



**CENTRE FOR COORDINATION OF AGRICULTURAL
RESEARCH AND DEVELOPMENT FOR SOUTHERN
AFRICA (CCARDESA)**

**ENVIRONMENTAL AND SOCIAL
MANAGEMENT FRAMEWORK AND
PEST MANAGEMENT PLAN FOR
CCARDESA**

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**CENTRE FOR COORDINATION OF AGRICULTURAL RESEARCH & DEVELOPMENT
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1. ESMF OBJECTIVES

Given its commitment to enhance sustainable management of natural resources, CCARDESA has developed this Environmental and Social Management Framework (ESMF) that will guide the implementation of the environmental and social aspects of its programme by the various partners. The ESMF is aimed at minimizing the possible negative environmental and social impacts of CCARDESA programmes to the natural environment and to vulnerable communities in the sub-region. The ESMF provides general policies, guidelines, codes of practice and procedures for the management of environmental and social safeguards. The structural elements indicated below constitute the Environmental and Social Management Framework of CCARDESA, and as such, will have to be strictly observed in the implementation of all CCARDESA programmes, including those activities implemented by its partners and have linkage with the proposed operation. The ESMF ensures that adverse environmental and social impacts are adequately assessed and appropriately mitigated during the implementation of CCARDESA projects.

More specifically, the objectives of the ESMF are to:

- Establish clear procedures and methodologies for environmental review, approval and implementation of subprojects to be financed by CCARDESA
- Specify appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental concerns related to subprojects
- Determine the training and other capacity building needed to successfully implement the provisions of the ESMF

The implementation of ESMF will help to ensure that activities under the proposed project will (i) protect human health; (ii) enhance positive environmental outcomes; and (iii) prevent negative environmental impacts as a result of either individual sub-projects or their cumulative effect

2. CCARDESA MISSION AND STRUCTURE

CCARDESA's mission is to promote innovative research, technology generation and adoption for sustainable agricultural development through effective partnership and capacity building. This will enable the organization to contribute towards its vision of "a prosperous and food secure Southern African region with vibrant rural livelihoods". CCARDESA will pursue its mission through the five thematic areas which have been described in detail in the Medium Term Operational Plan.

- **Thematic Area 1: Farmer empowerment and market access** - to promote regional efforts to empower and strengthen farmers and their organizations to become effective partners in the development and implementation of the agricultural R&D agenda, and to enhance their access to markets.
- **Thematic Area 2: Research and technology generation and farmer demand-driven advisory services** and innovation systems – to:
 - (i) generate improved and more efficient technologies that are technically relevant and market-oriented and

- (ii) improve the efficiency of the dissemination of market-oriented technologies, to promote knowledge-sharing across member countries, and to encourage the spread of 'best practice' in priority areas.
- **Thematic Area 3: Knowledge, information and communication.** This will involve to:
 - (i) provide an enabling environment for broad-based and equitable access to both traditional media and new digital-based information and communication technologies (ICTs); and
 - (ii) provide farmers, researchers, extension agents and other stakeholders with access to information and knowledge.
- **Thematic Area 4: Institutional development and capacity building** in:
 - (i) research, technology generation and farmer demand-driven advisory services,
 - (ii) agricultural education, training and learning systems that provide the human and social capital needed to promote farmer-oriented innovation systems and provide life-long learning by the full range of stakeholders, and in
 - (iii) knowledge, information and communication.
- **Thematic Area 5: Establishment and strengthening of CCARDESA as an effective SRO by:** recruiting high calibre staff and leading the process of coordinating all matters related to agricultural research and development in the SADC region, mobilise resources and manage the physical, financial and movable assets of the institution

CCARDESA will achieve its goal and mandate through facilitating development of market-oriented technologies, and promotion of information dissemination and training mechanisms and production practices that will lead to:

- Increased rate of growth of the agricultural sector in the SADC region and improved livelihoods of the rural population, thereby contributing to the CAADP goal of a 6 per cent average annual rate of growth of agricultural GDP by 2015; and
- Increased productivity of smallholder crop, livestock, fisheries and forestry enterprises in the SADC region, thereby reducing the proportion of poor households among the rural population

CCARDESA is committed to enhance regional collective action in agricultural research for development, extension, and agricultural training and education to promote economic growth, fight poverty, eradicate hunger and enhance sustainable use of resources in Southern Africa. CCARDESA is also committed to the implementation of the African Union's New Partnerships for African Development (AU-NEPAD) Comprehensive African Agriculture Development Programme (CAADP) in line with the principles of the Framework for African Agricultural Productivity (FAAP) as developed by the Forum for Agricultural Research in Africa (FARA). CAADP Pillar IV constitutes NEPAD's strategy for revitalizing, expanding and reforming Africa's agricultural research, technology dissemination and adoption efforts, and this fits well with the overall objectives of CCARDESA.

CCARDESA adds value to the work of the National Agricultural Research Systems (NARS) of the 15 SADC member countries through supporting the following activities:

- The identification of shared goals and the promotion of economies of scale and scope through collaboration, specialization and sharing of results
- The identification of sub-regional public goods that would be under-produced in the absence of shared goals and a sub-regional mechanism and
- Sharing of knowledge and experiences with institutional innovation for more effective agricultural research for development (AR4D), Extension and Agricultural Training and Education in Southern Africa.
- Making efficient use of innovation spill-overs from outside sources across the sub-region rather than on a country-to-country basis.

3. LEGAL AND INSTITUTIONAL FRAMEWORK FOR ENVIRONMENTAL MANAGEMENT AND ASSESSMENT IN SADC

Activities financed by CCARDESA through its MTOP and implementation of the ESMF will be consistent with SADC's overall approach to environmental management. SADC has supported a Policy and Strategy for Environment and Sustainable Development (1996) and continues to promote an agenda to mainstream environmental management and support the integration of environmental impact assessment (EIA) in decision making. Implementation of the CCARDESA ESMF and any related follow up environmental management plans will take place within the context of SADC's legal and policy requirements for environmental management. Table 1 below summarizes the broader framework for environmental management and impact assessment for the CCARDESA supported activities.

Table 1: Summary of the constitutional, legal and policy requirements for environmental management and EIA in SADC countries

Country	Ministry responsible for environmental management	Authority responsible for EIA	Name of EIA Act	EIA Regulations
Angola	Ministry of Environment (MoE)	National Directorate for Prevention and Environmental Impact Assessment	Environment Framework Law No. 5/98 of 19 June 1998	Decree on Environmental Impact Assessment, No. 51/2004 of 23 July 2004
Botswana	Ministry of Environment, Wildlife and Tourism (MEWT)	Department of Environmental Affairs (DEA)	Environmental Assessment Act, No. 10 of 2010 (still to be passed into law)	In draft
DRC	Ministry of Environment, Nature Conservation and Tourism (MENCT)	Group for Environmental Studies of Congo (Groupe d'Études Environnementales du Congo (GEEC))	Environmental Protection Act, No. 11/009 of 9 July 2011	None
Lesotho	Ministry of Tourism, Culture and Environment (MTCE)	Department of Environment	Environment Act, No. 10 of 2008	In draft
Madagascar	Ministry of Environment, Water, Forests and Tourism (MEEFT)	National Office for the Environment (ONE)	Environment Charter, Law No. 90-033 of 21 December 1990, as amended by Law No. 97-012 and Law No. 2004-015	Decree on Ensuring the Environmental Suitability of Investment (Décret Relatif à la Mise en Compatibilité des Investissements avec l'Environnement)

Country	Ministry responsible for environmental management	Authority responsible for EIA	Name of EIA Act	EIA Regulations
				(MECIE)), Decree No. 99-954, as amended by Decree No. 2004-167
Malawi	The Ministry of Natural Resources, Energy and Environment (MNREE)	Environmental Affairs Department (EAD)	National Environmental Management Act, No. 23 of 1996	Non, but the EIA Guidelines have been gazetted and have legal standing
Mauritius	Ministry of Environment and Sustainable Development (MoE)	Department of Environment: EIA Committee	Environmental Protection Act, No. 19 of 2002	None
Mozambique	Ministry for the Coordination of Environmental Action (MICOA)	National EIA Directorate	Environmental Law, No. 20/97 of 1 October 1997	Regulations on the Environmental Impact Assessment Process, Decree No. 45 of 2004
Namibia	Ministry of Environment and Tourism (MET)	Department of Environmental Affairs (DEA)	Environmental Management Act, No. 7 of 2007	In draft
South Africa	Department of Environmental Affairs (DEA)	National DEA or provincial departments (see Chapter 12, section 12.2.2. for list)	National Environmental Management Act, NO. 107 of 1998 as amended	Environmental Impact Assessment Regulations R543, R544 and R545 of June 2010
Swaziland	Ministry of Tourism and Environmental Affairs (MTEA)	Swaziland Environmental Authority (SEA)	Environmental Management Act, No. 5 of 2002	Environmental Audit, Assessment and Review Regulations of 1996, as amended in 2000
Tanzania	Vice-President's Office	National Environmental Management Council (NEMC)	Environmental Management Act, No. 20 of 2004	Environmental Impact Assessment and Audit Regulations, Government Notice No. 349 of November 2005
Zambia	Ministry of Tourism, Environment and Natural Resources (MTENR)	Zambia Environmental Management Agency (ZEMA)	Environmental Management Act, no. 12 of 2011	Environmental Protection and Pollution Control (Environmental Impact Assessment) Regulations Statutory Instrument No. 28 of 1997
Zimbabwe	Ministry of Environment and Natural Resources Management (MENRM)	Environmental Management Agency (EMA)	Environmental Management Act, Chap 20:27, of 2002	Environmental Management (EIAs and Ecosystems Protection) Regulations, Statutory Instrument No. 7 of 2007

Source: SADC Environmental Legislation Handbook 2012,

http://www.saiea.com/dbsa_handbook_update2012/dbsaFrameSet.html¹

¹ Since 2007, the Southern African Institute for Environmental Assessment (SAIEA) and the Development Bank of Southern Africa (DBSA) have published and periodically updated a Handbook on environmental management and environmental impact assessment in the SADC region. This resource document includes detailed information for each SADC country on institutional and administrative structures, policy and legal frameworks, procedural frameworks, and relevant environmental legislation.

4. POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS IN CCARDESA's MTOP

CCARDESA has developed a five year Medium Term Operational Plan which has as its purpose the sustainable competitiveness of Southern Africa agricultural systems through support to prioritized areas of research for development. At the core of the Plan is a thematic based approach for regional agricultural research.

