	Central level			
	4.1.6. Development and updated of the Ministry of Education's policy on malaria teaching materials in malaria endemic areas.	All endemicity		Central level	Central level	Central level		Central level		
	4.1.7. Carry out advocacy for the issuance of regulations for the acceleration of malaria elimination and maintenance of malaria-free in the Provinces and districtss/Cities.	All endemicity	28 high endemic districts/municipalities	33 moderate-endemic districts/municipalities	districts/municipalities with stagnan endemicity	selected moderate and low endemic districts/municipalities	selected moderate and low endemic districts/municipalities	selected moderate and low endemic districts/municipalities	selected low endemic districts/municipalities	
	4.1.8. Develop province and districts regulations relating to the issuance of regulations to accelerate malaria elimination and maintenance of malaria elimination	All endemicity	20 malaria elimination districts/municipalities (DKI Jakarta and East Java)	20 malaria elimination districts/municipalities (DKI Jakarta and East Java)	20 malaria elimination districts/municipalities (DKI Jakarta and East Java)	20 malaria elimination districts/municipalities and provinces (Sulawesi and Sumatera)	20 malaria elimination districts/municipalities and provinces (Sulawesi, Sumatra, NTB, Kalimantan)	20 malaria elimination districts/municipalities and provinces (Sulawesi, Sumatra, NTB, Kalimantan)	20 malaria elimination districts/municipalities and provinces (Sulawesi, Sumatra, NTB, Kalimantan, Maluku Utara, Maluku and NTT)	

	4.1.9. Develop a regional action plan to accelerate malaria elimination and maintenance malaria elimination.	All endemicity	28 high endemic districts/municipalities	33 moderate-endemic districts/municipalities	districts/municipalities with stagnan endemicity	selected moderate and low endemic districts/municipalities	selected moderate and low endemic districts/municipalities	selected moderate and low endemic districts/municipalities	selected low endemic districts/municipalities	
4.2 Strengthen malaria program management in context of overall health system	4.2.1 Development and updating of basic training and programme reorientation modules for malaria programme managers.	All endemicity				Central level		Central level		
	4.2.2. Review of basic training and programme reorientation curriculum for malaria programme managers	All endemicity	Central level				Central level		Central level	
	4.2.3. Conducting programme management orientation for all heads of health offices, heads of health centres and village heads.	API>1	61 districts/municipalities		39 districts/municipalities	58 districts/municipalities	29 districts/municipalities	15 districts/municipalities	9 districts/municipalities	
		API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	55 districts/municipalities stagnan	55 districts/municipalities stagnan	55 districts/municipalities stagnan	55 districts/municipalities stagnan	
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	

	4.2.4. Conduct basic training for malaria programme managers	API>1	61 districts/municipalities		39 districts/municipalities	58 districts/municipalities	29 districts/municipalities	15 districts/municipalities	9 districts/municipalities	
	4.2.5. Conducting programme reorientation for the head of the provincial and districts health offices and the malaria programme managers in the provinces, districtss and health centres.	API<1	141 districts/municipalities		120 districts/municipalities	55 districts/municipalities stagnan		55 districts/municipalities stagnan		
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	124 districts/municipalities	124 districts/municipalities	124 districts/municipalities	districts/municipalities eliminasi malaria 2023-2025	
	4.2.6. Technical assistance in API>5 districtss/municipalities with certain criteria or problem districtss/municipalities	API>1	23 districts/municipalities (14 districts/municipalities in Papua, 4 districts/municipalities in Papbar, 3 districts/municipalities in NTT dan 2 districts/municipalities in Maluku)	22 districts/municipalities (18 districts/municipalities in Papua and 4 districts/municipalities in Papua Barat	22 districts/municipalities (18 districts/municipalities in Papua and 4 districts/municipalities in Papua Barat	26 districts/municipalities (18 district/municipalities in Papua particularly in 9 acceleration districts/municipalities , 4 district/municipalitiesin Papua Barat dan 4 district/municipalities in Sumba, NTT) and IKN	26 districts/municipalities (18 district/municipalities in Papua particularly in 9 acceleration districts/municipalities , 4 district/municipalitiesin Papua Barat dan 4 district/municipalities in Sumba, NTT) and IKN	26 districts/municipalities (18 district/municipalities in Papua particularly in 9 acceleration districts/municipalities , 4 district/municipalitiesin Papua Barat dan 4 district/municipalities in Sumba, NTT) and IKN	26 districts/municipalities (18 district/municipalities in Papua particularly in 9 acceleration districts/municipalities , 4 district/municipalitiesin Papua Barat dan 4 district/municipalities in Sumba, NTT) and IKN	

