

Mid-Term Review of the UN Environment/Global Environment Facility project
“Demonstration of effectiveness of diversified, environmentally sound and sustainable interventions, and strengthening national capacity for innovative implementation of integrated vector management (IVM) for disease prevention and control in the WHO African Region”
GEF ID 4668, March 2020



This report has been prepared by independent consultant evaluators. The findings and conclusions expressed herein do not necessarily reflect the views of Member States or the UN Environment Senior Management

Acknowledgements

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Short biography of the consultants

Professor Hans Dobson is an experienced development specialist with 38 years of experience in over 40 countries with the Natural Resources Institute, University of Greenwich UK. He has provided management, technical assistance, training, research and project review to projects involving pest management, crop protection, food safety, plant health and control of vector-borne human diseases, funded by bilateral donors, United Nations organizations and the private sector. He has managed large multi-country projects and has taken improved systems of team management, logistics and monitoring, evaluation and learning through to implementation on a wide scale.

Professor Richard Hopkins is Head of the Agriculture, Health and Environment Department at the Natural Resources Institute, University of Greenwich UK. He is a highly experienced and well-published entomologist and ecologist with extensive experience of mosquito behaviour and control, as well as having a long track record of project management and implementation.

(Curricula vitae are shown in Annex 7)

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Abbreviations table

Bti	<i>Bacillus thuringiensis</i>
CSO	Community Service Organization
DHO	District Health Authority
FMO	Fund Management Officer
GEF	Global Environment Facility
ICIPE	International Centre of Insect Physiology and Ecology
IEC	Information, Education and Communication
IRS	Indoor Residual Spraying
IVM	Integrated Vector Management
KAP	Knowledge Attitudes and Practices
LLIN	Long-lasting Insecticidal Nets
MDAST	Malaria Decision Analysis Support Tool
MEA	Multilateral Environmental Agreements
MoE	Ministry of Environment
MoH	Ministry of Health
MoU	Memorandum of Understanding
MTR	Mid-Term Review
NGO	Non-Governmental Organization
NMCP	National Malaria Control Programme
NPSC	National Project Steering Committee
PIMS	Project Information Management System
PIR	Project Implementation Report
PMI	President's Malaria Initiative
POP	Persistent Organic Pollutant
POW	Programme of Work
ProDoc	Project Document
PSC	Project Steering Committee
PySC	Pyrethrum Spray Catch
ROA	Regional Office for Africa
RPSC	Regional Project Steering Committee
SIA	Social Impact Assessment
SSC	Secretariat of the Stockholm Convention
ToC	Theory of Change
WHO	World Health Organization
WHO AFRO	World Health Organization Regional Office for Africa

Project Identification table

1. Identification	4668	SB-001062.01.04
Project Number + Project Title	<i>Demonstration of effectiveness of diversified, environmentally sound and sustainable interventions, and strengthening national capacity for innovative implementation of integrated vector management (IVM) for disease prevention and control in the WHO AFRO</i>	
Duration months	<i>Planned</i>	60 months
	<i>Extension(s)</i>	
Division(s) Implementing the project	UNEP GEF Chemicals and Waste	
Executing Agency(ies)	WHO Regional Office for Africa, Brazzaville, Congo	
Names of Other Project Partners	<i>International Centre of Insect Physiology and Ecology (ICIPE)</i> <i>Ministries of Health (Botswana, Namibia, Mozambique, Eswatini, South Africa, Zambia, Zimbabwe, The Gambia, Kenya, Liberia, Madagascar, Senegal and Uganda)</i>	
Project Type	FSP	
Project Scope	Regional	
Region (<i>delete as appropriate</i>)	AFR	
Names of Beneficiary Countries	<i>Tier 1: Botswana, Eswatini Mozambique, Namibia, South Africa, Zambia, Zimbabwe,</i> <i>Tier 2: The Gambia, Kenya, Liberia, Madagascar, Senegal, Tanzania, Uganda,</i>	
Programme of Work	Chemicals and Health Programme of Work	
GEF Focal Area(s)	POPs	
UNDAF linkages	<p><i>Where appropriate, insert the UNDAF strategic objective to which achievement of the project contributes.</i></p> <p>Mozambique: The UNDAF 2017-2020 strategic objective is to achieve a situation where “The population of Mozambique, especially those living in the most vulnerable conditions, enjoy prosperity through equitable access to resources and quality services in a peaceful and sustainable environment”. The UNDAF is founded on a shared approach: “Delivering as One” that underpin Agenda 2030 and the 17 Sustainable Development Goals (SDGs) at its core. The Government, with UN support international gender standards, equitable access to timely, quality and affordable health care and a healthy environment.</p>	

	<p>Zimbabwe: The 2016-2020 Zimbabwe United Nations Development Assistance Framework (ZUNDAF) is the one nationally-owned United Nations (UN) strategic programme framework towards the achievement of the SDGs as well as other international commitments, norms and standards. The implementation of the 2016-2020 ZUNDAF has a sustainable impact in its contribution to ending poverty, achieving gender equality, transforming all lives, and protecting the planet. The ZUNDAF offers opportunities to strengthen partnerships, linkages and programming, including those with other major development frameworks.</p> <p>Botswana: The collective aspiration under the United Nations Sustainable Development Framework (UNSDF) 2017-2021 is to move toward realization of SDGs through greater collaboration, focus and coherence in programming, and to improve the quality of life for all people in Botswana, particularly the most vulnerable groups. The UNSDF 2017-2021 thus focuses on strengthening coherence between Agencies, and promotes greater, accountability, efficiency, effectiveness and sustainability in Botswana's pursuit of sustained and inclusive economic growth, social development and environmental protection.</p> <p>Namibia: The United Nations Partnership Framework (UNPAF) 2019-2023, strives towards partnership to enhance the coherence and efficiency to achieving the longer-term SDGs, the Africa Agenda 2063, and the country's human rights obligations and other commitments under internationally agreed conventions and treaties, including Social transformation, environmental sustainability and good governance. The overarching objective of the UNPAF 2019-23 is to make Namibia a developed nation with an equitable, inclusive, peaceful and sustainable societal and economic fabric, a resilient environment and transformational governance in line with the SDGs by 2030."</p> <p>Eswatini: The UNDAF 2016-2020 aims to catalyze sustainable changes that will strengthen systems during and beyond the period covered (2016 – 2020). Three priority areas have been identified for the UNDAF; Poverty and inequality reduction, inclusive growth and sustainable development, Equitable and efficient delivery and access to social services, and Good Governance and Accountability.</p> <p>Zambia: The United Nations Sustainable Development Partnership Framework (2016-2021) is in line with the SDGs and aspirations for transformation towards a "prosperous middle-income nation" by 2030. The efforts are underpinned by three results pillars: Inclusive Social Development, Environmentally Sustainable and Inclusive Economic Development, and Governance and Participation. The Vision is based on seven key principles, including: i) gender responsive sustainable development; iii) respect for human rights; and vii) private-public partnerships. Progress towards middle-income Zambia comes with addressing inequality, strengthening social protection and reducing vulnerabilities</p>
<p>Link to relevant SDG target(s) and SDG indicator(s)</p>	<p><i>Where appropriate, insert the most relevant SDG target(s) and indicator(s) to which the project contributes</i></p> <p>The AFRO II Project is directly linked with the 2030 Agenda for SDG 1, 3, 6, 11, 12, 13 and 17 with their associated sub-goals and targets. The</p>

		<p>progress made towards respective goals, sub-goals and associated targets to which they contribute are as follows:</p> <p>Goal 1: End poverty in all its forms everywhere;</p> <p><i>Targets 1.1, 1.2 and 1.5</i></p> <p>Goal 3: Ensure healthy lives and promote well-being for all at all ages;</p> <p><i>Target 3.1, 3.2 and 3.3.</i></p> <p>Goal 6: Ensure availability and sustainable management of water and sanitation for all;</p> <p><i>Target 6.3.</i></p> <p>Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable;</p> <p><i>Targets 11.1 and 11.5; sub-goals 11.a and 11.b</i></p> <p>Goal 12: Ensure sustainable consumption and production patterns;</p> <p><i>Target 12.4; sub-goal 12.a.</i></p> <p>Goal 13: Take urgent action to combat climate change and its impacts;</p> <p><i>Target 13.3, and sub-goal 13.b.</i></p> <p>Goal 17: strengthen the means of implementation and revitalize the global partnership for sustainable development.</p> <p><i>Target 17.3, 17.9 and 17.17.</i></p>
GEF financing amount		9550000
Co-financing amount		243103508
Date of CEO Endorsement		07-Mar-16
Start of Implementation		01-Dec-16
Date of first disbursement		11-Jul-16
Total disbursement as of 30 June 2019		900000
Total expenditure as of 31 Dec 2019		4,412,870
Expected Mid-Term Date		July 2019
Completion Date	Planned	10 – July 2021
	Revised	na

Expected Terminal Evaluation Date	<i>na</i>
Expected Financial Closure Date	<i>Dec-22</i>

Executive summary

1. The mid-term review object is the project “Demonstration of effectiveness of diversified, environmentally sound and sustainable interventions, and strengthening national capacity for innovative implementation of integrated vector management for disease prevention and control in the WHO African Region”. It is funded by the Global Environment Facility, implemented by United Nations Environment, and executed by the World Health Organization Regional Office for Africa based in Congo Brazzaville. WHO country offices work closely with Ministries of Health and in particular National Malaria Control Programmes, and to some extent with Ministries of Environment. It involves 13 countries in southern Africa: Botswana, Gambia, Kenya, Liberia, Mozambique, Namibia, Senegal, South Africa, Eswatini (formerly Swaziland), Tanzania, Uganda, Zambia, Zimbabwe. As part of Component 2, six of these countries (Botswana, Mozambique, Namibia, Eswatini, Zambia, Zimbabwe), known as Tier 1 countries, are carrying out demonstrations of integrated vector management in communities involving innovative combinations of interventions to control malaria mosquitoes with a reduced reliance on the use of DDT for indoor residual spraying. These include screening doors and windows, controlling mosquito larvae in ponds during the winter season and community education and mobilization.
2. There are two other components to the project, which all 13 countries are to varying degrees engaged with: Component 1 involves building capacity for the mainstreaming of integrated vector management in national policy and strengthening multi-sectoral alliances. It also strengthens capacity of the countries to monitor and report to the Stockholm Convention on the use of DDT for malaria mosquito control, and on any stockpiles of obsolete DDT that exist in the country. Component 3 focuses on dissemination of findings through manuals, guidelines, programmatic and national level communication strategies and the actual reporting of DDT use and stockpiles to the Stockholm Convention using the capacity developed in Component 1.
3. The overall objectives of the mid-term review were to analyse project performance against a series of criteria to understand problems and challenges and their causes, and to recommend corrective actions in order to increase the likelihood of the project achieving its primary objective “To strengthen national capabilities for implementation and scaling up of evidence-based, innovative, diversified and environmentally sound disease vector control interventions (with special emphasis on malaria) with multi-stakeholder participation within context of IVM”.
4. The scope and focus of the mid-term review was principally the field demonstrations (Component 2) in the six countries implementing them since it is critical to establish them as soon as possible in order to gather baseline data during one season and then post-intervention data in the two subsequent seasons. The other two Components are at an early stage in all 13 countries.
5. The consultants attended the Harare Regional Project Steering Committee meeting in April 2019 and made visits to Namibia and Zambia in September 2019 to ‘ground-truth’ the reporting and gain a better understanding of the project and its successes and challenges. Remote consultations were made with the other four Tier 1 countries.

6. The overall evaluation rating of the project was Moderately Satisfactory (see the evaluation ratings table on page 42), but this masks unsatisfactory and moderately unsatisfactory performance in some key areas.

7. The project has high strategic relevance, including to the UN Environment Medium Term Strategy, the Road Map for the Development of Alternatives to DDT, the Programme of Work (PoW) Output 5B4 and specifically on output number 524.2 *“Support to the implementation of the chemicals and waste MEAs”*, GEF’s strategic priorities, and Regional, Sub-regional and national priorities.

8. The project design was assessed as moderately satisfactory, with some lessons learnt from complementary predecessor projects being incorporated, such as the use of a single external agency to design the generic field demonstration protocol, which was later tailored to the Tier 1 country-specific situations. This fairly harmonized approach is likely to make cross-country comparisons of results more valid. The partnership between UN Environment and WHO is productive since it helps both organizations to understand each other’s agendas and find common ground. However, the amount of awareness-raising by AFRO II with National Malaria Control Programmes seems to have been insufficient, leading to low initial prioritization and engagement in some countries. Also consultation with communities on ‘alternatives’ to gauge perceptions and possible objections or suggestions was very limited.

9. Overall effectiveness is assessed as unsatisfactory, principally due to the late delivery of some key outputs relating to the field demonstrations of integrated vector management approaches. Alongside the delays with recruitment of WHO National Project Coordinators and delays with technical and ethical approval of national field demonstration protocols (see para 14 below), long delays with procurement and delivery of entomological monitoring equipment (CDC light traps, microscopes, insect aspirators etc) has impacted negatively on progress and potentially on quality and comprehensiveness of data. The alternative sampling methods used may not be as accurate as the CDC light traps and also can only be used to collect mosquitoes inside the houses, whereas sampling outside the house was planned as part of the baseline and post-intervention data gathering. It appears that several inter-linked factors caused these delays and one of the recommendations is to analyse the causes of this procurement delay in order to learn lessons for future improvements.

10. Other outputs in Component 1 are at various stages of implementation and will be delivered in the second half of the project.

11. Some outcomes are partially achieved, for example some countries have reported DDT use and obsolete stockpiles to the Secretariat of the Stockholm Convention and developed integrated vector management strategies. Other outcomes relating to sustainable adoption of integrated vector management approaches in the study area and national policy being guided by the results of the field studies could not be assessed since they are not planned until the second part of the project.

12. Impacts related to reduced DDT use and its environmental and human health effects may be visible during the project but are more likely to occur after the project ends.

13. Financial management is moderately satisfactory with one or two areas for improvement such as reporting overall project expenditure by output or at least by outcome, rather than the current reporting by budget line. The figure of 46% of total project budget spent by end of Q4 2019 masks

some quite large overspends and underspends against specific budget lines – see Table 5 on page 34. Some unrealistically large co-finance figures, especially from Tier 2 countries which are not carrying the field demonstrations, indicate a misunderstanding at project formulation stage as to what is eligible for inclusion.

14. Efficiency has been hampered to some extent by delays in recruitment of National Project Coordinators and by limited administrative support to the Project Manager in WHO AFRO and to the National Project Coordinators, especially the two who are only engaged for 50% of their time. Transport was reported to be a constraint, although levels of in-kind co-finance would indicate that the use of National Malaria Control Programme or other government vehicles could be part of the national contribution to the project, and this has happened in some countries. Use has been made of the synergies between AFRO II and the National Malaria Control Programmes in the form of historic datasets, existing human capacity, epidemiological and entomological methodologies and equipment. Some delays (6 months) were experienced with development of the generic demonstration protocol and approval by WHO AFRO (3 months), but a major constraint on progress has been the delays with tailoring the protocol at country level, together with technical and ethical approval (ranging from 15 months to 27 months). No substantial field activities could be undertaken until the protocols were approved. Efficiency is assessed as moderately unsatisfactory.

15. Monitoring and reporting is assessed as satisfactory although there were delays with some countries' reporting to WHO-AFRO, and financial reporting by output and/or by outcome is needed.

16. Sustainability of AFRO II will depend on several factors, some of which are in doubt. Community understanding, engagement and involvement will be critical to adoption of Integrated Vector Management and although there have been delays with efforts to achieve this, communication campaigns are planned. Equally, support from policy makers and senior managers will be critical to sustainability and, given some of their perceptions that the project will lead to the withdrawal of DDT for those using it, continued efforts are required to advocate an integrated vector management approach and demonstrate its efficacy. The findings from the demonstration study sites will be critical to achieving buy in – both efficacy and cost, although it is unclear how much cost data will be collected and how much the external costs of using DDT will be factored into the comparison with current practice. If the integrated vector management approach cannot be shown to be more cost-effective, adoption is unlikely.

17. The September 2019 Project Implementation Report states that gender dimensions have been reflected at both operational and policy-level interventions with women involved at all stages although the total numbers of women involved had not yet been reported by then. Women and men were equally represented in the field teams in Zambia and Namibia that the consultants met. Sustainability is assessed as moderately likely.

18. Selected key findings and conclusions involve strategic, technical and administrative elements.

19. Initial buy-in to the project seemed patchy, due to the disconnect between Ministries of Health concern with the immediate health threat posed by malaria and the longer term environmental concerns of Ministries of Environment about the impacts of the use of DDT, contributing to delays with start up in most Tier 1 countries. Execution has been constrained by shortages of support to management - the Project Manager in Brazzaville has insufficient administrative support to provide

full oversight to implementation in all six Tier 1 countries. Also some countries' National Coordinators are only 50% employed on the project (Zambia and Mozambique) and require additional back office support.

20. The Regional Project Steering Committee meetings are infrequent and communication between countries is limited. The project would benefit from more cross-country interaction and learning.

21. The primary focus of the project so far has been the field demonstrations since these were meant to be carried out over at least three years of the project, generating one season of baseline data and two seasons of post-intervention data, whereas some of the other activities were short and discrete e.g. developing integrated vector management guidelines. However, delays with recruitment of the National Project Coordinators, with approval of national field demonstration protocols and with procurement of entomological monitoring equipment have led to start up delays of between 15 and 27 months. Also, costs are meant to be captured as well as efficacy, but other than in Zambia where it is a focus for one of the two PhD students, it is unclear how much cost data is being collected in the other five countries. Compelling cost-effectiveness data will be important for National Malaria Control Programmes to lead changes in approach from the status quo, and to enshrine that in strategy, policy, guidance documents and practice.

22. All seven Tier 1 countries reported submitting DDT questionnaires in 2018 to the Secretariat of the Stockholm Convention but only three (Mozambique, Zimbabwe, South Africa) were included in the final Stockholm Convention Conference of Parties report. For two of the project countries (Zambia and Namibia), the reason may be a confusion between the official DDT questionnaire and a separate questionnaire on stockpiles of DDT which was circulated around the same time and indeed submitted by these two countries.

23. In light of these findings, there are some urgent recommendations relating to important issues as well as some recommendations for consideration subsequently.

24. Every effort should be made to expedite delivery of entomological monitoring equipment to the Tier 1 countries in order to avoid delays with collection of good quality and comprehensive data, and to avoid the project failing to produce credible conclusions from the field studies. Following that, a review (with report) is recommended of the reasons for the delays in WHO AFRO procurement is recommended to learn lessons and put in place corrective measures.

25. Given that delays in execution have the potential to compromise meaningful and credible conclusions and the likelihood that they will influence policy, strategy and practice, a 12 - 18 month extension to the project is recommended. The justification for this is strengthened by the fact that the Covid 19 pandemic is likely to further delay travel, training, workshops, meetings and field activities. A financial assessment is required to determine whether there are sufficient funds remaining from some or all of the countries' allocations to support such an extension with possible transfers between budget lines and/or countries. Funds for WHO AFRO management costs will also need to be assured.

26. Enhanced communication and outreach at community and programmatic level is also recommended. This includes promoting integrated vector management at community, National Malaria Control Programme and policy maker level. It is recommended that those countries not already operating a dedicated AFRO II Steering Committee should set one up. For a regular

discussion between countries would allow more harmonization and sharing across countries on manuals, guidelines, data collection tools, techniques, SOPs etc. If Regional Project Steering Committee meetings are too costly, then Whatsapp groups or regular skype conference calls are recommended. The external technical agency that designed the generic protocol should be involved in these.

27. Additional administrative support should be provided to the Project Manager in Brazzaville and to the two NPCs who are currently only 50% employed.

28. ICIPE should assign more time to support the field studies, guidance documents and data analysis in the 6 countries, due to the complexity of the task, and countries should ensure they record the costs (cash, resources, personnel time) of integrated vector management interventions at the study sites so that fully informed assessments can be made of cost-effectiveness by the end of the project.

29. Some of the medium term recommendations include more support and capacity development from the project to ensure countries report DDT use and stocks to the SSC every three years and the development of a communication strategy for the second half of the project to ensure widespread awareness of the project, integrated vector management and its benefits, the field study results, and national/regional plans for the future.

30. Country co-finance figures are very variable between countries and are very high for some Tier 2 countries, particularly since these countries are not carrying out field studies. These should be reviewed and revised as necessary.

31. Once the activities in component 2 are fully equipped and operational, it is recommended to re-focus on components 1 and 3 to ensure the activities are planned and implemented in a timely way to produce the planned outputs and outcomes.

I Project overview

Institutional context with UN Environment

32. UN Environment's mission is to provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations. WHO plays a central role in the Road Map for the Development of Alternatives to DDT and promotes Integrated Vector Management (IVM) as the preferred management approach to control transmission of malaria and other vector-borne diseases. It regularly publishes recommendations on the use of DDT for Indoor Residual Spraying (IRS), which are to be followed by Parties to the Stockholm Convention using DDT for vector control. Therefore, partnering of UN Environment with WHO in this project provides a comparative advantage. the project fits within the UNEP Sub Programme 5 (Chemicals and Waste), and the project contributes to *Expected Accomplishment: Countries increasingly have the necessary institutional capacity and policy instruments to manage chemicals and waste soundly including the implementation of related provisions in the Multilateral Environmental Agreements (MEAs)*. The project delivers on Programme of Work (PoW) Output 5B4 and specifically on output number 524.2 "*Support to the implementation of the chemicals and waste MEAs.*"

Implementation structure

33. The project is funded the Global Environment Facility (GEF) and being implemented by UN Environment. The Lead Division is the Economy Division; Chemicals and Health Branch. The GEF team based in the Chemicals and Health Branch have appointed a Task Manager to supervise the implementation of the project. Administrative support staff contribute part-time. The Task Manager is supported by technical staff from UN Environment Chemicals and Waste Branch as needed. Other UN Environment divisions/units (for example the Regional Office for Africa (ROA), based in Nairobi) can be called upon to support the Implementing Agency role as needed.

34. The project is externally executed and UN Environment has contracted the World Health Organization Regional Office for Africa (WHO-AFRO), in Brazzaville, as the Executing Agency (EA) of the project. WHO appointed a Project Manager from the Division of Health Promotion (HPR) which is in charge of all executing arrangements of the project, including the development of detailed work plans and time schedules and coordinating the execution of the various project components in the project countries. The Project Manager is also responsible for preparing regular technical and financial reports, providing guidance to subcontracted parties, recruitment issues and general oversight of the project. Policy and technical guidance is provided to the National Project Coordinators (NPCs) who were appointed in each country soon after the beginning of the project.

35. A Regional Project Steering Committee (RPSC) composed of experts in the various fields relevant to the project has been established to advise the WHO-AFRO on all technical issues.

36. WHO-AFRO has delegated to the WHO Offices in each project country the day to day supervision and provision of support for project implementation in the respective countries. The NPCs play a

crucial role in the execution of the project at national level as well as with the coordination between the various relevant sectors. NPCs also have a catalysing role in each project country. While they are mainly involved in a supervisory role at the policy and technical levels with a view to building on existing structures to promote effective IVM, they also serve as a national resource base and provider of feedback to the project Executing Agency.

37. National Malaria Control Programs (NMCP) in the Ministry of Health lead the execution of the project in each country. It was anticipated that the agriculture and environment sectors will be the other main sectors involved but urban planning, rural development, local governments, research etc. are involved where applicable.

38. The Executing Agency has subcontracted one specialised partner (ICIPE in Kenya) to support the development and execution of specific demonstration projects in representative areas in each country and to provide technical support.

39. Local Non-Government Organization (NGOs) and Community Service Organizations (CSOs) have been (or will be) subcontracted to execute the community involvement-related activities and awareness raising in each of the project countries. In at least one country (Zambia) a University has been engaged to draft the IVM guidelines.

40. Community leaders and members who are affected by malaria and DDT play a crucial role in the project in that they have to host the IVM demonstrations and collaborate by maintaining treatment integrity i.e. not adding other interventions that might undermine data and conclusions.

