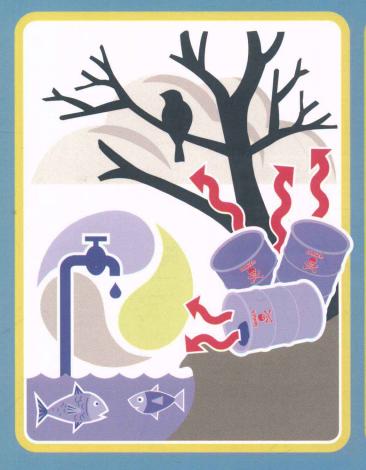
FAO Pesticide Disposal Series

Environmental Management Tool Kit for Obsolete Pesticides



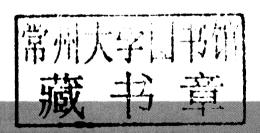


Volume 3

- G. Safeguarding strategy
- H. Disposal strategy
- I. Environmental assessment report and environmental management plans



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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS ROME, 2011

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Foreword

his third volume of the FAO Environmental Management Tool Kit (EMTK Volume 3) provides a framework for how to use the data collected using tools A–F in EMTK Volumes 1 and 2 in designing a project-implementation plan for obsolete pesticides. It provides practical guidance on how the inventory, environmental risk assessment data, store prioritization, storage and transport data for obsolete pesticides in a country can be used to produce three main outputs:

- A safeguarding strategy (tool G), which describes who will take the key responsibilities
 in implementing the repackaging, transportation and storage of obsolete pesticides and
 contaminated materials for higher-, moderate- and lower-risk sites (tools A and B), and, more
 particularly, the role of national personnel (government and private sector) and the level of
 input from specialist waste-management contractors.
- A disposal strategy (tool H) that outlines how the country may treat each of the major
 waste streams identified in the inventory (obsolete pesticides, contaminated soils and
 building materials, and contaminated containers and equipment), with a focus on
 maximizing the use of local or national facilities and, most importantly, according to
 international best practices and proven technologies.
- An environmental assessment (EA) report with an environmental management plan (EMP) (tool I), which provides a format for the presentation of all data and outputs from Volumes 1–3 of the EMTK series to produce a plan for the environmentally sound management of obsolete pesticides and associated wastes based on the country's overall environmental situation.

This volume is aimed at country project managers (as part of a project management unit [PMU]) who will be responsible for preparing the project implementation plan. It is designed to assist them in reaching fact-based decisions to determine strategies for the safeguarding and disposal of the wastes identified during the inventory. It will also assist in the development of implementation plans that will be presented for endorsement to national stakeholders and decision-makers, donors and international agency partners. It is envisaged that in key areas the PMU will be supported by specialist consultants who have experience in the main subject areas. The number and type of consultants a country needs will depend on the capacity of government personnel to complete sections of the analysis themselves and on the availability of competent national consultants to assist government staff. The introduction to EMTK Volume 3 advises how countries can define the level and type of input from consultants that will be needed. It is important to keep in mind that the PMU and other national stakeholders have a central role in the development of the various outputs – of which the final options selected will have to be approved by the responsible agency within the national government.

The EMTK series is supplemented by other guidelines of the FAO Pesticide Disposal Series. The FAO Pesticide Stock Management System (PSMS), which was developed to automate the process of site prioritization and environmental risk assessment presented in EMTK Volume 1, is also assumed to be available to the PMU. Each set of guidelines is supported by a series of training modules that can be obtained from FAO upon request and for which FAO can provide technical support based on access to project funding. The guidance contained in the EMTK series, other FAO guidelines and the training modules form a complete package that will assist the country in selecting the most appropriate implementation strategies based on a detailed situation analysis and an assessment of local capacity (both personnel and technological).

Note that these guidelines do not aim to provide detailed guidance on the various technical details of the safeguarding process; nor do they give an in-depth technical review of the various disposal options currently used to deal with obsolete pesticides and associated waste. These issues are dealt with in detail in EMTK Volume 4 and in guidelines developed by other partners, such as the Global Environment Facility, the World Bank, Secretariats of the Basel and Stockholm Conventions and the United Nations Environment Programme (Chemicals).

