Environmental, Health and Safety (EHS) Guidelines for Pesticide and Fertilizer Use under the Resilient and Accessible Microfinance (RAM) Project

SEPTEMBER, 2026

Contents

1. INTRODUCTION 3
1.1 Purpose and Scope 3
1.2 Applicability 3
1.3 Roles and Responsibilities 3
2. Environmental, Health and Safety - (EHS) Risks and Impacts 4
2.1. Risks and Impacts 4
3. General Implementation Requirements 5
3.1. Pesticides 5
3.1.1. Purchase and Product Selection 6
3.1.1 Transport 6
3.1.2 Packaging 6
3.1.3 Storage 6
3.1.4 Dispensing 6
3.1.5 Application 7
3.1.6 A Exposure and Emergency Response 7
3.1.7 Spillage 7
3.1.8 Post Spraying 8
3.1.9 Disposal 8
3.1.10 Product Authenticity and Lawful Procurement 8
3.1.11 Negative List of Pesticides 8
3.2 Fertilizers 9
3.2.1 Purchase and Transport 9
3.2.2 Storage 9
3.2.3 Application 10
3.2.4 Spill Response and Housekeeping 10
References and Related Guidance 10
Annex 1 - Risk Assessment & Mitigation Measures 11
ANNEX-2: INDICATIVE LIST OF BANNED OR HIGHLY HAZARDOUS PESTICIDES AND RELATED NOTIFICATIONS 17
Annex 3: LIST OF BANNED PESTICIDES BY PAKISTAN DEPARTMENT OF PLANT PROTECTION .. 18
Annex 4: Sample Posters for Public Awareness 20

1. INTRODUCTION

The Resilient and Accessible Microfinance (RAM) Project was approved by the World Bank Board in March 2025. The Project aims to enhance access to microcredit and strengthen the resilience of the microfinance sector and its borrowers in Pakistan. It has been designed with a view to increasing climate risks, particularly flood risk, and lessons learned from the catastrophic floods of 2022.

The Government of Pakistan received financing for establishment of the Climate Risk Fund (CRF). The CRF has been set up as a specialized trust owned by the Government of Pakistan and managed on its behalf by the State Bank of Pakistan (SBP). The CRF is intended to provide liquidity to participating microfinance providers (MFPs) for onward lending to eligible end borrowers under designated facilities and products.

a. Under the Innovative Agriculture Liquidity (IAL) facility, funded at USD 20 million, the CRF will support climate-smart agriculture lending before flood events by enabling MFPs to originate loans bundled with advisory support from agri-technology companies. This pilot approach is intended to improve productivity, sustainability, adaptation, and resilience of borrowers and, in turn, of MFP portfolios.
b. Under the Contingent Liquidity Facility (CLF), funded at USD 105 million, the CRF will provide liquidity to MFPs after qualifying flood events to support recovery lending. Only MFPs with active portfolios in flood-affected areas will be eligible, and liquidity may be deployed only in impacted areas, subject to eligibility criteria and the level of flood-related portfolio impact.

1.1 Purpose and Scope

These Guidelines establish the minimum environmental, health, and safety requirements applicable to financing for pesticide and fertilizer purchase, transport, storage, mixing, application, spill response, post-use hygiene, and disposal under relevant RAM Project lending activities.

1.2 Applicability

These Guidelines apply to SBP, the CRF-I, participating MFPs financing for purchase of pesticide or fertilizer-related activities. These Guidelines supplement, and do not replace, stricter requirements under applicable Pakistani law, provincial agriculture department instructions, product labels, or international obligations applicable to the Project.

1.3 Roles and Responsibilities

SBP / CRF-I shall maintain these Guidelines, update the project negative list as needed, build capacity of participating MFPs, and require proportionate monitoring and incident reporting.

Participating MFPs shall screen relevant sub-loans, brief borrowers, include borrower obligations in loan documentation or undertakings, maintain implementation records, and escalate serious incidents or material non-compliance. Further, MFPs will make the borrowers aware that they are required to purchase only lawful and project-eligible products, follow product instructions and agronomic guidance, use appropriate protective measures, prevent contamination of water, soil, homes, and livestock areas, and report serious incidents without delay.

2. Environmental, Health and Safety - (EHS) Risks and Impacts

The Project is expected to have a nationwide footprint. Environmental, health, and safety risks may arise where loan proceeds are used to purchase pesticides, fertilizers, or related agrochemicals, especially in areas where such inputs are already used intensively. Potential impacts include worker exposure, poisoning, soil and water contamination, spray drift, harm to non-target species, improper waste disposal, and secondary air-quality impacts associated with excessive fertilizer use.

SBP has developed these Guidelines to ensure that EHS risks and impacts arising from RAM-supported pesticide and fertilizer use remain within manageable limits and do not cause harm to farmers, workers, nearby communities, livestock, crops, soil resources, or surface and groundwater.

