

Mid-term Review of the UNEP-GEF Project:
***“Development and promotion of non-POPs alternatives to
DDT”***

Components 1 & 4

GEF ID: 4612

2015-2022



23 May 2022

S. Lederer

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For further information on this report, please contact:

UN Environment Programme

UNEP Economy Division

United Nations Avenue, Gigiri Nairobi, Kenya

P.O. Box 30552, 00100

Nairobi, Kenya

E-mail: economydivision@un.org

Website: <https://www.unep.org/>

Development and promotion of non-POPs alternatives to DDT, Components 1&4

GEF ID: 4612

PIMS ID: 4612

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The reviewer would like to express her gratitude to all persons who were interviewed and contributed to this review, as listed in Annex I.

The reviewer would like to thank the project team and in particular Mr Jitendra Sharma, Project Manager for his contribution and continued support throughout the review process. Sincere appreciation is also expressed to all the persons for taking time and providing information and their valuable inputs to the review.

The review consultant hopes that the findings, conclusions and recommendations will contribute to the successful finalisation of the current project, formulation of future projects and to the continuous improvement of similar projects in other countries and regions.

BRIEF CONSULTANT BIOGRAPHY

Ms Suman Lederer is an independent evaluation consultant. She has led and participated in several project and thematic evaluations, with a focus on the evaluation of hazardous waste, POPs, environment, as well as private-sector development projects, in Africa, Asia, the Caucasus, Central Asia, South-Pacific, and Southeast Europe. Further, she has work experience in the private sector and academia in Central and Western Europe.

Review Consultant

Ms. Suman Lederer – Independent Evaluation Consultant

UNEP PM

Mr. Jitendra Sharma – Project Manager

ABOUT THE MID-TERM REVIEW

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Brief Description: This report is a Mid-term Review of a GEF-funded project 'Development and promotion of non-POPs alternatives to DDT' (GEF ID 4612), Components 1&4. GEF approved the project in May 2015 for a project duration of 60 months. Project objective is "to introduce bio- and botanical pesticides and other locally appropriate cost-effective and sustainable alternatives to DDT as first step for reduction and eventual elimination of dependency on DDT, ensuring food safety, enhancing livelihood and protecting human health and the environment". Project includes 4 Components, besides M&E, from which UNEP is the Implementing Agency for Components 1&4, and UNIDO is the Implementing Agency for Components 2&3. The main objectives of the MTR were i) to assess project performance and timeliness of project implementation; ii) highlight issues requiring decisions and actions; and iii) present initial lessons learned on project design, implementation and management.

Key words: POPs, Stockholm Convention, DDT, vector, vector-control, anopheles mosquito, pesticides, bio-pesticides, botanical pesticides, DDT-alternatives, neem, *Bt*, LLINs, IVPM.

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LIST OF ACRONYMS

<i>Bt</i>	Bacillus thuringiensis
CIB & RC	Central Insecticides Board & Registration Committee
COP	Conference of Parties
CPCB	Central Pollution Control Board
CSIR	Council of Scientific and Industrial Research
DDT	Dichlorodiphenyltrichloroethane
EA	Expected Accomplishment
FMO	Funds Management Officer
GEF	Global Environment Facility
HIL	Hindustan Insecticides Limited
HSM	Hazardous Substance Management of the MOEFCC
IEC	Information, Education, Communication
IVM	Integrated Vector Management
IVPM	Integrated Vector Pest Management
LLIN	Long-Lasting Insecticidal Nets
MoA	Ministry of Agriculture
M&E	Monitoring and Evaluation
MoEFCC	Ministry of Environment, Forest and Climate Change
MoCF	Ministry of Chemicals and Fertilizers
MoH&FW	Ministry of Health & Family Welfare
MOU	Memorandum of Understanding
MTR	Mid-Term Review
MTS	UNEP's Medium-Term Strategy
NEERI	National Environmental Engineering Institute
NIMR	National Institute of Malaria Research
NVBDCP	National Vector-Borne Disease Control Programme
PCA	Project Cooperation Agreement
PM	Project Manager
POPs	Persistent Organic Pollutants
POW	Programme of Work
PSC	Project Steering Committee
RO	Regional Office
SDG	Sustainable Development Goals
TOC	Theory of Change
TOR	Terms of Reference
TOT	Training of Trainers
TWG	Technical Working Group
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
WHO	World Health Organization

PROJECT IDENTIFICATION

Table 1: Project Identification Table

UNEP PIMS ID:	4612	Development and promotion of non-POPs alternatives to DDT – Components 1&4		
Implementing Partners	Ministry of Environment, Forest and Climate Change, Central Pollution Control Board, CSIR-NEERI, NGO Toxics Link, UNEP Law Division			
Relevant SDG(s):	SDGs – 3, 9, 11, 12, 13, 15, 17			
Sub-programme:	5. Chemicals and waste	Expected Accomplishment(s):	Enabling Environment; Chemicals; Waste	
UNEP approval date:	04 April 2016	Programme of Work Output(s):	5	
Expected start date:	May 2015	Actual implementation start date:	March 2019	
Planned completion date:	31 December 2022	Actual operational completion date:	31 January 2024	
Planned project budget at approval:	1,700,000	Actual total expenditures reported as of 31.03.2021 (USD):	670,914	
First disbursement:	March 2019	Planned date of financial closure:	31 July 2024	
No. of formal project revisions:	0	Date of last approved project revision:		
No. of Steering Committee meetings:	1	Date of last/next Steering Committee meeting:	Last: 2021	Next: N/A
Mid-term Review/ Evaluation (planned date):	4 th Quarter 2021	Mid-term Review/ Evaluation (actual date):	March-April 2022	
Terminal Evaluation (planned date):	Mid-2020	Terminal Evaluation (actual date):		
Coverage - Country(ies):	Republic of India	Coverage - Region(s):	Southeast Asia	

EXECUTIVE SUMMARY

[To be included in Exec Summary of the final common report]

I. INTRODUCTION

1. This report¹ presents the findings of the mid-term review (MTR) of the GEF project “**Development and promotion of non-POPs alternatives of DDT**”, (GEF ID: 4612) Components 1 and 4. The MTR was conducted by an independent evaluation consultant, Ms. Suman Lederer, from 14 March - 28 April 2022. Intended users of the MTR are United Nations Environment Programme’s Economy Division (UNEP), UNEP Regional Office (RO) for Asia Pacific in India, United Nations Industrial Development Organization (UNIDO) and other implementing partners.
2. The project is being implemented with UNEP and UNIDO as Implementing Agencies, that is, Components 1 and 4 are being implemented by the Chemicals and Health Branch of UNEP’s Economy Division and Components 2 and 3 are being implemented by UNIDO.

II. METHODOLOGY

3. The MTR was conducted under the overall responsibility of the UNEP Project Manager (PM), Mr. Jitendra Sharma, from the Chemicals and Health Branch of UNEP’s Economy Division.
4. The MTR Consultant has conducted the MTR of Components 2 and 3, which are being implemented by UNIDO and therefore, has overall knowledge about the project as well as Components 2 and 3, but was not involved in the design or implementation of any of the Components or Activities of the project.
5. The MTR was guided by the terms of reference (TOR) for the MTR and took into consideration the GEF and UNEP evaluation policies. The MTR covers the period from GEF approval in May 2015² with a focus on Activities from February 2019 till 31 March 2022. In line with the TOR, the main objectives of the MTR were as follows:
 - To assess project performance and timeliness of project implementation;
 - Highlight issues requiring decisions and actions;
 - Present initial lessons learned on project design, implementation and management and provide recommendations.
6. In line with the TOR, project assessment was based on the following evaluation criteria:
 - Relevance
 - Effectiveness at current stage of implementation
 - Efficiency at current stage of implementation
 - Likelihood of sustainability of project results
 - Likelihood of impact.
7. For the assessment of the above criteria, the following sources were consulted:

¹ No changes are to be made in this report without the prior consent of the independent international evaluation consultant, author of this report. Any addition(s)/modification(s) to the content of this report are to be made in a separate document, with reference to this MTR and report.

² Further information on this in [Sub-Section F - Efficiency](#).

8. **Document review:** Documents pertaining to the project, inter alia, project document, output documents, annual reports, meeting reports, etc. were reviewed. [Annex II](#) provides the list of documents consulted;
9. **MTR report of Components 2&3, UNIDO:** As it is one and the same project, with one common project document, same background information, and the evaluation consultant has also carried out the MTR of Components 2&3, which are being implemented by UNIDO, thus already receiving information about the project, the MTR report of Components 2&3 has also served as a source of information for this MTR;
10. **E-survey:** A short electronic survey was sent to 263 training participants to receive their feedback on the training. The e-survey entailed close-ended questions, and one open-ended question, whereby the respondents could write their feedback. It was sent to 263 training participants. As the e-survey was very short, and could be completed within five minutes, it was kept open for four days to receive responses.
11. **Interviews:** Web-based semi-structured interviews, via Zoom, were conducted with representatives of the key stakeholder institutions. [Annex I](#) provides the list of persons consulted for the MTR;
12. **No evaluation mission:** Due to the still ongoing COVID-19 pandemic and corresponding restrictions and limitations, no evaluation mission was planned or conducted.
13. Qualitative analysis was carried out with data collected and received via the documents' review and interviews and a participatory approach was applied, whereby the evaluation consultant made efforts to involve as many stakeholders as possible in the MTR process; the UNEP PM was kept informed throughout the process.

Limitations

14. On one hand, not conducting an evaluation mission to receive first-hand observations may be considered a limitation. On the other hand, under the current circumstances of ongoing COVID-19 pandemic, conducting meetings with the relevant stakeholder institutions and reviewing the related documents was considered to be sufficient for data collection in this case.
15. Meetings with one key stakeholder institution could not be scheduled, namely, the National Vector-Borne Disease Control Programme (NVBDCP), as no date/time confirmation was received. Therefore, a key aspect regarding Output 4 - the final approval of the training modules - could not be discussed and/or confirmed.

III. THE PROJECT

A. Context

16. DDT was developed as a synthetic insecticide in the 1940s. It was successfully used against vector-borne diseases such as, amongst others, malaria, as well as for insect control in agriculture and livestock, buildings, homes and gardens. However, the extensive use of DDT led to many insect species developing resistance to DDT. Already in the 1950s and 1960s, research was ongoing on the harmful effects of DDT on humans and the environment. DDT entails all the characteristics of Persistent Organic Pollutants (POPs); it:
 - is persistent in the environment,
 - accumulates in fatty tissues,
 - can travel long distances in the upper atmosphere.

17. The Stockholm Convention on POPs was adopted on 22 May 2001 and entered into force on 17 May 2004. The Republic of India is party to the Stockholm Convention on POPs. DDT is one of the initial 12 chemicals, for which an elimination or restriction of production and usage are foreseen; reference is hereby made to Article 3, Article 4, Article 6 and Article 7 of the Stockholm Convention, as well as to Annex B – Part I and Part II, which relate to the production and usage of Dichlorodiphenyltrichloroethane (DDT) for disease vector control. India is the only country producing DDT and the production is limited for vector control.
18. India still manufactures DDT, exclusively for vector control as per WHO Guidelines (agricultural use was banned by the government in 1989³), and has legal regulations in place for DDT. Hindustan Insecticides Limited (HIL), a Government of India enterprise, is the only authorized manufacturer of DDT – 50WP for India, and 75WP for export – in India, having started production in 1955. Its usage falls under the Ministry of Health and Family Welfare (MoHFW), the sole entity procuring DDT from HIL, in its vector control programme. DDT is not used as a pesticide in agriculture anymore. The National Implementation Plan (NIP) of the Republic of India also mentions the ‘Development and promotion of non-POPs alternatives to DDT’ as one of its medium-term priorities for the time period 2012-2022.
19. The DDT Action Plan formulated within the NIP entails the following objectives:
 - i Life-cycle management of DDT, specifically its environmentally sound disposal method, is in place and enforced;
 - ii **Environmentally sound alternatives to DDT are found and introduced in the malaria vector control programme;**
 - iii **General public awareness on DDT alternatives use in the health sector is achieved;**
 - iv Identification and remediation of POPs contaminated sites (addressed in the action plan on contaminated sites).
20. The project being implemented includes above-mentioned objectives ii and iii. Objective ii is in the Component being implemented by UNIDO and objective iii is entailed in the Component being implemented by UNEP.
 - Strategies by the NVBDCP to reduce the use of DDT include:
 - Integrated Vector Management strategies,
 - Rotational Spraying of IRS,
 - ITN/LLIN,
 - Use of bio-larvicides in urban areas, larvivorous fish and environmental management by manipulating the sources of mosquitoes breeding.
21. At the time of drafting the NIP, no viable alternatives, including bio-efficacy, cost and experience, to DDT were available. Viable alternatives to DDT are expected to fulfill the following criteria:
 - Cost effectiveness,
 - Bio-effectiveness,
 - Safety to human beings and the environment.

