Ministry of Environment, Climate Change and Technology

E-WASTE MANAGEMENT GUIDELINE

Digital Maldives for Adaptation, Decentralization and Diversification (P177040)

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Ministry of Environment, Climate Change and Technology
Government of Maldives

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2   List of Abbreviations

BESS Battery Energy Storage Systems
CAM Communications Authority of Maldives
C&D Construction and Demolition Waste
CR Civil Registration
CO2 Carbon Dioxide
EIA Environmental Impact Assessment
EPA Environment Protection Agency
EPPA Environmental Protection and Preservation Act
EPR Extended Producer Responsibility
GDS Government Digital Service
IBM Interactive Beneficiary Mechanism
IWMC Island Waste Management Centers
ID Identification
IXP Internet Exchange Point
MoECCT Ministry of Environment, Climate Change and Technology
MSW Muncipal Solid Waste
NCIT National Center for Information Technology
RWMF Regional Waste Management Facilities
RWMT Regional Waste Management and Treatment
SOPs Standard Operations Procedures
WEEE Waste electronic, and electrical equipment
WtE Waste to Energy

1 Introduction to the Project

1.1 Project Introduction

The proposed Project aims to support Maldives' intentions to use digital technologies to decentralize, diversify and to adapt to climate change. It is designed around two components and the proposed activities are conceived following the country's priorities and funding needs in the medium term: (a) to develop the enabling environment for a digital economy; (b) to use digital technologies and shared data platforms to enhance and accelerate adaptation, economic diversification, and decentralization strategies and measures.

The list of Project Component is specified in the Table below.

Activity Component	Title	Amount ($1,000)
Component 1	**Enabling Environment for Digital Connectivity, Data, and Services**	**2,500**
Subcomponent 1.1. Strengthening the legal and regulatory framework for the digital economy	• Regulatory tools, technical assistance and capacity building for the regulation of digital infrastructure market • TA & capacity building to support the establishment & operationalization of a comprehensive legal and regulatory framework for improved data governance and trust (e.g., data protection, privacy, electronic transactions, digital identification) • TA to address digital gender divide and gender-based violence, including design of a framework for the collection of data, support to design and adopt approaches to include gender-specific measures and policies in sector-related strategies.	**1,000**
Subcomponent 1.2. Establishing and empowering public institutions: CAM and NCIT	• Support in the restructuring of NCIT as an independent statutory body – Government Digital Services • Support in the creation of an Internet Exchange Point and local area network • Regulatory Assessment and Strengthening and support to CAM	**1,500**
Component 2	**Digital Solutions and Data for Service Delivery and Green, Resilient Development**	**7,000**
Subcomponent 2.1. Digital identification for improved online and in-person service delivery	• Modernization of DNR's identity management system and introduction of a new, digitally enabled ID credential to strengthen identity verification and safeguard privacy for in-person service delivery • Operationalization of a new digital ID platform to enable secure, consent-driven authentication for remote, online	**4,000**

Activity Component	Title	Amount ($1,000)
	transactions and services across the public and private sectors	
Subcomponent 2.2. Shared data platform for climate resilience and agile climate action	• Establishing a shared data platform for climate change with data, analytics and services, incl. equipment/licenses for data storage, data collection/processing/analytics as well as platform design • TA for market assessment, data assessment and functional requirements for the portal and TA for sandboxing capabilities.	**3,000**
Component 3	**Project Management and Implementation Unit**	**0,500**
	Total	**10,000**

(a) COMPONENT 1 - Enabling Environment for Digital Connectivity, Data, and Services

To foster the Maldives' digital transformation, solid legal and regulatory foundations are needed to create trust in digital services and transactions and to promote affordable, quality Internet access. This component will support the government in building robust legal and regulatory frameworks and institutions for the digital age that can foster trust in digital transactions and services and foster a more competitive telecommunications market that is conducive to the delivery of fast, reliable, and affordable Internet services.

(i) Subcomponent 1.1. Strengthening the legal and regulatory framework for digital transformation

This sub-component will help strengthen the legal and regulatory frameworks and institutional capacity in such areas as data protection, cybersecurity and cybercrime, electronic transactions, identification (ID) and civil registration (CR). Activities to be financed include:

- Technical assistance to support drafting of applicable legislation, regulations, roadmaps, standards, strategies, and similar instruments and tools to put in place robust frameworks for the secure processing of data in the digital sphere[1]. Special attention will be paid to the adoption of good practice frameworks, oversight, and enforcement mechanisms to adequately protect sensitive personal data, such as biometric data.

- Strengthening of (cyber) incident response and management capabilities within NICT, including the development of standard operations procedures (SOPs), staff training, and other interventions necessary to contribute to the ISO 27001 certification for NCIT software development and operations

- Trainings, technical advisory, and other interventions to support core public and private

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[1] Considering that the legislative drafting and adoption process is at different stages and may move at a different pace for data protection, cybersecurity and cybercrime, electronic transactions, and identification and civil registration, the activities financed under the project will be adapted to meet the specific needs in each area.

sector information systems to become compliant with new legislation.

- Training for public and private sector officials on good practices related to privacy, data protection, and cybersecurity

Activities will be implemented with special attention to the gendered aspects of digital transformation, **including with respect to gendered differences in accessing and using digital services and in exposure to risks.** Despite the higher-level political commitment to gender parity in the constitution, most sectoral strategies in Maldives lack gender-specific action plans. Very few measures, if any, are facilitating digital uptake and digital economic opportunities among women. To address these gaps, activities financed under this sub-component will be designed in such a way to ensure that gender-specific challenges and approaches are reflected in relevant policy-, legal-, regulatory- and institutional arrangements, with the objective of eliminating the gender digital divide and granting women full access as well as relevant protections to realize digital dividends.

(ii) Subcomponent 1.2. Establishing and empowering public institutions: CAM and NCIT

Through subcomponent 1.2, the project will help strengthen public institutions and build digital, regulatory, and enforcement capacity through:

- **Supporting in the establishment of the Government Digital Service (GDS)**. The National Centre for Information Technology (NCIT) will be restructured as an independent statutory body. GDS will act as the lead agency entrusted with the government digital transformation and purchase of equipment for the local network.

- **Supporting the establishment of an Internet Exchange Point (IXP)** where all the local service providers can exchange traffic which can stay domestic. The Government will connect to the IXP to provide better connectivity for citizens to the Government services.