Implementation of the CCARDESA MTOP is expected to have a positive impact on the environment by supporting the development and dissemination of agricultural technologies that promote sustainable use of land and water. The MTOP will also contribute towards reducing the vulnerability of poor rural households to climate shocks by promoting the adoption of climate smart agricultural practices. Nonetheless, the activities of CCARDESA are expected to be expanded substantially over the years, and it is anticipated that the MTOP, if fully financed, will reach approximately US\$ 42 Million for the 2013-2018 period. Given this level of resources, there is no doubt that CCARDESA's footprint could be significant if no measures were put in place to guide the social and environmental responsibility of the work conducted in the sub-region.

Table 2 contains an example of the types of activities that will take place under the CCARDESA MTOP thematic area 2. A full listing of activity areas and priorities are contained in the full MTOP document.

Table 2: Examples of “Quick win” activity areas for Thematic Area 2 - Research, Technology Generation and Farmer demand-driven Advisory Services

Commodity	Priority Intervention Area	Activity Area(s)
Maize	Soil fertility and plant nutrient management	Adapt and validate available soil fertility interventions in similar environments in the region
	Conservation Agriculture Systems	Enhance agro-ecosystem resilience through minimum tillage, use of farm available organic matter and improved water harvesting and soil management in drier environments
Sorghum	Agro-processing, food safety and value addition	Develop, adapt and promote appropriate gender-sensitive smallholder equipment for processing and value addition at household level
Cassava	Agro-processing, food safety and value addition	Identify and develop alternative uses of cassava in livestock feed
Groundnut	Post-harvest crop management	Develop improved farm level post-harvest handling and storage infrastructure to reduce aflatoxin infestation and other losses
Soybean	Soil fertility and plant nutrient management	Up-scale the rhizobium inoculation technology production and use in major soybean growing areas in the region
Forestry	Value-added processing and marketing of wood and non-wood products	Research on the properties and potential applications of reconstituted wood products
	Policies to support sustainable forest management and poverty reduction	Analyze policy incentives for investments in small holder plantation development
Livestock	Water and range management and conservation	Conduct studies to support sustainable water supply & utilization of rangeland resources
	Livestock pests and diseases	Undertake control and eradication of Transboundary Animal Disease
	Breeding, biotech and conservation of animal genetic resources	Improve access to adapted quality heifers by farmers
	Breeding, biotech and conservation of animal genetic resources	Stabilize supply of improved day-old chicks through village/district level low cost hatcheries & cock-circles

Commodity	Priority Intervention Area	Activity Area(s)
Fishery	Fish processing, food safety and value addition	Enhance productivity of aquaculture through fish processing, food safety, value addition
	Sustainable harvesting and management of inland fisheries	Carry out socioeconomic research on marine fisheries to underpin sustainable management and harvesting

Source: CCARDESA MTOP

The specific potential risks or negative impacts related to implementation of the CCARDESA MTOP include the potentially increased use of fertilizers, herbicides and pesticides that could arise from implementation of sub-project grants that support generation and dissemination of agricultural technologies or loss or degradation to land or water resources through MTOP supported activities. In particular, negative impacts could include:

- Increased vulnerability to pests due to poor pest management or introduction of new cultivars
- Localized agro-chemical soil and water pollution and reduction of water quality from agro-chemical use, waste generation, or poor handling of pesticides and disposal of empty chemical containers;
- Unintended movement or transmission of plant varieties within or between countries as a result of field trials or other research activities, including transgenic research
- Land or water degradation due to infrastructure development
- Loss of biodiversity through clearance of land not previously used for agriculture

Because implementation of the MTOP will utilize a sub-grant mechanism for many of the thematic program activities, the exact location where activities will take place will not be known until sub-grants are awarded. The scale and scope of individual activities, however, is expected to be small. Sub-grants would typically average a few hundred thousand dollars and take place on research station lands and farmer fields through voluntary participation.

5. STAKEHOLDER CONSULTATIONS

Extensive stakeholder consultation has taken place over the period 2008-2012 as part of the establishment of CCARDESA as an institution and in the formulation of the CCARDESA MTOP. This has involved country consultations in each SADC Member State to identify the core thematic structure of the MTOP and to seek buy in for CCARDESA's proposed institutional structure and endorsement of the focus and structure of the MTOP through SADC Ministers of Agriculture meetings and the SADC Summit. A separate detailed R&D priority setting exercise also utilized extensive in-country consultations to collect data on qualitative information on R&D priorities and was also followed by the convening of regional meetings at the technical and ministerial level to endorse priorities. (see Annex 6 for CCARDESA stakeholder consultation model and past consultations).

This ESMF has been disseminated through CCARDESA Board and website and is expected to continue to utilize to stakeholder consultation mechanisms built into CCARDESA governance arrangements – the CCARDESA Board and the General Assembly –to seek

input and feedback on its implementation. Stakeholder consultation is an ongoing process and will be taking place throughout the project during its implementation.

6. ELEMENTS OF CCARDESA ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

The following are the elements of the CCARDESA Environmental and Social Management Framework (ESMF):

- i) **Negative list** – list of activities, or characteristics of activities, that cannot be supported;
- ii) **Minimum Standards** – minimum environmental management policies and standards to be incorporated based on World Bank safeguard policy requirements.
- iii) **Processes and responsibilities** – description of the processes to be followed in implementing the ESMF, and assignment of responsibilities for these processes;
- iv) **Capacity building** – training and technical assistance that will be provided to build capacity so that ESMF responsibilities may be successfully fulfilled;
- v) **Monitoring and Reporting** – Measures that will be undertaken to continuously confirm that the provisions of the ESMF are being followed by CCARDESA Secretariat and its partners, and also the measures developed and implemented for purposes of adherence to the ESMF.

7. NEGATIVE LIST

The following activities, or activities with the following characteristics, cannot be financed by the CCARDESA:

- Activities inside protected areas or other critical natural habitats;
- Activities requiring involuntary resettlement of people;
- Dams more than ten meters in height and over 1 million M³ in volume, and involving use of any international waters;
- Activities involving logging in natural forests, or processing of timber other than from plantations;
- Activities that would damage physical cultural property;
- No project activity shall be supported in disputed areas.

8. MINIMUM STANDARDS

Below are the minimum environmental management standards to be followed, based on development partner and member countries' requirements. They shall be applied to all activities supported by CCARDESA:

8.1. Environmental Assessment of Construction and Civil Works

Where CCARDESA resources are to be used to finance construction or civil works, environmental and social screening shall be undertaken and an appropriate ESMP developed. Where an Environmental and Social Impact Assessment (ESIA) is determined to be necessary through the screening process, an ESIA shall be carried out and a report produced in compliance with both development partner (including the World Bank OP/BP 4.01) and any applicable national environmental legislation. This includes any compliance with the requirements for consultation and the disclosure of information. A sample TOR for ESIA is contained in Annex 1.

Any dam or irrigation structure construction will be guided by the FAO Manual on Small Earth Dams, available at:

<http://www.fao.org/docrep/012/i1531e/i1531e.pdf>

8.2. Resettlement or land acquisition

CCARDESA resources cannot be used for any activity that would require involuntary resettlement of people, or negatively impact livelihood due to involuntary land acquisition. If land or property is to be acquired, it must be on the basis of a willing buyer/willing seller, and must be documented as such.

8.3. Natural Habitats

CCARDESA resources cannot be used for activities that involve a significant conversion or degradation of critical natural habitats.

In applying this policy, the following definitions apply:

- **Significant conversion** is the elimination or severe diminution of the integrity of a critical or other natural habitat caused by a major, long-term change in land or water use. Significant conversion may include, for example, land clearing; replacement of natural vegetation (e.g., by crops or tree plantations); permanent flooding (e.g., by a reservoir); drainage, dredging, filling, or channelization of wetlands;
- **Degradation** is a modification that substantially reduces the habitat's ability to maintain viable populations of its native species;
- **Critical natural habitats** are:
 - a) Existing protected areas and areas officially proposed by governments as protected areas (e.g., reserves that meet the criteria of the World Conservation Union [IUCN] classifications), areas initially recognized as protected by traditional local communities (e.g., sacred graves), and sites that maintain conditions vital for the viability of these protected areas; or
 - b) Sites identified on supplementary lists prepared by an authoritative source. Such sites may include areas recognized by traditional local communities; areas with known high suitability for bio-diversity conservation; and sites that are critical for rare, vulnerable, migratory, or endangered species. Listings are based on systematic evaluations of such factors as species richness; the degree of

endemism, rarity, and vulnerability of component species; representativeness; and integrity of ecosystem processes.

8.4. Forests and Natural Habitats

CCARDESA resources shall not be used for activities inside protected areas or other critical natural habitats or those that involve significant conversion or degradation of natural habitats, including forest areas that qualify as critical natural habitats. They shall also not be used for activities associated with forest plantations that involve any conversion or degradation of critical natural habitats nor activities involving logging in natural forests, or processing of timber other than from plantations. Should any CCARDESA project involve harvesting operations by small-scale landholders or local communities under community forest management, standards for forest management shall be developed with the meaningful participation of locally affected communities, consistent with the principles and criteria of responsible forest management, or adherence to a time-bound phased action plan to achieve such a standard.

CCARDESA resources shall support activities related to forest plantations only when such plantations are established on un-forested sites or lands already converted. Forestry activities supported by CCARDESA must include measures to prevent the introduction of invasive species that threaten biodiversity.

8.5. Pest Management

Any CCARDESA research project that involves pest management and control shall have an Integrated Pest Management Plan (IPMP) whose outline structure is as found in Annex 2. Organisational resources will only support activities that require the use of pesticides when these activities include:

- The application of integrated pest management (IPM) practices, incorporating the promotion of biological, cultural, sanitation and environmental control methods over chemical pesticides where possible;
- The application and promotion of safe pesticide management practices outlined in the guidelines of the International Code of Conduct on the Distribution and Use of Pesticides²
- and when project implementing countries have legislation and or technical services to guide pesticide distribution and use

The following criteria apply to the selection and use of pesticides in activities financed by the CCARDESA:

- They must have negligible adverse human health effects;
- They must be shown to be effective against the target species;
- They must have minimal effect on non-target species and the natural environment. The methods, timing, and frequency of pesticide application must be aimed to minimize damage to natural enemies; and,
- Their use must take into account the need to prevent the development of resistance in pests.

² <http://www.fao.org/docrep/005/y4544e/y4544e00.htm>

If a project is not using pesticides but might result in increased use of pesticides, a component should be put in place for training farmers (or farmer groups) and or creating awareness about proper use of pesticides.

In addition, any pesticide financed by CCARDESA must be manufactured, packaged, labelled, handled, stored, disposed of, and applied according to standards that, at a minimum, comply with the FAO's following guidelines:

- *Pesticide storage and stock control manual (FAO, 1996),*
- *Revised guidelines on good labelling practice for pesticides (FAO, 1995),*
- *Guidelines for the management of small quantities of unwanted and obsolete pesticides (FAO, 1999),*
- *Guidelines on Management Options for Empty Pesticide Containers (FAO, 2008),*
- *Guidelines on personal protection when using pesticides in hot climates (FAO, 1990).*

A fully updated list of guidelines and good practices are contained in Annex 7, which contains FAO's Annotated list of Technical Guidelines for the implementation of the International Code of Conduct on the Distribution and Use of Pesticides, 2013. Examples of good practices for pest management are given in Appendix 2.1.