³ Order No. S.O. 378(E), 26 May 1989 – banned use of DDT in agriculture; use of DDT restricted only for Disease Vector Control Purpose.

22. World Health Assembly Resolution WHA 50.13 requested member states to develop and take up “viable alternative methods of controlling vector-borne diseases and thereby reducing reliance on insecticides”.
23. As “viable alternative methods”, project approach includes (neem-based) botanicals, biological larvicides (neem and *Bt*), and LLINs.

B. Results framework

24. The project is being implemented together with UNIDO. UNEP is implementing Components 1 and 4; and UNIDO Components 2 and 3. Component 5 – Monitoring and evaluation of results – is to be implemented by both the Agencies. UNIDO is the lead Implementing Agency for this project.
25. The following table shows the results framework of the project:

Table 2: Results Framework

Project Objective:	To introduce bio- and botanical pesticides and other locally appropriate cost-effective and sustainable alternatives to DDT as first step for reduction and eventual elimination of dependency on DDT, ensuring food safety, enhancing livelihood and protecting human health and the environment.
Outcome 1 (UNEP):	Efficient system for fulfilling legal requirements at the various stages of the lifecycle of alternatives to DDT
Output 1.1	Regulatory mechanisms throughout the lifecycle of alternatives to DDT in place
Activity 1.1.1	Establish an inter-ministerial working group to follow and guide the implementation of the activities
Activity 1.1.2	Identify the legal requirements at each stage of the lifecycle for the alternatives to DDT.
Activity 1.1.3	Identify gaps in the legal framework throughout the lifecycle for the alternatives to DDT
Activity 1.1.4	Identify the potential for strengthening and streamlining the legal requirements at each of the stages of the lifecycle
Output 1.2	Guidance documents for producers, registration holders and users on the legal requirements for alternatives to DDT developed
Activity 1.2.1	Develop guidance documents for producers, registration holders and users on the legal requirements for alternatives to DDT
Activity 1.2.2	Testing by potential user of the guidance
Activity 1.2.3	Finalize the guidance documents for alternatives to DDT
Outcome 2 (UNIDO):	Development and efficient pilot production of bio- and botanical pesticides as well as other alternatives to DDT ready for enhancement to large scale production
Outcome 3 (UNIDO):	Promotion of new dwarf cultivars with early maturity and higher limonoids yield for large-scale cultivation
Outcome 4 (UNEP):	Central and State Governments endorse implementation of Integrated Vector Pest Management (IVPM) policies/strategies
Output 4.1	IVPM developed, promoted and pilot tested in selected sites
Activity 4.1.1	Prepare specific training modules for promoting IVPM at local level
Activity 4.1.2	Develop practical training courses for promoting IVM in a train the trainers course
Activity 4.1.3	Carry out pilot training (test the training materials and adapt where necessary)

Outcome 5 (UNEP + UNIDO):	Monitoring of project interventions and evaluation of results
Output 5.1	Technical reporting prepared and made available at each stage of the project
Activity 5.1.1	Carry out annual project financial audits, prepare annual project progress reports and Project Implementation Reports
Activity 5.1.2	Establish project management information system for dissemination of relevant data / information
Activity 5.1.3	Prepare and Complete Terminal Report
Output 5.2	Project implementation management and M& E mechanism in place
Activity 5.2.1	Organize and hold inception workshop
Activity 5.2.2	Augment National Steering Committee (NSC), establish Project Steering Committee (PSC), National Project Coordination Unit (NPCU), recruit National Project Coordinator and other project staff
Activity 5.2.3	Hold annual tripartite review / Project Steering Committee meetings
Activity 5.2.4	Hold national technical working groups meetings
Activity 5.2.5	Carry out awareness raising and final stakeholder workshop for dissemination of lessons learnt
Output 5.3	Project evaluation
Activity 5.3.1	Carry out independent Mid-term review
Activity 5.3.2	Carry out final evaluation

Source: Project document.

C. Stakeholders

26. As mentioned earlier, UNEP and UNIDO are both Implementing Agencies of the project, UNIDO being the lead Implementing Agency. For the UNEP Components, the Central Pollution Control Board (CPCB) is the Executing Agency, nominated by the Government of India, via the MoEFCC. The CPCB is executing the project in India via the Council of Scientific and Industrial Research-National Environmental Engineering Research Institute (CSIR-NEERI). The NVBDCP is the responsible agency for prevention and control of six vector-borne diseases, amongst others, malaria and dengue, and therefore, prepares technical guidelines for the prevention and control of these diseases. Therefore, it is also a key stakeholder in the project. MoEFCC is the nodal Ministry in India for the implementation of Stockholm Convention and is responsible for coordinating with other Ministries, Departments and Stakeholders for matters related to the Stockholm Convention.
27. As the issue of DDT, its alternatives and malaria is relevant to the whole population, academia, NGOs and the wider population have high interest in the project.
28. The below table provides an overview of all stakeholders, updated with information additionally received during the main MTR Phase, their potential roles and responsibilities in project implementation, and their expected changes in behaviour after project implementation.

Table 3: Overview of project stakeholders

Stakeholders	The power they hold over the project results/	Participation in project	Roles & responsibilities in project implementation	Changes in their behaviour expected
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	implementation and the level of interest *	design and how?		through implementation of the project
UNEP	A	Yes	Implementing agency of Components 1&4 and 5 (which is for both UNEP and UNIDO)	Can possibly use some of the training material developed also in other countries.
UNIDO	A	Yes	Lead implementing agency, implementing Components 2&3	Can possibly implement projects related to bio-botanical alternatives in other countries.
UNEP Regional Office – Asia Pacific	A	No	After GEF approval, participating in meetings; discussions with key stakeholders	Providing information to other stakeholders in future with lessons learned
MoEFCC	A	Yes	Counterpart Ministry of the project; Overall guidance; Project Steering Committee Chair; “owner” of Output documents under Output 1. Nodal Ministry for Stockholm Convention	Can provide information and knowledge generated in the project to other projects/stakeholders
NVBDCP	A	Yes, via the MoHFW	Technical body under the MoHFW; key stakeholder of project results; approval of Output documents under Output 4 to be done by NVBDCP	Possibility to integrate results of Output 4 in its training programme
CPCB	C	No	National Executing Agency of the project	Possibility of capacity-building of the institution itself to comply with the Stockholm Convention
CSIR-NEERI	C	No	Local Executing partner for the project; implementing Component 4 and overall coordination for Components 1, 4 & 5. Also, Stockholm Convention Regional Centre	Can use knowledge and information and knowledge from this project in other projects
Toxics Link	C	No	Prepared Guidance documents under Output 1	Can use knowledge and information from this project in other projects

Source: project document; interviews; document review.

*

Type A: High power / high interest = Key player

Type B: High power/ low interest over the project =Meet their needs

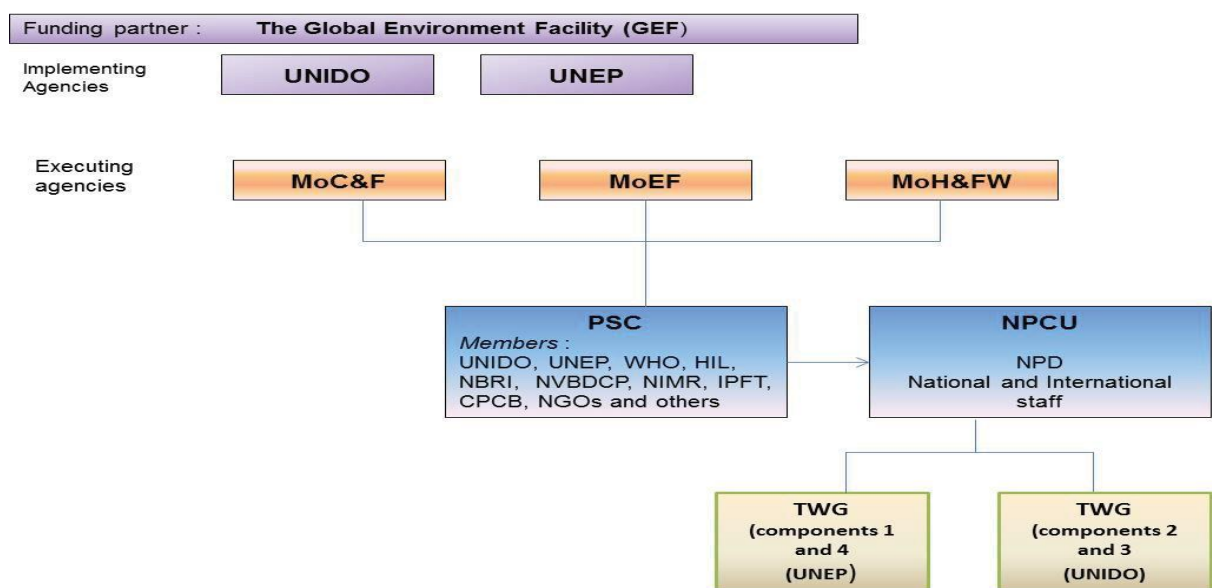
Type C: Low power/ high interest over the project= Show consideration

Type D: Low power /low interest over the project= Least important

D. Project implementation structure and partners

29. **Planned implementation structure:** Since the project is being co-implemented by UNEP and by UNIDO, the implementation structure shown below shows the overall implementation structure for both together.

Figure 1: Planned organigram of the project with key project key stakeholders



Source: Project document.

30. The individual implementation structure for UNEP is more-or-less the same – according to interview data, a Steering Committee was established a few years ago for the implementation of GEF projects in the Republic of India, which serves as the Project Steering Committee (PSC) of individual GEF-funded projects in India. UNEP, NVBDCP, NIMR and CPCB are represented in the PSC, together with implementing partners of Components 1&4. The National Project Director (NPD) is a representative of the MoEFCC and is the Joint Secretary of the Hazardous Substance Management (HSM) Division.
31. As foreseen in the project document, a Technical Working Group (TWG) for Components 1&4, has been established [Office Memorandum of the MoEFCC, 17 July 2018] for “imparting technical guidance for Component I and IV ...”. It includes representatives of the MoEFCC, Ministry of Health and Family Welfare (MoHFW), Ministry of Chemicals and Fertilizers (MoCF), Central Insecticides Board (CIB) & Registration Committee (RC), NVBDCP, CPCB, CSIR-NEERI, Hindustan Insecticides Limited (HIL), National Institute of Malaria Research (NIMR), World Health Organization (WHO), UNEP and UNIDO.
32. Since 2021, as reported to the MTR, a common PSC meeting takes place, including both UNEP and UNIDO.

E. Changes in design during implementation

33. [Interview data] The MoEFCC nominated the CPCB as the Executing Agency for the project. One of the main reasons for this was not only project implementation, but at the same time, to build up capacity at the CPCB to work in alignment with the strategies and targets of the Stockholm Convention on POPs. However, the CPCB is not implementing the project itself.
34. The National Executing Agency CPCB has signed a Memorandum of Understanding (MOU) with the CSIR-NEERI, with the CSIR-NEERI as local executing partner, to support the implementation of Components 1&4. For this, a workplan was also prepared in 2018, and approved by the MoEFCC in December 2018. UNEP's Law Division is supporting the execution of Component 1 of the project as per the approved workplan.
35. No other changes have been reported.

F. Project financing

36. Total GEF funding for the project is USD 10 million, from which UNEP is implementing Components 1&4 with GEF funds amounting to USD 1.7 million and UNIDO is implementing Components 2&3 with GEF funds amounting to USD 8.3 million. The amount spent so far, for Components 1 & 4 is shown in the following table:

Table 4: Overview of budget and expenditure

	GEF budget (a)	Amount spent (in USD) till 31.03.2022 (including committed amount) (b)	In % (b/a)	Amount left from total GEF budget (in USD) (c)	In % (c/a)
Total	1,700,000	670,914	39.47	1,029,086	60.53

37. Committed co-finance for UNEP Components is as follows:

Table 5: Overview of committed co-finance

Component	Amount (USD)
Component 1	1,380,600
Component 4	2,845,400
TOTAL	4,226,000

Source: Project document.

