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Action	Name	Function	Date	Signature
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1. INTRODUCTION

This procedure seeks to ensure the appropriate handling, storage and disposal of waste generated at OOPC. It is aimed at waste avoidance and minimization which are achieved with the following objectives:

- identification of the types and quantities of waste that would be generated and the areas in which waste will be stored prior to removal;
- standards and performance measures for dealing with this waste;

Based on federal, state and local regulations, waste is classified into three main categories:

- non-hazardous waste: does not pose any danger to humans and environment (e.g. household garbage);
- hazardous waste: waste of this type either contains leachable toxic components or has common hazardous properties such as reactivity or ignitability;
- Special waste: wastes of this type vary in their properties and are regulated with specific guidelines (example includes medical and radioactive wastes).

The bulk of waste generated by OOPC is organic waste which is non-hazardous in nature. Others include empty agrochemical containers, spent oil, used batteries (hazardous), glass, plastic, plantation polythene bags, mixed paper, and medical waste. -.

1.1. WASTE STREAMS AT OOPC

1.1.1 SOLID WASTE

This includes household waste (domestic waste) generated from OOPC residential areas. This waste is mostly non-hazardous in nature. Others include glasses, plastics, plantation polythene bags, mixed papers, and medical waste.

1.1.2 HAZARDOUS SUBSTANCES

OOPC generates quantities of hazardous waste. Most of these wastes are generated by the plantation, workshop, estate department and quality control laboratories. Although the types of waste vary, the most common include empty agrochemical containers, spent oil, batteries containing lithium, nickel and sulphuric acid (H_2SO_4). Where there are expired agro-chemicals and laboratory chemicals, expert advice about their disposal must be from the relevant state and federal regulatory authorities, and/or companies that manufacture these items.

1.1.3 MEDICAL WASTE (SPECIAL WASTE)

These are wastes produced by the Clinic (needles, syringes and pathological waste). The clinic disposes these wastes by burning them inside the boiler at the oil mill.

1.1.4 NON-SOLID WASTE

These include liquid and gaseous wastes that are produced from Oil mill, Rubber factory processes and septic tank waste.

2. SCOPE

This waste management plan describes how OOPC manages all its wastes and ensure compliance to necessary requirements of ISO, RSPO, Socfin's Responsible Management Policy, GPSNR and FSC

3. ABBREVIATIONS

MD	Managing Director
HSEM	Health, Safety & Environment Manager
OOPC	Okomu Oil Palm Company
COD	Chemical Oxygen Demand
BOD	Biochemical Oxygen Demand
PM	Particulate Matter
POME	Palm Oil Mill Effluent
NESREA	National Environmental Standards &Regulations Enforcement Agency
RSPO	Roundtable on Sustainable Palm Oil
ISO	International Organization for Standardization
FSC	Forest Stewardship Council
GPSNR	Global Platform for Sustainable Natural Rubber

4. DEFINITIONS

ph : measure of how acidic/basic a liquid is. The range varies between 0 - 14, with 7 being neutral. A pH of less than 7 indicates acidic whilst a pH of greater than 7 indicates a basic environment.

5. LEGAL REQUIREMENTS

The National legislation applicable to this procedure includes:

- The National Policy On Environment,1999
- National Guidelines and Standards for Environmental pollution Control in Nigeria, 1991
- National Effluent Limitations Regulations S.I.8, 1991
- National Environmental Standards and Regulations Enforcement Agency (NESREA 2007)
- Waste Management and Hazardous Waste Regulations S.I.15,1991
- National Policy on Plastic Waste Management, 2020
- National Policy on Solid Waste Management, 2020

- National Environmental (Plastic Waste Control) Regulations, 2023

6. RESPONSIBILITIES

- Estate Department is responsible for moving solid waste from disposal points to the dumpsites.
- HSEM shall monitor compliance with this procedure and continuously assess methods of effective waste/pollution management.

7. PROCEDURE

7.1. Basic Principles Of Waste & Pollution Management

In order to achieve its waste avoidance and minimization objectives, OOPC encourages its employees to follow the hierarchy below of waste management principles in all aspects of their operations:

- Refuse
- Reduce
- Reuse
- Recycle/ Reprocess
- Recover
- Rot (Decay)

Thoughtful use of all materials and using the basic principle of waste and pollution management is good for the environment and good for business. If an item can be used more than once, it will be used as such and if a used item can be put to another use, it will be recycled. OOPC developed a system to record waste types and quantities for all waste streams. This will help demonstrate a step towards better waste management, as it will allow the establishment of standard/normal waste levels. Records of waste quantities will allow OOPC to assess the performance of its operations to avoid and minimize waste. The avoidance of printing of unnecessary documents/emails and reusing the reverse side of paper are prime examples of our commitment to avoiding and minimizing waste.

