Environment Department

Falkland Islands Government

Falkland Islands Pollution Prevention and Waste Management Policy

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1. Abbreviations

BFSAI	British Forces South Atlantic Islands
EVs	Electric Vehicles
FIG	Falkland Islands Government
FIMCO	Falkland Islands Meat Company
MARPOL	International Convention for the Prevention of Pollution from Ships
MoD	Ministry of Defence
MLAs	Members of the Legislative Assembly
PM	Particulate Matter
PPC	Pollution Prevention and Control
UNCLOS	United Nations Convention on the Law of the Sea
WMF	Waste Management Facility

2. Definitions

In this policy, the following terms and phrases shall have the following meaning, unless the context requires otherwise: -

"Environmental Protection" means the:

(a) protection of the natural environment from the effects of human activity;

(b) protection of people from the effects of human activity on the natural environment;

(c) maintenance, restoration or enhancement of the natural environment; and

(d) monitoring, assessing, considering or reporting on anything that applies to the points above;

"Sustainable Development" means development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. It involves trying to achieve environmental benefit alongside economic growth and social progress in both a local and global context;

"Policy" means this Pollution Prevention and Control Policy;

"Pollution" means the introduction of substances (such as particulate matter, chemicals, solid or liquid waste, and excess nutrients) or energy (such as radiation, heat, noise and light) into the environment, resulting in deleterious effects of such a nature as to endanger human health, harm living resources and ecosystems, and impair or interfere with amenities and other legitimate uses of the environment;

"Waste" means the waste substances, materials and objects arising from domestic and commercial properties including hazardous waste, but does not include wastewater and sewage (which would fall under the broader pollution definition). Waste, a subcategory of pollution, is generally considered hazardous if it (or the material or substances it contains) are harmful to humans or the environment. Examples of hazardous waste include: asbestos, chemicals such as motor oil, batteries, solvents and pesticides; and

"Waste Management" means the range or spectrum of activities associated with Waste, namely: its generation, segregation, storage, handling and transportation from the point of source to its place of disposal.

3. Purpose

The purpose of this document is to set out the policy aimed at enhancing environmental protection and promoting sustainable development across the Falkland Islands through effective waste management and the reduction or removal of pollution sources from entering into the environment.

4. Introduction and Background

Policy Problem

4.1 Growing pressure of pollution and waste on the environment and human health is a global challenge, and one relevant to the Falkland Islands. This is because the amount of pollution and waste, including in the Falklands, has been on the increase predominantly due to the use of polluting technologies and single-use products that generate waste. If not dealt with properly, pollution and waste can pose a threat to public health and the environment. However, sensible management, including policies and laws that shift to the use of clean technology and practices that avoid waste creation can address the problem.

4.2 Poor air quality is one of the leading risk factors for human health and is estimated to cause approximately 9 million deaths globally per year, exceeding deaths caused by tobacco smoking. Much of this air pollution is derived from the burning of fossil fuels and, without these emissions, the average life expectancy would increase by approximately 1.1 years worldwide. Removing all controllable emissions generated by humans would increase life expectancy by an estimated 1.7 years[1]. In 2016, pollution from air, land and water combined was responsible for 940,000 deaths globally in children, two thirds of whom were under the age of 5. Most of these deaths were attributed to respiratory and gastrointestinal diseases caused by polluted air and water in low-and middle-income countries[2].

[1]Jos Lelieveld, Andrea Pozzer, Ulrich Pöschl, Mohammed Fnais, Andy Haines, Thomas Münzel, Loss of life expectancy from air pollution compared to other risk factors: a worldwide perspective, *Cardiovascular Research*, Volume 116, Issue 11, 1 September 2020, Pages 1910–1917, https://doi.org/10.1093/cvr/cvaa025

[2] Landrigan, Philip J., Richard Fuller, Samantha Fisher, William A. Suk, Peter Sly, Thomas C. Chiles, and Stephan Bose-O'Reilly. "Pollution and children's health." *Science of the Total Environment* 650 (2019): 2389-2394.