Acronyms

ASP Africa Stockpiles Programme

DTO disposal technology option EA environmental assessment

EMP environmental management plan

EMTK Environmental Management Tool Kit for Obsolete Pesticides

ERA environmental risk assessment

ESM environmentally sound management

FAO Food and Agriculture Organization of the United Nations

HSE health, safety and environment

M&E monitoring and evaluation
MSDS material safety data sheet
PMU project management unit
POP persistent organic pollutant

PPE personal protective equipment

PSMS Pesticide Stock Management System

SBS Secretariat of the Basel Convention

SC steering committee

SOP standard operating procedure

SWOT strength, weaknesses, opportunities and threats [analysis]

TOR terms of reference
UN United Nations

UNEP United Nations Environment Programme

WHO World Health Organization

Table of tools in the EMTK series

The Environmental Management Tool Kit (EMTK) series for management of obsolete pesticides is composed of the following volumes, each of which contains a series of tools. For ease of the reading, references to the tools will only be mentioned by their numbering.

Environmental Management Tool Kit Volume 1:

Tool A: Environmental risk assessment

Tool B: Prioritization of stores

Tool C: Regional prioritization and risk tracking

Environmental Management Tool Kit Volume 2:

Tool D: Selection of collection centres

Tool E: Management of collection centres

Tool F: Transport planning

Environmental Management Tool Kit Volume 3:

Tool G: Safeguarding strategy

Tool H: Disposal strategy

Tool I: Environmental assessment report and environmental management plan

Environmental Management Tool Kit Volume 4:

Tool J: Zoning of the workplace

Tool K: Risk assessment

Tool L: Standard operating procedures

Tool M: Selection and use of equipment

Tool N: Health, safety and environment plans

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Introducing the FAO Environmental Management Tool Kit for Obsolete Pesticides

Background

The preparation of coherent and environmentally sound strategies for the safeguarding and disposal of obsolete pesticides and associated wastes is a vital component of pesticide management. The guidance contained in this document provides the user with the support needed to complete the development of the strategies for safeguarding and disposal along with offering formats for the presentation of the *environmental assessment* (EA) and associated *environmental management plans* (EMPs). The development of a project-level EA that includes a detailed EMP to identify and then mitigate the risks associated with the implementation of these strategies is a prerequisite for any project supported through FAO and other agencies, such as the World Bank¹ involving the safeguarding and disposal of obsolete pesticides and associated wastes. The EA should provide a detailed analysis of the relationship of the pesticides and their storage locations with the country's¹ general environment. This will allow a complete assessment of potential impacts during the implementation of safeguarding and disposal activities.

Volume 3 of the Environmental Management Tool Kit series for Obsolete Pesticides (EMTK Volume 3) provides countries with step-by-step advice on how to develop these strategies and how to then identify the risks associated with their implementation. It uses data collected during the inventory and through the application of tools A–C (EMTK Volume 1) and tools D–F (EMTK Volume 2) to formulate a series of national strategies based on the specific country situation. It then shows how these crucial outputs can be combined to form a single, country-specific EA report for obsolete pesticides and associated wastes. Both the EA and the EMP should be considered as practical tools to act as an overall guide in assisting countries during subsequent project implementation.

Objectives

As outlined in the foreword to this document, EMTK Volume 3 provides the user with the support necessary to meet the objectives facilitated by tools G–I. Tool G supports the development of a safeguarding strategy that is based on the specific conditions in the country plus the production of an objective risk analysis of the implementation options available. Tool H assists in the development of a coherent disposal strategy for all types of waste based on an analysis of national capacity to treat persistent organic pollutants (POPs), other obsolete pesticides, contaminated soils and building materials, and contaminated containers and equipments. Tool I consolidates all outputs from tools A–H and the relationship of the affected sites with the overall environment of the country into a country-level EA report. Using this tool will also support the formulation of a project-level EMP for higher-, moderate- and lower-risk sites as identified using tools A–C.

Audience

EMTK Volume 3 has been developed for:

· Officers of the Ministries of Agriculture, Environment and Health to support them

¹ The World Bank Safeguards Policy on Obsolete Pesticides requires that any project that meets the criteria resulting in it being classed as a Category A (high risk) must complete a Country Environmental and Social Assessment. This process has been followed for countries participating in the first phase of the Africa Stockpiles Programme which were supported through global environment facilities (GEF) funds channelled through the World Bank.

in the development of objective strategies for safeguarding and disposal based on local conditions and bearing in mind national capacity.