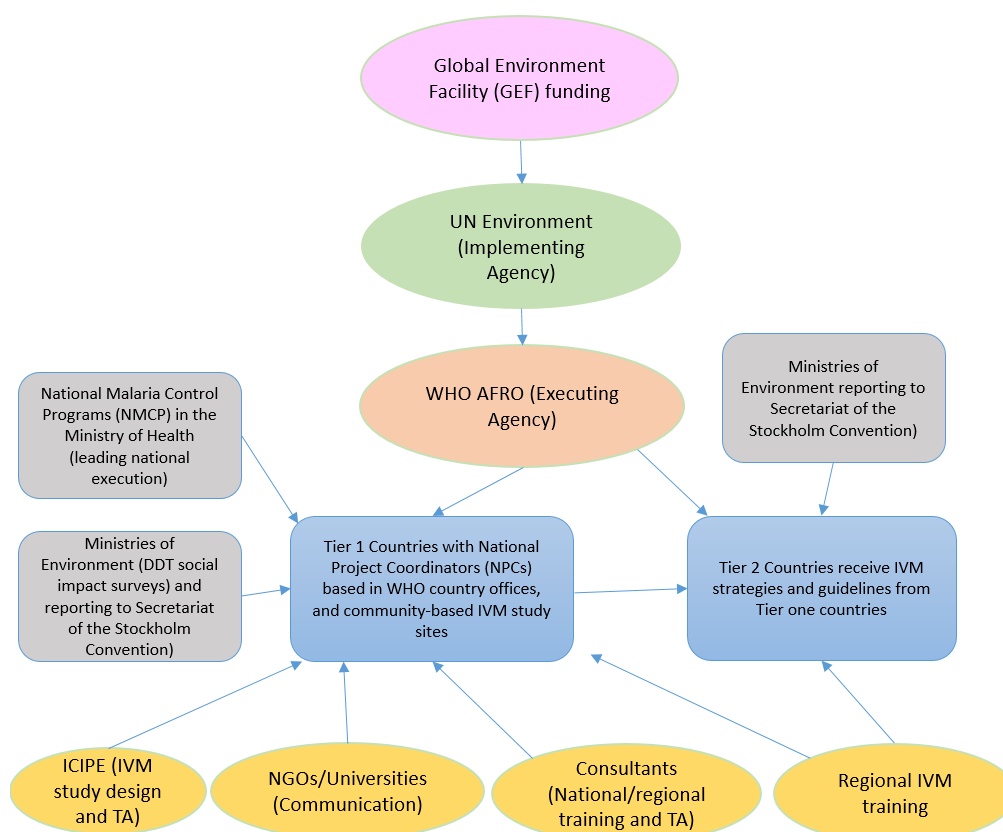


Figure 1. Project implementation structure

Note: South Africa is the only Tier 1 country that is not carrying out IVM field studies under AFRO II but they are implementing Component 1 and Component 3. AFRO II has helped with Component 1 and South Africa are reporting DDT use to the SSC. They are a front runner on resistance monitoring and management so could document their lessons learnt and give valuable guidance to Tier 1 and Tier 2 countries.

The problem/issue the project aims to address

41. In the context of the development imperative to control malaria – one of the main causes of morbidity, mortality and reduced productivity in Africa - the key problem the project seeks to address is that DDT continues to be used for indoor residual spraying (and may in future be increasingly used) with associated well-documented hazards to the environment and humans and counter to the spirit of the Stockholm Convention on Persistent Organic Pollutants to phase out the use of these global contaminants. The justifications for use are that DDT is cheaper than the alternatives (pyrethroids, carbamates, organophosphates and other newer chemistry) and it persists longer than them as a bio-active agent on sprayed walls. Potential increased use also relates to the rapid development of resistance to pyrethroid alternatives, due in part to many mosquito populations' continuous exposure to pyrethroid-impregnated mosquito nets.

42. More broadly, the project seeks to promote integrated vector management (IVM) in line with global and regional trends. This requires IVM strategic frameworks, which do exist in some form in the project countries but implementation is hampered by lack of inter-sectoral commitment and cooperation. Other constraints are limited human capacity and technical resources in the health and other sectors to implement IVM approaches, and to implement policies relating to insecticide quality assurance and use.

43. The overall objective of the project is therefore to strengthen national capabilities for implementation and scaling up of evidence-based, innovative, diversified and environmentally sound disease vector control interventions that are alternatives to DDT (with special emphasis on malaria) with multi-stakeholder participation within the context of IVM.

44. It targets the critical need to strengthen the evidence, knowledge, inter-sectoral collaboration, legislation and capacity to apply effective diversified vector control interventions including non-chemical methods, while human health and environment is protected and the countries' obligations in relation to the Stockholm Convention are met.

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Project parameters for the review (start and end date; geographic reach; total budget etc)

45. The contract for the review ran from April 2019 to end of March 2020 and included three country visits – to Zimbabwe (for the Regional Project Steering Committee [RPSC] meeting in April 2019), Zambia and Namibia (September 2019) – as well as remote interactions with Botswana, Mozambique and Eswatini. The total budget was USD 49,835.

46. No interviews have been conducted with Tier 2 countries (other than informal discussions at the Harare RPSC) due to the need to focus on IVM field study implementation in Tier 1 countries. Also, the main regional activities involving Tier 2 countries had not started at the time of this review, although the regional IVM consultant has supported some Tier 2 countries to produce IVM strategies.

Project results framework and Theory of Change

47. The outputs and expected outcomes are set out in the Project Framework and the Proposed Alternative Scenario section in the ProDoc. These have been used as the basis for the development of a Theory of Change (ToC), during which process, some modifications to outputs and outcomes are proposed – see Figure 2 and Table 1 below for a detailed comparison of the original project framework and revised theory of change.

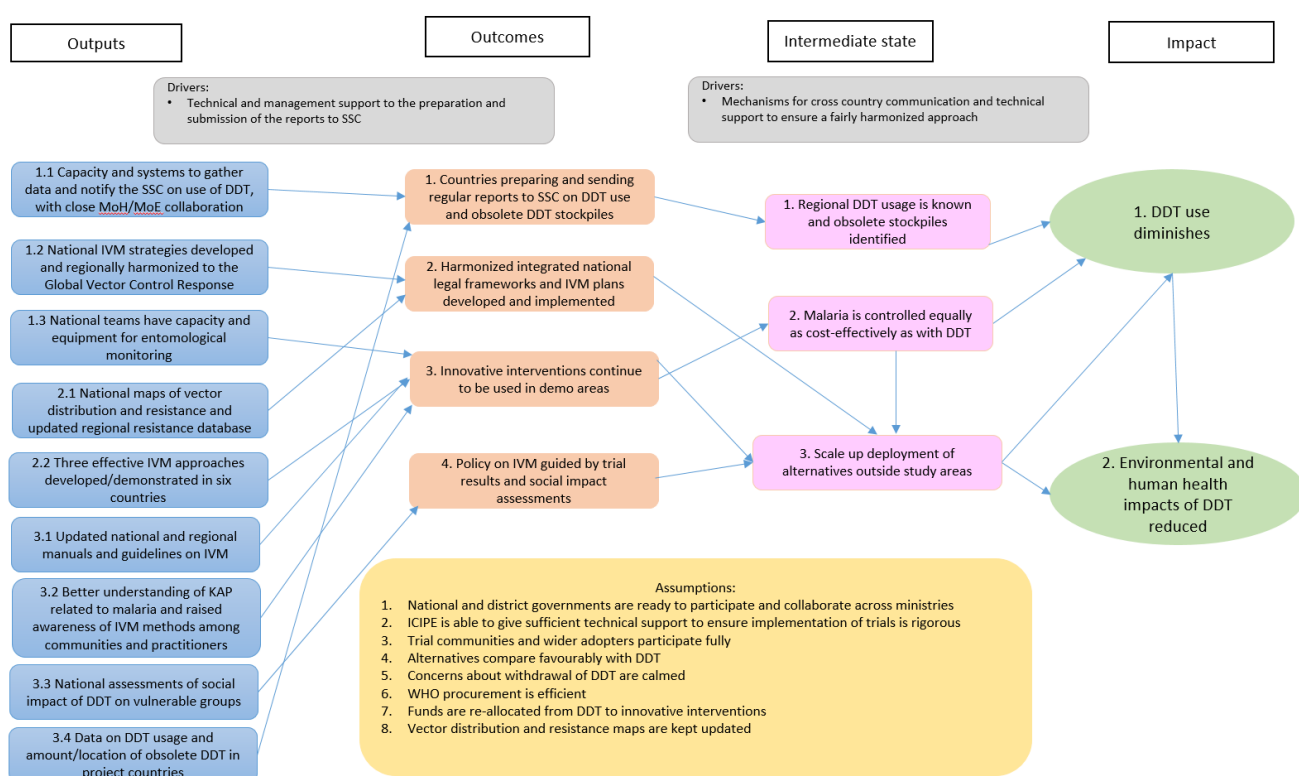


Figure 2. Theory of change for AFRO II

48. In accordance with the theory of change guidelines from UN Environment, the impacts given are long term and are not expected to occur during the lifetime of the project. The outputs (immediate effects of the completion of activities) under the three project components are expected to result in the outcomes (a change in the state of affairs resulting from the use/application of outputs that is not under the direct control of the intervention's direct actors). Provided the assumptions and drivers are correct, the outcomes should lead to the Intermediate States and can plausibly result in the two impacts in the longer term.

Table 1. Prodoc Outputs vs Revised Outputs as included in the Theory of Change

<i>Prodoc Outputs</i>	<i>Revised ToC Outputs</i>
Output 1.1: Technical support to countries to notify the Stockholm Convention on the use of DDT by the their NMCPs	1.1 This activity was rewored as an output to emphasise the immediate effect of the completion of activities. “Capacity and systems to notify the SSC on use of DDT with close MoH/MoE collaboration”
Output 1.2: Countries regularly report to the Stockholm Convention Secretariat on the use of DDT for disease control as stipulated in the Stockholm Convention, Annex B, Part II, para 4	1.2 This output was moved to become outcome 1 as “Countries preparing and sending regular reports to SSC on DDT use and obsolete DDT stockpiles”
Output 1.3: Training and technical support provided to countries to develop integrated national legal frameworks and IVM plans with managerial capacity for IVM to a harmonized standard	1.3 This activity was renumbered as output 1.2 due to the conversion of prodoc output 1.2 to outcome 1, and rewored to reflect the effect of the completion of activities “National IVM strategies developed and regionally harmonized to the Global Vector Control Response”
Output 1.4: Training, technical support and provision of equipment to countries to support implementation of evidence based national policies and plans for IVM to a harmonized standard	1.4 The slight duplication in this output with former prodoc output 1.3 was resolved and these activities and procurements were rewored as an output to reflect the effect of the completion of activities “National teams have technical capacity and equipment for entomological monitoring to inform national IVM plans and policies”. It was also renumbered as output 1.3 due to the conversion of prodoc output 1.2 to outcome 1.
Output 2.1: Mapping of vector distribution and associated insecticide resistance	2.1 This activity was rewored as an output to reflect the effect of the completion of activities “Maps of vector distribution and resistance compiled for demo sites and regional resistance database updated”
Output 2.2: Three IVM approaches developed and demonstrated in six countries	2.2 The word ‘effective’ was added to this output to make “Three effective IVM approaches developed/demonstrated in six countries”
Output 3.1: Manuals and related technical guidelines on IVM updated and published	3.1 This activity was rewored as an output to reflect the effect of the completion of activities “Updated national and regional manuals and guidelines on IVM”
Output 3.2: Production and delivery of programmatic and national level communications / awareness strategies and materials	3.2 This was rewored to “Better understanding of KAP related to malaria and raised awareness of IVM methods among communities and practitioners”
Output 3.3. Production of national social impact assessments highlighting impacts on vulnerable groups from use of DDT	3.3 This was rewored as “National assessments of social impact of DDT on vulnerable groups”. Note: this output will be produced before 3.2 since the

	assessment findings will inform the content of some of the community communication materials.
Output 3.4: Production of reports to the Stockholm Convention Sec (SCS) on DDT usage including amount and local distribution of obsolete DDT in project countries	3.4 This was reworded as “Data on DDT usage and amount/location of obsolete DDT in project countries”

49. Minor modifications to the project Logical Framework were also proposed – see Annex 9.

Stakeholder analysis

Below is a description of targeted groups/stakeholders and their relationship with the project

<p>A.</p> <p>UN Environment</p> <p>WHO/AFRO</p> <p>NMCP/Ministry of Health</p>	<p>B.</p> <p>The Global Fund to Fight AIDS, Tuberculosis and Malaria</p> <p>President’s Malaria Initiative</p>	<p><i>A-High power, /high interest over the project= Key player</i></p> <p><i>B-High power/ low interest over the project =Meet their needs</i></p> <p><i>C-Low power/ high interest over the project= Show consideration</i></p> <p><i>D-Low power /low interest over the project= Least important</i></p>
<p>C.</p> <p>ICIPE</p> <p>Ministry of Environment</p> <p>National research organisations/Universities</p> <p>NGOs/CSOs</p> <p>Study area communities (particularly women and children)</p>	<p>D.</p> <p>Ministry of Agriculture</p>	

50. The roles of the main stakeholders have been described in the section on implementation structure above (starting para 33). NMCP/Ministry of Health (MoH) are categorised as high power/high interest because although their main priority is reducing morbidity and mortality from malaria, whichever way that is done, the project certainly has their attention due to the initial perception that the project may be a factor in removing DDT from their malaria armory. It was reported to the reviewers that a meeting of Health Ministers from the Southern African Development Community member countries in the past few years agreed to retain DDT as an option for indoor residual spraying in order to maintain diversity of modes of action in their resistance management programmes.

51. The Ministries of Environment are important project partners since they are responsible for the Stockholm Convention and eventual phase out of DDT, but until cost-effective alternatives are

available, they have limited influence on its use, given the imperative to save lives of those exposed to malaria. However IVM implementation requires inter-sectoral coordination and collaboration, with productive dialogue in the health, environment and agriculture sectors and this project facilitates a closer dialogue and better mutual understanding.

52. The The Global Fund to Fight AIDS, Tuberculosis and Malaria has been given a high power/low interest rating since it has influence on other international partners but its priority is to 'fight' these diseases in whatever way is the most effective

53. National research organisations/Universities and NGOs/CSOs are given low power/high interest since they are for the most part contracted entities to carry out specific tasks assigned to them by the NMCPs and the AFRO II management.

54. Collaboration with the agriculture sector is important in IVM programmes in order to communicate on pesticide registration/de-registration issues and to monitor and prevent any 'leakage' of DDT for Indoor Residual Spraying (IRS) into agricultural production. However, there appears to be little if any involvement of Ministries of Agriculture with the project in some of the countries consulted, and there were no MoA representatives at the April 2019 RPSC meeting.

55.

Any major and agreed changes to the project (e.g. formal revisions, additional funding etc)

56. At the inception meeting in December 2016 it was agreed that ICIPE (the International Centre of Insect Physiology and Ecology based in Nairobi, Kenya) would take a leading role in developing the generic field study methodology which Tier 1 countries would later tailor to their country-specific circumstances. This was a change from the original prodoc and in order to fund the ICIPE contract, national budgets were each reduced by approximately USD 200,000. This is a change from the arrangements in the predecessor project AFRO I where individual countries developed their own study designs and cross country comparisons were more difficult. A Theory of Change (ToC) was developed for this MTR since there was not one in the original Project Document (prodoc), with outputs and outcomes slightly modified from the prodoc, and which clarifies the outcomes and the impact pathways.

Any external challenges faced by the project (eg conflict, natural disaster, political upheaval)

57. There is a generally favourable environment for implementation across all Tier 1 countries, other than a typhoon in 2019 causing some flooding in recent years in Mozambique, Botswana, Namibia, Zimbabwe and Zambia, although only Mozambique and Zimbabwe reported that the flooding caused some delay to field work. Drought in Namibia was also reported to have been a constraint. The security, infrastructure, economic and political context are mostly conducive to effective delivery of the project.

Financial tables

Table 2. Budget by prodoc component

Prodoc Component	Grant Type	Trust Fund	Grant Amount (\$)	Confirmed Co-financing (\$)
Component 1: Promote evidence-based multi-sectoral policy-making for IVM and strengthen multi-sectoral alliance in the promotion & implementation of environmentally sound & effective innovative interventions to reduce reliance on DDT for diseases vector control and strengthen countries' capacity a better compliance with multi-lateral environmental agreements particularly the Stockholm Convention	TA	GEFTF	800,000	25,224,095
Component 2: Support countries to implement IVM approaches and demonstrate effectiveness of diversified, environmentally safe innovative vector control methods including use of alternative chemicals to DDT for malaria control	TA	GEFTF	6,100,000	175,754,447
Component 3: Dissemination of knowledge and sharing of experiences to all stakeholders at national, sub-regional and regional level in order to influence decision makers	TA	GEFTF	800,000	8,294,803
Monitoring and Evaluation	TA	GEFTF	900,000	1,325,000
Subtotal			8,600,000	210,598,345
Project management cost		GEFTF	950,000	32,505,163
Total project cost			9,550,000	243,103,508

Below is a summary of cash budget by component. A more detailed table can be seen in Table 6 on page 35.

Table 3. Summary GEF cash budget by component

Component	Budget
PERSONNEL COMPONENT	2,103,000
SUB-CONTRACT COMPONENT	5,900,000
TRAINING COMPONENT	940,000
EQUIPMENT & PREMISES COMPONENT	132,000
MISCELLANEOUS COMPONENT	35,000
REPORTING COSTS	35,000
EVALUATION	405,000
Grand total	9,550,000

Planned and actual sources of funding/co-financing.

Very summarized totals of co-financing by organisation are shown below. A more detailed table is shown on page 35 and individual country co-financing is shown in Annex 8.

Table 4. Summary of cash and in kind finance for AFRO II

	GEF	WHO		UNEP		Stockholm Secretariat		Countries		Partner Institute		Totals	
	Cash	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind
USD	9,550,000	0	560,000	0	250,000	0	80,000	0	241,318,508	0	895,000	9,450,000	243,103,508

II Review Methods

58. A desk review was carried out of relevant background documentation, inter alia:

- Project Document and Appendices
- Project design documents (including minutes of the project design review meeting at approval); Annual Work Plans and Budgets or equivalent, revisions to the project (Project Document Supplement), the logical framework and its budget;
- Project reports such as six-monthly progress and financial reports, progress reports from collaborating partners, meeting minutes, relevant correspondence and including the Project Implementation Reviews and Tracking Tool etc.;
- Evaluations/Reviews of similar projects.

59. Interviews (individual or in group) in person or remotely by Skype using semi-structured questionnaires for different stakeholder groups. These included:

- UN Environment Task Manager (TM);
- Project management team including the Project Manager at WHO AFRO and National Project Coordinators (NPCs)
- UN Environment Fund Management Officer (FMO);
- Members of NMCPs and if possible Ministry of Environment officials in Namibia, South Africa, Mozambique, Eswatini, Zambia, Botswana and Zimbabwe (Tier 1)

60. Country visits :

- Zimbabwe – attendance by the Mid Term Review team at the April 2019 Regional Project Steering Committee (RPSC) meeting
- Zambia and Namibia in September 2019 (see itineraries at Annexes 2 and 3) - selected on the basis of being in different 'malaria transmission settings' groups and also being at different stages of progress.
- Field visits were made to the IVM study sites in these two countries to talk to members of the community, the study site field teams and the NGOs working in the area on community involvement related activities, awareness raising, social surveys.

61. It was agreed with UN Environment that country visits were not necessary to Tier 2 countries since there are currently no country level activities (Ethiopia, Gambia, Kenya, Liberia, Madagascar, Senegal, Tanzania, Uganda), nor to South Africa for the same reason.

Justification for methods used (eg qualitative/quantitative; electronic/face-to-face);

62. Given the nature of the project, qualitative methods were generally used to gauge performance and the views of project stakeholders – their assessment of relevance, progress and findings to date. A review framework was developed to structure the consultations covering strategic relevance, effectiveness, financial management, efficiency, monitoring and reporting and sustainability. This was the basis for the development of questionnaires containing only the questions that were relevant to each specific stakeholder group. Budgetary constraints limited the number of countries that could be visited in person, but the remote consultations were considered to be adequately effective provided respondents were available and were able to invest sufficient time. The questionnaires were sent to respondents beforehand by email so that they could think about the questions ahead of the interviews.

Selection criteria used to identify respondents

63. Close involvement and/or influence on the project were the selection criteria. Key to the review were the views of the Task Manager, the Project Manager, the National Project Coordinators and representatives of the National Malaria Control Programmes (NMCP) and Stockholm Convention focal points in each of the Tier 1 countries. Where possible, especially during the country visits, others were consulted including NGOs, Ministry of Environment officials and field teams.

Case studies or sites/countries visited;

64. Within the resources for the review it was agreed that the consultants visit two contrasting Tier 1 countries: one adopting the trial study treatments of Indoor Residual Spraying (IRS) together with winter season larviciding (Namibia); and one adopting Long Lasting Insecticidal Nets (LLINs) and house screening to prevent entry of mosquitoes (Zambia). Visits were made to the study sites, which are between Okalonga and Ishikuku in Namibia, near the Angolan border, and around Nyimba, Eastern Province in Zambia. Baseline information was being gathered by the entomological field teams, but no interventions had been carried out by the time of the visits other than the routine distribution of LLINs in Zambia

Details of how data were verified (eg triangulation, review by stakeholders etc).

65. Data and information were verified by seeking the views of the Project Manager in Brazzaville and comparing that with those of the NPCs and the other respondents. Attendance at the April 2019 RPSC also allowed querying of details and progress that appeared in reports and presentations. Field teams were also interviewed in groups to verify equipment availability and progress.

The methods used to analyse data

66. The information gathered was qualitative (other than dates) and the information was synthesized into narratives which the review analysis drew on.

67. There was a reasonable response to requests for remote interviews but finding mutually convenient times was sometimes difficult. However, the messages about project progress and constraints were common across most countries so it was not felt necessary to pursue all stakeholders for the review.

III Review Findings

Strategic Relevance

68. The AFRO II project has good alignment with the UN Environment Medium Term Strategy, particularly in the areas of chemicals, waste and air quality and its objective ‘Sound management of chemicals and waste and improved air quality enables a healthier environment and better health for all’

69. One of the stated challenges of the UN Environment in the 2030 Agenda is to develop and enhance integrated approaches to sustainable development that will demonstrate that improving the health of the environment will bring social and economic benefits. Reducing environmental stress will reduce health risks in vulnerable groups, but this can only be achieved through an integrated approach, with partners across the environment, health sectors and others working together. AFRO II is coherent with this in its integrated approach across Ministries of Health, Environment and to some extent Agriculture.

70. WHO plays a central role in the Road Map for the Development of Alternatives to DDT and promotes IVM as the preferred management approach to control transmission of malaria and other vector-borne diseases. It regularly publishes recommendations on the use of DDT for IRS, which are to be followed by Parties to the Stockholm Convention using DDT for vector control. Therefore, partnering of UN Environment with WHO in this project provides a comparative advantage. The project fits within the UNEP Sub Programme 5 (Chemicals and Waste), and the project contributes to *Expected Accomplishment: countries increasingly have the necessary institutional capacity and policy instruments to manage chemicals and waste soundly including the implementation of related provisions in the Multilateral Environmental Agreements (MEAs)*. The project delivers on Programme of Work (PoW) Output 5B4 and specifically on output number 524.2 “*Support to the implementation of the chemicals and waste MEAs.*”

71. Given the 2030 horizon for the strategy, it is conceivable that alternative approaches, methods and technologies will have been developed for malaria control in an IVM setting by then, such that the use of DDT - a bio-accumulating Persistent Organic Pollutant (POP) - will have been discontinued.

72. There is also good alignment with GEF strategic priorities inter alia GEF’s proven record in funding demonstration and pilot activities with a potential for being an incubator to test and refine approaches that can subsequently be funded at larger scale from other sources. The GEF is also well positioned to provide support for institutional strengthening to help lay the foundation for enhanced action and it is re-doubling its efforts to catalyze private sector action and to influence sustainable industry practices.

73. The project is highly relevant to regional, sub-regional and national priorities in that all project countries have NMCPs that would welcome alternative approaches, methods and technologies to DDT, provided they were effective and affordable. Although the social impact surveys are still to be completed, the community representatives we spoke to were very interested in finding alternatives to DDT, partly because of the staining it can cause on some types of wall, but due to health concerns

too. The US-funded President's Malaria Initiative works in three of the Tier 1 countries and all of the Tier 2 countries distributing long lasting insecticide treated nets (LLINs) and carrying out indoor residual spraying (IRS).

74. There is complementarity with existing and recent interventions. The UN Environment-funded AFRO I project that came before AFRO II also sought to identify alternatives to DDT in Eritrea, Ethiopia and Madagascar, and to improve management of DDT stockpiles. Others complementary projects are listed below – see para 79.