Participating MFPs shall communicate requirements set out in these Guidelines to borrowers, support awareness, and maintain records of compliance-related actions.

2.1. Risks and Impacts

The use of pesticides and fertilizers under RAM-supported lending activities may give rise to a range of environmental, health, and safety risks if products are purchased, transported, stored, handled, applied, or disposed of improperly.

The most significant risks associated with pesticides include exposure of farmers and agricultural workers during mixing, spraying, and equipment cleaning; acute poisoning resulting from splashes, inhalation, or accidental ingestion; and contamination arising from spills, leakage, unsafe storage, or reuse of empty containers. Additional risks may arise where banned, counterfeit, decanted, or unregistered pesticide products are procured, or where application takes place without adequate protective equipment, calibration, or consideration of weather conditions.

The Project may also create environmental risks through spray drift, runoff, and improper disposal practices, particularly where pesticides or fertilizer residues enter irrigation channels, ponds, streams, soil, or groundwater. Nearby communities, livestock, and non-target species may be adversely affected where agrochemicals are applied close to homes, schools, water sources, or grazing areas.

In the case of fertilizers, over-application, poor timing, unsafe storage, and uncontrolled spills may contribute to nutrient loss, surface-water contamination, dust exposure, and secondary air-quality impacts, while certain products may also present fire or reaction hazards if stored with incompatible materials or near ignition sources.

At the institutional level, there is also a risk that weak screening, borrower awareness, monitoring, and recordkeeping by participating MFPs could result in uncontrolled environmental and social exposure within the RAM portfolio. With appropriate controls, these risks can be reduced to manageable levels; however, where prohibited products are financed, storage is unsafe, application occurs near sensitive receptors, or emergency response capacity is weak, the resulting impacts may become significant and require enhanced mitigation and follow-up. ***Please Refer to Annex-1 for detailed risk assessment and classification.***

3. General Implementation Requirements

These Guidelines shall be in complement to the SBP's Environmental and Social Commitment Plan and will be incorporated into the Environmental and Social Management Systems (ESMS) of participating MFPs, as relevant. SBP will undertake capacity building of participating MFP focal persons to support effective implementation.

Participating MFPs shall disseminate these Guidelines among relevant borrowers and, where appropriate, organize awareness and training sessions to support proper understanding and compliance. The Guidelines should be made available in Urdu and other relevant local languages to improve accessibility. , where possible. Relevant borrower obligations should be reflected in loan documentation, borrower undertakings, or equivalent implementation instruments.

Loan proceeds shall not be used for banned, unregistered, counterfeit, unlabeled, decanted, or project-prohibited pesticide products.

MFPs should promote reduced risk use, including integrated pest management, efficient nutrient management, and avoidance of unnecessary or excessive chemical application.

MFPs should conduct sample-based post-disbursement monitoring proportionate to environmental and social risk and maintain records of borrower briefing, undertakings, incidents, and corrective actions.

3.1. Pesticides

A pesticide is any substance or mixture intended to prevent, destroy, repel, or control pests, including insects, weeds, fungi, rodents, and microorganisms. While pesticides can contribute to agricultural productivity and vector control, improper handling, overuse, or use of prohibited products can create serious health and environmental risks.

Pesticides are commonly classified based on the type of pest they are designed to control. The major categories include:

- **Herbicides:** Used to eliminate or suppress the growth of unwanted plants (weeds).
- **Insecticides:** Formulated to kill or repel insects.
- **Fungicides:** Used to prevent or control fungi, including Molds, mildews, and rusts.
- **Rodenticides:** Intended to control rodents such as rats and mice.
- **Disinfectants/Antimicrobials:** Products designed to eliminate bacteria and viruses on surfaces.

Pesticides can improve agricultural productivity and help manage pests and vectors. However, improper handling, overuse, or repeated exposure may cause acute poisoning, respiratory and neurological effects, contamination of soil and water, harm to non-target organisms, and exposure risks for workers and nearby communities.

The following requirements apply to the purchase, transport, storage, mixing, dispensing, application, spill response, post-use hygiene, and disposal of pesticides financed under the Project:

3.1.1. Purchase and Product Selection

- Farmers shall purchase only pesticides that are legally registered in Pakistan, supplied in original sealed containers, clearly labelled, and obtained from authorized, licensed, or otherwise legitimate dealers and distributors.
- Any damaged, leaking, unsealed, relabeled, counterfeit, decanted, or suspicious product shall be rejected.
- Borrowers should select products suitable for the target pest, crop, and stage of application and should avoid routine, blanket, or repeated preventive chemical use where reduced-risk alternatives are feasible.

3.1.1 Transport

- Pesticides shall be transported upright, sealed containers and secured to prevent tipping, puncture, or leakage. They shall not be transported together with food, drinking water, animal feed, household items, or vulnerable passengers in unsafe conditions.
- During transport, pesticide containers should be protected from direct sunlight, excessive heat, and rainfall. Spill cleanup materials such as soil, sand, or absorbent material should be available where practical, especially for larger quantities.