- **Strengthening regulation and enforcement of government policy for more affordable, quality Internet services by empowering CAM.** To support more affordable Internet access, the subcomponent will provide support for strengthening the governance of the wholesale and retail market segments to ensure open access and fair competition (e.g., review of current market structure and dynamics, infrastructure sharing, assignment of spectrum, open access to the domestic submarine cables, and improvements of Quality of Service). This would include: (i) open access on the domestic submarine cables to ensure other providers can get access at fair and reasonable terms and prices to deliver their services to the islands beyond Male, (ii) spectrum policy, especially fair access to microwave spectrum for inter-island links, and (iii) options to regulate fair and reasonable terms for access to the International submarine cables.

(b) COMPONENT 2 – Digital Solutions and Data for Service Delivery and Climate Change Adaptation

This component will support the modernization and scale-up of existing digital assets to improve service delivery and the use of new digital solutions to leverage data more effectively for climate change adaptation and beyond.

(i) Subcomponent 2.1. Digital identification for improved online and in-person service delivery
Subcomponent 2.1 will help enhance trust and efficiency in both in-person and online transactions and

service delivery through a two-pronged approach, which includes (a) the modernization of existing identity management software and hardware and the introduction of a new digitally enabled ID credential, issued by the Department of National Registration, and (b) operationalization of a digital ID system to enable secure data sharing and authentication in remote, online contexts.

The new digital ID platform will facilitate remote service delivery by enabling people to securely prove who they are with a high level of assurance from anywhere, any time. The system will draw on multiple authoritative sources of data, including the existing civil registration and ID system and registries of permanent residents and permit holders, and provide an authentication and consent layer on top of these systems. This authentication layer will allow authorized service providers in both the public and private sectors to securely verify the identities of their beneficiaries and customers. The platform will also offer a user-friendly digital identification app, which will include a virtual version of a person's ID card – with the capability to store additional trusted credentials, such as the driver's license - and through which people will be able to consent to data sharing and authentication requests by service providers in real-time. These features will help enhance digital government-to-citizen communication and people's oversight over their data.

The digital identification platform will be complemented by a strengthened foundational ID system and credentials to meet the growing demand for secure authentication for in-person and offline transactions. This will be achieved through an upgrade of DNR's existing identity management system and improvements to current registration processes, including the deployment of new software and hardware for data capture and processing, the introduction of fully digitized, ICAO/ISO-compliant photo and fingerprint capture, and the issuance of new physical ID credentials, which will support secure electronic identity verification and authentication in offline contexts.

Specific activities to be financed under this sub-component include:

- Technical advisory the design and implementation of the upgrades to the foundational ID system and the digital ID system, including:
  - Guidance on the design and specifications of the new digitally enabled ID cards
  - Guidance on facilitating secure biometric authentication and de-duplication leveraging multiple data sources
  - Guidance on international standards and good practices for secure biographic and biometric data capture
  - Guidance on developing a business continuity and disaster recovery plan to minimize data and functionality loss due to climatic shocks and other major adverse events
- Modernization of civil registration and identity management, including the necessary hardware, software, system integration- and consultancy services to enable more efficient and secure registration, data sharing, and authentication
- Issuance of new digitally enabled ID credentials, including the necessary hardware and software to enable customization, printing, and delivery
- Establishment of a digital ID platform, including the necessary software and system integration services to develop an authentication layer, an API gateway, and a mobile application to enable secure authentication for online transactions and services
- Communications related to enhancements of the foundational and digital ID systems to promote awareness about the systems' new features and to build trust between the government (as identity provider) and the people (the users/primary beneficiaries of the

system).

The foundational ID system and the new digital identification platform will support more efficient service delivery across a wide range of sectors, including health, social protection, and financial services. In the health sector, the new identity credentials and stronger authentication and consent mechanisms will support improved patient management. This includes preventing impersonation for health insurance purposes or medical check-ups for obtaining work permits, making relevant health and insurance information available at patients' fingertips, while also enabling people to minimize and control how health-related data is shared. In the financial sector, the proposed ID system modernization will allow for people to open accounts and complete financial transactions remotely (enabling electronic Know-Your-Customer - or eKYC - processes) and thus contribute to greater financial inclusion. By enabling people and businesses to transact and access more services online, the digital identification platform is also expected to reduce the need for in-person visits and thus generate saving in terms of time, transportation, office maintenance costs, and related emissions.
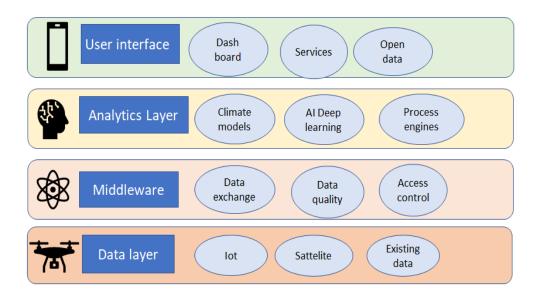
The updates to the ID system will follow a people-centric and privacy-conscious approach, in alignment with the Principles on Identification for Sustainable Development[2]. Features to promote 'privacy-by-design' will include an identity number tokenization system to minimize the sharing and storage of the 'root' ID number across sectors, thus reducing opportunities for misuse and fraud. In addition, the system(s) will be designed and built using international standards and leverage multi-vendor and open-source solutions, to the extent possible, to strengthen operational and financial sustainability and reduce the risk of vendor- and technology lock-in. The hardware procured it also to be energy efficient in its operation, validated through compliance with globally recognized standards.

(ii) Subcomponent 2.2. Shared data platform for climate resilience and agile climate action

Subcomponent 2.2 will support the establishment a shared data platform to enhance data-driven policymaking and more responsive service delivery through the improved availability of data and analytics for climate-relevant and environmental indicators and trends. The data platform will directly contribute to the implementation of adaptation and mitigation measures in the NDC and enable government and businesses to adapt operations and service delivery more rapidly and effectively to changing conditions. Activities will focus on establishing the necessary data infrastructure for a data repository and gathering and migrating existing data within the MoECCT to the platform, to be complemented with data collected by different public and private sector entities and with data collected through novel approaches to be piloted by MoECCT. The platform will include an analytics layer, including a GIS system, and a user interface layer in the form of a portal and a dashboard for distributing services, analytics, and data (see Figure below). Core indicators to be collected and analyzed will include meteorological and other biodata related to climate adaptation and mitigation.

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[2] https://www.idprinciples.org/.

