Project evaluation series

Evaluation of the Demonstration project for the decontamination of POPs contaminated soils using non thermal treatment methods

GCP/BOT/011/GFF

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
2019

Required citation:

Author (corporate or personal). Year of publication. *Publication title*. [Series.] Place of publication, Publisher (if different to author). Number of pages (total including preliminary pages). Licence: CC BY-NC-SA 3.0 IGO.

Contents

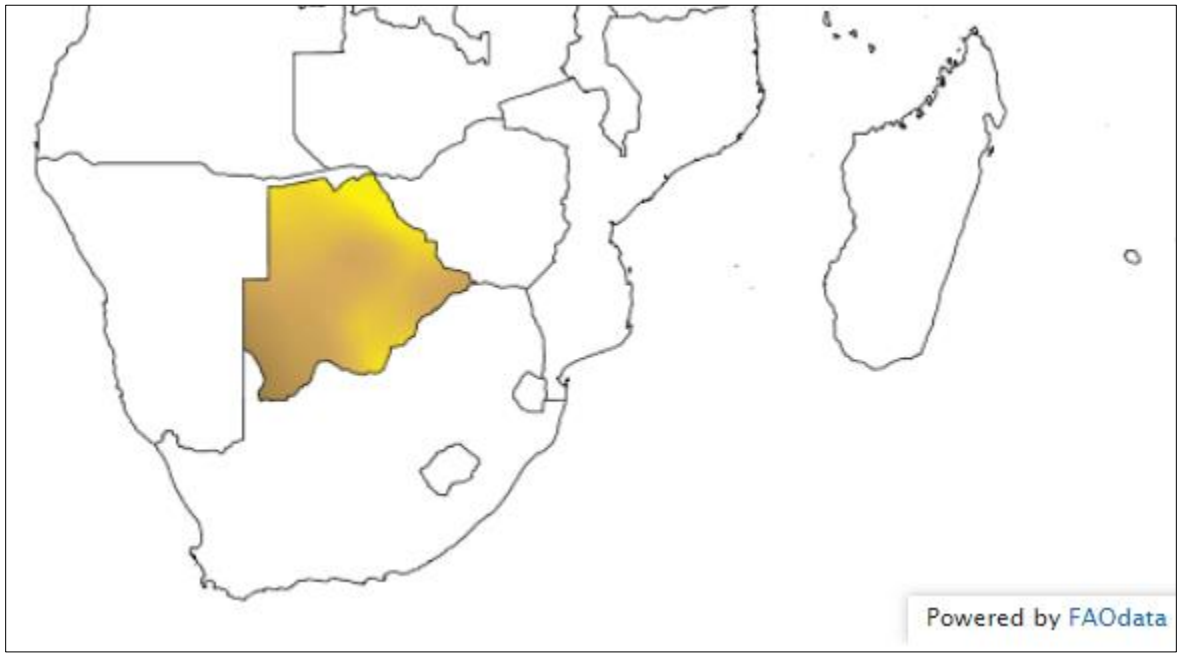
Boxes, figures and tables

Boxes

Figures

Tables

Map of Botswana



FAO 2019

Acknowledgements

The Office of Evaluation would like to thank all those who contributed to this evaluation, Dr Boru Douthwaite (Evaluation Team Leader) and supported by Ms Zibusiso Sibanda (Evaluation Team Member). Mr Harvey John Garcia managed the evaluation and with the support of Mr Martin Corredoira from the FAO Office of Evaluation.

The evaluation was carried out with the invaluable assistance of the staff at FAO Botswana Country Office, the Climate and Environment Division, and the Pest and Pesticide Management of the Plant Production and Protection Division.

The evaluation benefited from the inputs of many other stakeholders, including government officers, farmers' organizations and the staff of other UN agencies, research centres and private sector. Their contributions were critical to the team's work and are deeply appreciated.

Acronyms and abbreviations

BH	Budget Holder
CBC	Climate and Environment Division
BAMB	Botswana Agricultural Marketing Board
BUAN	Botswana University of Agriculture and Natural Resources
CPF	Country Programming Framework
EA	Executing Agency
EMP	Environmental Management Plan
EPC	Empty Pesticide Containers
EQ	Evaluation Question
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FPMIS	Field Programme Management Information System
GEF	Global Environment Facility
GCU	GEF Coordination Unit
IA	Implementing Agency
IPM	Integrated Pest Management
ISPAAD	Integrated Support Programme for Arable Agricultural Development
LTO	Lead Technical Officer
LTU	Lead Technical Unit
MoA	Ministry of Agriculture
MTE	Mid-Term Evaluation
NDP	National Development Plan
NIP	National Implementation Plan of the Stockholm Convention
PIR	Project Implementation Review
PMU	Project Management Unit
POPs	Persistent Organic Pollutants
PPR	Project Progress Report
PSC	Project Steering Committee
PSMS	Pesticide Stock Management System
REA	Rapid Environmental Assessment
SDG	Sustainable Development Goals
SMART	Specific, Measurable, Achievable, Relevant and Time-bound
TCI	Investment Centre Representative
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
WHO	World Health Organization

Executive summary

The Food and Agriculture of the United Nation's (FAO) Office of Evaluation (OED) assessed the project "Demonstration Project for Decontamination of POPs contaminated soils using Non-Thermal Treatment Methods" implemented in Botswana. The total value of the project was USD 3.7. million, of which the principal donor, the Global Environmental Facility (GEF) provided USD 1 363 000, and the rest were co-financed. OED evaluated the project through the use of Theory of Change, Evaluation Questions and the required GEF evaluation criteria of Relevance, Efficiency, Effectiveness, Quality of Implementation/Execution, Quality of Monitoring and Evaluation and Sustainability.

The evaluation found that the Project is very relevant to the national efforts in reducing the harmful effects of Persistent Organic Pollutants on public health and the environment. The Project had vital activities that contributed to achieving the National Implementation Plan of the Stockholm Convention.

There were significant shortcomings on the implementation and execution of the Project that impacted the quality of it's delivery and that caused the three-year delay of its completion. After a change in Lead Technical Officer and the recruitment of a full-time National Project Coordinator at the beginning of 2017, the Project's performance improved. The Project was able to deliver its disposal targets and was able to initiate remediation of contaminated sites, decreasing the risk of Persistent Organic Pollutants.

The Project was designed before the approval of the FAO and GEF guidelines on gender and did little to assess and address gender-related issues during its implementation. In contrast, the Project was able to address Environment and Social Safeguards (ESS) elements even if it preceded the approval of ESS guidelines of FAO and the GEF. Notwithstanding, the project produced scaleable results but are dependent on the further strategic engagement of FAO and continuous support of the government. These include the results related to safeguarding and disposal, which will require indefinite support. The work on remediation of contaminated sites can be discontinued once targets are met and assuming no new sites are found. Disposal of Empty Pesticide Container and could be self-sustaining if the right incentives and policies are put in place.

The evaluation makes the following recommendations to FAO and the Project Steering Committee (PSC).

(1). FAO should continue to highlight and advise the government to keep the issue of risk from pesticides as a priority. FAO should continue to empower the members of the PSC to lobby for continued efforts to reduce risk from pesticides in Botswana;
(2). FAO and the PSC should continue to work on the issues of (i) Bioremediation, (ii) Implementation of a sustainable Empty Pesticide Container management strategy, (iii) Establishing a national stock management system, (iv) Enacting the revised pesticides legislation, and (v) Communication campaign for pesticide management;
(3). FAO and the PSC could lobby for strengthening the office of the pesticide registrar;
(4). FAO should ensure gender mainstreaming and inclusion of social and environmental safeguards in future projects.

1. Introduction

1. The "Demonstration Project for Decontamination of POPs contaminated soils using Non-Thermal Treatment Methods" (POPs Project) was designed to reduce the risk to public health and environment from pesticides through the characterization, treatment and decontamination of POPs and POPs contaminated soils. Specifically, the project worked on three areas:

- Contaminated sites characterization and disposal options assessment;
- Strengthening of the regulatory sector;
- Treatment of contaminated sites.

2. The second component worked to reduce future risk while the other two worked to reduce risk from existing contamination.

Box 1. Basic project information

GEF ID:	3958
FAO ID:	607573
FAO Project Symbol:	GCP/BOT/011/GFF
GEF Implementing Agency:	FAO
GEF Executing Agency:	FAO
National Executing Partner:	Ministry of Agriculture
Other Executing Partners:	Ministry of Environment, Wildlife and Tourism
GEF-4 Strategic Programs:	POPs SP-1, Strengthening Capacities for NIP Implementation; POPs SP-3, Partnering in the demonstration of feasible, innovative technologies and best practice in POPs reduction; Sound Chemicals Management
Date of CEO endorsement:	17 October 2011
Date of project start (effective):	1 February 2012
NCE date:	31 December, 2018
Date of mid-term evaluation:	December, 2016

3. The total project budget was USD 3 703 500 of which GEF contributed USD 1 363 000, FAO/EU USD 1 104 620, Government of Botswana USD 807 400 and FAO USD 428 480. The Food and Agriculture Organization of the United Nations (FAO) was both the GEF implementing agency and the GEF executing agency responsible for supervision and provision of technical guidance during the implementation of the Project.

4. The evaluation used a cluster approach. This means that this Project, with two similar GEF-funded projects in Eritrea and Mozambique due for final evaluation, used a common evaluation management and evaluation team. This approach allows for cross-project comparisons and learning. In addition to individual country-level evaluation reports, the evaluation also produced a lessons learned document of relevance to reducing risk for pesticide use in East and Southern Africa, adding to a similar synthesis from West Africa.[1]

[1] CLEAN – Lessons learned brief POPs final.pdf

1.1 Purpose of the evaluation

5. The final evaluation is a requirement of the main donor, the Global Environment Facility (GEF). It provides an account of how donor funds were spent and what was achieved for different stakeholders involved. As well as meeting accountability requirements, the evaluation also reviews the Project's successes and challenges to learn lessons for future work in the area. Findings, conclusions and recommendations are based on triangulated evidence and analysis.

6. The evaluation will assess the project against its set objective: "to reduce the risk to public health and environment from pesticides through the characterization, treatment and decontamination of POPs and POPs contaminated soils." The evaluation also documents intended and unintended consequences and how the Project contributed to them.

1.2 Intended users

7. The intended users of the results of the final evaluation include: focal points in the line ministries involved with the project (Ministry of Agriculture (MoA) and Ministry of Environment, Natural Resources Conservation and Tourism (MoWET)); members of the Project Steering Committee; the Project Management Unit; Project donors; the FAO Country Office; and, the units within FAO responsible for project implementation and execution. Broader lessons will be useful to donors, governments, multilateral implementing agencies, private sector (e.g. CropLife) and civil society organizations interested in reducing risk throughout the pesticide life cycle. Other uses of evaluation results will include meeting GEF and FAO accountability requirements and informing next steps to consolidate and build on Project successes and learn from Project shortcomings. This was not the first project to deal with pesticide risk in Botswana and it will likely not be the last.

1.3 Scope and objective of the evaluation

8. The final evaluation assessed the Project from its inception in January 2013 until December 2018. The evaluation focuses on results generated by funds spent during this period. The scope of the evaluation is determined by five evaluation questions shown in Box 2.

Box 2. Evaluation questions, scope of inquiry and GEF rating criteria addressed

EQ 1: How relevant was the project to global and national efforts for reducing risks to public health and the environment due to POPs and POPs contaminated soil?
EQ 1 addresses the relevance of the project at global and national scale. This involved establishing government position on pesticide use and disposal in policy documents, establishing relevance of project objectives to main chemical conventions through relevant websites and asking FAO and government representatives as to their view of the relevance of the project.
GEF rating criteria addressed: Relevance

EQ 2: How effective has the project been on delivering results?
EQ 2 addresses the delivery of project outcomes. The question considers whether project design was adequate to achieve outcomes as well as the extent to which project outcomes have been realized. This involves developing a theory of change based on project documents and conversations with key change agents and then testing it against data gathered in the field and monitoring and evaluation (M&E) reports.
GEF rating criteria addressed: Achievement of project results; stakeholder engagement

EQ 3: How satisfactory was project implementation and execution in achieving results? How satisfactory was M&E?
EQ3 considers whether institutional arrangements, project management, oversight, financial management and M&E were fit for purpose. The main sources of information were Project Implementation Reviews (PIRs), budgets, minutes of Steering Committee meetings as well as interviews with staff involved in implementation and execution.
GEF rating criteria addressed: Efficiency, project implementation and execution; monitoring and evaluation; co-financing

EQ 4: To what extent and how did the project include gender and environmental and social safeguarding in project design and implementation?
EQ 4 addresses gender and environmental and social safeguarding in project implementation. The Project began before GEF or FAO revised requirements to include gender mainstreaming in project design. The evaluation focuses on what steps the Project took to incorporate gender considerations and environmental and social safeguarding in project design and operation, particularly after recommendations made in the Medium-Term Evaluation.
GEF rating criteria addressed: Gender, environmental and social safeguards

EQ 5: To what extent and how can project outcomes be sustained and scaled to achieve wider impact?
EQ 5 addresses Project sustainability and future impact at scale by developing and critiquing a theory of change for the Project as well as understanding the different types of project results and what they need to be sustained and scaled. Information and insight for generating the theory of change came from the Project documents, the Inception Workshop, from evaluation team interviews with key stakeholders and from observation during visits to the field.
GEF rating criteria addressed: Sustainability, progress towards impact

1.4 Methodology

9. The evaluation methodology was described in an Inception Report (Annex 2) which passed through an internal FAO Office of Evaluation (OED) review process.

10. The evaluation adheres to the United Nations Evaluation Group Norms and Standards, the Global Environment Facility (GEF) Evaluation Policy and is in line with the FAO Office of Evaluation manual, methodological guidelines and practices. The evaluation was undertaken in line with the United Nations principles of independence, impartiality, transparency,

disclosure, ethical behaviour, partnership, competencies and capacities, credibility and utility, and adopted a consultative and transparent approach with the Project's internal and external stakeholders throughout the evaluation process.

11. The evaluation was structured according to the value for money framework (DFID, 2011) as reflected in the evaluation questions shown in Box 2. Sub-questions were developed to further define the objectives of the evaluation (refer to Annex 2 – Inception Report). The evaluation also conducted a scoping phase in July 2018 to better define the priorities and limits of the evaluation.

12. The evaluation is based on the analysis of project documents (see Bibliography) and interviews with main actors involved in project implementation (see Appendix 1). The evaluation team:

- Undertook a review of the project's relevance, efficiency, effectiveness and approach to gender and equity;
- Carried out an analysis of the Project's design, potential impact, likely sustainability, institutional arrangements, management and financing;
- Recommended next steps for the Project Steering Committee to continue to reduce risks from pesticides;
- Identified lessons learned from project design, implementation and management of relevance to future efforts to reduce risk from pesticides regionally and globally.

13. The evaluation questions are further elaborated by a number of sub-questions. The sub-questions were chosen based on an exhaustive reading of the project document and mid-term evaluation report. The sub-questions are also chosen and worded such that answering them will provide a basis for the evaluators to rate project performance as per GEF requirements for terminal evaluations. Judgement criteria for answering the sub-questions, as well as sources of data and methods of analysis, are shown in an evaluation matrix in Annex 2.

14. An inception workshop was held at the start of the evaluation team's visit to Botswana to build participants understanding and ownership of the evaluation process and results. The dates of the mission were 27 November to 8 December 2018. Participants carried out a self-evaluation of the Project which the evaluation team used to inform and validate their own findings, working on the assumption that project staff and implementers are in the best position to identify project results, successes and shortcomings. Moreover, the literature on utilization-focused and participatory evaluation suggests that evaluations that include project staff and stakeholders in the evaluation are more likely to produce results that are useful and used.[2]

15. The inception workshop was attended by 19 people from the MoA (Plant Protection, Crop Production, Department of Agricultural Research); MoWET (Department of Environmental Affairs); University of Botswana; private sector (Ramogama Farming Pty Ltd); and, Green Buddies, a national NGO concerned with educating children about the health risks of pesticides. Participants included the Agrochemicals Registrar and the Deputy Director of Plant Production.

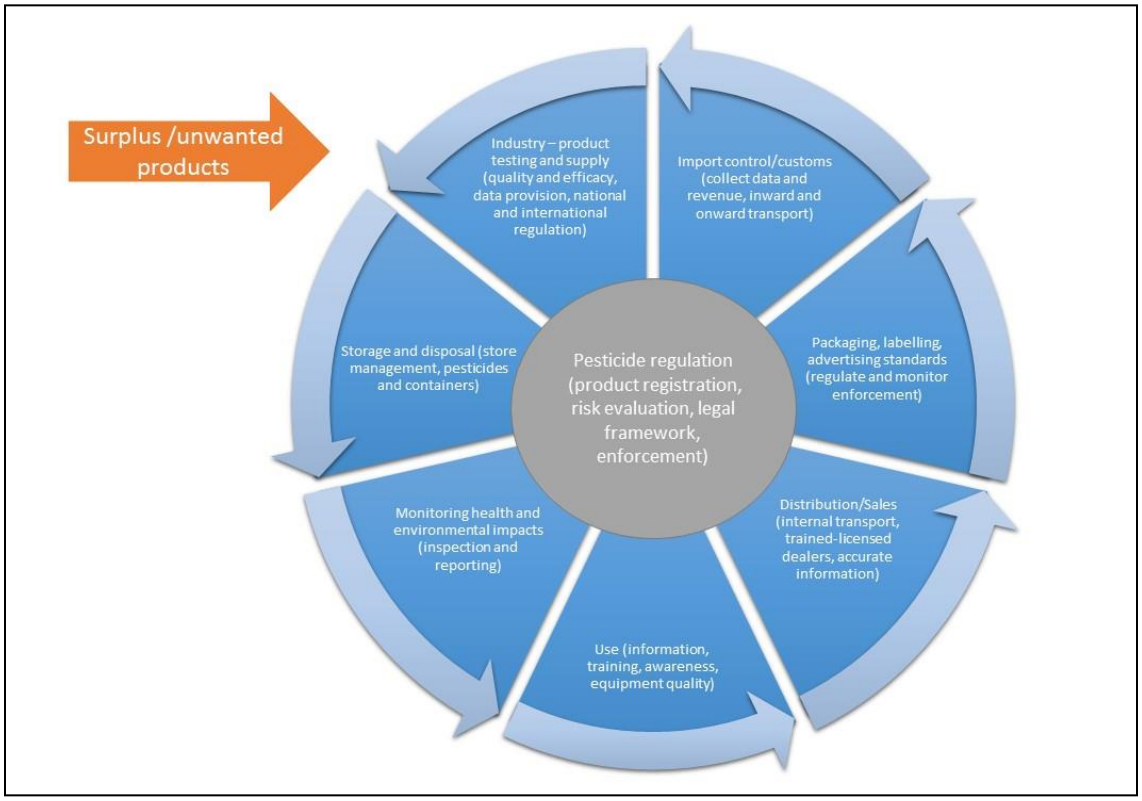
[2] For example, Patton, M.Q., 2008. *Utilization-focused evaluation*. Sage publications.