3.1.2 Packaging

- Farmers shall purchase or accept only pesticides supplied in intact, properly sealed, labelled, and good-quality containers. Damaged, leaking, or tampered containers shall be refused.
- Pesticides shall not be transferred from their original containers to other containers. They shall remain in original packaging with labels intact and caps tightly secured when not in use.
- Containers should be handled carefully to avoid impacts, collisions, or accidental drops, as these may damage the packaging and result in leakage or spillage of contents.

3.1.3 Storage

- Pesticides shall be stored in a covered, dry, well-ventilated and secure area, protected from direct sunlight, moisture, excessive heat, and freezing conditions, as applicable. Storage areas should be locked or otherwise secured to prevent access by children, unauthorized persons, or animals.
- Food, feed, seed, medicines, and household items shall not be stored together with pesticides. The pesticide storage area shall not be used for eating, drinking, or food preparation purposes.

3.1.4 Dispensing

- Dispensing and mixing pesticides require careful handling to ensure safe and efficient use. This includes understanding the product label, required dosage, dilution, target crop and pest, compatibility, and required protective measures before opening or pouring any product.
- Carefully reading the product label to determine the required equipment (e.g., measuring jugs, funnels, stirrers, and appropriate protective clothing); and
- Reviewing the label instructions to determine the correct dosage rates, dilution requirements, and appropriate use of the available dispensing equipment. If farmers are unable to read or understand the label instructions, they should consult the supplier or the MFP for guidance and clarification.
- A full-face shield or equivalent eye and face protection should be used where there is risk of splashing while opening, measuring, or pouring pesticides.

- Appropriate protective equipment, such as gloves, mask or respirator suitable for the task, protective apron, and protective clothing, should be used together with eye and face protection as necessary based on product risk and label instructions.
- Where label instructions allow dilution, the pesticide should be added carefully to the applicator or mixing vessel in a manner that minimizes splash-back and direct contact with concentrated chemicals.
- All utensils and equipment used for dispensing shall be thoroughly decontaminated after use and stored safely. Cleaning shall be undertaken in a manner that avoids inhalation, ingestion, skin contact, and environmental contamination.

3.1.5 Application

- Application equipment shall be inspected before use to ensure it is functioning properly, free from leaks, and calibrated to deliver the correct application rate.
- Farmers shall wear appropriate personal protective equipment during spraying, including gloves, eye and face protection where needed, mask or respirator suitable for the task, and protective clothing covering exposed skin, as required by the product label and risk level.
- Farmers should cover as much of the body as practicable with lightweight protective clothing, such as a long-sleeved shirt, long trousers or shalwar, and head covering, to reduce skin exposure.
- Pesticides shall not be applied during strong winds, immediately before heavy rainfall, or in conditions likely to cause drift or runoff to drinking-water sources, irrigation channels, homes, schools, livestock areas, or neighboring land.
- Spraying should be carried out so that other persons are kept away from the treatment area and re-entry to treated areas is controlled in accordance with label instructions or practical safety precautions.
- Pesticide containers and application equipment shall not be left open or unattended during use.
- Any cuts, wounds, or skin abrasions should be properly covered before spraying to reduce chemical exposure risk.
- Eating, drinking, and smoking are prohibited during pesticide handling, mixing, loading, and application.

3.1.6 A Exposure and Emergency Response

- In the event of suspected pesticide exposure, the affected person should be removed from the source of exposure and contaminated clothing should be removed without delay.
- Skin and eyes should be rinsed immediately with clean water for an adequate period. Where pesticide has been inhaled or swallowed, the product label instructions should be followed and urgent medical advice should be sought.
- The pesticide container, label, or product name should be taken to the health facility where feasible to support medical treatment. Serious poisoning incidents shall be reported promptly to the MFP or relevant focal person.

3.1.7 Spillage

- In the event of a pesticide spill, all persons not involved in response shall be kept at a safe distance until the spill has been contained, cleaned up, and managed safely.
- Spilled pesticide shall be managed promptly by containing the spread and using absorbent material such as soil, sand, or sawdust, as appropriate. Contaminated absorbent material shall be collected and

disposed of in a safe and environmentally sound manner. Spills shall not be washed into drains, canals, irrigation channels, or water bodies.

3.1.8 Post Spraying

- After spraying, farmers shall thoroughly wash hands, face, neck, and other potentially exposed body parts. If gloves have been worn, they should be washed before removal to avoid contaminating the hands.
- Unused pesticide shall be returned to secure storage. Empty containers and any surplus pesticide remaining in application equipment shall be managed and disposed of safely in accordance with approved procedures.
- Application equipment shall be thoroughly decontaminated after use. Wash water and rinsate shall be managed so that soil, crops, drains, irrigation channels, and water bodies are not contaminated.
- After spraying, farmers should bathe or thoroughly wash exposed parts of the body before eating, drinking, smoking, using the lavatory, or undertaking household activities.