CCARDESA will not finance formulated products that fall in WHO classes IA and IB, or formulations of products in Class II, if

- (a) the recipient country lacks restrictions on their distribution and use; or
- (b) they are likely to be used by, or be accessible to, lay personnel, farmers, or others without training, equipment, and facilities to handle, store, and apply these products properly.

CCARDESA will not finance any pesticide products which contain active ingredients that are listed on Annex III of the Rotterdam Convention (on Prior Informed Consent Procedures for Certain Hazardous Chemicals and Pesticides in International Trade), unless the country has taken explicit legal or administrative measures to consent to import and use of that active ingredient.

CCARDESA will not finance any pesticide products which contain active ingredients that are listed on Annex A & B of the Stockholm Convention on Persistent Organic Pollutants, unless for an acceptable purpose as defined by the Convention, or if an exemption has been obtained by the Country under this Convention.

8.6. Genetically Modified Organisms

CCARDESA supports research in Genetically Modified Organisms (GMOs) only when the proposals follow the precautionary approach principle and more importantly consistency with the national biosafety framework in the country concerned.

Proposals involving contained laboratory research must verify that the proposing institute has in place institutional guidelines for conducting recombinant DNA research and a mechanism for internal approval and monitoring and risk management of such research. These guidelines need to be of international standard (e.g. Adapted from 'NIH guidelines for research involving recombinant DNA molecules or a functional equivalent).

Prior to the approval of proposals involving confined field trials of transgenic organisms CCARDESA requires that the sections of the proposal covering risk assessment and management, description of the conduct of the field trial, and post-trial monitoring measures, are subject to a third party expert review. Such third party review will also determine whether there is a risk of trans-boundary movement of any GMOs.

8.7. Projects on International Waterways (IW)

CCARDESA resources will not be used to finance any works or detailed engineering designs involving international waterways. However, should these resources be used to finance any water resources surveys or feasibility studies of activities on or involving IW, the terms of reference for these studies will be required to acknowledge the presence of potential riparian issues.

8.8. Experimental Animals

CCARDESA will not support research projects involving animal subjects in which there are no prescribed safeguards in the study to comply with the ethical standards to prevent cruelty to animals in accordance with the laws of the country where the study is being conducted. Proponents of research on experimental animals will have to provide a disclaimer clearly spelling out how they have complied with the relevant national law on the ethical and humane care and use of animals used for scientific purposes.

9. GENERAL IMPACTS AND MITIGATION

CCARDESA, in developing and implementing sub-projects may generate some social and environmental impacts. The potential generic ones have been identified in this ESMF while the specific ones will be identified during sub-project development and mitigated during implementation, following the environmental screening process provided in the ESMF.

Table 3: General Potential Impacts

Negative Impact	Proposed Mitigation Measure
a. Poisoning of people applying the pesticides, through physical contact and inhalation	<ul style="list-style-type: none"> • Provision of appropriate protective wear • Training of those people expected to apply the pesticides
b. Increased vulnerability to pests due to poor pesticide management or introduction of new cultivars	<ul style="list-style-type: none"> • Use of IPM practices • Comprehensive testing of new cultivars for pest resistance prior to release
c. Pollution from agrochemical use or poor handling of pesticides	<ul style="list-style-type: none"> • Promotion and application of pesticide management practices (e.g. international standards)
d. Land / water degradation due to infrastructure development or civil works	<ul style="list-style-type: none"> • EA of construction and civil works and implementation of identified mitigation measures
e. Loss of biodiversity through clearance of land not previously used for agriculture	<ul style="list-style-type: none"> • Carry out research only in labs, research stations and already converted farmlands
f. Unintended movement or transmission of genetic material from GMOs to other species	<ul style="list-style-type: none"> • Ensure following internationally accepted standards e.g. containment

g. Pollution of water or land through waste generation from processing activities	• Biodegradation for manure, recycling, construction of facilities to handle liquid waste
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10. ESMF IMPLEMENTATION PROCESSES AND RESPONSIBILITIES

A description of the processes to be followed in implementing the ESMF is given below:

10.1 Screening

It is a requirement that all projects must be screened to identify the environmental and social impacts before a recommendation for funding is made. Initial screening of the projects will be carried out by the project proponents, with technical assistance from the officer responsible for environmental management (including pesticide management issues) within CCARDESA. The formal screening process will be done with the aid of an Environmental and Social Screening Form (ESSF) (Annex 2). The use of the screening form will ensure objectivity and transparency. Completing the form will enable the project proponent to identify potential environmental and social impacts that may result from project implementation. The ESSF will be included as part of the project evaluation and screening process described in the CCARDESA MTOP and the CCARDESA Sub-Grants Manual. The ESSF will be submitted along with the other evaluation materials for each project proposal by the Chair of the Technical Working Group to the CCARDESA Grants Management Unit committee.

10.2 Categorisation

Basing on the results from the screening exercise, the officer responsible for environmental management within CCARDESA shall assign an appropriate environmental category (A, B or C)³. The CCARDESA Project itself is classified as Category B by the World Bank (WB). As such any project that falls under Category A would not be eligible for funding under WB funding. Only those projects categorised as B or C would be approved for further screening for possible funding.

10.3 Development of the Safeguards Instruments

It is the responsibility of the project proponent to develop an ESIA and/or ESMP, and an IPMP. The proponent can develop the instrument themselves or hire a consultant to do it, at their own cost. This should be done in line with this ESMF and the legal requirements of the relevant countries. The proposed structure of the ESMP is as found in Annex 4 and IPMP in Annex 2.

³ C – a sub-project without potential to cause significant environmental and or social impacts is exempted from further environmental assessment. B – a sub-project with potentially significant impacts that are site-specific, with few if any irreversible, and in most cases mitigatory measures can be designed readily. A - a sub-project likely to have significant adverse impacts that are sensitive, diverse, or unprecedented, or whose impacts are difficult to reverse.

10.4 Approval

Approval of environment and social effects of any project that has potential impacts shall be done by CCARDESA Secretariat in line with the development partners policies and the legal instruments of relevant countries, following the process specified in the ESMF.

10.5 Implementation

Activities from the ESMPs and IPMP shall be integrated into the project implementation plans and included in the monitoring plans. Where contractors are used, the relevant provisions of ESMPs and IPMP shall be costed and included in the BoQs.

10.6 Compliance with the ESMF

This section highlights the measures that will be taken to monitor, report and strengthen implementation of the ESMF.

10.6.1 Monitoring and Reporting

Projects shall be required to monitor both the implementation of identified mitigation measures and their effectiveness. They will be required to report on these two aspects during the CCARDESA reporting period i.e. once in every 6 months. Projects must also have plans with clear indicators for monitoring in relation to the ESMF objectives and to the issues highlighted in the ESMPs or IPMPs.

CCARDESA shall undertake periodic reviews to monitor compliance with the ESMF. The compliance levels and scores are as indicated in Table 1. Tables 2 and 3 show criteria for scoring both at organisational and individual project levels.

Where an activity has indications of serious breach of the ESMF, CCARDESA shall assess the true extent of the breach and determine the next steps of action including termination of the sub-project concerned. In order to do this effectively, CCARDESA shall establish Environmental Focal Persons within all the CCARDESA countries and participating/ implementing institutions. These shall be staff of the countries' environmental agencies and participating institutions' staff who are able to assist with this function whenever need arises.

Table 4: Compliance Scores

Compliance Level	Score
Completely Satisfactory	90 +
Highly Satisfactory	80
Satisfactory	70
Moderately Satisfactory	60
Moderately unsatisfactory	50
Unsatisfactory	40
Highly Unsatisfactory	30 -

Table 5: ESMF Compliance Weights at Organisational Level

Area	Weight	Criteria
Screening	10	No. of Sub-Projects Screened out of total no.
Categorising	5	No. of Sub-Projects Categorised
Assessment – ESMP	15	No. of ESMP approved
	10	No. of ESMP in place-not approved
Assessment – IPMP	15	No. of IPMP approved
	10	No. of IPMP in place-not approved
Reporting	25	No. of reports with ESS content in line with ESMP / IPMP
	10	No. of reports with general ESS content
	100	

Table 6: ESMF Compliance Weights for Individual Projects

a) Cat B-Both ESMP & IPMP

Area	Weight	Criteria	Rank
Screening	10	Screened	1
		Not Screened	0
Assessment - EMP	15	EMP approved	1
		EMP in place-not approved	0.5
		No EMP	0
Assessment - IPMP	15	IPMP approved	1
		IPMP in place-not approved	0.5
		No IPMP	0
Budget allocation / Implementation	30	Budget allocated and followed	1
		Budget allocated, partly followed	0.5
		ESS activities not funded	0
Monitoring and Reporting	30	Two reports a year with ESS content according to Monitoring Plan	1
		Only one report with ESS content according to Monitoring Plan	0.5
		No report with ESS content	0
100			

b) Cat B-Only ESMP or IPMP

Area	Weight	Criteria	Rank
Screening	10	Screened	1
		Not Screened	0
Assessment - EMP or IPMP	30	EMP approved	1
		EMP in place-not approved	0.5
		No EMP	0
Assessment - IPMP or EMP	0	IPMP approved	1
		IPMP in place-not approved	0.5
		No IPMP	0
Budget allocation / Implementation	30	Budget allocated and followed	1
		Budget allocated, partly followed	0.5
		ESS activities not funded	0
Monitoring and Reporting	30	Two reports a year with ESS content according to Monitoring Plan	1
		Only one report with ESS content according to Monitoring Plan	0.5
		No report with ESS content	0
100			

10.6.2 Environmental Auditing

Where necessary, periodic Compliance audit shall be done by CCARDESA to improve environmental management. The audit report shall be shared with stakeholders for information and to guide decision making.

10.7 Responsibilities

All project proposals (whether solicited or unsolicited) submitted to CCARDESA for funding have to undergo a review process to assess their merit in addressing regional problems and to produce regional solutions in a cost-effective manner. The reviews are undertaken either by CCARDESA's technical staff or by persons known to be specialists in the subject matter. The review reports are submitted to the CCARDESA Board of Directors which determines on the basis of the review recommendations whether or not to approve the funding.

Any proposed activity submitted to CCARDESA for possible funding will be required to make a declaration ascertaining that none of its activities will infringe any of the provisions of this ESMF, supported by ESMP, IPMP and/or ESIA, which ever is applicable.

