



# Environmental and Social Safeguards

September 21<sup>st</sup>, 2021  
Makeni, Sierra Leone



## Topics

### Environmental

- General Safeguards
- Occupational Health and Safety
- Pest Management
- Waste Management

### Social

- Women and Youth Empowerment
- Labour Management Procedures
- Grievance Redress Mechanism
- Benefit Sharing

# What is Safeguard and what can it do?

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- A WB policy outlines all environmental, social and legal concerns associated with project design and implementation.
- **Do no harm**: protect people and environment from adverse impacts.
- **Do good**: enhance social equity and promote environmental sustainability.
- The Policy suggests instruments for mainstreaming environmental and social concerns into development Projects.

# Risk Management

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1. **AVOID**
2. **MINIMIZE OR**
3. **MITIGATE** adverse impacts
4. **COMPENSATE**

# Occupational Health and Safety (OHS)

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OHS is covered in **OP 4.01: Environmental Assessment**. E&S assessment takes into account “human health and safety”.

Reference to **WBG Environmental Health and Safety Guidelines** (and Good International Industry Practice).

Linked to Labour Management and Conditions

# Occupational Health and Safety (OHS)

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For **Rice**, the processing equipment includes:

- Thresher
- Parboiling unit
- De-stoner
- Combined Rice milling machine

# Occupational Health and Safety (OHS)

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Many people that die at work each year ...

Globally:

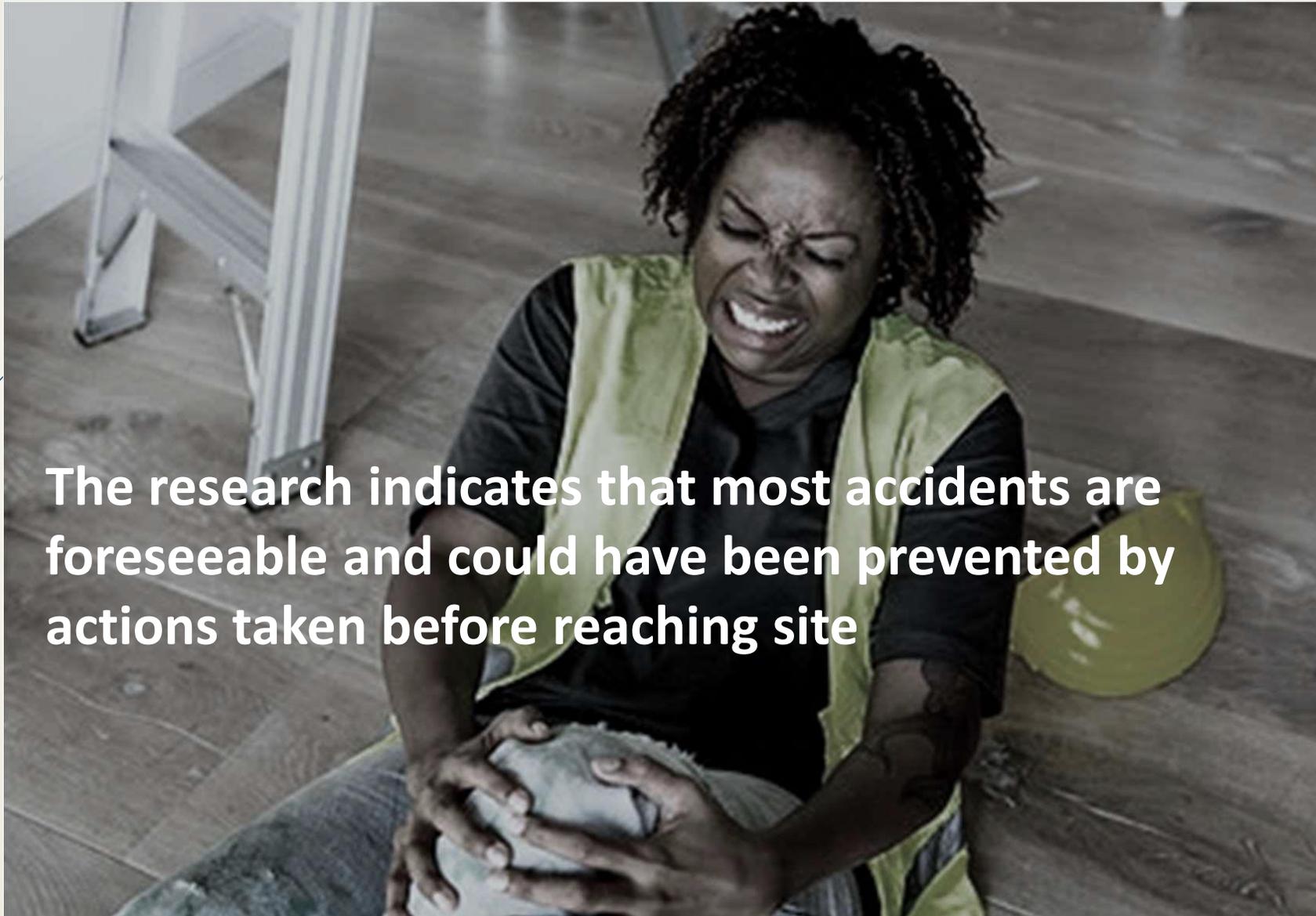
- 380,000 die from accidents
- 2.4m people die from Occupational disease