- Country project managers, project coordinators and PMUs in charge of the national obsolete pesticide programmes to help them devise and develop EMP for risk reduction.
- Key decision-makers within government.

Presentation

The document is divided into three main tools based on key outputs, and it also refers to the use of outputs from other tools within the EMTK series.

Tool G (safeguarding strategy) reviews the options available to countries regarding the role of national personnel from government or the national waste-management sector and the level of input from specialist waste-management contractors and/or consultants. The strategies proposed look at the likely roles and responsibilities of key participants in the repackaging, transportation and storage of the obsolete pesticides and associated wastes. It explores a number of options for safeguarding and reviews their potential for dealing with the higher-, moderate- and lower-risk sites (see tools A and B for definition). It is foreseen that the PMU will develop the safeguarding strategy with facilitation from FAO or a similar organization.

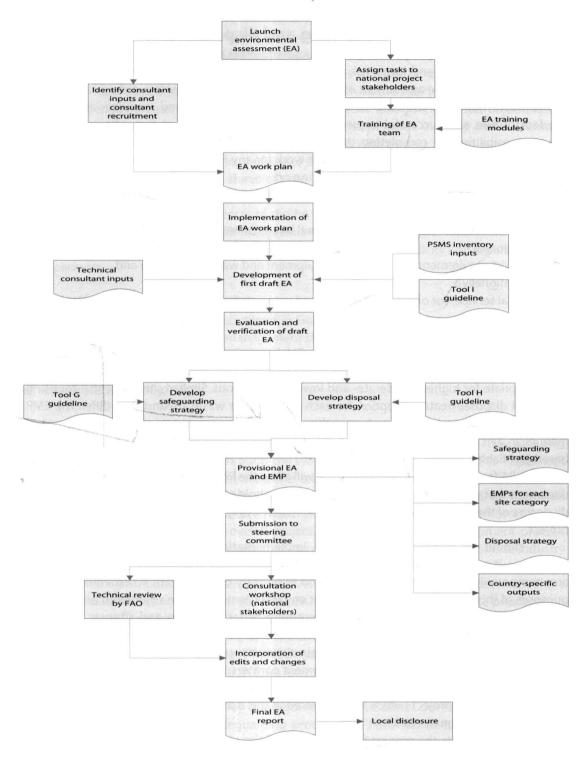
Tool H (disposal strategy) provides guidance on how countries may treat each of the major waste streams identified in the inventory (obsolete pesticides, contaminated soils and building materials, and contaminated containers and pesticide-application equipment). It centres on the completion of a national disposal capacity assessment, typically by a consultant. It provides draft terms of reference for this study. As a general principle, the strategy will try to maximize the level of local disposal for each waste stream, provided compliance with international best practice can be ensured. The issue of standards of disposal is also highlighted, with links to other related guidelines provided.

Tool I provides a format for combining and presenting all data and outputs from tools A–H into a national EA report. The format provided allows for the presentation of the various outputs in relation to the broader environmental situation in the country. It is anticipated that the EA report will be drafted by a consultant in collaboration with, and under the supervision of, the PMU. The EMP annexed to the EA examines the implications of the safeguarding and disposal strategies in terms of several key factors and supplies details on the specific risk-mitigation strategies to adopt to ensure that implementation of the plans has no adverse impact on public health and the environment. Formats are presented as a guide and it is expected that the EMP will also be completed by a consultant working in close collaboration with the PMU. The EMP gives the PMU an opportunity to investigate the potential budget needed to implement their preferred strategies. Both the EA and EMP formats have been developed in collaboration with the World Bank during implementation of the first phase of the Africa Stockpiles Programme (ASP). The formats are provided as guidance and the preparation of the final EA report will need to take account of any national requirements during preparation and approval.

Note that EMTK Volume 3 does not supply in-depth guidance on the various technical details of the safeguarding process nor an exhaustive technical review of the various disposal options currently used to deal with obsolete pesticides and associated waste. These issues are dealt with in detail in EMTK Volume 4 and in guidelines developed by other partners as listed in the foreword to these guidelines. EMTK Volume 3 aims to provide the tools necessary to allow countries to develop coherent risk-based strategies for the safe repackaging, transportation, storage and disposal of obsolete pesticides based on the scope of the problem and an assessment of national capacity.

