

**March 15, 2004 - Environmentally Sound Design and Management Capacity-building for Partners and Programs in Africa (ENCAP)**

## **USAID/AFR guidance: preparing PERSUAPs for pesticide programs in Africa**

### ***Overview of review requirements***

All USAID activities are subject to evaluation by, at minimum, an Initial Environmental Examination (IEE). Because of risks presented by pesticides, USAID environmental regulations require that at least the 12 factors outlined in the Pesticide Procedures described in 22 CFR 216.3 (b)(1)(i) (a through l) be addressed in the IEE for any program that includes assistance for the procurement or use of pesticides. The Africa Bureau asks that these factors be examined in a particular type of document, termed a "Pesticide Evaluation Report and Safer Use Action Plan" (PERSUAP), which is submitted as an attachment to the IEE or to an amendment to the IEE.<sup>1</sup> The IEE or amendment itself can be very brief, with the analytical work contained in the attached PERSUAP. The PERSUAP focuses on the particular circumstances of the program in question, the risk management choices available, and how a risk management plan would be implemented in the field. Further details about what to include in a PERSUAP are given below.

Why is a local-level assessment such as a PERSUAP needed for USAID pesticide programs? To help in understanding the utility, consider the U.S. system for promoting pesticide safety. When the USEPA registers pesticides for use in the United States, it specifies the manner in which the product can be "safely" used (i.e., with an acceptably small risk), including safety equipment needed when applying the pesticide, how to apply it, the allowed uses, etc. But the context in which EPA makes these registration decisions is important to note. An extensive system of capabilities and resources exist in this country that help give EPA confidence these specifications will be followed and the product will be used appropriately. These include a 97% literacy rate meaning most of the population can read labels; close control by EPA over the content of the label; training requirements and programs for those pesticide products that require applicator certification; worker protection requirements; occupational safety regulations; and relatively effective federal, state and local enforcement mechanisms. In allowing the use of certain pesticides in its African programs, USAID cannot rely on the same societal capabilities and resources that the USEPA does to assure appropriate use of the product. The preparation of a PERSUAP gives a program manager the opportunity to consider practical actions by which to reduce the risks of using pesticide products in a program, taking into consideration the context in which the products will be used, the particular elements of the program, and the different capacities of the partners involved.

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<sup>1</sup> 22 CFR 216.3(b)(i) states, "...the [IEE] for the project shall include a *separate section* evaluating the economic, social and environmental risks, and benefits of the planned pesticide use..." This statement requires that the PERSUAP be incorporated into an IEE or an IEE amendment, rather than simply remaining as a standalone document.

## ***Who prepares a PERSUAP?***

Program managers are generally responsible for assuring that environmental review requirements for their programs are met, including PERSUAPs. As for all environmental reviews, guidance and assistance for PERSUAPs is available from the appropriate Mission Environmental Officer (MEO), Regional Environmental Officer (REO), the Africa Bureau Environmental Officer (BEO), or the BEO/DCHA if Title II (PL 480) funds are involved.. Considerable reference materials, as well as examples of other PERSUAPs, are available through these contacts, or directly from the Africa Bureau's ENCAP program website, [www.encapfrica.org](http://www.encapfrica.org).

## ***Components of an activity-level PERSUAP***

A PERSUAP basically consists of two parts, a “PER” and a “SUAP.” The Pesticide Evaluation Report (PER) section addresses the 12 informational elements required in the Agency's Pesticide Procedures. The Safer Use Action Plan (SUAP) puts the conclusions reached in the PER into a plan of action, including assignment of responsibility to appropriate parties connected with the pesticide program.