	4.2.7. Technical assistance in stagnant districtss/municipalities with certain criteria.	API<1	Stagnan endemicity districts/municipalities	Stagnan endemicity districts/municipalities	Stagnan endemicity districts/municipalities	55 districts/municipalities stagnan	55 districts/municipalities stagnan	55 districts/municipalities stagnan	55 districts/municipalities stagnan	
	4.2.8. Provide malaria logistics management guidelines	All endemicity	Central level		Central level	Central level				
	4.2.9. Coordinate planning, procurement, distribution and storage according to standards.	All endemicity	411 districts/municipalities	436 districts/municipalities	462 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	
	4.2.10. Monitor and evaluate the coordination of planning, procurement, distribution and storage.	All endemicity	358 districts/municipalities	375 districts/municipalities	385 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	
	4.2.11. Analysing the malaria situation	API>1	61 districts/municipalities	48 districts/municipalities	39 districts/municipalities	58 districts/municipalities	29 districts/municipalities	15 districts/municipalities	9 districts/municipalities	
		API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
	4.2.12. Develop guidelines and tools for malaria programme supervision	All endemicity	Central level			Central level				
	4.2.13. Conducting provincial level monitoring and evaluation.	All endemicity	34 provinces	7 provinces	6 provinces	34 provinces	34 provinces	34 provinces	34 provinces	

	4.2.14. Conducting districts/municipalities level monitoring and evaluation.	API>1	61 districts/municipalities	48 districts/municipalities	39 districts/municipalities	58 districts/municipalities	29 districts/municipalities	15 districts/municipalities	9 districts/municipalities	
		API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	84 districts/municipalities	100 districts/municipalities	94 districts/municipalities	80 districts/municipalities	
		Elimination	325 districts/municipalities	345 districts/municipalities	365 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	
	4.2.15. Review of national malaria programme	All endemicity			Central level (mid-term review)		Central level (end-term review)		Central level (end-term review)	
	4.2.16. Documenting the results of malaria elimination activities	All endemicity	Central level	Central level	Central level	Central level, provinces and districts/municipalities	Central level, provinces and districts/municipalities	Central level, provinces and districts/municipalities	Central level, provinces and districts/municipalities	
	4.2.17. Collection of best practices through research and other methods conducted periodically	All endemicity	Central level	Central level	Central level	Central level	Central level	Central level	Central level	
	4.2.18. Synthesising and packaging best practices that have been collected into interesting information	All endemicity	Central level	Central level	Central level	Central level	Central level	Central level	Central level	
	4.2.19. Publication of best practices to specific/specialised targets, in addition to the public	All endemicity	Central level	Central level	Central level	Central level	Central level	Central level	Central level	

	4.2.20. Comparative studies among provinces and districtss/municipalities	All endemicity	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	514 districts/municipalities	
	4.2.21. Comparative studies between countries	All endemicity		Central level	Central level	Central level	Central level	Central level	Central level	
	4.2.22. Establish malaria elimination working groups at the provincial and districts/municipalities level	API>1	8 provinces				5 provinces			
		API<1		23 provinces		3 provinces	3 provinces	3 provinces	4 provinces	
		Elimination	3 provinces			3 provinces and Central level	2 provinces and Central level	Central level	Central level	DKI, Jatim, DIY, Banten, Bali
	4.2.23 Regular meetings of the national malaria expert commission, elimination working group provincial and districts/municipalities malaria elimination	API>1	8 provinces				5 provinces			
		API<1		23 provinces		3 provinces	3 provinces	3 provinces	4 provinces	
		Elimination	3 provinces			3 provinces and Central level	2 provinces and Central level	Central level	Central level	
	4.2.24. Revitalisation of the National Forum for Malaria Elimination (FNGM)	All endemicity				Central level	Central level			
	4.2.25. Development of an action plan to accelerate malaria elimination 2025-2029	All endemicity					Central level			
	4.2.26. Development of a malaria transmission prevention plan	All endemicity							Central level	