It is assumed that the PMU has completed a national inventory of all obsolete pesticides and associated wastes successfully and that this data has been entered and verified within the FAO PSMS. If the project does not have access to the PSMS it is assumed that the principles of tools A–C

Figure 1
Outline of the steps in drawing up an environmental assessment (EA) report



have been applied manually and that a preliminary risk-based prioritization of all affected locations has been completed.

Importance of the safeguarding and disposal strategies

The development of the safeguarding and disposal strategies along with the preparation of EMPs for higher-, moderate- and lower-risk sites will have a direct impact on the implementation phase of the project. The assessment of the national capacity for the safeguarding and disposal of the waste will allow the PMU to determine the exact inputs and resources that will be needed for safe and successful implementation, and ultimately to define who will take the key responsibilities for completing the different safeguarding activities. The strategies will also inform the development of the scope of work for any future tender for safeguarding and disposal services. They will have a direct bearing on:

- the plan for inputs procurement such as drums and protective equipment (government or contractor);
- the type, amount and duration of personnel inputs (managerial, supervisory and operational);
- transport requirements for personnel, equipment and waste (in-country and internationally);
- disposal services for obsolete pesticides and associated wastes (in-country and international options).

The EA and associated EMP will allow the PMU to outline the risks and mitigation measures for the various categories of affected site. It is likely that different safeguarding strategies will be appropriate for higher-, moderate- and lower-risk locations. Similarly, the potential for using a national disposal/treatment option for each of the major waste streams may differ. The EMP examines this data and provides a format that can be used to present it in an easily understood manner. In all cases, it is important that the data collected and the decisions reached are risk based, justifiable and fully transparent.

The EA format presented in this volume will allow the PMU to present the relevant data in a document that can be discussed with all project stakeholders. Public consultation and complete disclosure of the information will be a key factor when trying to secure full public support for the project.

It should be noted that during the implementation of safeguarding and disposal operations, it may be necessary to resettle people living in close proximity to a contaminated area temporarily. FAO has no formal policy on temporary or permanent resettlement. For the purposes of this document it is assumed that any resettlement will be completed according to national regulations by the appropriate government department. Any and all costs associated with such resettlement will follow the rules of the national government which must also accept all liability associated with this issue. Under certain circumstances, the safeguarding activity may be completed with the support of other development partners. In such cases, it is likely that policies related to resettlement will need to be drawn up. This may require a more detailed social analysis of the impact of the project (which is not covered in this document) and additional advice from the relevant institution needed.

Figure 1 presents the process for completion of the strategies, the EA and the EMP. It also highlights the need for specific inputs at various stages of the process in terms of consultants, training and technical guidance. Figure 1 clarifies how these inputs fit into the overall process of completing the EA process. By following this step-by-step approach, it is anticipated that PMUs can manage the process of EA development and can understand the importance and timing of key aspects such as consultation and disclosure, and the timing of consultant inputs.

Consultation and disclosure

The development of plans related to the safeguarding and disposal of hazardous wastes typically attracts a great deal of interest from a wide variety of stakeholders at national and international level. Figure 1 identifies key points in the EA development process, where formal consultation with stakeholders is advised and which also allows for the public disclosure of the complete EA report. The aim of the consultation step in the process is to allow for comment and inputs in the final EA report by stakeholders outside the PMU, such as the steering committee (SC) and technical agencies supporting the EA process. Inputs from non-governmental organizations (NGOs) and civil society partners, local research bodies, the pesticide industry and the farmers groups all need to be considered in the final EA document. With respect to the disclosure step, it is important that societies in the vicinity of any of the affected sites, proposed storage areas and final disposal facilities are informed ahead of time of any new project to allow for any concerns over the proposed EA to be raised before the implementation phase starts. Failure to address the consultation and disclosure aspects of the EA process adequately pose significant risks to the project in terms of potential complaints and resistance to implementation in the form of demonstrations, adverse media coverage and associated negative publicity and reputational risk to all partners.

Institutional arrangements

The implementation of the process outlined in Fig. 1 will require inputs from a number of key partners and the establishment of a management structure that facilitates the preparation of the outputs and their approval and adoption by decision-makers. The following text outlines the key components of the *institutional arrangements* typically in place to allow the process to proceed effectively and efficiently.