75. There are also synergies and some common country foci with other current UN Environment projects funded by the GEF such as the SADC project on polychlorinated biphenyls (PCBs) – also POPs - that aims to reduce environmental and human health risks from PCB releases by introduction of cost-effective and socially acceptable environmentally sound management (ESM) practices for oils, equipment and wastes consisting of, containing or contaminated by PCB. Also the project Integrated Health and Environment Observatories (African ChemObs) promotes legal and institutional strengthening for the sound management of chemicals in Africa through strengthening national and regional institutions, and implementing priority chemicals and waste-related interventions. The NPC in Mozambique is spending 50% of her time on ChemObs and 50% on AFRO II.

76. The US-funded President's Malaria Initiative (PMI) operates in three of the Tier 1 countries and all of the Tier 2 countries - distributing long lasting insecticide treated nets (LLINs) and carrying out indoor residual spraying (IRS). A representative of PMI, visiting Zambia from the United States for meetings with the NMCP during the MTR visit, expressed interest in visiting the study site in Zambia once the house screening is complete, LLINs have been distributed and the community education and mobilization is underway.

77. Overall rating is **Highly Satisfactory**

Quality of project design

78. There is synergy with other past and current UN Environment led projects relating to disease vector control and DDT and the design of the project was informed by some of the lessons learnt and recommendations from those projects since the same people at WHO and UN Environment who were involved in those projects developed the AFRO II proposal.

79. The key projects are:

- a. Demonstration of Sustainable Alternatives to DDT and Strengthening of National Vector Control Capabilities in Middle East and North Africa – MENA Project - GEF ID 2546
- b. Establishment of efficient and effective data collection and reporting procedures for evaluating the continued need of DDT for disease vector control – Global Project - GEF ID 3349
- c. Demonstrating Cost-effectiveness and Sustainability of Environmentally Sound and Locally Appropriate Alternatives to DDT for Malaria Vector Control in Africa (DDT AFRO I) - GEF ID1331

80. Some of the lessons learned and recommendations from the terminal evaluations of the projects above are common to the mid-term findings from AFRO II

- Clear communication to local communities in project design is necessary to achieve ownership. This was judged still to be insufficient in AFRO II design, although there is a chicken and egg problem – it would be difficult to identify the geographical areas and communities to be involved in the field studies until the protocols and trial designs had been developed, which would not be an appropriate level of detail in a prodoc. Icipe together with the NMCPs should identify suitable NGOs (where available) for awareness raising and other community activities, and the collaboration should be formalized in an official document such as a Memorandum of Understanding (MoU)
- Analysing cost effectiveness of alternatives to DDT in an IVM setting is vital to making the case for phase-out of DDT and sustainability of IVM. This has been addressed to some extent in AFRO II through it being a focus of one of the PhD students working in Zambia. It is a recommendation that more countries gather cost information during implementation so that an assessment of cost-effectiveness can be carried out after the data on study site efficacy has been collected and analysed.
- More time should be allowed for procurement and the process should be streamlined. This lesson does not appear to have been incorporated into AFRO II design and implementation since it has been one of the key constraints on delivering the workplan to the planned timeline.
- Good cooperation and collaboration between MoE and MoH at country level is essential and this can be achieved by them having clearly defined roles and an effective platform or forum for interaction, along with other stakeholders, preferably through a NPSC.
-

Design strengths

81. The collaboration between UN Environment and WHO provides synergies and the necessary joined up thinking between health and environment to improve the likelihood of success. Also as the Executing Agency, the WHO office in Brazzaville – close to the participating countries- should allow more efficient implementation than from any Europe-based agency.

82. Component I, II & III combine to give strength for the drive for non-DDT IVM methodologies, with good integration of knowledge development and communication. Communication is tiered with in-country, between country and international activities.

83. Field demonstrations (Component II) of three newer methodologies with distinctive approaches (winter larviciding, house improvement to prevent mosquito ingress and community education and mobilization) are a particular strength since they involve communities and provide the opportunity to gauge perceptions, effects and barriers to adoption.

84. Clear leadership from a strong African entomology research organisation (ICIPE) provides for a relatively harmonized trial design through the ICIPE-developed protocol. Although national tailoring of the protocols was necessary to allow for the specificities of each country, there is thought to be sufficient commonality to allow cross-country learning from results.

Design weaknesses

85. The project is strongly dependent on within-country commitment by the NMCP. There was possibly not enough emphasis on awareness-raising of the benefits of the project to 'sell' it to malaria management practitioners and to senior policy makers at the outset.

86. Planned consultation with communities on 'alternatives' to test was very limited and there appears to be a lack of clarity on justification for selection of alternative innovations for the field studies in different environments and malaria transmission settings.

87. Our understanding is that most country NMCPs are focused on operational malaria management, with little mandate or experience in research. There may be an issue of national staff, both field technicians and management in some countries, having low levels of research training or experience to implement what is in reality a significant scientific trial, with potential problems of sampling and data recording consistency and integrity. Research entities and/or academia are involved but in some cases with limited engagement. ICIPE is providing technical support but country visits so far to support the implementation of the field studies have been infrequent and some countries felt they were insufficient. This links to a recommendation that dedicated AFRO II National Project Steering Committees (NPSCs) should be set up where they don't already exist, and where this is not possible, the profile of the project should be raised in the existing Vector Control or Technical Working Groups. It is also the justification for the recommendation that ICIPE and NMCPs identify national research institutions to support, or provide more support, to the project. This would improve implementation efficiency, ownership and also sustainability since national capacity would remain after the project ends.. However, this inclusion of other partners might involve a budget revision to cover their costs.

88. Overall rating: Moderately satisfactory

Nature of External Context

89. This is generally favourable across all Tier 1 countries, other than a typhoon causing some flooding in recent years in Mozambique, Botswana, Namibia, Zimbabwe and Zambia, although only Mozambique and Zimbabwe reported that the 2019 typhoon caused some delay to field work. Drought in Namibia was reported to have caused problems. To varying degrees, the security, infrastructure, economic and political context are mostly conducive to effective delivery of the project.

90. However, the current Covid 19 pandemic could affect the project execution in several ways: illness may prevent some project staff working; if there are lockdowns or curfews WHO, MoH and MoE offices may be closed so management staff may not have access to important files and systems; project staff and students may not be able to visit the study sites; social distancing may prevent field technicians gathering entomological and clinical data; the social impact surveys may not be possible; national and regional training may not be possible.

91. Overall rating: **Favourable**

Effectiveness

92. The original Project Document (Prodoc) had no theory of change (ToC) so one was developed during the MTR inception phase in consultation with the Task Manager (see Figure 2 on page 16) This resulted in some minor reformulation in wording and sequencing to make the impact pathway more logical and aligned with results-based language and terminology as used by UN Environment. The assessment of delivery of outputs is presented below based on the revised TOC structure.

D1. Delivery of outputs

93. There were some changes in the Project Management personnel in WHO AFRO during the first half of the project. The Project Manager retired at the beginning of the first year of the project and was replaced temporarily by the current NPC for Zambia while recruitment of the current Project Manager was in progress. This no doubt caused some discontinuities in the management system and also meant the need for two new people to go through the learning curves of systems such as financial management, reporting, communications.

Output 1.1 Capacity and systems to notify the SSC on use of DDT with close MoH/MoE collaboration.

94. According to the 2019 report by the Project Manager at the April RPSC and the September 2019 PIR, this is complete in Zimbabwe having inter-sectoral consensus on the use of DDT and having notified DDT use to the Secretariat of the Stockholm Convention (SSC) under the DDT Register. From discussions, there was no formal training or technical assistance on this process, but a briefing was given during the inception meeting in Dec 2016 by Mr Manuweera, representing the Basel, Rotterdam and Stockholm (BRS) Secretariats, who shared information on the overview of the Stockholm Convention. He highlighted the mandate of the Stockholm Convention on DDT and the shared information on decisions made by the last Conference of the Parties (CoP) including the obligations of countries intending to use the exemption available under the Convention to use DDT for public health purposes (including the DDT Register). The planned establishment of MoUs or other formal mechanisms between MoHs and MoEs to regularize reporting to the SSC has not happened.

Output 1.2 Capacity for IVM and national legal frameworks and regionally harmonized IVM plans

95. There has been some progress on building capacity - a regional consultant has been helping countries develop IVM strategies and these and they are now complete for all Tier 1 countries. Two Tier 2 countries – Uganda and Liberia – have also developed IVM strategies with AFRO II support. The use of the phrase ‘legal frameworks’ was discussed during the Inception Meeting (December 2016) and agreed that it is too ambitious, and should be interpreted more as policy agreements or documents that relate to the mainstreaming of IVM in the NMCP.

96. No national or regional workshops have yet been carried out to train personnel in harmonized approaches and techniques for implementation of IVM, but these are planned.

Output 1.3 National teams have capacity and equipment for entomological monitoring

97. Field team staff for the demonstration studies in five of the Tier 1 countries have been trained in entomological baseline data collection (with Zimbabwe to come) and technical support missions have been made to six countries. This has focused on using the Pyrethrum Spray Catch method (PySC) but also CDC light traps (where it was possible to borrow them from the national malaria programme). Identification of mosquitoes is being done by the national programmes rather than as originally envisaged, exporting them to Kenya for identification by ICIPE.

98. The procurement of entomological monitoring equipment has perhaps been one of the biggest constraints on project progress and the reason for implementation being so far behind schedule. It was originally envisaged that there would be one season of pre-intervention and two seasons of post-intervention mosquito population data, from inside and outside the houses – the latter requiring the use of CDC light traps. However, the delays with procurement of the CDC light traps has meant that the season of pre-intervention data has only just been collected and those data have had to be collected mostly by using the PySC method – see para 100 below. The delays with implementation means that on the current project timescale, only one season's post intervention data will be possible.

99. This - along with other delays such as with recruitment of the NPCs (by June 2017 Namibia and Zimbabwe had still not recruited), and with the tailoring and in-country technical and ethical approval of the country specific protocols – is the main justification for recommending a no-cost extension – see Recommendation 2 on page 43.

See Table 2 below for outline details of the timeline slippage on the field studies.

Table 2: Planned and actual delivery dates relating to the IVM field studies

Planned Dates/activities	Actual delivery/ Comment
2016: planning year with official start date July 2016 (date of first disbursement)	Inception workshop was delayed until Dec 2016
January 2017: generic study protocol developed	By June 2017 and approval by AFRO WHO September 2017
early 2018: Nationally tailored protocols approved	Between December 2018 and December 2019
From June 2017: Pre-intervention monitoring (baseline)	From July 2018, but with very few or no CDC light traps
From September 2018: IVM interventions put in place	From September 2019 but some later. Zambia did not complete screening by early April 2020
From September 2018: Post-intervention monitoring (1 st year)	From September 2019, but with very few or no CDC light traps and incomplete interventions
From June 2017 the KAP surveys and IEC-BCC implementation	Only partially implemented (informally) by 1 April 2020 during baseline data collection and screening of houses
From September 2019: Post-intervention monitoring (2 nd year) and reporting	Expected September 2020 – actually 1 st year with 3 interventions in place and quality data from inside and outside the houses (CDC light traps)

Project currently set to end 10 July 2021	No cost extension will be needed for 2 nd year of full post-intervention monitoring data.
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100. The absence of CDC light traps, or the very limited numbers available that were borrowed from the NMCPs in some countries, means that most of the pre-intervention baseline mosquito number data has been gathered so far using the Pyrethrum Spray Catch (PySC) method. This involves spreading a white sheet on the floor of the house and spraying a pyrethrum aerosol in the room, focusing on the eaves. Pyrethrum is a botanical insecticide derived from a flower (*Dalmatian chrysanthemum*) and has a rapid 'knock down' effect on insects. The mosquitoes in the house, mostly blood-fed females, fall on the sheet and are counted. The MTR consultants have a concern about the way the PySC technique is being implemented in at least one country. Sikaala *et al.* (2013) states that the repellence and persistence of the pyrethrum used [in the PySC method) precludes sampling in the same dwelling more than twice a week. Instead of a pyrethrum spray, domestic aerosol sprays are being used that contain synthetic pyrethroids such as imiprothrin, tetramethrin, prallethrin. These are just as effective as pyrethrum because all pyrethroids produce a rapid knock-down effect. However, many of these synthetic pyrethroids are much more persistent on surfaces than pyrethrum and may remain bio-active on the interior house surfaces, either repelling mosquitoes or actually killing them in the same way that indoor residual spraying (IRS) does, thus possibly undermining the integrity of the data. The ICIPE generic protocol does not mention the PySC method so it was clearly not the intention for countries to use the method, but it was necessitated by the lack of CDC light traps. This concern is the basis for the recommendation that further information be collected on frequency of sampling with the PySC method in each house and consultation with WHO and/or national programme experts for reassurance that the use of synthetic pyrethroids, rather than natural pyrethrum, is not influencing mosquito numbers being sampled.

101. Even assuming that the PySC method provides a reliable measure of mosquito numbers, it does not provide all the data envisaged. The protocol called for CDC light trap sampling outside the sentinel houses in addition to inside them. The PySC method cannot achieve this.

102. It is understood that microscopes, dissection kits and other miscellaneous entomological monitoring equipment have been provided to all Tier 1 countries now, but that even at March 2020, more specialized equipment such as the CDC light traps and the Prokopack aspirators are still yet to be delivered to countries more than 18 months since the country requests were put to WHO AFRO. It is unclear what combination of factors caused such long delays in country supply of this critical equipment for baseline data collection and post-intervention data collection. It was reported that the WHO procurement process for imported equipment is more involved than for locally procured equipment, with a strong justification required in front of a procurement committee, before purchase can go ahead. Also this specialised equipment was procured by WHO AFRO but has actually been delivered to the WHO country office in South Africa, for distribution to Tier 1 countries, for reasons of more efficient logistics, which clearly increases the number of steps in the process. However, it is likely that other factors were involved in the delay, hence the recommendation to review the reasons for the delay to learn lessons for any future procurement in this or future projects. It is reported that on 9th March 2020 all paperwork had been finalized to courier the equipment to the countries

103. There have also been delays in procurement of *Bacillus thuringiensis* for winter larviciding in Namibia.

Output 2.1 National maps of vector distribution and resistance and updated regional resistance database

104. The baseline is taken from the NMCPs in Tier 1 countries and 2014 resistance status to DDT and pyrethroids are shown for all project countries, as well as some others, in the prodoc. The maps will be produced based on data that is collected over time in all the six countries and is scheduled for Q3 2020. Of the six project countries implementing the demonstrations only Zimbabwe is yet to start demonstration activities but has recently received full approval of the protocol.

105. Technical support missions provided for all six demonstration countries were facilitated by the Project Manager and consultants. Insecticide susceptibility testing kits and supplies were procured and delivered to all countries by September 2019. Procurement of resistance monitoring test kits for year 1 data collection has been initiated for the 6 countries in 2019 Q4. Five countries have organized and trained teams for entomological and epidemiological baseline data collection. Entomological surveillance focussing on vector distribution and insecticide resistance was conducted by NPCs in Mozambique and Zambia and consultants engaged for Botswana, Namibia and Eswatini. The countries are in the process of incorporating the collected data in the national data base. The original plan to use the Malaria Decision Analysis Support Tool (MDAST) developed under the AFRO I project, was shelved in favour of this approach which was felt to be more effective. Entering the resistance data into the regional database and atlas is scheduled for later in the project.

Output 2.2. Three effective IVM approaches developed/demonstrated in six countries.

106. It is understood that as of March 2020 screening of houses and distribution of LLINs has been completed in Mozambique but it was reported that some of the house screening was damaged, presumably during installation. ICIPE reported in April 2020 that the screening in Zambia was only half complete due to procurement challenges and paucity of materials, but is restarting imminently. The interventions were meant to be carried out for the 2018/2019 season but were not started until 2019/2020. Zimbabwe has not yet carried out house screening due to delays with final approval of the study protocol, although it has now been approved.

107. The implementation of these IVM interventions has been affected by knock on delays related to late collection of baseline data, in turn due to late procurement of mosquito population monitoring equipment (see Output 1.3 above).

108. Also, the long process of technical and ethical approval of the Tier 1 country study protocols caused delays in beginning the collection of baseline data – see para14. The only activities that could be carried out prior to this approval were identification of the study sites and stakeholder meetings.

Output 3.1 Updated national and regional manuals and guidelines on IVM

109. In Zambia, the University of Zambia has been engaged to prepare IVM manuals and guidelines but in Zambia and in other Tier 1 countries these are not expected to be finalized until 2020 or 2021.

110. Pathways to dissemination of information do not yet appear to be well defined – there does not seem to be a harmonized and coordinated communication strategy but there is time to do this in the remainder of the project. This is the basis of recommendation 3 on page 43.

Output 3.2 Better understanding of KAP related to malaria and raised awareness of IVM methods among communities and practitioners

111. The IVM community education and mobilization has begun informally as part of the baseline data collection and screening. The DDT social impact surveys, which although are designed, and agreement has been reached that MoE or NGO personnel will carry these out, were not yet implemented by end of April 2020.

Output 3.3 National assessments of social impact of DDT on vulnerable groups

112. Consultants' visits to develop the methodology were conducted between Q3 2018 and Q2 2019 in the 6 Tier 1 countries to support assessments of social impact of DDT use, in a multi-sectoral approach between ministries of health and MoEs. National plans are drafted with stakeholder input, and were approved by the RPSC in April 2019 for fund transfer to cover the field work in 2019/ 2020. Results are planned to be presented in 2020 Q2. This output is delayed as the surveys have not yet been carried out and in most countries have not even been initiated e.g. funds transfer to the relevant partner to conduct field work.

Output 3.4 Data on DDT usage and amount/location of obsolete DDT in project countries.

113. According to the September 2019 PIR says 5 Countries namely Botswana, Eswatini, Namibia, Mozambique and Zimbabwe have conducted the inventory and assessed DDT use in Q3 2018.

114. Delivery of outputs is rated as **Unsatisfactory**

D2 Achievement of Outcomes

Outcome 1. Countries preparing and sending regular reports to SSC on DDT use and obsolete DDT stockpiles

115. The September 2019 Project Implementation Report (PIR) states that communication has been strengthened between MoE and MoH in Botswana, Eswatini, Namibia, Mozambique and Zimbabwe. All seven Tier 1 countries reported submitting DDT questionnaires in 2018 but only three (Mozambique, Zimbabwe, South Africa) were included in the final Stockholm Convention CoP report. For two of the project countries (Zambia, Namibia), the reason may be a confusion between the official DDT Questionnaire and a separate questionnaire on stockpiles of DDT which was circulated around the same time and indeed submitted by these two countries. One of the recommendations is to follow up on this to clarify.

Outcome 2. Harmonized integrated national legal frameworks and IVM plans developed and implemented

116. Policy and strategic vector control documents are reported to have been developed but it is unclear how far these have been operationalized. Five Tier 1 countries have developed IVM strategies with the support of AFRO II. The sixth country has also developed its IVM strategy but decided to do this with in-country experience and expertise. At the December 2016 inception workshop, the use of the phrase 'legal frameworks' was thought to be too ambitious, and should be interpreted more as policy agreements or documents that relate to the mainstreaming of IVM in the NMCP. All six Tier 1 countries have now developed IVM strategies, with AFRO II support. Zimbabwe initially requested support but subsequently decided they had in-country capacity to cover this. Vector Control Needs assessment has only been conducted in Zimbabwe on institutional arrangements to support the Global Vector Control Response, and they have requested technical support from WHO/AFRO.

Outcome 3. Innovative interventions continue to be used in demo areas

117. It will only become clear whether the interventions continue to be used after the entomological data and the community perceptions have been gathered from the study sites.

118. Although behind schedule, it is probable that most of these outcomes will occur within the time frame of the project.

Outcome 4. Policy on IVM guided by trial results and social impact assessments

119. It is not possible to assess this at the mid-term stage since there are no trial results or social impact assessments reports available yet. However, given that the project is embedded in the NMCP in all countries and platforms exist (either dedicated AFRO II PSCs or membership of Vector Control Working Groups) there is potential for AFRO II to influence policy. Implementation of recommendation 3 a) and 3 b) will make it more likely.

120. Delivery of outcomes is assessed as **moderately satisfactory**

D3 Likelihood of impact

121. The two project impacts in the ToC are projections beyond the end of the AFRO II project.

Impact 1. DDT use diminishes

122. This is contingent upon several intermediate states, which are themselves dependent on the assumptions in the ToC, and also the successful management of the risks set out in the ProDoc and the September 2019 PIR.

123. *Intermediate State 1. Regional DDT usage is known and obsolete stockpiles identified.* This intermediate state is an essential precursor to any plans to reduce DDT use (or not resume it) and is likely to be achieved given the progress made on inventories of DDT stocks and country reporting to the SSC.

124. *Intermediate State 2. Malaria is controlled equally as cost-effectively as with DDT.* There are two parts to this: the intrinsic performance of the alternative IVM approaches - clearly it will be difficult for NMCPs to incorporate or switch to alternative IVM approaches if they cannot match or exceed the cost effectiveness of existing practice or of planned practice in light of the changing insecticide

resistance context of national malaria control; and the ability to show the equivalence at the study sites – the alternatives may be equally or even more cost effective, but it will be necessary to demonstrate that conclusively to communities, the NMCP and policy makers.

125. There are some doubts about both of these components of Intermediate State 2. As has been noted, DDT is a low-cost product that currently has a longer biological efficacy (up to 9 months depending on conditions and wall surface) as an IRS product than any other currently-available IRS product. Against this is that there is some reluctance to use it due to staining of certain wall surfaces. Also, if external environmental costs were quantified and factored in, not just the financial cost, the balance might change. This applies more to the risks that DDT leaks into agricultural use with environmental impacts due to bio-accumulation in food chains, and also the risks to food safety and market access due to DDT residues in produce. The relevant assumptions in the TOC are 4 and 5.

126. Assumptions 1, 2, 3, 5, 6 in the ToC relate more to the ability to plan, equip, build capacity for and implement a rigorous 'trial' in the study areas that yields conclusive data for evidence-based decision making on mainstreaming IVM in the national programmes. At the mid-term point in the project, there appears still to be insufficient collaboration across ministries through coordination mechanisms like NHMCPs dedicated to AFRO II. ICIPE is reported to have increased its engagement and technical backstopping to the project. There appeared initially to be a level of suspicion that the agenda of the project is the withdrawal of DDT whether or not this has a negative impact on affordability and efficacy of malaria control. WHO procurement has not to date been timely and has delayed implementation to the extent that the baseline and post intervention data are likely to be less useful than anticipated.

127. *Intermediate State 3. Scale up deployment of alternatives outside trial areas.* Intermediate State 3 is entirely dependent on Intermediate State 2 being achieved. There has to be confidence that an IVM approach with the interventions on test (and potential to incorporate other innovative interventions) represents an affordable and effective alternative to the use of DDT. Assumption 3 also has to be satisfied for more widespread adoption of IVM approaches that have been shown by the project to be achieved.

Impact 2. Environmental and human health impacts of DDT reduced

128. This will follow logically over an even longer term if Impact 1 occurs.

129. Although it is very difficult to predict the timescale over which Impact 1 and 2 could occur, the authors of the review believe they are likely to happen, but beyond the time frame of the project. Elsewhere in the world, there has been steady progress on phasing out POPs and on investigating and promoting alternatives, and there is an appetite at global, regional and national levels to make this happen in the case of DDT. However, given the need for much more research, dissemination and policy on mainstreaming non-DDT in interventions and IVM approaches, and the imperative for NMCPs to maintain the efficacy of their national programmes, the impacts are expected to take of the order of a decade to come to fruition. Commitment and investments by national governments will probably have to increase in order to achieve this due to the presumed (at least initial) higher costs of IVM without DDT

130. The overall assessment of this is **moderately likely**

Financial Management

Below are tables summarizing the financial position to the end of Q4 2019.