4.3 Improving malaria elimination certification management	4.3.1. Regional islands monitoring and evaluation	All endemicity	selected districts/municipalities that have not been eliminated in the region	selected districts/municipalities that have not been eliminated in the region	selected districts/municipalities that have not been eliminated in the region	selected districts/municipalities that have not been eliminated in the region	selected districts/municipalities that have not been eliminated in the region	selected districts/municipalities that have not been eliminated in the region	selected districts/municipalities that have not been eliminated in the region	
		All endemicity	1. Jawa-Bali	1. Jawa-Bali	1. Sumatra, Sulawesi, NTB	Activities are organised according to 3 regions: Western Region: Java-Bali, NTB Central Region: Sumatra, Kalimantan, Sulawesi Eastern Region: Maluku, North Maluku NTT, West Papua-Papua.	Activities are organised according to 3 regions: Western Region: Java-Bali, NTB Central Region: Sumatra, Kalimantan, Sulawesi Eastern Region: Maluku, North Maluku NTT, West Papua-Papua.	Activities are organised according to 3 regions: Western Region: Java-Bali, NTB Central Region: Sumatra, Kalimantan, Sulawesi Eastern Region: Maluku, North Maluku NTT, West Papua-Papua.	Activities are organised according to 3 regions: Western Region: Java-Bali, NTB Central Region: Sumatra, Kalimantan, Sulawesi Eastern Region: Maluku, North Maluku NTT, West Papua-Papua.	
		All endemicity	2. Sumatra, Sulawesi, NTB	2. Sumatra, Sulawesi, NTB	2. Kalimantan-Maluku Utara					
		All endemicity								

	4.3.2. Provincial and regional technical assistance in preparation for WHO verification and certification	API<1	selected districtss/municipalities that have not been eliminated in the region	selected districtss/municipalities that have not been eliminated in the region	selected districtss/municipalities that have not been eliminated in the region	selected districtss/municipalities that have not been eliminated in the region	selected districtss/municipalities that have not been eliminated in the region	selected districtss/municipalities that have not been eliminated in the region	selected districtss/municipalities that have not been eliminated in the region	
		API<1	1. Jawa-Bali	1. Jawa-Bali	1. Sumatra, Sulawesi, NTB	1. Jawa - Bali	1. Jawa - Bali	1. Sumatra, Sulawesi, NTB	1. Sumatra, Sulawesi, NTB	
		API<1	2. Sumatra, Sulawesi, NTB	2. Sumatra, Sulawesi, NTB	2. Kalimantan-North Maluku	2. Sulawesi	2. Sumatra, Sulawesi	2. Kalimantan	2. Kalimantan-North Maluku	
		API<1							3. Maluku-NTT	
	4.3.3. Establishment of provincial verification and certification teams	API<1	7 provinces Jawa Bali		provinces in Sumatra, Sulawesi dan NTB	4 provinces in Sulawesi	1 province Sulawesi and 1 province Sumatra.	9 provinces Sumatra, NTB, and 3 provinces Kalimantan	1 province Kalimantan and North Maluku	
	4.3.4. Reorientation of the national elimination commission	API<1	Central level		Central level		Central level		Central level	
	4.3.5. Monitoring and evaluation of provincial verification and elimination teams	API<1		Central level		Central level	Central level	Central level	Central level	

	4.3.6. Pre-assessment of certification and verification by Provincial and Central level teams	API<1	141 districts/municipalities	130 districts/municipalities	120 districts/municipalities	372 districts/municipalities	385 districts/municipalities	405 districts/municipalities	425 districts/municipalities	
	4.3.7. Implementation of Java Bali elimination verification	Elimination					provinces in Java and Bali by Central level			
4.4. Increased cross-border cooperation among countries, provinces, and districtss	4.4.1. Cross border coordination with neighboring countries	All endemicity	Central level	Central level	Central level	Central level	Central level	Central level	Central level	
	4.4.2. Cross border coordination meeting cross province and districts level	All endemicity	34 provinces	34 provinces	34 provinces	34 provinces	34 provinces	34 provinces	34 provinces	
4.5. Operational research to support policy development and program implementation	4.5.1. Coordination meeting of malaria operational research working group	All endemicity	Central level	Central level	Central level	Central level	Central level	Central level	Central level	
	4.5.2. Implementation the malaria national priority operational research	All endemicity	20 districts/municipalities	20 districts/municipalities	20 districts/municipalities	20 research document	20 research document	20 research document	20 research document	
	4.5.3 Implementation Bi-Annual Malaria Research Indonesia	All endemicity	Central level		Central level	Central level		Central level		