Scoping the shared data platform for Climate Change

The data platform will be complemented by a 'proof of concept' for using cutting-edge digital technologies to collect and analyze data related to one of the 10 priority areas for adaptation in the Maldives' NDC. The NDC covers 10 priority areas for adaptation - such as coastal protection, safeguarding reefs and biodiversity, infrastructure resilience, food security, tourism, and fisheries - and improved data and analytics can benefit almost all areas in terms of the speed, quality, and efficiency of their implementation. Emerging technologies such as aerial drones, under water drones, robotics, satellite imagery and analytics offer opportunities for cost effective collection of data across extended areas that with AI and advanced analytics can produce actionable knowledge for government and the private sector. MoECCT noted that monitoring the health of the coral ecosystems is a particular area of interest for the proof of concepts since the coral reefs are a critical asset for tourism and fisheries. Improved data and analytics on the state of the corals are important for decisions on preservation and to support sustainable economic activities.

The platform will be designed with scaling and interoperability at the forefront. The platform will be part of the larger government digital infrastructure and will be set up to work seamlessly with other government systems and software, including the planned cloud infrastructure, the API gateway and the technology stack.

Specific activities to be financed under this sub-component include:

- Technical assistance / studies for the design of the shared data platform:
  - An assessment of existing data within the MoECCT that covers data availability, data quality, data formats.
  - An assessment of data needs in the short and medium term in support of the NDC project pipeline, SOE report and if relevant other priority projects.
  - A market assessment of data, analytics and platform technology solutions for a hybrid model architecture.
- Procurement of relevant software and hardware for the operationalization of the data platform, including to support secure data sharing, data analytics, data visualization, and data

dissemination/ re-use via an interactive user interface

- Implementation of a proof of concept using cutting-edge digital technologies for data collection with focus on a priority NDC area, such as coral reef ecosystems

(c) COMPONENT 3. Project Management and Implementation Support ($0.5 million)
The Project will support the creation of a dedicated Project Management Unit (PMU) in MoECCT. The MoECCT has already established a Special Project Management Unit to expedite the implementation of the Digital Development Action Plan in line with the National Resilience and Recovery Plan. The PMU will be responsible for overall project management and coordination, procurement, financial management, citizen engagement and Interactive Beneficiary Mechanism (IBM), environmental and social safeguards, monitoring and evaluation, and communication. This component would also provide support to finance project management related issues including project coordination, financial management, and citizen engagement, and will provide support through office equipment, incremental operating costs, and audits. The project will emphasize gender equity in recruitment and retention by ensuring inclusion of women in all decision-making bodies under the project.

1.2   What is E-Waste

E-waste is a term used to cover items of all types of waste electrical and electronic equipment (WEEE) and its parts that have been discarded by the owner as waste without the intention of re-use. Although e-waste is a general term, it is considered to cover   any item with circuitry or electrical components with power or battery supply. E-waste contains toxic heavy metals and flame retardants such as mercury, lead, cadmium, polybrominated flame retardants and lithium and barium, that, if mishandled, can be hazardous to human health and the environment, but, most importantly, also materials that are valuable and scarce. E-waste volumes are growing exponentially because products are designed for linearity, and not circularity. The product either becomes obsolete due to planned obsolence or design features at the upstream stage, or because product life is not extended by repairing, or reuse. Moreover, in the absence of proper collection and recycling policies and infrastructure-waste ends up in the environment. . The proper treatment of e-waste avoids negative impacts and yields many benefits If not properly treated, e-waste can have negative impacts, both on human health and on the environment. When improperly disposed, e-waste can leach harmful into the soil and groundwater, that have deleterious effects on biodiversity, and it can also harm human health from direct contact or inhalation, such as neurological and endocronoligcal disorders ,congenital mutations and respiratory impacts.

 However, sustainable treatment of e-waste avoids these negative impacts. The appropriate handling of e-waste can both prevent serious health and environmental damage and also recover valuable materials, especially for common metals, rare earth and precious metals. The recycling chain for e-waste is classified into three main subsequent steps: i) collection, ii) sorting/dismantling and pre-processing (including sorting, dismantling and mechanical treatment), and iii) end processing. All three steps should operate and interact in a holistic manner to achieve the overall recycling objectives. In addition, in order for this to be implemented successfully there needs to be actors and entities that are active in all three areas and steps. The main objectives of sustainable e-waste recycling are: i) Treat the hazardous fractions in an environmentally sound manner, ii) Maximize the recovery of valuable materials, III) Create eco-efficient and sustainable business, iv) Consider social impact and local context.

1.3   Estimated Nature of E-waste Generation Via project.

Name of Equipment	Number to be Procured	Typical Life Cycle	Component it is procured for
IXP Router	3	5-20 years	Subcomponent 1.2
Fibre Switch	3	5-20 years	Subcomponent 1.2
Firewall	2	5-8 years	Subcomponent 1.2
Foundation ID Management System	1	5-20 years	Subcomponent 2.1
Smart Cards	500000	5-10 years	Subcomponent 2.1
Card Printer	210	5-10 years	Subcomponent 2.1
Blade Server	2	5-10 years	Subcomponent 2.1
SAN 30TB	1	5-10 years	Subcomponent 2.1
Biometric Reader	40	5-10 years	Subcomponent 2.1
IoT sensors	1000	5-10 years	Subcomponent 2.2
SAN 30TB	1	5-10 years	Subcomponent 2.2
Blade Server	2	5-10 years	Subcomponent 2.2

1.4   Benefits of E- Waste Management in an Organized and Sustainable Manner

Sustainable management practices, i.e. recycling operations also considerably contribute to reducing greenhouse gas emissions. Primary production of metals that are part of electrical and electronic equipment usually are large contributors to greenhouse gas emissions, i.e. mining, concentrating, smelting and refining, especially of precious and special metals has a significant carbon dioxide (CO_2) impact due to the low concentration of these metals in the ores and often difficult mining conditions. But, "mining" of old phones, servers or old computers to recover the contained metals – if done in an environmentally sound or correct manner – needs only a fraction of energy compared to mining ores in nature, i.e reduced emissions but also reduced impacts from land degradation, biodiversity loss and soil and water contamination. Recycling of E-Waste equipment reduces the amount of land that has to be set aside specifically as landfill zones which in turn can be used for far more productive and socially beneficial usages such as low-income housing, more farming, or renewable energy power supplies. Recycling means that less money and energy has to be expended for the mining of the various minerals which are consumed during the manufacturing process for the production of E-Waste equipment.

The environmental footprint of a phone, a computer and other electronic devices could be significantly reduced if its life cycle is prolonged by measures such as by repairing, either by maintenance or extended warranties, or if the the product was built for circularity in the design phase. In addition, the impacts from

the end-of life stage could be reduced by efficient collection and treatment of e-waste in environmentally sound managed recycling operations, which prevent hazardous emissions and ensure that a large part of the contained metals are recovered. This E-Waste Management plan does not include or mandates for the establishment of an E-Waste recycling infrastructure, but points in the direction that; building a sustainable recycling infrastructure creates jobs and contributes to capability building. The sustainable collection, sorting, manual dismantling and pre-processing of e-waste could create a significant number of jobs in the countries that would develop this activity.