7.2. Waste & Pollution Prevention And Control

Good waste and pollution prevention and control practices in the industry focus on the following main areas:

- Reduction of product losses through strong and active production controls, including continuous sampling and measuring of key production parameters allowing production losses to be identified and reduced, thus reducing the waste load.
- Maintain a clean workplace, recover product, and control air emissions.
- By-products recycling and sale (see below).
- Re-use of materials (e.g. empty fertilizer bags).

7.3. Waste Disposal & Duty of Care

OOPC has a responsibility to take all reasonable measures to:

- Ensure that all waste is stored and disposed of responsibly.
- Ensure that waste is only handled or dealt with by authorized individuals or departments.
- Ensure that the use of fire to dispose waste is avoided.

OOPC will implement technically and cost-effective measures for improving efficiency in its consumption of energy, water, as well as other resources and material inputs, with a focus on areas that are considered core business activities.

7.4. Waste Generation & Disposal

7.4.1 SOLID WASTE

The main solid wastes generated and the methods of disposal are as follows:

- Used oil filters (excess oil drained off before disposal). Collected by a government approved collector/organization.
- Empty fruit bunches (EFB) - Shredded or whole: used as boiler fuel (for Main Estate Oil Mill only) and returned to the plantation and used as a mulch.
- Fibre: Used as boiler fuel and in the field.
- Shell: Used as boiler fuel.
- Clinker/Boiler ash: Used in the field.
- Calyx/Leaf from FFB conveyor: Used in the field
- Waste from de-sanding cyclone : Used in the field
- Scrap metal: Stored at designated locations and sold to dealers for recycling. The sale will be handled by internal audit Unit.
- Empty fertilizer bags/Cellophane: Triple rinsed and then reused for harvesting operations.
- Empty agrochemical containers are rinsed, hole punched and sent to the allocated area at the dumpsite awaiting final evacuation by the suppliers/manufacturers to be disposed according to manufacturers' instructions. Bigger agrochemical containers are used as temporary receptacles during spraying activities.
- Used tyres: Stored at designated locations and sold to dealers for recycling.
- Expired batteries. Stored at designated locations and sold to dealers for recycling.
- Photocopier Toner and Printer ink cartridges: Collected in the Waste bin in the department and evacuated to dumpsite by estate department just as it is done

for other waste streams and sold to dealers for recycling.

- Redundant Electronics and other e-wastes: Stored at designated locations and sold for reuse.
- Used spill kits: Collected by government approved collector/organization
- Solid waste: Collected on a routine basis and disposed of at designated dumping sites. A bulldozer or pay loader will be used from time to time at dumping sites to push waste inwards for more space at the discharge point.
- Electric bulbs/fluorescent tubes: Collected from offices and housing units by the Estate department, place in designated bins and taken to the designated locations (dumpsite) and sold to approved collectors.
- Saw dusts: reused as spill kit and collected by approved waste collector.
- Biohazards and medical sharps from Clinic: disposed of in the boiler.
- Waste papers: stored in the dumpsite.
- Glass and bottles: Stored at designated locations at dumpsite and sold to approved dealers for recycling.
- Old Knapsack sprayers: Unserviceable Old knapsack sprayers or parts are kept in a temporary designated place at the chemical stores to be used as sources of spares till they become obsolete. At Main Estate, the obsolete knapsack sprayers are disposed at the dumpsite (under a shed) for collection by government licensed collectors. At Extension 2, pick up by government licensed collectors will be from the designated place at the store. Obsolete knapsacks must be inventoried on OOPC/Form 2.6

The location of designated dumping sites was carefully chosen to ensure that it is not near a residential area and not near any water courses or bodies of water. Designated dumping sites are clearly demarcated and access restricted for designated staff only. At Extension 2, a government licensed waste manager is contracted to collect wastes from waste bins and taken to the government approved dumpsite. Waste management principles will be encouraged in surrounding communities, when and where possible & applicable.

7.4.2 LIQUID WASTE

The main liquid waste generated is the palm oil mill effluent (POME) generated by the processing of fresh fruit bunches. Liquid process wastes are passed through sludge tanks and fat traps to recover oil before being discharged into an effluent lagoon for final biological degradation of the remaining waste load.

The drainage inside the mill which is channelled to the Fat pit, is designed to recover oil spill within the factory, and then recycled through the production process.