Below are three annexes which further elaborate the content needed in a PERSUAP:

- 1. Detailed guidance for developing a Pesticide Evaluation Report:* provides detailed guidance on the information that should be provided in the Pesticide Evaluation Report, following the 12 informational elements required by the Pesticide Procedures section of USAID's environmental regulations.
- 2. Representative Elements for a Safer Use Action Plan:* Describes the elements needed in a plan that takes action to assure issues resolved in the Pesticide Evaluation Report are resolved in the implementation of the development program being reviewed.
- 3. “A Practical Guide to Reducing Pesticide Risks in Development Projects”:* This brief guide was prepared by staff of the UNFAO (Food and Agricultural Organization), and provides a useful list of problems to watch for as well as practical responses. USAID programs using pesticides would do well to use this guide as a checklist to look for problems and as a source of inspiration for ways to deal with those problems.

## Annex 1: Detailed guidance for the development of a Pesticide Evaluation Report

USAID “Pesticide Procedures” Element and Description (from USAID Pest Management Guidelines, 1991)	Specific Guidance for Pesticide PERSUAP
<p>a. <b>USEPA registration status of the proposed pesticide.</b> Pesticides are registered in the U.S. by active ingredient and by formulation. “Registration status” possibilities of the active ingredients and the formulated products include registered, never registered, and cancelled.</p>	<p>In the PERSUAP: <i>Identify the registration status in the U.S. and in the host country. Identify the formulated pesticide product to be used.</i></p> <p>USAID is effectively limited to using pesticide active ingredients registered in the U.S. by the U.S. Environmental Protection Agency for the same or similar uses. Other pesticides not registered in the U.S. may be authorized, but only if the USAID program can show that no alternatives are available, as required under USAID Pest Management Guidelines for the use on non-U.S.-registered pesticides. Host country pesticide registration procedures must also be identified and followed.</p>
<p>b. <b>Basis for selection of the pesticide:</b> This refers to the economic and environmental rationale for choosing a particular pesticide. In general, the least toxic pesticide that is effective is selected.</p>	<p>In the PERSUAP: <i>Explain the basis for selection of the pesticide product to be used, including active ingredient and formulation.</i></p> <p>Pesticide product selection may be driven by a number of factors, including efficacy, price, availability, safety, etc. All things being equal, a program should choose the pesticide active ingredient and formulation that presents the least overall risk.</p> <p>Formulation is a key determinant of toxicity, and should be considered in selecting a particular pesticide product. Formulation can also have an impact on exposure; for example, solid formulations can eliminate the potential for poisoning through accidental exposure to concentrated liquid product.</p> <p>Packaging can have a significant impact on exposure potential. Large containers necessarily introduce hazardous product transfer steps, as well as the possibility that the product will end up in a smaller, poorly labeled container. Smaller containers are generally better for use in USAID programs.</p>

<p>c. <b>Extent to which the proposed pesticide use is, or could be, part of an Integrated Pest Management (IPM) program:</b> USAID policy promotes the development and use of integrated approaches to pest management whenever possible. This section discusses the extent to which the proposed pesticide use is incorporated into an overall IPM strategy.</p>	<p>In the PERSUAP: <i>Describe the extent to which the proposed product(s) is/are or could be a part of an IPM program. Describe the connection between the USAID activity and regional, national and local control programs (as appropriate).</i></p> <p>IPM, and its public health counterpart, integrated vector management, is USAID policy because it is the most effective, economical, and safest approach to pest control. “Integrated pest management attempts to control pests in an economically and environmentally rational manner; it emphasizes non-chemical tactics which cause minimal disruption to the ecosystem.”<sup>2</sup> USAID programs should assure that the choice of pesticides was made after consideration of other pest management options available, and that this is the most effective and environmentally sound option available.</p>
<p>d. <b>Proposed method or methods of application, including the availability of application and safety equipment:</b> This section examines in detail how the pesticide is to be applied and the measures to be taken to ensure its safe use.</p>	<p>In the PERSUAP: <i>As stated, describe in detail how the pesticide is to be applied and the measures to be taken to ensure its safe use.</i></p>
<p>e. <b>Any acute and long-term toxicological hazards, either human or environmental, associated with the proposed use, and measures available to minimize such hazards:</b> This section of the IEE examines the acute and chronic toxicological data associated with the proposed pesticide. In addition to hazards, this section of the IEE also discusses measures designed to mitigate any identified toxicological hazards, such as training of applicators, use of protective clothing, and proper storage.</p>	<p>In the PERSUAP: <i>Describe measures the program will take to reduce the potential for exposing humans or non-target organisms to selected pesticides. Also describe monitoring measures that will allow the program to identify problems with users applying other pesticides.</i></p> <p><b>It is recommended that this be the key section of the PERSUAP, in which the majority, or perhaps all, of the planned mitigation measures are described.</b> To address this element, the PERSUAP should summarize the toxicity to humans and other non-target organisms of the pesticide products chosen for the program in question, the potential exposure opportunities presented by those products, and the risk reduction actions the program will take to minimize such exposure opportunities. The risk reduction actions should be described in sufficient detail to show that they are indeed workable solutions. If protective clothing is recommended, for example, assurance should be provided that a sustainable source of such protective clothing has been identified, a schedule for its replacement, training in its use, etc.</p>