CCARDESA, through the Office of the Programmes and Grants Manager, will undertake the following:

- Review and clear winning proposals from partners for compliance with the ESMF before they are submitted to the Board of Directors for final approval for funding
- Request proponents of non-compliant proposals to revise them accordingly
- Review ESMPs, IPMPs and/or ESIA reports and ensure that environmental mitigation measures recommended are of acceptable standards
- Monitor the implementation of the mitigation measures

11. CAPACITY BUILDING

Presently, CCARDESA has limited capacity to review proposals for compliance with the provisions of the ESMF, and to review ESIA reports to assess the quality and relevance of the recommendations arising from the reports. Similarly, most of CCARDESA partners also do not have the capacity to decipher environmental impacts and to determine environmental mitigation measures.

CCARDESA will organize annual ESIA capacity building activities for its Programme Managers and managers of programme support units to equip them with the knowledge and skills for reviewing EIA reports and for monitoring compliance with the CCARDESA ESMF. This activity will be part and parcel of the Secretariat's annual work plan and budget. In addition, similar training will be organized for principal investigators of CCARDESA funded projects to impart to them the knowledge and relevance of environmental considerations, and to equip them with the skills necessary to comply with the CCARDESA ESMF.

Suitable consultant will be contracted to provide the necessary training; and the necessary budget will be provided for annually by the office of the Programmes and Grant Manager for programmes.

12. FINANCING

Financing for implementation of the ESMF shall be part of the core CCARDESA budget and every project shall have a budget for ESS.

13. INDEPENDENT MONITORING

CCARDESA will undertake periodic reviews to monitor compliance with this ESMF. Should there be an activity in which there are indications of serious breaches of the ESMF; CCARDESA will undertake a special study to determine the true extent of the breaches and to determine the way forward. In extreme instances, CCARDESA reserves the right to terminate the project concerned.

CCARDESA annual reports are distributed to all stakeholders, including development partners – EU, IFAD, SDC, USAID and World Bank; NARS; Ministries of Agriculture; FARA; Sub-Regional Research Organizations; and key scientists in Africa and beyond.

CCARDESA commits itself to independent assessment of the adequacy and implementation of the ESMF at two or three year intervals.

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Annex 1: Sample Terms of Reference for Environmental and Social Impact Assessment

Task 1: Description of the Proposed Sub-Project

- a) Summary of proposed sub-project activities
- b) Physical characteristics of proposed sub-project investments: location, general layout, scope of related to activity including specification of particular aspects of related infrastructure or large scale equipment (capacity, lifespan, location)
- c) Operations and maintenance activities of the sub-project including:
 - Handling operations for raw material or agro-chemicals and the form in which they are to be introduced, as well as the off-loading, conveying, pretreatment and storage operations. Wherever possible, information should be supplied on the sources and quantities of the pollutants likely to be produced during stages of R&D activities
 - Type of R&D laboratory or processing activity and any process control measures should be specified as variations in the process may result in different amounts and quality of polluting substances being released to the environment
 - Waste disposal and pollution control measures categorized by continuous, batch, intermittent and emergency (spills, accidents), especially waste minimization (source reduction or recycling) schemes
 - Transportation requirements for agro-chemicals or raw materials (e.g. live animals, vegetables and fruits, plant residues) should be evaluated.

Task 2: Description of the Physical and Cultural Environment

Assemble evaluation and present baseline data on the relevant environmental characteristics of the study area including:

- a) Land and water resources particularly any watersheds and any downstream areas, especially floodplain
- b) Biological environment: fauna including aquatic organisms (particularly fish), ecologically important or sensitive habitats, including parks or preserves, significant natural, cultural or historic sites, etc; any biological factors likely to influence agricultural production in the area (pests).
- c) Socio-cultural environment (include both present and projected where appropriate): population; land use; planned development activities; community structure; employment; distribution of income, goods and services; recreation; public health; cultural properties; tribal peoples; and customs, aspirations and attitudes.

Task 3: Determination of the Potential Impacts of the Proposed Project:

Potential impacts to be assessed (to be selected based on relevance):

- a) Social and ecological effects caused by changes to water or land resources (impacts of on river flow, loss of agricultural, forestry and grazing land, effects on wildlife and wild-lands, impacts on fisheries resources)
- b) Effects on the hydrology and water quality of any river, estuarine, coastal or marine resources
- c) Impact of altering water supply on urban, industrial and rural users
- d) Effluent studies to define the extent of potential pollutant loading to receiving waters and to develop alternatives for providing appropriate levels of treatment. The quality and quantity of potential effluents and water pollutants should be determined.
- e) The quality and quantity of air emissions, including sulfur dioxide, carbon dioxide, nitrous oxides, toxic pollutants and particulate matter
- f) The quality and quantity of solid wastes and the potential impacts from their disposal
- g) Potential noise levels from facilities
- h) The potential impacts from transportation. If activities are to be sited in a remote or sparsely populated area, evaluation of the impacts from the planned and unplanned in migration into the areas. This should include effects on the natural resources of the area (clearing of forests for agriculture) and socio-economic impacts.
- i) The effects of facility development on aesthetics and visual quality
- j) Ability of the community of government to provide emergency response services for the accidental release of dangerous chemicals (in most instances R&D do not pose a significant threat of this) and availability of medical facilities and trained personnel to respond to medical emergencies.
- k) Raw materials handling and waste disposal specifications (to minimize the potential for disease transmission)
- l) Potential for unplanned development to result from the project and the possible environmental and socio-economic effects of this

Consulting team. Members of the team might consist of people with the following specialization: environmental impact assessment; laboratory specialists; sanitary engineering for the valuation of air and water quality, estimation of potential pollution problems and planning for water and air pollution control systems; aquatic ecology; plant ecology, wildlife and conservation ecology (if there is potential for negative impacts on important species of habitats); rural sociology; agronomy/livestock management, as appropriate for assessment of the impact of the production system for raw materials.

Annex 2: Integrated Pest Management Plan (IPMP) Template

IPM is an ecosystem-based strategy focuses on pest management through a combination of techniques (biological, habitat manipulation, cultural practices, resistant varieties, etc.). Pesticides are used only if necessary and according to established guidelines. Treatments are made with the goal of removing only the target organism and selected and applied to minimises risk to human health, non-target organisms and the environment.

Short Project Title	
Project Countries with Specific Locations / Sites	
Project Contact Person in CCARDESA Secretariat	
Project Period	
Person responsible for IPM	
Job Title and Institution	
Contacts: email, phone	

1. Introduction:

1.1. Project: Give a brief description of the project

1.2. Location: Give a brief description of the sites and adjacent areas where pesticide application is being considered. Include:

- a. *vegetation type, sensitive habitat, food plots*
- b. *wildlife and or livestock*
- c. *water sources - surface, drainage, wetlands, wells, groundwater*
- d. *human settlement*

2. Methods: Name the crop(s) and or livestock and the target pest(s), including insects, diseases and weeds. For each key pest, determine the thresholds⁴, choose appropriate practices from each major category (Prevention, Avoidance, Monitoring, Suppression - Ref Appendix 1).

⁴ Damaging level of that particular pest infestation at which point pesticide use is required

2.1. Non-Chemical: Identify the method (cultural, biological, mechanical / physical, etc.) to be used for each specified crop / livestock and the target pest (a table can be used here).

2.2. Pesticides: Explain the need for pesticide as opposed to non-chemical means. Identify the target pest and the pesticide (include the active ingredients) to be used for each specified crop / livestock. Indicate who will use the pesticides and the application method (a table can be used here).

3. Impact Identification and Mitigation: Identify key environmental and social impacts, assess level of significance and propose mitigation measures for the significant impacts regarding:

3.1. The social environment

3.2. The biophysical environment

3.3. Highlight any training provisions planned

(a table can be used here)

4. Monitoring plan: Indicate monitoring strategies to ensure effective implementation to prevent pest resistance and potential harmful effects on the social and biophysical environment.

Identified Significant Impact	Monitoring Indicator	Monitoring Location	Parameter to be Measured	Freq of Measurement	Responsibility	Est. Cost (USD)

Appendix 2.1: Pest Management Practices

This table gives examples under each category and is by no means exhaustive

Principle	Practices	
	Crops	Livestock
<p>PREVENTION: Preventing pest infestation reduces need for pesticide applications and thus potential impacts.</p>	<ul style="list-style-type: none"> • Certified seed and transplant material • Resistant varieties, varieties best suitable to local environment • Prevent weeds from going to seed e.g. cultivate, pull, mow, flame, weed in time etc. • Reduce moisture on plant surfaces to prevent disease incidence e.g. use drip irrigation / avoid overhead irrigation between 6 p.m. and midnight to minimize disease • Destroy and/or remove crop residues to control weeds and break pest cycles • Eliminate unmanaged plants that serve as pest reservoirs, such as abandoned crops • Test soil annually to determine fertility and pH and time application according to crop needs. Apply nutrients, fertilizers and pH-adjusting agents accordingly. 	<ul style="list-style-type: none"> • Good herd health helps maintain animal resistance to infestations - housing, nutrition and sanitary conditions kept at optimal levels. • Examine new animal additions for pests and, if necessary, treat to prevent contamination of animals already present. • Quarantining new animal additions.
<p>AVOIDANCE: Reduces need for pesticide applications and thus potential impacts.</p>	<ul style="list-style-type: none"> • Rotate crops that break the pest cycle. • Match crops to appropriate sites to optimize plant health and avoid known pests • Choose pest-resistant cultivars • Adjust planting dates and select cultivars with maturity dates that allow avoidance of early or late-season pests • Use and manage trap crops to protect main crop from insect pests and insect-vectored diseases. 	<ul style="list-style-type: none"> • Remove breeding materials e.g. manure to break the cycles • Choose pest-resistant breeds • remove affected animals or do whole herd quarantine
<p>MONITORING: "Estimate extent of pest populations." Monitoring limits pesticide use to those occasions when intervention is necessary to prevent economically significant damage.</p>	<ul style="list-style-type: none"> • If no monitoring guidelines are available, monitor weekly to determine presence, density and location of pests and to determine crop growth stage. Record findings. • Use weather monitoring devices to measure precipitation, humidity and temperature, where available. Suitable for large commercial farms and research stations. • Use pest-forecasting tools (e.g., computer modelling software) as additional guides for on-farm pest monitoring activities in conjunction with weather data to predict risk of pest infestation. Suitable for large commercial farms and research stations. 	<ul style="list-style-type: none"> • If no monitoring guidelines are available, monitor weekly to determine presence and density of pests. Record findings. • Use pest-forecasting tools (e.g., computer modelling software) as additional guides for on-farm pest monitoring activities. Suitable for large commercial farms and research stations.