1.5 Final Disposal Options for Hazardous Waste in the Maldives

In general, Maldives has limited options for managing hazardous waste. Although most of the Island Waste Management Centers (IWMC) have designated specific areas for intermediary storage of hazardous waste (ventilated enclosed areas with sealed floors and roofs), tthere is no formal mechanism or infrastructure for the separate collection and recycling of e-waste in the country. The most prominent type of Hazardous Waste identified in the Maldives are expected to be engine oil, solvents, paint, boat coatings and worn-out lead batters. Currently, e-waste such as computers, printers, and cellphones can be collected by waste collectors along with household waste because there are no are legal provisions or regulations enforcing the separate collection, treatment and recycling.

The two major Regional Waste Management Facilities (RWMFs) operated at present are Vandhoo RWMF located in Raa Atoll and Thilafushi RWMF in Male' Atoll. Vandhoo is used as a final disposal destination for municipal solid waste (MSW) generated in Zone 2, a catchment of 45 islands clustered into 4 atolls (Noonu, Raa, Baa and Lhaviyani atoll). This facility has a 35 ton per day capacity incinerator that was recently upgraded into a Waste to Energy (WtE) plant, a baling facility, an ash disposal landfill, a leachate collection pond, power house, RO plant and waste processing and storage sheds. The plant is not yet brought back to operating conditions after its conversion to WtE, owing to an issue with a faulty part, which is expected to be resolved soon. Despite the foregoing limitation, the facility has been operational since mid-2019 with MSW being regularly collected from the IWMCs within the catchment and intermediary storage and baling at the facility continuing. It is important to note that, Vandhoo is not designed to cater for hazardous waste, however, some provisions have been made such as the inclusion of an 8000-liter used oil collecting tank. Further expansion works are planned with funding secured for creating additional storage spaces, rehabilitation of leachate collection ponds and the ash landfill, while discussions are ongoing with various funding agencies to expand its capacity even further to include provisions for recycling and chemical waste management.

Thilafushi has been used to cater for the waste management needs of Male' region ever since 1992. It was originally a lagoon (6km away from the capital city of Male') which was used to dump waste and as a result has turned into an island with a land area of 10 hectares, which is being used for waste management and industrial purposes. Until very recently, unconventional practices involving open burning and open landfilling techniques were employed in Thilafushi to manage waste. However, the MoECCT to completely cease open burning of waste in the year 2020 . To facilitate this a large compactor has been brought to the facility to enable large scale compressing of waste, which could be then stored for longer periods, and 4 incinerators with a processing capacity of 300-800 kg of waste per hour has been acquired, installed and operated. Additionally, works are on-going to convert Thilafushi into a full-fledged RWMF capable of processing, treating and disposing residual MSW and Construction and Demolition (C&D) waste coming from Zone 3, which is comprised of 32 islands grouped into 4 atolls namely Kaafu (Male' atoll), Alif Alif,

Alif Dhaalu and Vaavu atolls. The main components of this project are installation of two 250 ton per day capacity WtE plant and a baling facility with ancillary facilities, such as ash disposal landfills, intermediary storage spaces, bottom ash processing facility (brick making and road development) and C&D waste processing plant. A complete solution for hazardous waste is not offered through the regional facility initially, however, storage of hazardous waste will be facilitated. It is anticipated that the initially periodically the hazardous waste will be transferred from this storage facility to a hazardous waste management facility abroad.

Taking the forgoing into account, it is evident that neither Vandhoo nor Thilafushi is fully geared to offer a complete solution for hazardous waste such as E-waste and further developments need to come into the loop to facilitate a complete solution to deal with the concerned stream of waste, which is not available in country.

Private entities do work on E-waste recycling and buy back arrangements have been conducted with vendors that export usually Metals. However, there are no such formal or informal arrangements for E-Waste at present, however in some waste centers, used electronics are collected by individuals for reuse and repair.

2 Laws and Regulations Pertaining to E-Waste Management in the Maldives

2.1 Laws and Reguations

2.1.1 Environment Protection and Preservation Act (EPPA) (4/93)

This is the primary umbrella law for environmental protection in the Maldives. It was enacted in April 1993 o protect and preserve the environment of the country. The EPPA has specific clauses on waste disposal that are of relevance to the Maldives Digital Development Project. They are as follows:

Waste Disposal, Oil and Poisonous Substances: Any type of waste, oil, poisonous gases or any substance that may have harmful effect on the environment shall not be disposed within the territory of the Maldives. In case where the disposal of the substance stated in paragraph (a) of this clause becomes absolutely necessary, they shall be disposed only within the areas designated for the purpose by the government. If such waste is to be incinerated, appropriate precautions shall be taken to avoid any harm to the health of the population.

Hazardous/ Toxic or Nuclear Wastes: Hazardous/Toxic or Nuclear Wastes that is harmful to human health and the environment shall not be disposed anywhere within the territory of the country. Permission shall be obtained from the relevant government authority at least 3 months in advance for any trans-boundary movement of such wastes through the territory of the Maldives.

The presence of elements lead, mercury, arsenic, cadmium, selenium and hexavalent chromium and flame retardants in Waste electronic, and electrical equipment (WEEE) classifies it as a hazardous waste.

2.1.2 Environmental Impact Assessment Regulation (NO. 2012/R-27) and Amendments

Article 5 of the EPPA (above) stipulates that any development work or project that have a significant impact on the environment should have an Environmental Impact Assessment consented to by the

Ministry of Environment Climate Change and Technology (MECCT). For the nature of project interventions which would generate E-waste there is not requirement of an EIA or cleareances from the Maldives Environmental Protection Agency.

The Environmental Impact Assessment (EIA) regulation defines the procedure to follow when attaining environmental approval for development projects. The regulations lists those projects that require EIA (schedule D), those projects that do not require EIA (Schedule T) and those projects that can be undertaken as per the mitigation plan provided by EPA (Schedule U). These schedules are not relevant for this project while this document is the overarching document for Environmental Management in the Maldives.

2.1.3   Waste Management Bill

The draft of the Waste Management Bill has been published by MoECCT on 27th January 2022 , and open for public comments. The Bill has specific chapters on waste management responsbilities, such as in collection, waste transfer, and disposal. Chapter 11 of the Act has clauses on Hazardous and Toxic Waste, which WEEE can fall under, but the Government's list does not include WEEE under the listed category.