4.3 Consequently, on the international level, rules are continually being negotiated and implemented on to deal with pollution prevention and waste management. These include the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal which came into force in 1992; the Stockholm Convention on Persistent Organic Pollutants which came into force in 2004; the Rotterdam Convention on the Prior Informed Consent Procedure for Hazardous Chemicals and Pesticides in International Trade which came into force in 2004; the Vienna Convention for the Protection of the Ozone Layer which came into force in 1988; the Montreal Protocol on Substances that Deplete the Ozone Layer which came into effect in 1989; the United Nations Framework Convention on Climate Change which came into effect in 1994; the Paris Agreement to the United Nations Framework Convention on Climate Change which came into force in 2016, and others.

4.4 Within the local context, the Falkland Islands benefits from a limited assortment of large pollution and waste sources and our environment remains relatively unpolluted. But limited and primitive waste disposal processes still endanger health and the environment, and over-reliance on older energy sources and limited pollution controls, especially in and around the concentrated population in Stanley mean that there are still important paths for improvement. Although pollution control measures are reasonably well developed for the marine environment through the Maritime Ordinance 2017, regulations for pollution control and waste management in the terrestrial environment are minimal. The current key sources of pollution on the Falkland Islands are related to the following:

(a) the handling and burning of fossil fuels for energy and transportation;
(b) the handling and disposal of household wastes and waste from existing industries, including, the fishing industry, agriculture, tourism, and businesses across a range of other sectors; and
(c) sewerage related waste from existing infrastructure including domestic, private and public sources.

4.5 In light of the key sources of pollution, the main types of environmental pollution experienced in the Falkland Islands are air, land and water pollution. A detailed outline of

these different types of pollution and the sources within the Falkland Islands context are described below:

4.5.1. Air Pollution

(a) Emissions from the power plant, combined with the burning of kerosene for heating, the burning of gas for cooking and use of diesel for motorised transport are all sources of air pollution in the Falkland Islands. The major source of air pollution comes from the Stanley power station as it is powered by diesel, which produces particulate matter (PM) amongst other pollutants. The location of the power station on the edge of one of the Falkland Island's most densely populated areas raises concerns about the impact of these emissions on human health. Aside from diesel, gas and kerosene are two popular fuels for heating and cooking in Stanley which are also pollution sources. Gas and kerosene produce high levels of fine particulate matter ($PM_{2.5}$) and nitrogen dioxide (NO_2). Indoor air quality is impacted by both indoor and outdoor sources as microscopic particles can enter through doors and windows, as well as gaps in partitioning. This has implications for human health as many people spend the majority of time indoors.

(b) Although no data exists on air quality in the Falkland Islands due to lack of monitoring, scientific literature has long known the human health risks associated with the inhalation of diesel, kerosene and gas fumes. The World Health Organisation has even indicated that air pollution is one of the biggest environmental threats to human health, together with climate change. To this end, reducing air pollution will not only assist with mitigating global climate change but with also protecting human health[3].

(c) A new power station has been proposed for the Falkland Islands. The proposed new power station will mitigate some of the ill-effects of air pollution in Stanley through the use of more energy efficient equipment, the installation of air quality monitors, and its location away from populated areas in Stanley. However, the station will still remain as

[3] WHO, New WHO Global Air Quality Guidelines aim to save millions of lives from air pollution; 2021, https://www.who.int/news/item/22-09-2021-new-who-global-air-quality-guidelines-aim-to-save-millions-of-lives-from-air-pollution; accessed on 12 September 2023.

a major pollution source. A separate piece of work on a Falkland Islands Energy Strategy is intended to complement this policy by identifying a path away from use of diesel fuel as a primary electricity generation source, including expansion of solar and wind technology and the use of battery storage to reduce diesel combustion. These are critical pollution control priorities, to be implemented in tandem with the broader approach outlined in this policy. National infrastructure planning and investments are intended to implement this shift towards non-polluting power.