<p>SUPPRESSION: Using cultural, biological, and chemical controls to reduce pest population or its impacts. Applying suppression actions only when pest populations exceed the action threshold reduces potential impacts of pesticides on resource concerns.</p>	<ul style="list-style-type: none"> • Use cover crops, especially pest-suppressing crops (allelopathic) • Plant using appropriate within and between row spacing optimal for crop, site, and row orientation • Reduced tillage and residue management practices • Mulch for insect or weed control. • Inter-seed cover crop within or between rows • Mechanical pest controls e.g. cultivate, hoe, and hand remove insects and weeds, prune infested plants etc. • Use physical pest controls and deterrents e.g. flame weeding; noise-makers, ribbons etc. • Maintain or improve soil aeration and drainage to avoid standing water and minimize disease. • Insect mating disruption devices • Conserve naturally occurring biological controls • Release beneficial organisms where appropriate e.g. predatory mites for control of two-spotted mites and trips. • Use compost as a soil amendment to increase biological diversity in soil and plant health and suppress plant disease. 	<ul style="list-style-type: none"> • Conserve naturally occurring biological controls e.g. wasps, beetles and mites • Release beneficial organisms where appropriate e.g. release predatory organisms.
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Annex 3: Environmental and Social Screening Form

The Environmental and Social Screening Form (ESSF) will be used as part of the evaluation process for Grants under the CCARDESA Grants Management system. All grants are evaluated by a Technical Support Group and will include a special module where the ESSF will be implemented (see CCARDESA Sub-Grants Manual). The completed ESSF will be submitted to the CCARDESA Grants Management Unit along with other evaluation materials for each proposal by the Chair of the Technical Support Group.

The Environmental and Social Screening Form (ESSF) has been designed to ensure that proposed sub-projects are subjected to the appropriate extent and type of environmental assessment. Screening helps to determine which sub-projects are likely to have adverse environmental and or social impacts so that appropriate mitigation measures can be determined.

General Information	
Short Project Title:	
Applicable Country(ies)	
Name, department, job title, for the person who is responsible for filling out this form	
Provide baseline environmental information of the project area(s) where the sub-project is to be implemented	
Contact details (Telephone and email)	
Date	
Signature	
1. Project Description	
Please provide brief information on the type and scale of the sub project, sub project area, area of plants and buildings, status of water resources, involvement of GMOs, amount of waste (solid, liquid and air generation), location and lengths of channel networks, buried and or surface located pipes, etc. including construction work areas and access roads. (Complete on a separate sheet of paper if necessary).	

2. Site location / Site selection

When considering the location of proposed R&D Project interventions, rate the sensitivity of each proposed site in the following table according to the given criteria. Higher ratings do not necessarily mean that a site is unsuitable. They do indicate a real risk of causing undesirable adverse environmental and social effects, meaning that more substantial environmental and/or social planning may be required to adequately avoid, mitigate or manage potential effects.

Issues	Site Sensitivity			Rating	Explanation or Comment
	Low	Medium	High		
Natural habitats (e.g., wetlands, indigenous forests, mangroves)	No natural habitats present of any kind	No critical natural habitats; other natural habitats occur	Critical natural habitats present		
Water quality and water resource availability and use	Low intensity of water use; potential water use conflicts expected to be low; no potential water quality issues	Medium intensity of water use; multiple water users; water quality issues are important	Intensive water use; multiple water users; potential for conflicts is high; water quality issues are important		
Natural hazards vulnerability, floods, soil stability/ erosion?	Flat terrain; no potential stability/erosion problems; no known volcanic/seismic/ flood risks	Medium slopes; some erosion potential; medium risks from volcanic/seismic/ flood/ hurricanes	Mountainous terrain; steep slopes; unstable soils; high erosion potential; volcanic, seismic or flood risks		
Cultural property	No known or suspected cultural heritage sites	Suspected cultural heritage sites; known heritage sites in broader area of influence	Well known heritage sites in project area		
Land tenure and involuntary resettlement	Low population density; dispersed population; legal tenure is well-defined; well-defined water rights	Medium population density; mixed ownership and land tenure; well-defined water rights	High population density; major towns and villages; low-income families and/or illegal ownership of land; communal properties; unclear water rights		

3. Environmental and Social Checklist

		Yes	No	ESMF Guidance/ Comment
A. Type of activity – Will the R&D Project:				
1	Involve the construction or rehabilitation of small dams, weirs or reservoirs?			
2	Build new or rehabilitate existing irrigation schemes?			
3	Depend on water supply from an existing dam, weir, or other water diversion structure?			
4	Build new or rehabilitate existing structures or buildings?			
5	Build new or rehabilitate existing electrical energy systems?			
6	Generate toxic waste from laboratory experiments?			
7	Generate noise and/or vibrations during construction or rehabilitation of structures?			
8	Be located within or adjacent to areas where there are important historical, archaeological or cultural heritage sites?			
9	Be located within or adjacent to areas that are or may be protected by government (e.g., national park, national reserve, world heritage site) or local tradition, or that might be a natural habitat?			
10	Result in occupational health risks for workers and/or farmers?			
11	Have significantly different impacts on different social groups (e.g., women, youth, indigenous peoples)?			
<i>If the answer to any of questions 1-11 is "Yes", please refer to the ESMF for guidance on how to avoid or minimize impacts and risks.</i>				
B. Environmental impacts – Will the R&D Project:				
12	Risk causing the contamination of drinking water?			
13	Risk causing poor water drainage and increased incidence of water-related diseases, such as malaria or bilharzia?			

		Yes	No	ESMF Guidance/ Comment
14	Involve clearing of indigenous vegetation?			
15	Be located within or adjacent to environmentally sensitive areas (e.g., intact natural forests, mangroves, wetlands) or threatened species?			
16	Create a risk of increased soil degradation or erosion?			
17	Create a risk of increased soil salinity?			
18	Produce or increase the production of solid or liquid wastes?			
19	Affect the quantity or quality of surface water (e.g., rivers, streams, wetlands) or groundwater?			
20	Have potential to introduce invasive plant or animal species?			
21	Have potential to introduce new pests?			
<i>If the answer to any of questions 12-21 is “Yes”, please consult the Environmental and Social Management Framework (ESMF) and, if needed, include an Environmental and Social Management Plan (ESMP) with the R&D Project proposal.</i>				
C. Social impacts – Will the R&D Project:				
22	Require that land (public or private) be acquired (temporarily or permanently) for its development?			
23	Use land that is currently occupied or regularly used for productive purposes (e.g., gardening, farming, pasture, fishing locations, forests)			
24	Displace individuals, families, or businesses?			
25	Result in the temporary or permanent loss of crops, fruit trees, or household infrastructure such as granaries, outside toilets, and kitchens?			
26	Restrict access to sources of livelihoods for individuals or families?			
<i>If the answer to any of questions 22-26 is “Yes”, please consult the Resettlement Policy Framework (RPF) and, if needed, prepare a Resettlement Action Plan (RAP).</i>				

		Yes	No	ESMF Guidance/ Comment
D. Pesticides and agricultural chemicals – Will the R&D Project:				
27	Involve the use of pesticides or other agricultural chemicals prohibited by the Pest Management Plan prepared for the APPSA project?			
28	Increase significantly the current use of pesticides/agro-chemicals? If “Yes”, estimate the scale of the expected increase (in % or MT of products).			
29	Result in contamination of soils by agro-chemicals?			
30	Pose a health hazard to human beings and/or animals from pesticides and agro-chemicals?			
31	Cause loss of soil organisms and non-targeted insects due to effects of pesticides and agro-chemicals?			
<i>If the answer to any of questions 27-31 is “Yes”, please consult the Pest Management Plan (PMP) and, if needed, indicate what measures will be taken to ensure compliance).</i>				
E. Dam safety – Will the R&D Project:				
32	Involve the construction of a dam or weir?			
33	Depend on water supplied from an existing dam or weir?			
<i>If the answer to question 32-33 is “Yes”, please consult the World Bank safeguards specialist to determine compliance with OP 4.37 Safety of Dams.</i>				

Categorization⁵

(to be filled by CCARDESA officer responsible for Environment Management)

If all the above questions are answered No, then the sub-project is categorised [C]. Such a project shall be given environmental clearance and sent for further processing. If some questions were answered in the affirmative further screening will be done to determine if the sub-project belongs to category [A] or [B]⁶. A project categorised [B] is legible for provisional approval subject to carrying out of environmental assessment.

Please choose a category basing on the above responses [A] _____ [B] _____ [C] _____

.....
Name and signature of the officer responsible for environment management

.....
Date

⁵ CCARDESA shall, as much as possible, take into account respective national legislation and where there is a discrepancy and no compromise can be found, the CCARDESA/development requirements will apply. The implication is that the sub-project in the country may not be funded

⁶ CCARDESA is a category B project and cannot have a sub-project with a higher level of categorisation.

Annex 4: Environment and Social Management Plan Template

An ESMP is a site or project specific plan developed to ensure that appropriate environmental and social management practices are followed during a project's development and or operation. It ensures application of environmental and social management best practice and implementation of mitigation measures for anticipated impacts.

Short Project Title	
Project Countries with Specific Locations / Sites	
Project Contact Person in CCARDESA Secretariat	
Project Period	
Person responsible for EMP	
Job Title and Institution	
Contacts: email, phone	

1. Introduction:

1.1. Project: *Give a brief description of the project*

1.2. Location: *Give a brief description of the sites and adjacent areas (social and bio-physical)*

2. Impact Identification and Mitigation:

Identify environmental and social impacts, assess level of significance and propose mitigation measures for the significant ones in relation to the social and biophysical environment. Highlight any training required.

Potential Impact	Proposed Mitigation	Timing	Responsibility	Est. Costs (USD)

3. Monitoring plan: *Indicate monitoring strategies to ensure effective implementation of mitigation measures*

Mitigation Measure	Parameter to be Monitored	Location	Actual Measurement	Frequency of Measurement	Responsibility	Est. Cost (US\$)

Annex 5: Sample Chance Find Procedures

Chance finds procedures are an integral part of the project ESMP and civil works contracts.

The following wording is proposed:

If the Contractor discovers archaeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction, the Contractor shall:

- Stop the construction activities in the area of the chance find;
- Delineate the discovered site or area;
- Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities or the Ministry in charge of managing cultural heritage and related resources in the country (responsible ministry) take over;
- Notify the supervisory Project Environmental Officer and Project Engineer who in turn will notify the responsible local authorities and the responsible ministry immediately (within 24 hours or less);

Responsible local authorities and the responsible ministry would then be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by the archaeologists assigned by the government. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage, namely the aesthetic, historic, scientific or research, social and economic values.