2.1.4   Waste Management Regulation NO. 2013/R-58)

The Waste Management Regulation of the Maldives was enacted based on Article 22 of the Constitution of the Republic of Maldives, and under powers vested in the Ministry of Environment and Energy (now MECCT) under the Article 3 of the Environmental Preservation Act 4/93 in relation to Article 7 and 8 of the same Act. The regulation is implemented by the Environmental Protection Agency. This regulation focus on following five areas: 1. Waste management standards: Defines standards for waste collection, transfer, treatment, storage, waste site management, landfills and managing hazardous waste; 2. Waste management Permits: Defines approval procedures for waste sites; 3. Waster transfer: Standards and permits required for waste transport on land and sea, including transboundary movements; 4. Reporting requirements: Defines reporting and monitoring requirements and procedures; and 5. Enforcement: Defines procedures to implement WRM and penalties for non-compliance.

While there is no specific regulation for WEEE, the 5th Amendement to the Waste Regulation stipulates the segregation of bulky wastes, which includes TV's, refrigerators, washing, and other household appliances. While this segregation also applies to non-electric and non-electronic waste such as furniture, it is a first step which would allow for the efficient collection and consequent recycling of WEEE. The ideal next should would be to classfiy all WEEE, including other items as washing machines, computers, phones, and have it completely spearated from other non-electric bulky wastes as well. Moreover, current responsiblities on collection and recycling are not largely designated for local governments and government subsideized waste collectors, and diversifying and allocating WEEE collection and recycling responsbilities to the private sector, under an Extended Producer Responsibility (EPR) framework would make the recycling more efficient, and also lead to the creation of jobs.

2.1.5   Strategic Action Plan (SAP)

The current governments policy on all development aspects are defined in Strategic Action Plan (SAP), where the government outlines the developmental targets and prioroties of the government from 2019-2023.

The SAP has specific policies, strategies and actions that can be applied for WEEE management.

In Chapter 8 Waste Management section of the SAP, the following policies may apply as guidance to the managemnet of WEEE in this project.

Policy 1: Promote waste as a valuable resource for income generation, where specifically Action 1.1e: calls for the development of regulations and guidelines for use, handling, and disposal of all types of chemical and hazardous waste

Policy 2: Improve chemical and hazardous waste management practices to ensure protection of people and the environment

Action 2.1a: Formulate and implement guidelines for the handling, storage and transport of non-medical hazardous waste and chemicals generated in the inhabited islands until they reach Regional Waste Management and Treatment (RWMT) Facilities

Action 2.1c: Formulate and implement guidelines for the appropriate disposal of electronic waste including waste generated from the energy sector

In addition, in Chapter 4 Jazeera Dhiriulhun, Target 5.2 states that by 2022 provisions for green procurement in the Public Finance Act should be implemented, which would also subject the procurements under this Project according to the relevant government regulations.

2.1.6 Basel Convention on the Control of Transboundary Movement of Hazardous Waste and their Disposal

The Basel Convention aims to protect the environment by bringing measures to control and regulate hazardous and other waste disposals. It came into force in 1992. It applies Prior Consent Approval procedure to regulate the transboundary movement of the hazardous and other wastes. Non-parties cannot transport hazardous waste to and from each other unless specially agreed. Basel Convention states such transportation, illegal. The member nations to the convention are required to have domestic legislation for both prevention and the punishment of the illegal trafficking of such hazardous wastes. It ensures that the member nations control the generation, storage, transportation, treatment, reuse, recycling, recovery and final disposal of hazardous wastes. Conference of Parties (COP) is a primary organ of the Basel Convention and is responsible to make decisions about the operations of the convention. It meets biennially.

2.2 Institutional Arrangements for E-Waste Management in the Maldives

Currently there is no specific entity designated for E-waste management in the Maldives while regulation is handled by the Waste Management Department and the Maldives EPA. These two agencies as per the regulations and legal provisions presented above have the ability

2.3 World Bank ESF

Based in the ESS1, that establish responsibilities in relation with the risk and impact levels during the different project phases, the generation of all types of waste must be considered from the very beginning; during the predesign contracting, construction and operational phases. In all cases, provisions shall be taken, in order to minimize waste production and to reduce the impacts that the waste could create, specific (solid, liquid, toxic, sewers, etc.), and Electrical and Telecommunication (E-Waste) management

plans would be adopted during projects implementations to avoid affectation to stakeholders and livelihood, biodiversity and habitats nearby and surroundings of the project site and activities.

As the project is a digital development project, the project involves provision of significant IT infrastructure either as replacements or new purchase of equipment to support the project interventions. As the Maldives does not have explicitly existing standards or requirements for management (including storage, transportation, and disposal) of hazardous waste, which include E-Waste, GIIP such as the World Bank Groups Environmental, Health, and Safety Guidelines for Waste Management Facilities that provide guidance on best practice in terms of waste storage and transfer, and strict criteria on manufacturer/supplier management of e-waste, including the transport of decommissioned systems out of the country as part of the investments, will be followed either via an agreement of NCIT with a certified e-waste recycling facility prior to project closure or by mandatory provisions in contracts with suppliers and contractors. Certified E-waste management facilities can be found in countries within Asia-Pacific as well, in this regard market research suggests that such facilities exist in countries like India, China, South Korea, Japan and Australia[3]. These will be in line with both national legislation and applicable international conventions, including measures such as a buy-back arrangement with the equipment suppliers during the life cycle of the use. During project preparation, relevant domestic regulations, conventions and their enforcement will be reviewed against the requirements of ESS3 and the World Bank's applicable Environmental, Health, and Safety Guidelines to confirm the adequacy of the existing system for E-waste management and recycling in the Maldives. These documents have been considered in developing this E-waste management guideline.

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[3] Source: E-Waste Management Market Size, Share and Industry Analysis | 2028 (alliedmarketresearch.com)

3 Summary of Associated Environmental and Human Health Risks Associated with E-Waste

The consequences of improper e-waste disposal in landfills or other non-dumping sites pose serious threats to current public health and can pollute ecosystems for generations to come. When electronics are improperly disposed and end up in landfills, toxic chemicals are released, impacting the earth's air, soil, water and ultimately, human health.