# Occupational Health and Safety (OHS)

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**The research indicates that most accidents are foreseeable and could have been prevented by actions taken before reaching site**

# Occupational Health and Safety (OHS)

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Enforcing Health and Safety at your facilities is critical to reduce accidents and injuries.

## For example:

- Clear safety signs
- Instructions on how to use machinery/equipment
- First aid kit on site for minor injuries
- Simple safety training and using PPEs
- A staff knowledgable in safety and first aid.



# Pest Management

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- ✓ Pest is an all inclusive term that includes all organisms **deemed as undesirable** (Viruses, fungi, insects, weeds, birds, rodents, etc..).
- ✓ Pesticides include **all tools** (i.e. chemical, biological, botanical) designed for the control of target pests (i.e. Insecticides, herbicides, fungicides, etc..)



# Pest Management

Crop	Pest	Disease
Rice	<ul style="list-style-type: none"> <li>i. African white stem borer (<i>Maliarpha separatella</i>)</li> <li>ii. Pink stem borer (<i>Sesamia calamistis</i>)</li> <li>iii. African striped stem borer (<i>Chilo</i> spp)</li> <li>iv. Stink bug (<i>Aspavia armigera</i>)</li> <li>v. Green stink bug (<i>Nezara viridula</i>)</li> <li>vi. Stalk-eyed fly (<i>Diopsis thoracica</i>)</li> <li>vii. Rice caseworm (<i>Nymphula depunctalis</i>)</li> <li>viii. African armyworm (<i>Spodoptera exempta</i>)</li> <li>ix. African rice gall midge (<i>Orseolia oryzivora</i>)</li> </ul>	<ul style="list-style-type: none"> <li>i. Blast (<i>Pyricularia oryzae</i>)</li> <li>ii. Brown leaf spot (<i>Helminthosporum oryzae</i>)</li> <li>iii. White tip (<i>Apphelenchoides besseyi</i>)</li> <li>iv. Seedling blight (<i>Entyloma oryzae</i>)</li> </ul>

# When do we have to deal with Pest Management?

- ▶ Procurement of pesticides or pesticide application equipment
- ▶ Introduce new pest management practices
- ▶ Any other activity that may lead to substantially **increased pesticide use** and subsequent environmental and health risks
- ▶ The WB and SCADeP promote **safe, effective and environmentally sound** pest management.

# Pest Management

- ▶ In assisting grantees to manage pests that affect agriculture, the Bank supports a strategy that promotes the use of **biological or environmental control methods** and **reduces reliance on synthetic chemical pesticides**.
- ▶ The Bank requires that any pesticides it finances be **manufactured, packaged, labeled, handled, stored, disposed of, and applied** according to standards acceptable to the Bank.<sup>3</sup>
- ▶ In **agriculture operations**, pest populations are normally controlled through **Integrated Pest Management** approaches such as **biological control, cultural practices** and the development and use of **crop varieties that are resistant or tolerant to pests**.

# Pest Management

- **Integrated Pest Management:** *a comprehensive approach to pest control that uses combined means to reduce the status of pests to tolerable levels while maintaining a quality environment.*
- *IPM is:*
  - ✓ Ecologically-based (management in the context of the production system)
  - ✓ Management vs Eradication
  - ✓ Reliance on multiple tactics vs “Silver bullet” approach (Chemical pesticides)

## **AND WHEN NEEDED,**

- ✓ **Selecting and applying pesticides, in a way that minimizes adverse effects on beneficial organisms, humans, and the environment.**

# Pest Management

**Neem Tree (*Azadiractha indica*)** as an alternative pesticide and integrated pest management option.

Neem seeds and leaves contain many compounds which are useful for general crop protection. These compounds have general classes of natural products called Limuloids which are **insecticides, pesticides, Nematicides and fungicides**. They are harmless to man and the environment, but very effective in insect pest control (NRC, 1992).