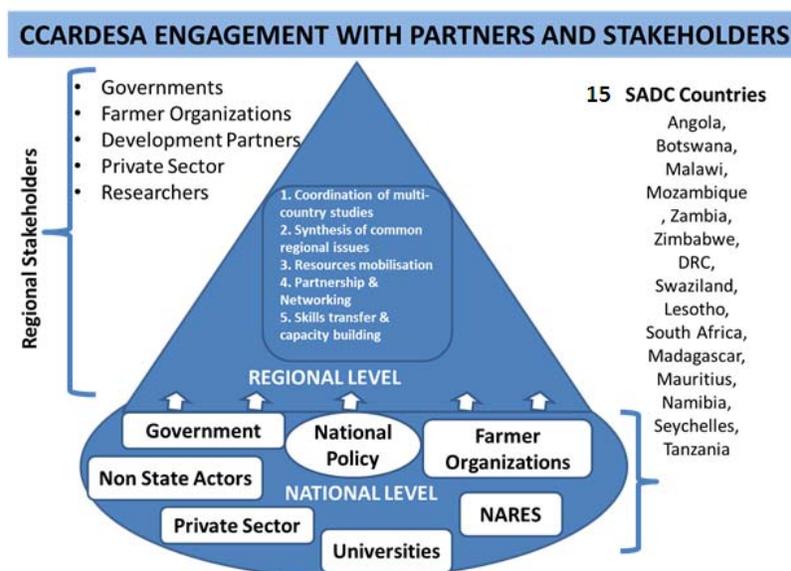
Decisions on how to handle the finding shall be taken by the responsible authorities and the responsible ministry. This could include changes in the layout (such as when finding irremovable remains of cultural or archaeological importance) conservation, preservation, restoration and salvage.

Implementation for the authority decision concerning the management of the finding shall be communicated in writing by relevant local authorities.

Construction work may resume only after permission is given from the responsible local authorities or the responsible ministry concerning safeguard of the heritage.

Annex 6: CCARDESA Consultation Model and Past Consultation Events

Figure 1. CCARDESA Stakeholder Engagement Model



Source: CCARDESA Medium Term Operational Plan

Table 1: Past Regional CCARDESA Consultation Meetings

Consultation	Date	Related documentation
SADC Council of Ministers	August 2008 February 2010	Official Communique, see www.sadc.int
SADC Ministers of Agriculture Meetings	November, 2008 May, 2009 July, 2011 June, 2013	Official Communique, see www.sadc.int
Consultation to Develop a Detailed Roadmap on CARDESA Establishment and Advocacy during the 2nd SADC - Donor Joint Review Mission	November, 2009	See CCARDESA Medium Term Operational Plan
Exploring Strategic Priorities For Regional Agricultural Research and Development Investments in Southern Africa	March 2011 – Jan, 2012	http://www.ifpri.org/sites/default/files/publications/ifridp01318.pdf Individual Country consultations led by: Adriane Andre (Angola), Howard Sigwele (Botswana), Baelo Jose (Democratic Republic of the Congo), Mamolemo Pomela (Lesotho), Alexander Phiri (Malawi), Carlos Zandamela (Mozambique), Sikunawa Negumbo (Namibia), Mermedah Moustache (Seychelles), Francois Lategan (South Africa), John Pali (Swaziland), Ninatubu Lema (Tanzania), Medson Chisi (Zambia), and Edward Nengomasha (Zimbabwe).

Table 2: Consultation Outputs: Identified “Quick win” activity areas for Sub-project development under Thematic Area 1 - Farmer Empowerment and Market Access

Commodity	Output and Priority Intervention Area	Activity Area(s)
Cereals, especially Sorghum	Development of seed supply and Marketing/ trade of crop produce	Develop reliable seed supply and marketing systems in major cereals (sorghum) growing countries (Farmer Empowerment)
Soybean	Development of seed supply and Marketing and trade of crop produce	Improve market access in the value chain (Agribusiness Linkages)
Poultry, Eggs	Development of Marketing/ trade in livestock and livestock products	Promote commercialization of indigenous local chicken (Agribusiness Linkages)
Forestry	Development of technologies and Policies to support sustainable forest management and poverty reduction	Analyze policy incentives for investments in small holder plantation development (Farmer Empowerment and Agribusiness Linkage)
		Analyze policy incentives for investments in small-scale value added processing (Agribusiness Linkages)

Table 3: Consultation Outputs: “Quick win” activity areas for Thematic Area 2 - Research, Technology Generation and Farmer demand-driven Advisory Services

Commodity	Priority Intervention Area	Activity Area(s)
Maize	Soil fertility and plant nutrient management	Adapt and validate available soil fertility interventions in similar environments in the region
	Conservation Agriculture Systems	Enhance agro-ecosystem resilience through minimum tillage, use of farm available organic matter and improved water harvesting and soil management in drier environments
Sorghum	Agro-processing, food safety and value addition	Develop, adapt and promote appropriate gender-sensitive smallholder equipment for processing and value addition at household level
Cassava	Agro-processing, food safety and value addition	Identify and develop alternative uses of cassava in livestock feed
Groundnut	Post-harvest crop management	Develop improved farm level post-harvest handling and storage infrastructure to reduce aflatoxin infestation and other losses
Soybean	Soil fertility and plant nutrient management	Up-scale the rhizobium inoculation technology production and use in major soybean growing areas in the region
Forestry	Value-added processing and marketing of wood and non-wood products	Research on the properties and potential applications of reconstituted wood products
	Policies to support sustainable forest management and poverty reduction	Analyze policy incentives for investments in small holder plantation development
Livestock	Water and range management and conservation	Conduct studies to support sustainable water supply & utilization of rangeland resources
	Livestock pests and diseases	Undertake control and eradication of Transboundary Animal Disease
	Breeding, biotech and conservation of animal genetic resources	Improve access to adapted quality heifers by farmers
	Breeding, biotech and conservation of animal genetic resources	Stabilize supply of improved day-old chicks through village/district level low cost hatcheries & cock-circles
Fishery	Fish processing, food safety and value addition	Enhance productivity of aquaculture through fish processing, food safety, value addition
	Sustainable harvesting and management of inland fisheries	Carry out socioeconomic research on marine fisheries to underpin sustainable management and harvesting

Table 4: Consultation Outputs: “Quick win” activity areas for Thematic Area 3 - Knowledge, Information and Communication

Commodity	Priority Intervention Area	Activity Area(s)
Maize	Crop pests and diseases	Develop cost-effective and harmonized regional surveillance systems (forecasting, monitoring and management) of migratory pests (armyworm, locusts, etc.)
Rice	Crop pests and diseases	Map out areas of high disease prevalence in the region to develop combined management and control efforts
Wheat	Soil fertility and crop management	Revise/develop temperature and planting dates suitability maps for major wheat producing countries in the region in response to changes in climate
	Crop pests and diseases	Enhance regionally integrated surveillance and management systems for Quelled birds
Irish & sweet potato	Marketing and trade of crop produce	Develop / strengthen accessible information systems for linking producers to fresh produce markets for both sweet potato and potato
Cotton	Marketing and trade of crop produce	Develop input/ output market information systems that are accessible to smallholders
Fruit & Vegetables	Conservation of plant genetic resources	Update an inventory of available indigenous fruit and vegetables in the region to guide conservation actions
Forestry	Policies to support sustainable forest management and poverty reduction	Analyze policy incentives for investments in small holder plantation development
		Analyze policy incentives for investments in small-scale value added processing
Livestock	Marketing/ trade in livestock and livestock products	Improve marketing intelligence & information system
	Breeding, biotech and conservation of animal genetic resources	Synthesize and disseminate existing knowledge on indigenous breeds to promote their utilization
Fishery	Sustainable harvesting and management of inland fisheries	Carry out socioeconomic research on marine fisheries to underpin sustainable management and harvesting

Table 5: Consultation Outputs: Identified quick win areas for Thematic Area 4 – Institutional Development and Capacity Building

Commodity	Priority Intervention Area	Activities
Cassava	Conservation and plant genetic resources	Support maintenance of community-based cassava nurseries that act as sources of clean planting material for farmers
	Plant breeding, crop variety development, biotechnology	Establish reliable supply systems for quality certified cassava planting material (produced using tissue culture)
Irish potato and sweet potato	Crop pests and diseases	Strengthen regional surveillance and management for powdery scab (<i>Spongospora subterranea</i>) and potato cyst nematode (<i>Globodera rostochiensis</i>)
Dry bean	Conservation and plant genetic resources	Develop protocols to allow germplasm exchanges among research centers in SADC working on similar projects
	Marketing and trade of crop produce	Facilitate establishment of rural agro-dealerships to improve access to input/ output markets by smallholder bean growers
Forestry	Production and sustainable use of natural forests and woodlands for multiple benefits	Promote development of models for co-management or joint management with local communities
	Policies to support sustainable forest management and poverty reduction	Analyze policy incentives for investments in small holder plantation development
		Analyze policy incentives for investments in small-scale value added processing

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Annex 7: Annotated list of Technical Guidelines for the implementation of the International Code of Conduct on the Distribution and Use of Pesticides

also available at:

<http://www.fao.org/agriculture/crops/thematic-sitemap/theme/pests/code/toolkits/en/>



International Code of Conduct on the Distribution and Use of Pesticides

Annotated list of Technical Guidelines for the
implementation of the International Code of
Conduct on the Distribution and Use of Pesticides



JANUARY 2013

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Introduction

Pesticide Management is an area within the overall framework of the Plant Production and Protection Division of FAO. It aims to introduce sustainable and environmentally sound agricultural practices that reduce health and environmental risks associated with the use of pesticides.

The **International Code of Conduct on the Distribution and Use of Pesticides (CoC)** is the worldwide guidance document on pesticide management for all public and private entities engaged in, or associated with, the distribution and use of pesticides. It was adopted in 1985 by the Twenty-fifth Session of the FAO Conference and has since been revised several times. The CoC provides a guiding framework for pesticides life cycle management to Governments, pesticide industry and other stakeholders involved in pest and pesticide management to prevent harm to pesticide users, the public and the environment.

Technical Guidelines are issued to elaborate specific articles of the CoC and related technical aspects of pesticide management. These guidelines provide a framework to establish or strengthen national legislation, institutions, policies and strategies for pest and pesticide management. These guidelines are developed by the FAO/WHO Joint Meeting on Pesticide Management (JMPM) to ensure an informed and independent process. Older guidelines may have been reviewed through different mechanisms, but always involved broad expert peer review.

This **Annotated list of Technical Guidelines for the implementation of the International Code of Conduct on the Distribution and Use of Pesticides** provides a brief overview of all Guidelines and their purpose. It is aimed as a hand-out for meetings related to pesticide management to enhance familiarity with, and use of, the available technical guidelines. The annotated list follows the same structure as the actual list of guidelines on the FAO website. Guidelines that are no longer considered fully up-to-date are marked with this symbol: “🕒”.

This document is subject to continued changes as older guidelines get updated and new guidelines get approved by JMPM. Furthermore references to additional tools may be added.