(d) There are currently no air pollution limits in the Falkland Islands. Consequently, the development of robust air pollution limits with effective monitoring will mitigate and ultimately reduce the negative effects of pollution on the population and environment. It will also ensure that any new infrastructural developments will not pose as a pollution threat as emission limitations will be implemented, with developments that follow the core environment principles outlined in paragraph 6 below prioritised, shifting the reliance away from fossil fuel derived energy, towards non-polluting alternatives such as wind energy or electric vehicles (EVs).

(e) In light of the current status, the following have therefore been identified as some of the main issues that are associated with air pollution in the Falkland Islands:

(i) There is currently a lack of lack of monitoring for air pollution levels leading to the absence of data/information to influence decision making processes;

(ii) There is also an absence of standards for reducing air pollution emissions; and

(iii) The lack of overarching legislation for dealing with air pollution management matters;

(iv) Under-investment in clean and renewable sources of energy.

4.5.2 Land Pollution

(a) The Falkland Islands has an informal agreement for tin and can recycling with BFSAI, and crushes used glass receptacles to be used for structural developments, although these are the only circular economy processes that exist to date. All other waste streams (excluding waste from the MoD) are disposed of in Eliza Cove landfill,

incinerated in the Falkland Islands Meat Company's (FIMCO) incinerator, or buried on private land.

(b) Open burning at Eliza Cove landfill occurs unregulated and is uncontrolled, with fires resulting from the combustion of flammable materials, along with the dumping of hazardous wastes including toxic chemicals derived from old batteries and industrial processes at this landfill.

(c) Waste oils and imported road works materials such as bitumen require no specific bunding or other spill controls, and spills occur as a result. Not only do these toxins adversely affect the immediate environment, they can directly impact human health, specifically of workers that are in close proximity to pollution sources.

(d) FIG has acknowledged the need for a new waste management facility (WMF) which will be built in the coming years and will assist in the segregation of waste streams and controlled incineration with a stack height that will assist in moving pollution away from dwellings and people. However, incineration, if not subject to regular monitoring, runs the risk of contributing to harmful emissions. Furthermore, incineration requires that enough waste be available for it to function, if the levels of combustibility of the incinerated material are low then the incinerator will require additional diesel in order to operate. The positive impacts of changing from open site burning (currently used at the Eliza Cove landfill) to incineration will be somewhat negated if the incineration process stops the shipment of certain wastes off the island and/or if the incinerator requires supplementary fuel in order to function.

(e) As many hazardous waste items cannot be incinerated, the shipment of these wastes, including waste electrical and electronic equipment (WEEE), old car batteries, aerosols and paints, to the UK should be explored prior to the completion of the new WMF, in order to avoid non-burnable items from becoming pollution sources.

(f) Considering the current status, the following have therefore been identified as some of main issues that are associated with land pollution in the Falkland Islands: -

(i) Currently, there are no regulations or targets to reduce the amount of plastic used in packaging, although an initiative to stop the use of plastic bags in stores has proved hugely successful; and

(ii) There are also no regulations for spoil tipping, aside from carrying out an Environmental Impact Assessment under the Planning Ordinance.

(iii) There are also a lack of remediation and liability regulations to clean up existing sites

(iv) No segregation of waste streams outside of tins, cans and glass. Hazardous and non-hazardous wastes end up in landfill

(v) Limited and uncoordinated contingency plans for terrestrial fuel/chemical spills including minimal bunding for hazardous waste/oils at storage sites.

4.5.3 Water Pollution

(a) In the Falkland Islands water pollution is mainly caused by sewage, fertilisers and wastewaters that end up in the environment. This can cause harmful algal blooms due to excess nutrients that are released which can deplete waterbodies of oxygen and block out light for other organisms.