<sup>2</sup> USAID. 1990. Integrated Pest Management: A.I.D Policy and Implementation

<p>f. <b>Effectiveness of the requested pesticide for the proposed use:</b> This section of the PERSUAP requires information similar to that provided in item b, but more specific to the actual conditions of application. This section also considers the potential for the development of pest resistance to the proposed insecticide.</p>	<p>In the PERSUAP: <i>Explain what recommendations or evidence suggests that the pesticide products proposed are effective in the program area.</i></p>
<p>g. <b>Compatibility of the proposed pesticide use with target and non-target ecosystems:</b> This section examines the potential effect of the pesticide on organisms other than the target pest (for example, the effect on bee colonies kept in the area). Non-target species of concern also include birds and fish. The potential for negative impact on non-target species should be assessed and appropriate steps should be identified to mitigate adverse impacts.</p>	<p>In the PERSUAP: <i>Describe efforts that are being made to minimize environmental exposure to pesticide products.</i>  This section should address the toxicity of the products and the environmental risk mitigation measures that the program will take. The key options for environmental risk mitigation are product choice and exposure reduction. In this section, therefore, describe the relative environmental risk of the product chosen versus the other options. Also describe efforts the program will make to reduce exposure of the environment, through choice of pesticide product and packaging, preparation of educational materials, training, etc.</p> <p>This question might also be covered in response to question (e), and if so, simply reference that section without repeating it.</p>
<p>h. <b>Conditions under which the pesticide is to be used, including climate, flora, fauna, geography, hydrology, and soils:</b> This section examines issues such as the potential for contamination of surface and groundwater sources.</p>	<p>In the PERSUAP: <i>Describe the environmental conditions under which the pesticide is to be used, identifying any environmental factors that might be particularly sensitive or subject to contamination from re-treatment operations.</i></p> <p>This item refers to particular environmental factors that might accentuate the effects of exposure to pesticides, and the potential need for measures to reduce those risks. Examples of special conditions that need to be noted here include sensitive ecosystems in the project area and superficial groundwater tables.</p>

<p>i. <b>Availability of other pesticides or non-chemical control methods:</b> This section identifies other options for control of pests and their relative advantages and disadvantages.</p>	<p>In the PERSUAP: <i>Describe other pest management options being pursued in the geographic area of the activity, either as part of the USAID activity or otherwise, and explain why this particular vector control method was chosen over other available options.</i></p>
<p>j. <b>Host country's ability to regulate or control the distribution, storage, use, and disposal of the requested pesticide:</b> This section examines the host country's existing infrastructure and human resources for managing the use of the proposed pesticide. If the host country's ability to regulate pesticides is inadequate, the proposed action could result in greater harm to the environment.</p>	<p>In the PERSUAP: <i>Summarize the host country's capacity and structure for the regulation of public health and agricultural pesticides. Identify the approval/registration status of the pesticide product in the host country.</i></p> <p>The host country's capacity and structure for the regulation of public health and agricultural pesticides should be summarized. A critical issue for a pesticide activity supported by the Agency is the extent to which the host country's regulatory oversight will help to control distribution, storage, use and disposal of the pesticide products in question. USAID activities should always be in compliance with local environmental and public laws and regulations, but that is not necessarily enough. If host country regulatory systems and institutions are not sufficient to give a reasonable expectation that environmentally sound practices will be enforced, USAID still bears responsibility for assuring environmental protection at each of these steps in the pesticide life cycle.</p> <p>Government oversight over pesticides is important for controlling the quality of products as well as their environmentally-sound use and disposal. USAID programs of substantial size should generally include an element of capacity-building work with host country institutions that govern public health pesticide use. These measures should be identified in this chapter of the PERSUAP.</p>
<p>k. <b>Provision for training of users and applicators:</b> USAID recognizes that safety training is an essential component in programs involving the use of pesticides. The need for thorough training is particularly acute in developing countries, where the level of education of applicators may typically be lower than in developed countries.</p>	<p>In the PERSUAP: <i>Describe the provisions made to train and educate those who will be using the pesticides.</i></p>