16. Participants worked in three groups, representing the three main areas on which the Project worked: 1) disposal; 2) regulation and pesticide risk management; and, 3) remediation. Each group constructed a timeline of what they considered to be the main events and processes in each of the three areas. They then carried out an 'after action review' by reflecting on what worked well, not so well, gaps and lessons learned. Finally, participants identified and prioritized next steps.

17. The evaluation team developed a theory of change for the Project based on the Project proposal and presented it to participants for validation. Participants used the theory of change to help identify gaps in implementation and priorities for next steps. The evaluation team also presented and explained the pesticide life cycle (**Error! Reference source not found.**) to help with this.

18. The evaluation questions were answered through an extensive review of documents listed in Bibliography and through talking to people listed in Appendix 1. People were interviewed using questions derived from the evaluation matrix and questions designed to elicit understanding of underlying motivations and dynamics. The interviews were targeted based on initial analysis, recommendations from the country teams and snowballed from previous interviews. Respondents names were anonymised when the evaluation refers to something specifically said in an interview.

Box 3. The pesticide lifecycle



The life cycle of a pesticide is defined as all the stages that a pesticide might pass through from production to its degradation in the environment after use, or its destruction as an unused product. This includes manufacture, formulation, packaging, distribution, storage, transport, use and final disposal of a pesticide product and/or its container (FAO/WHO 2014). Sound pesticide management must therefore address all of these aspects. Suboptimal and weak pesticide management contributes to the accumulation of stockpiles of obsolete pesticides.

19. The evaluation team carried out two parallel field visits. One visit centred on Gaborone and Kanye, and involved one evaluator accompanied by the Project coordinator making visits to: Government Ministries (Agriculture, Health, Environment); private sector (three agrochemical dealers and one plastic recycler); two NGO's (Green Buddies and BirdLife Botswana); the Botswana University of Agriculture and Natural Resources; the National Food Technology Centre (National Food Laboratory); UNDP and the GEF focal person in Botswana. The second team member, together with a national consultant and the Project manager, first travelled to Chobe District and visited Pandamatenga, the site of very large commercial farms, and Kasane, the administrative capital. They then visited Francistown in the North East District and the Central District. During the trip they talked to large commercial farmers (arable and vegetable), the Environmental and Health Officers, MoA staff (Plant Health Inspector, Plant Production Officer, District Agricultural Coordinator, Agricultural Inspector at Martin's Drift border crossing), Project field staff, agrochemical dealers and a branch manager of the Botswana Agricultural Marketing Board (BAMB). More details of who the evaluation team talked to are provided in Appendix 1.

20. At the end of the in-country mission and interviews, the evaluation team presented the preliminary findings to the Deputy Permanent Secretary of the Ministry of Agriculture, the FAO representative, the Deputy Director Crops, the National Project Coordinator, the pesticides registrar and the FAO coordinator for the project. An internal Office of Evaluation peer review of the draft of the evaluation report was conducted to ensure quality. The first draft of the report went through an OED internal quality control check before circulation to a wider group of stakeholders. The evaluation report was finalized after the comments were received and corrections and suggestions were incorporated as considered appropriate by the Office of Evaluation and the evaluation team.

21. In order to meet GEF evaluation requirements, facilitate comparisons with other GEF implementing agencies and contribute to the GEF programme learning process, the evaluation rated the Project in accordance to the existing GEF rating scheme and Office of Evaluation guidelines.

1.5 Limitations

22. The main limitation was access to the information required to assess co-financing. The team found information on co-financing in the Project Implementation Reports, but it was not clear how the in-kind contributions were calculated, nor how the contributions were allocated across the five project components. Ultimately, this made it impossible to know how much had been spent overall and how much had been spent on each of the components. Hence it was not

possible to properly assess actual co-financing contributions and the extent that funds may have been shifted from one component to the other.

23. The Project proposal was developed before it was an FAO or GEF requirement for projects to have an explicit gender strategy or develop a theory of change. The former made it hard to say much about the fourth evaluation question on gender and equity beyond a recommendation made in the Mid-Term Evaluation. The lack of a theory of change was less of a constraint because the evaluation team was able to infer one from the Project's result framework.

2. Background and context of the project

2.1 Context of the project

24. According to participants in the evaluation inception workshop, the pesticide story began in the 1980s with outbreaks of migratory pests, including locusts. Donors provided pesticides, including POPs, to help control outbreaks. Several storage depots were set up across the country. Some of the pesticides were not used and remained in the depots where they started to leak from their containers into the soil.

25. Between 1995 and 2003 two projects were carried out to identify and dispose of obsolete pesticides: the Africa Stockpiles Program and the DANIDA-funded project "Environmentally Sound and Sustainable Management of Obsolete Pesticides in Southern Africa." The former identified and collected over 300 tonnes from government storage depots, while the latter identified 42 tonnes of farmer-held obsolete pesticides. The stocks were taken to a warehouse in Sebele before being disposed of through high temperature incineration in 2003, with funding from DANIDA and FAO.

26. From 2002 to 2012 the government started collecting empty plastic containers and obsolete stocks. The EPCs were not being triple rinsed and therefore had to be treated as hazardous waste. While the accumulation of obsolete stocks had fallen through awareness of the problem raised by the two projects, it was still a problem. Also, nothing had been done about the POPs contaminated soils left behind after the government depots had been cleared. The Africa Stockpiles Program continued to raise the issue of POPs contamination.

27. It was in this context, that discussions began in 2008 that led to the design and funding of this Project to deal with contaminated soils and to strengthen pesticide lifecycle management to reduce accumulation of obsolete pesticides and the risk from pesticides in general. The Project document identified "serious gaps in Botswana's ability to control all aspects of the pesticide life cycle" including the capacity to control imports; gaps in pesticide and waste legislation; and need for improved management of pesticide registrations.

28. The components of the Project were:

- Disposal – Obsolete pesticides and contaminated containers safely safeguarded and disposed/recycled by trained team;
- Regulation and pesticide risk management - Strengthened pesticide life cycle management;
- Remediation - Contaminated soils remediated at selected sites;
- M&E and project management.

29. A Mid-Term Evaluation (MTE) of the Project was published in December 2016 which made seven recommendations, summarised as follows:

- To revise Project targets based on updated estimates of contaminated soil;
- To move forward with recycling of EPCs based on a consultant's report;
- To complete the disposal work at the Sebele site;
- To employ a full-time NPC;

- To move forward with the PSMS by addressing bandwidth and confidentiality issues;
- To guarantee gender mainstreaming in future project actions;
- That GoB disburse its co-financing through a UTF fund;
- Consider a further extension.

2.2 Institutional arrangements

30. The POPs Project institutional structure is shown in Figure 1. FAO was both the GEF **implementing agency (IA)**[3] and the **executing agency (EA)**.[4] The **FAO-GEF Coordination Unit (GCU)** was responsible for providing an FAO GEF Annual Monitoring Review to GEF, based on the annual PIR. GEF made tranche payments on the basis of these reports. The Pesticide Risk Reduction Group were the **Lead Technical Unit (LTU)** responsible for providing technical support and ensuring delivery of outputs and outcomes. The LTU reviewed and provided clearance on consultancies and contracts on: selection of consultants and firms to be hired with GEF funding; all technical reports; reports on project progress; implementation reviews and financial reports. The LTU prepared the annual Project Implementation Review (PIR) in discussion with the GEF Coordination Unit and submitted to the GEF. The GCU also approved implementation reviews, financial reports and budget revisions and was also involved with Project supervision.

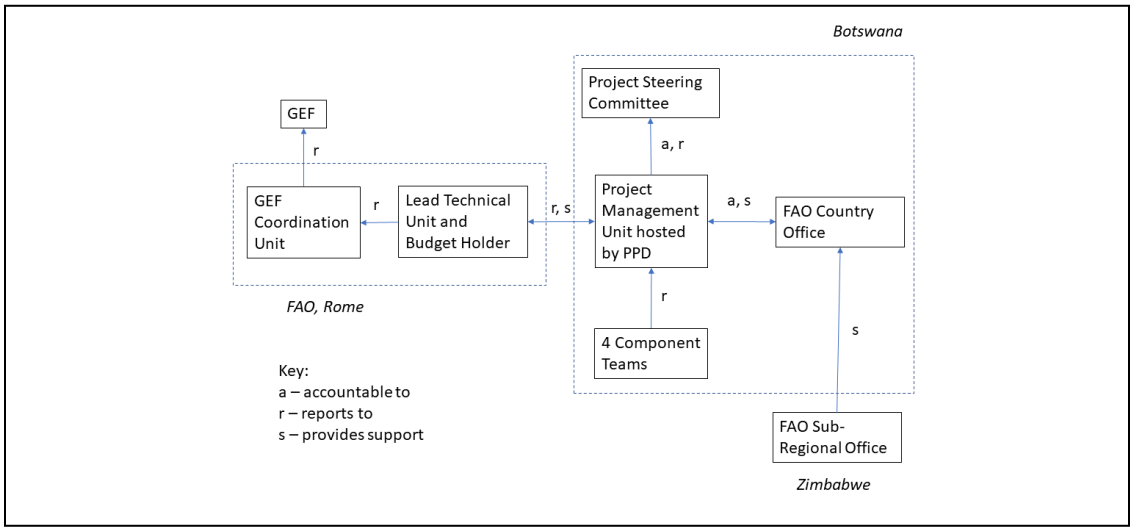


Figure 1. Project institutional arrangements[5]

[3] Partner directly managing the project, executing project activities, monitoring project progress, sub-contracting, managing project staff and funds, and carrying out other project management functions (GEF Definition of Terms.pdf).
[4] Agency making the funding available and providing oversight during the entire project cycle and being held accountable to the GEF Council for delivering global environmental benefits. Responsibilities include ensuring fiduciary standards are applied, and supervising the development and implementation of projects, including monitoring and evaluation, on behalf of the GEF (GEF Definition of Terms.pdf)
[5] Adapted from ERI_Prodoc.pdf

31. AGP was the **FAO Budget Holder** responsible for approving financial transactions against the GEF budget, working in close collaboration with the National Plant Protection Division (PPD) of the Ministry of Agriculture, responsible for in-country implementation.

32. PPD was responsible for hosting the **Project Management Unit (PMU),** providing the National Director of PPD as the Chair of the **Project Steering Committee (PSC)** and, appointing and funding a number of positions including a (part-time) National Project Coordinator (NPC) and technical and secretarial support staff.[6]

33. The Ministry of Environment (MoWET) supported the PSC chair through the National Director of Environmental Management and provided specific inputs to Project implementation related to ensuring environmental protection, approval of environmental assessments and the monitoring and evaluation of project implementation relating to components one and three.

34. MoWET facilitated the Project working with the country focal points for the relevant pesticide and hazardous chemical conventions (Stockholm, Basel and Rotterdam).

35. The PMU was responsible for day-to-day management of activities against a work plan agreed with the PSC and the Budget Holder. The PMU was supported with technical backstopping by a Chief Technical Adviser provided by the LTU (i.e. from FAO-AGP). Leaders were not appointed to the four Component Teams, instead technical consultants were appointed from time to time based on Project needs.[7]

36. The PMU reported to the PSC and was envisaged to be the secretariat to the PSC.[8] The role of the PSC as described in the Project document was to:

- Review and advise on the Project work plan, progress against the work plan and project expenditure;
- Examine and propose means on how to optimise the use of pesticides and avoid accumulation of hazardous waste;
- Identify issues causing bottlenecks and give advice on addressing them to high-level policy makers in the Government;
- Raise awareness of the risk posed by pesticides;
- Address problems with pesticides at border crossings and customs warehouses;
- Keep up to date with issues with respect to obsolete pesticides and pesticide waste;
- Harmonise activities to avoid duplication of effort among the various departments concerned.

37. The PSC was composed of representatives from the Ministry of Agriculture (Crop Production); Ministry of Environment (Department of Waste), Ministry of Water and Ministry of Health as well as from the University of Botswana (Department of Chemistry), Botswana College of

[6] ERI_Prodoc.pdf p.33 & p.68
[7] BOT_MTE.pdf p.39
[8] BOT_Pro Doc.pdf p.39

Agriculture, GEF focal point, Farmers' Union, Pesticide Traders Association and an NGO for the environment and agriculture (Tshole Trust).[9]

38. Compared to the other Project elements, the description of the role and responsibilities of the PSC was very detailed.

39. The **FAO Country Representative (FAOR)** supported project execution, liaising with Government bodies, and linking with other FAO interventions. The FAO Sub-Regional Office for Southern Africa in Zimbabwe supported the Country Office with financial management, procurement and human resources.

40. The institutional arrangements described are consistent with GEF's Direct Execution modality, described in Box 4.

Box 4. FAO's Direct Execution modality for GEF projects*[10]*

> Under the Direct Execution (DEX) modality, FAO implements and executes projects and provides services to National Institutions under the guidance of the Project Steering Committee (PSC), chaired by the lead Ministry or main National Executing partner. FAO is technically and fiduciary accountable for the achievement of all expected project results. The separation of implementation and execution functions, an important aspect of the GEF Minimum Fiduciary Standards, is ensured by maintaining the following setup. The day-to-day management of an FAO-GEF project is the responsibility of the FAO Budget Holder (BH) and the Project Management Unit (PMU) established for each project (execution function), while technical oversight, project supervision, and evaluation are the responsibilities of the FAO technical officers assigned to the specific FAO-GEF projects, FAO GEF Coordination Unit as Funding Liaison Unit, and the FAO Office of Evaluation (OED), respectively (implementation function).

2.3 Aims of the Project

41. The Project's overall goal, as stated in the Project document, is to "reduce the risk to public health and environment from pesticides through the characterization, treatment and decontamination of POPs and POPs contaminated soils."[11] The aim of the Project broadened as a result of consultation with the Government of Botswana and an FAO internal review. As a result:

- Disposal was included in component one;
- Scope of component two was widened;
- There was a reduction in funding for the local treatment of soils (which the title of the Project highlights) and more funding for pilot scale studies to ensure adequate assessment of options.[12]
-
- Stakeholders and beneficiaries of the project were identified as:
- Policy makers in several ministries (e.g., Agriculture, Environment, Health, Finance, Justice);
- National staff from several ministries through capacity building during their involvement in the Project;

[9] BTOR 2012 (1) p.2
[10] FAO's role and responsibility as a GEF Agency.doc p. 1 of Annex 3
[11] BOT_Pro Doc.pdf

- National authorities who will use the project outputs and capacity developed in the control of hazardous waste disposal and environmental management
- Pesticide importers, users, formulators, distributors, and dealers;
- NGOs through the provision of educational material on the safe use of pesticides;
- Communities, men, women and children living in close proximity to contaminated sites.

42. The project's Global Environmental Objective was to eliminate risks from POPs and obsolete pesticides in Botswana through the use of sound environmental management methods to dispose of contaminated soil and pesticide waste and prevent further accumulation of POPs, obsolete pesticides and pesticide waste. The Project contributed to MDG7 on environment by improving environmental protection through removing and disposing of contaminated soils and pesticide waste (e.g. used plastic containers).[12]

43. Although the Sustainable Development Goals were proposed after the start of the Project, the Project could also have contributed to SDG3 on good health and well-being and SDG12 on responsible production and consumption.

44. The Project aimed to be fully consistent with relevant provisions in the GEF POPs Focal Area Strategy. It intended to contribute to the GEF-4 strategic objectives of reducing and eliminating production, use and release of POPs and address all three strategic programmes:

- SP-1 Strengthening capacity for National Implementation Plan (NIP, of the Stockholm Convention) development and implementation;
- SP-2 Partnering in investments needed for NIP implementation; and
- SP-3 Partnering in the demonstration of feasible, innovative technologies and best practice in POPs reduction.

45. The Project set out to achieve its aims through working on four components:

- Disposal (Total: USD 1 133 650; GEF USD 436 625; Co-finance USD 697 025);
- Regulation and pesticide risk management (Total: USD 780 00; GEF USD 112 200; Co-finance USD 667 800)
- Remediation (Total: USD 1 439 600; GEF USD 665 150; Co-finance USD 774 450)
- M&E and project management (Total: USD 350 250; GEF USD 150 025; Co-finance USD 200 225)

2.4 Theory of change

46. A theory of change is an evidence-based story of how a project *has* or *will* achieve outcomes using the resources at its disposal. Most are the former – predictions of how a project will bring change. A good theory of change builds its predictions on evidence of what is already starting to happen, from the social science literature and/or from stakeholder experience. It identifies the underlying mechanisms, that when triggered, will drive results with less or no subsequent project intervention. It also identifies their absence.

[12] BOT_Pro Doc.pdf p.10

47. The evaluators classify project outcomes according to three categories to help answer the evaluation question on sustainability and impact of project outcomes. Doing so helps identify what the underlying mechanisms are and if they have the potential to drive change. The categories of outcomes are described in **Error! Reference source not found.** (Hardcastle, 2008).

48. A theory of change is usually accompanied with a diagram that shows a pathway from inputs to impact following the steps shown in Figure 3. Projects generally have control over whether they produce outputs, because they can be purchased. For example, a communication strategy is an output - a consultant can be employed to produce it. However, how farmers respond to a communication campaign on safe pesticide use is not under the project's control, but is under its influence. The project can tailor the campaign to the target audience. Outcomes, for the purposes of this evaluation are defined as changes in knowledge, attitude, skills, aspirations and/or practice by stakeholders engaging in project processes using project outputs. Outcomes also include changes in social or environmental state, for example a healthier environment after contaminated soils have been remediated and stop contaminating the water supply.

49. Impacts are the cumulative knock-on effects of outcomes (**Error! Reference source not found.**). acknowledges that practically speaking, projects have little or no influence over impact, but is something they should be interested in, and reacting to, particularly if project outcomes result in unexpected negative consequences.