3.1.9 Disposal

- Empty pesticide containers shall not be reused for any purpose, including storage of water, food, feed, fuel, or household materials.
- Empty containers, tank washings (rinsate), and any surplus pesticides shall be disposed of in a safe and environmentally sound manner in accordance with applicable requirements.
- Before disposal, empty containers should be triple-rinsed where label instructions and product type permit. Rinsate shall be handled so that it does not contaminate soil, crops, drains, irrigation channels, or water bodies. After rinsing, containers should be punctured or crushed to make them unusable and stored securely until final disposal is arranged.

3.1.10 Product Authenticity and Lawful Procurement

- To minimize the risk of banned, counterfeit, substandard, or unsuitable pesticides, borrowers shall purchase and use only products that are legally registered in Pakistan, remain within the project eligibility criteria, are supplied in original sealed and labelled containers, and are obtained from authorized or legitimate dealers. The Project shall not rely on a fixed commercial brand list as evidence of compliance.

3.1.11 Negative List of Pesticides

The Project, participating financial institutions, and MFPs shall not finance, procure, promote, or support the purchase or use of prohibited pesticide products or active ingredients.

- This prohibition includes any pesticide classified by the World Health Organization as Class Ia or Ib and any pesticide identified as a persistent organic pollutant under the Stockholm Convention, as applicable to the Project.
- The prohibition also includes any pesticide listed on the Department of Plant Protection official list of banned pesticides in Pakistan, together with any pesticide subsequently banned, withdrawn, or severely restricted by the Government of Pakistan.
- Any pesticide that is severely restricted or banned under applicable national requirements or international conventions binding on Pakistan shall be treated as ineligible for Project support.

Annex 2 provides indicative information on banned or highly hazardous pesticides and related notifications. The project negative list should be reviewed and updated periodically in line with DPP notifications, WHO classification, and other applicable requirements.

3.2 Fertilizers

Fertilizers play an important role in maintaining soil productivity and crop yields, particularly where repeated cultivation depletes soil nutrients. However, improper storage, over-application, poor timing, and runoff can create environmental, health, and safety risks, including nutrient loss, water contamination, dust exposure, and fire or reaction hazards for certain products.

Fertilizers primarily replenish three key macronutrients commonly removed from the soil by crops:

- Nitrogen (N): Promotes vegetative and leafy growth.
- Phosphorus (P): Supports root development and flowering.
- Potassium (K): Enhances overall plant health, disease resistance, and stress tolerance.

Fertilizers may be supplied in solid or liquid forms and may be applied to soil or, where appropriate, to plant foliage. Their use should be guided by crop need, manufacturer instructions, provincial agriculture department guidance, and, where available, soil testing or other agronomic assessment.

- Organic fertilizers: Derived from plant or animal sources (e.g., manure, compost, bone meal).
- Inorganic/Synthetic fertilizers: Chemically manufactured products (e.g., urea, ammonium phosphate).

3.2.1 Purchase and Transport

- Borrowers shall purchase only lawful, genuine, properly labelled fertilizer products from legitimate dealers or suppliers.
- Fertilizers shall be transported in a manner that prevents tearing, puncture, leakage, moisture ingress, contamination, or contact with incompatible materials.
- Fertilizer bags or containers shall not be transported together with food, animal feed, drinking water, or household items where contamination may occur.

3.2.2 Storage

- Fertilizers shall be stored under cover in a closed, dry, and secure facility protected from direct sunlight, rain, moisture, and other weather conditions.
- Ammonium nitrate and other reactive fertilizer products shall not be stored near chemicals, oils, pesticides, fuels, or combustible materials such as wood, paper, plastics, hay, or straw.
- Different fertilizer products should be stored separately where necessary to avoid cross-contamination, product degradation, or unintended chemical interaction.
- Fertilizers shall not be stored near heating systems, fuel tanks, oil drums, welding activities, or other sources of heat or ignition.
- Smoking, welding, burning, and the use of open flames in or near fertilizer storage areas are prohibited.
- Urea and ammonium nitrate-based fertilizers should be managed in accordance with compatibility and storage guidance to reduce interaction and safety risks.

3.2.3 Application

- Fertilizers shall be applied accurately and at recommended application rates, taking account of crop need, timing, weather conditions, and guidance issued by the Agriculture Department or other competent authority.
- Fertilizers shall not be applied when soil is waterlogged or flooded, immediately before heavy rainfall, or in conditions likely to cause runoff to drains, irrigation channels, ponds, streams, or other water bodies.
- Farmers shall use appropriate personal protective equipment during fertilizer handling and application, including gloves, eye protection where necessary, and dust protection for dusty products or poorly ventilated conditions.
- After handling or applying fertilizers, farmers shall wash hands and exposed body parts thoroughly. Contaminated clothing should be changed and cleaned as appropriate.
- Eating, drinking, and smoking are prohibited during fertilizer handling and application.