<p>1. <b>Provision made for monitoring the use and effectiveness of this pesticide:</b> Evaluating the risks and benefits of pesticide use should be an ongoing, dynamic process.</p>	<p>In the PERSUAP: <i>Describe monitoring and evaluation programs for pesticide use activities, and the health and environmental safety-related information that is collected via this M and E capacity.</i></p> <p>Monitoring programs should actively investigate, to the extent possible, the following issues:</p> <ul style="list-style-type: none"> <li>• Effectiveness of Information, Education and Communication materials and activities in promoting safe handling, use and disposal of pesticide products.</li> <li>• Adverse health and environmental effects and the frequency and severity with which they occur.</li> <li>• Quality control of pesticide products.</li> <li>• Effectiveness of the chosen products and their alternatives, including whether or not resistance is developing.</li> <li>• Safe and effective pesticide use and handling practices by program staff and end users.</li> </ul>
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## ***Annex 2: Representative Elements for Pesticide Safer Use Action Plan***

The Pesticide Evaluation Report (PER) section is the investigative half of the PERSUAP, and it should furnish all the information needed to make appropriate decisions about pesticide management within the USAID program in question. But the remaining and essential element of the report is the decision-making – what choices should be made and what activities planned in order to assure that the risks from the intended pesticide use are minimized and that the pesticide uses are consistent with all relevant laws and policies? These choices and activities are what go into the Safer Use Action Plan.

An adequate pesticide safer use action plan should at minimum do the following:

- ❖ **Be consistent with host country pesticide registration and pest management programs.**  
To the extent possible, the action plan should strengthen and support these host country programs, be they national or local. But at minimum the action plan must take into account the legal and/or policy requirements established by host country authorities. This includes assuring that the pesticides used are registered in that country for the intended use, and that all other applicable requirements, such as those pertaining to labeling and packaging, are followed. Other local programs with which USAID should be consistent might include resistance management plans.
- ❖ **Ensure formal national registration of pesticides**
  - Establish pesticide quality standards and control procedures
  - Provide for enforcement
  - Require good packaging and clear and adequate labeling
- ❖ **Define and assure safe use practices**
  - Identify pesticides appropriate for use, selecting the least toxic insecticides and formulations possible, and considering non-pesticide alternatives.
  - Define appropriate methods of pesticide handling, storage, transport, use and disposal.
- ❖ **Assure accessibility of protective clothing and equipment needed.**
  - Training, development and distribution of appropriate information, education and communication
  - Specific IEC messages, along with sale and treatment, regarding the proper handling, use, disposal of pesticides, and related waste, at the distribution, storage, handling, use, disposal stages, at all levels, but especially at the village and household levels.
- ❖ **Emphasize operational research & monitoring & evaluation: Roles of key actors**
  - Quality control of insecticide(s)
  - Research on alternative insecticides and effectiveness under local conditions
  - Safe and effective use of insecticide by parties at all levels
- ❖ **Identify Roles and Responsibilities:**
  - Public Sector: coordination, regulatory oversight and management, defining environmental responsibilities, and others
  - Commercial Private Sector