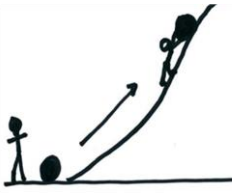
50. FAO has recommended that project concept notes include a theory of

. Categories of project outcomes that require different approaches to be sustained and scaled

Self-sustaining - an outcome that will sustain itself and/or go to scale after the project has finished without significant further external investment, for example the setting up of a system for disposing of used plastic containers that pays for itself. Self-sustaining outcomes depend on the Project triggering a causal mechanism and dynamic.

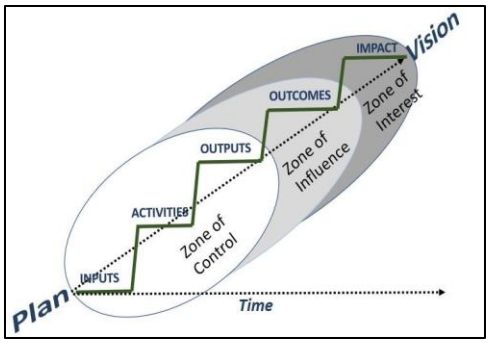
Stepwise - A process towards an outcome that reaches a stable stopping point. The main outcome has not yet been achieved but progress can be put on hold for some time without major reversals, e.g. development of a communication strategy to be implemented sometime in the future. A stepwise process may or may not eventually lead to a self-sustaining outcome.

Contiguous - need to continue to fund the work if the outcome is to be maintained or repeated, for example the safeguarding and international disposal of obsolete pesticides. There is no expectation of a self-sustaining causal mechanism that will continue after the project ends. Future outcomes require the government or a donor to provide the necessary funding to do it again. There can be major reversals, for example the capacity built in safeguarding, disposal and remediation is lost because team members leave to find more secure work (Hardcastle, 2008).



change since 2015.[13] The Botswana POP Project began before 2015 and did not develop a theory of change as part of the project document.

Figure 2. Steps and level of certainty in a theory of change



51. As suggested by the GEF Guidelines on the Project and Programme Life Cycle Policy[14], the evaluation team developed a theory of change (see Figure 3) from project documents, in particular the project results framework.[15] The team presented the diagram for validation by project staff and key stakeholders during the inception workshop at the beginning of their country visit. Workshop participants confirmed that the diagram was a plausible model, to them, of how the Project was supposed to contribute to outcomes and impact.

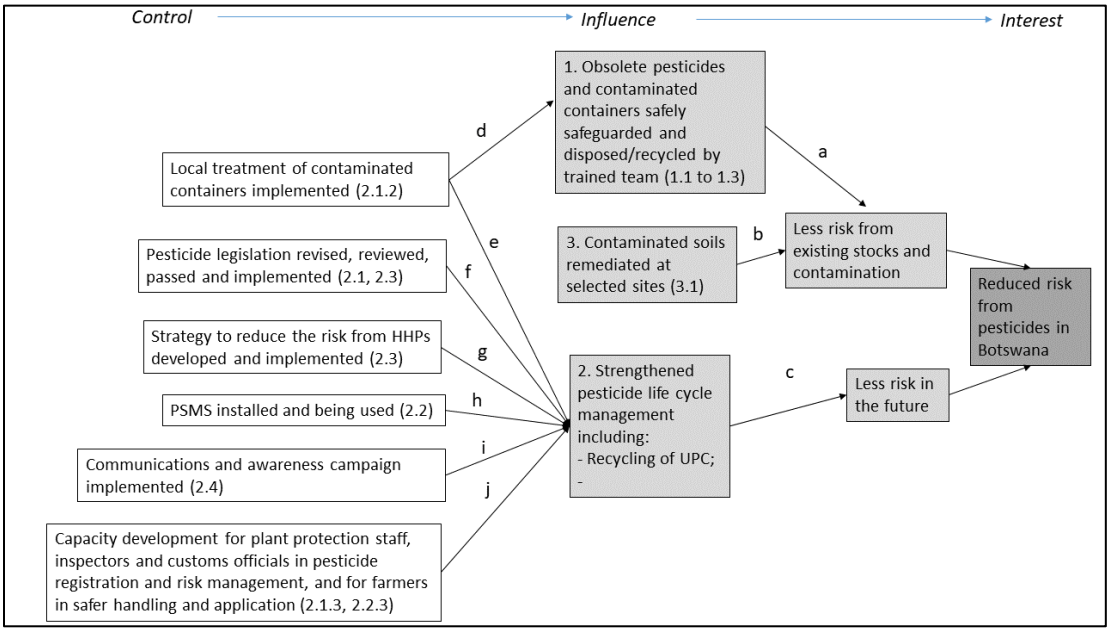


Figure 3. Project theory of change

Table 1. If-then logic underpinning the theory of change

Arrows	If – then logic
a.	Safeguarding and disposing of obsolete pesticides and contaminated containers will reduce current risk

[13] OED Evaluation_Manual_April_2015_new.pdf p.6
[14] GEF Project_Program_Cycle_Policy_OPPL01.pdf
[15] ERI_Prodoc.pdf, p. 18

b.	That remediating contaminated soils will reduce current risk
c.	That strengthening pesticide lifecycle management will lead to less risk from pesticides in the future
d.	Characterization of the type and level of contamination of obsolete pesticides and empty containers will help ensure that those that pose the greatest risk are dealt with by the Project
e & f	Carrying out environmental assessments and good planning for how to deal with obsolete pesticides, contaminated sites and empty containers will contribute to safe and effective disposal and remediation
g & h	Local treatment of contaminated plastic containers will help with the disposal of existing stockpiles & reduce future accumulation, thus strengthening pesticide lifecycle management in Botswana
i & j	Revised pesticide policy and legislation strengthens pesticide life cycle management in Botswana
k.	Promotion of less toxic pesticides leads to reduction in the use of more toxic ones
l	Central management of pesticides will avoid build-up of obsolete stockpiles
m	Better trained plant production staff, inspectors, customs officials and farmers will strengthen pesticide lifecycle management
n.	Raised awareness among target audiences will lead less and better use of pesticides

52. The numbers in parentheses refer to outputs in the Project results framework. The boxes are shaded according to the control - influence - interest spectrum shown in fig 3 The three numbered boxes represent the Project's three main outcome areas (disposal, regulation and pesticide risk management, remediation). Each arrow in the diagram represents an if-then causal step described in Table 1. as a first step to identifying underlying causal mechanisms needed to make the steps happen. The table is *in lieu* of a causal narrative that usually accompanies a theory of change to tell the outcome to impact story of the project.

53. The theory of change and the table are used to answer the main evaluation question on sustainability and impact, specifically, the extent to which the Project has moved along the impact pathways shown in Figure 3 towards achieving its goal (reduce the risk to public health and environment from pesticides in Botswana).

54. Theories of change often specify causal assumptions. In this theory of change, the causal assumptions are the assumptions about where and under what conditions the causal mechanisms are likely to work. Specifying and testing causal assumptions is best done as part of any future impact assessment that seeks to establish and quantify strong causal claims linking project intervention to impact on the ground.

55. In the inception workshop, the theory of change served as a checklist to help participants remember and reflect on what had worked well, gaps and to prioritize next steps.

3. Findings

56. This section presents the main findings for the evaluation questions in the evaluation matrix. The judgement criteria and analysis to arrive at these findings are described in the evaluation matrix (Annex 2) and in the Methodology section above.

3.1 Relevance

EQ1: How relevant was the project to global and national efforts for reducing risks to public health and the environment due to POPs and POPs contaminated soil.

<u>Finding 1 on the Project's global relevance</u>: The project's objectives were fully consistent with international objectives for reducing risks due to POPs and POPs contaminated soils. The project was consistent with the GEF4 strategic objective to reduce and eliminate the production, use and release of POPs in order to protect human health and the environment and was well aligned to the FAO objectives to eliminate hunger, food insecurity and malnutrition, and United Nations Sustainable Development Goals SDG2 and SDG12 (EQ 1.1).

57. The project sought to remediate POPs contaminated soils and dispose of obsolete POPs and associated waste. These objectives are consistent with the GEF4 strategic objective to assist countries to reduce and eliminate the production, use and release of POPs in order to protect human health and the environment, and to assist countries to develop capacity for the sound management of chemicals. The project contributed directly to long-term GEF strategic objectives related to:

Box 5. Highly Hazardous Pesticides

Highly Hazardous Pesticides (HHPs) are defined as pesticides that are "acknowledged to present particularly high levels of acute or chronic hazards to health and/or the environment according to internationally accepted classification systems such as the World Health Organization (WHO) or the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) or their listing in relevant binding international agreements and conventions. In addition, pesticides that appear to cause severe or irreversible harm to health or the environment under conditions of use in a country may be considered to be and treated as highly hazardous" (FAO & WHO, 2014)

- Land degradation (supporting sustainable agriculture and rangeland management);
- POPs (strengthening capacity for NIP development and implementation, partnering in investments for NIP implementation and partnering in the demonstration of feasible innovative technologies and best practices for POPs reduction); and
- Sound chemicals management (articulating the chemicals related interventions within countries' frameworks for chemicals management)[1].

58. Building capacity through implementation of GEF funded projects is a cross-cutting goal of the GEF[16]. The project built national capacity by providing training in remediation of contaminated soils, pesticide registration, pesticide risk reduction, EPC management, pesticide store and

[16] GEF-4-Focal-Area_strategy.pdf

stock management and identification and risk reduction of Highly Hazardous Pesticides (HHPs) (see Finding 5 on capacity development). The project also contributed to the GEF strategy to enhance engagement with the private sector, particularly during the development of a sustainable strategy for EPC management and awareness raising. The project engaged the private sector and NGOs during the process of reviewing the pesticide legislation to ensure that it was relevant to their needs and expectations.

59. The FAO has identified five strategic objectives (SO) to achieve a world without hunger, malnutrition and poverty in a sustainable manner. These objectives are: (1) to eliminate hunger, food insecurity and malnutrition; (2) make agriculture, forestry and fisheries more productive and sustainable; (3) reduce rural poverty; (4) enable inclusive and efficient agricultural and food systems; and, (5) Increase the resilience of livelihoods to threats and crises.[17]

60. The Project contributed to SO2 by disposing of existing pesticide pollution and supporting strategies to prevent future risk to the environment and human health. This included plans to review legislation for pest and pesticide management and establish systems to promote safer pest management options that are sustainable and cause least harm to the environment.

The project was aligned with the United Nations 2030 Sustainable Development Agenda and the Sustainable Development Goals (SDGs)[18]. In particular it addressed SDG2: ending hunger, achieving food security and improved nutrition and promoting sustainable agriculture and SDG12: ensuring sustainable consumption and production patterns.

Finding 2 on the Project's relevance to international conventions: The project's objectives are relevant to Botswana's commitments to internationally ratified plans and conventions relating to POPs. The Project aimed to reduce risks from POPs and associated waste and improve management of pesticides which was directly relevant to the objectives of the Basel, Stockholm and Rotterdam Conventions to which Botswana is party. Experience gained through disposal of obsolete pesticides and waste increased capacity of national staff to comply with provisions of international conventions (EQ1.2).

61. Globally, there are increasing efforts to improve pesticide management and reduce risks through development and adherence to international standards, agreements and voluntary mechanisms. Botswana ratified the Basel Convention on transboundary movement of hazardous waste in 1998, the Stockholm Convention on Persistent Organic Pollutants in 2002 and the Rotterdam Convention on Prior Informed Consent for trade in certain hazardous chemicals in 2008[19]. These conventions lay out minimum acceptable international standards for management of POPs and certain hazardous chemicals and aim to reduce risks caused by these substances. Parties to the Stockholm Convention are required to develop a National Implementation Plan (NIP) that details how the country plans to manage POPs. Botswana submitted its NIP to the Stockholm secretariat on the 6th July, 2011.

[17] The FAO Strategic Objectives. http://www.fao.org/3/a-mg994e.pdf

[18] The Sustainable Development Agenda-United Nations Sustainable Development. https://www.un.org/sustainabledevelopment/development-agenda/

[19] BOT_Pro Doc.pdf page 10

62. The project addresses all the ten national priorities identified in the NIP with the exception of environmental management of PCB containing equipment and wastes[20]. The project sought to address concerns that were raised in the NIP such as "an inadequate documentation system for importation and distribution of POPs, lack of awareness at all levels and lack of a planned information dissemination strategy to inform public on POPs issues"[3]. National staff gained experience in safe export for disposal of obsolete pesticides and waste in compliance with the Basel Convention, and capacity for implementation of other chemical related international agreements was enhanced.

<u>Finding 3 on the Project's national relevance</u>: The Project was relevant to Botswana's national policies relating to POPs and protection of the environment. It addressed priorities identified in Botswana's National Implementation Plan and supported government policies to protect the environment from pollution and improve pesticide management. The Project addressed two of the three priority areas that were identified in the FAO Country Programming Framework which was closely aligned to national priorities as articulated in the Tenth National Development Plan and the UN Development Assistance Framework (EQ1.3).

63. The Government of Botswana had demonstrated its commitment at policy level to managing pesticides prior to the start of this project through the development of a National Waste Strategy in 1998 and by passing the Agrochemicals Act in 1999. These pieces of legislation address use and handling of pesticides and environmentally safe management of waste, including safe disposal of pesticides waste. In addition, an Environmental Impact Assessment Act was passed in 2005 which requires environmental impact assessments to be carried out when designing development projects. The project focused on environmental protection and safe management of agro-chemicals and waste thereby contributing directly towards implementation of these government policies.

64. In 2013/2014 the FAO provided support to the Government of Botswana to develop a Country Programming Framework (CPF) that lays out priority areas to guide FAO support during the period 2014 to 2016. The CPF was endorsed by the Minister of Agriculture in November 2016. Three priority areas were identified for FAO technical assistance in the Country Programming Framework (CPF) for 2014 to 2016: Priority area 1: Support for production and natural resource management in the adoption of environmental friendly and climate smart agriculture practices and approaches for sustained increase of agricultural production; Priority area 2: Support for the development and implementation of inclusive policies and strategies for sustainable increase of agricultural production and food security; and Priority area 3: Support for the promotion of more inclusive, efficient and trade oriented livestock, crop and food system.

65. The project contributed directly towards priority areas one and two through the promotion of safer alternatives for pest management and through revision of pesticide and waste management legislation. The CPF provided guidance for FAO support during the period, which included the provision of technical assistance to improve life-cycle management of pesticides and disposal of obsolete pesticides; review of the pesticide policy with the aim of decreasing the number of registered Class 1 and 2 pesticides and the disposal of all obsolete stocks of

pesticides and associated wastes. The project is clearly designed to focus on these areas and its components align well with the highlighted issues.

66. Priority areas identified in the CPF are also closely aligned to the Tenth National Development Plan (NDP 10)[21] and the country's United Nations Development Assistance Framework (UNDAF) for 2010 to 2016[22]. The UNDAF "presents how the United Nations in cooperation with stakeholders, including the Government of Botswana and civil society organizations, intends to contribute to the attainment of the Millennium Development Goals in Botswana and support the implementation of the priorities outlined in the NDP 10."[7].

67. All components of the project focused on environmental protection and support for a sustainable increase in agricultural production, both of which are included as national priorities in the CPF, the NDP 10 and the UNDAF.

3.2 Effectiveness

EQ 2: How effective has the project been in delivering results? (Both expected and unexpected)

<u>Finding 4 on achieving some of the Project's disposal and remediation targets</u>: The Project exported 28.8. tonnes of obsolete pesticide stocks and contaminated containers for disposal by high temperature incineration, and disposed of 35 tonnes of contaminated seed by incorporating it into the bioremediation process. Remaining obsolete pesticides and waste were burnt in a warehouse fire. Detailed sampling of contaminated sites revealed that only the Sebele site warranted remediation. Following environmental assessments, bioremediation through land farming was selected as a suitable option. Bioremediation commenced in 2017 and has made satisfactory progress. Final sampling indicates that levels of contamination in bio-remediated soils have been reduced and no longer pose significant risk to human health and the environment. A decision has to be made on the final stage of the bio-remediation process. (EQ2.1).

68. The project planned to dispose of 60 to 80 tonnes of obsolete pesticides and associated waste, plus 2000 contaminated containers. This is an estimate of obsolete stocks that have accumulated since the disposal exercise in 2003 given in the Country Programming Framework and the project document.[23] [24]

69. The Project begun in April 2012 and by the end of June 2013 an inventory of obsolete pesticide stocks had been completed. The quantity of obsolete pesticides stock inventoried and centralized at Sebele warehouse was 25 tonnes, far less than the original estimate. All obsolete pesticides had to be separated according to types of pesticides, types of containers, reasons for becoming obsolete etc. The pesticides were then decanted into drums in preparation for

[21] ndp-10-final-16th-dec-2009-edit-in-19-jan-2010
[22] botswana_undaf_2010_2016
[23] BOT_Pro Doc.pdf
[24] Country Programming Framework a-bp626e

shipping resulting in the actual quantity reducing from an estimated 80 tonnes to 29 tonnes. 14 tonnes of unidentified pesticides were not shipped for disposal.

70. A tender for safe disposal of obsolete pesticides and waste was issued and in December 2014 a total of 26.8. tonnes of obsolete pesticide stocks plus two tons of EPC were exported to the UK and disposed by high temperature incineration.[25] [26] Thirty five tonnes of seed which had been included in the inventory of obsolete pesticides and contaminated waste, was added to the composting material used for bioremediating contaminated soil at the Sebele site, after it had been established that levels of contamination in the seed were low enough to be dealt with in this manner.[27] Remaining 4.5 tonnes of safeguarded obsolete pesticides together with two to three tonnes of unidentified pesticides, possibly including POPs, and 10 tonnes of contaminated plastic containers that were awaiting shredding and export for disposal were burnt down with the pesticide warehouse in August 2016. The fire created a large and expensive health hazard. The Government of Botswana exported remains from the burnt down warehouse for disposal in South Africa in September/October 2016.[28] Subsequently, collection of obsolete pesticides and pesticide containers ceased and unquantified stocks have accumulated across the country. A new warehouse is being constructed that will provide storage for these stocks while they await final disposal or recycling.

71. The project aimed to develop and implement a risk reduction strategy for sites with heavily contaminated soils and building materials. Inspection by the project of five potentially contaminated sites revealed that only two sites (Sebele and Kasane) warranted further investigations.[29] Following detailed sampling it was established that contamination at Kasane was negligible and did not require remediation therefore only Sebele, with heavily contaminated soil, was scheduled for remediation [1].