POME will be analyzed on a quarterly basis for the following parameters, for which the NESREA (see legal requirements) limits are indicated:

- pH (range at final discharge 6.0 -9.0)
- BOD (maximum at final discharge 30 mg/l)
- COD (maximum at final discharge 80 mg/l)
- Suspended solids (maximum at final discharge 30 mg/l)
- Oil & grease (maximum at final discharge 10 mg/l)

Monitoring data will be analyzed and reviewed at regular intervals and compared with the operating standards so that any necessary corrective actions can be taken. Records of monitoring results are kept in file. The results will be reported to the responsible authorities and relevant parties, as required.

Used oil from vehicles and maintenance activities is stored in tanks and drums in a specified area to be sold to dealers for appropriate recycling and disposal.

We do not dispose expired chemical because we do not allow chemicals to expire before usage. We apply “First in First out” (FIFO) in the usage of chemical. Also, chemicals are purchases when needed.

Sewage are contained in septic tank. Sewage will be monitored to ascertain the amount generated for making decision on the method of control to adopt.

7.4.3 GASEOUS WASTE

The main sources of air emissions are from the flue gases boilers, machineries, vehicles, heavy duty machines, Generator sets, dumpsite (for Main Estate),nursery, earth road, unpaved ground, and effluent. These contain amounts of carbon monoxide, carbon dioxide and nitrogen oxides, Volatile Organic Compounds (VOCs), methane, sulphur dioxide, other oxides of nitrogen and other oxides of sulphur. Of the emission, the green house gases are carbon monoxide, carbon dioxide and methane.

There is also particulate matter. Boilers are built with equipment used to remove as much unburned particulate matter as possible.

Emissions guidelines

Emissions levels for the design and operation of each project will be established through the environmental assessment (EA) process on the basis of national legislation. The guidelines below present emissions levels acceptable to the World Bank. Concentrations of contaminants emitted from the stacks of large boilers, furnaces, incinerators, and electrical generating equipment should not exceed the following limits (milligrams per normal cubic meter) as per National Environmental (Air Quality Control) Regulations, 2014. This will be monitored quarterly.

Pollutants	Ambient Limits	Limit from stationary sources (for 24 hrs)
Particulates	250 mg/m^3 (Daily average of daily values 1 hour)	0.15-0.5 mg/m^3
Sulphur dioxides (SO_2)	250 mg/m^3 (Daily average of daily values 1 hour)	0.15-0.5 mg/m^3
Carbon monoxide	10 ppm (11.4 mg/m^3)- 20 ppm (22.8mg/m^3) (Daily average of hourly values 8-hours)	1.0 – 5.0 mg/m^3
Nitrogen dioxides (NO_2)	0.04 ppm - 0.06 ppm (75.0–113 mg/m^3) Daily average of 1-hourly values (range)	0.004 – 0.1 mg/m^3

7.4.4 LITTER

In order to reduce litter being dropped in public and working areas, litter bins are put in place. The litter bins will be emptied and litter disposed on a scheduled basis (see days of waste collection in OOPC pamphlet). Weight of the litter will be taken to estimate the total amount going to the dumpsite and calculated annually for total waste disposed at the dump site. The weight estimation shall be conducted at the weighbridge and the documented weight shall be kept for record keeping at HSE department.

7.4.5 DUST

Dust from roads may present an environmental hazard, particularly to those working or living near busy roads. Mitigation measures include:

- Enforcing speed limits (20 kph in residential areas and industrial).
- Diverting traffic to avoid residential and industrial areas.
- Sealing roads in residential and industrial areas.
- Watering of main roads during the dry season.

7.4.6 ODOR

Odor from operations can usually be prevented through good housekeeping. When planning the location of residential sites, odor from operations should be considered. Thus, the dumpsites are located at least 500m from existing residential areas. The rubber factory effluent pond is about 500m from the rubber estate, Main Estate Oil mill's effluent lagoon is approximately 1000m from the nearest residential quarters and Extension Oil Mill effluent lagoon is about 2500m from the nearest estate.

7.4.7 NOISE

Noise from operations may present an environmental hazard, particularly for those working/living near noise generating machinery and equipment. Mitigation measures include:

- Installing noise reducing equipment such as silencers and mufflers.
- Maintaining machinery and equipment to minimize noise levels.
- Putting noisy machinery and equipment inside a purpose-built building that reduces the effects of the noise.
- Redesigning noisy machinery and equipment to reduce noise.
- Ear plugs/muffs.