3.2.4 Spill Response and Housekeeping

- Spilled fertilizer should be collected promptly to prevent loss, contamination, and runoff. Where feasible, uncontaminated spilled product may be recovered for intended use.
- Fertilizer residues, empty bags, and related waste shall be managed so that they do not contaminate water bodies, homes, food storage areas, or animal feed.
- Storage and application areas should be kept clean and dry, with damaged bags or leaking containers isolated and managed promptly.

References and Related Guidance

These Guidelines should also be read alongside applicable national pesticide registration and ban notifications, provincial agriculture department advisories, product label requirements, and any RAM Project ESCP, ESRM, or ESMS documentation governing implementation and monitoring.

(i) Food and Agriculture Organization of the United Nations (FAO). (2014). *International code of conduct on pesticide management*. Rome: FAO.

(ii) Food and Agriculture Organization of the United Nations (FAO). (2016). *Guidelines on good practice for ground application of pesticides*. Rome: FAO.

(iii) Food and Agriculture Organization of the United Nations (FAO). (2017). *Guidelines on pesticide storage, labeling and disposal*. Rome: FAO.

(iv) Food and Agriculture Organization of the United Nations (FAO). (2020). *The FAO fertilizer and plant nutrition bulletin*. Rome: FAO.

(v) International Labour Organization (ILO). (2011). *Safety and health in agriculture (ILO Code of Practice)*. Geneva: ILO.

(vi) International Finance Corporation (IFC). (2007, updated 2021). *Environmental, Health, and Safety (EHS) Guidelines for Annual Crop Production*. Washington, DC: World Bank Group.

(vii) United Nations Environment Programme (UNEP). (2019). *Global chemicals outlook II: From legacies to innovative solutions*. Nairobi: UNEP.

(viii) World Health Organization (WHO). (2010). *The WHO recommended classification of pesticides by hazard and guidelines to classification*. Geneva: WHO.

(ix) World Health Organization (WHO). (2020). *Public health impact of pesticides used in agriculture*. Geneva: WHO.

Annex 1- Risk Assessment & Mitigation Measures

Scoring Method: Likelihood (L) and Severity (S) are scored from 1 to 5. Risk Score = L × S. Indicative ratings used in this table: 1–4 Low, 5–9 Moderate, 10–14 Substantial, 15–25 High. Residual risk reflects expected risk after implementation of the proposed controls.

No.	Activity / Hazard	Potential Impact(s)	Relevant ESS	L	S	Inherent Risk (L×S)	Key Existing / Proposed Controls	Residual Risk	Additional ESS-wise Mitigation Measures / Actions	Responsibility[1]
1	Purchase of banned, counterfeit, unregistered, decanted, or mislabeled pesticides	Acute poisoning, crop damage, ineffective pest control, legal non-compliance, reputational harm	ESS1, ESS3, ESS4, ESS9	4	5	20 High	Negative list; purchase only lawful registered products; original sealed labelled containers; authorized dealers; borrower briefing; MFP screening.	Moderate	ESS1: integrate screening into FI ESMS and sub-loan appraisal. ESS3: maintain prohibited pesticide list and update periodically. ESS4: prohibit financing where products pose unacceptable community exposure risks. ESS9: require MFP recordkeeping and escalation of non-compliance.	SBP/CRF, MFPs
2	Transport of pesticides resulting in leaks, spills, or contamination	Exposure to handlers and passengers, contamination of food/feed/water, localized soil contamination	ESS2, ESS3, ESS4	3	4	12 Substantial	Sealed upright containers; no transport with food, water, feed or household items; protect from heat/rain; carry absorbent materials where practical.	Low–Moderate	ESS2: train handlers on safe loading/unloading. ESS3: require prompt containment and safe cleanup of transport spills. ESS4: avoid unsafe transport with vulnerable passengers and near public exposure.	MFPs
3	Unsafe pesticide storage in homes or accessible areas	Poisoning of children/adults, contamination of food or medicine,	ESS2, ESS3, ESS4	4	5	20 High	Store in covered dry ventilated secure area; segregate from food/feed/medicines/household items; keep away from children and animals; labels intact.	Moderate	ESS4: require heightened precautions where households include children or	MFPs

[1] SBP is responsible for dissemination of applicable EHS guidelines to the MFPs and for monitoring compliance on the basis of reported information annually.