72. Two environmental assessments were carried out in 2012 and 2014 to determine the nature and extent of contamination at Sebele and to identify options for remediating the site. Bioremediation was selected as a suitable option requiring relatively low technical and mechanical support. Bioremediation is a process that uses microorganisms such as bacteria to remove or neutralize contaminants in soil or water. The time scale for completion of Bioremediation could range from one to seven years.

73. Detailed Environmental Management Plans (EMPs) were developed and bioremediation commenced at the site in February 2017 under the guidance of an international expert. Delays in hiring the necessary equipment, and termination of the agreement with the contractor at the end of the government financial year, hampered progress. National staff were employed on short six-month contracts and delays in renewing contracts affected continuity of activities. A Rapid Environmental Assessment (REA) was done and soil samples were collected from the area where the warehouse had stood. The type and level of contamination in this area is yet to be determined through analysis of the samples at Foundation Ceres-Locustox Laboratory in

[25] PIR 2017
[26] SC minutes 31.08.2017
[27] PIR 2016
[28] PIR 2017
[29] PIR 2014

Senegal. Samples were also taken from an area contaminated with Chlordane. It is possible that the contamination found will require methods other than in situ Bioremediation which would require investment of more resources and time. Base samples taken at the beginning of the Bioremediation process were not analysed therefore samples taken during environmental assessment in 2014 were used as indicators of initial levels of contamination. The total quantity of pesticides in the soils in the 2014 samples were compared with that in the final soil samples to indicate any decline in pesticide contamination[30].

74. The bioremediation team was trained on safety and on bioremediation and risk assessment. Training built ownership and capacity of the team to independently duplicate bioremediation activities in other locations. No incidents or accidents were reported during bioremediation activities although the trainer did raise some safety and environmental concerns.

75. The report by the soil decontamination expert concluded that the bioremediation process was carried out to satisfactory standards of health, safety and management. However, there were delays in finding a mechanical digger to periodically mix the contaminated soil and a water bowser to keep the soil damp during the dry season. Identification and selection of bacteria to boost microbial activity and better control of the compositing material used may have been beneficial to speed up the degradation process. Results from final soil sampling indicated that the bioremediation process had successfully reduced pesticide contamination to levels that did not pose significant risk to human health or the environment. The final stage of dealing with the bio-remediated soil has to be decided upon based on available budget and local conditions. Options include covering the soil with concrete, continuing with passive phytoremediation, excavating and sending soil to a controlled landfill or continuing land farming[4]. The consultant made recommendations to improve future Bioremediation operations including improved monitoring and data collection.

<u>Finding 5 on capacity development</u>: The project developed institutional capacity to reduce risk from POPs and POPs contaminated soil by providing training that targeted various stages of the pesticide life cycle. National staff also gained valuable experience during execution of project activities. Short contracts awarded to the safeguarding and remediation teams risk poor retention of trained staff and loss of capacity (EQ 2.2).

76. The project focused on characterization of contaminated sites, disposal of obsolete pesticides and waste, remediation of contaminated sites and strategies to improve life cycle management of pesticides. The project built national capacity to reduce risks posed by pesticides and associated wastes through providing training that targeted different stages of the pesticide life cycle. Trainees were drawn from a cross section of stakeholders including staff from departments within the Ministry of Agriculture, the Ministry of Health and Wellness, and the Ministry of Environment, Wildlife and Tourism; pesticide retailers; farmers; the Botswana University of Agriculture and Natural Resources (BUAN); and an environmental NGO. The remediation team was trained by an international waste management expert who was contracted by the project. The team gained valuable experience in safeguarding stocks in preparation for disposal and in the bioremediation of contaminated soil through land farming.

[30] C Lang, 2018. Technical report. Bioremediation at Sebele site, Gaborone. February 2017 to December 2018.

However, most of the staff that were trained were employed on short-term six-month contracts. This had adverse effects on continuity of operations when renewal of expired contracts was delayed. Contract staff lacked job security. While the evaluation team found some appreciation that maintaining a well-trained remediation and safeguarding team is in the national interest, the evaluation team also found little sense of how the bioremediation team might be put onto a more permanent footing after the end of the project.

77. In addition to training in bioremediation, the project trained over 200 farmers and extension staff in risks associated with pesticides and empty containers, and how they can be managed. Triple rinsing was emphasized as a means of reducing contamination of EPCs prior to disposal or recycling. Personnel from the Department of Plant Protection, the National Agrochemicals Committee and BUAN also received training in use of FAO tools, the Pesticide Registration Toolkit and the PSMS. This training built capacity of national staff to manage pesticides, which should lead to reduced accumulation of obsolete pesticide stocks and reduced risk of contamination to humans and the environment. In addition, the project provided training in data collection for KAP and HHPs surveys, identification of HHPs, registration of biopesticides and implementation of the Rotterdam Convention (see Table 3).

Table 2: Summary of training carried out by the Project with respect to the stages of the pesticide life cycle addressed

Stage of pesticide life cycle addressed by training	Number trained
Import	12
Registration (HHPs risk reduction)	147
Procurement, Distribution, sale, stock management	10
Waste Management (safeguarding, remediation, EPC management)	216
Legislation	60

78. The main thrust of the Project was to characterize, decontaminate and treat POPs and POPs contaminated soil, including disposal or recycling of obsolete pesticides and waste. Activities were therefore focused on management of the end of the pesticide life cycle, hence the emphasis on training in waste management. The Project planned to support the adoption of the FAO PSMS, and review national pesticide legislation. These activities were not completed hence limited training was carried out in these areas. The importance to reduce future risk in order to sustain results of the Project was recognized. Technical support from FAO and an expert in pesticide risk reduction facilitated training in HHPs to reduce future pesticide risk.

Table 3: Details of training carried out by the Project

Nature and duration of training	Participants and organizations involved	Number trained	Date
FAO UCT Diploma in Pesticide Risk Management	Pesticide registrar and NPC	2	2011-2012

PSMS	Plant Protection Staff	3 workshops	First half of 2013 [31]
KAP and HHP survey training	Enumerators, Plant Protection Division Officers	20	Period July 2012 to June 2013 [32]
Disposal of obsolete pesticides	Agricultural Officers		10.11.2014 [33]
HHP risk reduction, implementation of the Rotterdam Convention	NPC, pesticide registrar, officer from Ministry of Health	3	Period of July 2015 to June 2016 [34]
Triple rinsing	Farmers		On-going [35]
Data entry for KAP and HHPs surveys	Enumerators, Senior staff from M and E Department in Ministry of Health	13	9-15/10/2016 [36]
HHPs risk reduction and HHPs identification using the FAO designed identification spreadsheet	Enumerators, pesticide registration team in plant protection division	19 including the new NPC and pesticide registrar	Period 12 to 15/12/2016 [37]
FAO Pesticide Registration Toolkit	Pesticide registration authority, national agrochemicals committee, Botswana University of Agriculture and Natural Resources (BUAN), extension staff from Plant Protection Division, from Ministry of Health, Ministry of Environment, Wildlife and Tourism	25	11 – 15/12/2017 [38]
HHPs validation workshop	Cross section of stakeholders	80	1-3/8/2017 [39]
Management of EPCs (Kanye)	75 farmers. 89 extension staff from MoA, Departments of Environmental affairs and waste management, and pollution control	164	Period January to June 2018 [40]
Management of EPCs (Pandamatenga)	Extension staff from MoA	48	Period January to June 2018 [41]
Use of Personal Protective Equipment (PPE), safe handling of pesticide	Project staff		9/10/2018 42
Bioremediation and risk assessment	Project staff		11-12/10/2018 43

<u>Finding 6 on use of less toxic pesticides</u>: The Project has contributed to the use of less toxic pesticides in Botswana by: carrying out a HPP survey that lead to the banning of up to 14 pesticide products; developing with AGPMC a mitigation plan for the use of HPPs including the promotion of biopesticides and other less toxic alternatives; and, development of legislation to reduce importation of pesticides using temporary import permits. The Project's

[31] PIR 2013
[32] PIR 2013
[33] BTOR 26.10 to 05.11.2014
[34] PIR 2016
[35] PIR 2016
[36] BTOR 9-15/10/2016
[37] BTOR 12-15/12/2016 I Saunyama, PIR 2018
[38] PIR 2018
[39] Report on the national stakeholder consultation workshop to address HHPs in Botswana, PIR 2018
[40] PIR 2018
[41] PIR 2018
[42] BTOR 7-13/10/2018 C Lang
[43] BTOR 7-13/10/2018 C Lang

target of assessing opportunities for integrated pest management (a way of reducing use of pesticides) did not happen. The Project has found that the government's Integrated Support Programme for Arable Agricultural Development (ISPAAD) has increased access of smallholder farmers to agricultural inputs including pesticides and may be contributing to the use of HHPs and accumulation of obsolete pesticides (EQ 2.3).

79. The second component of the project focused on: strengthening pesticide management through the revision of pesticide and waste management legislation; the promotion of less toxic alternatives to pesticides; and the development and roll out of an awareness campaign. The promotion of less toxic alternatives was to be achieved by assessing current pest management strategies and pest usage patterns, and promoting IPM approaches.[44] The Project's initial plan to reduce access to Class 1A pesticide products was expanded to include identification of HHPs and development of a mitigation plan, after formal definition of HHPs in the WHO FAO International Code of Conduct on Pesticide Management in 2014. A pesticide risk reduction consultant engaged by FAO recommended that the Government of Botswana, with support from FAO, should develop an HHPs mitigation plan and risk reduction strategy following clear steps of elimination, substitution, safeguarding technologies, administrative controls and review of personal protective equipment[45].

80. A combined HHPs and KAP survey was carried out during the first quarter of 2017 and a shortlist of HHPs on the national register and HHPs being used in the country was prepared. Twenty-two HHPs, both registered and non-registered were identified.[46] The HHPs shortlist was validated and a draft mitigation plan was endorsed at a consultative workshop in August 2017. Two of the products on the shortlist, Endosulfan and Alachlor, were not being used and were deregistered. [47] [48] The Plant Protection Department updated the HHPs mitigation plan in 2018 and a brochure on HHPs was being developed in December 2018.

81. The WHO system of classification is based primarily on acute oral and dermal toxicity to rats, with Class 1 and Class 2 products having highest toxicity. Pesticide formulations that meet the criteria of Class 1 are classified as HHPs. Pesticide active ingredients and formulations in Class 2 may also be classified as HHPs if they have shown a high incidence of severe or irreversible adverse effects on human health or the environment.[49]

82. The Project set itself the target of reducing by 50 percent of the number of Class 1 pesticides registered for use in Botswana[50].The revised HHPs mitigation plan included banning of up to 14 pesticide products, two of which belong to WHO Class 1A (Fenamiphos and Terbufos).[51] Other pesticides in Class 1A are still present on the national pesticide register and the process

[44] BOT_Pro Doc.pdf
[45] H Rother, 2016. Recommendations for a risk reduction strategy for HHPs in Botswana
[46] BTOR 20-25.11.2017 C Lang
[47] SAPReF workshop report. March 5 to 9, 2018. Johannesburg, South Africa
[48] BTOR 20-25.11.2017 C Lang
[49] FAO WHO 2014. The International Code of Conduct on Pesticide Management
[50] BOT_Pro Doc.pdf
[51] BOTSWANA HHP MITIGATION PLAN Sept 2018.doc

to reduce access to these products is on-going. A TCP has been awarded to build on the HHP work and come up with viable alternatives, which will enable banning of more HHPs.

83. Biological pesticides present opportunity to reduce the use of more toxic persistent pesticides. However many countries have not included regulations specific to biopesticides in their legal frameworks. Biopesticides differ from synthetic pesticides in terms of their storage quality, spectrum of activity, speed of kill, persistence, environmental effects and level of hazard to humans and livestock. **The requirement for biopesticides to be registered through conventional systems for registering synthetic pesticides is a major hindrance to their promotion as safer alternatives.** National legislation could allow for less comprehensive data requirements for low-risk products such as these. Lack of capacity for fast track registration of biopesticides presents a challenge for roll out of the HHPs mitigation plan.[52] Training in fast track registration of biopesticides was provided for 25 people from the Department of Plant Protection, the National Agrochemicals Committee, and academic staff from the University of Agriculture and Natural Resources (BUAN).[53]

84. Training in the FAO pesticide registration tool kit and on registration of biopesticides was conducted in 2017. About 20 project staff and plant protection officers were trained in HHPs identification and risk reduction. Identification of alternatives to the identified HHPs is ongoing with assistance from the AGPMC. The project planned to assess opportunities for integrated pest management (IPM); promote the adoption of IPM strategies; and promote use of biopesticides.[54] [55] Previous studies on IPM were reviewed and opportunities for IPM were assessed.[56] An international consultant was engaged to develop a national IPM strategy. An international consultant was engaged to develop a pest and pesticide management strategy, that would include promotion of IPM as a safer alternative to pesticide use. The strategy was to be an implementation tool under the new National Policy for Agricultural Development (NPAD) that was being developed by the government. In April 2019 the pest and pesticide management expert suggested that the development of any strategy in the field of pest management should be put on hold until the NPAD has been finalized and adopted by the government. Development of a national policy on IPM was not achieved during the project and it is anticipated that some money from the TCP facility for HHP work may be committed towards this.

85. The Project has been working to control the imports of unregistered pesticides into Botswana through closing the Temporary Imports Permits (TIPs) loophole described in Finding 9.

86. The project planned to develop a policy brief to highlight problems associated with input subsidy programmes such as ISPAAD, in an effort to alert government of potential problems

[52] Interview with Agricultural Inspector. Martin's Drift Border Post December 2018
[53] BTOR 7-15.07.2018 Baogen Gu et al.,
[54] PIR 2018
[55] BOT_Pro Doc.pdf
[56] PIR 2013

and influence policy change. ISPAAD is currently under review and it is expected that there will be a drastic reduction in pesticides offered to farmers under the scheme [57].

87. The project made progress in identifying a shortlist of HHPs and deregistered HHP products. The TCP facility will provide support to identify alternatives for the banned products. Completion of a strategy for pest management under the National Policy for Agricultural Development can be expected to contribute towards reducing the use of HHPs.

<u>Finding 7 on institutionalization of pesticide stock management system</u>: The Project made some early progress towards the institutionalization of FAO's pesticide stock management system before halting work citing difficulties with providing customs inspectors with online access to the management system. As of December 2018, the PSMS was under review by the Information Technology Division of the FAO. The evaluation team found no evidence of efforts made to develop or adopt an alternative data management system and Botswana still lacks a robust system for management of national pesticide data (EQ 2.4).

88. The FAO has been actively involved in identifying and providing support for countries to deal with issues associated with obsolete pesticides and associated waste, and contaminated sites since the early 1990s (FAO, 2010). The organization has developed a number of guidance documents and tools to assist countries in preventing and managing obsolete pesticide stocks and reducing risk of re-accumulation of obsolete pesticides due to poor pesticide management practices.

89. One such tool is a web-based pesticides inventory database, the Pesticides Stock Management System (PSMS) launched by FAO in April 2006. The PSMS was designed to assist countries to achieve an acceptable level of pesticide data management (FAO, 2010). It enables countries to collect and share information on pesticides stocks in a standardized format. The system can be used to generate Environmental Risk Assessment for sites and establish priorities for action [4]. The system is designed to help identifying stocks that could become obsolete and to provide data to provide a basis for carrying out Environmental Risk Assessments and for planning disposal and remediation operations (FAO, ND). The system collects data on importers, manufacturers, distributors, types and quantities of pesticides, location of pesticides and risks posed to human health and the environment

90. The project planned to institutionalize PSMS as one of the measures to prevent re-accumulation of stocks of obsolete pesticides in Botswana. The PSMS was installed and national staff were trained in November 2012[58]. A total of three training workshops on use of the system were conducted for Plant Protection staff, however inadequate internet access prevented its roll-out and use[59]. WiFi was installed which improved internet access[14] but the system was still not used.

91. PSMS is hosted at the FAO Headquarters in Rome. Discussion with project staff indicated that there were some concerns about lack of confidentiality of national pesticide data that may have led to a reluctance to use the system. The PSMS was under review by FAO and the process

[57] Botswana_POlicy_Brief_Support_to_smallholder_arable_farmers_in_Botswana
[58] PIR 2016
[59] PIR 2014

was expected to be finalized by October 2018[13], however the evaluation team was not able to establish the outcome.

92. There did not appear to have been any efforts made to develop or adopt an alternative data management system and Botswana still lacks a robust system for management of national pesticide data.

<u>Finding 8 on local treatment of empty containers</u>: The project has developed a model for the long-term management of empty pesticide containers (EPCs) which had not been piloted by December 2018. Materials to raise public awareness about risks posed by EPCs were developed and an awareness campaign was initiated. Nevertheless, EPCs continue to accumulate across the country and a sustainable EPC management scheme needs to be implemented (EQ 2.5).

93. As long as pesticides are being used in the country there will be contaminated containers that need to be disposed of safely. Stocks of EPCs continue to accumulate in Botswana, particularly in areas with intensive horticulture and commercial farming such as Glenn Valley, Pandamatenga and Mosisedi.[60]

94. **Use of pesticides, and hence the generation of EPCs, is being driven in part by the Government's input subsidy programme that provides pesticides free to small area farmers.[5]** During the first half of 2018, the project had considered developing a policy brief to highlight problems created by input subsidy schemes that encourage pesticide use [61]. Although this did not materialize, ISPAAD is currently under review by the government with the view of rationalizing access of pesticides to farmers[62]. A sustainable system for management of pesticide containers needs to be established as part of a life cycle approach to pesticide management.

95. In 2012, a consultant engaged by FAO explored options for management of empty pesticide containers and presented a list of recommendations[63]. Following this, in 2017 an EPC management consultant hired by the project helped develop a strategy to manage EPCs including a business model based on recycling of the containers after triple rinsing. The consultant recommended that the country should:

- Deal with EPC management separately from that of obsolete pesticides.
- Ensure that amendment of legislation adequately covers management of EPCs.
- Avoid prolonged storage of EPCs and monitor waste streams.
- Implement the EPC Management Strategy with the provision that recycling and disposal mechanisms are in place.
- Evaluate existing recycling entities for possible inclusion in the scheme and support upcoming recyclers.
- Immediately implement an EPC awareness campaign with emphasis on triple rinsing.