38. An overview of co-finance spent till the mid-term review is provided in Sub-Section E: Financial Management.

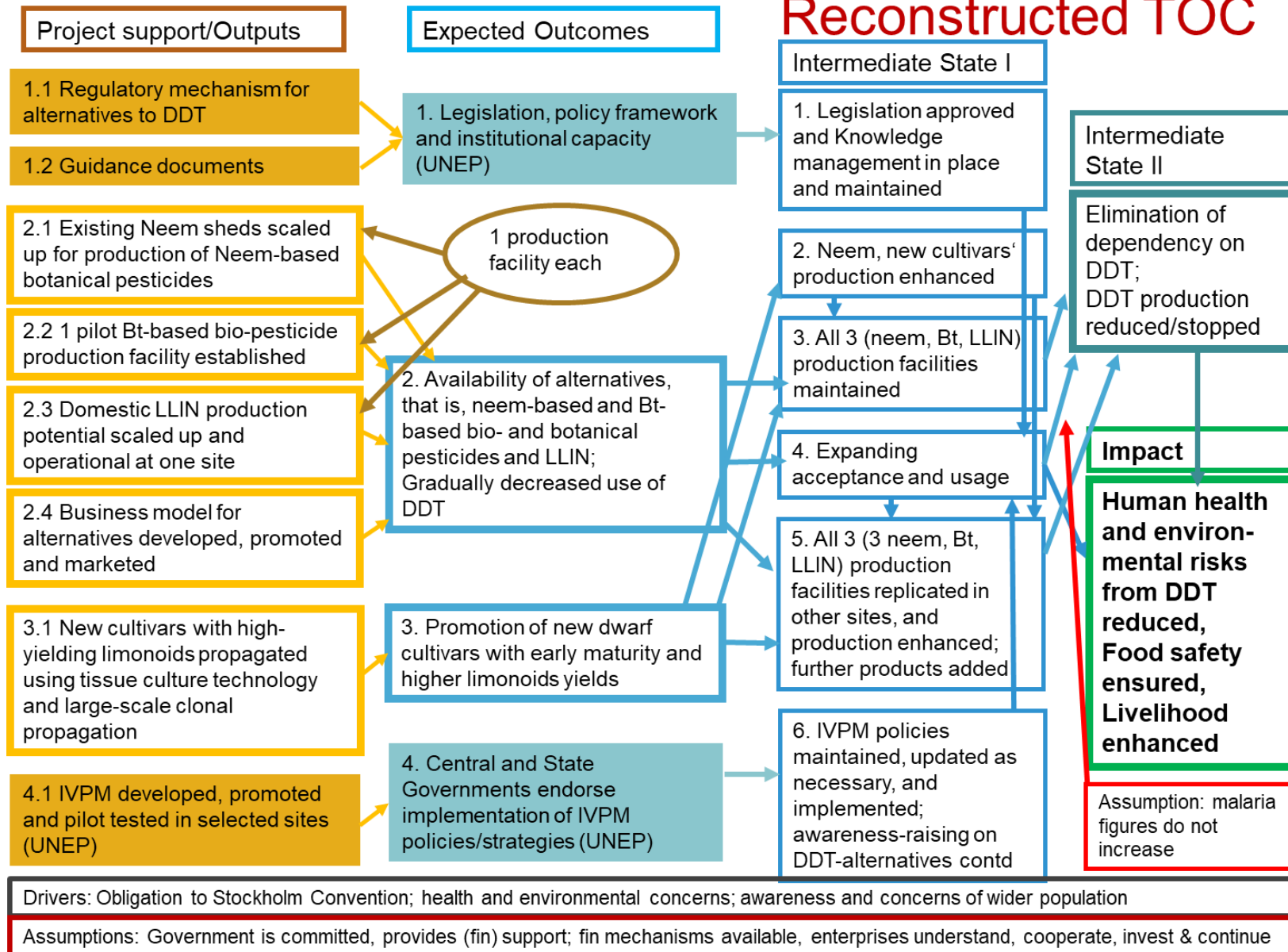
IV. THEORY OF CHANGE AT MTR

39. A Theory of Change (TOC) was not included in the project document, as this was not a requirement at the time of project formulation. Therefore, the evaluation consultant had prepared a TOC at the time of the MTR of Components 2&3. As the project is one and the same, the same TOC is being included here.
40. The diagram presents the project support, 8 Outputs planned to be produced within the framework of the project, 4 expected Outcomes⁴, which are ideally expected to be maintained and enhanced by the country, the Drivers being the motivational factors for the continuation, and the Assumptions holding true, thus leading to Intermediate State I, and again the continuation, maintenance and enhancement of which are expected to lead to Intermediate State II, the achievement of which would contribute to the expected Impact of 'Human health and environmental risks from DDT reduced, food safety ensured and livelihood enhanced'.
41. The Drivers expected to influence the decision of the country to implement, maintain and enhance project Outcomes, to reach Intermediate State I and then Intermediate State II are:
 - Obligation to Stockholm Convention,
 - Health and environmental concerns,
 - Awareness and concerns of wider population.
42. The Assumptions – from Expected Outcomes to Intermediate State I, and from Intermediate State I to Intermediate State II – are as follows:
 - Government is committed, and provides (financial) support,
 - Financial mechanisms are available for investing in the production of alternatives,
 - Enterprises understand, cooperate, invest and continue with project results.
43. An additional Assumption from Intermediate State I to Intermediate State II is:
 - Number of malaria cases reduce in the country.
44. This would mean that the alternatives are effective against malaria, and thus effective alternatives to DDT. This would enable a reduction or even an elimination of dependency on DDT, thus maybe contributing to a potential decision by the Government of India to stop DDT production.
45. The project is expected to produce the Outputs and achieve the Outcomes. Intermediate States I and II are outside the framework of the project, and expected to be achieved by the Government of India, with the support of the project and other stakeholders.
46. The reconstructed TOC is illustrated below:

Figure 2: Reconstructed TOC

⁴ Note of the evaluation: Outputs and Outcomes might be defined differently in different International Organizations. For the purpose of this evaluation, the terms – Outputs and Outcomes, in the TOC – are based on the logical framework of the project, and as defined in the Glossary of terms of the evaluation report.

Reconstructed TOC



47. According to interview data, the Drivers 'Obligation to Stockholm Convention' and 'health and environmental concerns' are deemed to hold true. Driver 'awareness and concerns of wider population' could not be verified, as the MTR could not conduct the evaluation mission and could not speak with anyone from the wider population, except with persons who are involved in the project Activities, in various roles.
48. The National Project Director (NPD) and National Project Coordinator (NPC) are representatives of the MoEFCC. They participate in the PSC and review meetings. The participating organizations very well understand the significance of the project, are very cooperative, and are spending co-finance.
49. At the time of the MTR, most of the Activities under both the Components 1&4 were accomplished. A few Activities, for example, some of the trainings, were yet to be accomplished, and the documents which had been prepared, had yet to receive approvals from the relevant stakeholder institutions.
50. The project is ongoing. Only after the output documents, namely, the Action Plan based on the Gap Analysis, the Guidance documents, and the training modules are approved and used, can they contribute to sustainability of project results.

V. MID-TERM REVIEW FINDINGS

A. Strategic Relevance

Alignment to UNEP MTS, POW and Strategic Priorities

51. Project is in alignment with the **UNEP Medium-Term Strategy (MTS) 2014-2017**, which started in the time period just before the approval of the project funding by the GEF. The strategic focus areas for 2014-2017 were:
- Climate Change
 - Disasters and conflicts
 - Ecosystem management
 - Environmental governance
 - **Chemicals and waste**
 - Resource efficiency
 - Environmental review.
52. The Expected Accomplishments (EA) under this focus area were as follows:
- i. Enabling environment: Countries increasingly have the necessary institutional capacity and policy instruments to manage chemicals and waste soundly including the implementation of related provisions of the multilateral environmental agreements;
 - o Output 5: Provision of consolidated advisory and support services that promote the sound management of chemicals at the national level, including its mainstreaming into national policies and programmes, instruments and schemes for the governance of production, use, trade and release of chemicals.
 - ii. Chemicals: Countries, including major groups and stakeholders, make increasing use of the scientific and technical knowledge and tools needed to implement sound chemicals management and the related multilateral environmental agreements;
 - iii. Waste: Countries, including major groups and stakeholders, make increasing use of the scientific and technical knowledge and tools needed to implement sound waste management and the related multilateral environmental agreements.
53. Project is in line with the strategic focus area of Chemicals and waste of the MTS 2014-2017, for the “sound management of chemicals and waste, ... in minimizing the risks of chemicals and waste” on human health and environment.
54. The project is also in alignment with the **UNEP Programme of Work (POW) 2014-2015**. The POW 2014-2015 includes seven Subprogrammes, which stem from the seven strategic focus areas of the MTS 2014-2017, and project is in line with Subprogramme 5 – chemicals and waste, and all three EAs, as follows:

- a) Countries increasingly have the necessary institutional capacity and policy instruments to manage chemicals and waste in a sound manner, including the implementation of related provisions in the multilateral environmental agreements;
- b) Countries, including major groups and stakeholders, increasingly use the scientific and technical knowledge and tools needed to implement sound chemicals management and related multilateral environmental agreements;
- c) Countries, including major groups and stakeholders, increasingly use the scientific and technical knowledge and tools needed to implement sound waste management and related multilateral environmental agreements.

Alignment to Donor Strategic Priorities

- 55. The Global Environment Facility (GEF) serves as the financial mechanism for the Stockholm Convention on Persistent Organic Pollutants (POPs). The project is aligned with the donor, GEF's, Strategic Goals, namely, Strategic Goal 3 – Promote the sound management of chemicals throughout their life-cycle to minimize adverse effects on human health and the global environment; and with Strategic Goal 4 – Build national and regional capacities and enabling conditions for global environmental protection and sustainable development.
- 56. The GEF-5 goal in the focal area – Chemicals – is to protect human health and the environment by assisting countries to reduce and eliminate production, use and releases of POPs, and consequently contribute generally to capacity development for the sound management of chemicals. Resources allocated within GEF-5 presented an increase of 25% for the POPs focal area as compared to GEF-4.
- 57. One of the objectives identified under the focal area – Chemicals – is to 'phase out POPs and reduce POPs releases'. One of the outcomes aimed for under this objective is to use exempted POPs chemicals in an environmentally sound manner, which specifically mentions projects addressing management of DDT and vector control chemicals.
- 58. That is, project is in line with Focal Area Objective CHEM-1 – Outcome 1.1 – Output 1.2.1; and Outcome 1.5: Country capacity built to effectively phase out and reduce releases of POPs, Output 1.5.1: Countries receiving GEF support to build capacity for the implementation of the Stockholm Convention.

Relevance to Regional, Sub-regional and National Priorities

- 59. The project is completely in alignment with the priorities of the Stockholm Convention and the WHO. The Conference of the Parties/COP-3 in 2007 and COP-4 in 2009 included, amongst others, the need for alternatives to DDT for vector control and requested special consideration for activities identified in the NIPs of the countries pertinent to sound management of chemicals.
- 60. The Republic of India is party to the Stockholm Convention and is required to fulfil its obligations under it. DDT is one of the 12 initial POPs, included in Annex B, which the Convention foresees to restrict or eliminate production and usage. According to Annex B of the Convention, the production and use of DDT is restricted only to disease vector control and to Parties which have notified the Secretariat of the Convention about their intention to produce and/or use it. Accordingly, the Republic of India has an exemption for the production and use of DDT for vector control, in line with WHO guidelines, which allow for it.
- 61. The World Health Assembly Resolution WHA 50.13 stresses the significance of developing and adopting viable alternative methods to control vector-borne diseases

and reducing reliance on insecticides. Criteria taken into consideration for the selection of viable alternatives are – efficacy, cost effectiveness, ecological soundness, risk for development of resistance and sustainability.

62. Project is also in alignment with the strategies of the Republic of India, which submitted its NIP in 2011. According to the NIP, DDT is produced only for vector control, and developing non-POPs alternatives to DDT is one of the key priority areas identified in the NIP, and included in the Action Plan.
63. Project complies with the strategies of the NVBDCP⁵ to reduce the use of DDT, which include:
 - Integrated Vector Management strategies,
 - Rotational Spraying of IRS,
 - ITN/LLIN,
 - Use of bio-larvicides in urban areas, larvivorous fish and environmental management by manipulating the sources of mosquitoes breeding.

Contribution to Sustainable Development Goals (SDGs)

64. The project, that is all Components taken together, contributes to the following SDGs:
 - SDG-3: Good Health and Well-being
 - SDG-9: Industry, Innovation and Infrastructure
 - SDG-11: Sustainable Cities and Communities
 - SDG-12: Responsible Consumption and Production
 - SDG-13: Climate Action
 - SDG-15: Life on Land
 - SDG-17: Partnerships for the Goals.

Complementarity with Existing Interventions

65. Besides informal exchanges with experts working on other ongoing environmental projects in the Republic of India, thus exchanging some information about project thematic areas and persons engaged in the projects, other formal complementarities have not been mentioned.

B. Quality of Project Design

66. Project stems from the obligations of the Republic of India to the Stockholm Convention and its NIP, which identifies the thematic area of DDT as one of its priority areas. The project document entails background information about vector-borne diseases existing in the country, malaria, six primary vectors of malaria in India, as well as about the annual supply of DDT to NVBDCP since 1990-1991, export of DDT to Africa since 2006-2007, and the issue of resistance of mosquitoes to DDT, background information about long-lasting insecticidal nets (LLINs), *Bacillus thuringiensis* (Bt), and neem-based biopesticides and key stakeholder institutions.

⁵ National Strategic Plan for Malaria Elimination (2017-22); National framework for Malaria Elimination in India (2016-2030).