In addition to the Guidelines, there are specific **Tools** for each area that can be found through the FAO webpage for the technical guidelines. These include manuals, reference material, tool kits and further technical guidance that has not been reviewed by the FAO/WHO Joint Meeting on Pesticide Management. <http://www.fao.org/agriculture/crops/core-themes/theme/pests/code/toolkits/en/>

The actual **Technical Guidelines on Pesticide Management** are available on-line: <http://www.fao.org/agriculture/crops/core-themes/theme/pests/code/list-guide-new/en/>

1. Legislation

1.1 Guidelines for Legislation on the Control of Pesticides [1989] [Under revision] ([English](#), [Russian](#))

These guidelines are intended for Governments wishing to develop, review, update or strengthen national legislation for the control of pesticides.

Updating or strengthening may for instance be required to:

- Clearly establish the institutional responsibilities and mandates for the control of pesticides;
- Strengthen enforcement mechanisms;
- Reflect requirements of international instruments that the country has ratified;
- Address overlap and inconsistencies with related legislation (e.g. chemicals; environment; health)
- Address new concerns or new developments.



Revised guidelines will be issued in 2013. These serve as a reference for the preparation or review of pesticide legislation and cover all specific elements of such legislation. They describe specific requirements for all stages of the pesticide life-cycle, from manufacturing to use or disposal. An overview of the international regulatory framework is provided along with guidance on how to reflect requirements of international instruments in national legislation. Further, they provide guidance on how to reflect the specific national context for pesticide legislation.

2. Policy

2.1 Guidance on Pest and Pesticide Management Policy Development [2010] ([English](#), [French](#), [Spanish](#))

The document provides guidance on pest and pesticide management policy development in support of pesticide risk reduction and sustainable agricultural production. It aims to encourage governments and other stakeholders to consider the question to what extent current pesticide use is actually justified. It places pesticide management in the broader context of pest management, and elaborates on linkages between sustainable pest management and policy objectives related to environmental protection, human health, food safety and trade.

Special attention is given to Integrated Pest Management (IPM), including biological control, as an approach to sustainable pest management and a means to reduce reliance on pesticides and their associated risks.

This guidance document is targeted at policy makers, government departments and other relevant stakeholders involved in policy development related to agricultural pest and pesticide management in developing countries. Governments are encouraged to analyse their pest and pesticide management situation, to identify areas for improvement, and to develop plans to realize these improvements. An overview of policy tools that can play a role in such plans is provided.

The guidance document further elaborates on:

- the concept of pesticide risk reduction and the steps involved;
- the policy formulation process and an overview of policy tools;
- guidance on conducting a situation analysis and the formulation and implementation of action plans to strengthen pest and pesticide management.

3. Registration

3.1 FAO/WHO Guidelines for the Registration of Pesticides [2010]

[\(English\)](#), [French](#), [Spanish](#))

These guidelines are intended to provide guidance on how to establish and implement a pesticide registration scheme. They provide general advice on principles, process and requirements for registration of pesticides, including institutional and administrative organization. They also provide guidance on post-registration activities; coordination and collaboration; regular review of registered pesticides; funding of pesticide registration. A number of specific issues are discussed, such as: formulants; equivalence determination; minor uses; comparative risk assessment; registration of biopesticides.

The importance of collaborative roles of the health, environment and agriculture sectors in pesticide registration is explained. It is recognized that there are large differences between countries and therefore scenarios for the phased establishment of registration schemes are provided. Resource poor countries can start with initial schemes that can be elaborated later on. It is also explained how countries can collaborate in order to make best use of limited resources.

3.2 FAO/WHO Guidelines on Data Requirements for the Registration of Pesticides [2013]

[\(English\)](#)

These guidelines focus on the scientific data and other information that generally may be required to determine what products can be permitted for use and for what purposes. The data and other information described can be used to register all types of pesticides, including public health pesticides. It includes description of: the types of data and information required and why; how the data may be used in decision-making; factors that affect data requirements. The guidelines also address some special situations such as, biological pest control agents, emergency approvals and experimental use. The annexes provide comprehensive lists of recommended data requirements.

3.3 Guidelines on Efficacy Evaluation for the registration of Plant Protection Products [2006]

[\(Arabic\)](#), [English](#))

These guidelines provide guidance for both the pesticide industry and governments on the design, conduct and evaluation of pesticide efficacy trials, as stipulated by the Code of Conduct. They elaborate on the general principles of a harmonized pesticide efficacy testing method and evaluation of plant protection products for registration purposes. The guidelines are limited to pesticides for plant protection, including pesticides for the protection of stored produce, plant growth regulators and desiccants or defoliants, biological control agents, behaviour modifying chemicals and plant extracts.

3.4 Guidelines on Good Labelling Practice for Pesticides [1995] [Under Revision] ([English](#))

These guidelines aim to establish common, harmonized, requirements for pesticide labelling. They are intended to be used when designing regulations for pesticide labelling and by registration authorities responsible for the approval of labels, as well as by those in industry involved with label preparation.

These guidelines identify the main objectives and considerations in preparing a label and provide guidance for the layout and required information to be presented. Details are provided on the establishment of toxicity and hazard classifications, pictograms, text for warnings and hazard statements, etc., including sample labels. Guidance is also given on writing a label while considering the level of knowledge of users.



3.5 Revised Guidelines on Environmental Criteria for the Registration of Pesticides [1989] ([English](#))

Part I of these guidelines explains the principles for environmental impact assessment, while Part II provides guidance for appropriate test procedures, including a stepwise approach of data production for each assessment procedure. The assessment of effects on the environment is an integral part of the process of pesticide development and registration. It explains how such assessments should be designed to identify potential hazards and to enable identified risks of adverse effects on the environment to be quantified and evaluated in relation to benefits.

The nature and amount of data required for pesticide registration depends on the properties and use of each type of substance. Research resources should be focused on the identification and evaluation of major risks. A stepwise sequence, described in these guidelines, allows an efficient selection of tests essential to each individual risk analysis.

Note: These guidelines are from 1989 and may not be entirely up to date anymore with the revised Code of Conduct or relevant international conventions or recent scientific insights, and should therefore be used with caution.

3.6 Guidelines on the Registration of Biological Pest Control Agents [1988] [Under revision]

([English](#))

These guidelines define the various types of biological pest control agents and the data requirements for their registration. Biological pest control agents are naturally occurring agents that are distinguished from conventional chemical pesticides by their unique modes of action, low use volume, and target species specificity. There are two major categories of biological pest control agents: the biochemical pest control agents and the microbial pest control agents.



Parasitic nematodes

Note: These guidelines from 1988 are considered outdated and will be replaced by new guidelines on Microbial Pesticides, which are under preparation.

4. Compliance and Enforcement

4.1 FAO/WHO Guidelines for Quality Control of Pesticides [2011]

[\(English\)](#), [French](#), [Spanish](#), [Russian](#))

Guidance to responsible authorities, the pesticide industry, retailers, users and civil society is provided on the legislative, administrative, organizational and infrastructure (facilities and trained staff) requirements and procedures to implement a scheme of regulatory quality control of pesticides. Guidance on sample selection and sampling procedures is included. Quality control of pesticides is a crucial and integral part of pesticide management. These guidelines pay specific attention to countries that face constraints in the setting up of an effective pesticide quality control system.

4.2 Guidelines on Compliance and Enforcement of a Pesticide Regulatory Programme [2006]

[\(English\)](#)

This document provides a comprehensive source of compliance and enforcement guidance to support implementation of the Code of Conduct. Legal tools and instruments to achieve this are provided, and the core principles of compliance and enforcement are described. It provides basic information about the policy and theoretical framework for achieving compliance. It explains the major steps or elements which must be considered to establish an effective system.

5. Distribution and Sales

5.1 FAO/WHO Guidelines on Pesticide Advertising [2010]

[\(English\)](#), [French](#), [Spanish](#))

The guidelines provide directions for the pesticide industry, trade associations, those developing advertising or other promotional material for pesticide products, public interest organizations monitoring pesticide sales and distribution, and other interested parties. The information provided supplements Article 11 (Advertising) of the Code of Conduct and elaborates on both self-regulation and statutory measures. They recommend best advertising practices and are intended to cover advertising in relation to all pesticide uses, applications and services (including agriculture, public health, forestry, home and garden, pest control operators, etc.)

They also serve to suggest a framework for monitoring pesticide advertisements, and indicate steps to take when encountering non-compliance with national legislation or non-observance of the Code of Conduct.

5.2 Provisional Guidelines on Tender Procedures for the Procurement of Pesticides [1994]

[\(English\)](#)

These provisional Guidelines provide guidance to both suppliers and procurers of pesticides, on the steps to be taken to ensure that pesticides obtained are of the required quality and are suitably packaged and labelled, taking into account local transport and warehousing facilities.

The guidance provided is relevant to all procurement agencies - government agencies, donor agencies or other organizations and private procurers, regardless of whether the pesticides concerned are for use by farmers or others. The document was prepared in collaboration with the pesticide industry and is called provisional because it has not been reviewed and endorsed by an FAO/WHO expert panel.

5.3 Guidelines for Retail Distribution of Pesticides with particular reference to Storage and Handling at the Point of Supply to Users in Developing Countries [1988] [Under Revision]

[\(English\)](#)

Pesticides present risks to health and the environment from manufacturing until they are used or disposed off. Generally, there is particular risk during storage and handling at the point of supply to users. The risks tend to be greater in developing countries where distributors and retailers often lack knowledge and infrastructure, and where government inspections schemes are often not well established. These guidelines provide advice on proper storage and handling to reduce risk and to prevent accelerated product deterioration.

6. Use

6.1 Guidelines for Personal Protection when Working with Pesticides in Tropical Climates [1990]

[\(English\)](#)

These Guidelines are aimed principally at government registration officials and agricultural officers, consultants and others in the field who may be asked by farmers for information about the proper use of pesticides in tropical conditions. They are intended to offer practical and realistic advice, taking into account the protection needs of the user, but also practicalities of its use in hot humid climates and possible budgetary constraints of poor farmers. They provide an introduction on understanding hazards and the principles of personal protection. The various modes of protection and associated gear are described.

These recommendations may provide guidance to drafting of regulations, to preparation of extension programmes and to reviewing and approving of label instructions.



Spraying pesticides without protective clothing



Young boy performing hazardous tasks handling pesticides for application

6.2 Guidelines on Good Application Practices:

These guidelines serve to offer practical help and guidance to decision-makers, managers, field supervisors and spray operatives and all those involved in using pesticides for food and fibre production or in public health programmes. They cover the main terrestrial and aerial spray application techniques and have been designed to provide information and practical advice on good practices once a decision has been taken to use a pesticide.