[60] PPR January to June 2018
[61] PPR January to June 2018
[62] PPR January to June 2018
[63] Feasibility assessment of a sustainable program in Botswana to manage legacy pesticide containers and a future program to collect and recycle empty pesticide containers. May 2012

- Ensure a sound EPC business model for purposes of project viability and sustainability.
- Initiate an EPCM pilot phase in Pandamatenga by the first quarter of 2018 64.

96. Awareness materials including billboards, leaflets and brochures were developed by the Project in 2018 to sensitize farming communities and the general public on hazards posed by pesticides and safe management of EPCs. An awareness campaign was launched in August 2017 and over 200 farmers and extension staff were trained in Kanye District and Pandamatenga. National radio and television broadcasts, agricultural field days and traditional kgotla (public village community meeting) meetings have been used to spread the message[65]. Farmers are being taught to triple rinse pesticide containers before storing for disposal or recycling.

97. The FAO recommends that countries should classify pesticide containers that have been triple rinsed as non- hazardous waste.[66]The UK Environment Agency also makes a similar recommendation[67] and many European and Organisation for Economic Co-operation and Development (OECD) countries now use this classification.[68]There is, however, still an inconsistent approach in the classification worldwide.[69] The classification of triple rinsed containers in Botswana and other African countries as non-hazardous could have implications on cost and would ease restrictions for their introduction into local recycling chains.

98. Following training, implementation of the business model was to begin with pilot phases at the Pandamatenga Commercial farms and among smallholder farmers in the Southern District[70]. It was reported in the PIR for July 2017 to June 2018 that these pilot projects had been established, but this could not be substantiated by the evaluation team.

99. Delays in acquisition of machinery for shredding EPCs, arrangements for collection and transportation of EPCs, final selection of recyclers and fine tuning of other details needed to make the scheme operational have hindered progress. Possible engagement of external companies, in particular Closed Lube in Malawi, Thermal Retort Technologies in South Africa and Louis Swanepoel's Company also needs to be revisited and finalized. Concerns were raised by participants in the evaluation inception workshop that the proposed EPC management model may only be suitable for large scale commercial farmers. The model needs to be tested to ensure that it is financially viable in order to attract participation of the private sector[71]and decentralized so that farmers are able to access facilities close to their farms[72].

100. No collection of EPCs has taken place since 2016 and EPCs continue to accumulate across the country. Interviews with farmers and extension staff established that EPCs are still being sold for domestic use, reused by farmers, burnt, buried or dumped beside airstrips (e.g. Pandamatenga). Some small holder farmers dump EPCs in municipal transfer stations where

[64] PPR January to June 2018
[65] PIR 2018
[66] EPA_TechnicalDoc_PPP. pdf page 6
[67] EPA_TechnicalDoc_PPP. pdf page 12
[68] EPA_TechnicalDoc_PPP. pdf page 3
[69] EPA_TechnicalDoc_PPP. pdf page 5
[70] BOT_Pro Doc.pdf
[71] Evaluation inception workshop
[72] Director, Crop Production

they are either scavenged or end up in local landfills. Inspectors from the MoA confiscate EPCs but this does not provide a solution for the scale of the problem. The awareness campaign carried out by the project may have improved understanding of risks associated with EPCs but lack of a functional system leaves farmers with no option but to continue to engage in unsafe disposal of EPCs.

<u>Finding 9 on pesticide legislation</u>: The Project has supported the revision of pesticide and waste management legislation and built capacity for its implementation and enforcement. The revised legislation, in the form of a Draft Pesticides Amendment Bill, covers management of EPCs, the replacement of HHPs with safer alternatives and amendment and the banning of Temporary Import Permits for pesticides. The Bill, prepared by Attorney General Chambers, was yet to be presented to parliament in December 2018. The Project built capacity of national staff to implement the new legislation by providing training in the FAO pesticide registration toolkit and training for two government personnel in pesticide risk reduction at the University of Cape Town in South Africa. More training is to be carried out after the new legislation has been enacted. (EQ 2.6).

101. While disposal and remediation operations have immediate benefits in reducing pesticide risks, a legal framework is needed to manage future accumulation of obsolete pesticides. Pesticide legislation in Botswana had been silent on end-of-cycle management [73]. The Project was designed to contribute towards development of policy solutions to reduce risk posed by pesticides and associated waste primarily through strengthening environmental and waste management legislation; adopting by policy the PSMS as a management and waste avoidance tool; inclusion of a sustainable EPC management strategy in the new revised pesticide legislation; and, amending national policy leading to a reduction in use of Class 1 and Class 2 pesticides and promotion of safer alternatives.

102. Botswana enacted the Agrochemicals Act in 1999, which regulates both pesticides and fertilizers. When the project started, the Ministry of Environment was already working on legislation for waste management, so the project focused on revision of the pesticides component of the Agrochemicals Act. In 2015, National and International consultants were hired by FAO to review the legislation and address existing gaps. Review of pesticide legislation was completed in 2016 with support from the project[74]. The Attorney General Chambers, together with a legal advisor in the MoA, drafted a Pesticides Amendment Bill which is yet to be submitted to parliament.[75] The Project only planned to provide support for the review of pesticide legislation. However, during implementation of the Project the GoB requested that fertilizer legislation be included in the review process. As this could not be included in the Project the GoB was advised to submit a request for a separate FAO TCP facility that would support the activity. Such a request had not been made by the time of the Projects terminal evaluation. Following advice from FAO, the Ministry of Agriculture has decided to develop two separate pieces of legislation, one for pesticides and another for fertilizers. Separation of the two Acts has led to further delays in the process.

[73] BOT_Pro Doc.pdf
[74] PPR January to June 2018
[75] Botswana_pesticides_act_cleared_versiondocx

103. Obligations for disposal of EPCs (suppliers to take responsibility) and the use of Temporary Import Permits (TIPs) are being considered for inclusion in the new Pesticides Act. The original purpose of TIPs was to allow for the import and testing of small amounts of agro-chemicals not available in Botswana as well as unofficially to compensate for a then-weak agrochemical dealer network in Botswana. A number of respondents, including commercial farmers and government staff, told the evaluation team that TIPs are currently being used by commercial farmers and some dealers to import large amounts of agro-chemicals direct from South Africa at cheaper prices than available in Botswana. TIPs also allow for the importation of pesticides that are unregistered in Botswana, so long as they are registered in another country.[86]

104. Partly because Botswana does not yet have a functioning system for managing national pesticide stocks (Finding 7), the evaluation team found it hard to source data of the quantities and types of agro-chemical being imported through TIPs. The team visited Martin's Drift border post, one of the main border crossing through which agrochemicals enter the country. The team found that the records being kept do not distinguish between temporary or normal import permits, nor do they provide much detail on the types of pesticide coming into the country[76]. For November 2018, 15 consignments entered the country of which 13 were for fertilizer and two were pesticides. However **during a technical backstopping mission by FAO staff it was highlighted that over 80 percent of pesticides used in Botswana were being imported under TIPs [77].**

105. Overall responsibility for management of hazardous waste in Botswana appears to be fragmented [78]. The Department of Health is responsible for clinical waste, whereas the MoA and the Ministry of Local Government have responsibility for other hazardous waste[79]. Inadequate cooperation between departments was raised during the evaluation inception workshop where personnel from the MoA complained about information that was not forthcoming regarding classification of waste hazard levels that they had requested from the Department of Environment. Comments were made that the project could have benefited from more involvement of the Ministry of Health, particularly in raising public awareness about health risks posed by pesticides and assessing effects of the warehouse fire on health of residents around Sebele[80]. Regarding management of pesticide wastes, clear policy on responsibility of stakeholders, including distributors or suppliers, users, recyclers and government departments, is needed.

106. **The revised Pesticides Amendment Bill supported by the Project deals with a loophole created by Temporary Import Permits (TIPs) that allows the importation of pesticides not registered in Botswana.** The evaluation team heard arguments for and against use of these permits from farmers, extension staff and pesticide retailers. There is concern that TIPs play a major role in the import of unregistered pesticides or HHPs which would warrant amendment or banning of the permits. It is perceived by some that banning TIPs would reduce

[76] Interview with Agricultural Inspector. Martin's Drift Border Post
[77] BTOR 9 - 15.10.2016 I Saunyama and L Loy Dona
[78] BOT_Pro Doc.pdf
[79] Environmental Health Officer, Pandamatenga
[80] Enumerator interview, Kanye

the number of importers and improve traceability[81]. Some commercial farmers (in Pandamatenga and horticulture farmers near Francistown) however are opposed to banning of TIPs arguing that they enable them to purchase 'more effective' pesticides at lower cost thus enabling them to compete on a more level playing field with farmers from South Africa[82].

107. Up to 25 personnel from the Plant Protection Division and members of the Agrochemicals committee received training on the FAO Pesticides Registration Toolkit in December 2017. In addition, two government staff completed the Post Graduate Diploma in Pesticide Risk Reduction at The University of Cape Town, South Africa. Further training to improve capacity of national staff to enforce the new legislation will be required once it has been enacted. Empowering the pesticide registrar and reviewing the reporting structure so that he has more direct access to the Minister or other senior government officials will assist in enforcing regulations.

<u>Finding 10 on pesticide risk awareness campaign</u>: The Project developed an awareness campaign on pesticide risk and how to reduce it, but had not fully implemented it by the time of the Projects termination in December 2018. Some Project awareness materials are being used as part on an on-going campaign. Development of communication materials needs to be finalized and full roll out of the campaign actioned (EQ2.7).

108. The second component of the project included development and implementation of a communications strategy aimed at raising awareness about pesticide risk and how it can be reduced. The Project planned to:

- Develop five communications messages;
- Deliver awareness materials to 10 target groups; and
- Assess behavioural change related to use of HHPs in target groups[84].

109. The MTE indicated that the SC decided to combine activities under 2.2 (Deployment of systems supporting life-cycle management of pesticides including PSMS), 2.3 (Review of pest control strategies and promotion of less toxic alternatives to pesticides) and 2.4 (Communications and awareness programme) under a single component of pesticide risk reduction[83]. All of component 2 activities were delayed because the government's cash contributions did not materialize until October 2014, and unspent balance was subsequently recalled in January 2015. A no cost extension was granted to allow completion of component 2 activities with a Not To Exceed date (NTE) of 31 January 2017[84] [85]. Some progress was made during the extension period but further delays led to request for another no cost extension which was granted, with a new NTE of 31 October 2018[86].

110. In June 2015 a tender for development of communications materials was awarded. A KAP survey was to be carried out to provide a basis for the communications strategy. The SC

[81] Manager of pesticide retail outlet in Pandamatenga
[82] Kabo Mabana, Sprayer Operator, Direct Offers Farm, Central District
[83] BOT_MTE.pdf
[84] PIR 2016
[85] PIR2015
[86] PIR 2017

decided to combine the KAP survey with the survey to assess conditions of pesticide use (Criterion 8 for identification of HHPs). A stakeholder consultation workshop was held to introduce HHPs and the communications strategy ahead of enumerator training. Twenty enumerators and plant protection Division Officers were trained to carry out the KAP and HHPs survey. Officers from the M & E unit in the Department of Research and Statistics participated in the survey[87]. The KAP & HHPs survey was concluded in February 2017 and the report was used as the basis for drafting the communications strategy[88]. The strategy was developed by the international communication consultant together with a national consultant and local officers[89] .

111. The awareness raising campaign is being run by the MoA Campaigns Unit and project personnel[90]. The Department of Crop Production is also considering hiring a communications specialist who will be based in the Division of Plant Protection to assist with the campaign. [91] [92] Awareness materials were developed to target different stakeholder groups (farmers, policy makers, the funding body, general population and the commercial sector)[93]. The main objective of the campaign is to increase public knowledge on risks associated with pesticides and safeguard human health and the environment. The key messages are on pesticide risk mitigation and prevention measures, and on management of empty pesticide containers, including triple rinsing. [94] The Project set a target to deliver awareness materials to ten target groups. PIR 2018 The campaign was launched during the first half of 2018 with the delivery of awareness materials to farmers. The campaign was on-going and was yet to cover other target groups.

112. Annex 3 lists expected project outputs together with a percentage estimated by the evaluation team of level of accomplishment.

3.3 Efficiency

Evaluation question 3: How satisfactory was project implementation and execution in achieving outputs? How satisfactory was M&E?

<u>Finding 11 on Project institutional arrangements</u>: The Project's main institutional arrangement to ensure stakeholder engagement – the Project Steering Committee (PSC) – provided only limited to support to achievement of Project outputs. The PSC met too infrequently with too many changes in members attending to develop much understanding and ownership of the Project. Key stakeholders, including the private sector and NGOs, did not attend any of the meetings for which attendance was registered. The one role the PSC did play was to provide advice and guidance to the Project (EQ 3.1).

[87] PIR 2016
[88] PIR 2017
[89] Recommendations for a risk reduction strategy for HHPs in Botswana. H A Rother 2016
[90] PIR 2018
[91] SC minutes 31.08.2017
[92] SC minutes 14.11.2018
[93] Botswana_communication_Matrix_03082018LLD
[94] Botswana_Communication_Matrix_03082018LLD

113. The Project's main institutional arrangement to ensure stakeholder engagement in, and ownership of, the Project was the Project Steering Committee (PSC). The authors of the Project proposal had high expectations of the roles that the PSC would play and what it would achieve. These included reviewing and advising on the Project budget and workplan; awareness-raising on risks posed by pesticides; helping avoid duplication of effort between various departments; providing advice and problem solving with respect to optimizing use of pesticides; and, avoiding future accumulation of obsolete pesticides and on border crossing and customs issues.

114. The Project's M&E system envisaged the PSC would meet every six months to carry out its review of work plans and budget. The PSC met only seven times from 2012-2018 (April 2012, December 2012, November 2014, November 2015, February 2017, August 2017, November 2018)

115. The dates show a 2-year gap between the second and third PSC meeting. This was in part because of delays in the release of the NPC by MoA. The NPC was provided by MoA as a part time position. There was more than a 6-month delay in the release of the first NPC and then when he was released he did not stay. The third Project NPC was appointed in December 2013.[95] The PIRs covering the period acknowledged that PSC meetings were not meeting regularly and that "efforts should be made by FAO and the Government to re-establish strong commitment and oversight of the project."[96]

116. Minutes of PSC meetings were recorded for the last four meetings. Analysis of the minutes suggest the PSC fell well short of expectation. Attendance at the meetings ranged from eight to 12 people from: the Ministry of Agriculture including Plant Protection Division, Department of Agricultural Research, Department of Research and Statistics - Department of Crop Production; Ministry of the Environment, Wildlife and Tourism including Department of Waste Management and Pollution Control; University of Botswana Department of Chemistry and the Botswana University of Agriculture and Natural Resources (BUAN). There was no representation from the private sector, the Botswana Agricultural Marketing Board or from NGOs, as had been originally envisaged. Different people came to different meetings and the long gaps between them made it difficult for the PSC to provide oversight. The minutes show no evidence that work plans and budget were reviewed. In the last PSC meeting, a representative from Ministry of Health and Welfare asked how much Project funding was left and whether it would be spent by the end of the Project. The answer given was that the Project's balance sheet was not readily available because funds were being administered in Rome.[97] The role that PSC appears to have played was is to provide advice to the PMU and NPC.

<u>Finding 12 on co-financing</u>: Based on agreements reflected in the Project proposal, nearly two-thirds of the Project budget was to come through co-financing. The evaluation team has only been able to ascertain with any certainty the receipt of GoB cash co-financing of which 4

[95] PIR 2014.docx p.11
[96] PIR 2015.docx p.18
[97] SC minutes 14.11.2018.doc p.3

percent had been spent by the end of the Project, and the balance committed for activities at least until the end of the 2018/19 financial year. There is some evidence that delays led to a reduction in co-financing, at least in the case of the EU-ACP project (EQ 3.2).

117. According to the Project proposal, nearly two-thirds of the POPs Project budget was to come from co-financing (see

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121. Table 4 and Table 5). Nearly half of the co-financing budget came from an EU-funded project (GCP/INT/063/EC) project entitled "Capacity Building related to Multilateral Environmental Agreements in African, Caribbean and Pacific (ACP) countries - Clean-up of obsolete pesticides, pesticides management and sustainable pest management project." This project (EU-ACP project) realized that it had insufficient funding (total budget of USD 5.8. million for 36 countries) to achieve its objectives and so ran a strategy of co-financing to leverage additional resources.[98] Hence, the EU-ACP project allocated all of its funding for Botswana to co-finance the Project, in particular for work on remediation of contaminated sites, safeguarding and disposal of stocks, management of old pesticide containers and on developing a pesticide management system (i.e., FAO's PSMS). In June 2014, the final evaluation of the EU-ACP claimed it had contributed to the following through co-financing of this Project:

- Training on inventory and PSMS completed;
- Support to two members of the Plant Protection Service to complete the UCT pesticide management course;
- Adoption by the Government of Botswana of PSMS as the main tool to manage pesticide import, distribution and usage;99
- Completion of inventory of obsolete pesticides and associated waste;
- Safeguarding of existing obsolete stocks;
- 80 tonnes of obsolete pesticides disposed or in the final stages of elimination.

122. According to the Project proposal, the EU-ACP project was to contribute USD 1.1. million. However, according to a BTOR report in 2012, the budget allocation for Botswana from the EU-ACP project was only USD 0.74 million and the BTOR acknowledged that FAO would need to cover the shortfall. Even USD 0.74 million appears high at 13 percent of total EU-ACP project funding, given the number of countries the project covered. The evaluation team has not been able to verify if FAO made up the shortfall or how much of the EU-ACP project co-financing was actually spent, beyond the expectation in the 2017 PIR that the full amount would be

[98] http://www.fao.org/3/a-bd598e.pdf p.10
[99] Ibid p.17

dispersed.[100] However, the MTE calls this assumption into question saying in 2016 that "because of delays in the government cofinance and their resolution of the security issues at Sebele, the EU-ACP project was due to close so the funds had to be used on other ACP countries/activities."[101]EU funding was used to support two government staff attend a pesticide risk management diploma at the University of Cape Town. EU funding was also used for the first container management feasibility study.[102]

123. The second largest co-financer after the EU-ACP project was the Government of Botswana who committed USD 810 000 of which USD 400 000 was in cash. Most (65 percent) of GoB co-financing was allocated to component 3 on remediation of contaminated soil. According to figures provided to the evaluation team,[103] by December 2018 the Project had spent 47 percent of the budget with the remainder committed to continue with activities after the end of the project.