7.5. Waste Tracking System

OOPC currently tracks wastes that are of dire consequences to the environment and safety of its personnel. To this end, chemical containers used at plantation are tracked from the time it leaves the store to the dumpsite. ALL containers that leave the store should be returned to the store handler after use who must immediately record the total number given out and received (See OOPC/Form 2.1). All used chemical containers must be triple rinsed and the containers returned to the store handler. Finally, the chemical containers are taken to the dumpsite, after perforating, awaiting collection by the suppliers. The water from the washed containers is poured into the knapsack for spraying. The store handler must then record the amount of containers sent to the dumpsite which must correspond to the amount entered by the dumpsite attendant after receipt by him at the dumpsite.

Effluent volume is monitored daily with the aid of a flow meter installed at the discharge point at the Oil mill and rubber factory for monitoring the amount of effluent released to the lagoon or pond. A monthly data sheet is generated (See Records).

Scheduled waste such as Used Oil Filters, Used Oil, Biohazardous materials, used batteries, tyres, toners, cartridges etc must be inventoried departmentally on a monthly basis on OOPC/Form 2.6 and record sent to HSE Manager for collation.

8. RECORDS

- Quarterly Environmental Compliance Monitoring Report
- OOPC/Form 2.1
- OOPC/Form 2.5
- OOPC/Form 2.6
- Weighbridge Ticket
- Environmental Policy

9. REFERENCE

- RSPO Criteria 7.2, 7.3 and 7.8
- FSC Criteria 6.7
- IFC (2012) Performance Standard 3: Resource Efficiency and Pollution Prevention
- ISO 14001:2015 Clause 5.2

10. REVISION STATUS

Rev.	Date	Details
0	09/02/16	Initial Release
1	06/04/17	Addition in Section 8 – Records Change ISO "14001:2004 Clause 4.2" to ISO 14001:2015 Clause 5.2
2	10/05/18	Addition of sentences in §7.4.1, §7.4.4 and §7.5
3	13/07/19	Addition in 7.4.1 Waste generation and disposal. "final biological degradation of the remaining waste load" replaced "treatment and ultimate reuse in plantation" in §7.4.2 Addition in 7.4.3 Gaseous Waste Addition in Appendix I and III
4	17/06/20	Addition in §1.1.4 Added RSPO & ISO in §3- Abbreviation Changed project to procedure in §5- Legal Requirement Addition in §7.1 Changed shall to should in §7.4.6 Addition in §7.4.7 & §7.5 Added Environmental Policy in §8- Records Changed RSPO Criteria 4.6 and 5.3 to RSPO 2018 P&C 7.2, 7.3 and 7.8 in §9- Reference
5	22/03/21	Added Paragraph in §7.3 Edited 10th & 17th point in §7.4.1 Added Extension 2 operation in in §7.4.1 Edited first paragraph for semantics in §7.4.3 Added muffs to §7.4.7 Replaced 'Appendix III' with OOPC/Form 2.1 in §7.5 Added empty vials to 7. Medical waste in Appendix I Edited Quarterly Report to include Env. Comp. Monitoring in Records
6	08/07/22	Added Sentence in Section 2 Added FSC in Section 3- Abbreviation Removed RSPO in Section 4- Definitions Updated legal references in Section 5 Added phrases and bullet point in §7.4.1 and §7.4.3 Rephrased sentence in §7.5 Removed 'Appendix III'

7	22/03/23	Addition in 7.4.2 The drainage inside the Mill… production process
8	30/05/25	Addition of Point 8 to §5. Revision of §7.1. Added to Point 13 of §7.4.1. Added last paragraph to §7.4.2. Considered Extension 2 on §7.4.6. Added to Annex. Removed “Rubber sludge” § Appendix I point 4.

APPENDIX I: WASTE MANAGEMENT PLANS AT OKOMU OIL PALM COMPANY

S/No.	TYPE OF WASTE	STORAGE SYSTEM	VOLUME GENERATED	TRANSPORTATION / REMOVAL RATE	FINAL DISPOSAL	REMARKS
1.	**Household Organic waste:** • Left- over Food • Organic residue (garden waste)	• Waste bins	• Waste inventory necessary for quantity generated	• Tractor / Daily	• Solid waste dumpsite • Plantation field	
	Household Inorganic Waste: • Plastic Polythene bags e.g. pure water sachets • Glass wares • Empty cans • Paper trash	• Waste bins (Sorting necessary)	• Waste inventory necessary for quantity generated	• Tractor / Twice weekly	• Solid waste dumpsite	
2.	**Plantation Organic waste:** • Palm and rubber leaves, shrubs, weeds	• None	N/A	• Ad hoc	• Plantation field	
	Plantation Inorganic waste: • Polythene bags • Damaged latex cups	• Kept in the store.	• Waste inventory necessary for quantity	• Tractor / As required	• Dump site (To be reused or sold)	
	Plantation Hazardous waste: • Empty agrochemical containers. • Old Knapsacks • Fertilizer bags	• Collected and kept in the store	• Waste inventory necessary for quantity generated	• As required	• Taken to dumpsite and taken away by the supplier • Fertilizer bags are washed and reused for loose fruit	