## **Benefits** of Neem:

- improves soil fertility
- control pests and diseases
- cost effective (nurse and plant) and low maintenance
- enhance the quality and production of the produce (i.e. cocoa, mango, fruits, rice etc.)
- multiple socio-economic benefits (medicinal)
- Climate Smart Agriculture (shade)

# Pest Management

- ▶ Using Neem is very beneficial for proper crop and pest management. It also helps to **nourish and condition the soil, environmental friendly, non-toxic** and **it can be used in combination with other pesticide and oil** for more effectiveness.
- ▶ Neem pesticides are generally **water soluble** and **help in the growth of the plants**. It acts as **pest repellent and pest reproduction controller**. **Anti-feedant** properties found in neem compounds helps to protect the plants. Pests generally **do not develop a resistance** to neem based pesticides. **Neem oil** and **seed extracts** are known to possess germicidal and anti-bacterial properties which are useful to protect the plants from different kinds of pests.
- ▶ One of the most important advantages of neem-based pesticides and neem insecticides is that **they do not leave any residue on the plants**. The active ingredient Azadirachtin found in neem tree, acts as an insect repellent and insect feeding inhibitor, thereby protecting the plants. Neem insecticides are used to protect both food as well as **cash crops like rice, legumes, cotton, other oils seeds**, etc.

# Pest Management

## Neem Tree and Cocoa farming



# Pest Management

## Consequences in the improper use of pesticides:

- health hazard to applicators,
- destruction of natural enemies of pests,
- development of resistant species of pests,
- pest resurgence,
- toxic chemical residues in food,
- soil and water bodies, and
- environmental pollution.

# Pest Management

Chemical fertilizers are chemicals just as pesticides. Therefore, they need to be treated and stored with care.

## Tips for safe handling and storage of Fertilizers/Pesticides:

- Keep fertilizers in a room that is **dry and locked away from children**
- Fertilizers should be **packed on stacks to prevent direct contact with moisture**. They will dissolve and **lose its effectiveness** when it comes into contact with moisture.
- If you are not ready to use fertilizers **do not buy them and store them over a long period of time**.
- Some fertilizers (such as chicken manure or chemical fertilizers) **can damage plant leaves** when there is direct contact between the fertilizer and the leaf.
- The overuse of chemical fertilizers **can harm useful microorganisms in the soil**.
- Applying them when there is no rain may cause **burning effects on the leaves** of plants.
- Using **more than the recommended dosage** is a waste of money and can be harmful to the environment and human health.

# Pest Management

## List of banned pesticides in Sierra Leone

### WHO class 1a: "Extremely Hazardous" Pesticides

- ▶ Acrolein, Aldicarb, Arsenous, Brodifacoum, Bromadiolone, Bromethalin, Calcium, Captafol, Chlorfenvinphos, Chlormephos, Chlorophacinone, Chlorthiophos, Coumaphos, Crimidine, Cycloheximide, Demephion-o, Demephion-s, Demeton-o, Demeton-s, Dibromochloropropane, Difenacoum, Difethialone, Dimefox, Diphacinone, Disulfoton, EPN, Ethoprophos, Fenamiphos, Fensulfothion, Flocoumafen, Fonofos, Fosthietan, Hexachlorobenzene, Leptophos, Mephosfolan, Mercuric, Mevinphos, Parathion, Parathion, Phenyl mercury, Phorate, Phosfolan, Phosphamidon, Prothoate, Schradan, Scilliroside, Sodium, Sulfotep, Tepp, Terbufos, Thionazin, Trichloranat.