Table 5. Summary table of expenditure to end of Q4 2019 (US\$)

	<i>Total project budget</i>	<i>Total cumulative expenditure to date</i>	<i>Cumulative unspent balance to date</i>	<i>Percentage of budget spent</i>
PERSONNEL COMPONENT				
Project personnel	750,000	568,846	181,154	76
Consultants	596,000	240,701	355,299	40
Administrative support	612,000	264,942	347,058	43
Travel on official business	145,000	52,479	92,521	36
SUB-CONTRACT COMPONENT				
Sub contracts (UN entities) (country budgets)	4,349,533	2,216,105	2,133,428	51
Sub contracts (UN supporting orgs) (ICIPE)	1,550,467	840,503	709,964	54
Sub contracts (for commercial purposes)	0	0	0	
TRAINING COMPONENT				
Group training	210,000	19,192	190,808	9
Meetings/conferences	730,000	195,049	534,951	27
EQUIPMENT & PREMISES COMPONENT				
Expendable equipment	55,000	0	55,000	0
Non-expendable equipment	77,000	12,050	64,950	16
MISCELLANEOUS COMPONENT	35,000	3,001	31,999	9
Reporting costs	35,000	0	35,000	0
Sundry	0	0	0	
Evaluation	405,000	0	405,000	0
Grand totals	9,550,000	4,412,868	5,137,132	46

131. Some comments on finances to end of Q4 2019:

- Overall expenditure was 46% of the total budget
- The overall project personnel spend was 76%. The Project Manager expenditure is 66% of that line whereas the NPC expenditure is 81% of its line, presumably due to higher than anticipated NPC salaries. Some re-allocation of funds between budget lines will be necessary to support the NPCs, and possibly the Project Manager too, to the end of the project.
- Country budgets are at 51% - a big jump from the 35% at the end of Q3 due to the fact that activities were started in earnest on Component 2 in the interim
- Meetings and conferences costs are 27% so far (unchanged from Q3) and given the need for more inter-country communication and cross country learning, more meetings could be planned or study tours between countries (Tier 1 and possibly Tier 2)
- Group training expenditure is 9% but this is likely to increase soon with the start of regional training courses on IVM to be held at ICIPE in Kenya, provided travel does not continue to be restricted due to Covid 19.

Details of co-finance are provided below based on the documents provided to the reviewers.

Table 6. Summary table of co-finance commitments by partners

UNEP	Budget Line	GEF		WHO		UNEP		Stockholm Secretariat		Countries		Partner Institute		Total	
		Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind
10	PERSONNEL COMPONENT	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	1100 Project personnel														
	1199 Sub-total	750,000	0	0	0	0	0	0	0	0	0	0	0	650,000	
	1200 Consultants														
	1299 Sub-total	596,000	0	100,000	0	50,000	0	0	0	4,800,000	0	0	0	596,000	4,950,000
	1300 Administrative Support														
	1399 Sub-total	612,000	0	0	0	0	0	0	0	0	0	0	0	612,000	0
	1600 Travel on official business														
	1699 Sub-total	145,000	0	75,000	0	0	0	0	0	0	0	0	0	145,000	75,000
1999	Component total	2,103,000	0	175,000	0	50,000	0	0	0	4,800,000	0	0	0	2,003,000	5,025,000
20	SUB-CONTRACT COMPONENT														
	2100 Sub-contracts (MOUs/LOAs for cooperating agencies)														
	2199 Sub-total	5,850,000	0	0	0	0	0	0	0	120,000,000	0	895,000	0	5,850,000	120,895,000
	2200 Sub-contracts (MOUs/LOAs for supporting organizations)														
	2299 Sub-total	50,000	0	0	0	0	0	0	0	0	0	0	0	50,000	0
	2300 Sub-contracts (for commercial purposes)														
	2399 Sub-total	0												0	0
2999	Component total	5,900,000	0	0	0	0	0	0	0	120,000,000	0	895,000	0	5,900,000	120,895,000
30	TRAINING COMPONENT														
	3200 Group training														
	3299 Sub-total	210,000	0	0	0	50,000	0	0	0	32,371,508	0	0	0	210,000	32,421,508
	3300 Meetings/Conferences														
	3399 Sub-total	730,000	0	200,000	0	100,000	0	80,000	0	19,850,000	0	0	0	730,000	20,230,000
3999	Component total	940,000	0	200,000	0	150,000	0	80,000	0	52,221,508	0	0	0	940,000	52,651,508
40	EQUIPMENT AND PREMISES COMPONENT														
	4199 Sub-total	55,000	0	0	0	0	0	0	0	49,000,000	0	0	0	55,000	49,000,000
	4200 Non-expendable equipment														
	4299 Sub-total	77,000	0	40,000	0	0	0	0	0	1,110,000	0	0	0	77,000	1,150,000
4999	Component total	132,000	0	40,000	0	0	0	0	0	50,110,000	0	0	0	132,000	50,150,000
50	MISCELLANEOUS COMPONENT														
	5199 Sub-total	35,000	0	0	0	0	0	0	0	13,215,000	0	0	0	35,000	13,215,000
	5200 Reporting costs	0													
	5299 Sub-total	35,000	0	130,000	0	20,000	0	0	0	942,000	0	0	0	35,000	1,092,000
	5300 Sundry														
	5399 Sub-total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5400 Hospitality and entertainment														
	5499 Sub-total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5500 Monitoring and Evaluation														
	5599 Sub-total	405,000	0	15,000	0	30,000	0	0	0	30,000	0	0	0	405,000	75,000
5999	Component total	475,000	0	145,000	0	50,000	0	0	0	14,187,000	0	0	0	475,000	14,382,000
99	GRAND TOTAL	9,550,000	0	560,000	0	250,000	0	80,000	0	241,318,508	0	895,000	0	9,450,000	243,103,508

Notes:

- The GEF cash contribution is USD 9,550,000 and the co-finance is all in-kind at USD 233,553,508
- The participating countries are the biggest co-financiers at USD 241,318,508, with WHO at USD 560,000, UNEP USD 250,000, Secretariat of the Stockholm Convention USD 80,000 and partner institutes (including ICIPE) 895,000

Table 7. Summary of co-finance from the two Tiers of countries and partner institutes for the first two years of AFRO II

Cofinance commitments for 2 year period 3 July 2016 - 30 June 2018							
	Tier 1 countries cash	Tier 1 countries in-kind	Tier 2 countries cash	Tier 2 countries in-kind	Partner institute (ICIPE) cash	Partner institute (ICIPE) in-kind	Cofinance commitments to 31 TOTAL to Dec 2018
All budget lines	0	10,170,254	0	82,336,876	0	60,000	92,567,130

Notes:

- For the countries this appears to be the total project commitments multiplied by 0.4 to get to amounts for 2 years of the 5 year project. These figures need updating to take into account that over 3.5 years of the project has elapsed.

- It is unclear how the Tier 2 country co-finance figures were derived but there could have been misunderstandings at project formulation stage for how to calculate them. They seem unrealistically high at roughly 8 times the amounts for Tier 1 countries given that there are no field studies in Tier 2 countries. There has also been no co-finance expenditure reported in any of the Tier 2 countries at the time of this MTR. This is the basis for the recommendation to reduce the committed amounts of co-finance from some Tier 2 countries if that is possible. Individual country co-finance budgets that stand out are Uganda at USD 27,560,000 and South Africa at USD 52,623,922.

Table 8. Amount of co-finance 3 July 2016 to 31 Dec 2019

Amount of cofinance 3 July 2016 to 31 Dec 2019							
Budget lines	Tier 1 countries cash	Tier 1 countries in-kind	Tier 2 countries cash	Tier 2 countries in-kind	Partner institute (ICIPE) cash	Partner institute (ICIPE) in-kind	In-kind expenditure to 31 Dec 2019
Project personnel	0	2,544,624	0	0	0	36,773	2,581,397
Training	0	372,692	0	0	0	0	372,692
Meetings/workshops	0	325,524	0	0	0	0	325,524
Transport	0	877,574	0	0	0	0	877,574
Equipment/commodities	0	1,248,173	0	0	0	0	1,248,173
Vector control operations	0	1,932,657	0	0	0	0	1,932,657
Office space	0	70,593	0	0	0	0	70,593
Grand totals	0	7,371,837	0	0	0	36,773	7,408,610

(see Annex 10 for breakdown of total co-finance budget by country and partner)

Notes:

Tier 1 country co-finance contributions are behind expenditure expectations given that 31 December 2019 is around 3.5 years into a five year project. The reported USD 7,371,837 would be expected to be more like USD 17,500,000 of the presumed total Tier 1 country co-finance forecast of around USD 25 million (no exact figures available). It is possible that country investments in vector and malaria control by international partners have not been included.

E1. Completeness of Financial Information

132. Financial information appears to be fairly complete and in line with the UN Environment criteria, with the exception of two things:

- The latest co-finance report signed on 31 January 2020 (3.5 years since start date) has amounts committed by each participating country for the first two years of the project, whereas it would be more useful to have the figure committed by each country for the whole duration of the project so that co-finance expenditure can be tracked in percentage terms.
- Quarterly expenditure statements show spend against budget lines but it would be useful if this was also reported against outputs or at least against outcomes, and also against Prodoc Components. This is the basis for Recommendation 13.

E2. Communication Between Finance and Project Management Staff

133. Communication also appears to be effective and frequent between finance and project management staff.

134. The overall financial management of the project in terms of reporting completeness and communication appears to be effective and rigorous. As has been mentioned earlier in this report there have been long delays with procurement of critical field equipment, but this serious shortcoming has already been taken into account in the assessment of 'delivery of outputs' and there is a recommendation to investigate this problem more thoroughly to see if there are systemic problems with the finance operation or the administration of procurement at WHO AFRO.

135. Financial management is assessed as **moderately satisfactory**

Efficiency

136. The execution of the AFRO II project has been reasonably cost-effective in that the management structures are relatively flat and not over-staffed (possibly under-staffed), and the teams for the field studies are relatively small and efficient (10 – 12 personnel) in addition to some PhD and MSc student inputs to implementation. There has been some synergy and lessons learnt from earlier DDT substitution projects – see para 79. Having said this, there were delays with recruitment of the National Project Coordinators and in the case of at least two countries (Zambia and Mozambique), the efficiency of their subsequent operations would have been improved by provision of more administrative support given that only 50% of their time is dedicated to AFRO II. The same is true of the Project Manager in WHO, Brazzaville – more formalized administrative support for someone who is managing a multiple country project would make aspects such as communications, finances, and reporting more efficient. These are both part of the recommendations of this report.

137. Two countries have national multi-stakeholder AFRO II NPSCs that help communication and coordination and a third country is setting one up. Those without NPSCs are using other existing platforms like Vector Control Working Groups or Technical Working Groups, but the drawback with this is that these bodies have many other issues to deal with so the time devoted to AFRO II is limited, so hampering engagement with MoHs, MoEs and MoAs

138. International meetings appear to be kept to relatively low levels and equipment procured has been limited to essential items for execution of the project. No vehicles have been purchased (helping to minimise UN Environment's environmental footprint and in line with GEF eligible costs definitions) and use has been made of the synergies between AFRO II and the NMCPs in historic datasets, existing human capacity, epidemiological and entomological methodologies and equipment – for example:

- borrowing small numbers of CDC light traps from the national programmes for the baseline data collection,
- making use of NMCP and WHO vehicles where possible (Botswana, Eswatini and Zambia), although this was not possible in some cases and it was reported as a major constraint to operationalizing the project by some countries at the April 2019 Regional Project Steering Committee (RPSC) in Harare.
- Using existing databases for vector mapping, rather than deploying a project-specific tool, the MDAST tool, as originally envisaged

139. On the vehicle issue, the five Tier 1 countries have co-finance amounts dedicated to transport for the 2018-19 Fiscal Year ranging from USD 5,442 to 71,428 so it appears that during project formulation, it was assumed that the NMCP would allow its vehicles to be used on the project.

Eswatini's in-kind transport contribution for the same period is USD 711,615, which seems very high and difficult to interpret. Countries are finding solutions to the constraint - some countries (Eswatini and Zambia) are using government vehicles that are fueled and serviced on AFRO II project funds and Namibia is hiring vehicles.

140. Although the RPSC meetings are a forum for exchanges on progress, challenges and solutions, there would be benefits accruing from great cross-country communication on techniques, procedures and materials.

141. Timeliness has been less satisfactory and sequencing of some activities could have been more efficient. The procurement delays for imported equipment such as CDC light traps and insect sampling aspirators, as well as some of the stated reasons for the delays, have been covered elsewhere in the report (paras 9, 14, 19, 21, 54, 86, 99, 100, 123, 133 and 140)

142. Slow start-up of the project is thought to be in part due to limited buy-in from country authorities initially, founded on a suspicion that the project's main agenda was to phase out (or prevent re-introduction of) DDT, which is perceived still to be a valuable tool in the management of malaria in some of the countries.

143. The development of the generic trial protocol by ICIPE was a little delayed (planned for January 2017 and delivered at some point before June 2017. This was then given ethical approval by WHO AFRO on 22 September 2017. The tailoring at national level and the technical and ethical clearance for each country caused more delay, with approval of Eswatini's happening on 10 December 2018, Mozambique's on 1 March 2019 and Zimbabwe's was only finally cleared 19 December 2019. The other three tier one countries have not sent their approved protocols to WHO AFRO but they were approved before Zimbabwe's.

144. In retrospect, efforts should have been made to re-sequence the two factors causing the biggest delays – development, national tailoring and technical/ethical approval of the study site protocols, and procurement of imported entomological monitoring equipment. If these had been brought forward towards the beginning of the project timeline, it is likely they would not have compromised the IVM field studies as much as they have.

145. It is likely that the project will need a 12 – 18 month no cost extension in order to gather sufficient post intervention data to draw conclusions on the performance of the alternative technologies and approaches tested. The case for this is strengthened by the possibility that the Covid 19 pandemic will further delay many aspects of project implementation.

146. The overall assessment is **moderately unsatisfactory**.

Monitoring and Reporting

147. The Executing Agency WHO-AFRO in Brazzaville is responsible for the overall monitoring and supervision of the project. Annex G of the prodoc outlines the elements to be monitored – including meetings, reports, and project indicators at national and regional level – with costings for each element. See Annex 8.

148. A workplan based on the prodoc's outputs and activities was developed at the project's inception workshop in December 2016 and countries subsequently developed their own national annual workplans with sub-activities and budgets for them.

149. The Project Manager reported that there has been significant support from the Task Manager on modifying the M&E system with easy to use templates

150. A work plan based on the prodoc's outputs and activities was developed at the project's inception workshop in December 2016 and countries subsequently developed their own national annual workplans with sub-activities and budgets for them. The Project Manager is responsible for monitoring progress. He does this using a mixture of email/voice communication and by reference to reports of progress and expenditure against these workplans, sent quarterly from each Tier 1 country to WHO-AFRO. These are summarised in the 6 monthly internal progress report and the annual PIR reports prepared by the project manager in WHO-AFRO for UN Environment.

151. An annual Regional Project Steering Committee (RPSC) meeting is also a mechanism for the Project Manager and UN Environment to keep track of progress when each country gives a presentation on its activities and progress since the last meeting and future plans. The MTR consultants attending the Harare RPSC in April 2019 felt that it could have been more effective if an experienced facilitator helped design the programme and methodology, and then facilitated the meeting. Ideally (but not essentially) the facilitator would know something about the subject matter and would be in communication with the Task Manager and Project Manager well before the event to agree on objectives, activities, timing etc. The justification for this is that energy levels and engagement by participants seemed to flag at times due to the very heavy reliance on reading from Powerpoint presentations. More interactive activities would have been useful with, for example, break-out groups addressing specific issues in the project, and then reporting back in plenary for contributions/comments. A 'semi-detached' facilitator would be able to concentrate on optimizing an effective information-sharing process rather than getting involved in the technical content.

152. The UNEP Task Manager and the relevant Fund Management Officer are responsible for entering reports into UN Environment's Project Information Management System and ICIPE reports to WHO-AFRO and those updates are included in the WHO reports.

153. The monitoring and reporting appears to be satisfactory in design and function, apart from occasional delays with some countries' reporting to WHO-AFRO.

154. Monitoring and reporting is assessed as **Satisfactory**

Sustainability

155. The sustainability of AFRO II has a high degree of dependency on social/political factors at several levels. Changes of mind sets, behaviours and practices will be required if the project is to bring the desired longer term impacts.

156. Unless communities have confidence in the efficacy of any new approaches, and confidence that those approaches do not clash with cultural or social norms, they will be reluctant to adopt and maintain them. That confidence will come from a basic understanding of how the interventions work,

and an appreciation that combinations can be better than a single technology approach, as well as the critical nature of community engagement and involvement. Their fears that there are risks or penalties also need to be allayed, and early community involvement in plans and changes of practice will help to improve engagement and ownership. The KAP and SIA surveys will help inform the design of the scaling out of IVM and the evidence-based communication required. At the other end of the spectrum, buy in from policy makers and senior NMCP managers is also essential since a lack of commitment from the top can influence all other stakeholders. The commitment will come again from an understanding of why IVM approaches, especially those bearing down on the use of DDT, are the way forward. For this, evidence is not only required of IVM efficacy, but of cost-effectiveness – can the same or more lives be saved by spending the same or less? Without this, and subsequent policy frameworks, legislation and other legal instruments that make the relevant sectors accountable for promoting IVM applicability, sustainability of the critical inter-sectoral alliances and the long term adoption of IVM are in doubt.

157. As mentioned elsewhere in this report, the agendas of MoE and MoH are understandably different. The inter-sectoral Project Steering Committees, or where applicable, the Technical Working Groups, go some way to mitigate the different positions and the hope is that to establish better mutual understanding and communication through AFRO II, pragmatic solutions will be developed that will continue to control (and in some countries move towards elimination of) malaria, while also making progress to the phasing out of DDT. There is a high level of interest in the project from MoE in moving forward on Stockholm Convention commitments and the DDT road map. However, the level of ownership and influence is low on other aspects of the project. There appears to be a reasonable level of ownership, interest and commitment by MoH now following earlier suspicions that the project was going to take away DDT – one of the tools in the malaria control armoury.

158. At the level of operational managers and field technicians, capacity and confidence in IVM approaches and technique will be needed to ensure effective and committed implementation of the new approaches.

159. The likelihood of financial sustainability is difficult to assess at the moment. The adoption of two or more methods of controlling the mosquito vector instead of one is clearly a driver for higher costs, just as replacing the very low cost DDT with more modern, but more expensive Indoor Residual Spraying products is, although the real costs of DDT use would go up if externalities such as environmental impact are factored in. The potential higher costs might also be offset by the IVM approaches being more effective and reducing the Disability Adjusted Life Years (DALYs) lost. The project is gathering information on costs of the additional interventions – larviciding, house screening and community education and mobilisation, so once the efficacy data has been gathered, a cost-effectiveness assessment can be made. If costs of IVM turn out to be higher, there will need to be a commitment from national governments and donors to increase national malaria control budgets in order to improve progress on the phase-out of DDT.

160. Some aspects are financially sustainable for example once IVM manuals and guidelines are produced they can be used at no cost, at least for several years before they need updating. Similarly developing policies and/or legislation on IVM are one-off costs, although enforcement would be a recurring expense.

161. Reporting to the SSC is also a recurring cost, and the inventories of obsolete DDT will trigger costs of disposal in environmentally sound ways – currently incineration at high temperature in dedicated and accredited facilities.

162. The September 2019 PIR report states that gender dimensions have been reflected at both operational and policy-level interventions with women involved at all stages although the total numbers of women involved had not yet been reported by then. Two of the six NPCs are women. In Zambia the acting Director of the National Malaria Control Centre is a woman as is the person in charge of Namibia's malaria programme. The consultants' experience during the Zambia and Namibia visits was that there were roughly equal numbers of men and women in the field entomological survey teams.

163. Sustainability is assessed as **moderately likely**

IV Conclusions and recommendations

Lessons learnt and conclusions

164. The primary focus of the project so far has been on Component 2 – demonstrating the cost-effectiveness of non-DDT IVM approaches - but this has been beset by delays. Procurement of entomological equipment has been a major constraint both at regional WHO and national WHO levels, delaying project implementation significantly. There have also been delays with procurement of *Bacillus thuringiensis* – the larviciding insecticide – in at least one country (Namibia). Some national procurement has been of products of the wrong specification e.g. locally procured 12 volt solar panels for 6 volt light trap batteries. As a result the gathering of baseline data has been severely compromised and it will only be possible to gather one season of study data instead of two, leading to some doubts whether the duration of the pre-intervention and post-intervention entomological data-gathering and the quality/nature of the data will be sufficient to draw firm conclusions from the trial studies without a no-cost project extension.

165. Initial buy-in to the project seemed patchy, due to the disconnect between MoHs concern with the immediate health threat posed by malaria and the longer term environmental concerns of MoEs about the impacts of the use of DDT, contributing to delays with startup in most countries. In the case of Namibia, 6 tonnes of obsolete DDT were left behind after an FAO obsolete pesticides disposal project due to insufficient communication and collaboration between ministries

166. The Project Manager in Brazzaville has insufficient administrative support to provide full oversight to implementation in all Tier 1 countries. Also some countries' National Coordinators are only 50% employed on the project (Zambia and Mozambique) and require additional back office support

167. Although it is explicit in the ICIPE generic protocol that costs of the non-DDT IVM interventions should be recorded, it is unclear how much emphasis the individual country studies are giving this, other than in Zambia where it is a key focus for one of the PhD students.

168. While there are benefits to a single body (ICIPE) designing the generic Component 2 study protocol in order that cross-country comparisons can be made of the results, there were short delays

with its development and much longer delays with technical and ethical clearance in the countries. The protocol is also very technical and possibly difficult to understand by non-researchers, who will do the bulk of the implementation and data collection

169. The Regional Project Steering Committee meetings are infrequent and cross-country interaction is limited.

170. All seven Tier 1 countries reported submitting DDT questionnaires in 2018 but only three (Mozambique, Zimbabwe, South Africa) were included in the final Stockholm Convention CoP report. For two of the project countries (Zambia, Namibia), the reason may be a confusion between the official DDT Questionnaire and a separate questionnaire on stockpiles of DDT which was circulated around the same time and indeed submitted by these two countries.

171. Some of the outputs in Component 1 and 3 are at an early stage but it is believed that it will still be possible to deliver these in the time frame of the project, even without a no-cost extension.

172. The RPSC meetings are a forum for exchanges on progress, challenges and solutions, and ICIPE has produced Standard Operating Procedures (SOPs) on Clinical and Social Economical Evaluations and Entomological Evaluation. However, there was no evidence of a house screening SOP so each of the three countries using that treatment appeared to do it their own way.

173. Although members of the national PSCs or Vector Control Working Groups, the Ministries of Agriculture appear to have a limited involvement in the project despite their key role in registering/deregistering pesticides and monitoring/enforcing that DDT destined for use in IRS does not get used in agriculture. The MoEs have more involvement but the communication and collaboration with MoH still appear to be insufficient as is evidenced by the fact that none of the Tier 1 countries has set up an MoU or other formal mechanism between the two ministries on DDT reporting.

Table 7. Weightings Table for Evaluation Criteria Ratings

Evaluation criteria	Rating	Score	Weight	Weighted Score
Strategic Relevance (select the ratings for sub-categories)	Highly Satisfactory	6	6	0.3
Alignment to MTS and POW	Highly Satisfactory	6	0.5	0.3
Alignment to UNEP/GEF/Donor strategic priorities	Highly Satisfactory	6	0.5	
Relevance to regional, sub-regional and national issues and needs	Highly Satisfactory	6	2.5	
Complementarity with existing interventions	Satisfactory	5	2.5	
Quality of Project Design	Moderately Satisfactory	4	4	0.2
Nature of External Context	Favourable			
Effectiveness (select the ratings for sub-categories)	Moderately Satisfactory	4	45	1.7
Delivery of outputs	Unsatisfactory	2	5	0.2
Achievement of direct outcomes	Moderately Satisfactory	4	30	
Likelihood of impact	Moderately Likely	4	10	
Financial Management (select the ratings for sub-categories)	Moderately Satisfactory	4	5	
Completeness of project financial information	Moderately Satisfactory	4		0.3
Communication between finance and project management staff	Moderately Satisfactory	4		
Efficiency	Moderately Unsatisfactory	3	10	
Monitoring and Reporting (select the ratings for sub-categories)	Satisfactory	5	5	
Monitoring design and budgeting	Satisfactory	5		0.8
Monitoring of Project Implementation	Satisfactory	5		
Project Reporting	Satisfactory	5		
Sustainability (select the ratings for sub-categories)	Moderately Likely	4	20	
Socio-political sustainability	Moderately Likely	4		0.2
Financial sustainability	Moderately Likely	4		
Institutional sustainability	Moderately Likely	4		
Factors Affecting Performance (select the ratings for sub-categories)	Moderately Satisfactory	4	5	
Preparation and readiness	Satisfactory	5		3.94
Quality of project management and supervision	Moderately Satisfactory	4		
Stakeholder participation and cooperation	Moderately Unsatisfactory	3		
Responsiveness to human rights and gender equity	Satisfactory	5		
Country ownership and driven-ness	Moderately Unsatisfactory	3		Moderately Satisfactory
Communication and public awareness	Moderately Unsatisfactory	3		
			100	

The overall assessment of the project is **Moderately Satisfactory**

Recommendations

Urgent Recommendations

- WHO AFRO office should understand and address procurement delays:
 - Every effort should be made to ensure the delivery as soon as possible to T1 countries of CDC light traps, chargers/solar panel chargers and aspirators to collect mosquitoes.
 - A review of the reasons for the delays with regional WHO procurement is recommended to learn lessons and put in place corrective measures.
 - ICIPE should assist with ensuring specifications for national WHO procurement are correct
 - Additional WHO national procurement staff have been employed in some countries and other countries should consider this
- Due to delays in project implementation, it is strongly recommended that the UN Environment Task Manager in collaboration with WHO AFRO and NPCs pursue a 12 - 18 month no-cost extension of the project since it would allow two full seasons of post intervention data gathering, which would strengthen the dataset considerably and make firm conclusions more likely. This is especially important given that the Covid 19 pandemic is likely to further delay travel, training, workshops, meetings as well as office and field activities. In addition, there was a widespread belief in the countries, in WHO AFRO and in ICIPE that the completion date was 31 December 2021, whereas it is actually 10 July 2021 – six months earlier. A financial assessment is recommended to determine whether there are sufficient funds remaining from some or all of

the countries' allocations to support such an extension, including for example funds originally allocated for MDAST, GIS and others where cost efficiencies have been made by linking with existing systems. Funding transfers between budget lines and countries should also be considered. Funds for WHO AFRO management costs will also need to be assured.