67. The project document also entails a detailed project results framework which includes indicators – baseline and target, sources of verification and assumptions. It contains a sub-section on risks, including a Risks Table, although sparsely considered; it is the same with gender dimension. A budgeted M&E plan is also included in the project document.
68. Besides project management and monitoring and evaluation (M&E), the project document includes 4 main Components, namely, preparing legislation, policy framework and institutional capacity; production of (bio- and botanical) alternatives to DDT; promotion and propagation of new cultivars of neem; and development and promotion of IVPM policies and strategies, thus encompassing relevant aspects of DDT alternatives, that is, legal frameworks, the alternatives themselves, the raw material for some of the alternatives and policies and strategies, awareness-raising and capacity building.
69. UNEP is Implementing Agency for Components 1&4. Component 1 includes the following Outputs:
- Regulatory mechanism throughout the lifecycle of the alternatives to DDT in place;
 - Guidance documents for producers, registration holders and users on the legal requirements for alternatives to DDT developed.
70. Regarding Output 1.1 – Regulatory mechanisms throughout the lifecycle of alternatives to DDT in place: This project, any project for that matter, can do the preparatory work for the regulatory mechanisms, that is research and prepare the necessary documents related to the legal framework (which is what has been done by this project also). It is upto the Government of the country, via the relevant Ministry or Ministries, to prepare and approve related legislation(s).
71. Component 4 entails the following Outputs:
- Integrated Vector Pest Management (IVPM) developed, promoted and pilot tested in selected sites.
72. According to the World Health Organization⁶ (WHO, 2004), essential features of Integrated Vector Management (IVM) encompass:
- Approach depending on information impacting local vector ecology;
 - Combination of interventions;
 - Collaboration between health sector and other relevant public and private sectors;
 - **Collaboration and awareness-raising at local level with wider public and other stakeholders;**
 - **Relevant regulatory and legislative framework.**
73. The above Components 1&4 are thus completely aligned with the recommendations of the WHO pertinent to IVM.
74. Therefore, on the whole, project design, with respect to the Components included, is considered to be adequate for achieving the project objective of “introducing bio- and botanical pesticides and other locally appropriate cost-effective sustainable alternatives to DDT as a first step for reduction and eventual elimination of dependency on DDT, ensuring food safety, enhancing livelihood and protecting human health and the environment”.

⁶ WHO (2004): Global Strategic Framework for Integrated Vector Management.

C. Nature of External Context

75. In March 2020, COVID-19 was declared a global pandemic; several restrictions were imposed in several countries all over the world, for example, on movement of persons; social distancing has been the key term since the outbreak of the pandemic. According to interview data, the pandemic hampered project implementation of Components 1&4 to some extent, in that physical meetings could not take place; activities had to be transferred to the remote mode, which was not considered to be ideal by interviewed stakeholders, for example, for conducting trainings. Other than the COVID-19 pandemic, no other external factors – conflict, natural disasters, political unrest – were mentioned to have had any adverse effect on project implementation.

At current stage of implementation

D. Effectiveness

76. As mentioned earlier, the evaluator has re-constructed a TOC, presented in [Section IV](#), wherein the Outputs and Outcomes are formulated as in the project results framework. Being funded by the GEF, it is considered to be important to assess whether or not the Activities, Outputs and Outcomes have been achieved as planned and mentioned in the project document.

Availability of Outputs

77. **Output 1.1: Regulatory mechanisms throughout the lifecycle of alternatives to DDT in place**
78. According to the letter of the MoEFCC [Office Memorandum, July 2018], a Technical Working Group (TWG) for Components 1&4 was established with representatives of key stakeholder institutions, namely, MoEFCC, MoHFW, MoCF, CIB&RC, MoA&FW, NVBDCP, CPCB, CSIR-NEERI, HIL, NIMR, WHO, UNEP and UNIDO for “imparting technical guidance for Component I and IV ...”. Other tasks included, inter alia, providing technical inputs for the preparation and finalisation of manuals and guidelines, IVPM strategies, training modules; and inputs to legal requirements at each stage of the life-cycle for DDT alternatives.
79. An extensive Gap Analysis Report on legal framework throughout the lifecycle of alternatives to DDT was prepared by a highly-experienced national legal expert; it was ready by May 2021. It reviews existing legislation and identifies gaps which might not be conducive to or hamper advancing DDT alternatives for vector-disease control, and makes recommendations in the form of an Action Plan.
80. The lifecycle of the DDT-alternatives, any product for that matter, entails a long chain of different stages, namely, “siting of production units/plants, production/manufacturing, registration, environmental impacts assessment including effluents, and emission and its mitigation, storage, sale, disposal, transportation, distribution, import, export, use, costing, taxation”. The report has reviewed existing legal framework pertaining to these stages, for both vector disease control and pesticides management (except LLINs), as well as at Central and State level. According to the analysis, whereas some of the lifecycle stages are covered by existing legal framework, namely, “siting, manufacturing, registration, environmental impacts, import, export of raw materials” used to produce the DDT-alternatives – neem-based, *Bacillus thuringiensis* (Bt)-based and Long-Lasting Insecticidal Nets (LLINs), there are other stages which might necessitate inclusion in the legal framework; and those which might be covered in a general manner, but not in a specific manner. The assessment has also identified gaps in institutional arrangements, for the implementation of DDT-alternatives.

81. Gaps have been identified in the existing national and State legal frameworks for the management and handling of DDT-alternatives, including raw material – neem, *Bt* – for vector-borne diseases.
82. The report concludes that while the Insecticides Act from 1968 largely entails the different lifecycle stages of the DDT-alternatives, several other legislations necessary in the different lifecycle stages are not covered, including enabling provisions. Further conclusions relate to, amongst others, lack of Guidelines, comprehensiveness, ambiguity of terms, lack of clear delineation. Separate conclusions are provided for DDT-alternatives for pesticides management, *Bt*, neem and LLINs. Moreover, institutional framework has also been reviewed, summarized and a gap analysis prepared; it clearly mentions the need for a coordinated institutional approach, as several Ministries (9 have been mentioned) and other institutions (34) are involved across the different DDT-alternatives.
83. Further, based on the Gaps Analysis, a detailed draft Action Plan has been prepared which outlines required changes in the legal and institutional framework for the DDT-alternatives.
84. According to interview data, both the Gap Analysis as well as Action Plan have been submitted to the MoEFCC, the nodal agency for the project, beginning of October 2021, for reviewing, feedback, approval and next steps which the project could support with, if any (this would be in addition to the foreseen activities under this Output), for example the Draft Amendments to existing Legislations.
85. On the one hand, all foreseen Activities under Output 1.1 have been completed from the project's side; on the other hand, it is not clear, if any further work, that is updating/modification, would be necessary after receiving feedback from the MoEFCC and the TWG. As reported to the MTR, the MoEFCC was planning to schedule a TWG meeting⁷, for reviewing, receiving feedback and/or approval of the draft documents, only after which, in consultation with the TWG, the next steps can be decided upon, that is, preparation of the necessary amendments of legal frameworks.
86. **Output 1.2 Guidance documents for producers, registration holders and users on the legal requirements for alternatives to DDT**
87. Three draft Guidance documents for producers, registration holders, and users in India, for fulfilling legal requirements have been prepared – one each for neem and *Bt*-based products, as well as for LLINs. They have been prepared by an environmental NGO, Toxics Link⁸. All the bio-pesticides, including neem and *Bt*-based, are regulated by the Insecticides Act 1968⁹ and Insecticide Rules 1971¹⁰. According to interview data, key

⁷ As per information received on 19 May 2022, the TWG meeting was scheduled for 6th July 2022.

⁸ <https://toxicslink.org/> Environmental NGO established in 1998. Toxics Link engages in on-the ground work especially in areas of municipal, hazardous and medical waste management and food safety, among others. Working in networks, utilising community outreach and education, policy analysis, research, training and program development, work at the state and central levels to help create solutions, which are driven by the needs of people. Toxics Link has a unique expertise in the areas of hazardous, medical and municipal wastes, as well as in specific issues such as the international waste trade, and the emerging issues of pesticides and POPs. Now have focus on e-waste and already done assessment studies of e-waste scenarios in major metros in India. <https://ipen.org/regional-hubs/south-asia/coordinator>

⁹ <https://legislative.gov.in/sites/default/files/A1968-46.pdf>

¹⁰ <https://thc.nic.in/Central%20Governmental%20Rules/Insecticides%20Rules,%201971..pdf>

stakeholder institutions were consulted while preparing the documents, for example, NVBDCP and HIL.

88. As mentioned in the Guidance documents, neem-based household products, for example, coils, oil, cream, spray, are available in the retail markets in India and are registered with the Central Insecticides Board and Registration Committee (CIB & RC) for use as household insecticides, but are not (yet) registered for public health programmes, under the NVBDCP, or for any other purposes. The NVBDCP already includes recommendation on the use of *Bt*-based bio-larvicides for control of malaria-vector, and they are already available in the retail market. Producers and/or exporters are required to register it also with the CIB & RC. Similarly, the NVBDCP recommendations also include LLINs. Producers are required to receive the Certificate of Registration from the CIB & RC. LLINs are not (yet) available in the retail market and are allowed only via the public-health programmes.
89. According to interview data, the Guidance documents are in advance-draft stage and are being reviewed. Two consultation meetings have taken place and the documents updated after each. One consultation is still planned to take place¹¹, after which finalization of the documents can be expected. After finalization, the documents are planned to be translated into three languages, namely, Hindi, Bengali and Odiya.
90. Output 1.2 is **ongoing** and it is realistic to expect this Output to be completed by end of December 2022.
91. **Output 4.1 IVPM developed, promoted and pilot tested in selected sites**

The following four comprehensive training modules have been developed by the CSIR-NEERI:

- i. Module I: DDT and Vector-Borne Diseases
 - ii. Module II: Vector Morphology and Bionomics
 - iii. Module III: Alternatives to DDT in Vector Control Management
 - iv. Module IV: Integrated Vector and Pest Management.
92. Module I entails an introduction to POPs, the Stockholm Convention, current production and use of DDT and status of DDT in India. Thereafter, 11 vector-borne diseases are described, including malaria, with information on the causative agent, transmission, epidemiology and occurrence in India as well as globally. In India, DDT is used for vector-control purposes, only for malaria. Other countries, including China, have stopped the production of DDT due to their obligations to the Stockholm Convention. Three alternative categories (alternatives to DDT) in vector control have also been listed, namely, larval control for prevention, reducing man/vector contact for prevention and control and mosquito control for vector control. [Note of the evaluator: the DDT-alternative products planned to be produced within the project cover all three alternative categories]. Also, alternative methods and practices to phase out DDT in vector control have been put together, amongst others, source reduction, manipulation of natural habitat, irrigation management, etc. Finally, it contains, in the Annex, an analysis of the four Modules from legal perspective.
 93. Module II inculcates an introduction about the vector mosquitoes and information about vectors of different vector-borne diseases, including anopheles mosquito which is the vector of malaria. The transmission of infection producing micro-organisms occurs during a meal of the vector, during which it sucks blood from an infected human or

¹¹ As per information received on 19 May 2022, the third and final consultation meeting is scheduled for 20 May 2022.

animal. After a vector is infected, it transmits the infected micro-organisms for the rest of its life during each meal [= bite], thus infecting the new person. The morphological characteristics of a mosquito have been described, including diagrams, for better understanding of their functions. Nine types of anopheles vector species are responsible for malaria in India. The morphological characteristics of anopheles mosquito have also been described, as well as those of the larva and pupa, the biology of the vector, which includes four phases of life-cycle, namely, egg, larva, pupa and adult, and ecology, which includes the breeding places. [Note of the evaluator: The planned DDT-alternative products target all four phases of life-cycle of the anopheles vector].