- Non-profit private sector, private voluntary organizations (PVO), non-governmental organizations (NGO)
- ❖ **Integrate Mitigation Measures**, for example:
  - Choice of USEPA-recommended pesticides
  - Avoid disposal of treatment solution in bodies of water
  - Avoid washing application equipment where the residues would impinge on bodies of water
  - For bulk pesticides, provisions for spill prevention and clean-up
- ❖ **Disposal provisions for used pesticide containers**

## ***Annex 3: A Practical Guide To Reducing Pesticide Risks in Development Projects<sup>3</sup>***

**Basic principle of risk reduction:** risk must be evaluated in the local conditions of the project or activity.

### **1) Some common errors**

- Pesticide not registered in the host country
- Pesticide not evaluated/registered in the country of origin (Organisation for Economic Co-operation and Development, OECD)
- Pesticide not efficacious for the planned use
- Formulation is not stable in tropical conditions
- Formulation not adapted for the available application equipment
- Quantities exceed the real need
- Pesticide is too dangerous for the users
- No label / in a foreign language
- Packaging of an inappropriate volume
- Packaging not strong enough

### **2) Basic principles**

- Promote IPM as the preferred approach for pest control
- Reinforce the management of pesticides by the host country
- Use good practices in the provision of pesticides

### **3) Constraints to IPM -- pesticides**

- Aggressive marketing of pesticides
- Policies of government/donors
- Governmental policies / donors promote the use of pesticides
- Economic/financial
- Institutional
- Centralized decision-making in favor of pesticides

### **4) Possible responses**

- Put in place a project/program for plant protection/vector control
- Put in place IPM/ Integrated Vector Management (IVM) projects/programs
- Donation/purchase of pesticides

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<sup>3</sup> Translated from Oct. 2000 presentation at IPM workshop by H. van der Walk, UNFAO Sahel Regional Program, Bamako, Mali

**5) Use of pesticides in development projects -- some recommendations if one is obliged to use pesticides.**

**Stage 1 – phytosanitary problem analysis**

- Is the pest biology known?
- Is the environment and are the farmer practices known?
- Is the pest impact known (financial loss)?

**Stage 2 – analysis of management options.**

- Has the pesticide efficacy been evaluated for the crop/pest and locality in question?
- Are agronomic/cultural measures known and applied?
- Is biological control possible?
- Has an IPM system been developed?

**Stage 3 – risk reduction**

- Risk = toxicity x exposure
- Minimize the risk of the pesticides used by:
  - Reducing toxicity of choices
  - Reducing the duration of exposure
  - Reducing the degree of exposure

**6) Risk reduction measures:**

**Avoid use**

- Avoid pesticide use, if possible.
- Avoid pesticide use as the only control option, if possible.
- Integrate pesticide use into an IPM system -- minimize the frequency and dose of applications
- Use pesticides as a last resort

**Toxicity reduction**

- Use the least toxic commercial products available – basic principles
- Products authorized? – regulation
- Products efficacious? - regulation / research
- Products acceptable to users? - extension / farmers' groups
- WHO (World Health Organization) acute toxicity classes:
  - Ia Extremely hazardous
  - Ib Highly hazardous
  - II Moderately hazardous
  - III Slightly hazardous
  - U Unlikely to present any acute hazard in normal use

- Lists of concern :
  - Products in WHO toxicity classes Ia, Ib (and II)
  - Products not registered in OECD countries
  - « Prior Informed Consent - PIC » or « Persistent Organic Pollutants - POP » chemicals

(FAO: will not use Ia/Ib in development projects. World Bank / OECD: will not finance Ia/Ib/(II) if use is directly by or accessible to small farmers or in countries without good regulatory programs.)

### **Exposure reduction**

- Prior to use
  - Transport, Packaging, Storage
- During use (« safer use »)
  - Training
  - Formulation
  - Equipment
  - Protective material
  - Buffer zones
- After use
  - Waiting period
  - Cleaning / bathing
  - Storage
  - Disposal
  - Monitoring