- ✓ [Guidelines on Good Practice for Ground Application of Pesticides \[2001\]](#)
([English](#), [French](#), [Spanish](#))
- ✓ [Guidelines on Good Practice for Aerial Application of Pesticides \[2001\]](#)
([English](#), [French](#), [Spanish](#))

7. Application Equipment

7.1 Guidelines on Procedures for the Registration, Certification and Testing of New Pesticide Application Equipment [2001]

([English](#), [French](#), [Spanish](#))

7.2 Guidelines on the Organization of Schemes for Testing and Certification of Agricultural Pesticide Sprayers in Use [2001]

([English](#))

This set of guidelines outline how governments can influence pesticide safety by controlling the quality of the pesticide application equipment manufactured in or imported into the country.

By incorporating into national legislation, a requirement for manufacturers and importers to declare that application equipment meets acceptable, international standards of safety and durability, or to set up national or regional testing and certification procedures, it should be possible to gradually reduce and ultimately eliminate sub-standard application equipment from the market and from farms.



7.3 Guidelines on Minimum Requirements for Agricultural Pesticide Application Equipment:

An important objective of the guidelines on minimum requirements is to assist FAO and other agencies to ensure that sprayers purchased are safe to users and to the environment as well as being efficient and durable in operation. Price will always play an important part in purchase decisions on equipment but even the cheapest sprayer models should meet minimum standards of safety and durability. The FAO minimum requirements take into account sprayers that are already on the market, many of which already meet the requirements. The objective therefore is that countries should adopt these minimum standards to begin to eliminate substandard and unsafe sprayers from national markets and ultimately from the international scene.

The guidelines on minimum requirements are presented in separate volumes covering different categories of application equipment and related test procedures, such as the principal types of portable (operator-carried) sprayers, including rotary atomizers, vehicle-mounted and trailed (tractor) sprayers and others.

1. [Guidelines on Minimum Requirements for Agricultural Pesticide Application Equipment – Volume 1: \(operator-carried\) sprayers \[2001\]](#)
([English](#), [French](#), [Spanish](#))
- ✓ [Guidelines on Minimum Requirements for Agricultural Pesticide Application Equipment – Volume 2: Vehicle-mounted and trailed sprayers \[2001\]](#)
([English](#), [French](#), [Spanish](#))
- ✓ [Guidelines on Minimum Requirements for Agricultural Pesticide Application Equipment – Volume 3: Portable \(operator-carried\) foggers \[2001\]](#)
([English](#), [French](#), [Spanish](#))
- ✓ [Guidelines on Minimum Requirements for Agricultural Pesticide Application Equipment – Volume 4: Ground-based locust and grasshopper sprayers \[2004\]](#)
([English](#))
- ✓ [Guidelines on Standards for Agricultural Pesticide Application Equipment and Related Test Procedures – Volume 1: Portable \(operator-carried\) sprayers \[2001\]](#)
([English](#), [French](#), [Spanish](#))
- ✓ [Guidelines on Standards for Agricultural Pesticide Application Equipment and Related Test Procedures – Volume 2: Vehicle-mounted and trailed sprayers \[2001\]](#)
([English](#), [French](#), [Spanish](#))

7.4 Guidelines on Organization and Operation of Training Schemes and Certification Procedures for Operators of Pesticide Application Equipment [2001] ([English](#), [French](#), [Spanish](#))

These guidelines consider the training, testing and certification of those who actually operate pesticide application equipment. Even the most well designed and maintained sprayer can do immeasurable damage in the hands of an unskilled operator and the importance of these guidelines should not be underestimated.

These guidelines provide a general framework, which outlines the need for training and the assessment and confirmation of operator competence to improve the safety and efficiency of pesticides in farm use.

8. Prevention & Disposal of Obsolete Stocks

8.1 Guidelines on Management Options for Empty Containers [2008]

([English](#), [French](#), [Spanish](#))

This guideline provides advice on management options for empty pesticide containers that have been used. Empty pesticide containers are hazardous waste and unless they are managed correctly they are a risk to health and the environment. There is particular concern that empty containers could be reused for storing food and water, which could result in pesticide poisoning. Containers abandoned in the environment could cause pesticide contamination of soil and groundwater.



A container management scheme can minimize these risks and is part of the “life-cycle concept”, requiring the engagement and support of all stakeholders in the supply chain for pesticides.

This guideline identifies how each of these stakeholders can contribute to a container management scheme. The guideline considers the role of manufacturers in the design of the containers and the formulation of the product, as well as their responsibility in product stewardship

8.2 Guidelines for the Management of Small Quantities of Unwanted and Obsolete Pesticides [1999]

([English](#), [French](#), [Spanish](#))

Guidance is provided on what to do with the small quantities of unwanted and obsolete pesticides that are often found on farms, in homes and in many other situations. Special attention is given to concerns about undesirable disposal practices for small quantities of unwanted pesticides, empty containers and other contaminated waste, such as burning or burying. To avoid such practices, recommendations are provided on preventing the accumulation of unusable pesticides at user level and removing waste where it exists.

8.3 Disposal of Bulk Quantities of Obsolete Pesticides in Developing Countries [1996]

([English](#), [French](#), [Spanish](#))

These guidelines address the specific, but widespread problem of large obsolete stocks of pesticides in developing countries and the need for their containment and disposal. They offer guidance on what to do with obsolete pesticides, and warn against improvised disposal methods that may cause severe environmental and health problems. The cost of mitigating the effects of irresponsible disposal can be many times higher than the cost of safe and environmentally sound disposal as recommended in these guidelines that were prepared in close collaboration with UNEP and WHO.

8.4 Prevention of Accumulation of Obsolete Stocks [1995]

([English](#), [French](#), [Spanish](#))

The objective of these guidelines is to raise awareness about the mechanisms through which obsolete pesticide stocks accumulate and to enhance the formulation and implementation of policies and procedures aimed at preventing such accumulation. These guidelines are particularly aimed at governments of developing countries, aid agencies and the pesticide industry.

9. Post Registration Surveillance

9.1 Guidelines on Prevention and Management of Pesticide Resistance [2012]

[\(English\)](#), [French](#), [Spanish](#)

These guidelines address the problem of pesticide resistance in agriculture and how to limit its development while continuing to protect crops from pests. The guidelines are intended for scientific, technical, and policy experts who prepare or evaluate pesticide resistance management plans, and for pesticide regulators who assess the risk of resistance development during registration of new pesticides or renewal of already approved products. Detailed guidance is provided on evaluating risk of resistance, and on resistance prevention and management.

9.2 Guidelines on Post-Registration Surveillance and Other Activities in the Field of Pesticides [1988]

[\(English\)](#)

Registration involves a number of activities undertaken before a pesticide product is introduced in the market. A well-devised and operated registration scheme does not stop at this pre-market evaluation stage. It also incorporates post-registration surveillance to ensure enforcement and monitoring of the actual use of the product to ascertain that the goals of registration are met. This involves follow-up to ensure that registered products are properly handled, distributed, and used in accordance with applicable rules and regulations.

Post-registration surveillance activities provide a means of measuring the validity of predictions based on registration data, regarding efficacy, safety and environmental effects of a particular pesticide. These activities should be basic components of any law regulating the trade, production and use of pesticides.

9.3 FAO/WHO Guidelines on Developing a Reporting System for Health and Environmental Incidents Resulting from Exposure to Pesticides [2010]

[\(English\)](#), [French](#), [Spanish](#)

This guideline aims to assist governments in taking the first step in the development and establishment of a basic reporting program for pesticide incidents, which are defined as situations where pesticide exposure has resulted in a health or environmental problem. The information collected can be used to minimize adverse impacts on human health and the environment through appropriate pesticide risk reduction measures. Information on incidents should be provided to pesticide regulatory authorities as a means of strengthening national decision making on pesticides.

The guideline provides directions on how to collect information about pesticide incidents, the type of information that should be collected, and how to analyse the data in order to determine if the use of a pesticide requires further risk mitigation actions or further in-depth monitoring.

Incident data could be used in the context of the Rotterdam Convention on the Prior Informed Consent Procedure (PIC) for Certain Hazardous Chemicals and Pesticides in International Trade.

10. Monitoring and Observance of the Code of Conduct

10.1 Guidelines on Monitoring and Observance of the Revised Version of the Code [2006]

[\(English\)](#), [French](#), [Spanish](#))

These guidelines encourage monitoring of the implementation of provisions of the Code of Conduct with the aim of improving implementation. Distinction is made between regular monitoring and ad hoc monitoring and reporting. Procedures are proposed for both types of monitoring.

Regular monitoring provides information that enables FAO to describe the worldwide status on pesticide management. The Guidelines identify information to be gathered and ways to ensure that it will be accessible and used effectively to support further implementation of the Code of Conduct. Over time, their implementation will provide an ongoing source of information to evaluate progress in observing the Code of Conduct, and for identification of critical areas in pesticide management where further work is needed.

Ad hoc monitoring provides a procedure for stakeholders to notify FAO of cases of non-compliance that can have health or environmental implications. Such cases will be brought to the attention of the government concerned and, if needed, to the FAO/WHO Joint Meeting on Pesticide Management, which then may provide recommendations for follow-up actions.

Furthermore, the process of monitoring itself can be a tool for self-assessment of governments at the national level to improve decision-making on pesticide management and environmental performance.

11. Further Tools

In addition to the Guidelines, there are specific **Tools** for each subject area that can be found through the FAO webpage for the technical guidelines. These include Manuals, reference material, and further technical guidance that has not been reviewed by the FAO/WHO Joint Meeting on Pesticide Management. <http://www.fao.org/agriculture/crops/core-themes/theme/pests/code/toolkits/en/>

Examples of Tools available on the FAO Website

Legislation
FAOLEX : Comprehensive and up-to-date computerized legislative database, one of the world's largest electronic collections of national laws and regulations on food, agriculture and renewable natural resources. It includes pesticide laws of many countries.
Guidance Document : Designing National Pesticide Legislation [2007] English , Spanish 
GLOSSARY : The Glossary of Terms and Definitions contains all definitions provided in the Code of Conduct and its supporting guidelines. Governments and all other stakeholders are encouraged to use these definitions in order to enhance harmonization in the use of definitions and terms.
Registration
Manual on the Submission and Evaluation of Pesticide Residues Data for the Estimation of Maximum Residue Limits in Food and Feed [2009] English
Enforcement
Manual on the Development and Use of FAO and WHO Specifications for Pesticides [2010] English
FAO/WHO Pesticide Specifications English , French , Spanish
Disposal
The Preparation of Inventories of Pesticides and Contaminated Materials [2010] English , French , Spanish
Environmental Management Tool Kit for Obsolete Pesticides (EMTK) - Volume 1 , 2 , 3 , 4
FAO Training Manual for Inventory Taking Obsolete Pesticides [2001] English
Assessing Soil Contamination: a Reference Manual [2000] English
Pesticide Storage and Stock Control Manual [1995] English

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