3. NPCs and NMCPs should establish communication and outreach strategies at community and programmatic level:
 - a. More effort should be made to promote the project's potential benefits to all stakeholders, including communities, NMCPs and policy makers.
 - b. Early establishment of a project national multi-stakeholder steering committee in each country would have helped with communication and collaboration and mutual understanding of each other's agendas, and it is recommended that the four countries that currently don't have one set one up.
 - c. Efforts should continue to establish MoUs or other formal mechanisms between MoHs and MoEs to regularize DDT reporting to the SSC
 - d. WHO AFRO and NPCs should set up regular fora for discussion between countries – if SC meetings are too costly, then whatsapp groups or regular skype conference calls are recommended, with formal agenda and a rapporteur to take minutes and notes of actions agreed. This would allow more harmonization across countries on manuals, guidelines, data collection tools, techniques SOPs etc. Icipe should be involved in these discussions.
 - e. NPCs and NMCPs should ensure the demo projects adequately report on IEC interventions and activities as well as the larviciding/ screening elements of the protocols
4. Additional administrative support should be provided by WHO AFRO to the Project Manager in Brazzaville and by the WHO country offices to the two NPCs who are currently only 50% employed. This could be achieved either by WHO assigning more support from existing country office staff, or by bringing in an intern or student, subject to possible constraints relating to funding and employment formalities.
5. NPCs should ensure that countries record the costs (cash, resources and personnel time) of the study site interventions so that fully informed assessments can be made of cost-effectiveness by the end of the project. This may require technical assistance from a socio-economist.
6. Technical review and oversight
 - a. ICIPE should assign more time to support the field studies and data analysis in the 6 countries, due to the complexity of the task. If possible, national research institutions should be involved to help interpret the protocol and ensure rigour in the trial execution and data analysis. Budget revisions may be necessary, viring funding between budget lines, to support their increased involvement.
 - b. The Technical Advisory Group should be more closely engaged to review documents and have a separate time allocation during the Regional SC meetings to discuss and provide in-depth peer review and recommendations.
 - c. NPCs should consult with WHO entomological experts on the likelihood that the PySC method of mosquito population assessment may be a flaw in implementation.
 - d. For countries with obsolete DDT stocks that have not already been inventoried, training should be provided by an AFRO II-funded consultant to the personnel carrying out the inventory to ensure safety and accuracy.

Less Urgent Recommendations

7. More support and capacity development is required from the project (via the NPCs) to ensure countries report DDT use and stocks to the SSC every three years, particularly to follow up with Botswana, Eswatini, Namibia and Zambia to understand the reasons for their non-submission of the DDT Questionnaire in 2018/19.
8. Once the activities in component 2 are fully equipped and operational, it is recommended to re-focus on components 1 and 3 to ensure the activities are planned and implemented as soon as possible in order to produce the envisaged outputs.
9. WHO AFRO and ICIPE should develop a communication strategy for the second half of the project to ensure widespread awareness of the project, IVM and its benefit, field study results and plans for the future.
10. More dialogue and communication with Ministries of Agriculture are recommended by making them members of the national multistakeholder AFRO II project steering committees (if not already members) and inviting them to RPSC meetings
11. Co-finance figures should be reviewed in two ways:
 - a. The very high Tier 2 country in-kind contributions should be reviewed and revised by WHO in consultation with NPCs in light of the fact that Tier 2 countries are not carrying out field studies.
 - b. NPCs in Tier 1 countries should review what is included in their reported co-finance; co-finance expenditure is behind schedule and it is possible that their in-kind expenditure on regular programme vector and malaria programme is not being included
12. It is recommended that an experienced facilitator help design the programme and methodology for the Regional Project Steering Committee meetings in consultation with the Task Manager and the Project Manager. That person would then facilitate the meetings in a more participatory way in order to improve engagement of all participants.
13. The WHO AFRO to UN Environment quarterly financial report template should be updated so that expenditure against prodoc components (1,2,3) can be tracked more easily (see para 132 on page 36).

V Annexes

Annex 1 Terms of Reference for the review

Section 2. OBJECTIVE AND SCOPE OF THE REVIEW

Key Review Principles

19. Review findings and judgements should be based on sound evidence and analysis, clearly documented in the review report. Information will be triangulated (i.e. verified from different sources) as far as possible, and when verification is not possible, the single source will be mentioned (whilst anonymity is still protected). Analysis leading to evaluative judgements should always be clearly spelled out.

20. As this Review is being undertaken at the mid-point of project implementation, particular attention should be given to identifying implementation challenges and risks to achieving the expected project objectives and sustainability, which will support potential course correction. This means that the consultants need to go beyond the assessment of “what” the project performance was and make a serious effort to provide a deeper understanding of “why” the performance was as it was. This should provide the basis for the lessons that can be drawn from the project and the recommendations that are derived from the review process

21. The reviewers should consider the difference between what has happened with, and what would have happened without, the project. This implies that there should be consideration of the baseline conditions, trends and counterfactuals in relation to the intended project outcomes and potential impacts. It also means that there should be plausible evidence to attribute such outcomes and impacts to the actions of the project. Sometimes, adequate information on baseline conditions, trends or counterfactuals is lacking. In such cases this should be clearly highlighted by the reviewers, along with any simplifying assumptions that were taken to enable the reviewer to make informed judgements about project performance.

22. A key aim of the review is to encourage reflection and learning by UN Environment staff and key project stakeholders. The consultant should consider how reflection and learning can be promoted, both through the review process and in the communication of review findings and key lessons. Clear and concise writing is required on all review deliverables. There may be several intended audiences, each with different interests and needs regarding the report. The Task Manager will plan with the consultant(s) which audiences to target and the easiest and clearest way to communicate the key review findings and lessons to them. This may include some or all of the following; a webinar, conference calls with relevant stakeholders, the preparation of a review brief or interactive presentation. Draft and final versions of the Main Review Report will be shared with key stakeholders by the Task Manager and a copy of the final version will be submitted to the UN Environment Evaluation Office, who will provide an assessment of the quality of the Review Report.

Objective of the Review

23. In line with the UN Environment Evaluation Policy¹ and the UN Environment Programme Manual², the Mid-Term Review (MTR) is undertaken approximately half way through project implementation to analyze whether the project is on-track, what problems or challenges the project is encountering, and what corrective actions are required. The MTR will assess project performance to

¹ <http://www.unep.org/eou/StandardsPolicyandPractices/UNEPEvaluationPolicy/tabid/3050/language/en-US/Default.aspx>

² http://www.unep.org/QAS/Documents/UNEP_Programme_Manual_May_2013.pdf . *This manual is under revision.*

date (in terms of relevance, effectiveness and efficiency), and determine the likelihood of the project achieving its intended outcomes, including their sustainability.

Evaluation Criteria

24. All evaluation criteria will be rated on a six-point scale. Sections A-I below, outline the scope of the criteria and a link to a table for recording the ratings is provided in Annex 1. A weightings table will be provided in excel format (link provided in Annex 1) to support the determination of an overall project rating.

A. Strategic Relevance

25. The review will assess, in line with the OECD/DAC definition of relevance, 'the extent to which the activity is suited to the priorities and policies of the target group, recipient and donor'. The review will include an assessment of the project's relevance in relation to UN Environment's mandate and its alignment with UN Environment's policies and strategies at the time of project approval. Under strategic relevance an assessment of the complementarity of the project with other interventions addressing the needs of the same target groups will be made. This criterion comprises four elements:

- i. *Alignment to the UN Environment Medium Term Strategy³ (MTS) and Programme of Work (POW) and the GEF Strategic Priorities*

The review should assess the project's alignment with the MTS and POW under which the project was approved and include reflections on the scale and scope of any contributions made to the planned results reflected in the relevant MTS and POW. GEF priorities are specified in published programming priorities and focal area strategies.

- ii. *Relevance to National Environmental Priorities*

The review will assess the extent to which the intervention is suited, or responding to, the stated environmental concerns and needs of the countries where it is being implemented. Examples may include: national or sub-national development plans, poverty reduction strategies or Nationally Appropriate Mitigation Action (NAMA) plans or regional agreements etc.

B. Effectiveness

26. The review will assess effectiveness across three dimensions: delivery of outputs, achievement of direct outcomes and, where appropriate and feasible, likelihood of impact. At the mid-point more emphasis is placed on performance at the output and outcome levels, but observations about likelihood of impact may be helpful for course correction or adjusting the emphasis of the project's efforts.

- i. ***Achievement of Outputs***

The review will assess the project's success in producing the programmed outputs (products and services delivered by the project itself) and achieving targets and milestones as per the project

³ UN Environment's Medium Term Strategy (MTS) is a document that guides UN Environment's programme planning over a four-year period. It identifies UN Environment's thematic priorities, known as Sub-programmes (SP), and sets out the desired outcomes, known as Expected Accomplishments (EAs), of the Sub-programmes.

design document (ProDoc). Any *formal* modifications/revisions made during project implementation will be considered part of the project design. Where the project outputs are inappropriately or inaccurately stated in the ProDoc, a table should be provided showing the original formulation and the amended version for transparency. The achievement of outputs will be assessed in terms of both quantity and quality, and the assessment will consider their usefulness and the timeliness of their delivery. The review will briefly explain the reasons behind the success or shortcomings of the project in delivering its programmed outputs and meeting expected quality standards.

ii. Achievement of Direct Outcomes

The achievement of direct outcomes is assessed as performance against the direct outcomes defined in the Project Framework. These are the first-level outcomes expected to be achieved as an immediate result of project outputs, by the end of the project and with the total funds secured for the project's implementation. A table can be used where substantive amendments to the formulation of direct outcomes is necessary to make them consistent with OECD/DAC guidelines. Where possible, the review should report evidence of attribution between UN Environment's intervention and the direct outcomes.

iii. Likelihood of Impact

Based on the articulation of longer term effects as defined in project objective or stated intentions, the review will, where possible, assess the likelihood of the intended, positive impacts becoming a reality.

The review will also consider the likelihood that the intervention may lead, or contribute, to unintended negative effects. Some of these potential negative effects may have been identified in the project design as risks or as part of the analysis of Environmental, Social and Economic Safeguards.⁴ The review will consider the extent to which the project is playing a catalytic role or is promoting longer-term scaling up and/or replication⁵.

C. Financial Management

27. Under financial management the Mid-Term Review will assess: a) whether the rate of spend is consistent with the project's length of implementation to-date, the agreed workplan and the delivery of outputs and b) whether financial reporting and/or auditing requirements are being met consistently and to adequate standards by all parties. Any financial management issues that are affecting the timely delivery of the project or the quality of its performance will be highlighted.

D. Efficiency

28. In keeping with the OECD/DAC definition of efficiency, the review will assess the cost-effectiveness and timeliness of project execution. Focusing on the translation of inputs into outputs, cost-effectiveness is the extent to which an intervention has achieved, or is expected to achieve, its results at the lowest possible cost. Timeliness refers to whether planned activities were delivered according to expected timeframes as well as whether events were sequenced efficiently. The review will describe any cost or time-saving

⁴ Further information on Environmental, Social and Economic Safeguards (ESES) can be found at <http://www.unep.org/about/eses/>

⁵ *Scaling up* refers to approaches being adopted on a much larger scale, but in a very similar context. Scaling up is often the longer term objective of pilot initiatives. *Replication* refers to approaches being repeated or lessons being explicitly applied in new/different contexts e.g. other geographic areas, different target group etc. Effective replication typically requires some form of revision or adaptation to the new context. It is possible to replicate at either the same or a different scale.

measures put in place to maximise results within the secured budget and agreed project timeframe and consider whether the project was implemented in the most efficient way compared to alternative interventions or approaches. The review will also assess ways in which potential project extensions can be avoided through stronger project management.

E. Monitoring and Reporting

29. The review will assess monitoring and reporting across two sub-categories: monitoring design and implementation, and project reporting.

i. Monitoring Design and Implementation

Each project should be supported by a sound monitoring plan that is designed to track progress against SMART⁶ indicators towards the achievement of the projects outputs and direct outcomes. The review will assess the quality of the design of the monitoring plan. The review will assess whether the monitoring system was operational and facilitated the timely tracking of results and progress towards projects objectives throughout the project implementation period. The review should confirm that funds allocated for monitoring were used to support this activity.

ii. Project Reporting

Projects funded by GEF have requirements with regard to verifying documentation and reporting (i.e. the Project Implementation Reviews, Tracking Tool and CEO Endorsement template⁷), which will be made available by the Task Manager. The review will assess the extent to which both UN Environment and GEF reporting commitments have been fulfilled. Where corrective action is indicated in the annual Project Implementation Review reports (e.g. as an identified risk), the Reviewer will record whether this action has been taken.

F. Sustainability

30. Sustainability is understood as the probability of the project's direct outcomes being maintained and developed after the close of the intervention. The review will identify and assess the key conditions or factors that are likely to undermine or contribute to the persistence of achieved direct outcomes. Some factors of sustainability may be embedded in the project design and implementation approaches while others may be contextual circumstances or conditions that evolve over the life of the intervention. Where applicable an assessment of bio-physical factors that may affect the sustainability of direct outcomes may also be included.

31. The review will ascertain that the project has put in place an appropriate exit strategy and measures to mitigate risks to sustainability. The review will consider: a) the level of ownership, interest and commitment among government and other stakeholders to take the project achievements forwards, b) the extent to which project outcomes are dependent on future funding for the benefits they bring to be sustained and c) the extent to which the sustainability of project outcomes is dependent on issues relating to institutional

⁶ SMART refers to indicators that are specific, measurable, assignable, realistic and time-specific.

⁷ The Consultant(s) should verify that the annual Project Implementation Reviews have been submitted, that the Tracking Tool is being kept up-to-date and that in the CEO Endorsement template Table A and Section E have been completed.

frameworks and governance. It will consider whether institutional achievements such as governance structures and processes, policies, sub-regional agreements, legal and accountability frameworks etc. are robust enough to continue delivering the benefits associated with the project outcomes after project closure.

I. Factors and Processes Affecting Project Performance

These factors are rated in the ratings table, but are discussed as cross-cutting themes as appropriate under the other evaluation criteria, above.

i. Preparation and Readiness

This criterion focuses on the inception or mobilisation stage of the project. The review will assess whether appropriate measures were taken to either address weaknesses in the project design or respond to changes that took place between project approval, the securing of funds and project mobilisation. In particular the review will consider the nature and quality of engagement with stakeholder groups by the project team, the confirmation of partner capacity and development of partnership agreements as well as initial staffing and financing arrangements.

ii. Quality of Project Implementation and Execution

Specifically for GEF funded projects, this factor refers separately to the performance of the executing agency and the technical backstopping and supervision provided by UN Environment, as the implementing agency.

The review will assess the effectiveness of project management with regard to: providing leadership towards achieving the planned outcomes; managing team structures; maintaining productive partner relationships (including Steering Groups etc.); communication and collaboration with UN Environment colleagues; risk management; use of problem-solving; project adaptation and overall project execution. Evidence of adaptive project management should be highlighted.

iii. Stakeholder Participation and Cooperation

Here the term 'stakeholder' should be considered in a broad sense, encompassing all project partners, duty bearers with a role in delivering project outputs and target users of project outputs and any other collaborating agents external to UN Environment. The assessment will consider the quality and effectiveness of all forms of communication and consultation with stakeholders throughout the project life and the support given to maximise collaboration and coherence between various stakeholders, including sharing plans, pooling resources and exchanging learning and expertise. The inclusion and participation of all differentiated groups, including gender groups, should be considered.

iv. Responsiveness to Human Rights and Gender Equity

The review will ascertain to what extent the project has applied the UN Common Understanding on the human rights based approach (HRBA) and the UN Declaration on the Rights of Indigenous People. Within this human rights context the review will assess to what extent the intervention adheres to UN Environment's Policy and Strategy for Gender Equality and the Environment.

The report should present the extent to which the intervention, following an adequate gender analysis at design stage, has implemented the identified actions and/or applied adaptive management to ensure that Gender Equity and Human Rights are adequately taken into account. In particular, the review will consider to what extent project design (section B), the implementation that underpins effectiveness (section D), and monitoring (section G) have taken into consideration: (i)

possible gender inequalities in access to and the control over natural resources; (ii) specific vulnerabilities of women and children to environmental degradation or disasters; (iii) the role of women in mitigating or adapting to environmental changes and engaging in environmental protection and rehabilitation.

v. *Country Ownership and Driven-ness*

The review will assess the quality and degree of engagement of government / public sector agencies in the project. The review will consider the involvement not only of those directly involved in project execution and those participating in technical or leadership groups, but also those official representatives whose cooperation is needed for change to be embedded in their respective institutions and offices. This factor is concerned with the level of ownership generated by the project over outputs and outcomes and that is necessary for long term impact to be realised. This ownership should adequately represent the needs and interests of all gender and marginalised groups.

vi. *Communication and Public Awareness*

The review will assess the effectiveness of: a) communication of learning and experience sharing between project partners and interested groups arising from the project during its life and b) public awareness activities that were undertaken during the implementation of the project to influence attitudes or shape behaviour among wider communities and civil society at large. The review should consider whether existing communication channels and networks were used effectively, including meeting the differentiated needs of gender or marginalised groups, and whether any feedback channels were established. Where knowledge sharing platforms have been established under a project the review will comment on the sustainability of the communication channel under either socio-political, institutional or financial sustainability, as appropriate.

Section 3. REVIEW APPROACH, METHODS AND DELIVERABLES

32. The Mid-Term Review will use a participatory approach whereby key stakeholders are kept informed and consulted throughout the review process. Both quantitative and qualitative evaluation methods will be used as appropriate to determine project achievements against the expected outputs, outcomes and impacts. It is highly recommended that the consultant(s) maintains close communication with the project team and promotes information exchange throughout the review implementation phase in order to increase their (and other stakeholder) ownership of the review findings.

33. Where applicable, the consultant(s) should provide a geo-referenced map that demarcates the area covered by the project and, where possible, provide geo-reference photographs of key intervention sites (e.g. sites of habitat rehabilitation and protection, pollution treatment infrastructure, etc.)

34. The findings of the review will be based on the following:

(a) **A desk review** of:

- Relevant background documentation, inter alia
- Project Document and Appendices
- Project design documents (including minutes of the project design review meeting at approval); Annual Work Plans and Budgets or equivalent, revisions to the project (Project Document Supplement), the logical framework and its budget;
- Project reports such as six-monthly progress and financial reports, progress reports from collaborating partners, meeting minutes, relevant correspondence and including the Project Implementation Reviews and Tracking Tool etc.;
- Evaluations/Reviews of similar projects.

(b) **Interviews** (individual or in group) with:

- UN Environment Task Manager (TM);
- Project management team;
- UN Environment Fund Management Officer (FMO);
 - a. **Field visits:**
 - b. **Other data collection tools:** If needed, to be decided at the inception phase

Review Deliverables and Review Procedures

35. The review team will prepare:

- **Inception Report:** (see Annex 1 for links to all templates, tables and guidance notes) containing confirmation of the results framework and theory of change of the project, project stakeholder analysis, review framework and a tentative review schedule.
- **Preliminary Findings Note:** typically, in the form of a powerpoint presentation, the sharing of preliminary findings is intended to support the participation of the project team, act as a means to ensure all information sources have been accessed and provide an opportunity to verify emerging findings.
- **Draft and Final Review Reports:** (see links in Annex 1) containing an executive summary that can act as a stand-alone document; detailed analysis of the review findings organised by review criteria and supported with evidence; lessons learned and recommendations and an annotated ratings table.

36. **Review of the draft review report.** The review team will submit a draft report to the Task Manager and revise the draft in response to their comments and suggestions. Once a draft of adequate quality has been peer-reviewed and accepted, the Task Manager will share the cleared draft report with key

project stakeholders for their review and comments. Stakeholders may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions as well as providing feedback on the proposed recommendations and lessons. Any comments or responses to draft reports will be sent to the Task Manager for consolidation. The Task Manager will provide all comments to the review team for consideration in preparing the final report, along with guidance on areas of contradiction or issues requiring an institutional response.

37. At the end of the review process, the Task Manager will either circulate **Lessons Learned** or prepare a **Recommendations Implementation Plan** in the format of a table, to be completed and updated at regular intervals.

The Consultants' Team

38. For this review, the review team will consist of a Consultant who will work under the overall responsibility of the Task Manager, Eloise Touni in consultation with the Head of Branch/Unit, Kevin Helps, Fund Management Officer, Anuradha Shenoy. The consultant will liaise with the Task Manager on any procedural and methodological matters related to the review. It is, however, the consultants' individual responsibility to arrange for their travel, visa, obtain documentary evidence, plan meetings with stakeholders, organize online surveys, and any other logistical matters related to the assignment. The Task Manager and project team will, where possible, provide logistical support (introductions, meetings etc.) allowing the consultants to conduct the review as efficiently and independently as possible.

39. The consultant will be hired for 80 days over a spread of 6 month period. He / She should have: an advanced university degree in environmental sciences, international development or other relevant political or social sciences area; a minimum of 7 years of technical / evaluation experience, including of GEF projects, POPs elimination and strengthening of regulation of chemicals and waste projects, and experience of working with governments and industrial partners in developing countries. Understanding of the Stockholm Convention and its requirements on phase out of DDT in vector control an asset. Working knowledge of the UN System is desirable. Fluency in written and oral English with strong writing and editing skills is required. Language skills in French is desirable.

40. The consultant will be responsible, in close consultation with the Task Manager, for overall management of the review and timely delivery of its outputs, described above in Section 11 Evaluation Deliverables, above. The consultant will ensure that all evaluation criteria and questions are adequately covered.

Schedule of the Review

41. The table below presents the tentative schedule for the review.

Table 3. Tentative schedule for the review

Milestone	Indicative Timeframe
Inception Report	10 April 2019
Minimum 3 Review Missions including participating in Project Steering Committee, Harare April 10-12 2019	April - May 2019
Telephone interviews, surveys etc.	March – May 2019

Powerpoint/presentation on preliminary findings and recommendations	30 April 2019
Draft report to Task Manager	10 May 2019
Draft Report shared with the wider group of stakeholders	31 May 2019
Final Main Review Report	30 Jun 2019
Final Main Review Report shared with all respondents	10 Jul 2019

Contractual Arrangements

42. Review Consultants will be selected and recruited by the Task Manager under an individual Special Service Agreement (SSA) on a “fees only” basis (see below). By signing the service contract with UN Environment/UNON, the consultant(s) certify that they have not been associated with the design and implementation of the project in any way which may jeopardize their independence and impartiality towards project achievements and project partner performance. In addition, they will not have any future interests (within six months after completion of the contract) with the project's executing or implementing units. All consultants are required to sign the Code of Conduct Agreement Form.

43. Fees will be paid on an instalment basis, paid on acceptance by the Task Manager of expected key deliverables. The schedule of payment is as follows:

44. Schedule of Payment for the Consultant:

Deliverable	Percentage Payment
Approved Inception Report (<i>as per annex 3 to this ToR</i>)	30%
Approved Draft Main Evaluation Report (<i>as per annex 4 to this ToR</i>)	40%
Approved Final Main Evaluation Report	30%

45. Lump-sum contracts: Missions and DSA are included in the contract as a lumpsum but all travels will be pre-approved by UNEP.