124. The GoB stipulated that their funding should be provided directly rather than to be transferred to and managed by FAO as is normally the case in POPs projects. GoB has a rule that unspent or uncommitted funds should be returned at the end of each financial year. When one third of the GoB funding was first made available to the Project in October 2014, for the 2014/15 financial year ending in March 2015, there was concern that unless committed the funding would be lost.[104] In response, the Project provided a plan and budget that was approved by the PSC. Despite this, GoB continued to take unspent money back at the end of the financial year and reallocate it the following year, the uncertainty of which affected planning.

125. The MTE recommended that GoB should provide its contribution to FAO to be administered as a UTF, to solve the issue.[105] This did not happen.

126. The Government of Botswana also committed USD 407 400 as in-kind co-financing which was used for the salaries of the National Project Coordinator and MoA/PPD staff in charge of site safeguarding, use of office space at PPD, local transportation and meetings of the PSC.[106]

127. The evaluation team was not able to find the figures for how much FAO co-financing was provided and what it was spent on. However, the MTE found that in general, FAO was effective in delivering technical and managerial support to the Project but that an overload of work of the LTU prevented it from supervising some key Project activities such as safeguarding and shipment of pesticide waste at Sebele.[107]

[100] PIR 2017.pdf p.25
[101] BOT_MTE.pdf p.43 - quoting an email from the LTO
[102] Interview with CTA, April 2019
[103] Provided by the NPC
[104] BOT_MTE.pdf p.46.
[105] BOT_MTE.pdf p.50
[106] BOT_MTE.pdf
[107] BOT_MTE p.41

Table 4: Project financing and co-financing by component at start and at mid-term

	At start			November 2016		
Components	GEF	Co-financing	Total	GEF[108]	Co-financing	Total
1. Disposal	436,625	697,025	1,133,650	85,829		
2. Regulation and risk mgt.	121,200	667,800	780,000	149,141		
3. Remediation	665,150	774,450	1,439,600	229,918		
4. M&E and Project mgt.	150,025	200,225	350,250	61,271		
Totals	1,373,000	2,339,500	3,703,500	526,159		526,159

Table 5: Project financing and co-financing by donor at start and at completion[109]

Name of the Co-financer	Co-financer type[110]	Type of co-financing[111]	Co-financing at project start (Amount confirmed at GEF CEO endorsement/approval by the project design team) (in USD)			Materialized Co-financing at project completion* (in USD)		
			In-kind	**Cash**	**Total**	**In-kind**	**Cash**	**Total**
GEF	Multilateral organization	Grant	-	1,363,000	1,363,000	-	1,089,385	1,089,385[112]
FAO/EC	Bilateral donor	Grant	-	1,104,620	1,104,620	-	300,000	300,000
GoB	National government	Grant and in-kind	407,400	400,000	807,400	530,000	153,000	683,000
FAO	GEF Agency	In-kind	428,480	-	428,480	430,000	50,000	480,000
Grand Total (in USD)			835,880	2,867,620	3,703,500	960,000	1,592,385	2,552,385

[108] GCPBOT011GFF Budget Revision A- updated 22 Nov16.xls PSR summary

[109] Values presented in the table were taken from those reported in the PIR and terminal report. Issues in the co-financing are detailed in the report's finding's section.

[110] Examples of categories include: local, provincial or national government; semi-government autonomous institutions; private sector; multilateral or bilateral organizations; educational and research institutions; Non-Profit organizations; Civil Society Organizations; foundations; beneficiaries; GEF agencies; and others (please explain).

[111] Grants; loans; equity participation by beneficiaries (individuals) in form of cash; guarantees; in-kind or material contributions; and others (please explain).

[112] Delivery at the time of evaluation

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131. Table 4 and Table 5 show the amounts of co-financing that had materialized by 2016. This date is chosen because it is the year of the MTE. GEF guidance stipulates that terminal evaluations should confirm actual amounts of co-financing at mid-term.

132. The evaluation team was not able to find the figures to complete the co-financing column for the project components at mid-term in

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136. Table 4. The co-financing figures for Table 5 come from the 2016 PIR. The evaluation team was unable to confirm how these numbers were generated. As with Eritrea and Mozambique, it appears that there was no system in place to systematically collect and report on co-financing. According to the reporting requirements laid out in the Project proposal (see Table 6), a semi-annual report on co-financing should have been prepared by the NPC and CTA, but was not.

137. The CTA confirmed that it is difficult to extract co-financing expenditure figures from partners. Her sense is that the Government of Botswana has contributed more than was promised.

<u>Finding 13 on Project execution</u>: The quality of project execution was less than satisfactory during the first three years of operation but then improved. The Project was slow to start for several reasons including delays in: appointing a NPC and CTA; addressing security issues at the Sebele warehouse; and, in release of GoB co-financing. The quality of execution improved after the appointment of the CTA at the end of 2014 and a full-time NPC in 2016 (EQ 3.3).

138. GEF places an important distinction on project execution and implementation (see **Error! R eference source not found.**). For this Project, execution refers to the day-to-day management which is the responsibility of the FAO Budget Holder (BH) and the Project Management Unit (PMU). Project implementation refers to technical oversight, project supervision, and evaluation which are the responsibilities of the FAO technical officers assigned to this Project, FAO GEF Coordination Unit as Funding Liaison Unit, and the FAO Office of Evaluation (OED), respectively. Maintaining a separation between execution and implementation is a requirement to meet GEF Minimum Fiduciary Requirements.

139. In the Project document, the PMU is described as a secretariat to the PSC, led by a part time national project coordinator (NPC) supported by a chief technical advisor (CTA) and staff from the Plant Protection Division (PPD). The Project document did not stipulate how many staff should be assigned to the PMU, saying instead that "the management structure is flat with the responsibility for activities being assigned to PMU staff based on competence."[113] The document also says that the PMU was to be responsible for three component teams to ensure "adequate government inputs are mobilised in line with the co-finance agreement." The document does not say who will assign staff to PMU and the component teams. In practice, the Project set up a fourth component team for Project management and M&E. Team leaders were not appointed; rather Consultants were employed periodically to carry out specific tasks.[114]

140. The NPC's job description was to coordinate and manage the component teams including preparing monthly M&E reports for each team as well as consolidating all reports and outputs and reporting to the PSC. The MTE, carried out in 2016, concluded that "NPCs are not released from normal government duties - they were expected to receive a salary top-up (as stated in the Project document) but, as reported by the NPC and the MOA/PPD Director during meetings in Gaborone, this is not allowed by government."[115] The MTE also concluded that NPC needed to be better supported to ensure technical issues were identified and addressed in a timely manner. The MTE attributed the failure to build a safety wall in the Sebele warehouse, necessary for its use by the Project, to insufficient support provided to the NPC.

141. The position of CTA to provide technical support to day to day implementation was identified as crucial in the Project document, with GEF to pay 20 percent and co-financing to cover the rest.[116] The job description included:

- Provision of support to the project work planning activities, training and maintenance in the use of the project M&E system;
- Development and implementation of site investigation methodologies;
- Development of site-specific remediation strategies and EMPs;
- Review of container management options;
- Installation and training in the use of PSMS, development of project communications and awareness strategy, and gap analysis on pesticide waste management regulations.

142. FAO appointed the CTA in October 2014, part time, based out of the Sub-Regional Office based in Harare from where the Project was administered. The Project was administered from Harare because Botswana did not become a full Country Office, with a Country Representative, until 2018. The CTA visited Botswana four times from the end of 2014 to end of 2015.[117]

[113] BOT_Pro Doc.pdf p.39
[114] BOT_MTE.pdf p.39
[115] Ibid, p.40

[116] Ibid, p.45
[117] Ibid, p.39

143. The Project began in February 2012 and held its Inception Workshop in April 2012 which also doubled as the first PSC meeting. The Project began slowly: only USD 30 000 of GEF funding had been disbursed by mid- 2013. The Project received a Moderately Satisfactory rating for 2012/2013 which fell to Moderately Unsatisfactory for 2013/2014 and 2014/2015. The main reasons given in the PIRs were: delays in the release by the Government of the NPC; lack of interest in the Project by potential members of the PSC; and, a failure to address security issues at the Sebele Warehouse which was to be the central collection point for the Project (see Box 7).

144. Project implementation started to improve with the appointment of the LTO and the fourth NPC, paid full-time by FAO. The fourth NPC was more senior than the previous NPCs, having retired from being Crops Director in the Ministry of Agriculture. Being full-time he had more time to work on the Project than his predecessors. The CTA put effort into invigorating the PSC, among other things. The Project was rated Moderately Satisfactory for 2015/2016 and has maintained this rating since.

Box 6. The story of the Sebele warehouse

The story of the Sebele Warehouse is a good illustration of the difficulties the project faced in the first four years of operation, from 2012 to 2014. The warehouse was prioritized for clean-up as well as the central location to which obsolete pesticides and EPCs were brought before being shipped for overseas disposal or for bio-remediation (land-farming). However, security at the warehouse was inadequate with problems of vandalism and theft. The Project was supposed to have built a safety wall and have provided a shredder to reduce the volume of EPCs before shipment. The poor conditions at the warehouse and poor security were raised from 2011 to 2015, first in 2011 and 2012 in consultancy work involving CropLife and FAO[1] and then in the three PIRs covering July 2012 to June 2015. In the PIRs, failure to address poor security was blamed for delays in processing EPCs and starting work on bio-remediation of non-POPs pesticides and capping of POPs pesticides. The 2015 PIR attributed poor security and lack of power or water for why EPCs were not processed and as a result only 2 instead of 10 tons were exported for disposal by the contractor, Veolia.[1]

According to the 2016 PIR, remediation of soil was to begin in August 2016 after security was provided and necessary equipment such as an excavator and water bowser were procured with Government co-financing. However, in August 2016 the warehouse completely burnt down and with it the stocks of POPs and non-POPs pesticides. The Government of Botswana paid to clear up hundreds of tons of contaminated rubble. Heavily contaminated smoke was released into the atmosphere, although there were no serious complaints of ill health as a result

<u>Finding 14 on Project implementation</u>: The quality of project implementation was less than satisfactory during the first three years of implementation, and then improved. The PSC was slow to play its oversight role or to bring critical issues to Government attention such that necessary action was taken, for example, to improve security at the Sebele warehouse during the first four years of Project execution. It took FAO two and a half years to appoint a Chief Technical Advisor – a critical position in ensuring efficient implementation – to support the NPC and PMU. There was no formal Project response to the recommendations of the MTE, as is required by GEF. Implementation improved with the appointment of the CTA (EQ 3.4).

145. The PSC is part of Project implementation providing guidance and oversight to the day to day management of the Project. As described above, the PSC did not fulfil an effective oversight function. There appeared to be little ownership of, or interest in, the Project at the start, evidenced by difficulties in setting dates, changes in membership and poor attendance. The

PSC members did not meet sufficiently often to develop much knowledge and understanding of the Project. They did not review work plans or budgets and so could not be effective in holding the Project to account. Government ownership did improve, as described under Finding 13.

146. A key person who was supposed to support the Budget Holder and PSC with implementation, and the PMU with execution, was the CTA. As reported, it took two and a half years to fill the role. The lack of a CTA was not flagged up as an issue by the FAO Lead Technical Officer (LTO) in the PIRs covering 2012 to 2014. Implementation did improve after the CTA was appointed.

147. One possible contributing factor to implementation difficulties was that there was no FAO country representative in Botswana until 2018. The Project was managed from the FAO Subregional Office for Southern Africa (SFS). A second possible contributing factor was four changes in the LTO during the life time of the Project. The LTO has overall technical oversight and responsibility for the project, In particular, for writing and submitting the Annual Project Implementation Report.

148. One implementation shortcoming found by the evaluation team was delays in procurement and decision making. Delays compared to the timeline envisaged in the Project document led to three no-cost extensions. Reasons for delays are described elsewhere and include it taking over a year for the Government to release the NPC, changes in NPC and poor security at the Sebele central store.

149. The MTE produced eight recommendations. As with projects in Eritrea and Mozambique, there was no written management response to them, as required by the GEF Coordination Unit.

Finding 15 on the design of the Project M&E system: The design of the Project M&E system was satisfactory although the requirement for quarterly reporting and the number of different types of report suggest this part of the M&E system was burdensome to comply with in full (EQ 3.5).

150. There was a clear and well-designed M&E plan described in the Project document, based on a results framework laying out indicators, baselines and targets for project objectives and outcomes. The indicators were generally SMART. The M&E plan stipulated roles and responsibilities and reporting requirements.

151. Table 6 shows that the Project has or was supposed to produce 11 different types of report, two required quarterly, three required semi-annually and two every year. Over the seven-year life of the Project, full compliance would have resulted in the writing of over 125 reports, about 17 per year. This level of reporting appears to the Evaluation Team to be burdensome to comply with in full. It is also quite unrealistic for the budget assigned to M&E or USD 153 000 or 4 percent of Project budget.

Table 6: Types, frequencies and description of reports required by the M&E system

Type of report	Description	Notes
Project Inception workshop report	Workshop held in April 2012 also serving as the first PSC meeting, to be followed by refined outcome indicators and	No workshop report entered into FPMIS

	initial starting values and baseline immediately after the workshop	
Back to Office Reports (BTORs)	Prepared after supervisory and consultancy visits to the Project	Eight seen by ET, 11 uploaded into FPMIS
Quarterly Project Progress Reports (PPRs)	Prepared by NPC with support from the TA and the M&E officer to be sent to the LTU and then to the GEF Coordination Unit for information	Replaced by six-monthly progress reports
Quarterly Project Implementation Report (QPIR)	Required the Budget Holder to review approved work plans against actual performance and take and report on corrective action, copied to the GEF Coordination Unit.	None seen
Six-monthly Project Progress Reports	Prepared by the NPC and CTA to be sent to LTU, Budget Holder and FAO GEF Unit.	Two seen for 2017.
Semi-annual report on co-financing	Prepared by the NPC and TA as an attachment to the PPRs	None seen
Semi-annual Project Steering Committee minutes	Prepared under the responsibility of the Chair of the PSC, however MTE found that they were written by international consultants. Minutes not taken for several meetings. Instead summaries included in the PIR.	Four sets of minutes seen (11/2015, 8/2017, 8/2017, 11/2018)
Annual Work Plan and (annualized) Budget	Prepared by PMU and submitted to PSC, LTU and Budget Holder for approval	Work Plan seen for 2016 - 2017
Annual Project Implementation Review (PIR)	Prepared by the LTU, with inputs from PMU and with reference to BTORs and quarterly reporting, sent to the GEF Coordination Unit	six seen, 2012-14 and 2016 to 2018
Annual Monitoring Review of FAO-GEF Portfolio	Prepared by GEF Coordination Unit based on PIRs from all projects in the FAO-GEF Portfolio	None seen
Request for project extension		three in total (2016; 2017; 2018). One seen (2016)
Mid-Term Evaluation (MTE)	Prepared by independent consultant contracted by GEF Coordination Unit	Completed in December 2016. No follow up of recommendations
Terminal Evaluation Report	Prepared by independent consultants contracted by FAO-OED	This Report, to be completed in April 2019

<u>Finding 16 on the operation of the Project M&E system</u>: The quality of operation of the M&E system varied. The M&E system proved able to flag issues but less able to follow up on measures to deal with them. The Project produced a full set of annual PIRs and when written, six-monthly PPRs were informative and useful. The MTE was carried out as planned although there was no formal response to the recommendations. There were several other reports that should have been written but were not. Funding for Project M&E was low at just 4 percent of Project budget. Other shortcomings included no review of work plans, budget or expenditure by the PSC and no detailed reporting of co-financing expenditure. What worked well was PMU reporting on project progress to the LTU, and annual reviews carried out by the LTU and sent to the GEF Coordination Unit, with their input (EQ 3.6.).

152. Some aspects of the M&E system were implemented satisfactorily. Table 6 shows the types of M&E report the Project was expected to produce. It shows that two types of report were reliably produced – BTORs and Annual PIRs. The MTE concluded that "in the first stage of project implementation, the project monitoring was weak, as only the PIRs were produced."[118]

[118] BOT_MTE.pdf p42

153. Monitoring does seem to have improved after the MTE. The evaluation team was able to see two six-monthly PPRs for 2017 which are detailed and useful in their findings. One shortfall is that neither provided details of co-financing expenditure as they should have done according to the template supplied.

154. A review of the minutes of the PSC meetings for the four meetings for which minutes exist show that the PSC did not fulfil its monitoring role of reviewing work plans and budget, because neither were properly presented or discussed. In none of the four meetings were work plans or budget reviewed. See Finding 14 for more on the functioning of the PSC.

3.4 Gender and environmental and social safeguards

EQ 4: To what extent and how did the project include gender, and environmental and social safeguarding in project design and implementation?

<u>Finding 17 on gender mainstreaming</u>: The Project did little to address gender in its design and implementation. It was designed before the revised GEF and FAO requirements to include gender in all projects that are supported by the organizations. The Project did not implement the recommendation given after the term review process that gender mainstreaming should be included in remaining activities (EQ 4.1)

155. The GEF revised its policy on gender equality in 2017. The new policy document provides guidance for mainstreaming gender in all its governance and operations, including all programmes and projects submitted on or after the date of effectiveness of the policy (1 July 2018)[119]. Although the Project was developed before the revised policy, the GEF had a policy on gender mainstreaming as early as 2011, which could have been used in the Projects design and implementation. One of the requirements of the 2011 policy was "…the inclusion of gender aspects in the design of projects and the monitoring and evaluation of gender dimensions in the context of its projects…."[120] The Project did not incorporate this policy in either its design or implementation.

Box 7. Minimum standards for gender mainstreaming

1. Gender analysis is incorporated in the formulation of all field programmes and projects, and gender-related issues are taken into account in project approval and implementation processes.

2. All programme reviews and evaluations fully integrate gender analysis and report on gender-related impacts in the areas they are reviewing (FAO,2013)

156. The FAO developed a policy document in 2013 which provides a framework to guide efforts to achieve gender equality in its work[121]. The policy document states that all FAO programmes, projects and technical interventions are required to include gender mainstreaming and it lays out thirteen minimum standards for gender mainstreaming.

[119] GEF Gender_Equality_Policy 2017
[120] Gender_Mainstreaming_Policy-2012_0
[121] FAO gender policy 2013

The standards applicable for this project are minimum standards 7 and 8, which provide guidance on the incorporation of gender analysis in the "formulation, implementation and evaluation of all field programmes and projects"[122]. OED (FAO Office of Evaluation) and OSP (FAO Office of Strategy, Planning and Resource Management) are the technical units responsible for ensuring that minimum standard 8, in particular, is met[1] and the Project would have benefited from more guidance from these units.