(b) Industrial waste from terrestrial sources such as oil spills, nitrates and phosphates are also present.

(c) As previously acknowledged, pollution regulations of the maritime environment in the Falkland Islands is more developed than in the terrestrial environment. However, this is not the case for inland water bodies or those above the low-water line of the Falkland Islands tidal zone.

(d) Although new housing developments have biodiscs installed, the majority of sewerage from Stanley is left untreated and is released into the Stanley Harbour. As a result, citizens are advised to avoid swimming in this harbour due to high levels of harmful bacteria including coliforms, *Escherichia* coli and enterococci.

(e) In light of the current status, the following have therefore been identified as some of main issues that are associated with water pollution in the Falkland Islands: -

(i) Industrial waste from terrestrial sources is not being mitigated at the point of source to avoid leaching in to water bodies;

(ii) Bio-discs present an obvious solution to the raw sewerage problem, however there is no prioritisation given to their installation and no regulations preventing the use of septic tanks. Furthermore, although biodiscs are currently the best solution for sewerage treatment on the Islands, they require regular emptying of the accumulated sludge which is currently not regulated

(iii) Water bodies that are inland or above the Falkland Islands territorial low tide mark are not protected by any pollution regulations; and

(iv) There is a lack of an overarching legal framework for regulating water pollution in the Falkland Islands.

(v) There is also a lack of a solution led approach to tackling sewerage problems.

4.6 The limited number of pollution sources in the Falkland Islands mean there is an opportunity over the coming years to significantly reduce – and potentially largely eliminate – existing pollution sources through the use of cleaner technology and improved planning and regulation.

4.7 As outlined above, pollution can come in many forms and from a multitude of different sources. Some sources are mobile, e.g. transport vehicles, whereas others are linked to a specific place such as a power station or sewerage outlet (stationary sources). With these concepts in mind, this policy has been developed from the following premises:

4.7.1 Pollution has negative impacts for the environment and human health, which can be immediate and/or long term with, in some cases, cumulative impacts and impacts that are increased through multiple source exposure. Therefore, effective pollution prevention and waste management is essential as it assists with protecting both the environment and public health;

4.7.2 In the Falkland Islands, there are both stationary and mobile sources of pollution. These have been limited in scale and type due to the remoteness of the Islands,

small population and relatively low levels of industrialisation, but these limited sources nonetheless can cause serious pollution exposures. This is because the pollution sources are often located close to where people live, work and study and even in homes (e.g. ambient air pollution from kerosene home heaters);

4.7.3 There are a number of large new infrastructural developments, including a new power station and waste management facility that if developed properly and within the context of a larger transition to renewable energy, will reduce pollution from existing sources substantially by utilising modern technology and equipment such as scrubbers and filters for the new power station and waste segregation, storage and disposal at the waste management facility

4.7.4 There is a global shift to low-cost and non-emitting energy technologies, such as wind and solar energy, battery storage, electric vehicles, home heat pumps, and waste biodigesters which has made it increasingly possible to avoid the generation of pollution from key uses (e.g. replacement of diesel power with renewable power), or to swiftly treat pollution and repurpose it for productive use (e.g. the use of a biodigester fertilizer or for fuel). Conversely, existing polluting technologies may become increasingly out-of-date and expensive to service;

4.7.5 As a result, pollution control frameworks increasingly can, if in place, help steer development towards the wholesale elimination of Pollution sources;

4.7.6 Nonetheless, there is also the potential for emerging industries in the future to carry pollution risks which will be necessary to regulate, including by ensuring use of clean technology and fuels (such as renewable-generated electricity) from the start;

4.7.7 The global standard is to enable legal control of pollution by a regulatory body that can set permit standards for major new and existing sources, code standards for general developments, waste regulations, and similar enforceable pollution controls;

4.7.8 Currently, there is fragmented and inadequate legislation regulating pollution prevention and waste management in the Falkland Islands;