No.	Activity / Hazard	Potential Impact(s)	Relevant ESS	L	S	Inherent Risk (L×S)	Key Existing / Proposed Controls	Residual Risk	Additional ESS-wise Mitigation Measures / Actions	Responsibility[1]
		theft/misuse, fire-related complications							vulnerable persons. ESS3: include segregation and secondary containment guidance where feasible. ESS2: reinforce safe access and housekeeping during borrower briefing.	
4	Unsafe mixing / dispensing of pesticides	Splash exposure, inhalation, dermal exposure, acute poisoning, contamination of mixing area	ESS2, ESS3	4	4	16 High	Read label; use measuring equipment; face/eye protection; gloves; suitable mask/respirator; protective apron/clothing; decontaminate utensils after use.	Moderate	ESS2: provide task-specific PPE guidance and first-aid briefing. ESS3: prohibit mixing near drains, irrigation channels, wells, or water bodies. ESS1: include this hazard explicitly in borrower awareness materials and FI monitoring checklist.	MFPs
5	Pesticide application without proper PPE, calibration, or weather control	Worker poisoning, over-application, spray drift, crop injury, exposure of nearby people	ESS2, ESS3, ESS4	4	5	20 High	Inspect/calibrate equipment; use PPE; avoid strong winds and heavy rain; keep others away; no eating/drinking/smoking; cover cuts and exposed skin.	Moderate	ESS2: reinforce occupational health requirements and re-entry precautions. ESS4: establish minimum setbacks from homes, schools, livestock, and water points. ESS3: encourage integrated pest management and reduced-risk use to minimize	MFPs

No.	Activity / Hazard	Potential Impact(s)	Relevant ESS	L	S	Inherent Risk (L×S)	Key Existing / Proposed Controls	Residual Risk	Additional ESS-wise Mitigation Measures / Actions	Responsibility[1]
									dependency on spraying.	
6	Spray drift or runoff to homes, schools, water bodies, neighboring fields, and livestock areas	Community exposure, livestock impacts, contamination of water and soil, damage to non-target species	ESS3, ESS4	3	5	15 High	Do not spray in drift/runoff conditions; keep people away; avoid application before heavy rain; control re-entry; follow label instructions.	Moderate	ESS4: map sensitive receptors during borrower briefing for higher-risk cases. ESS3: impose buffer distances from surface water and drinking-water sources; prohibit washing equipment into drains/canals. ESS1: classify such sub-loans as elevated risk for more frequent post-disbursement checks.	MFPs, SBP/CRF
7	Pesticide exposure incident / poisoning with weak emergency response	Severe illness, hospitalization, fatality, delayed treatment, reputational risk	ESS2, ESS4	3	5	15 High	Remove from exposure; remove contaminated clothing; rinse skin/eyes; follow label guidance; seek urgent medical advice; take label/container to clinic; incident reporting.	Moderate	ESS2: include first-aid and emergency referral instructions in training/posters. ESS4: establish simple community-facing communication where third parties may be affected. ESS1/ESS9: require incident escalation thresholds and reporting by MFPs to SBP/CRF.	MFPs, SBP/CRF
8	Poor spill response and cleanup	Localized contamination, direct exposure, contamination of	ESS2, ESS3, ESS4	3	4	12 Substantial	Keep others away; contain spill; use absorbent material; collect contaminated material; do not	Low–Moderate	ESS3: include guidance on temporary containment,	MFPs

No.	Activity / Hazard	Potential Impact(s)	Relevant ESS	L	S	Inherent Risk (L×S)	Key Existing / Proposed Controls	Residual Risk	Additional ESS-wise Mitigation Measures / Actions	Responsibility[1]
		drains/canals/water bodies					wash into drains/canals/water bodies.		contaminated waste handling, and prohibited discharge pathways. ESS2: emphasize responder PPE. ESS4: notify nearby persons where there is off-site exposure potential.	
9	Reuse of empty pesticide containers or unsafe disposal of rinsate / waste	Household poisoning, contamination of food and water, soil and water pollution	ESS3, ESS4	4	5	20 High	No reuse of containers; triple-rinse where permitted; puncture/crush; store securely pending final disposal; prevent contamination by rinsate.	Moderate	ESS3: define acceptable local disposal pathway and prohibit open dumping/burning. ESS4: communicate clearly that containers must never be used for household storage. ESS1: monitor disposal practices during sample-based field checks.	MFPs
10	Purchase or use of unsuitable / excessive fertilizer	Over-application, nutrient loss, wasted finance, crop damage, runoff and water contamination	ESS1, ESS3, ESS9	4	4	16 High	Use lawful labelled products; apply according to crop need, guidance, and timing; encourage efficient nutrient management and soil/agronomic guidance.	Moderate	ESS3: promote soil-test-based and crop-specific dosing where available. ESS1: include fertilizer overuse in borrower awareness and FI monitoring tools. ESS9: require MFPs to flag loans involving high-input agriculture for proportionate follow-up.	MFPs
11	Unsafe fertilizer storage, especially	Fire or reaction hazard,	ESS2, ESS3, ESS4	3	5	15 High	Secure covered dry storage; segregate from fuels, pesticides,	Moderate	ESS2: train on handling	MFPs