157. Although the Project was designed and approved before the current GEF and FAO policies were in place, the project document states that "The different roles of women and men in the rural communities will be taken into consideration during project implementation".[123] However there is no evidence of a clear strategy to do so or to collect and analyse sex- disaggregated data. The MTE, which took place four years into the implementation of the project, pointed out the importance of including FAO's gender policies in remaining project activities, and recommended that women should be given equal access to information, training and other opportunities generated by the Project.

158. There is some evidence that FAO's policies were followed. Women were represented equally in the PSC (five women in the committee of ten); and among temporary project assistants (nine women out of twelve), and deliberate efforts were made to include female respondents in the HHPs and KAP survey[124]. An opportunity was lost during development of the communications strategy to specifically target women as one of the stakeholder groups. The project team could have benefited from clearer guidance on gender mainstreaming from the responsible FAO and GEF units after development of the new policies in 2013 and after the MTE recommendations were made in 2016.

<u>Finding 18 on environmental and social issues</u>: The Project made an effort to include social and environmental safeguards although it was designed and approved before the revised GEF and FAO guidelines were available. Although the GEF and FAO minimum standards for social and environmental protection are not specifically mentioned in the project document, the nature of the Project required precautions to be taken to protect the environment and human health during implementation, resulting in some of the minimum standards being addressed. The Project would have benefited from specific guidance from the relevant GEF/FAO divisions when revised guidelines became available (EQ 4.2).

159. The Projects global environmental objective is to reduce risk to public health and the environment from pesticides through the characterization, treatment and decontamination of POPs and POPs contaminated soil[125]. The project was designed and approved for implementation before GEF and FAO policies on social and environmental safeguards were developed, therefore these policies were not made explicit in the project design. Projects that involve POPs and other pesticide pollutants are high risk by nature and their execution requires application of minimum precautions.

[122] FAO gender policy 2013
[123] BOT_Pro Doc.pdf page 16
[124] PIR 2018
[125] BOT_Pro Doc.pdf

160. The GEF 2015 policy document lays down criteria and minimum requirements for social and environmental safeguards applicable to all GEF funded projects. In 2015 the FAO also developed revised environmental and social guidelines for management of risk in projects that are supported by the organisation. Ideally the Project should have been screened against these guidelines and the relevant standards should have been included in the design, with clear procedures for data collection and assessment. FAO Environmental and Social Safeguards (ESS) relevant to the Project are ESS1, ESS2, and ESS5 and the relevant GEF requirements are minimum standards 1, 2 and 4[126].

Box 8. Evironmental and social safguards

GEF

Minimum standard 1: Environmental and social impact assessment

Minimum standard 2: Protection of natural habitats

Minimum standard 4: Pest management

Minimum standard 8: Accountability and grievance system

FAO

ESS 1: Natural Resource Management

ESS 2: Biodiversity, ecosystems and natural habitats

ESS 5: Pest and pesticide management

161. Protection of human health and the environment is central to the Projects objectives and some of the GEF and FAO standards were addressed during implementation. Environmental assessments (EAs) were carried out to assess risk levels, and detailed Environmental Management Plans (EMPs) were prepared in order to prioritize sites for remediation. EMPs were approved by the Ministry of Environment, Wildlife and Tourism and were instrumental in selection of remediation options[127] [128]. EA's and EMP's partly addressed to minimum standard 1, ESS1 and ESS2.

162. Although decontamination of sites and disposal of POPs and associated waste will likely result in reduced risk of pollution to humans, little was done in terms of assessing social impacts of project activities. Reduced access to HHPs and promotion of safer pest management alternatives are directly aligned to minimum standard 4 and ESS5. ESS5 on Pest and Pesticide Management provides specific guidance for projects that deal with the disposal of pesticides. The standard states that "Projects dealing with the disposal of obsolete pesticides, pesticide contaminated soil and materials should follow the guidance in the FAO Environmental Management Toolkit for obsolete pesticides". It adds that "Such disposal projects reduce risk by eliminating hazardous waste problems, but also create risk through the handling and movement of hazardous waste. Suitable risk evaluation, management and mitigation measures as provided by the Toolkit must be applied in all such activities". Although the Project did not make specific reference to this standard, it complied with the requirement for evaluating and managing risk through carrying out EAs and preparing EMPs.[129]

[126] GEF Policy_Environmental_and_Social_Safeguards_2015

[127] Environmental management plans for obsolete pesticide contaminated sites – Botswana – Russell Cobban. February 2012.

[128] David Byrde. FAO consultant activity report. February 2012.

[129] FAO, 2015 Environmental and Social Management Guidelines - Word

163. The inclusion of an accountability and grievance system (minimum standard 8) would have been useful in guiding the Projects response to the Sebele warehouse fire and its possible adverse effects to nearby residents.

164. The Project developed a communications strategy to increase public knowledge about pesticide risks. Although lack of knowledge about risks posed by pesticides may contribute to attitudes and practices that expose humans and the environment to contamination, it has been shown that increasing farmers knowledge on its own may not lead to increased adoption of practices to reduce risk[130] [131]. The Project adopted an integrated approach to increased social and environmental protection, including exploring less toxic alternatives to pesticides, and legislative support.

165. The MTE did not mention the absence of environmental and social safeguards in the project design, or the need to include them in remaining activities. The project team could have benefited from a recommendation to include these safeguards in remaining activities and from guidance from the LTU after the new guidelines were published.

3.5 Sustainability and scaling

EQ 5: How can Project results be sustained and scaled to achieve the Project goal?

<u>Finding 19 on sustaining and scaling Project results</u>: The Project has generated results that require different approaches to be sustained and scaled. All require some degree of continuing government or donor support. Some results, e.g., safeguarding and disposal will require support indefinitely; some, e.g., remediation, have a clear end-point after which work can stop; and, and one result, the safe disposal of EPCs, could potentially become self-sustaining. Continuing government and donor support requires their ongoing recognition that dealing with risks from pesticides is priority that requires public funding. Given this, there is an ongoing need for a body, such as the PSC, to continue after the end of the Project to lobby to maintain and move pesticides up the political agenda (EQ5.1).

166. The main project achievements to be sustained and scaled were identified by key project staff and stakeholders in the evaluation inception workshop (see Section 1.3). The evaluation team validated the selection during their field trips and review of project documentation. The major achievements are shown in the first column of Table 7, together with the actions the inception workshop participants and evaluation team think are required to sustain and scale them and the underlying causal mechanism that will be necessary to achieve and sustain impact.

167. In the fourth column, the evaluation team indicate the type of result in terms of the future support required. The team consider that there are three types of result (see Methodology Section for more details):

- Self-sustaining - a result that can be sustained and achieve wider impact with little or no further public sector funding;

[130] Lekei et al., 2014
[131] Mancini et al., 2005

- Stepwise - a result that still requires further defined investment to become self-sustaining or completed (stepwise); and,
- Contiguous – a result that requires continuous subsidy by the public sector.

168. The analysis shows that the Project's main result of safeguarding and disposing of obsolete pesticides is contiguous in that it depends on government or donor funding. The need to continue to deal with stockpiles of obsolete pesticides and EPCs will continue indefinitely, although at a reducing level depending on achievement of other Project results in strengthening the pesticide lifecycle in Botswana.

Table 7: Expected project results, further actions, impact pathways and their underlying mechanisms

Expected project result	Further action required to achieve the result	Impact pathways for the results (from ToC) and the underlying mechanisms needed to drive them	Type of support required
Obsolete pesticides safeguarded and disposed of on a continuing basis by trained team (1.1. to 1.3.)	Requires trained staff to be employed on longer-term contracts and the provision of funding for safeguarding and disposal on a continuous basis	Pathway **a**: Acceptance that safeguarding and disposal is a public good to be funded, at least in part, by the government	Contiguous until all stockpiles eliminated
Contaminated soil remediated at Sebele (3.1.)	Ongoing funding for the activity for up to seven years in total	Pathway **b**: Acceptance that the Sebele site represents a health hazard and dealing with it is a priority for the government	Contiguous until all soils are remediated
Empty plastic containers are recycled on an ongoing basis (2.1.2.)	Implementation of EPC recycling model (triple rinsing, collection and recycling) including reclassification of triple rinsed EPCs as safe for purposes of recycling	Pathways d & e: Incentives and legislation in place to motivate and sustain triple rinsing, collection and recycling	Stepwise until becomes self-sustaining
New pesticide legislation developed and approved (2.1, 2.3.)	Pesticide legislation is passed as an amendment to Agrochemicals Act	Pathway **f**: Sufficient political support to pass the legislation	Stepwise until approval
Risk Reduction Strategy for HHPs finalized and implemented (2.3.)	Approval and acceptance of HHPs Strategy by government followed by implementation	Pathway g: Acceptance by government that reducing the risk from HHPs is a priority that requires indefinite ongoing support	Stepwise until strategy is implemented
A national pesticide stock management system adopted and used (2.2.)	Reasons why FAO PSMS has not been fully adopted in Botswana and other African countries to be identified before designing a PSMS that is fit for purpose	Pathway h: Acceptance that a PSMS is necessary as part of pesticide lifecycle management and incentives are in place to motivate use of a workable PSMS	Stepwise until institutionalized
Communication strategy on pesticide risk reduction implemented (2.4.)	Government to implement communication strategy developed by Project	Pathway i: Acceptance that communication is an important part of the Risk Reduction Strategy for HPPs	Stepwise until communication campaign finishes
Capacity development in support of Project results (2.1.3, 2.2.3)	Capacity development activities to continue	Pathway j: Acceptance that capacity development is an integral part of pesticide risk reduction and must be supported	Contiguous with no stopping point

169. The Project's other main result of remediating contaminated soil at the Sebele warehouse is also contiguous. The government will need to continue to provide funding for the staff and equipment required to turn and irrigate the soil and for periodic testing up until the soil is found to be safe, which may take seven years in total.

170. Two other results are also contiguous: a national pesticide stock management system (PSMS) adopted and used; and, capacity development in support of Project results. The evaluation team consider the former to be contiguous because developing and institutionalizing a PSMS cannot be done piece meal – it will require a concerted and coordinated effort involving customs and staff from different ministries.

171. For all contiguous results, the underlying causal mechanism is the continuing acceptance by government and donors that dealing with obsolete and highly hazardous pesticides is a priority that requires public funding to achieve. This suggests that a body such as the PSC continue after the end of the Project to lobby to keep the risk from pesticides on the agenda.

172. The other Project results are stepwise. One of them, the EPC recycling business model, has the potential to be self-sustaining, in the sense that it will run itself, if the right incentives can be put in place and if a legislative barrier can be removed. Some of the incentives may require ongoing subsidies, e.g. for triple rinsing and collection, but this could come from a levy added to the price.

173. According to the NPC, the Government of Botswana will give the Project another USD 500 000 to continue with Project activities.[132]

174. The evaluation team carried out an assessment of financial, socio-political, institutional and environmental sustainability which is given in Appendix 2 below.

<u>Finding 20 on Project impact</u>: The Project has made some progress towards its goal. Analysis of the Project's theory of change finds that the Project has made real progress along three out of its ten impact pathways. The Project has likely reduced existing and future risk from pesticides by: safeguarding and disposing of obsolete pesticides and empty containers; remediating contaminated soil; and, raising awareness of the risks from pesticides among high-level decision-makers in government. Further work is required to sustain and amplify all pathways, in particular the ones where limited progress has been made (EQ 5.2.).

175. The diagrammatic depiction of the Project theory of change (Figure 3) shows how project results are expected to achieve outcomes and impact through impact pathways (the arrows). The third column of Table 7 indicates the impact pathways and the underlying causal mechanisms needed to translate the results into impact. The evaluators found evidence that the Project has made substantive progress on three out of the ten pathways identified in the theory of change. The narratives of the three pathways can be written out as follows based on the if-then logic shown in:

[132] Skype call with CTA 17 April, 1019

- Pathway a: The Project's safeguarding and disposal work has reduced risk to human and environmental health from existing stocks of obsolete pesticides and related contaminated material;
- Pathway b: Contaminated soil remediated at the site of the Sebele warehouse fire has reduced risk to human and environmental health;
- Pathway f: Revision of pesticide regulation has strengthened pesticide lifecycle management.

176. The evaluation team considers progress has been made with respect to pathway f, even though the legislation has not yet been passed, because the Project has been able to raise awareness of the risks of pesticides among high-level policy makers in government.

177. Some progress has been made on all of the other pathways, except pathway h relating to use of a pesticide stock management system. The progress has so far not translated into actual reduction in pesticide risk. Clearly, what needs to be done to further reduce risk from pesticides in Botswana is to work on all the pathways. Much more needs to be done, starting with the priority actions listed in Table 7.

4. Conclusions and recommendations

178. Footnotes indicate the findings that each conclusion is based on. The findings relate to the evaluation questions in the evaluation matrix (Annex 2). The recommendations indicate the conclusions from which they derive. Hence the reader can trace recommendations through conclusions and findings back to the evaluation questions.

4.1 Conclusions

Conclusion 1 – The Project is relevant to global and national efforts for reducing risks to public health and the environment due to POPs and POPs contaminated soils.[133]

179. The Project's objective - to reduce the risk to public health and the environment from pesticides through the characterization, treatment and decontamination of POPs and POPs contaminated soil - is consistent with the GEF 4 strategic objective to reduce and eliminate the production, use and release of POPs; FAO's objectives to eliminate hunger, food insecurity and malnutrition; and with the Sustainable Development Goals 2 and 12. The Project is directly relevant to objectives of the Basel, Stockholm and Rotterdam Conventions. It contributes towards national policies relating to POPs and protection of the environment contained in the NIP and the Country Programming Framework.

Conclusion 2 – The Project achieved successes in meeting most of its disposal target and initiated remediation of contaminated soil at the selected site. These activities contributed to the reduction of immediate risk posed by existing POPs and POPs contaminated soil. Progress was made towards strengthening life cycle management of pesticides in order to reduce future risks, by supporting the amendment of the Pesticides Act. Delays mean that a number of outcomes require further work, including safe container disposal and establishment of a working pesticide stock management system.[134]

180. A notable success of the project was the export of 28.8. tonnes of obsolete pesticide stocks and EPCs for disposal by HTI, and the composting of 35 tonnes of contaminated seed. This constituted about 80 percent of the total quantity of obsolete stocks that had to be disposed of. Obsolete pesticides and containers that were not disposed of (4.5. tonnes safeguarded pesticides, two to three tonnes unidentified pesticides, plus ten tonnes contaminated containers) were burnt in the warehouse fire. The burning down of the central pesticide store at Sebele was a major setback as it created a contaminated site that needed to be remediated, and ongoing collection of EPCs had to cease because there was no place to store them. Bioremediation at Sebele site commenced in 2017 and it is progressing satisfactorily. Results of final soil analyses in 2019 showed a significant reduction in levels of pesticide contamination to the extent that the bio-remediated soils are no longer considered as posing significant risk to human health and the environment.[135] The disposal of obsolete pesticide stocks and

[133] Findings 1 to 3

[134] Findings 7 to 10

[135] Bioremediation technical report 2018.word Page 5

bioremediation at Sebele site contributed towards reduction of immediate risk posed by POPs and POPs contaminated soils.

181. Capacity building for pest and pesticide management is one of the strategies that has been developed by FAO to address obsolete pesticides. Institutional capacity was developed for carrying out HHPs and KAP surveys, pesticide registration (including registration of biopesticides), management of pesticide stocks, identification and risk management of HHPs, implementation of the Rotterdam Convention and bioremediation of contaminated sites.

182. Improvement in the management of national pesticide stocks was to be achieved through adoption of the FAO pest management system, the PSMS. The system was installed and internet access was improved, however the PSMS was under review by the FAO Information Technology Division and could not be operationalized. The lack of an established pesticide stock management system will compromise collection and management of pesticide data and the reduction of future accumulation of obsolete stocks.

183. The promotion of less toxic alternatives to pesticides was to be addressed by reducing access to HHPs and making amendments to the pesticide policy. A shortlist of HHPs in Botswana was developed and up to 14 products from the list were banned.[136] Further development of pest management strategies, including promotion of IPM awaits adoption of the National Policy on Agricultural Development by the government. The review of pesticide and waste legislation experienced numerous delays and the Pesticides Amendment Bill was yet to be presented to parliament by the time of the Projects terminal evaluation.

184. The strategy to manage future pesticide waste included development of a model for sustainable management of EPCs. The model was developed but it had not been implemented or piloted by the time that the terminal project review was carried out in December 2018.

185. A communications strategy to increase public awareness about risks posed by pesticides was developed and communication materials were produced. Delivery of communication products to all target groups and full roll out of the campaign was yet to be completed.

186. Delays were also a feature of POPs projects in Mozambique and Botswana reviewed by the same evaluation team. Delays were also a feature of the African Stockpiles Program,[137] suggesting the potential for rich lesson-learning across similar POPs projects.

187. The Project was able to adapt to delays and setbacks and deliver some extremely important outcomes that no one else could have delivered.

Conclusion 3: While the Project achieved some success, there were numerous and significant shortcomings in the quality of Project execution and implementation that contributed to a three-year delay in finishing the Project. Implementation and execution did improve after the

[136] Bioremediation technical report 2018.word

[137] paper par_africa_102416_2.docx – IEG / World Bank (2016). Africa Stockpiles Program: Ethiopia, Mali, Morocco, South Africa, Tanzania, Tunisia. Project Performance Assessment Report. Report no. 108524, September

LTO was appointed at the end 2014 and a full-time NPC was appointed at the beginning of 2017, respectively.[138]

188. The Project was very slow to start, such that it was rated as moderately unsatisfactory by the MTE in 2016, four years after it had started. The ET find three inter-related reasons for this: 1) poor political support for the Project evidenced by infrequent and poorly-attended PRC meetings; 2) the NPC started as a part-time position which took more than a year to fill and then the incumbent changed four times; and, 3) a full-time Chief Technical Advisor to support the NPC was never appointed.

189. During the first four years, the Project was unable to improve security at the main pesticide storage warehouse in Sebele, despite calls to do so from before the Project started and warnings of the dangers of not properly securing the site. In August 2016, the warehouse burned down, creating a large and expensive health hazard.