46. The consultants may be provided with access to UN Environment's Programme Information Management System (PIMS) and if such access is granted, the consultants agree not to disclose information from that system to third parties beyond information required for, and included in, the review report.

47. In case the consultants are not able to provide the deliverables in accordance with these guidelines, and in line with the expected quality standards by the Task Manager, payment may be withheld at the discretion of the Head of Branch/Unit until the consultants have improved the deliverables to meet UN Environment's quality standards.

48. If the consultant(s) fail to submit a satisfactory final product to the Task Manager in a timely manner, i.e. before the end date of their contract, UN Environment reserves the right to employ additional human resources to finalize the report, and to reduce the consultants' fees by an amount equal to the additional costs borne by UN Environment to bring the report up to standard.

Annex 2. Review Itinerary for Country Visit to Zambia

PROGRAMME:

AFRO II PROJECT: Midterm Review (MTR)

23-27 September, 2019

23 September, 2019

Time (hours)	Participants	Activity and venue	People met
08.30	WHO	Courtesy call on WHO Representative	Dr Nathan N. Bakyaite
	WHO	Questionnaire: Project Coordinator	Dr Fred Masaninga
14.30	Consultant, WHO and NGO	Questionnaire: NGOs/ academia	Professor Phillip Nkunica Dr Monga
16.30	Consultant, WHO, NMEP and NGO	Return to WHO Country Office; plan next day	
17.00	ALL	END OF DAY 1	

Tuesday, 24 September, 2019

Time (hours)	Participants	Activity and venue	Facilitating institution
08.30	Consultant	Hotel Pick up to WHO	WCO/Zambia
09.30	Consultant, Ministry of Environment, WHO	Questionnaire: Ministry of Environment	WHO/Zambia
11.00	ALL	Return to WHO Country Office; Questionnaire: National Project Coordinator (continued).	WHO/Zambia
12.30	Consultant, WHO, NMEP	Present key documents to the consultant including reports and work plans.	WHO/Zambia
13.00-14.00	ALL	BREAK	

14.00	Consultant, WHO	Prepare for Field visit to Study sites; : Firm up with District in Study area : Prepare vehicular and other support	WHO
14.30	Consultant, NMEP and WHO	Courtesy call on Senior management at NMEP to explain mission's objectives	NMEP
17.00	ALL	END OF DAY 1	WHO/NMEP

Wednesday, 25 September, 2019

Time (hours)	Participants	Activity and venue	Facilitating institution
08.40	Consultant	Hotel Pick up to WHO	WCO/Zambia
9.00	Consultant, NMEP, WHO	Attend Stakeholder Malaria Operational Planning meeting at NMEC	WCO/Zambia
11.00	Consultant, NMEP, WHO	Departure to Nyimba	WCO/Zambia
15.00	Consultant, NMEP, WHO	Arrival in Nyimba	WCO/Zambia
16.00	Consultant, NMEP, Nyimba District Office WHO	Brief Nyimba District Office	WCO/Zambia
7.00	ALL	END OF DAY	

Thursday, 26 September, 2019

Time (hours)	Participants	Activity and venue	Facilitating institution
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08.00	Consultant, NMEP, Nyimba DHO, WHO	Depart for Study area – Mkopeka Catchment area to meet the Health Facility in-charge and CHWs	Nyimba DHO and WHO
12.30-13.30	Consultant, NMEP, WHO	BREAK	ALL
14.30-16.00	Consultant, NMEP, Nyimba District Office WHO	Depart for Study area – Nyimba Urban Catchment area to meet the Health Facility in-charge and CHWs	Nyimba DHO
16.00	Consultant, NMEP, Nyimba District Office WHO	Feedback	Nyimba DHO
17.00	ALL	END OF DAY	

Friday, 27 September, 2019

Time (hours)	Participants	Activity and venue	Facilitating institution
07.00	Consultant and WHO	Depart Nyimba to Lusaka	WHO Country Office

Saturday 28 September

07.00	Consultant	Departure from Zambia	WHO Country Office
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Annex 3. Review Itinerary for Country Visit to Namibia

Tuesday - 24/09/20	Wednesday - 25/09/20	Thursday - 26/09	Friday - 27/09
Consultant arrival in Windhoek	AM: Meet NVDCP counterpart	AM: Meeting with Stakeholders	AM: Meet with NPC
PM: Meet with the National Coordinator (NPC), WR and WHO Finance	Travel to Study Sites	PM: Multistakeholder meeting to discuss progress and challenges	Meet with National Malaria Coordinator
PM: flight to Ondangwa	PM: Meeting with NVDCP and NPC		PM: Feedback meeting to agree findings
	PM: flight back to Windhoek		Departure of consultant

Annex 4. Summary of co-finance information and statement of project expenditure by activity

The table below shows the very summarized totals of co-financing by organisation/category of contributor. A more detailed table is shown in Annex 8.

	GEF	WHO		UNEP		Stockholm Secretaria		Countries		Partner Institute		Totals	
	Cash	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	InKind	Cash	In-kind
USD	9,550,000	0	560,000	0	250,000	0	80,000	0	241,318,508	0	895,000	9,450,000	243,103,508

There is currently no reporting by activity but the table below shows a summary of expenditure by budget line to end of Q4 2019 (USD)

	<i>Total project budget</i>	<i>Total cumulative expenditure to date</i>	<i>Cumulative unspent balance to date</i>	<i>Percentage of budget spent</i>
Project personnel	750,000	568,846	181,154	76
Consultants	596,000	240,701	355,299	40
Administrative support	612,000	264,942	347,058	43
Travel on official business	145,000	52,479	92,521	36
SUB-CONTRACT COMPONENT				
Sub contracts (UN entities) (country budgets)	4,349,533	2,216,105	2,133,428	51
Sub contracts (UN supporting orgs) (ICIPE)	1,550,467	840,503	709,964	54
Sub contracts (for commercial purposes)	0	0	0	
TRAINING COMPONENT				
Group training	210,000	19,192	190,808	9
Meetings/conferences	730,000	195,049	534,951	27
Expendable equipment	55,000	0	55,000	0
Non-expendable equipment	77,000	12,050	64,950	16
Miscellaneous component	35,000	3,001	31,999	9
Reporting costs	35,000	0	35,000	0
Sundry	0	0	0	
Evaluation	405,000	0	405,000	0
Grand totals	9,550,000	4,412,868	5,137,132	46

CONFIRMED SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE

PLEASE COMPLETE FOR ALL PROJECTS AT MTR AND TE STAGES

Please include evidence for co-financing for the project with this form (please add rows as necessary)

Sources of Co-financing	Name of Co-financier	Type of Cofinancing	Investment Mobilized	Amount (\$)
GEF Agency	WHO	In kind	Investment mobilized	N/A
GEF Agency	UN Environment	In kind	Investment mobilized	N/A
Other	Secretariat of the Stockholm Conv.	In kind	Investment mobilized	N/A
Recipient country	Botswana	In kind	Investment mobilized	887,382
Recipient country	Eswatini	In kind	Investment mobilized	4,234,535
Recipient country	Gambia	In kind	Investment mobilized	N/A
Recipient country	Kenya	In kind	Investment mobilized	N/A
Recipient country	Liberia	In kind	Investment mobilized	N/A
Recipient country	Madagascar	In kind	Investment mobilized	N/A
Recipient country	Mozambique	In kind	Investment mobilized	48,618 ⁸
Recipient country	Namibia	In kind	Investment mobilized	1,006,802
Recipient country	Senegal	In kind	Investment mobilized	N/A
Recipient country	South Africa	In kind	Investment mobilized	N/A
Recipient country	Uganda	In kind	Investment mobilized	N/A
Recipient country	Zambia	In kind	Investment mobilized	259,000
Recipient country	Zimbabwe	In kind	Investment mobilized	935,459
CSO	ICIPE	In kind	Investment mobilized	36,773
CSO	London School of Hygiene and Tropical Medicine	In kind	Investment mobilized	N/A

⁸ A comment was received on the MTR report from Mozambique to the effect that the cofinance mobilized is higher than this. These figures are based on the latest documentation officially received and reflected in the annual cofinance report dated January 2020.

CSO	Univ of Witwatersrand	In kind	Investment mobilized	N/A
Total Co-financing				7,408,569

Annex 5. List of documents consulted

Name	Source/Author
<i>Project planning, admin and implementation</i>	
The Project Document	UN Environment
2019 Detailed project workplan	UN Environment
Notes for the record of monthly calls 2018: 10, 11, 12; 2019: 1, 3, , 11	WHO AFRO
TORs for AFRO II Coordinators	WHO AFRO/UN Environment
GEFID 4668 PIR AFRO II 2016-2017	WHO AFRO
GEFID 4668 PIR AFRO II 2017- 2018	WHO AFRO
4668 UNEP GEF PIR FY 19_Sept27	WHO AFRO
4668 - Annex G-ME BUDGET AND WORKPLAN_28 Nov 2015	UN Environment
AFRO I Theory of Change	UN Environment
AFRO II LOA signed 24.6.16	UN Environment/WHO AFRO
Zambia AFRO II Gantt chart	WHO Zambia
Submission of AFRO II Quarter Two Report0001 (Zambia)	WHO AFRO
Highlights for WCO Zambia - 2019 Closure Timetable	WHO Zambia
AFRO I Report Recommendations	UN Environment
Report of AFRO-II inception meeting 7-9 Dec 2016	WHO AFRO
AFRO II 2018 PSC Meeting Report Final	WHO AFRO
AFRO II 2019 PSC Meeting Report Zimbabwe Final	WHO AFRO
AFRO I Report Recommendations from Terminal Evaluation	Sandra Molenkamp
DDT AFRO I - Preliminary findings Powerpoint - v2 (Terminal Evaluation)	Sandra Molenkamp
MENA and Global DDT projects - Main findings conclusions recommendations - 5 December 2019+MLB	Nee Sun Choong Kwet Yive and Bart Knols
Report of study on Alternative VC approaches-1.pdf	WHO AFRO
ICIPE-AFRO II technical report sept 2018 - Oct 2019 2.docx	ICIPE
All Powerpoint presentations from the Regional Project Steering Committee meeting in Harare 10 – 12 April 2019	NPCs from each country
Zambia 5 year workplan October 2017	Ministry of Health
2019 - detailed project workplan all countries	WHO AFRO
AFRO II Project DDT Inventory Toolkit Development Workshop Report, 22-27 September 2019 (Zimbabwe)	MoH/WHO
National Integrated Vector Management Strategy Development Workshop Report, 16 – 20 September 2019 (Zimbabwe)	MoH/WHO
<i>Project review guidance</i>	
Suite of 18 UN Environment Review guidance documents <ol style="list-style-type: none"> 1. List of projects needed documents needed for evaluation 2. Criterion rating descriptions matrix 3. Evaluation criteria and table 4. Evaluation ratings table 5. Weightings for ratings 6. Project identification table 	UN Environment

7. Guidance on the structure and content of the main review report	
8. Guidance on the structure and contents of the inception report	
9. Assessment of the quality of project design	
10. Use of theory of change in project evaluation	
11. Assessment of the likelihood of impact decision tree	
12. Financial tables	
13. Guidance on human rights and gender	
14. Guidance on stakeholder analysis	
15. Assessment of the quality of the main review report	
16. Prelims and style sheet for the main review report	
17. Possible evaluation questions	
18. Recommendation implementation plan blank	
Framework for mid-term review	UN Environment
Annex 10_ Terms of Reference for the MTR	Un Environment
Financial	
Annex 7 Quarterly Expenditures Statement Q3 Oct - Dec 19 b	WHO AFRO
Annex 6B_ Cash advance Request Template	UN Environment
4668 - Annex F-1 and 2 GEF Budget 25 Jan	UN Environment
UNEP Expenditure Report from Gertrude	WHO AFRO
4668 2018-2019 Fiscal year Co-finance Report	WHO AFRO
4668 2019 Q4 expenditure	WHO AFRO
AFRO II Q3 2019 financial report	WHO AFRO
AFRO II co-finance table	UN Environment
Technical	
Copy of Swaziland IVM Demo project Finale	WHO Swaziland
Demo Protocol AFRO-II ICIPE Demo Projects Protocol Final Version 19Jul2017	UN Environment
Annex J - Focal Area Tracking Tool for DDT 30 Nov	UN Environment
Afro 2 BOQ for screening 200 households at urban (Zambia)	WHO Zambia
Malaria Entomology- For Trainers	WHO
Malaria Entomology for Participants	WHO
WHO 2003 Malaria Entomology Learners guide	WHO
WHO Handbook for integrated vector management	WHO
Data collection methods - document review	US Centers for Disease Prevention
Social Impact Assessment Process (PPT)	Patrick Chabeda
Questionnaires for different stakeholder groups on the social impact of DDT use	Patrick Chabeda
Social Impact Assessment (SIA) Methodology, Outline and Survey Tools	Patrick Chabeda
Standard Operating procedures – Clinical – Social - household Enumeration and Survey	ICIPE
Standard Operating procedures - entomological evaluation – sampling of host seeking mosquitoes	ICIPE
Standard Operating procedures - entomological evaluations - mosquito habitat mapping and larvae survey	ICIPE

Proposal for reporting on and evaluating the use of DDT and its alternatives for disease vector control	UN Environment
<i>Strategy and policy context</i>	
UNEP-FAO-CHW-RC-POPS-COPS2015-SIDE02D-PRESEN-RoadMapForDevelopmentofAlternativesToDDT.English	UN Environment
GEF-7 - Global Context and Strategic Priorities - GEF_R.7_11	GEF
UNEP_medium-term_strategy_2018-2021-2016MTS_2018-2021 MTS.pdf	UN Environment
Libreville Declaration on Health and Environment in Africa.pdf	UN Environment/WHO
Inter-Ministerial Coordination – Stockholm Convention National Reporting – Best Practices report	Patrick Chabeda
Conference of the Parties to the Stockholm Convention on Persistent Organic Pollutants Ninth meeting	UN Environment
Stockholm convention on persistent organic pollutants	UN Environment

Annex 6. List of people consulted and contact details for AFRO II mid-term review

Organisation/Country	Name	Position	Contacts
UN Environment			
	Eloise Touni	Task Manager	eloise.touni@un.org
	Anuradha Shenoy	Finance	anuradha.shenoy@un.org
WHO Brazzaville			
	Emmanuel Chanda	Project Manager	chandae@who.int
	Mrs Gertrude Daka	WHO AFRO finance	+263 774759093, dakag@who.int
Botswana	Mr. Godira Segoea	NPC (WHO)	segoeag@who.int /+26772464255
Eswatini	Mr. Makhoselive Dlamini	NPC (WHO)	dlaminim@who.int /+26878064262
Mozambique	Mrs. Sonia Casimiro	NPC (WHO)	casimirotrigos@who.int /+258848963262
Namibia	Dr. Wilma Soroses	NPC (WHO)	sorosesw@who.int /+264811279112
Zimbabwe	Mr. Casper Tarumbwa	NPC (WHO)	tarumbwac@who.int /+263719206603 +264 813906806
South Africa			
Zambia	Dr. Fred Masaninga	NPC (WHO)	masaningaf@gmail.com /+260977930348
Others in Zambia			
(MOE):	Mrs Angella Kabira		+263 717665179, angellakabira4@gmail.com
(Community, Pvt Sector):	Mr Faustino Zvenyika (Community representative at study site	+263 772946607, fzvenyika@triangle.co.zw
World Health Organization (WHO)	Dr Nathan N. Bakyaite	WHO Representative	bakyaiteN@who.int
WHO	Dr Freddie Masaninga	NPO/MAL, National Project Coordinator	masaningaf@who.int/+260977930348

WHO	Mr. Mbaulo Musumali	Operations Officer	musumalim@who.int
Ministry of Health (MOH)	Mr. Mike sinkala	Malaria Focal Point, Coordinating Public Health in District	Sinkala.mike@yahoo.com
Presidents' Malaria Initiative (PMI) / Zambia US Centers for Disease Control	Paul Psychas	CDC Resident Advisor	ppychas@usaid.gov
MOH/NMEC	Dr Mutinta Mudenda-Chilufya	Acting Director	mmutinta@yahoo.com
MOH / National Malaria Elimination Centre (NMEC)	Dr Busiku Hamainza	Acting Deputy Director	bossbusk@gmail.com
MOH/NMEC	Mr. Japhet Chiwaula	Biostatistician	Japhet.chiwaula@gmail.com
MOH/NMEC	Mr. Tresford Kaniki	Entomologist (Intern)	Tresfordkaniki4@gmail.com
MOH/NMEC	Mr. Dingani Chinula	Entomologist, Research Fellow	Dinganichinula11@gmail.com
MOH/NMEC	Mr. Kochelani Saili	Post graduate Scholar - PhD Student	ksaili@icip.org
PATH-Malaria Control and Elimination Partnership in Africa (MACEPA)	Mr. Christopher Lungu	Manager - Monitoring and Evaluation	clungu@path.org
University of Zambia (UNZA).	Professor Philip Nkunika	Professor	pnkunika@unza.zm
UNZA	Dr Miyanda N. Moonga	Lecturer- in the Department of Biological Sciences, UNZA	miyanda.moonga@unza.org
Others in Namibia			
WHO	Dr Sirak Hailu Bantiewalu	Medical Officer (MCH)	sirakk@who.int
MoH	Dr Deodatus Maliti	Technical Advisor Entomologist, National Vector-Borne Disease Control Program	deodatusmaliti@yahoo.co.uk
Ministry of Environment and Tourism	Monika Shikongo	Coordinator for Landscapes Conservation Areas	monika_shikongo@yahoo.com
Southern Africa Development Community	Bongany Blamiwi	Acting head of country operations	bdlamini@elimination8.org

Ministry of Health & social Services	Stark Katokele	Vector Control Coordinator, National Vector-Borne Disease Control Program	katoks@nacop.net
Namibia Anglican Community Development Organization	Bertha Indongo	Finance Manager	financemanager@nacdo.org.na
Development Aid, People to People Namibia	Onena Shivute	Partnership Officer	onenadapp@gmail.com
Directorate of Veterinary Services, Ministry of Agriculture	Dr Emmanuel H. Hikufe	Chief Veterinarian- Epidemiology, Import and Export Control	Emmanuel.Hikufe@mawf.gov.na
Society for family Health	Taimi Amaambo-	Director SFH	t.amaambo@sfh.org.na
Others consulted			
WHO/AFRO	Dr Ameneshewa Birkenesh	Technical Officer Vector Diseases Control	ameneshewab@who.int
ICIPE, Kenya	Professor Clifford Mutero	IVM Project Coordinator	cmutero@icipe.org
UN Environment, Kenya	Patrick Chabeda	Chemical and Health Consultant	patrick.chabeda@un.org
WHO South Africa	Ms Groepe Mary Anne	NPO/EPR	groepem@who.int
(NGO – ZAPIM):	Mr Martin Netsa	NGO	+263 774208154, martin_netsa@zapim.net
Consultant at Freelance	Sandra Molenkamp	Consultant for AFRO 1 Terminal Evaluation	sandramolenkamp@gmail.com

Annex 7. Brief CVs of the consultants

a) Curriculum vitae of Hans Dobson

Proposed role in the project:

Family name: Dobson
First name(s): Hans Martin
Date of birth: 20 April 1959
Nationality: British
Civil Status: Married
Education:

Institution	Degrees and/or diploma
University College of North Wales, Bangor, September 1977 – July 1980	BSc (Honours) II (i) Applied Zoology
Cranfield Institute of Technology, Silsoe College, September 1983 – August 1984	MSc Agricultural Engineering

Language skills: Indicate competence on a scale of 1 to 5 (1 = excellent, 5 = basic)

Language	Reading	Speaking	Writing
English	1	1	1
French	2	3	3
Danish	5	5	5

Membership of professional bodies:

Associate Member of the Institution of Agricultural Engineers.

Other skills: (e.g. computer literacy, etc.)

Full capability with MS Office, Adobe Creative Suite; Qualified Rugby Union coach and referee.

Present position: Professor of Integrated Pest Management at the Natural Resources Institute, University of Greenwich; Honorary lecturer in IPM at Imperial College London; until recently, adviser to the UK Government's Chemicals Regulation Directorate on the application and fate of pesticides in the environment; Programme and Operations Director of the Yaounde Initiative Foundation (www.yaoundefoundation.org). Programme Manager of CropLife International's obsolete pesticides projects in 13 countries – total budget USD 30 million.

Years in the firm: 35

Key qualifications and experience:

- 37 years working in international development, including 2 years in Zambia and short term consultancies in 42 other non-EU countries.

- Strong management experience covering planning, budgeting, recruiting, implementing, monitoring, evaluation and learning and project review.
- For 12 years until 2016, adviser to DEFRA on pesticide application and fate in the environment – reviewing concepts, making recommendations on funding and tracking/steering progress on projects.
- Technical specialist in pesticide policy and management, and Integrated Pest Management.
- Teaching at MSc level at the University of Greenwich, Imperial College London and Harper Adams University in IPM, public health, environment, pesticide management. Supervision of PhD students.
- With colleagues I led the development of a Train the Trainers Manual on pesticide safety and application equipment for the Food and Agriculture Organization of the United Nations (FAO) in Cameroon (2002) - see <http://bit.ly/2BtwVI5>.
- Keynote speaker on the balance of risks and benefits of pesticide use in the developing world at the 2011 Pesticide Stewardship Alliance meeting in San Antonio, Texas. See <https://bit.ly/2M9f7Eq>.
- Developing innovative training materials/methods and delivery of numerous Train the Trainers courses, together with suites of resource materials tailored to the different target audiences.
- Wide professional experience working in different institutions – Imperial College London (20 years), the Food and Agriculture Organization of the United Nations (20 months), the UK's Department for International Development, London (9 months), British High Commission in Delhi (2 months).
- Author of FAO's Desert Locust Control Guidelines (2001) see <https://bit.ly/2vcAHnP>

OVERSEAS EXPERIENCE

I have worked in 42 countries outside Europe (Afghanistan, Bangladesh, Benin, Botswana, Burundi, Cameroon, Chile, Congo, Cote d'Ivoire, Egypt, Ethiopia, Gambia, Georgia, Ghana, India, Iran, Iraq, Jamaica, Kenya, Laos, Lesotho, Madagascar, Malawi, Mali, Mauritania, Morocco, Niger, Nigeria, Oman, Pakistan, Rwanda, Senegal, Somalia, Sudan, Tajikistan, Tanzania, Tunisia, Uganda, Uzbekistan, Yemen, Zambia, Zimbabwe).

EMPLOYMENT RECORD

1991-present: Natural Resources Institute, Chatham Maritime. Professor of Integrated Pest Management in the Agriculture, Health and Environment Department. Since 1997 to the present, based at Imperial College London at Silwood Park as Honorary Lecturer in IPM.

May - November 1994: Seconded as project development officer on the South Asia Desk at DFID London and the British High Commission, Delhi.

1989-1991: Food and Agriculture Organization of the United Nations (FAO), Rome. Training adviser, control specialist and Secretary to the Pesticide Trials Referee Group, while seconded to the Emergency Centre for Locust Operations, Plant Production and Protection Division.

1985-1989: Natural Resources Institute of the University of Greenwich. Scientist in the Pesticide Application Section.

1983: Ullswater Outward Bound School. Climbing and canoeing instructor.

1981-1983: Voluntary Service Overseas (VSO). Farm manager and teacher at St Clement's Secondary School, Mansa, Luapula Province, Zambia.

**Professor Richard James Hopkins 52 years of age (671225-8414) Fellow of the Royal Entomological Society
Honorary Professor Universidad de Chile 2008
Dual Nationality: UK, Sweden**

Leadership

Prof Hopkins leads the award winning Pest Behaviour Research Group at University of Greenwich, and leads the Agriculture Unit of Assessment for the 2021 UK Research Excellence Framework submission. From 2018 Prof Hopkins has been Head of The Agriculture, Health & Environment Department of NRI. In addition to a formal training within the SLU Leadership programme, he has led projects, education programmes and international trainings. He sits on the Management Board of the CONNECTED-GCRF Network (<https://www.connectedvirus.net/about/managementboard/>) for vector born plant diseases in Africa, and on the BBSRC Industry, Impact and Internships Committee of the London Interdisciplinary Doctoral Programme which specializes in Academic-Industry PhD educations (<https://www.lidodtp.ac.uk/about-us>). He negotiated a unique international articulation agreement between University of Greenwich and Hunan Agricultural University from conception to signature, and similarly the negotiation of University of Greenwich as the first academic members of the Society of Chemical Industries.