94. Module III introduces different alternatives to DDT in vector control management, namely, conventional management, environmental management, biological control, chemical control, genetic control and natural control. An introduction of Bt has been provided under 'biological control'; neem has been covered under 'conventional methods', 'chemical control' – plant based, and in detail in the separate chapter on 'Outcome of UNIDO project as alternatives to vector control operation'. As the neem tree (*Azadirachta indica*) is prevalent in Africa, Asia and Latin America, and it has proven to be a natural repellent against mosquitoes and other insects, it is considered to be an affordable alternative to DDT for vector control. LLIN has been covered under 'chemical control' – synthetic pyrethroids: and under 'Insecticides used under NVBDCP'. LLINs are being distributed by the NVBDCP in the effected States of India [Note of the evaluator: the same information was also received during the interviews for the MTR of Components 2&3, being implemented by UNIDO].
95. Module IV elaborates upon IVPM, which is Integrated Vector Management and Integrated Pest Management techniques together for a reduction of vectors and pests. IVM includes environmental management, modification and/or manipulation, as well as changes to human behaviour. *Bt* as larvicide has been covered in short, and includes a table with information on formulation and dosage for bio-larvicides. Collaboration between different actors, especially intersectoral, is mentioned as being important for vector control. Regular monitoring and evaluation (M&E) has been highlighted, including field observations, early diagnosis systems, and evaluation of efficacy of protection measures that have been applied, etc.
96. All the Modules contain a lot of information on topics related to the subject of the project, inter alia, malaria, malaria vector, DDT, DDT-alternatives and IVPM. They are written in a simplified and easily understandable manner. Altogether, they contain over 400 pages, with ample background reading material, complementing the training courses. Since they are quite detailed, shorter booklets have also been prepared, which have, on an average, about one-fourth of the original versions in page numbers.
97. The NVBDCP, the primary user of the training materials, after reviewing the training materials, has provided 'no objection' for "pilot testing of these Modules ...". According to interview data, the training material is undergoing pilot testing during the trainings, and is being updated as necessary.
98. Six online training courses 'Training of Trainers (TOT) and pilot testing of modules to promote non-POPs alternatives based Integrated Vector Pest Management' have been conducted in 2021, and two in 2022, all remotely, as follows:

Table 6: Overview of trainings conducted

Date	Participation of States	Total number of Participants
12-26.07.2021	Meghalaya – 11	36

	Mizoram – 12 Tripura – 13	
17-31.08.2021	Assam – 29 Punjab – 28 Haryana – 25 NCDC - 01	83
20.09 – 01.10.2021	Andaman & Nicobar – 01 Arunachal Pradesh – 12 Manipur – 09 Nagaland – 14 Rajasthan – 12	48
18.10 – 01.11.2021	Andhra Pradesh – 14 Telangana – 10	24
16-30.11.2021	Karnataka – 33	33
06-17.12.2021	Maharashtra – 36	36
17-31.01.2022	Chattisgarh – 26	26
04-16.03.2022	Gujarat – 25	25
	Total	311

Source: CSIR-NEERI Training reports, Annual report 2021.

99. The geographical coverage of the 8 trainings conducted till March 2022 is illustrated on the map of India, as follows:

Figure 3: Geographical coverage of trainings



Source of data: CSIR-NEERI Training reports, Annual report 2021.

Source of map¹²: <https://in.one.un.org/wherewework/>

- 100.** The trainings conducted, together with the number of participants per State are shown in the above map, with purple marker pins. As shown above, project has made successful efforts to implement wide geographical coverage via the trainings. At the time of the MTR, two foreseen trainings were yet to take place. The States with the highest number of malaria cases in the country in 2021 were Tripura, Uttar Pradesh, Jharkhand, Maharashtra, Odisha, West Bengal and Chattisgarh, all of them with over 10,000 cases in 2021¹³. Online trainings have already been carried out in Tripura, Maharashtra and Chattisgarh, that is, **Uttar Pradesh, Jharkhand, Odisha and West Bengal** are yet to receive additional relevant information via the trainings; these are marked in the above map with red pins.
- 101.** The trainings were conducted on 10 consecutive work days each, in the afternoons for 3 hours (10 days à 3 hours = 30 hours per training). Participants were State Programme Officers, entomologists, vector-borne disease consultants and other officers related to State Vector-Borne Disease Control Departments. Participants received a certificate at the end of the training and short assessment. Altogether 220 certificates were issued to the participants who completed their training and assessment in 2021, all of which were conducted remotely, due to the restrictions in place due to COVID-19 pandemic.

¹² This illustration was prepared with the help of UNEP Intern, Mr. Thomas Verbaere.

¹³ NVBDCP. <https://nvbdc.gov.in/WriteReadData/l892s/7675020911646644080.pdf> The exact figures and other analysis with the number of cases is not being illustrated here, because the NVBDCP site mentions: "For any scientific publication, if this quoted or used for any analysis purposes, Dte. NVBDCP prior permission must be sought".

Summary of e-survey responses

102. As mentioned earlier in [Section II - Methodology](#), a short e-survey was sent to 263 training participants to capture their feedback on the training. 60 complete responses were received (22.8%); 31.67% from female respondents, 68.33% from male respondents. At least one, and in some cases more, response(s) was received from respondents of each of the above-mentioned States, with the exception of Maharashtra, from where no response was received.

Summary of the responses is provided as follows:

Q4: To what extent were the training objectives met?

69.5%	Completely met
25.5%	Somewhat met
1.7%	Not really met

Q5: To what extent:

	Very useful	Some what useful	Not really useful
a. Was the method of training (presentations, discussions, etc.) useful to understanding the content	83.33	16.67	
b: Was/ist he training material useful for understanding the topics?	88.33	10.00	1.67
c. Was/is the training material useful for your work?	80.00	18.33	

Q6: Time allocated for the training?

10	Too much
66.67	Absolutely right
10.00	Too less

Q7: Your level of involvement in trainings (for eg., asking questions, taking part in discussions, reading material, etc.)

46.67	Strongly involved
40.00	Somewhat involved
11.67	Not so involved

Q8: Ease of understanding the training material?

71.67	Easy
26.67	Neutral
1.67	Difficult

Q9: Did the training help improve your knowledge on the topics which were covered in the training?

100	Yes
-----	-----

Q10: Need for further trainings on the topics presented?

25.00	No
75.00	Yes

Q11: Are you already using any part of the training material/knowledge received during the training, in your work?

8.33	No
91.67	Yes

103. Based on the above responses, a vast majority of the respondents found the training material to be easy and useful for understanding the topics, and are using the training material/knowledge received in their work and wish further trainings on the topics presented; two-thirds of the respondents find the time allocated for the training to be absolutely right, and 10% each to be too much or too less; a vast majority actively participated in the trainings, by asking questions, taking part in discussions and reading material provided; all the respondents acknowledged that the training helped improve their knowledge on the topics which were covered.
104. Three-fourths of the respondents provided additional written responses to the last open question about their feedback. From that almost 50% requested training with physical presence; a few of them requested field training, in addition to the theory training; a few pointed out internet issues during the online trainings.
105. Further, 6 webinars were held, as follows:

Table 7: Overview of webinars conducted

Date	Title/Topic	Number of participants
15.12.2020	Alternatives to DDT in Vector Control	73
29.12.2020	Impact of COVID-19 Pandemic on Vector-Borne Diseases	188
15.01.2021	National Policy for Vector Control	121
29.01.2021	Environmental Contamination of DDT and Phasing it out from Public Health Programs	122
12.02.2021	Sustainable Alternatives to Eliminate Dependency on DDT in Vector-Borne Disease Control Programme	79
26.02.2021	DDT: Policy Perspective on its Use and Alternatives for Disease Vector Control	87

Source: CSIR-NEERI Annual Report 2021, Webinar reports.

106. Eight out of ten pilot trainings have already taken place; two further trainings are planned to be conducted in 2022. With the completion of the remaining two pilot trainings, the initially foreseen number of trainings under this Output will be accomplished. Nevertheless, according to interview data, further trainings are planned to be conducted, with physical presence, as these were requested by several training participants already during/at the end of the respective training.
107. [Interview data] After the completion of the 10 pilot trainings, and updating of the training modules, the updated modules are planned to be submitted to the NVBDCP for its final approval. A meeting of the MTR with the NVBDCP to request information about the approval and further usage of the training modules could not take place due to the busy schedule of the NVBDCP. After the final approval, they are planned to be translated into 2 or 3 local languages, one of them being Hindi, and the other(s) to be selected in consultation with key stakeholders.
108. Output 4.1 is **ongoing**, and it is considered to be realistic to expect it to be achieved by the end of 2022.

Achievement of Outcomes

109. **Outcome 1: Efficient system for fulfilling legal requirements at the various stages of the lifecycle of alternatives to DDT – ongoing.**

110. As mentioned above, under Outputs 1.1 and 1.2, drafts of the necessary documents have been prepared, namely, the Gap Analysis report and based on that the Action Plan, and Guidance documents for producers, registration holders and users on the legal requirements for the DDT-alternatives – neem and *Bt*-based bio-botanical pesticides and LLINs. They are yet to receive final approval by the MoEFCC/TWG. After approval of (even parts of) the Action Plan, the corresponding legal frameworks or amendments to existing legal frameworks have to be prepared and approved. According to interview data, it is, in general a lengthy procedure, especially in this case, as it would involve several Ministries.
111. **Outcome 4: Central and State Governments endorse the implementation of Integrated Vector Pest Management policies/strategies – ongoing.**
112. As elaborated under Output 4.1, four comprehensive training modules have been prepared and eight out of ten envisaged pilot trainings carried out. As the training modules are quite detailed and lengthy, shorter booklets have also been prepared, which are about one-fourth in size of the original versions. Remaining two trainings are planned to be conducted in 2022. A final approval of the training modules by the NVBDCP is required, as the NVBDCP is the key beneficiary for this Output, after which they are planned to be translated into 2 or 3 local languages.

Progress towards Impact

As mentioned above, project (in this case, Components 1&4) has supported the preparation of the following:

113. Documents – Gap Analysis and Action Plan – which are relevant for amending the existing legal frameworks pertinent to the DDT-alternatives. When the actual amendments are prepared and approved, depends on the Government of the country.
114. Guidance documents which are expected to be helpful for future potential producers of DDT-Alternatives; it would be important to update these documents on at least a yearly basis, so that any changes that may have taken place in the meantime, can be reflected therein.
115. Comprehensive as well as shorter versions of training modules for the NVBDCP have been prepared, and trainings conducted. Whether they are integrated into the existing IVPM training for continued use even after project completion, would be upto the NVBDCP.
116. Thus, the project (in this case, Components 1&4) has contributed significantly to the (potential) preparation of legal framework for the DDT-alternatives, and for enhanced knowledge on IVPM, with the potential for contributing to impact, should the key stakeholder institutions take the results forward.

E. Financial Management

Adherence to UNEP's Financial Policies and Procedures

117. According to interview data, the financial management is in compliance with UNEP's financial policies, standards and procedures. No issues were reported to the MTR.
118. The MTR was also provided with several expenditure reports, which UNEP has received from CPCB.

Financial Information

119. UNEP received the funds, USD 1.7 million, from the GEF in May 2015. The first expenditure was recorded in March 2019; after signing the PCA with CPCB, UNEP transferred funds to the CPCB.

120. Total expenditure reported to the MTR is as follows:

Table 8: Detailed view of budget and expenditure

	GEF budget (a)	Amount transferred In USD	Amount spent (in USD) till 31.03.2022 (including committed amount) (b)	In % (b/a)	Amount left from transferred amount (in USD)	Amount left from total GEF budget (in USD) (c)	In % (c/a)
CPCB		511,807	221,363		290,444		
UNEP Law Division		710,650	449,551		261,099		
Total	1,700,000	1,222,457	670,914	39.47	551,543	1,029,086	60.53

Source: Expenditure table provided by UNEP; interview data, expenditure reports.

121. 39.47% (USD 670,914) of the total available GEF funds has been spent so far, and funds amounting to USD 1,029,086 (60.53%) are left from the total GEF funds of USD 1.7 million. According to interview data, the amount not spent by the CPCB and the UNEP Law Division would be sent back to the Finance Division/project.

122. The following table shows the co-finance committed, as well as spent till 31.03.2022 (reported only by Toxics Links at the time of the MTR):

Table 9: Overview of co-finance committed and spent

Component	Amount (USD)	Spent (USD)
Component 1	1,380,600	16,160
Component 4	2,845,400	
TOTAL	4,226,000	16,160

Source: Project document, co-finance report Toxics Links 19 April 2022.

Communication Between Finance and Project Management Staff

123. According to interview data, no issues have come up during the time of implementation of the project upto the time of the MTR. UNEP Funds Management Officer receives the necessary reports from the Executing Agency, reviews the reports and then, funds are released.

F. Efficiency

124. The project was approved by the GEF in April 2015. According to interview data, no dedicated staff was present in the UNEP field representation in the Republic of India at that time, and challenges in finding an executing partner were reported to the evaluation. The UNEP RO in Bangkok was in discussions with the MoEFCC regarding a National Executing Agency for project implementation. Thereafter, the MOEFCC has nominated the CPCB as the Executing Agency of the project. After exchanges in 2018 between UNEP and CPCB regarding the workplan for Components 1, 4 and 5, as well as about engaging the CSIR-NEERI as local executing partner on behalf of the CPCB, a Project

Cooperation Agreement (PCA) has been signed between UNEP and CPCB in February 2019, with the CPCB as National Executing Agency for the project, and is valid till 31 July 2024. Further, a Memorandum of Understanding (MOU) was signed between the CPCB and CSIR-NEERI in June 2019 with the CPCB sub-contracting the conducting of Activities under Components 4&5 and overall execution and coordination, as well as awareness-raising.