ANNEX 9. PRIORITY LIST OF OPERATIONAL RESEARCH TO SUPPORT MALARIA ELIMINATION

Thematic	Research Topic	2020	2021	2022	2023	2024	2025	2026	Remarks
Operational Research on Malaria Prevention	Ø High endemic intervention packages (mass drug administration (MDA), insecticide-treated nets, CMW, LSM) in Sumba								
	Ø External evaluation of high endemic intervention packages (Papua and Sumba)								
	Ø Intermittent preventive treatment of malaria in school children (IPTsc) in high endemic areas								
	Ø Mefloquine for MMP (TNI/POLRI)								
Operational Research on Malaria Diagnosis	Ø HRP2/3 deletion assessment in high endemic areas								
	Ø RDT QA implementation study in national reference labs and surveillance for HRP2 deletion for P.falciparum								
	Ø Development of digital quality assurance for malaria diagnosis								
Operational Research on Malaria Treatment	Ø Second-line ACT clinical trial for the treatment of malaria.								
	Ø Research for 7-day administration of high-dose primaquine to improve drug adherence								

	Ø Implementation study of G6PD deficiency testing prior to administration of primaquine								
	Ø Monitoring of treatment adherence in MMP or TNI/POLRI returning from high endemic areas								
	Ø Completeness of treatment in high endemic areas								
	Ø Assessment of quality of care, with a focus on malaria and other common febrile illnesses in communities, health centres, and hospitals in high malaria burden areas (e.g., in Papua);								
Operational Research on on Vector Control	Ø Innovative vector control								
	Ø Operational research for outdoor spraying								
	Ø Mapping of Plasmodium knowlesi in Indonesia (from human to vector)								Being conducted by the ZOOMAL team (Indonesia and Australia)
	Ø Sentinel innovative vector control for the spread of Plasmodium knowlesi (priority Aceh and Kalimantan)								

	Ø Molecular identification followed by characterization of malaria vector bionomics in lowland Papua, to understand Anopheles species that can be addressed by larval source management								
	Ø Evaluation of IRS quality as currently conducted, particularly in Papua.								
Operational Research in Behaviour Change Communication and Advocacy	Ø Malaria-related behaviour change studies in high endemic areas and special populations.								Research in high endemic areas already covered by formative research
	Ø Research to better understand behavioural issues and the medium of behaviour change related to malaria to design effective BCC initiatives. This is more important across high-risk areas and groups, stratified by district endemicity.								
	Ø Socio-economic and behavioural determinants of malaria in high-burden areas (e.g., in Papua);								
Malaria Surveillance Operational Research	Ø Malaria prevalence surveys in selected areas, especially in the Papua acceleration region (confirmation of malaria transmission intensity)								
	Ø Malaria serological surveys in low endemic areas								

	Ø Scenario evaluation of malaria control strategies in endemic areas using a mathematical approach								
	Ø Evaluation of extraordinary events in elimination areas								
	Ø Module development using e-learning techniques to strengthen malaria data analysis and interpretation								
	Ø Implementation research for discovery, treatment and prevention in special population groups (MMPs)								
	Ø Malaria genotyping								
	Ø Dynamics of vivax malaria transmission and control in high endemic areas (e.g. Papua)								
	Ø Active surveillance with biomolecular qRT-PCR approach for malaria prevention in high endemic areas (Sumba, NTT)								
	Ø Recent epidemiological studies and assessments of malaria transmission and disease burden								
	Ø Impact assessment studies of malaria interventions and development of intervention frameworks in high endemic areas using								

	mathematical modelling.								
	Ø Epidemiological studies and database strengthening for stratification of endemicity, receptivity and vulnerability of malaria at village level.								
Operational Research on Programme Management	Ø Evaluation of factors affecting malaria control stagnation in pre-elimination areas								Implemented by WHO
	Ø Evaluation of public private mix partnership								Implemented by WHO
	Ø Evaluation study of logistics management system (including identification of bottlenecks related to logistics)								
	Ø Delivery of innovative malaria interventions as part of community-centred integrated health services in hard-to-reach and high-endemic areas (e.g., in Papua), particularly through village-based interventions. In particular, an assessment of how the Ministry of Health's new Posyandu system can empower cadres.								

	Ø Evaluation of training outcomes on malaria for different categories of health staff;								
	Ø Competency assessment of different categories of health workers carrying out malaria programme tasks in the context of decentralised health systems in high-burden, low-burden, and malaria-free districts and provinces.								
	Ø Political economy analysis of malaria burden reduction and elimination in the context of decentralised political and administrative arrangements								
	Ø Impact, cost and cost-effectiveness of various interventions in high endemic and elimination areas								
	Ø Impact of malaria on stunting								