Research

Most recent work on the behaviours of mosquitoes particularly on the nectar feeding and egg laying behaviour of mosquitoes, and on the spatial movement patterns of mosquitoes over landscape scales. A research profile that includes multiple interaction with colleagues throughout Europe, South America and Africa. A history of well cited papers within the field of insect pests and vectors. A world leader in insect-Brassica interactions, writing the major review in this area and called on as an invited speaker, and external authority.

Internationalisation

Prof Hopkins works on collaborative research in Brazil, sub-Saharan Africa, China, and Europe. In addition, to his research leadership role, he has taken a lead in developing collaboration with universities in China. He was previously the University Theme Leader for Climate Change and Land Use at SLU. He is linked to extensive networks within Europe, sub-saharan Africa (mainly Ethiopia, Kenya, and Burkina Faso), and the Americas (mainly Brazil Canada, Costa Rica, Chile) and China. A wide experience of executing both research and education abroad, and collaboration with multiple parties in research and capacity development.

Funding

Strong history of winning over £2.5m from a range of sources, including the EU, Nordic and UK funds for national and international research, including collaborative multi-partner projects. Research application assessment for a range of funds.

Education

Extensive experience as a lecturer, course leader and Programme Director of Studies. Assessed to be highly competent in all aspects of education. High level of experience of giving residential field courses in Sweden, South/Central America, Asia and Africa. Linked to multi-level capacity development projects.

Employment History.

Current Position

2014 **Professor of Behavioural Entomology**
Natural Resources Institute, University of Greenwich
Head of Pest Behaviour Group
Head of Department

Initiating research programmes on the spatial distribution of disease vectors. In addition to normal researcher duties, leads the Pest Behaviour Research Group, and Head of Department. Pest Behaviour is a leading research group within the university, both gaining fresh research funding and producing high quality research output. Prof Hopkins provides mentorship and research guidance to a number of early career researchers and his contribution is central to a number of international collaborative research projects.

Previous Positions

- 2013-2014 **SLU-Global Theme Leader, SLU** 40% university mission *Climate Change & Land Use*. The role of the SLU-Global Theme Leaders was to both stimulate and coordinate international and internal collaboration within the given theme. Initiated and coordinate a number of international collaborations.
- 1999-2014 **Researcher, SLU** Funded by Formas and SLF spanning the relationship between plants and their pests, and the diseases which insects transmit. There is a strong history of working on insect roots, and upon the chemical composition of plants, based on collaboration with plant biologists, biotechnologists and agronomists. It has included extensive experimental design and completion in both the laboratory and the field. International collaboration with colleagues in Europe and developing countries
- 1997-1998 **Post-doctoral Researcher**, Swedish University of the Agricultural Sciences. *The influence of host plant quality and availability on insect reproductive strategies*. Funded by the EC. Groundbreaking work on insect host plant choice, and variation in egg-load and lifetime fecundity within different species when the quality and availability of oviposition sites varied.
- 1995 -1996 Swedish University of the Agricultural Sciences. **Post-doctoral Researcher**, *Brassica-insect interactions*. The effect on the Pollen Beetle (*Meligethes aeneus*) of repeated exposure to a range of Cruciferous oilseed plants. Studies of insect attack and its interactions with plant chemistry and changes in the myrosinase system following insect attack and physical damage to the plant.
- 1994 -1995 **Part-time Lecturer**, Napier University, Edinburgh. Primarily teaching modules on biological diversity and evolution to first and second year undergraduate students.

Has been on parental leave for two extensive periods during 2000 and 2004/5 following the birth of two children. The total period of parental leave was approximately 12 months

Education & Evaluations.

Extensive record of collaboration on all scales from “across the corridor” to international projects and membership of international network management group. Prof Hopkins is a good communicator, who works well both in and as Leader of teams. Known for reliability and integrity, and leads through the creation of an open and trusting working environment.

Competence as Associate Professor

2001 **Docent 2001**, Swedish University of the Agricultural Sciences Evaluated by Prof. Christer Wiklund, Stockholm University. The papers (numbered 5, 9, 12, 14 and 15 in the enclosed reference list) examined issues surrounding adult insect host choice and how it affects fecundity and how it is affected by egg load.

University Degrees and Diplomas

1989 -1994 **PhD 1994**, University of Edinburgh, IERM. *Cabbage and turnip root flies on resistant and susceptible Brassicas: host selection behaviour and chemical interactions*. Laboratory and glasshouse studies concentrated the chemical component of host plant resistance, including characterization of induced changes in the plant. Field experiments investigated the dominant mechanism of resistance operating in the field. The project was integrated with a UK-Swiss scientific exchange.

1985 -1989 **B.Sc.(Hons) 1989**, University of Leeds, Dept of Pure & Applied Biology. *Agricultural Zoology*. The course covered both Pure and Applied Zoology, including vertebrate and invertebrate structure and function and animal biology. The major components of the course were parasitology, nematology and entomology.

Staff & Pedagogic Courses

2017 Personal Best Mentoring programme, Mentor Training.

2011-2012 SLU Leadership Programme. *A programme of 7 two-day units, each dealing in depth with aspects of leadership. Given to selected individuals with leadership roles in SLU.*

2009 Future Faculty course in Conflict Management. *A two-day course in Conflict Management, on the causes and mitigation of conflict in the work place.*

2008 SLU course in grading of examinations

2005 NL-Faculty. Teaching for the Future Workshop, participant.

2002 SLU Postgraduate Conference, participant.

2001 SLU Postgraduate Conference, participant.

2000 Completed SLU 5 week Pedagogic course for Docent.

1999 Completed basic course in Problem Based Learning, SLU.

1989-1994 Edinburgh University, induction courses for both demonstrators and tutors. I ultimately taught on the induction course for demonstrators.

Research History & Profile.

Graduate Research

Based at The Scottish Crop Research Institute and Edinburgh University. Studies on the effect of insect damage on the secondary metabolites of cruciferous plants (1, 7, 10), was expanded to include primary metabolites (2, 12) and cell wall components (3). Work on chemical cues for insect egg laying within a UK-Swiss scientific exchange programme, facilitating internationalization at an early career stage (4, 8).

Independent Research

A move to Sweden in 1995 to a research programme in the Entomology Department (5) and with workers at Genetic Centrum (9). Awarded an EU fellowship on insect egg production (5, 12, 14, 15), followed by working on companion cropping and pests of *Brassica*, with two successful grants over the following years integrating laboratory studies of hpr with the effect of the spatial arrangement of pest egg laying in the field (21, 23, 25, 26, 32). The quality of the work produced led to both invitations to write review articles (22, 27) and invitations to Canada, Norway and the UK to consult on working on the integrated control of root flies.

The Quest for Blood

Current research is strongly focused on the ecology of vectors of human and plant diseases. The interests in the behaviour of vectors, and their relationships to their hosts, has also developed from insect-plant relationships into work on blood feeding insects (17, 19, 20). Work has largely been in collaboration with Prof. Rickard Ignell, both before and after the move to NRI. Collaboration was initiated through the work of a PhD student (28), and developed into a string of collaboration spanning 4 African countries, and a series of projects (35, 36, 37, 42). Current research has focusses on oviposition site selection by mosquitoes, and how sensory modalities switch for mosquitoes as they develop following emergence as adults, and is linked to a succession of MSc and PhD students investigating mosquito breeding site position and chemistry. The current work integrates the interest of vector researchers with those of hydrology and the social sciences, and it is bringing together these fascinating and stimulating fields (41).

Research Group Leadership

In 2014, an opportunity arose to move to the Natural Resource Institute of The University of Greenwich and to lead the Pest Behaviour Research Group, working for a renown centre of excellence in international research. This has allowed more focus to work on insect behaviour and to more freely bring about high quality outputs, utilizing long standing collaborations (34, 35, 36), new international collaborations (33, 39) and increasingly my colleagues within the University of Greenwich. The freedom to lead research has also allowed work to move more freely across subject boundaries, and produce work linking outside the natural sciences (38, 41). The nature of NRI has allowed a greater freedom to exercise a desire to work internationally and to focus on building strong relationships with lasting partnerships. In addition, leadership and opportunities to shape collaborations have become an increasing part of the work profile.

Annex 8. Monitoring and Evaluation Budget and Workplan

Type of M&E activity	Responsible Parties	Budget from GEF (\$)	Budget co-finance (\$) In-kind****	Time Frame
Inception, interim and terminal Meetings	Project Administrator, WHO	50,000	0	Within 2 months of project start-up; after 24 months and after 60 months, respectively
Inception Report	Project Manager, WHO	0	0	1 month after project inception meeting
Measurement of project indicators (outcome, progress and performance indicators, GEF tracking tools) at national and regional	Project Manager, Project Coordinator, to be presented to PSC	70,000	0	Outcome indicators: start, mid and end of project Progress/perform. Indicators: annually
Twice-Yearly Progress, and Project Implementation Review Reports to UNEP	Project Manager, WHO	0	0	Within 1 month of the end of reporting period i.e. on or before 31 January and 31 July
Project Steering Committee meetings* and National Steering Committee meetings	Project Manager, Project Coordinator, WHO	400,000	1,280,000	Once a year minimum
Reports of PSC meetings	Project Coordinator, WHO	0	0	Annually
PIR	WHO, UNEP	0	0	Annually
Monitoring visits to field sites	Project Coordinator and/or Project Management	200,000	0	Annually to IVM demonstration sites
Mid Term Review/Evaluation	PM, WHO	50,000	15,000	At mid-point of project implementation
Terminal Evaluation		100,000	30,000	Within 6 months of end of project implementation
Audit	WHO, UNEP	30,000	0	Annually
Project Final Report	Project Manager, WHO	0	0	Within 2 months of the project completion date
Co-financing report	Project Manager, WHO	0	0	Within 1 month of the PIR reporting period, i.e. on or before 31 July
Total M&E Plan Budget		900,000	1,325,000	

Annex 9. Logical Framework showing MTR changes

PROJECT TITLE: Demonstration of effectiveness of diversified, environmentally sound and sustainable interventions, and strengthening national capacity for innovative implementation of integrated vector management (IVM) for disease prevention and control in the WHO AFRO Region

Countries: Botswana, Mozambique, Namibia, South Africa, Swaziland, Zambia, Zimbabwe (7, first tier project activity countries), Ethiopia, Gambia, Kenya, Liberia, Madagascar, Senegal, Tanzania (7, second tier, observer countries, aiming to prevent the reintroduction of DDT)

Alternative interventions demonstration countries: Botswana, Mozambique, Namibia, Swaziland, Zambia, Zimbabwe (6)

Project Objective	Objective level Indicators	Revisions at Mid Term Review	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	UNEP MTS ref
To strengthen national capabilities for implementation and scaling up of evidence-based, innovative, diversified and environmentally sound disease vector control interventions alternative to DDT (with special emphasis on malaria) with multi-stakeholder participation within context of IVM	<p>Reduced use of DDT for malaria control in six (6) countries where innovative interventions are demonstrated (in Botswana, Mozambique, Namibia; Swaziland, Zambia, Zimbabwe)</p> <p>Innovative, environmentally sound and effective alternative IVM approaches (house screening, larviciding and evidence-based intensive community education and communication IEC) demonstrated in at least 12 sites in 6 countries</p> <p>Evidence on effectiveness of large scale house screening, larviciding and evidence based systematic community information, education and communication-IEC for malaria vector control documented in countries</p>	<p><i>Quantity of DDT used annually (kg)</i></p> <p><i>Removed – outcome indicator</i></p> <p><i>No change</i></p>	<p>About 305 tons of DDT used annually across all project countries. No large scale demonstrations implemented at program level (in NMCPs)</p> <p>Widespread pyrethroid resistance, and limited IVM options increased the risk of introducing and/or re-introducing DDT in many countries. The amount of DDT required to replace this amount of pyrethroids is more than double due to the difference in the required concentration for the IRS. No well documented evidence, experience and lesson on large scale of</p>	<p>Year 3: 30 tons of DDT reduced in DDT demo countries</p> <p>Year 4: 50 tons of DDT reduced in demo countries</p> <p>Year 5: 300 tons of DDT reduced in all countries</p> <p>Outcomes of demo communicated with relevant sectors and streamlined in malaria control strategies</p> <p>All 7 countries regularly report on the status use of DDT to the Stockholm Convention secretariat</p>	<p>Reports to Stockholm Convention;</p> <p>National import statistics;</p> <p>Project reports</p> <p>-IVM national policy papers and strategies</p> <p>Reports to Stockholm Convention</p>	<p>Assumptions: Demos implemented as designed/planned without significant interference from ongoing malaria control program activities and other policy strategic and socio-economic influences;</p> <p>Alternative interventions be as effective as application of DDT for malaria control</p> <p>Country situations amenable for adaption of new innovative IVM interventions and to reduce the use of DDT</p> <p>Political will at local level is available and sustainable</p> <p>Risks: Malaria control program strategic/policy changes that can affect the designs of the demos;</p> <p>Lack of community acceptance of the alternative interventions</p> <p>Epidemics of different etiological</p>	EA2 and EA3

PROJECT TITLE: Demonstration of effectiveness of diversified, environmentally sound and sustainable interventions, and strengthening national capacity for innovative implementation of integrated vector management (IVM) for disease prevention and control in the WHO AFRO Region

	IVM strategy/approach streamlined in malaria programme practices in at least relevant non-health sector(s) at least in six (6) countries Technical capacity for evidence-based multi-sectoral alliance strengthened in 7 countries	Small edit Moved to outcome indicator	implementation of house screening, larviciding and evidence based systematic -IEC interventions. Only 1 country reports regularly on amounts of DDT use to the Stockholm Convention secretariat			agents emerge in project countries, and/or major changes in environmental risk factors that precipitate epidemics	
Component 1: Promote evidence-based multi-sectoral policy-making for IVM and strengthen multi-sectoral alliance in the promotion & implementation of environmentally sound & effective innovative interventions for diseases vector control and strengthen countries' capacity to achieve better compliance with multi-lateral environmental agreements particularly the Stockholm Convention							
Outcome 1.	Outcome Indicators	Revisions at Mid Term Review	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	UNEP MTS Expected Result
Outcome : Countries develop and implement integrated cross sectoral policies, strategies and plans and have managerial capacity to fully comply with terms of the SC on the use of DDT	No. of countries where IVM has been streamlined in sector policies, strategies and plans; No. of countries with improved capacity to manage the implementation of IVM in an integrated manner across sectors compared to initial capacity assessment completed at inception phase; No. of countries in	Deleted as its not objective or quantified No change	No countries have streamlined IVM into sector policies and strategies, No. integrated implementation of IVM. Only 1 country is in compliance with the Stockholm Convention reporting requirements on DDT.	Year 2: Relevant staff of stakeholder institutions trained in IVM. At least 1 sector integrated IVM activities in 7 countries Year 4: all 7 countries using DDT will register and report to the SC 14 countries with improved capacity to implement IVM.	Training workshop reports Sector wide IVM strategic documents National SC reports	Assumptions: The need to achieve targets of Sustainable Development Goals will facilitate a better collaboration between sectors to develop and implement sector wide strategies for IVM Risks: Sector territoriality can pose a challenge for sector wide IVM strategy development and implementation	

PROJECT TITLE: Demonstration of effectiveness of diversified, environmentally sound and sustainable interventions, and strengthening national capacity for innovative implementation of integrated vector management (IVM) for disease prevention and control in the WHO AFRO Region

for disease vector control through implementation of IVM	compliance with the Stockholm Convention in the use of DDT;						
Component 1 Outputs	Output Indicators	Revisions at Mid Term Review	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	UNEP PoW Output Reference Number
Output 1.1: Technical support to countries to notify the Stockholm Convention on the use of DDT by the their NMCPs	No. of countries using DDT and notified the Secretariat of Stockholm Convention	<i>Output 1.1: Capacity and systems to gather data and notify the SC DDT Register with close MoH/MoE collaboration</i>	Only 1 country using DDT notified Secretariat of the Stockholm Convention SSC	Year 2: Consensus building workshop of ministries health and environment is done all countries; Year 4: All (7) countries that are using DDT notify the SSC	Meeting reports Database SSC & WHO	Assumptions: All countries have active SC Focal Point Risk Lack of transparency on the amount of DDT used/will be used/in stock based on uncertainty	
Output 1.2: Countries regularly report to the Stockholm Convention Secretariat on the use of DDT for disease control as stipulated in the Stockholm Convention, Annex B, Part	No. of national inter-sectoral workshops to strengthen the capacity for regular reporting on DDT to the SSC No. of countries regularly report to SSC on the status of the use of DDT in line with the Stockholm Convention	<i>Deleted as an output and moved to Outcome indicators</i>	South Africa & Swaziland regularly report every three years to the SSC. No national workshops held on DDT reporting	Year 2: 14 countries (tier 1 and tier 2) will organize a national workshops on DDT reporting; Year 5: All 14 countries using DDT for disease vector control report to SSC regularly (every 3 years);	Meeting reports SSC & WHO data basis	Assumptions: Countries have the capacity to complete the reporting format Risk Different fail to collaborate, preventing the completion of a comprehensive report	

PROJECT TITLE: Demonstration of effectiveness of diversified, environmentally sound and sustainable interventions, and strengthening national capacity for innovative implementation of integrated vector management (IVM) for disease prevention and control in the WHO AFRO Region

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Output 1.3: Training and technical support provided to countries to develop integrated national legal frameworks and IVM plans with managerial capacity for IVM to a harmonized standard	<p>No. of national technical support missions and training workshops organized to develop national legal frameworks and IVM plans:</p> <p>No. of regional trainings on harmonization of legal frameworks and IVM strategies:</p> <p>No. of national trainings on development, implementation of national IVM plans</p> <p>No. of countries with developed/revised IVM national strategic documents</p>	<p>Output 1.2: National IVM strategies developed and regionally harmonized to the Global Vector Control Response</p> <p>Indicators: No of national and regional trainings and support on IVM</p> <p>Moved to Outcome indicator</p>	<p>No coordinated capacity building on national legal frameworks and IVM plan, at national or regional level.</p> <p>No national training on development, implementation, monitoring and evaluation of national IVM plans, and no participating countries have up to date national IVM strategic plans/documents</p>	<p>Year 1: 7 Technical support missions on developing legal framework conducted, national workshops completed in each country</p> <p>One regional workshop convened for IVM managers</p> <p>Year 2: 7 countries completed national training workshops for IVM managers</p> <p>Year 3: 7 countries have completed developing/ revising national IVM documents;</p>	<p>Meeting reports</p> <p>Meeting report</p> <p>Meeting report</p> <p>Legal frameworks/ National IVM plans</p>	<p>Assumptions: Staff are identified and trained according to the schedule</p> <p>National legal framework with regards to DDT use are available in all the countries'</p> <p>Risk: Increased pressure/workload from the which lead them into lack of interest or motivation to revise the IVM plan and developing legal framework</p>	
Output 1.4: Training, technical support and provision of equipment to countries to support implementation of evidence based national policies and plans for IVM to a harmonized standard	<p>No. of national IVM capacity and needs assessments completed:</p> <p>No. of countries/institutes supplied with basic entomological equipment for IVM surveillance</p> <p>No. of national trainings conducted in the use of new equipment to support the ground implementation of IVM plans:</p>	<p>Output 1.3: National teams have capacity and equipment for entomological monitoring to inform national IVM plans and policies</p> <p>Indicators: Equipment provided Training in <i>ento</i> and resistance monitoring</p>	<p>No available national IVM capacity and needs assessments. Countries and institutes lack supplies of basic entomological equipment to carry out surveillance to support IVM</p>	<p>Year 1: Needs assessment protocol is developed and adopted for 7 countries</p> <p>Year 2: 6 technical support provided to countries</p> <p>All countries provided necessary supplies and equipment.</p> <p>Year 3: National workshops completed in 7 countries workshops organized on the use of equipment</p>	<p>Situation analysis and needs assessment reports</p> <p>Mission reports</p> <p>Procurement and inventory report at national level</p> <p>Workshop report</p>	<p>Assumptions: Adequate staff/ time are available to carry out this function</p> <p>Financial and transport resources are made available when needed</p> <p>Risks Lack of inventory of equipment available at the beginning and understanding by national staff on project objectives which incur higher cost of purchase</p>	

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Component 2: Support countries to implement IVM approaches and demonstrate effectiveness of diversified, environmentally safe innovative vector control methods including use of alternative chemicals to DDT for malaria control							
Outcome 2.	Outcome indicator	Revisions at Mid Term Review	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	UNEP MTS Expected Result
Outcome 2: Countries adopt the implementation of effective, sustainable and innovative interventions in demonstration project areas	No. of countries that adopt the IVM strategy as an alternative to DDT in line with results from IVM demonstration projects:	<p>Three effective alternative IVM approaches demonstrated in at least 12 sites in 6 countries</p> <p>No of countries that plan for specific IVM approaches based on the pilot results</p>	All Tier 1 project countries are currently using DDT for malaria vector control. Wide spread high level of pyrethroid resistance, and very high cost of alternative insecticides pose a serious risk of countries reverting back to use of DDT, where pyrethroids are becoming ineffective, meaning there is a risk that DDT use will increase.	<p>Year 3 DDT reduced by 30 tons in demo countries</p> <p>Year 4 6 countries designed, implemented and evaluated demo project DDT reduced by 50 tons in demo countries One regional sensitization workshop for high level decision makers on the outcomes of the project</p> <p>Year 5 National consensus workshop to revise or incorporate (updating) IVM approaches in malaria and other vector borne diseases strategic document</p> <p>DDT use reduced by 300 tons across all project countries</p> <p>6 countries revised and streamlined IVM strategic documents based on results of demo project</p>	<p>DDT ban notifications</p> <p>Project reports</p> <p>Workshop report</p> <p>National SC Reports</p> <p>Country vector control strategies</p>	<p>Assumptions: Alternative interventions are equally effective as DDT</p> <p>Risks Might need longer time (than project lifespan) to convince and gain the confidence of NMCP to use the alternative methods as part of the current malaria control strategy and cease the use of DDT</p>	
Component 2 Outputs	Output Indicators	Revisions at Mid Term Review	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	UNEP PoW Output Reference Number
Output 2.1. Mapping of	No. of countries in which entomological	Maps of vector distribution and	No project countries have up to date	Year 1; Recruitment of experts/institutions in all countries	Project reports	Assumptions: Programs are willing	

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vector distribution and associated insecticide resistance	surveillance is completed No. of countries in which national vector distribution maps are completed No. of countries with insecticide resistance maps	<i>resistance compiled for demo sites and regional resistance database updated</i> <i>Indicator: no of maps produced</i>	entomological profiles, or up to date national vector distribution maps, or insecticide resistance maps	completed Year 2: Resistance data collected in at least 7 countries Year 3: Publication of vector distribution maps Data compiled and national database established Year 4: Resistance distribution and vector resistance maps prepared Consensus workshop and finalization of publication conducted Year 5: Vector distribution and resistance publications produced and disseminated regionally and nationally	Surveys Vector distribution maps Vector resistance maps Project report	to share data bases Adequate capacity is available in each country to complete maps Risks: Shortage of technical expertise and resultant data mismanagement	
Output 2.2: 3 IVM approaches developed and demonstrated in six countries	No. of sites in six countries in which the effectiveness of the IVM is shown with 3 methodologies demonstrated No. of countries where relevant staff trained in the application of the malaria decision analysis support tool (MDAST) No. of countries apply the MDAST field assess and document outcomes	<i>Three effective IVM approaches developed/demonstrated in six countries</i> <i>Indicators: no of sites where the three methodologies demonstrated</i> <i>No of national databases updated with results of monitoring at demo sites</i> <i>(Delete MDAST tool as malaria programmes have</i>	No comprehensive program level demonstration on the proposed alternative interventions implemented. Most countries lack staff trained to use the MDAST, and the tool is yet be applied in project countries.	Year 1: Protocol development and trainings completed; Baseline data collection initiated in 6 countries Year 2: Baseline data collection completed in 6 demo countries One MDAST training organized for all countries Year 3: 1 st round demo intervention implemented and assessed 3 countries initiate field application and assessment of MDAST Year 4: 2 nd round demo interventions implemented and assessed 3 countries have completed the application and assessment of MDAST, and documented outcomes	Project reports Project reports Training report Project reports Project reports Project reports Project reports Project reports	Assumptions: Financial and technical resources are available on time and are accessible Local offices of health will uptake the MDAST Risks: Some or few staff trained change their position and are not available to make use of them during the project life span	