Project management unit

Typically, the overall responsibility for preparing the safeguarding and disposal strategies plus the EA rests with the government through the PMU, which has been appointed to implement the project on behalf of the government. The team responsible for the project preparation is typically composed of a national project manager or coordinator supported by staff from government departments (e.g. agriculture, health and environment) and is usually hosted within the lead ministry coordinating the overall project. During the strategy-development process, the PMU is typically supported by representatives of the NGO sector, the local pesticide industry and specialist consultants (national or international). As it is the PMU that is generally most familiar with the distribution of wastes and the overall country context, it completes much of the preliminary data collection used to develop the EA, such as inventory data and site prioritization (tools A-C), identification of potential storage and collection-centre locations (tools D and E), and the development of transport plans for centralization (tool F). The PMU will also play a lead role in developing the safeguarding strategy for each category of affected site (higher, moderate and lower risk) with support and facilitation from external partners, such as FAO, other agencies or external consultants. The PMU is again a key partner in this process as it is best placed to assess national capacity and the potential for using government personnel, government vehicles and national contractors during the safeguarding process. The PMU will need to follow national regulations related to the submission of the final EA document for in-country approval by the national environmental body, and this should be clarified at the start of the EA process to ensure that the roles of all partners are defined and accepted clearly.

Steering committee

The approval of safeguarding and disposal strategies and of the final EA report is also the government's responsibility, typically through the *national project steering committee* for

the project. The steering committee (SC) is composed of representatives from government departments (agriculture, environment, health and others) and key stakeholders in the country (e.g. farmers groups, civil society, pesticide industry).²

Consultants

At the initial stage of scoping the EA process, it is important that the PMU identifies all consultant inputs that are required, based on the country setting and national capacity. The country may choose to hire a single consultant firm to complete all tasks or a series of individual consultants. Given the highly technical nature of some of the surveys and the limited numbers of national and international experts available on the market, another option would be to encourage consultants to form a consortium based on the project's needs and their specific areas of expertise. The requirements of the procurement process should be considered during this assessment as this may pose limitations on the type of consultant to be hired (company versus individual) and the selection process to be followed.

It is advised that a principal environmental assessment consultant (herein referred to as *principal consultant*), with experience in the preparation of comprehensive EA reports of this type be recruited. The principal consultant will provide support to the PMU in consolidating all the various inputs into the EA and in formulating a provisional EA document that can be sent for presentation to all stakeholders as part of the national consultation process.

In addition, it is likely that specialist technical consultant inputs will be needed in certain key areas, such as:

- reviewing the national disposal capacity, which forms a key input to the project's final disposal strategy and will need assessment by a competent, impartial body;
- assessing the potential for local management of contaminated containers along with the assessment of contaminated sites;
- developing recommendations related to long-term remediation of contaminated sites and material.

The relative importance of these inputs will vary from country to country. Therefore, the PMU will need to assess the number and type of consultants needed to assist in EA preparation. Typically, the PMU will request the recruitment of a series of national or international consultants based on the terms of reference (TOR) for each group. (Examples of some TORS are provided in Annex 1.) The outputs from these studies will also be incorporated into the final EA report by the principal consultant.

National environmental body

The final approval of the EA on behalf of government typically rests with the national environmental body under application of national regulations. This will include the application of rules related to public disclosure of the document to allow for any comments from possible interested and affected parties. This may also influence the structure and contents of the EA and EMP reports and have an impact on the overall process to be followed by the PMU and consultants.

² See FAO *Inventory guideline* (Section 2.2"Institutional and implementation arrangements for inventory") for further information about the management structure typically developed under an inventory project but which might very well be maintained for the rest of the safeguarding project.

Tool G

Safeguarding strategy

Previous tools presented in EMTK Volumes 1 and 2 provide detailed guidance on establishing: what are the types of waste to safeguard and the risks associated with pesticides inside the store and outside for public health and the environment (tool A); which are the sites to safeguard in priority (tools B and C); where and how should the safeguarded pesticides be transported and safely stored (tools D–F). Tool G deals with the question of who will do the work and take the key responsibility during implementation of the safeguarding activity (repackaging, transport and storage) of the three site categories (higher-, moderate- and lower-risk sites).