125. According to interview data, although the GEF approval and the corresponding amount were received in May 2015, UNEP considers March 2019 as project commencement, as the first amount was disbursed in March 2019 to CPCB, after signing the PCA in February 2019 with CPCB, which is for a duration till 31 July 2024.
126. The Inception Workshop was held on 17 May 2019, and other project Activities commenced after the signing of the MOU between CPCB and CSIR-NEERI in June 2019, that is, 4 years after the approval of the project by the GEF.
127. Initial project duration was 60 months, that is, project was planned to be completed in June 2020 (taking May 2015 as project commencement). As Activities were still remaining to be accomplished, in November 2019, UNIDO requested an extension of the project, and the project was extended till December 2022.
128. Despite 4 years' delay in starting with project Activities, and despite the outbreak of the COVID-19 pandemic less than a year later in March 2020, most of the Activities under Components 1&4 have been successfully accomplished. Till the commencement of the MTR in March 2022, all the necessary output reports (advanced drafts) had been prepared under both Components; moreover, 8 out of 10 planned test/pilot trainings had also taken place, remotely.
129. A National Consultant was recruited in mid-2018 to support project implementation. In mid-2019, the same person was taken on board as National Programme Officer and in mid-2021, he was appointed at UNEP as staff member and is currently the Project Manager of the project.
130. As mentioned above, a total amount of USD 670,914 has been spent by the CPCB and the UNEP Law Division, from USD 1.7 million provided by the GEF, that is, less than 40% of the total available GEF funds has been spent so far, a main reason being the transfer to remote mode for the training activities (8 online trainings and 6 webinars), to comply with the restrictions and safety precautions in place due to the COVID-19 pandemic.
131. Some delays have been reported in the transfer of payments from the National Executing Agency CPCB to the local executing partner CSIR-NEERI, for example, a request for release of payment was made on 10 November 2021 by CSIR-NEERI to CPCB, for which payment was received on 18 February 2022; one reason mentioned for this is the probable difference in interpretation of agreed payment modality, for example, the completion of training modules; another reason reported were several steps of administrative procedures to be followed by the CPCB, in order to release payment. This unexpected long time period between request for release of payment and actual payment is reported to have caused difficulties in paying project staff at the CSIR-NEERI, at par with other employees, also resulting in lack of interest in working on the project.
132. Human resource constraints at the relevant Division of the MoEFCC, that is, the Hazardous Substance Management (HSM) Division, were also reported to the MTR.
133. Remaining Activities, as reported to the evaluation, are 2 pilot trainings; finalization of all 3 Guidance documents; approval of the Gap Analysis and more importantly, the Action Plan, possible support in preparing the draft Amendments, if and as requested; finalization and approval of the 4 training modules by the MOEFCC and NVBDCP,

thereafter 4 trainings with the finalized versions; translation of the training modules into selected local languages, and awareness-raising.

134. Under the current circumstances of project implementation, it is considered to be realistic that remaining/ongoing foreseen Activities under Components 1&4 can be achieved by the end of 2022. At the same time, it needs to be pointed out that 60% of the budget is still remaining, and should the project be extended, for example, for the completion of Components 2&3, it might be possible to carry out further awareness-raising activities, even at State and/or District levels and/or any other activity in consultation and agreement with the key stakeholders, for example preparing the draft amendments of legal frameworks.
135. All the project Outputs and Outcomes taken together are expected to contribute positively to the environment, by reducing/eliminating the production and usage of DDT. Due to the outbreak of the COVID-19 pandemic, most of the Activities have taken place remotely, and travelling was reduced to almost zero, thus also not contributing to enlarging UNEP's carbon footprint.
136. The commencement of implementation of Components 1&4 was not well planned, as an Executing Agency was not known or selected and there was no dedicated staff in India to carry out/coordinate project implementation. However, since mid-2019, project has been implemented in an efficient manner.

G. M&E and Reporting

137. A budgeted Monitoring and Evaluation (M&E) plan is included in the project document. Regular monitoring is foreseen to be carried out by UNIDO, UNEP, National Project Coordinating Unit (NPCU), MoEFCC and M&E Consultants as required; monitoring data is expected to provide inputs for project management, annual project review, mid-term review and terminal evaluation. Executing agency partners are expected to prepare half-yearly progress reports. Annual monitoring is also foreseen to be carried out via the National Steering Committee meetings on an annual basis. Reports are planned to be prepared, namely, Inception Report, Project Implementation Reports (PIR), two independent external evaluations – mid-term evaluation and final evaluation. Monitoring budget is not provided separately, but included in the project management budget.
138. CSIR-NEERI, the local executing partner, submits annual activity reports to UNEP PM and CPCB, including expenditure reports. An annual report for 2021 was also evidenced by the evaluation, which had been prepared by the CSIR-NEERI. Moreover, CSIR-NEERI has also prepared training reports for each training conducted – eight altogether. In 2021, UNIDO and UNEP compiled information and one common Project Implementation Report (PIR) was submitted to the GEF; before that UNIDO had submitted the PIRs for Components 2&3. The MTR is taking place in accordance with the project document, albeit with delay.
139. The MTR of UNIDO Components 2&3 was conducted from 15 April to 10 July 2021. A joint-MTR was not conducted or initiated, as it was not clear at that time that a joint MTR report is required to be submitted to the GEF¹⁴. The MTR of UNEP Components 1&4 commenced in mid-March 2022¹⁵.

¹⁴ Whereas Guidelines are available for Terminal Evaluations of GEF-funded projects, but not for Mid-term Evaluations/Reviews of Full-size projects.

¹⁵ Both the MTRs, of UNIDO Components 2&3 and UNEP Components 1&4, have been conducted by the same evaluation consultant.

H. Sustainability

140. "Sustainability is understood as the probability of direct outcomes being maintained and developed after the close of the intervention."
141. Socio-political risks for the output documents under Components 1&4 are considered to be low. During several interviews, for all four Components, the interviewees mentioned the trend towards environmentally safer materials, and the interest of the wider population for such materials. The training modules prepared under Component 4 are planned to be made available also to the wider population via any website dedicated to the topic. The Guidance documents for the DDT-alternatives have been prepared for producers and users of the DDT-alternatives, and as such, are expected to provide help, for example, to the producers, for registration of their production. The Republic of India is party to the Stockholm Convention, the DDT-alternatives project is mentioned in its National Implementation Plan (NIP), and the project is currently ongoing. No interviewee has pointed out any political risk.
142. Financial risks for the output documents und Components 1&4 are considered to be low. All the planned documents have been prepared, and are awaiting final approvals, and very few Activities are still remaining to take place. Some of the documents are planned to be made available online so that no additional costs or budget would be necessary.
143. Ownership of the finalized version of all the documents produced within the framework of the project is not (yet) clarified or confirmed. Ownership of the Gap Analysis and Action Plan, as well as the Guidance documents for potential producers of DDT-Alternatives, was confirmed by the MoEFCC to be with the MoEFCC, as the lead nodal agency, which could take up the lead to coordinate the preparation of the corresponding draft amendments of existing legal frameworks; the Guidance documents should ideally be updated once a year, after being finalized. For the training modules, it may be realistic to expect the NVBDCP to take up ownership of the modules. For the outputs from the awareness-raising activities, for example the planned videos, it may be considered realistic for the MOEFCC to take up ownership of the videos.

I. Factors Affecting Performance and Cross-Cutting Issues

Preparation and readiness

144. The GEF approval was received in mid-2015. After discussions about the workplan and agreement on CSIR-NEERI as local executing partner, the PCA was signed between UNEP and CPCB only in February 2019, with CPCB as the national executing agency. The CPCB in turn signed an MOU with the CSIR-NEERI only in June 2019. Therefore, only 4 years later, in mid-2019, project Activities commenced for Components 1&4, although project implementation has been efficient since then.

Quality of project management and supervision

145. At the time of the MTR, the project was under the overall management of a PM at UNEP in Geneva, who, as mentioned earlier, was formerly the National Project Officer for the project in India. The MTR was informed that a National Project Officer was planned to be recruited, and the position had been advertised. Component 1 is being implemented by the UNEP Law Division, which has recruited a National Legal Expert for preparing all the legal components for Component 1 as well as for Component 4. Component 4 is being implemented by CSIR-NEERI. Overall project coordination in India – for Components 1&4 – is being done by CSIR-NEERI. And overall coordination of the project Components 1&4 is being done by the UNEP PM in Geneva.
146. Yearly Review/PSC meetings have taken place as follows:

Table 10: Overview of PSC/Review meetings

Meeting date	Place	Participants
Review – 26.06.2018	MoEFCC	MoEFCC, UNDP India, World Bank Consultant, UNIDO Regional Coordinator, UNIDO National Technical Advisor, Assistant Project Coordinators, UNEP
Review – 04.10.2019	MoEFCC	MoEFCC, CPCB, CSIR-NEERI, UNIDO, UNEP
Review – 11.09.2020	Online	MoEFCC, UNIDO RO, National Technical Advisor, Regional Coordinator, UNEP RO, UNEP PM, UNEP Law Division
PSC – 07.07.2021	Online	MoEFCC, HIL, IPFT, NVBDCP, CSIR-NBRI, MoC&F, CPCB, CSIR-NEERI, ICMR-NIMR, NCDC, UNEP PM, UNEP Law Division, UNIDO RO, UNIDO PM, National Technical Advisor, Regional Coordinator, Assistant Project Coordinators, Personal Assistant

Source: Minutes of the Meetings.

- 147.** All the involved stakeholders, as necessary, contact stakeholders of other Components/Activities, for required information. Delays in transferring payment from CPCB, the national executing agency, to the CSIR-NEERI, the local executing partner, were reported to the evaluation. Further, due to the delay in Components 2&3, some technical information was (still) not available to be included in the training modules.
- 148.** Other issues regarding project management and supervision were not reported to the evaluation. As the UNEP PM was previously based in India, and therefore, knows the stakeholders personally as he was implementing the project previously from India, his transfer to Geneva is not reported to have any adverse effect on project implementation.

Gender

- 149.** Gender dimension has not been mentioned at the outcome or output levels, and there are no gender-related project indicators¹⁶. In the project design, gender has been taken into consideration in that the project document mentions the employment of women and vulnerable groups in agriculture and thus their enhanced risk for being exposed to harmful chemicals. It envisages to engage women and vulnerable groups in different project activities, including awareness-raising.
- 150.** Female persons are also involved engaged in different roles in different project activities. The Output documents have not taken the gender aspect into consideration, as they have been prepared for relevant stakeholders/participants/wider population, but irrespective of the gender aspect, as they are pertinent to the people irrespective of their gender. Female doctors and non-doctors have also participated in the trainings, and

¹⁶ This was not a requirement under GEF-5.

around one-third of the respondents of the e-survey, conducted by the MTR, were also female.

151. Potential for focussing on the gender aspect is considered to be given in the awareness-raising activities, especially with respect to malaria, effects of DDT and advantages of the bio-botanical pesticide alternatives to DDT for pregnant women and new-born babies.

Environmental and Social Safeguards

152. All the project Outputs and Outcomes taken together are expected to contribute positively to the environment, by reducing/eliminating the production and usage of DDT. The Action Plan prepared, based on the Gap Analysis, includes the necessary changes in legislation which is expected to provide and strengthen the necessary legal framework for the DDT-alternatives. The training modules provide information on DDT, DDT vector, DDT-alternatives and IVPM, and are expected to contribute to successful implementation of IVPM and successful shift to the DDT-alternatives, thus contributing to (potential) complete phase out of DDT.

Country ownership and driven-ness

153. Relevant institutions are involved in Components 1&4, namely, the MOEFCC, CPCB, NVBDCP and CSIR-NEERI, besides the environmental NGO Toxics Link and environmental legal expert.
154. The institutions are also members of the Technical Working Group and the Experts Group, which provides feedback and inputs to the documents during their preparation. Some of the involved institutions have reported a waiting period in order to receive feedback from the MOEFCC. As mentioned earlier, human resource constraints at the HSM Division of the MoEFCC were reported to the MTR; these might have affected the level of involvement of the HSM Division and/or time duration for providing feedback on project activities. Meetings with the NVBDCP could not take place, due to non-confirmation of day/time by the NVBDCP.

Communication and awareness raising

155. A structured communication strategy has not been prepared.
156. Information, Education, Communication (IEC) material has been prepared by the CSIR-NEERI, namely, brochures on different vector-borne diseases – chikungunya, dengue, filariasis, malaria, Japanese encephalitis, kala azar, kysanur forest disease; pamphlets for example on life-cycle of vector mosquitoes; door stickers, etc.
157. An experienced documentary producer has been recruited as Communications Consultant to prepare human-focused videos, one long video – 20-30 minutes – and two short videos of 5 minutes each that “exemplify the use of alternatives to DDT products manufactured under the project” based on material compiled via interviews. As reported to the MTR, the aim of the human-focused videos is to raise awareness about the alternatives and thus promote the project’s results, and to showcase India’s efforts in scaling down the DDT production. According to interview data, the first draft, that is first cut, of the long video is expected to be completed in July/August 2022. After finalization, translation into three languages is planned, namely, Hindi, French and Spanish.
158. Moreover, shorter versions of one-minute each of the longer video are planned to be prepared for social media platforms, such as Facebook, Instagram, Twitter, and for news releases for websites and news outlets.