3.1 The Negative Effects on Air

Contamination in the air occurs when e-waste is informally disposed by dismantling, shredding or melting the materials, releasing dust particles or toxins, such as dioxins, into the environment that cause air pollution and damage respiratory health. E-waste of little value is often burned but burning also serves a way to get valuable metal from electronics, like copper. Chronic diseases and cancers are at a higher risk to occur when burning e-waste because it also releases fine particles, which can travel thousands of miles, creating numerous negative health risks to humans and animals. Higher value materials, such as gold and silver, are often removed from highly integrated electronics by using acids, desoldering, and other chemicals, which also release fumes in areas where recycling is not regulated properly. The negative effects on air from informal e-waste recycling are most dangerous for those who handle this waste, but the pollution can extend thousands of miles away from recycling sites

The air pollution caused by e-waste impacts some animal species more than others, which may be endangering these species and the biodiversity of certain regions that are chronically polluted. Over time, air pollution can hurt water quality, soil and plant species, creating irreversible damage in ecosystems.

3.2 The Negative Effects on Soil

When improper disposal of e-waste in regular landfills or in places where it is dumped illegally, both heavy metals and flame retardants can seep directly from the e-waste into the soil, causing contamination of underlying groundwater or in the case of the Maldives coastal areas and wetlands.

When large particles are released from burning, shredding or dismantling e-waste, they quickly re-deposit to the ground and contaminate the soil as well, due to their size and weight. The amount of soil contaminated depends on a range of factors including temperature, soil type, pH levels and soil composition. These pollutants can remain in the soil for a long period of time and can be harmful to microorganisms in the soil and plants. Ultimately, animals and wildlife relying on nature for survival will end up consuming affected plants, causing internal health problems.

3.3 The Negative Effects on Water

After soil contamination, heavy metals from e-waste, such as mercury, lithium, lead and barium, tend to leach through the earth even further to reach groundwater. When these heavy metals reach groundwater, they eventually make their way into ponds, streams, rivers and lakes or coastal systems and the ocean. Through these pathways, acidification and toxification are created in the water, which is unsafe for animals, plants and communities even if they are miles away from a recycling site. Clean drinking water becomes problematic to find.

Acidification can kill marine and freshwater organisms, disturb biodiversity and harm ecosystems. If acidification is present in water supplies, it can damage ecosystems to the point where recovery is questionable, if not impossible.

3.4   The Negative Effects on Humans

As mentioned, electronic waste contains toxic components that are dangerous to human health, such as mercury, lead, cadmium, polybrominated flame retardants, barium and lithium. The negative health effects of these toxins on humans include brain, heart, liver, kidney and skeletal system damage. It can also considerably affect the nervous and reproductive systems of the human body, leading to disease and birth defects. Improper disposal of e-waste is unbelievably dangerous to the global environment, which is why it is so important to spread awareness on this growing problem and the threatening aftermath.

4   E-waste Management Criteria and Protocols.

4.1   Objectives of the Guideline

The key objective of this guideline is the achievement and subsequent maintenance of a sustainable and integrated E-Waste management, that is effective and efficient use and management of Electronic equipment procured via the project and minimizing associated risks. The guideline has been developed with the broader context of the MoECCT/NCIT in mind to allow easy replicability and use of department in the Ministry beyond the units that will benefit from electronic equipment that has been procured by the project

- Integrated E-waste management: its purpose is to reduce E-waste generation, and promote the reuse, recycling and initiatives to extract values from electronic equipment procured via the project.
- Effective E-Waste Management: The delivery of waste management services that provide for reliable collection and management of E-wastes consistent with sound environmental principles and standards once the useful life cycle of project financed equipment comes to be.
- Efficient waste management: the delivery of effective waste managing services in ways to minimax cost with results and promote better management of resources within the MoECCT/NCIT and other implementing agencies.

The following guidance steps will be followed on the management of non-hazardous e-waste that is deemed as General E-Waste. Additional guidance specifically applicable to hazardous e-wastes is presented below. E-waste management should be addressed through an e-waste management system that addresses issues linked to e-waste minimization, generation, transport, disposal, and monitoring. This guidelines via screening will characterize their e-waste according to composition, source, types of e-wastes produced, generation rates, or according to local regulatory requirements.

4.2   Conducting Diagnostics for Feasibility and Need for Management Steps

A diagnostic analysis must be performed in order to determine the level of involvement and processes needed to implement the steps in the guidelines and to what extent on a case-by-case basis in line with project procurements, nature of e-waste procured and amounts. For instance, if the E-wastes identified are very small, maybe the only option is to accumulate it until there is enough volume to procure processing of e-waste. If the amounts are large, then it will be feasible to process and proceed with the later phases of the business of recycling. In all cases this analysis will include a screening assessment to understand the potential negative impacts associated with the guidelines and their implementation, in this process the following must be evaluated:

1. Characterize their e-waste according to composition, source, types of e-wastes produced, generation rates, or according to local regulatory requirements.
2. Possible environmental and social risks of use and disposal of the equipment
3. An Evaluation of the environmental and social impacts
4. Measurements for E-waste management at the end-of-life cycle: Actions for E-waste management as per the guide, i.e.- need for storage, transport, buy back or final disposal etc which include the following as applicable. A check list should be developed during project implementation and approved by the Bank E and S team to define the methods of use.
   a. Definition of opportunities for source reduction, as well as reuse and recycling

      b. Definition of procedures and operational controls for onsite storage

      c. Definition of options / procedures / operational controls for treatment and final disposal.

5. Implementation timetable or chronogram of actions.

The information above will be presented in the form of a Management Plan that will cover the 5 key areas identified, presenting all requisite information.

4.2.1 Additional Steps for Hazardous E- Waste Management

Where feasible, hazardous e-wastes should always be segregated from non-hazardous e-wastes. If generation of hazardous e-waste cannot be prevented through the implementation of the guidance steps and management practices, its management should focus on the prevention of harm to health, safety, and the environment via the screening process defined in section 4.2, according to the following principles presented below.

1. Understand potential impacts and risks associated with the management of any generated hazardous e-waste during its complete life cycle.
2. Ensure that contractors handling, treating, and disposing of hazardous e-waste are reputable and legitimate enterprises, licensed by the relevant regulatory agencies and following good international industry practice for the e-waste being handled.
3. Ensure compliance with applicable local and international regulations.

Hazardous e-waste materials are frequently generated in small quantities by many projects through a variety of activities such as equipment breakages or end of life cycle use. Examples of these types of e-wastes include used laptop batteries (such as nickel-cadmium or lead acid), servers, computers, cables, etc. These e-wastes should be managed following the guidance provided above at screening diagnostic activity.