Tool G will also highlight how the decisions made regarding the safeguarding process need to be integrated into the project's final EA presented in tool I. The EA will be subject to a national consultation and disclosure process, so it is important that there are rational arguments for the selection of one strategy instead of another. The principal responsibility for making these decisions will rest with the PMU and ultimately the SC. There is also a clear role for the principal consultant as outlined above.

It is anticipated that this strategy will be developed as a collaborative, consultative process involving development partners such as FAO and national stakeholders, including line ministries, NGO groups and the local pesticide industry. It is foreseen that the development of the strategy will include consultant inputs in key areas related to soil assessment and container management, and that a principal consultant will be responsible for reviewing data and drafting the final strategy document. The strategy will then need to be approved by national decision-makers and included in the overall project EA (tool I) prior to disclosure and wider consultation at national level.

Objectives of the tool

Tool G shows the user how to:

- · define the components of safeguarding;
- examine the potential safeguarding options;
- select the most appropriate safeguarding options for higher-, moderate- and lower-risk locations;
- analyse the risks for the preferred safeguarding options;
- develop risk-mitigation plans for the selected safeguarding options.

Outputs of the tool

Tool G assists the user in achieving the following outputs:

- 1 completed Tables G1 and G3, which are used to determine who will take the responsibility for key actions during the different safeguarding activities (repackaging, transportation and storage) and for the different site categories (higher-, moderate- and lower-risk sites);
- 2 determining the relative merits of each possible safeguarding option through an analysis of their relative strengths, weaknesses, opportunities and threats (a SWOT analysis). This process includes an assessment of the availability of competent government and national contractor staff to complete the various safeguarding activities;
- 3 a set of G5 forms completed for all high- and moderate-risk locations;

- 4 a completed Table G7 to provide a risk analysis of each stage of the safeguarding options selected in point 2 above;
- 5 a completed Table G8 to provide a mitigation plan for the risks identified.

Description of the tool

Tool G contains three main sections. The first guides the user through the process of adopting the most appropriate *safeguarding options* regarding who will complete the different safeguarding activities in the three site categories and who will take key responsibility for the work. The second section assists the user in strengthening the safeguarding strategy by assessing the major risks associated with the implementation of the preferred options. The third section helps the user develop a mitigation plan to reduce these risks.

The formats and examples aim to provide adequate support for selecting and justifying the most appropriate safeguarding option for each of the higher-, moderate- and lower-risk stores as defined in tool B. The tables presented in tool G should be considered the minimum level of outputs needed to define the safeguarding strategy selected for each category of site. The user is free to supplement the analysis and the tables, based on experience and local risk-assessment requirements. Additional technical guidelines related to this tool are provided as annexes at the end of this volume. FAO has also developed a series of training modules that can be used to consolidate the process developed in this tool (see footnotes throughout this text). Prior to reviewing each of the steps above in more detail, the user is invited to recap on the environmental risk assessment (ERA) and the site prioritization process presented in tools A–C. A recap of these tools is presented in Annex 2.

Defining the components of safeguarding

The term safeguarding has various meanings. In terms of the management of obsolete pesticides, FAO defines *safeguarding* as the steps needed to repackage, transport and store obsolete pesticides safely. The term can be expanded to include such aspects as the excavation of buried pesticides and heavily contaminated materials (which will then be repackaged to allow transport and storage) and the decontamination, crushing/fragmentation and centralization of old pesticide containers. Safeguarding can therefore be seen as the main risk-reduction step in the overall management of obsolete pesticides. By the end of the safeguarding stage, all obsolete pesticides should have been:

- repackaged safely into new United Nations (UN) approved packaging suitable for transport to an interim storage point or the final disposal/treatment facility;
- transported safely to predetermined centralized storage facilities according to the requirements set out in tool F;
- stored safely at collection centres selected and managed according to tools D and E, pending final environmentally sound disposal.

Practical guidelines for the development of a safeguarding strategy

Selection of safeguarding options (see Table G1 and Box G1)

The safeguarding strategy developed as part of the overall EA for obsolete pesticides must provide details on *who* will be responsible for each step in the three main activities (repackaging, transport and storage) for each category of site (higher, moderate and lower risk) identified using tools A–C. An analysis of the alternatives and a justification of the final decisions made are also required. By the end of this section the user should be able to complete Table G1 below, which helps identify key areas of responsibility.