VI. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

159. Conclusion 1: Relevance and Coherence

160. All interviewed stakeholders confirmed the high relevance of the project. Project is fully aligned with strategies and priorities of the Government of India, UNEP, Stockholm Convention, WHO and the GEF, and contributes to the SDGs – 3, 9, 11, 12, 13, 15 and 17 (all four Components taken together).

161. Conclusion 2: Readiness at implementation

162. GEF funds amounting to USD 1.7 million were received by UNEP in May 2015. However, implementation of Components 1&4 could not start at that time. After nomination of CPCB as Executing Agency, signing of PCA between CPCB and UNEP in February 2019, signing of MOU between CPCB and CSIR-NEERI in June 2019, for the latter to be the local executing partner, project implementation commenced mid-2019, four years after receiving GEF funds for the Components.

163. Conclusion 3: Project design

164. Output 1.1 “... in place”: Any project can only carry out necessary preparatory work for amendment of legal frameworks. Within the framework of this project, a Gap Analysis report has been prepared; based on the Gap Analysis, an Action Plan. It is upto the Government to prepare, or assign to prepare, the necessary draft legal amendments. At the time of the MTR, feedback to and approval of the said two documents from the MoEFCC and TWG were yet to take place.

165. Conclusion 4: Effectiveness and Efficiency

166. Despite the delay in starting implementation of the project Activities, at the time of the MTR, almost all of the foreseen Activities had been carried out. The Gap Analysis and Action Plan as well as the Guidance documents for the three DDT-alternative prepared, four training modules were ready, eight out of ten trainings carried out, remotely, and videos for awareness-raising were under preparation. Out of 7 States with the highest number of malaria cases in 2021, namely, over 10,000 each, 3 States have received online training, 4 States are yet to be covered. Feedback to the Gap Analysis and Action Plan as well as on the Guidance documents was awaited, rest of the trainings were to be carried out, the training modules approved for finalization, and videos to be finalized, as well as other awareness-raising activities carried out. It is realistic to expect all envisaged Activities to be completed by the end of 2022.

167. Out of the GEF funds provided to the project amounting to USD 1.7 million, USD 670,914 had been spent at the time of the MTR, that is, around 40%. Some delays in transfer of payment from the National Executing Agency CPCB to the local executing partner CSIR-NEERI, also due to several administrative procedures and steps involved in approving and releasing such payments, have been mentioned to the MTR, which are reported to have caused difficulties in paying staff at the CSIR-NEERI who are involved in project activities.

168. Conclusion 5: Ownership and Sustainability

169. At the time of the MTR, ownership of some of the Output documents for the time after project completion could not be confirmed; the MoEFCC confirmed that ownership of the Gap Analysis and Action Plan, as well as the Guidance documents, would be taken up by the MoEFCC, as it is the nodal agency of the project; the four training modules could be assumed to be under the ownership of the NVBDCP, however, this could not

be confirmed; and finally, the ownership of the videos which were under preparation, also remained to be confirmed.

170. Conclusion 6: Awareness-raising

171. A structured communication strategy has not been prepared. One long video and, based on that, 2 shorter versions for 5 minutes each, as well as 1 minute, are planned to be prepared. The final versions are planned to be translated into Hindi, French and Spanish.

B. Summary of project findings and ratings

172. The following table provides a summary of the findings and ratings elaborated in the previous sections of the report. The overall rating for project performance at current stage of implementation is 'Satisfactory'.

Table 11: Summary of project findings and ratings

Project 531.1:		
Criterion	Summary assessment	Rating
Strategic Relevance		HS
1. Alignment to UNEP MTS, POW and Strategic Priorities	Aligned with MTS 2014-2017, POW 2014-2015, strategic priorities	HS
2. Alignment to Donor strategic priorities	Aligned with priorities of GEF Strategic Goal 3 and 4 GEF-5 focal area Chemicals	HS
3. Relevance to regional, sub-regional and national environmental priorities	In line with National Implementation Plan of Republic of India	HS
4. Complementarity with existing interventions	Aligned with Stockholm Convention; no other complementarities reported	MS
Quality of Project Design	Includes all requirements; Project might not be able to fulfil Output 1.1, as formulated in the project document.	S
Nature of External Context	Other than COVID-19 related challenges, no other external factors reported	S
Effectiveness		S
1. Availability of outputs	All activities initiated; almost all achieved. Outputs 1.1 and 1.2 – achieved (after approval by TWG and MoEFCC). Output 4.1 – all documents prepared, and pilot trainings ongoing	S
2. Achievement of project outcomes	Outcome 1 – ongoing; yet to achieve; all documents prepared, yet to receive approvals. Outcome 4 – ongoing; yet to achieve; all documents prepared; pilot trainings ongoing.	MS
3. Likelihood of impact	Components 1 and 4 have contributed significantly for the preparation of legal frameworks and for enhanced knowledge on IVPM. Potential for contributing to impact – if the key stakeholder institutions take the results forward.	L
Financial Management		HS
1. Adherence to UNEP's financial policies and procedures	In line with UNEP's financial policies and procedures	HS
2. Completeness of project financial information	Complete project financial information provided to the MTR	HS
3. Communication between finance and project management staff	Communication between finance and project management staff as necessary; no issues reported	HS
Efficiency	GEF approval received mid-2015; PCA with Executing Agency signed in Feb. 2019; project implementation commenced in mid-2019; since then, almost all foreseen Activities prepared	S
Monitoring and Reporting		HS

Project 531.1:		
Criterion	Summary assessment	Rating
1. Monitoring design and budgeting	M&E plan and corresponding budget included in the project document	HS
2. Monitoring of project implementation	By the project manager, and via the local executing partner	HS
3. Project reporting	Local Executing partner has prepared and sent regular reports; PM has prepared presentations for MoEFCC with status of Activities, etc. Review meetings have taken place.	HS
Sustainability		L
1. Socio-political sustainability	Low risk	HL
2. Financial sustainability	Low risk	HL
3. Institutional sustainability	Ownership of Gap Analysis, Action Plan and Guidance documents – confirmed to be with the MoEFCC; Ownership of 4 training modules – could not be confirmed from the NVBDCP – as meeting could not take place, due to non-availability of the NVBDCP.	L
Factors Affecting Performance		S
1. Preparation and readiness	No Executing Agency known, at project approval in mid-2015; project activities commenced in mid-2019	U
2. Quality of project management and supervision	UNEP PM was previously National Project Officer, dedicated to this project	HS
3. Stakeholders' participation and cooperation	All interviewed stakeholders reaffirmed their commitment to the project activities and objectives; Human resource constraints reported at the MoEFCC, thus affecting level of involvement and time required for providing feedback; NVBDCP – key stakeholder institution for Comp 4 – not available for MTR meeting	S
4. Responsiveness to human rights and gender equity	Human rights and gender not explicitly addressed in project document and in project activities. Potential given in awareness-raising activities; no issues reported though	MU
5. Environmental, social and economic safeguards	Project document entails Environmental, Social and Economic Review Note, project is expected to contribute to safeguarding environment	HS
6. Country ownership and driven-ness	Key stakeholder institutions are members of TWG and Expert Group; Human resource constraints reported at the MoEFCC, thus affecting level of involvement and time required for providing feedback; MoEFCC has confirmed ownership of documents under Component 1; NVBDCP – key stakeholder institution for Comp 4 – not available for MTR meeting – ownership of documents under Component 4 could not be confirmed	S
7. Communication and public awareness	Although no structured communication strategy prepared, some IEC material has been prepared; video is being prepared by a National Communication Expert, to portray the project achievements and India's efforts towards DDT-elimination.	MS
Overall Project Performance Rating		S

C. Lessons learned

Lesson Learned #1:	An appropriate local executing agency or partner or a national project coordinator can prove to be conducive to project implementation.
Context/comment:	As explained under Conclusions, and elsewhere in the main text, project was approved by the GEF in mid-2015 and project implementation commenced only in mid-2019. The national project officer joined initially as Consultant in mid-2018. After the start of the CSIR-NEERI in the project as the local executing partner in June 2019, and the overall coordination by the former national project officer/current PM, project implementation started moving.

Lesson Learned #2:	A structured communication strategy can prove to be conducive to appropriate awareness-raising, especially in this type of project, whereby a shift in mindset of the wider population is necessary for moving from usage of DDT to DDT-alternatives.
Context/comment:	A structured communication strategy has not been prepared. Videos have been assigned to be prepared, and translated into 3 languages – Hindi, French, Spanish. However, the wider population in the States currently using DDT speaks other local languages.

D. Recommendations

In the remaining time duration of the project, **Project management team** should:

Regarding documents prepared under **Output 1:**

- i. Clarify the next steps in the approval of the Gap Analysis and Action Plan and the preparation of the draft amendments, as well as whether the project can support the preparation of the draft amendments;
- ii. Ensure to highlight that the Guidance documents should ideally be updated at least once a year;

Regarding the training modules prepared under **Output 4:**

- iii. Conduct further two trainings as planned, in order to achieve the foreseen 10 pilot trainings of the 4 draft training modules prepared;
- iv. Include Uttar Pradesh, Jharkhand, Odisha and West Bengal in the trainings;
- v. Conduct additional trainings, with physical presence, as realistic, and including field trainings;
- vi. Facilitate the approval of the training modules by the NVBDCP;
- vii. Clarify and confirm ownership and status of training modules and facilitate integration of the training modules in existing training program of the NVBDCP;
- viii. Document gender-disaggregated data of training participants;

- ix. For the translation of the training modules, ensure that the local languages of States currently using DDT for vector control and States with high number of malaria cases are taken into consideration;

Regarding awareness-raising:

- x. Consider preparing a website with all project-relevant information for the wider population; in this case, clarify and confirm ownership of the website for the time after project completion;
- xi. Prepare a structured communication strategy, including activities which are realistic to be implemented within rest duration of the project and budget;
- xii. Coordinate with, and include, relevant project partner institutions, for example, MoEFCC, NVBDCP, HIL, VCRC, CSIR-NEERI, CPCB, NIMR, UNEP, UNIDO, etc. in the awareness-raising activities;
- xiii. A National Forum to be organized as soon as realistically possible, with participation of relevant members of the society, Ministries, other relevant/stakeholder institutions, Academia, NGOs, all States, UNEP, UNIDO, other UN Agencies, etc. to bring together all key/relevant stakeholders of the whole project (all four Components), present project results (all four Components) at current stage of implementation and the next steps;
- xiv. A National Forum to be organized, with participation of relevant members of the society, Ministries, other relevant/stakeholder institutions, Academia, NGOs, all States, UNEP, UNIDO, other UN Agencies, etc., towards the end of the project, to present project results achieved, as well as to discuss and present those activities/project results, which are planned to be continued by some of the stakeholder institutions;
- xv. Integrate gender aspect, for example, the effect of malaria and DDT on and the advantages of bio-botanical pesticide alternatives for pregnant women and/or on new-born babies;
- xvi. Videos to also be translated in other local languages, especially those languages from States, which are procuring DDT, and where number of malaria cases is high;
- xvii. Posters to be prepared, if possible, for those Districts, where DDT is being used;
- xviii. Radio news in local language about DDT-alternatives, if realistic with remaining budget, especially in States where DDT is being used;
- xix. Collaborative work with panchayats, if possible, especially in areas where DDT is used and/or number of malaria cases is higher than in other States/Districts;

Other aspects:

- xx. Prepare an updated workplan to reflect activities foreseen in the remaining time period of project implementation, together with foreseen budget;
- xxi. Document the expenditure of co-finance from all organizations involved in project implementation;
- xxii. Document gender-disaggregated data, for example, of workshop/training participants;
- xxiii. Facilitate strengthening of a collaborative approach between both Implementing Agencies, UNEP and UNIDO, as well as MoEFCC as nodal agency for the project, to ensure realization of synergies and a streamlined approach in remaining activities;

- xxiv. Facilitate the organization of PSC/review meetings, every six months/twice a year, with the involvement and participation of all stakeholders who are involved in project implementation;
- xxv. Facilitate, as necessary, an amendment of current MOU between CPCB and CSIR-NEERI to clarify any ambiguity in interpretation of payment modalities, thus enabling faster payment transfer to CSIR-NEERI, for example, a timeline could be agreed upon for funds transfer from CPCB to CSIR-NEERI.

Recommendations to UNEP:

- xxvi. For future projects, to discuss and decide upon a local executing agency/partner during the preparatory phase itself, so that there are no delays in project commencement.
- xxvii. Despite possibly being clear to all relevant stakeholders that the legal framework cannot be put into place by the project, and that this aspect needs to be dealt with at national level, such formulations of Outputs, for example, of Output 1.1, should be avoided.