### WHO class 1 b: "Highly Hazardous" Pesticides

- ▶ Aldoxycarb, Aldrin, Allyl Alcohol, Aminocarb, Antu, Azinphos Ethyl, Azinphos Methyl, Benfuracarb, Blasticidin-s, Bromphos Ethyl, Butocarboxim, Butoxycarboxim, Cadusafos, Calcium Arsenate, Carbofuran, Carbophenothion, Cloethocarb, Coumachlor, Coumatetralyl, Crotoxyphos, Demeton-s Methyl, Demeton-s Methylsulphon, Dichlorvos, Dicrotophos, Dieldrin, Dimetilan, Dinoseb, Dinoseb Acetate, Dinoterb, Dioxathion, Dnoc, Edifenphos, Endrin, Esp, Famphur, Fenthion, Flucythrinate, Flouroacetamide, Formetanate, Fosmethilan, Furathiocarb, Heptenophos, Isazophos, Isofenphos, Isoxathion, Lead Arsenate, Mecarbam, Mercuric Oxide, Methamidophos, Methidathion, Methomyl, Monocrotophos, Nicotine, Nitalicarb, Omethoate, Oxamyl, Oxydemeton Methyl, Paris Green, Pentachlorophenol, Phenyl mercury Nitrate, Pirimiphos Ethyl, Propaphos, Propetamphos, Sodium Arsenite, Sodium Cyanide, Strychnine, Tefluthrin, Thallium Sulfate, Thiofanox, Thiometon, Triamiphos, Triazophos, Tributyltin Oxide, Vamidothion, Warfarin, Zeta Cypermethrin, Zinc Phosphide.

# Pesticides Recommended by the Ministry of Agriculture and Forestry (MAF) for use in Sierra Leone

Active Ingredient	Substance Group	Target pests	Mode of Action	Toxicity to Mammals	Toxicity to Birds	Toxicity to Bees
<b>INSECTICIDES</b>						
Imidacloprid	Neonicotinoid	Sucking and soil	Systemic, with contact and stomach action	Moderate	High	High
Alpha-Cypermethrin (Alphamethrin)	Pyrethroid	Sucking and soil insects	Non-systemic, with contact and stomach action	Moderate	High	High
Cypermethrin	Pyrethroid	Many different insects	Non-systemic, with contact and stomach action	Moderate	High	High
Deltamethrin	Pyrethroid	Many different insects	Non-systemic, with contact and stomach action	Moderate	High	High
Chlorpyrifos	Organophosphate	Soil and foliage insects, mites and nematodes	Non-systemic, with contact and stomach action	Moderate	High	High
Diazinon	Organophosphate	Chewing and sucking insects	Non-systemic, with contact and stomach action	Moderate	High	High
<b>FUNGICIDES</b>						
Captan	Phthalimide	Many fungi	Non-systemic, with preventive and curative action	Low	Moderate	Moderate
Mancozeb	Dithiocarbamate	Many fungi	Non-systemic, with preventive and curative action	Low	Moderate	Low
Propineb	Dithiocarbamate	Mildew, leaf spots, scab, black rots, grey moulds	Non-systemic, with contact action	Low	Low	Moderate
Difenoconazole	Triazole	Many fungi	Systemic, with preventive and curative action	Moderate	Low	Moderate
Propiconazole	Triazole	Many fungi	Systemic, with preventive and curative action	Moderate	Low	Moderate
Tebuconazole	Triazole	Smuts, bunts	Systemic, with curative, preventive and eradicator action	Moderate	Moderate	Moderate
Cupric oxide (Copper II Oxide)	.....	Many fungi and bacteria	Protective, inhibits spores and prevents pathogens from entering host	Moderate	Moderate	Low
<b>HERBICIDES</b>						
Ethofumesate	Benzofuran	Grasses and broad-leaved weeds	Systemic, absorbed through roots and shoots	Low	Moderate	Moderate
Glyphosate	Phosphonoglycine	Grasses and broad	Systemic, with contact action	Low	Moderate	Moderate
Metamitron	Triazinone	Grasses and broad	Systemic, absorbed through roots	Moderate	Moderate	Moderate
<b>FUMIGANTS</b>						
Zinc Phosphide	.....	Vertebrates	Nerve toxin, with respiratory action	High	High	.....
Aluminium phosphide	.....	Vertebrates, insects	Nerve toxin, with respiratory action	.....	High	High



# Waste Management



What waste do you have?



What do you do with your waste?

# Waste Management

## REUSE – REDUCE – RECYCLE

Solid Waste	Uses
<b>Rice straw</b>	Burning (alternative fuel) Animal feed
<b>Rice husk</b>	Composting Poultry farming Burning (alternative fuel) Building material
<b>Ash</b>	Used to make cement Good thermal insulation material
<b>Bran</b>	Animal feed Solid waste