190. Implementation and execution did start to improve after the LTO was appointed in at the end 2014 and visited Botswana several times, including pushing for and attending PSC meetings. Execution improved after a full-time NPC was appointed at the beginning of 2017, employed by FAO.

Conclusion 4: The design of the M&E system was fit for purpose. The system proved effective at raising issues but less able to follow up on measures to deal with them.[139]

191. The design of the Project M&E system was satisfactory except for the large number of reports specified in the Project proposal that would have been burdensome if all had been produced. The quality of the PIRs was high. Three shortcomings were: 1) the lack of a management response to the MTE and subsequent supervisory follow up; 2) the PSC did not review expenditure or workplans; and, 3) the absence of detailed reporting on co-financing.

Conclusion 5: The Project was designed before approval of FAO and GEF guidelines for gender mainstreaming and did little to include gender in its design and implementation. Some GEF and FAO minimum standards for social and environmental safeguarding were addressed. [140]

192. The Project was designed and approved before FAO requirements for gender mainstreaming and GEF and FAO guidelines for social and environmental safeguarding were developed.

193. The GEF policy on gender that was developed in 2011 was not incorporated in the projects design, and gender was not addressed in project activities even after recommendations of the mid-term review. Some GEF and FAO minimum standards for social and environmental safeguarding were addressed during project implementation, in particular the carrying out of EAs and preparation of detailed EMPs. Specific guidance from the GEF/FAO divisions on gender mainstreaming and on social and environmental safeguarding, particularly after new guidelines were developed, may have resulted in more inclusion of the relevant standards in project

[138] Findings 13 & 14
[139] Findings 15 & 16
[140] Finding 17 & 18

implementation. Completion of the Environmental and Social Risk Management training by the LTO, CTA and NPC would have equipped them to support the Project's compliance.

Conclusion 6: The Project has produced different types of results for which the approach to sustainability and scaling differ. In delivering the results, the Project has made tangible progress along just three out ten of its impact pathways, reflecting the Project's slow start.[141] Work needs to continue along all 10 pathways if Botswana is to reduce risk from pesticides, none of which can be sustained without further investment of public funding.

194. The Project has produced two types of result: one that requires reducing levels of public sector and donor support to reach a desired goal; and, one in which public sector and donor funding will be required indefinitely. The former include the EPC business model that still needs to be tested and modified to the point that it can function on a continuous basis, while the latter include the safeguarding and overseas disposal of obsolete pesticides.

195. The evaluation team judge that the Project has made substantial progress along three of its ten impact pathways that constitute the Project theory of change. The three pathways are:

- Safeguarding and disposal work that has reduced risk to human and environmental health from existing stocks of obsolete pesticides and related contaminated material;
- Remediating contaminated soil that has reduced risk to human and environmental health;
- Revision of pesticide regulation promises to strengthened pesticide lifecycle management.

196. To further reduce risk from pesticides in Botswana work needs to continue to progress further along all ten pathways.

4.2 Recommendations

Recommendation 1. To FAO and Project Steering Committee (PSC) members to empower the PSC to continue to keep the issue of risk from pesticides as a government priority and to lobby for continued efforts to reduce risk from pesticides in Botswana (based on Conclusion 2 & 6)

197. Progress along the Project's impact pathways should continue to retain and build on progress already made. The PSC has a crucial role to play to ensure that the government's stated commitment to reduce risks from pesticides is translated into actions, in particular continuing with actions required to achieve the Project's objectives.

198. Specifically, the recommendation is that the PSC to hold an extraordinary meeting to:

- Identify an institutional home and strategy for itself;
- Plan how to maintain work on project results after the end of the Project, as far as possible retaining existing staff who know what is still needed to be done.

[141] Finding 18 & 20

Recommendation 2. To FAO and the PSC to ensure that Project work continues so as to meet Project objectives, as follows:

199. **Bioremediation.** It is recommended a decision is made on the most appropriate final stage of the bioremediation process (e.g covering the soil with concrete, continuing with passive phytoremediation, excavating and sending soil to a controlled landfill or continuing land farming) and implemented, based on available budget and local conditions. The bioremediation team should be kept active and afforded the opportunity to perform similar operations locally and outside the country to avoid losing the capacity that has been built.

200. **Implementation of a sustainable EPC management strategy:** Renewed efforts should be made to follow up on recommendations made by the EPC management consultant. The following should be finalized:

- Details concerning collection and transportation of EPCs;
- Responsibilities for triple rinsing, determination of levels of pesticide contamination remaining after triple rinsing of EPCs;
- An estimate of volumes of EPCs that will be generated annually;
- Final selection and agreements with recycling companies; and,
- Purchase and responsibilities for the required equipment need to be finalized.

201. The financial viability of the business model must be made clear in order to attract involvement of the private sector. This will require a subsidy or other form of incentive to motivate collection and transport of UPCs to the recycler(s). The merits of a decentralized system to ensure accessibility for all farmers should be assessed and adjustments must be made to the model if necessary.

202. **Establishing a national stock management system:** It is recommended that the FAO Information Technology Division (CIO) finalizes review of the PSMS, and that if need be, concerns about confidentiality of data are addressed, so that the management tool is put to use. If the PSMS will not be available, or if a decision is made that it is not best suited for the country, the MoA should be assisted to identify and adopt an alternative stock management system. Development of a new system may be time consuming and costly therefore adoption of an existing system would be the better option.

203. **Enacting the revised pesticides legislation:** It is recommended that the MoA submits the cabinet memorandum seeking approval to amend the act to parliament at the earliest opportunity, and that final steps required to enact the new legislation are effected without further delay.

204. **Completing communication campaign:** It is recommended that the awareness products that have been developed are delivered to all target groups, and that roll-out of the communications campaign is completed. It is further recommended that a final KAP survey be conducted to assess changes in attitudes and practices of target groups.

Recommendation 3. To the PSC to lobby for strengthening the office of the pesticide registrar (based on Conclusion 2).

205. It is recommended that the pesticide registrar is given more autonomy, and made to report directly to the Minister of Agriculture. This would empower the registrar and improve their ability to carry out the required duties.

Recommendation 4. To FAO to ensure gender mainstreaming and inclusion of social and environmental safeguards in future projects (based on Conclusion 5)

It is recommended that for future projects FAO ensures that at least one member of the project management team or the NPC has knowledge about inclusion of gender in project implementation. If this is not the case then FAO should facilitate completion of a basic gender course by the NPC[142]. Specific activities to ensure gender mainstreaming need to be developed for each project. Examples could include:

- Specifically targeting women networks in communication or awareness building activities
- Engaging local gender focal points e.g. relevant NGO's or women's groups, as gender advisors.
- Collecting sex disaggregated data to assess gender impacts.
- Ensuring that mid-term evaluations and regular project M and E reports include a specific gender component. [144.]

206. It is further recommended that all projects, including those that were approved before the minimum environmental and social safeguarding standards were developed, are screened for levels of risk. For those projects that are rated as having moderate or high risk the FAO should facilitate completion of the Environmental and Social Risk Management training module by the LTO, CTA and NPC to equip them to effectively support project compliance.

[142] e.g. https://trainingcentre.unwomen.org

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Appendix 1. People interviewed

	First Name	Last Name	Organization	Role
1.	B.	Kealatotse	Campaign Section	Evaluation Inception Workshop Participant
2.	B.G	Moganane	FAO	Evaluation Inception Workshop Participant
3.	Baratwa	Thebenala	Ministry of Agriculture	Deputy Director, Crops, PSC
4.	Boitshepo	Keikotlhaile	National Food Technology Research Centre	Head of Food Chemistry, In Agrochemicals Committee
5.	C.	Makosha	Agriculture Research	Evaluation Inception Workshop Participant
6.	C.	Mbereki	Plant Protection	Evaluation Inception Workshop Participant
7.	Chakoma	Mujokere	Agrivet	Agrochemicals Sale Rep,
8.	Changu	Mabechu	Botswana Agricultural Marketing Board (BAMB)	Senior sales advisor,
9.	Colin	Mbereki	Ministry of Agriculture	Former NPC
10.	Czudek	Rene	FAO Botswana	Evaluation Inception Workshop Participant
11.	D.	Matsime	Plant Protection	Evaluation Inception Workshop Participant
12.	Ditso	Motsewabeng	Ministry of Health and Wellness	
13.	Elton	Mmani	Ministry of Health and Wellness	Project contract worker
14.	G.	Masale	DARSPD	Evaluation Inception Workshop Participant
15.	Galeitsiwe	Ramokopane	Ministry of Agriculture	Director. Department of Crop Production, In Agrochemicals Committee, PSC
16.	Golebaone	Senai	Ministry of Health and Wellness	
17.	Gomolemo	Maseelane	Ministry of Health and Wellness	
18.	Group 17 farmers		Drewmore Investments Farm	
19.	Hendrick	Esterhuizen	Recycle-it Botswana	
20.	Itumeleng	Makoba	Crop Production. Kanye	Project enumerator, Data collection. KAP/HHPs survey
21.	Jacinta	Barrins	UN	UN Resident Coordinator and UN Development Programme Resident Representative,
22.	James	Montshiwa	MoA.	Agricultural officer (Beekeeeping),
23.	Juda	Bogopa	National Food Technology Research Centre	Food Chemistry Technician,
24.	Julie	Sematla	Ministry of Health and Wellness	Project contract worker
25.	K.	Bogatsu	Plant Protection	Evaluation Inception Workshop Participant
26.	K.	Molebatsi	Agric. Information	Evaluation Inception Workshop Participant
27.	K.	Ntlogelang	Plant Protection	Evaluation Inception Workshop Participant
28.	Kabelo	Zwinila	Ministry of Health and Wellness	
29.	Kabo	Bowe	Crop Production. Kanye	Agronomist,
30.	Kabo	Mabana	Direct Offers Farm. Central District	Spray operator,
31.	Kenaleksotla Shia	Sebola	Mmaonkwe Group Pty Ltd.	Manager. Pesticide dealer, Used to work in Department of Plant Protection

32.	Khulekani	Mpofu	GEF	Head of Policies and Programs, Sees PIR and SC minutes
33.	Kitso	Salang	JGG Salang Farmers Producers	
34.	L.	Motshwarakgole	DEA	Evaluation Inception Workshop Participant
35.	Loitseng	Sebetwane	Ministry of Agriculture	Pesticide registrar, PSC
36.	Lorato	Muleya	Recycle-it Botswana	
37.	Luka	Motlhatlhedi	Ministry of Local Government	Environmental Health Officer,
38.	Malebogo	Letswee	Ministry of Health and Wellness	
39.	Masego	Makgalo	Drewmore Investments Farm	Assistant Farm Manager,
40.	Mercy	Chihume	MoA	District Crop Production Officer,
41.	Molatlhegi	Modise	FAO Botswana	FAO Botswana, FAO Project Coordinator
42.	Mone	Moeng	Crop Production. Kanye	Project enumerator, Data collection. KAP/HHPs survey
43.	Motshereganyi	Kootsositse	Bird Life Botswana	Deputy Director Projects,
44.	Mpho	Setshwane	Green Buddies	Attended workshop to discuss revision of agrochemicals Act
45.	N.	Jensen	Chemical Dealer	Evaluation Inception Workshop Participant
46.	Norman	Jansen	Ramogomana Farming	Director, Participated in Agrochemicals review committee meetings
47.	Peter	Gwakuba	MoA. North East District	Plant Health Inspector,
48.	Peter	Ncube	Drewmore Investments Farm	
49.	Pharoah	Mosupi	MoA	Director of Agricultural Research, Review of pesticide legislation. Attended SC meetings
50.	Prof.	Obopile	BUAN	
51.	Rebecca	Kgosi	Ministry of Agriculture, Crop Production	NPC, PSC
52.	Reginald	Gombalume	MoA. Central District	Agrochemicals Inspector,
53.	S.	Sebopelo	Plant Protection	Evaluation Inception Workshop Participant
54.	Sabata	Oboletse	MoA. Mochaneng	Plant Protection Officer,
55.	Seeng	Manne	Ministry of Agriculture	Plant Protection Officer,
56.	Shadrak	Kgorolola	Ministry of Local Government	Chief Public Health officer,
57.	T.	Taolo	Plant Protection	Evaluation Inception Workshop Participant
58.	Tebo	Kemotso	MoA	Agricultural Inspector,
59.	Thamani	Gondo	National Food Technology Research Centre	Pesticides Analyst,
60.	Thamsanqa Mdlaliso	Silitshena	Ministry of Agriculture	Legal Advisor, Working on amendments to Agrochemicals Act
61.	Thapelo	Ramoseki	Agrivet	Manager, Invited to workshop to discuss review of pesticide legislation
62.	Thato	Sengwaketse	Ministry of Health and Wellness	
63.	Titus	Chimwa	Noka Farm	Production Manager,

64.	Tshepo	Mosedame	Plant Protection and Quarantine Laboratory. Agrochemicals Management Centre	Chemist, Former project coordinator
65.	Tshepo	Phiri		Agrochmicals Sales Rep,
66.	Tsogo	Bethel		Projects Officer and Vulture Control Officer,
67.	V.	Obuseng	University of Botswana	Evaluation Inception Workshop Participant
68.	Velleminah	Pelokgale	Ministry of Agriculture, Plant Protection	Chief Plant Protection Officer, PSC
69.	Victor	Digwaamaje	Agrishop	Retail manager,
70.		Dimpanyane	Tini Kruger Farmer	Chief technical officer,
71.		Elvis	Agrishop	Manager,
72.		Onalenna	MoA. North East District	Plant Protection Officer,
73.		Proroga	Ministry of Agriculture	Acting District Crop Production Officer,

Appendix 2. GEF ratings table[143]

GEF - FAO criteria/sub criteria	Rating[144]	Summary Comments[145]
A. ASSESSMENT OF PROJECT RESULTS		
1. Overall quality of project outcomes[146]	MS	
1.1. Relevance	S	Project objectives are well aligned with FAO and GEF strategic objectives as stated in section 3.1. The Project is fully aligned with main international chemical conventions to which the country is party. In theory the Project is also relevant to national policies & strategic objectives on POPs, although this is not demonstrated in the government's commitment to Project implementation. Delays in disbursing co-finance, delays in seconding senior staff to the Project, non-attendance at PSC meetings, awarding short term contracts to the safeguarding team, and delays in enacting the proposed new pesticide legislation could indicate a lack of appreciation of the Project's importance to national policies by government.
1.2. Effectiveness	MS	The Project has had major successes in terms of disposing of 63.8. tonnes of obsolete pesticides and contaminated pesticide containers, and in initiating remediation of the contaminated site at Sebele. A shortlist of HHPs was developed and two products from the list were deregistered. Progress was made in other activities aimed at strengthening pesticide management but many of these were not completed.
1.3. Efficiency	MU	The Project could have been expected to achieve more considering it was granted two no-cost extensions. Delays in initiating project activities, an inactive SC that did not meet regularly during the first few years of project implementation, and delays in disbursement of agreed co-finance by the government negatively affected delivery of results.
B. PROJECT IMPLEMENTATION AND EXECUTION RATING		
2. Quality of project implementation	MU /MS	Little progress was made during the first four years of the Project. Although a Project team was put in place it appeared to be incapable of overcoming challenges that hindered execution. Implementation during the first three years of the Project was Moderately Unsatisfactory. Performance improved markedly in the last two years of the Project to be Moderately Satisfactory. The Project design had not included a full-time post for National Project Coordinator. It quickly became apparent that the responsibilities of the position could not be fully addressed on a part time basis, but it took the PMU and the SC four years to employ a full time NPC assigned. The NPC changed four times over the life of the Project, as a result institutional memory was lost and project momentum was disrupted. The PSC also did not meet regularly, particularly during the first three years of the project. The LTO also changed four times. The Project design included the position of a CTA, who would work full time on the Project. A part time CTA was appointed after three years to the Project.

[143] Please refer to the TOR for te GEF rating scheme used

[144] See rating scheme at the end of the document.

[145] Include reference to the relevant sections in the report.

[146]Assessment and ratings by outcome may be undertaken if there is added value. A composite scoring of all outcome ratings, however, is not advised.

3. Quality of project execution	MU /MS	As was the case with Project implementation, initiation of Project activities was delayed. Better progress was made after the CTA was appointed and a full time FAO Project Coordinator was recruited.
C. MONITORING AND EVALUATION (M&E) RATING		
4. Overall quality of M&E	MS	
4.1. M&E Design	S	The initial Project design was satisfactory and fit for purpose. The system allowed for adjustments to be made after initiation of the Project, if necessary.
4.2. M&E Plan Implementation	MU	Implementation of the M&E plan suffered from several shortcomings: the PSC did not review Project work plans or expenditure; there was no detailed reporting on co-financing and there was no written response to the MTE.
D. SUSTAINABILITY OF PROJECT OUTCOMES		
5. Overall likelihood of risks to sustainability	ML	
5.1. Financial risk	ML	Although disbursement of co-finance by the government was delayed, the government has the resources to support some activities after termination of the Project. The rhetorical support for reducing pesticide risk is not necessarily result in action on the ground. There is no clear plan in place for government funding, therefore there will likely be no budget allocation to sustain Project results and complete outstanding activities. Private sector is also unlikely to invest resources at this stage since the EPC business model that was meant to facilitate involvement of the sector was not fully developed or initiated.
5.2. Socio-political risk	L	Botswana is a politically stable country with a strong economy. The Government has demonstrated some political will in previous efforts on pesticide risk reduction and will likely continue to do so, particularly if recommendations are followed to establish a group lobbying for greater risk reduction across the pesticide lifecycle.
5.3. Institutional risk	ML	The MoA is the main partner administering the project, with some involvement of the Ministry of Environment, Wildlife and Tourism and the Ministry of Local Government. Addressing obsolete pesticides and protecting the environment requires cooperation between ministries. Minimal participation of other government ministries and poor communication between ministries could affect sustainability of project results
5.4. Environmental risk	MU	The Project design included a comprehensive plan for future protection of the environment through improvement in life cycle management of pesticides. Unfortunately some activities that were designed to achieve that (implementation of an EPC management business model, promotion of IPM practices, enacting new pesticide legislation, adoption of a pesticide stock management system) did not fully materialize. Practices that pollute the environment such as burning/burying of EPCs and poor stock management will likely continue leading to further environmental contamination.

Annexes

Annex 1. Terms of Reference

Annex 2. Inception Report

Annex 3. Analysis of Project Outputs

Annexes are available to download at http://www.fao.org/evaluation/en/