To be considered by the MoEFCC:

- xxviii. PSC and TWG meetings could take place at the earliest, to discuss and decide upon:
 - Status of implementation of all 4 Components and next steps;
 - Workplan for and up to project completion;
 - Remaining budget and activities, and any additional activities, as necessary;
 - Approval of Gap Analysis and Action Plan (Component 1);
 - Project support, via a legal expert, in preparing draft amendments for the legal framework for DDT-Alternatives;
 - Approval of draft Guidance documents.

To be considered by the NVBDCP:

- xxix. Approval of training modules after completion of 10 pilot trainings;
- xxx. Clarification of ownership of training modules and integration thereof in existing training programme of NVBDCP.

To be considered by the CPCB:

- xxxi. Ensure timely release of payment to CSIR-NEERI; in case of any issues, discuss and agree upon clarifications, together with CSIR-NEERI, UNEP PM and/or MoEFCC.

E. Good Practice

- 173. The updating of the training modules, under Component 4, after conducting each pilot training and receiving feedback from the participants, is considered to be a good practice. The participants are working in or are related to vector-control departments in different States, and updating the modules, after receiving their feedback, is expected to ensure that the quality and information caters to their needs and information requirements.

ANNEX I. PERSONS CONSULTED

Table 12: Persons consulted during the mid-term evaluation

Organization	Name	Position	Gender
Ministry of Environment, Forest and Climate Change (MoEFCC)	Mr. Neelesh Kumar Sah	Joint Secretary GEF OFF	Male
MoEFCC	Mr. Satyendra Kumar	Director, HSM Division	Male
MoEFCC	Mr. Subrato Paul	GEF Consultant	Male
MoEFCC	Mr. Sonamani Haobam	Deputy Secretary of International Cooperation Division	Male
MoEFCC	Mr. N. Subrahmanyam	Joint Director, HSM Division	Male
MoEFCC	Ms. Shradha	Consultant	Female
MoEFCC	Ms. Shailja Pahariwal		Female
Central Pollution Control Board (CPCB)	Mr. Dinabandhu Gauda	Additional Director	Male
CSIR-NEERI	Mr. A. Ramesh Kumar	Senior Scientist and Project Leader	Male
Toxics Links	Mr. Satish Sinha	Associate Director	Male
Toxics Links	Mr. Piyush Mohapatro		Male
Legal Expert	Mr. Sanjay Upadhyay	Legal Expert	Male
Communication Consultant	Ms. Akanksha Singh Sood	Communication Consultant	Female
UNEP India	Ms. Divya Datt	Programme Management Officer	Female
UNEP	Ms. Aphrodite Smagadi	Legal Officer	Female
UNEP	Ms. Lais Paiva Siqueira	Associate Legal Officer	Female
UNEP	Mr. Edward Aput	Funds Management Officer	Male
UNEP	Mr. Jitendra Sharma	Project Manager	Male
UNIDO	Ms. Erlinda Galvan	Project Manager	Female
UNIDO	Mr. Yash Pal Ramdev	National Technical Advisor	Male

ANNEX II. DOCUMENTS CONSULTED

Project planning and reporting documents

- Project document
- Terms of Reference for the Mid-term Review
- UNEP Medium Term Strategy 2014-2017
- UNEP Programme of Work 2014-2015
- PCA – UNEP and CPCB
- MOU - CPCB and CSIR-NEERI
- AMR 2021
- CSIR-NEERI quarterly reports
- CSIR-NEERI Annual reports
- Inception Report
- NVBDCP Approval for pilot testing
- Minutes of Meetings
- Status reports
- TWG Constitution
- Workplans
- Expenditure reports
- Audit reports 2019-2020, 2020-2021
- EGM report
- 8 training reports
- Webinar reports

Project output documents

- 4 training modules – full version
- 4 training modules – booklets
- Gap Analysis
- Action Plan
- Annexes A, B, C, D
- 3 Guidance documents
- Information, Education, Communication brochures, pamphlets, booklets, presentations

Reference documents

- Mid-term Review Report of UNIDO Components 2&3
- Toxics Links Brochure
- Letters/E-mails to MoEFCC

- Letters from MoEFCC
- National Implementation Plan of the Republic of India
- Stockholm Convention documents
- National Strategic Plan for Malaria Elimination (2017-22); National framework for Malaria Elimination in India (2016-2030).
- WHO (2004): Global Strategic Framework for Integrated Vector Management.
- Presentations
- Co-finance letter – Toxics Links
- Field visit photos.

Websites:

- <https://toxicslink.org/>
- <https://ipen.org/regional-hubs/south-asia/coordinator>
- <https://legislative.gov.in/sites/default/files/A1968-46.pdf>
- <https://thc.nic.in/Central%20Governmental%20Rules/Insecticides%20Rules,%201971..pdf>
- <https://nvbdcp.gov.in/WriteReadData/l892s/7675020911646644080.pdf>

ANNEX III. BRIEF CV OF THE EVALUATOR

Name: Suman Lederer

Profession	International Evaluation Consultant
Nationality	Austrian
Country experience	<ul style="list-style-type: none"> • Europe: Armenia, Austria, Germany, Belgium, France, Netherlands, North Macedonia, Portugal, Serbia • Africa: South Africa, Tanzania • Asia: India, Indonesia, Lao PDR, Mongolia, Philippines, Sri Lanka, Tajikistan, Thailand, Viet Nam • Oceania: Samoa, Solomon Islands
Education	<ul style="list-style-type: none"> • Master of Advanced International Studies, Diplomatic Academy of Vienna

Short biography

Ms. Suman Lederer is an independent evaluation consultant, currently based in Jakarta, Indonesia. She has studied Business Administration and International Relations. She has led and participated in several Thematic and Project evaluations, with a focus on the evaluation of hazardous waste, POPs, environment as well as private-sector development projects, in Africa, Asia, Caucasus, Central Asia, South-Pacific, Southeast Europe. Further, she has work experience in the private sector and academia in Central and Western Europe.

Key skills and experience for this assignment:

- Vast experience in M&E, research and project management;
- Understanding of POPs issues and GEF projects;
- Proven previous experience in evaluation of Chemicals and Waste projects at UN Agencies;
- Experience in training and capacity building, including preparing concept for evaluation capacity building;
- Good communication and report-writing skills.

Selected Independent evaluations:

Lead Consultant for the Mid-term Review of the UNIDO-GEF project: Development and promotion of non-POPs alternative to DDT in the Republic of India. Components 2&3.

Lead Consultant for the Mid-term Review of the UNEP-IETC project: Promotion and Delivery of Environmentally Sound Waste Management Technologies and Methods and in-Country Technical and Advisory Support.

Team member for the Mid-term Evaluation of UNIDO-GEF project: Environmentally Sound Management of Medical Wastes in India.

Team member for the Terminal Evaluation of 3 UNEP IETC projects: - Global Waste Management Outlook; Secretariat Support to the Global Partnership on Waste Management; Delivering Integrated Waste Solutions at the National and Local Level.

Team leader for the Mid-term evaluation of the UNIDO-GEF project: Demonstration of BAT and BEP in open-burning activities in response to the Stockholm Convention on POPs in the ESEA.

Team member for the Terminal Evaluation of UNEP-GEF Project: Global Project on the Updating of NIPs for POPs. 2 Country Case Studies: Samoa and the Solomon Islands; 9 Country Status Reports, mainly Pacific countries.

Team leader for the Mid-term Evaluation of UNIDO-GEF project: PCB Management and Disposal at the Energy Sector in Lao PDR.

ANNEX IV. MTR TOR (WITHOUT ANNEXES)

UNITED NATIONS

Terms of reference

Job Opening number : 22-United Nations Environment Programme-174041-Consultant

Job Title : Global Environmental Facility (POPs) MTR Consultant

General Expertise : Environmental Affairs

Category : Environment Planning and Management

Department/ Office : United Nations Environment Programme

Organizational Unit : UNEP ODED DTIE CHEM GEF GVA

Duties and Responsibilities

a. Organization setting

--The United Nations Environment Programme (UNEP) is the leading global environmental authority that sets the global environmental agenda, promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system and serves as an authoritative advocate for the global environment.

--The overall objective of the UNEP's Economy Division is to encourage decision makers in government, local authorities and industry to develop and adopt policies, strategies and practices and technologies that promote sustainable patterns of consumption and production, make efficient use of natural resources, ensure safe management of chemicals and contribute to making trade and environment policies mutually supportive. It promotes the development, use and transfer of policies, technologies, economic instruments, managerial practices and other tools that assist in environmentally sound decision making and the building of corresponding activities.

GEF--The GEF Unit of the Chemicals and Health Branch is responsible for the development and management of all GEF projects implemented by UNEP in the Chemicals and Wastes focal area. To date, the team has a portfolio of 100 projects represented over \$200 mil of GEF investment supporting countries in their implementation of the Stockholm Convention, the Minamata Convention and SAICM. The GEF helps developing countries and those with economies in transition to meet the agreed incremental costs of measures designed to achieve global environmental benefits in six focal areas:

biological diversity, climate change, international waters, ozone layer depletion, land degradation and chemicals and waste. An important component of almost all UNEP's GEF projects is building capacity to manage the environment in a sound manner.

The Chemicals and Health Branch plays a key role in supporting countries to implement, develop and execute chemicals related GEF projects that fit within its comparative advantage. UNEP's comparative advantage within the GEF has been defined as:

- Scientific assessments, monitoring, early warning;
- Linking science to policy (Capacity Building, Enabling Activities) at national, regional and global levels;
- Innovation, technology transfer and lifting barriers;

- Regional and global cooperation;
- Awareness raising, advocacy, and knowledge management.

As part of its duties, the GEF C&WU is in charge of supervising a portfolio of ongoing projects, develop new projects to be submitted to the GEF and assist countries to close finished projects. UNEP is coimplementing GEF funded project on 'Development and promotion of non-POPs alternatives to DDT' (GEF ID 4612) along with UNIDO. Under the said project, UNIDO is the lead agency and is responsible for the development of DDT alternatives and UNEP is responsible for legislative framework/guidance for DDT alternatives and integrated vector pest management related activities. The component wise allocation is provided below;

- I. Legislation, policy framework and institutional capacity (UNEP)
- II. Alternatives to vector control (UNIDO)
- III. Promotion and propagation of new cultivars of Neem (UNIDO)
- IV. Development and Promotion of Integrated Vector Pest Management (IVPM) (UNEP)
- V. Monitoring and evaluation of results (UNIDO / UNEP)

The Mid-Term Review (MTR) is performed by expert consultants to measure progress made towards the achievement of outcomes and will identify corrections if needed. The review will focus on the project performance in terms of relevance, effectiveness, efficiency and timeliness of project implementation; highlight issues requiring decisions and actions; and present initial lessons learned on project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the second half of the project's term.

The MTR will cover the whole duration of the project from its starting date in February 2019 when UNEP signed its contract with Executing Agency (EA) i.e. Central Pollution Control Board to December 2021 and assess the likelihood of the project achieving its intended outcomes and impacts, including their likelihood of sustainability. It will analyse project performance and progress against the evaluation criteria: relevance, effectiveness, efficiency, sustainability and impact.

The MTR should provide analysis of the likelihood of attainment of the project objective (s) and the technical components or outputs. The consultant will evaluate the project according to the Terms of Reference. Partial MTR was carried out by UNIDO and the consultant is required to review UNEP components and integrate the findings in the overall report in consultation with UNIDO.

b. Specific tasks to be carried out by the consultant.

- Review project documentation and relevant country background information (national policies and strategies, UN strategies and general economic data); determine key data to collect in the field and prepare key instruments (questionnaires, logic models) to collect these data through interviews and/or surveys;
- Briefing with the UNEP project manager and other key stakeholders (via any web-based teleconference tool);
- Conduct meetings with project partners and project stakeholders virtually;
- Conduct analysis of the project progress and prepare draft presentation of the findings of the evaluation;
- Present overall findings and recommendations to the stakeholders;
- Prepare the review report in consultation with project manager;

- Share the report with UNEP, UNIDO and national stakeholders for feedback and comments;
- Revise the draft MTR reports based on comments from UNEP PM and stakeholders and edit the language and form of the final version;
- Coordinate with UNIDO to integrate the findings of UNEP components to the complete the MTR

c. Reporting lines

The consultant will be supervised by Task Manager, Jitendra Sharma

Ultimate result of service

The ultimate results of services provided by the consultant will be:

1. Mid term review of UNEP components completed
2. The results integrated in the overall MTR report in consultation with project manager and UNIDO

Title & ID number of programme/project: GEF ID #4612 India DDT: SB-000690.28

Is any other department or office of the Secretariat or any other organization of the United Nations involved in similar work to the best of your knowledge?: No

Travel Details: Not Applicable

Outputs/Work Assignment

- Objectives: Complete Mid Term Review of 4612 India DDT project
- Output expectations:
 - o MTR report developed and finalized
 - o Report findings integrated with UNIDO component
- Performance indicators: Reports delivered on time.

ANNEX V. QUALITY ASSESSMENT OF THE MTR REPORT

Evaluation office/Project Manager to insert