No.	Activity / Hazard	Potential Impact(s)	Relevant ESS	L	S	Inherent Risk (L×S)	Key Existing / Proposed Controls	Residual Risk	Additional ESS-wise Mitigation Measures / Actions	Responsibility[1]
	ammonium nitrate or incompatible materials	contamination, degradation, exposure to dust					combustibles and ignition sources; no smoking/open flames; manage compatibility.		dusty/reactive products. ESS3: require housekeeping and separation distances where feasible. ESS4: avoid storage close to living areas and vulnerable receptors for larger quantities.	
12	Fertilizer application on flooded/waterlogged soil or before rainfall	Runoff to canals/ponds/streams, nutrient loading, secondary air-quality effects, loss of effectiveness	ESS3, ESS4	4	4	16 High	Do not apply on waterlogged/flooded soil or before heavy rainfall; apply at recommended rates and timing; wash after handling.	Moderate	ESS3: include runoff prevention and setback language for water bodies and drains. ESS4: protect neighboring users of irrigation and water sources. ESS1: monitor repeat non-compliance in high-risk geographies.	MFPs
13	Weak MFP screening, borrower briefing, recordkeeping, or post-disbursement monitoring	Uncontrolled FI portfolio risk, weak ESS compliance, missed incidents, ineffective mitigation	ESS1, ESS9	4	4	16 High	Integrate into ESRM/ESMS; borrower briefings; undertakings; sample-based post-disbursement monitoring; records of incidents and corrective actions.	Moderate	ESS9: strengthen FI procedures, E&S focal capacity, and escalation protocols. ESS1: establish risk-based monitoring and periodic review of implementation effectiveness. Include mandatory reporting for serious incidents and material non-compliance.	SBP/CRF, MFPs

Notes:

- *This table is designed as an indicative World Bank ESS-aligned screening and mitigation tool for RAM-supported sub-loans involving pesticides and fertilizers.*
- *ESS relevance is based on the hazard profile described in the RAM EHS Guidelines, particularly pollution prevention, worker exposure, community exposure, and financial intermediary oversight.*
- *For operational use, SBP / CRF may adapt residual risk thresholds to determine which sub-loans require enhanced screening, targeted field verification, or exclusion.*

ANNEX-2: INDICATIVE LIST OF BANNED OR HIGHLY HAZARDOUS PESTICIDES AND RELATED NOTIFICATIONS

1.0 Typical WHO Class Ia and Ib Pesticides (Examples)

The information below is indicative and should not be treated as an exhaustive or static compliance list. The project negative list shall be reviewed and updated periodically in line with official Department of Plant Protection notifications, WHO hazard classification, and other applicable national or international requirements.

Class Ia (Extremely Hazardous)

- Methyl parathion – an organophosphate insecticide classified by WHO as extremely hazardous.
- Aldicarb – carbamate insecticide.
- 2,4,5-T and its salts/esters – herbicide historically highly toxic.

Class Ib (Highly Hazardous)

- Abamectin – insecticide/miticide.
- Acrolein – fumigant/herbicide.
- Azinphos-ethyl – organophosphate.
- Triazophos – organophosphate insecticide.
- Trichlorfon – organophosphate insecticide.
- Zinc phosphide – rodenticide.

The above examples are illustrative and drawn from secondary compilations. For project implementation, the controlling reference should be the latest applicable official national notification and project-approved negative list rather than secondary sources alone.