4.3 Use to Ensure Life Cycle Use at User Level

The user use cycle should be operated to prevent, or minimize, the quantities of e-wastes generated, and hazards associated with the e-wastes generated in accordance with the following strategy:

- Selection of Electronic equipment that have longer use time frames, warranties and can easily be repaired and reused-, as well as equipments for those there are take-back agreements. The technical and procurement team should make sure the options are well evaluated in line with the E-waste guide.
- Where feasible, selection of electronic equipment with modular designs, or designs that facilitate ease of repairability.
- Instituting good housekeeping and operating practices, including inventory control to reduce the amount of e-waste resulting from materials that are out-of-date, off specification, contaminated, damaged, or excess to operational needs.
- Where feasible, Minimizing hazardous e-waste generation by implementing stringent e-waste segregation to prevent the commingling of non-hazardous and hazardous e-waste to be managed.
- Conducting awareness and information sharing with users should be done to ensure that they follow user manuals and are responsible for device use as per guidance provided by manufacturers.

4.4   Collection and Storage of E-Waste

Hazardous e-waste should be stored so as to prevent or control accidental releases to air, soil, and water resources as per the following guidance within the MoECCT/NCIT premises where they will be used:

a.   E-waste must store in a manner that prevents the commingling or contact between incompatible wastes, such as chemical waste or general waste where accidental comingling can happen, and allows for inspection between containers to monitor leaks or spills. Examples include sufficient space between incompatibles or physical separation such as walls or containment curbs

b.   All e-waste must be stored in closed containers (some could be radioactive proof), away from direct sunlight, wind and rain.

c.   Secondary containment systems should be constructed with materials appropriate for the e-wastes being contained and adequate to prevent loss to the environment.

d.   Provision of readily available information on compatibility to employees, including labelling each container to identify its contents should be provided.

e.   Limiting access to hazardous e-waste storage areas to employees who have received proper training

f.   Clearly identifying (label) and demarcating the area, including documentation of its location on a facility map or site plan vii) Conducting periodic inspections of e-waste storage areas and documenting the findings.

g.   The collection and handling should be carried out by the staff designated within the MoECCT/NCIT for management of IT equipment and the protocols should be clearly communicated to all staff in the form of posters and email.

4.5   Reuse, Repair and Recycle?

In addition to the implementation of e-waste prevention strategies, the total amount of e-waste may be significantly reduced through the implementation of recycling plans, which should consider the following elements and the MoECCT/NCIT during the use will use the following protocols as well as communicate the same for users when handing over with use agreements:

- Identification and recycling of products that can be reintroduced into the operational processes
- Investigation of external markets for recycling by other industrial processing operations located in the neighborhood or region of the facility (e.g., e-waste exchange)
- Establishing recycling objectives and formal tracking of e-waste generation and recycling rates
- Providing training and incentives to employees in order to meet objectives of use as per the handling and care instructions of the equipment.

4.6   Recycling E-waste/Buy Back Arrangements

As mentioned previously two options are considered. Buy-back by the supplier, this can be achieved by incorporating provisions for buyback to the supply contracts for all IT equipment. The Second option is for MoECTT/NCIT to have a separate agreement with certified e-waste recycling facility. The advantage of the latter option is this will not only limit recycling to equipment procured under the project as it will expand beyond the project and all e-waste generated by NCIT could be recycled. Moreover, supply contracts having buy-back arrangements can lead to price hikes of equipment procured. In addition, there is risk of supplier becoming inactive prior to lifetime of equipment is up. Due to this reason for the project at hand

the latter option will be followed during the equipment procurement process for certain equipment that will be defined at implementation.

4.7 Collection and Transport of E-Waste

All e-waste containers designated for off-site shipment should be secured and labelled with the contents and associated hazards, be properly loaded on the transport vehicles before leaving the site, and be accompanied by a shipping paper (i.e., manifest) that describes the load and its associated hazards, consistent with the Transport of Hazardous Materials good practices and guidance as defined in the World Bank Groups Environmental, Health, and Safety Guidelines for Waste Management Facilities.

Guidelines:https://www.ifc.org/wps/wcm/connect/5b05bf0e-1726-42b1-b7c9-33c7b46ddda8/Final%2B %2BWaste%2BManagement%2BFacilities.pdf?MOD=AJPERES&CVID=nPtj.3h&id=1323162538174

4.8 Treatment and Disposal

If e-waste materials are still generated after the implementation of feasible e-waste prevention, reduction, reuse, recovery and recycling measures, e-waste materials should be treated and disposed of, and all measures should be taken to avoid potential impacts to human health and the environment. Selected management approaches should be consistent with the characteristics of the e-waste and local regulations, and may include one or more of the following:

- On-site or off-site chemical, or physical treatment of the e-waste material to render it non-hazardous prior to final disposal
- ii) Treatment or disposal at permitted facilities specially designed to receive the e-waste,
- iii) E-Wastes; properly designed, permitted and operated landfills or incinerators designed for the respective type of e-waste; or other methods known to be effective in the safe, final disposal of e-waste materials.

The project will ascertain and document the methodology followed by any third part certified agency that will facilitate in the treatment and disposal of e-waste over the project period.

4.8.1 Specific Treatment for Hazardous E-Waste

In addition to the recommendations for treatment and disposal applicable to general wastes, the following issues specific to hazardous e-wastes should be considered, while as there are no certified E-waste processing parties available.

In the absence of qualified commercial or government-owned e-waste vendors (taking into consideration proximity and transportation requirements), facilities generating e-waste should consider using the following:

1. Have the technical capability to manage the e-waste in a manner that reduces immediate and future impact to the environment, and have all required permits, certifications, and approvals, of applicable government authorities.
2. Have been secured through the use of formal procurement agreements In the absence of qualified commercial or government-owned e-waste disposal operators (taking into consideration proximity and transportation requirements).

4.9 Budget and Costs

In each phase of the project a budget with the costs for the provisions of this Guideline, must be prepared, specifically for each managerial action proposed. These budgets must be prepared in charts showing costs

estimations categorized for each managerial activity presented, including those contingency expenditures and expending charted chronogram. The budget will be itemized, following the project administrative/financial organization protocols and submitted for World Bank review with the diagnostic survey during the first 6 months of project implementation.

4.10 Awareness and Training for Users

The information provided to the project implementing units within the MoECCT and NCIT should be done via internal mailers as well as for E-waste handling procedures via communication material such as posters for offices, copies of equipment management guides etc.

The E and S Specialist of the project team will work with the Communication Specialist to design all communication material in line with the implementation of this Guideline. Good International Industry Best Practice and examples will be used on design and communication.

At minimum the following training plans will be undertaken.