					picking.	
3.	**Palm Oil Mill (POM) waste:** • Palm Oil Mill Effluent • Sludge • Empty Fruit Bunches (EFB) • Fibres • Kernel shell • Boiler ash • Damaged/Faulty banga plastic containers • Waste from de-sanding cyclone	• Palm Oil Mill premises • The damaged/faulty plastic containers are kept in the store	• Waste inventory necessary for quantity generated	• Pipe lines for the POME / simultaneously with production • Tractor for EFB, fibres, boiler ash, kernel shell and sludge / As required	• Effluent Lagoon for the POME • EFB as mulch in the field • Fibres and Kernel shell used to fire the boiler. • Damaged banga container returned to supplier. • Boiler Ash used in field maintenance. • Waste from de-sanding cyclone is taken to the field.	
4.	**Rubber Factory waste:** • Rubber Effluent • Low quality crump rubber • Polythene bags • Damaged pellets	• No storage • Decantation pit • Different bins for different rubber waste • Damaged pellets and polythene bags are stored in the factory	• Waste inventory necessary for quantity generated	• Pipe line for the rubber effluent simultaneously with production • None for low quality rubber and damaged pellets	• Effluent pond • Low quality rubber is recycled	

5.	**Laboratory waste (Hazardous):** • Used chemicals • Empty chemical containers • Glassware	• Used chemicals are channeled to a specially designed soak away pit • Empty chemical containers and expired ones are well secured waiting for evacuation	• Waste inventory necessary for quantity generated	• Tractor / As required	• Dumpsite and taken away by the supplier • Glassware taken to the solid dumpsite	
6.	**Workshop Hazardous waste:** • Spent oil • Used oil filters • Empty paint containers • Condemn batteries	• Spent oil is kept in drums inside the workshop (special mgt system in place)	• Waste inventory necessary for quantity generated	• Tractors taking the drums from different locations / As required	• Used oil filters and spent oil are sold • Empty paint cans are collected by supplier and reused	
	Non-hazardous waste: • Scrap metals • Metal chips • Tyres • Paper	• Scrap yard for scrap metals including tyres, batteries	• Waste inventory necessary for quantity generated	• Tractor	• Scraps are sold • Tyres are sold • Paper to the dumpsite	
7.	**Medical waste:** • Needles and syringes • Pathological waste • Empty vials	• Pedal waste bin	• Waste inventory necessary for quantity generated	• Clinic van	• Boiler	• Medical wastes are classified as special waste that requires special treatment

8.	**Office waste:** • Paper • Computer hardware and accessories • Plastic bottles • Polythene bags and wrappers • Cartridges and toners	• Different waste bins. (Sorting is necessary)	• Waste inventory necessary for quantity generated	• Tractor/ Everyday • For cartridges and toner, collection is monthly	• Solid dumpsite	• Computer hardware and accessories are hazardous wastes
9.	**Estate Waste:** • Bulbs, lamps and fluorescent tube • Construction wastes and trash(empty paint cans) • Saw dust • Metal and plastic scraps (machines, dryers, air conditions, fridge etc.) • Insulation materials	• Waste bin • Spill kit bins • Scrap yard	• Waste inventory necessary for quantity generated	• Tractor / Twice weekly • Collected by various departments for reuse • Tractor / Twice weekly	• Solid dumpsite • Collected by various departments for reuse • Dumpsite and scrap yard	• Bulbs and fluorescent tube are hazardous waste • Saw dusts are reusable material. • AC/Fridges sold to staff and others for reuse.

10.	**Systems Waste/E-wastes:** • Screens & monitors. • GPS, cameras, Radios, routers, CPU, IP Phones etc. • Large printing and copying machines & photovoltaic panels.	• Scrap yard	• Waste inventory necessary for quantity generated	• Systems vehicle/ Collected from various department ad hocly	• Scrap yard	• Sold to authorized-waste recyclers

APPENDIX II

WASTE TREATMENT FACILITIES

1. Solid waste dumpsite
2. Effluent treatment lagoon and pond
3. Scrap yard
4. Boiler
5. Plantation field

MEANS OF WASTE STORAGE AND COLLECTION

1. Waste bins
2. Collection points
3. Tractor
4. Pipe lines
5. Clinic Van

ENERGY REQUIREMENTS

1. AGO
2. Electricity

OCCUPATIONAL HEALTH REQUIREMENTS (PPE)

1. Waste collectors and Waste managers