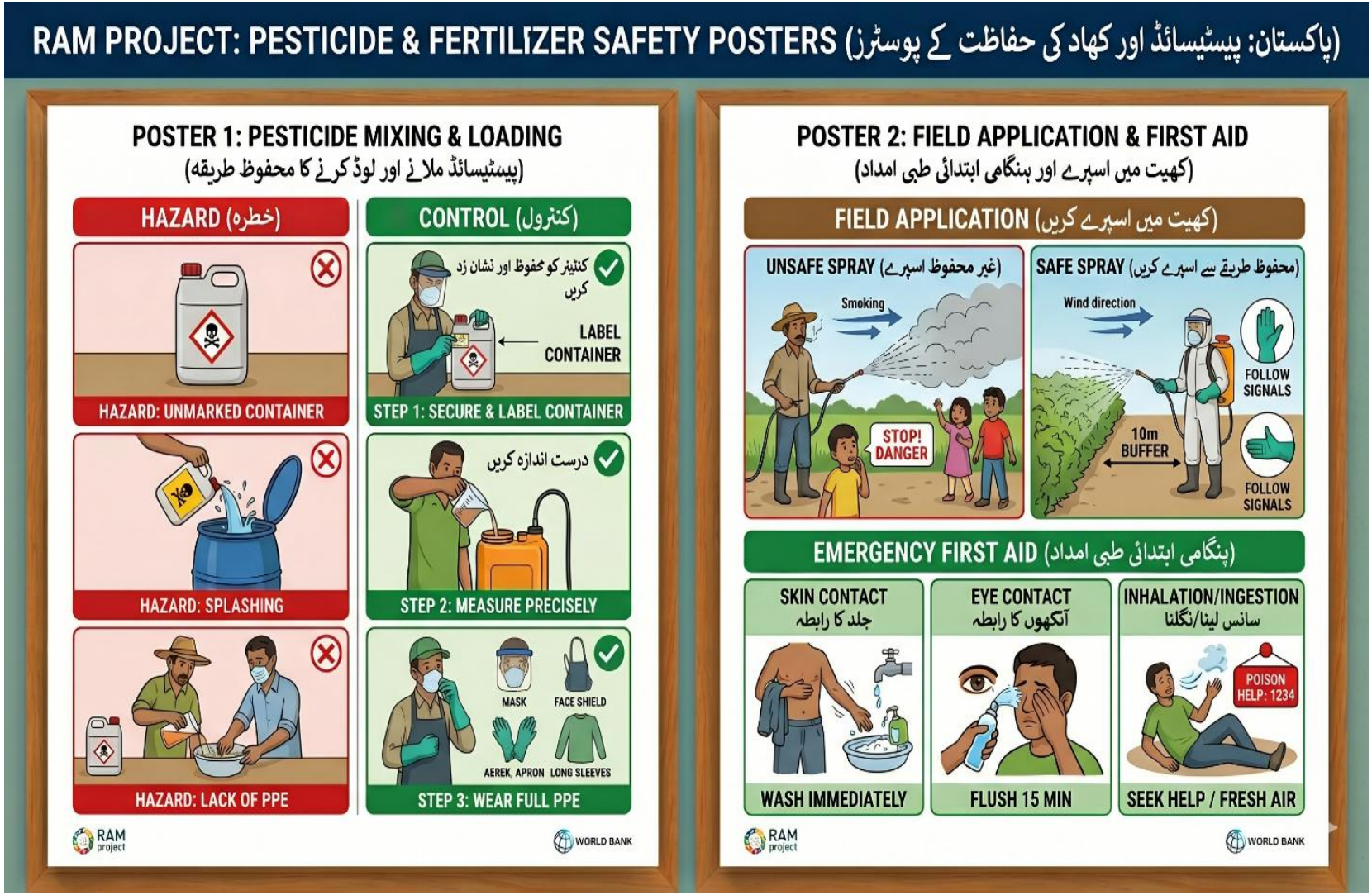
Annex 3: LIST OF BANNED PESTICIDES BY PAKISTAN DEPARTMENT OF PLANT PROTECTION

(Indicative extract)

S. #	Chemical Name	Position in Pakistan	Notification number
1.	BHC	Deregistered – banned in 1992	-
2.	Binapacryl	Prohibited the import either in technical grade material or formulation and ban its use in Pakistan	S.R.O 930(I)/1994 dated 19.09.1994
3.	Bromophos Ethyl	-do-	-do-
4.	Captafol	-do-	-do-
5.	Chlordimeform	-do-	-do-
6.	Chlorobenzilate	-do-	-do-
7.	Chlorthiophos	-do-	-do-
8.	Cyhexatin	-do-	-do-
9.	Dalapon	-do-	-do-
10.	DDT	-do-	-do-
11.	Dibromochloropropane + Dibromochloropropene	-do-	-do-
12.	Dicrotophos	-do-	-do-
13.	Dieldrin	-do-	-do-
14.	Disulfoton	-do-	-do-
15.	Endrin	-do-	-do-
16.	Ethylene dichloride + carbontetrachloride	-do-	-do-
17.	Leptophos	-do-	-do-
18.	Mercury compound	-do-	-do-
19.	Mevinphos	-do-	-do-

20.	Toxaphene	-do-	-do-
21.	Zineb	-do-	-do-
22.	Heptachlor	Deregistered – banned in 1997	-
23.	Methyl parathion	Prohibited the import either in technical grade material or formulation and ban its use in Pakistan	S.R.O 204(I)/2001 dated 30.03.2001
24.	Monocrotophos	-do-	S.R.O 1089(I)/2005 dated 21.10.2005
25.	Methamidophos	-do-	-do-
26.	Endosulfan	-do-	S.R.O 1329(I)/2012 dated 22.10.2012

The following pre-mixtures are indicated as prohibited / banned vide SRO 624(I)/96 dated 15 July 1996. This annex should be verified against the latest official notifications before operational use.

Brand Name	**Formulation**	**Common Name**
Dimilot	602 EC	Chlorpyrifos + Dimethoate
Ammo-hi	550 EC	Cypermethrin + Methamidophos
Ammo-phos	450 EC	Cypermethrin + Monocrotophos
Crop gard	50/300 EC	Cypermethrin + Mephosulfan
Pay Off	50/300 EC	Flucythrinate + Dimethoate
Pay Off Plus	25/200 EC	Flucythrinate + Mephosulfan
Mavrik-B	72+200 EC	Fluvalinate + Thiometon
Facron-B	235/200 EC	Prothoate + Dimethoate
Tombel	32 EC	Qulinalphos + Thiometon

Annex 4: Sample Posters for Public Awareness