Training Program	Target Audience	Mode	Comments
Training Program on E-Waste and the Use of the E-Waste Guideline	Project Coordinating Teams and all relevant units within NCIT and MOECTT	Virtual/Face to Face- 2–3-hour session	To be conducted by the PMU team and World Bank E and S Specialists
Training on E-Waste Management Innovation and Examples	Project Coordinating Teams and all relevant units within NCIT and MOECTT- Open to wider NCIT Staff and Maldives EPA	Virtual/Face to Face-1-2 day program	To be conducted by E-Waste Specialist

5 Implementing Arrangement and Compliance Monitoring Requirements

5.1 Project Implemenetation.

The MoECCT will be responsible for leading the overall implementation of this project, specifically through the NCIT, which reports to the MoECCT. The Project Management unit (PMU) will be responsible for all fiduciary matters as well as monitoring and evaluation and safeguards.

While the MoECCT, through the PMU, will be leading the overall project implementation, other government agencies (beneficiaries) will be actively involved in the implementation of specific subcomponents in close collaboration with the NCIT. More specifically, Communications Authority of Maldives (CAM) will be an implementing partner for Component 1.1, and DNR an implementing partner for Subcomponents 2.1. Each digital public service to be improved under Component 2 will be represented by a focal point, which will work directly with the NCIT to ensure quality, user friendliness, and appropriateness of platform capabilities. At the same time, NCIT will provide product management to ensure user-centricity by applying iterative development to prioritize user needs and learn what works as quickly as possible.

A Steering Committee chaired by the Minister of Ministry of Environment, Climate Change and Technology will be created to carry out high-level monitoring of the project implementation. The steering committee will include the Minister of Environment, Climate Change and Technology, the Ministry of National Planning, Housing & Infrastructure and the Ministry of Finance. The steering committee will meet twice per year and will only facilitate monitoring. It will not be engaged in operational decision making but will provide guidance for strategic pivots in the project implementation if needed.

The PMU will have a project director, procurement and fiduciary management specialists, environment and social (E and S) specialist, project coordinators and communications specialist. In addition, for each implementation partner an E and S focal point will be identified.

5.2 Implementation of the Guideline

The Implementation of this Guideline with be the responsibility of all projects implementing parties and direct oversight will be with the projects Environmental and Social Specialist who will be housed within the PMU. He/She will work closed with all E and S focal points, ensure all provisions of the guideline are implemented within the project, organize and conduct trainings, prepare the requisite monitoring updates to the World Bank as per the guideline and maintain a direct line of communication with the World Bank team.

The Environmental and Social Safeguards specialist will work with procurement specialist in implementing this plan.

5.3 Compliance Monitoring

Monitoring activities will be undertaken by NCIT, through the trained individuals during the project period. Monitoring activities associated with the management of hazardous and non-hazardous e-waste should include the key steps specified below. Regular visual inspection of all e-waste storage collection and storage areas for evidence of accidental releases and to verify that e-wastes are properly labelled and

stored. A registry will be maintained, with quarterly reporting to the Bank over the project period. The MoECTTs Environmental Specialist and PMUs Coordinating Team in charge of distribution of electronic items procurement via the project will partake in the monitoring activities. When the NCIT is set up in full the long term management responsibility and monitoring and management will be done conjointly by the MoECTTs Environmental Specialist at the PMU and a team selected within the NCIT.

When significant quantities of hazardous e-wastes are generated and stored on site, the MoECTTs Environmental Specialist and PMUs Coordinating Team in charge of distribution of electronic itgems procurement via the project will partake in the monitoring activities, and they should include the following at minimum:

    i)   Characterization of Waste
- a. Characterizing e-waste at the beginning of generation of a new e-waste stream, and periodically documenting the characteristics and proper management of the e-waste, especially hazardous e-wastes
- b. Tracking of e-waste generation trends by type and amount of e-waste generated, preferably by facility departments,

    ii)   Storage of Waste and Determining Condition
- a. Inspection of loss or identification of cracks, corrosion, or damage to protective equipment, or floors,
- b. Verification of locks, and other safety devices for easy operation (lubricating if required and employing the practice of keeping locks and safety equipment in standby position when the area is not occupied)
- c. Checking the operability of emergency systems o Documenting results of testing for integrity, emissions, or monitoring stations,
- d. Documenting any changes to the storage facility, and any significant changes in the quantity of materials in storage,

    iii)   Process and Record Management
- a. Regular audits of e-waste segregation and collection practices,
- b. Keeping manifests or other records that document the amount of e-waste generated and its destination,

All third-party treatment, and disposal service including re-use and recycling facilities when significant quantities of hazardous e-wastes are managed by third parties will need to have the required certification as per the laws of the country.

In the event e-waste is in contact with the soil these additional monitoring procedures must be performed, to avoid the e-waste storage facilities should be in a indoor location which works better also in terms of the context of Male:
- Monitoring of soils quality in cases of Hazardous E-waste on site storage and/or pre-treatment and disposal will be undertaken.

Monitoring records for hazardous e-waste collected, stored, or shipped should include:

    i)   Name and identification number of the material(s) composing the hazardous e-waste o Physical state

    ii)   Quantity (i.e., kilograms, number of containers),

    iii)   E-waste shipment tracking documentation to include, quantity and type, date dispatched, date transported and date received, record of the originator, the receiver and the transporter,

iv)   Method and date of storing, repacking, treating, or disposing at the facility, cross-referenced to specific manifest document numbers applicable to the hazardous e-waste o Location of each hazardous e-waste within the facility, and the quantity at each location

6   Annexes

Annex 1: Do's and Don'ts of E-Waste Recycling

Do's and Don't of E-Waste Recycling

D O's — vs — **DONT's**

ASK FOR BUY-BACK SCHEME

When buying electric or electronic goods, ask the retailer about buy-back mechanism and buy products with

REPAIR FIRST

Repair first before discarding electric and electronic products

SAFE DISPOSAL

Give your e-waste only to authorised collection centers, or places with take-back mechanism.

DON'T MIX WITH OTHER WASTES

Don't dump in any household bin, or with municipal waste or other waste streams

DONT' DISMANTLE BY YOURSELF

Don't handle or dismantle the e-waste by yourself, or give it to any trash dealers

DON'T DUMP IN OPEN SPACES

Don't dump in any open space or landfill as this will contaminate the ground water and soil.

7 References

- Environmental Waste Management, Environmental, Health, and Safety (EHS) Guidelines General EHS Guidelines. International Finance Corporation, World Bank Group (IFC-WBG), 2007
- South Africa E-Waste Industry Management Plan V-1. Waste Policy and Information Management, Department of Environmental Affairs, 2014
- Environmental and Social Management Framework (ESMF) to be used under the Caribbean Digital Transformation Program (P171528) (CARDTP)- 2020
- Strategic Action Plan (2019). President's Office. Government of Maldives.
- Waste Management Bill (Draft). 2022.