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		their own data management tools)		Year 5: Outcome of demos assessed and documented Demo interventions proved to be effective streamlined in the NMCP strategies at least 6 countries			
Component 3: Dissemination of knowledge and sharing of experiences to all stakeholders at national, sub-regional and regional level in order to influence decision makers							
Outcome 3	Outcome Indicators	Revisions at Mid Term Review	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	UNEP MTS Expected Result
Outcome 3: Countries and regional institutions are using guidelines on IVM and social impact assessments to guide and influence policies on DDT use	No. of regional institutions that cite social and health impact data as a justification for a shift in policy advice to countries on DDT use No. of decision and policy makers surveyed acknowledging that social and health impacts have influenced the decisions made on DDT use at national level	No change No change	Currently no regional institutions cite social and health impact data as a justification for a shift in policy advice to countries on DDT use; There is little acknowledgement that social and health impacts have influenced national <u>decisions on</u> DDT use.	Year 3: 7 countries have completed social impact assessments survey Year 4: Results of social impact assessments, compiled, and shared with decision makers to facilitate policy changes on use of DDT 7 consensus building workshops organized to disseminate social impact assessment results All countries have developed decision maker survey questionnaires Year 5: 7 countries have completed survey analysis and compiled reports	Project reports Project reports Workshop reports Survey reports Project reports	Assumptions: Countries have capacity to complete health impact assessment on DDT Risks: Decision makers feel biased by survey outputs or feel influenced by pressure groups	
Component 3 Outputs	Output Indicators	Revisions at Mid Term Review	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	UNEP PoW Output Reference Number
Output 3.1: Manuals and related technical	No. of regional technical guidelines/ manuals/operational framework on IVM	Output 3.1: Updated national and regional manuals and	No regional or country-specific technical guidelines / manuals/ operational	Year 3: Existing national guidelines/other relevant docs updated in at least 2 countries	Project reports Project reports	Assumptions: Demos will demonstrate effectiveness of	

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guidelines on IVM updated and published	produced/ revised and published No. of country specific national guidelines / manuals on IVM updated with innovative interventions and approaches	<i>guidelines on IVM</i>	framework on IVM produced/ revised based outcomes of demos available	Year 5: guidelines and manuals revised in all 7 countries using outcomes of demos Relevant regional IVM guidelines/ manual revised and disseminated to both tier 1 and 2 countries	Project reports, published guidelines	alternatives Risks: National authorities and partners of malaria control may not be convinced	
Output 3.2: Production and delivery of programmatic and national level communications / awareness strategies and materials	No. of program level tool kits on conducting communications and awareness: Knowledge, Attitudes and Practices (KAP) surveys produced No. of national KAP surveys conducted No. of national level outreach programs, including vulnerable group risk communications, implemented	<i>Output 3.2: Better understanding of KAP related to malaria and raised awareness of IVM methods among communities and practitioners</i>	No program level KAP surveys available, no national surveys conducted. Currently no national level outreach programs being implemented, nor vulnerable group risk communications programs	Year 1: KAP survey guideline prepared and published Year 2: Publication of KAP survey result done in 7 countries Evidence based IEC-BCC materials and approaches designed and produced to reach vulnerable groups Year 3: Vulnerable group analysis conducted Year 4: Implementation of outreach programs at community level using evidence based IEC-BCC in 6 countries Year 5: Impact of assessment of implementation of outreach programs conducted	KAP guidelines Project reports IEC-BCC materials Project reports Project reports Project reports	Assumptions Surveys are completed in a scientific manner Risks Communities may not accept results of vulnerable groups analysis Cultural and religious challenges to conduct the survey	
3.3: Production of national social impact assessments highlighting impacts on vulnerable groups from use of DDT	No. of countries in which social impacts of DDT use have been assessed and communicated to decision makers: No. of impact assessments presented to Stockholm Convention Focal Point in order to influence DDT use	<i>Output 3.3: National assessments of social impact of DDT on vulnerable groups</i>	No project countries have assessed the social impacts of DDT use in malaria control.	Year 2: Impact assessment completed in 6 countries Year 3: -DDT impact assessment outcomes presented to SSC Year 4: Impact assessment outcomes presented to stakeholder sectors (MoH, MoE, MoA) and published in 7 countries in consensus building workshops	Project reports Project reports	Assumptions All countries have legal frameworks and mechanism for compliance can be effected Risk Lack of experts available to complete assessments	

PROJECT TITLE: Demonstration of effectiveness of diversified, environmentally sound and sustainable interventions, and strengthening national capacity for innovative implementation of integrated vector management (IVM) for disease prevention and control in the WHO AFRO Region

Output 3.4: Production of reports to the Stockholm Convention Sec (SCS) on DDT usage including amount and local distribution of obsolete DDT in project countries	No. of regional report on DDT usage of DDT including amount and distribution of obsolete DDT in 7 project countries	<i>Output 3.4: Data on DDT usage and amount/ location of obsolete DDT in project countries</i>	No comprehensive up to date data on the use of DDT and even less information on the status of obsolete DDT in the project countries	Year 2 & 3: data on the use of DDT and on obsolete DDT collected Year 4: Regional report (including 7 tier 1 countries) on the use of DDT and obsolete DDT completed	Countries' DDT use report to SC -Regional report	Assumptions Relevant sectors collaborate to provide information particularly on the amount and distribution of obsolete DDT Risks Well documented data may not be available at subnational level on the availability and distribution of obsolete DDT	
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Annex 10. GEF 7 Core Indicator Worksheet

Core Indicator 9	Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products					(Metric Tons)
			Metric Tons (9.1+9.2+9.3)			
			Expected		Achieved	
			PIF stage	PIF stage	MTR	TE
Indicator 9.1	Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type)					
POPs type			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
(select)	(select)	(select)				
(select)	(select)	(select)				
(select)	(select)	(select)				
Indicator 9.2	Quantity of mercury reduced					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 9.3	Hydrochlorofluorocarbons (HCFC) Reduced/Phased out					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 9.4	Number of countries with legislation and policy implemented to control chemicals and waste					
		Approved IVM policy	Number of Countries			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
			7	7	7	
Indicator 9.5	Number of low-chemical/non-chemical systems implemented particularly in food production, manufacturing and cities					
		Technology	Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		<i>Pilot of IVM instead of DDT</i>	6	6	6	
Indicator 9.6	Quantity of POPs/Mercury containing materials and products directly avoided					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	PIF stage	Endorsement
			305 MT	305 MT	0	
Core Indicator 11	Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment					(Number)
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		Female	4800	4800	0	
		Male	4800	4800	0	
		Total	9600	9600	0	

Annex 11. Analytical Table Reviews and Responses

	Findings and recommendations	Proposed AFRO position (accept, reject or proposed amendment with reasons)	Proposed AFRO actions	Proposed time-line for the action
	Overall Project Rating			
A	Strategic Relevance-Highly satisfactory	Accept	WHO will work to ensure that the collaboration is sustained and continue to adhere to and improve the strategic orientation of the project	Throughout the project life
B	Quality of project design- Moderately satisfactory	Accept	WHO AFRO will work to improve efficiency of implementation through oversight on participating countries and ensure commonality among countries and engagement of policy makers.	Throughout the project life
C	Nature of External Context- Favourable	Accept	WHO AFRO will ensure that the project remains vigilant for any unforeseen unfavourable conditions and develop resilient approaches in the event of such occurrences.	Throughout the project life
D	Effectiveness- Unsatisfactory	<p>Reject: The rating of ‘unsatisfactory should be revised to Moderately satisfactory’ as was earlier rated and indicated in Table 7. The rating focuses almost entirely on the challenges, and less so on the accomplishments of the project.</p> <p>The accomplishments for up to the end of 2019 are fortunately now more comprehensively available in the biannual technical report submitted to WHO-AFRO by the International Centre of Insect Physiology and Ecology (ICIPE) in July 2020. A summary of the accomplishments has been included in the proposed updated workplan (2020-2022) submitted to WHO-AFRO by ICIPE in June 2020.</p> <p>The misunderstood and overstated issues relating to procurement, entomological collection methods and recruitment have</p>	<p>WHO AFRO will work with ICIPE (A collaborating centre) to provide comments, clarifications and recommendations relating to procurement issues and entomological collection methods and recruitment.</p> <p><i>Reviewer Response to both sets of feedback on this element</i> Retain Unsatisfactory <i>The output of this grade is the product of the Matrix and the weightings of the individual elements within it, and we are unable to change these. When the reviewers' assessments of the specific elements of Effectiveness are entered,(including the Moderately Satisfactory assessment of the likelihood of delivery of outcomes referred to in the AFRO position to the left), the overall assessment of effectiveness is Unsatisfactory.</i> <i>The review considers both the challenges and accomplishments and does so in a context of the</i></p>	3 – 24 July 2020

	Findings and recommendations	Proposed AFRO position (accept, reject or proposed amendment with reasons)	Proposed AFRO actions	Proposed time-line for the action
		<p>been resolved at regional and country levels. The larvicide <i>Bacillus thuringensis</i> var <i>israelensis</i> (Bti) has at now (June 2020) been successfully procured in Namibia. It was recommended in the 2019 Project Steering Committee (PSC) meeting that ICIPE should harmonise the tools for data collection. In this regard, project countries adopted the Pyrethrum Spreadsheet Collection (PySC) method as alternative while CDC light traps were awaited. The borrowing of CDC light traps should be viewed as an act of integration and collaboration not a flaw on the project. In fact, the entomological equipment and commodities are procured for the NMCPs and not the project.</p> <p>In consideration of the above and the unforeseen delays which would normally be expected for a project involving multiple organizational and country/national partners, the rating should, in our view, objectively change from “unsatisfactory” to “moderately satisfactory”.</p> <p>A second, similar comment from Zambia on Effectiveness was as follows: In the Executive summary, captioned under item 09, overall Effectiveness was assessed as unsatisfactory because of delayed procurement/delivery of commodities and recruitment of human resource. I would propose that a fair assessment would be permitted where necessary requisites, both human and commodities are in place and NOT before. Hence, to forego the score for this aspect.</p>	<p><i>timeline of the project. Whilst greater accomplishments may well be listed in the report of July 2020, this is outside the date scope of the review and cannot be taken into consideration in this mid-term review. Note, that the reviewers are supportive of the harmonization effort being conducted by ICIPE and confident that the competence that ICIPE brings to the process will ultimately result in a major positive impact on the project. This confidence is reflected in the recommendation of a no-cost extension (below) and the belief that this will allow a completely satisfactory final outcome.</i></p> <p><i>Similarly, the arrival of materials after the period of the assessment is laudable and reflects that the project has momentum, but the assessment is of the status of the project according to the planned timeline.</i></p> <p><i>We believe that the problems which led to delays are neither misunderstood nor overstated, and the extensive delays in recruitment and material which impacted project progress are accurately reflected in the grading. Again, the recommended extension speaks to the confidence that ultimately good progress is being made.</i></p>	

	Findings and recommendations	Proposed AFRO position (accept, reject or proposed amendment with reasons)	Proposed AFRO actions	Proposed time-line for the action
E	Achievement of Outcomes- Moderately satisfactory	Accept	WHO will ensure that countries submit reports to SSC on DDT use and obsolete quantities, develop IVM plans and harmonize legal frameworks, use of innovations to ensure that results and SIA guide IVM policies	Throughout the project life
F	Likelihood of impact- Moderately likely	Accept	WHO AFRO will ensure that the project continues to diminish DDT use and reduce environmental and human health impact of DDT.	Throughout the project life
G	Financial Management- Moderately satisfactory	Accept	WHO will ascertain completeness of financial information according to UNEP criteria, with effective and frequent communication between finance and project management staff.	Throughout the project life
H	Efficiency- Moderately unsatisfactory	<p>Reject: The rating of “Moderately unsatisfactory” is questionable and should be revised to “Moderately satisfactory,” given that the delays in recruitment have been fixed, Procurement is overstated in this area and the administrative issues have been discussed and resolved, countries without steering committees are avoiding parallel structures and are integrating efforts and maximizing on the existing platforms. Dates for protocol approval have all been shared with the reviewers but the report is indicating otherwise. Moreover, the moderate likelihood of impact entails some level of appreciable efficiency.</p> <p>It should be noted that 15-27 months is the period from the time the generic proposal was ethically cleared by WHO-AFRO to the time of approval of in-country protocols by the respective national ethical review boards. As part of developing the protocols, activities during this period also included a</p>	<p>AFRO will work with ICIPE to provide further comments and clarifications relating to procurement issues, administrative issues, dates of protocol approval</p> <p><i>Reviewer response to the AFRO position</i> Retain Moderately Unsatisfactory <i>The output of this grade is the product of the Matrix supplied by the actual progress achieved and we are unable to change.</i> <i>The grading allocated here reflects the manifold issues identified which led to considerable delays and link to the current recommendation of a no-cost extension (see below). That there will be a moderate likelihood of impact (particularly with the extension) is based upon the use of the final outputs and difficulties encountered in achieving progress in a number of area in the first half of this project cannot be ignored because the ultimate project output should be impactful.</i> <i>The complexity of the project and the potential it has for impact are appreciated by the reviewers.</i></p>	3 – 24 July 2020

	Findings and recommendations	Proposed AFRO position (accept, reject or proposed amendment with reasons)	Proposed AFRO actions	Proposed time-line for the action
		<p>series of in-country stakeholder consultations to develop one-year and 4-year workplans. It is during the consultations that it became evident to the different project partners (WHO, ICIPE, in-country project teams) that ethical approval was also needed for in-country protocols for the respective countries, over and above the generic protocol already approved by WHO-AFRO. The actual period of the in-country ethical approval processes from the time the draft protocols were submitted to the time they were approved was approximately 5 months or less, except in Zimbabwe where the process was initiated later than in the other countries and took longer to be approved (6 months).</p> <p>Moderately satisfactory would be more objective in view of the complexity of the project implementation partnership.</p> <p>A specific comment from Zambia relating to the Efficiency and Lessons Learnt and Conclusions section was as follows: While agreeing that more administrative support would be desirable as per cited examples, the project time spent by WHO/National Coordinator in Zambia is more than 50%. For Zambia, I would propose that the estimated time spent on project support be revised to at least 70%.</p>	<p><i>The considerable delays in recruitment are resolved now, but these, together with the procurement delays, have impacted the efficient progress of the project.</i></p> <p><i>Reviewers' response to the specific comment from Zambia:</i> <i>The comment relates to the reality that, although only 50% of the NPCs professional time is covered by the project, he has to spend more than this to manage Zambia's activities and administration effectively. The reviewers acknowledge this and Recommendation 4 includes the options of 'assigning more support from existing staff, or by bringing in an intern or student, subject to funding constraints and employment formalities'.</i></p> <p><i>The reviewers' assessment is that formally involving additional support staff (internal or sourced externally) would be preferable to the suggestion of increasing the percentage of time the NPC in Zambia is supported by the project. The rationale for this assessment is that, with more support on time-consuming administrative tasks such as applying for travel clearances, liaison with procurement personnel and collating documentation for financial reports, this would allow the NPCs to focus more on coordination, planning and implementing project activities. Moreover, when the NPC is in the field or otherwise out of the office, there would still be an AFRO II personnel presence in the country office.</i></p> <p><i>These remarks relating to Zambia apply equally to Mozambique.</i></p>	

	Findings and recommendations	Proposed AFRO position (accept, reject or proposed amendment with reasons)	Proposed AFRO actions	Proposed time-line for the action
I	Monitoring and Reporting- Satisfactory	Accept	The Project Manager will continue to collaborate with the Task Manager to improve the M&E system	Throughout the project life
J	Sustainability- Moderately likely.	Accept	WHO AFRO will ensure developing policies and/or legislation on IVM and that gender dimensions have been reflected at both operational and policy-level interventions with women involvement at all stages	Throughout the project life
	Urgent Recommendations			
1	Understand and address procurement delays	Amend Statement: Entomological equipment and commodities have already been delivered to all T1 countries. The reasons for the delays were established within WHO and this was discussed and shared with the Implementing agency (UNEP). The challenge of procurement is largely misunderstood and overstated in the document.	WHO will ascertain availability and ensure utilization of procured entomological equipment and commodities. WHO will also make sure that ICIPE provides the Technical assistance to countries on specifications for equipment and commodities to be procured	1 July -30 Sept 2020
2	Due to delays in project implementation, a 12 - 18 month no-cost extension of the project is strongly recommended	Accept	WHO will work with the implementing agency to provide any required documentation	1 July -30 Sept 2020
3	Establish communication and outreach strategy at community and programmatic level	Accept	WHO AFRO will work with the project implementing countries to ensure that all formal mechanisms are in place to facilitate communication.	Throughout the project life
4	Additional administrative support should be provided to the Project Manager in Brazzaville and to the two	Amend the statement: Administrative support has been discussed with reviewers that it is provided as part of the unit. The two	WHO AFRO will provide modalities for the PM and NPCs to maximize their benefit from the available administrative arrangements	Throughout the project life

	Findings and recommendations	Proposed AFRO position (accept, reject or proposed amendment with reasons)	Proposed AFRO actions	Proposed time-line for the action
	NPCs who are currently only 50% employed	NPCs are WHO staff responsible for Malaria and the project is part of their mandate.		
5	Countries should ensure they record the costs (cash, resources and personnel time) of the study site interventions so that fully informed assessments can be made of cost-effectiveness by the end of the project. This may require technical assistance from a socio-economist.	Accept	<p>WHO AFRO will ensure that as the efforts on component 3 are being enhanced, a consultant is engaged to record the costs to facilitate assess cost effectiveness. To determine the incremental cost effectiveness of house screening, the costs associated with house screening will be used. The per capita costs of house screening will be estimated by dividing the total cost per house by the household size and this will be comparable to the per capita costs of LLINs. Daily Adjusted Life Years (DALY) will be estimated for each household and will be estimated using standard methods based on the number of malaria cases averted. The Cost Effectiveness Ratio (CER) will be computed as the per capita costs of house screening per DALY averted. Methodology for analysis of cost-effectiveness analysis of winter-larviciding is the subject of ongoing discussion with the input of icipe's social science and impact assessment unit.</p> <p>ICIPE will share with the in-country teams the necessary tools for collection and analysis of data on the cost-effectiveness of the interventions during 2020/2021 period.</p>	1 July -30 Sept 2020
6	Technical Review and oversight	Accept	WHO AFRO will ensure that ICIPE continues to provide field support to countries, the Technical Advisory Group regularly review documents, and that issues regarding PSC s and DDT stocks are addressed. This effort will continue and be enhanced where necessary during the remainder of the project, including on the aspects related to cost-effectiveness analysis of the interventions.	1 July -30 Sept 2020

	Findings and recommendations	Proposed AFRO position (accept, reject or proposed amendment with reasons)	Proposed AFRO actions	Proposed time-line for the action
	Less Urgent Recommendations			
7	More support and capacity development are required from the project to ensure countries report DDT use and stocks to the SSC every three years, particularly to follow up with Botswana, Eswatini, Namibia and Zambia to understand the reasons for their non-submission of the DDT Questionnaire in 2018/19.	Amend the statement to align with the statement on page 31 that Zambia and Namibia regarding confusion between the official DDT Questionnaire and a separate questionnaire on stockpiles of DDT which was circulated around the same time and indeed submitted by these two countries.	WHO AFRO will follow up with the project countries and the Secretariat to Stockholm Convention to establish the reason for their non-submission of the DDT Questionnaire in 2018/19.	1 August - 31 December 2020
8	Once the activities in component 2 are fully equipped and operational, it is recommended to re-focus on components 1 and 3 to ensure the activities are planned and implemented as soon as possible in order to produce the envisaged outputs.	Accept	WHO AFRO will ensure that implementation of activities in component 1 and 3 is enhanced. The KAP and IEC-BCC implementation are included in the updated workplan, to take place from September 2020 – March 2022.	1 Oct-31 Dec 2020
9	The project should develop a communication strategy for the second half of the project to ensure widespread awareness of the project, IVM and its benefit, field study results, plans for the future.	Accept	WHO AFRO will ensure that activities on communication will be prioritized as part of component 3 of the project	Throughout the project life
10	More dialogue and communication with Ministries of Agriculture are recommended by making them members of the national multi-stakeholder AFRO II project steering committees (if not already members) and inviting them to RPSC meetings	Accept	Noting that some countries have opted not to create parallel structures through establishment of PSCs, WHO AFRO will encourage Project countries to incorporate Ministries of Agriculture in the existing platforms.	1 July -30 Sept 2020
11	Co-finance figures should be reviewed for both Tier 1 and Tier 2 Project countries	Accept	WHO will review in-kind expenditure for Tier 2 countries and ascertain that Tier 1 countries revise their co-finance and include vector control programme expenditure	1 August - 31 December 2020

	Findings and recommendations	Proposed AFRO position (accept, reject or proposed amendment with reasons)	Proposed AFRO actions	Proposed time-line for the action
12	It is recommended that an experienced facilitator help design the programme and methodology for the Regional Project Steering Committee meetings in consultation with the Task Manager and the Project Manager.	Accept	WHO will engage an experienced facilitator to guide the PSC meetings in a more participatory way in order to improve engagement of all participants.	Throughout the project life
13	The WHO AFRO to UN Environment quarterly financial report template should be updated so that expenditure against product components (1,2,3) can be tracked more easily.	Accept	The UNEP Task Manager and the WHO Project Manager will work together with the WHO Programme and Finance Officer to develop the recommended reporting template	1 August - 31 December 2020

Feedback on the report: J. Etang, Member of the Regional Steering Committee/ Technical Advisory Group and Evaluator response (blue text)

28.09.2020

Comments

The evaluators did a remarkable job; their recommendations are generally based on the observations they have made. However, I would like to comments on some aspects that deserve further attention.

Regarding the quality of project design, I fully agree with the findings (strength and weaknesses). Actually, the project mainly relies on NMCP meanwhile some of them do not have capacities in terms of research, management of practitioners and community engagement, etc. It is also important to notice that, while the project design was developed by ICIPE which was also expected to provided assistance to countries during the project implementation, the NMCPs should make efforts to enhance their collaboration with the national stakeholders, in order to meet the project outcomes. For instance, each NMCP may identify a reference research lab for technical support in entomology in collaboration with ICIPE, and one or more NGOs for community activities and formalize the collaboration with these entities through an official document. Also, the NMCPs may put in place a mechanism that would lead to commitment of the Ministers of the health, environment, agriculture, etc. *OK comments added to paras 80 and 136. Para 87 and recommendation 3 also address the issue of ICIPE and MMCPs identifying and involving appropriate national research institutions (where they exist) more closely with project implementation. This would also boost sustainability since national capacity would remain after the project ends.*

Among the less urgent recommendations, it is not clear why the reviewers recommended that an experienced facilitator help design the programme and methodology for the Regional Project Steering Committee meetings in consultation with the Task Manager and the Project Manager. That person would then facilitate the meetings in a more participatory way in order to improve engagement of all participants (R12). In case they noticed some weaknesses in the organization of the last steering committee meeting, these should appear in the report, in order to justify the recommendation. *OK – justification has been given in some additional text in para 151*

The list of urgent and less urgent recommendations has been provided, but it should be mentioned to whom the recommendations are addressed *Good point – persons/organisations responsible have been added where appropriate*. Indeed, I would like to emphasise on the following recommendations most of which were made by the evaluator.

To countries

- Since the information on cost-effectiveness will be important for National Malaria Control Programmes to lead changes in approach and reduce their reliance on the use of DDT for indoor residual spraying, the six Tier 1 countries should systematically collect the data on the cost of alternative interventions.
- Enhanced communication and outreach at community and programmatic level through establishment or reinforcing the AFRO II national Steering Committees.
- Communication strategy for the second half of the project to ensure widespread awareness of the project, integrated vector management and its benefits, the field study results, and national/regional plans for the future.

To the executive and implementing agencies

- Put in place a virtual mechanism (e.g. WhatsApp groups, skype conferences) for regular Regional Project Steering Committee meetings).
- Corrective measures are needed to expedite delivery of entomological monitoring equipment to the Tier 1 countries, in order avoid failure to produce credible conclusions from the field studies.
- Since the Covid 19 pandemic is likely to further delay the project activities, a 12 - 18-month extension to the project is needed. A financial assessment is required to determine the availability of funding at country level. Funds for WHO AFRO management costs will also need to be assured.

To the evaluators

- Include a detailed review of the activities conducted by ICIPE to support the countries in the project implementation (if available), in order to identify the gaps to be filled during the next phase of the project. *It is not possible to do this with the information provided, but it is clear that strengthened support from ICIPE is required and is part of the recommendations.*
- Add comments about the relationships of high power/low interest stakeholders such as the Global Funds, same as research institutions, NGOs, etc. in the description of targeted groups/stakeholders and their relationships with the project. *OK good point – comments added at paras 52 and 53*
- Consider revising the following sentence the executive summary, which seems not very clear to me. *‘Object’ is the UN terminology for the focus of the review, i.e. the project named below.*