4.7.9 As can be seen from the summary of the current legislation dealing with pollution prevention and waste management for the terrestrial environment (attached as Annex 3) there are no clearly defined overarching legal principles that apply when dealing with pollution prevention and waste management issues. Furthermore,

there are no specific requirements for air, land or water disposal of pollutants, no permitting programmes and no national standards for safe levels of pollution in the environment onshore. In addition, there are also no import restrictions or standards for particular sources of pollution such as single use plastics or zero-emission mandates for vehicles in the Falkland Islands. The current legislation is therefore fragmented and regulates the different sectors in a piecemeal fashion. A holistic regulatory framework is therefore necessary to deal with pollution prevention and waste management related matters onshore in the Falkland Islands.

4.7.10 It has been noted that the Maritime section enacts a series of international pollution prevention and control agreements including the MARPOL convention and London Convention, however these only apply to the offshore environment of the Falkland Islands. Therefore, there is a responsibility to facilitate the appropriate treatment of waste that arrives on Falkland Islands shores that is produced from offshore activities.

4.8 In light of the foregoing, there is a need to adopt best practices and capitalise on the opportunities at hand, develop a regulatory framework with legal requirements for pollution prevention and waste management, as well as basic standards that are necessary to mitigate any potentially negative environmental impacts of developments currently planned and those anticipated in the future. This will enable the Falkland Islands to control pollution and manage waste effectively to ensure public health benefits associated with cleaner technologies and practices.

Policy Alignment with Island Plan and other Key Policy Documents/ Priorities

4.9 In 2020, ExCo determined (ExCo 64/20) that a pollution policy and legal framework is necessary. Pollution prevention is best considered as part of an overall energy and economic development program for the Falkland Islands.

4.10 This position is supported by the approach of the Islands Plan 2022-2026, which identifies "*becoming a greener economy*" as a core goal. The Islands Plan proposes a focus on

encouraging the "*responsible and ecological use of land and water*" with a commitment to "*develop and implement infrastructure plans for key utilities, including renewable energy, power supply, water and sewage*" and to "*continue to improve pollution control, waste management and viable recycling practices*." These goals, along with the Plan's determination to "*deliver the first four years of the Environment Strategy*" are at the core of this Policy's recommended approach.

4.11 The recognition of the requirement for a developed pollution and waste management framework is reiterated further in the Environment Strategy wherein it is noted that "*Opportunities should be explored around increasing recycling, decreasing consumption…better handling and disposing of hazardous waste, non-hazardous waste and wastewater".*

5. Scope

5.1 This Policy will apply to all terrestrial land in the Falkland Islands and inshore waters, and extend no more than the territorial sea baselines as determined by the low-water line dictated in the Falkland Islands Territorial Sea Order 1989.

5.2 The Policy will deal with pollution from mobile and stationary sources relating to land, air, and water pollution with cumulative impact components and the management of wastes.

5.3 The intent is that this policy and the resulting legislation will work together with existing legislation, such as the Maritime Ordinance 2017, to provide regulation of pollution and waste that extends over the entire Falkland Islands territory, its land, sea, waters and air.

6. Policy Statement

This policy intends to introduce a permitting system; design standards for stationary sources of pollution; and waste disposal and handling standards, in order to effectively prevent, minimise and mitigate pollution. This will be achieved through the development and implementation of a Pollution Prevention and Waste Management Ordinance that

contributes to sustainable development whilst ensuring the protection of the natural environment and the health of people living in the Falkland Islands.

7. Pollution Policy Principles

7.1 The six principles underpinning this policy should be considered in applicable activities and practices and in the development of the pollution regulatory framework and related policies. The purpose of these principles is to guide the Falkland Islands towards opportunities to improve the current environment and prevent further environmental damage. Policymakers should consider and use the principles iteratively from the outset and during subsequent stages in policy development for sectors that have waste streams which ultimately contribute to pollution.

7.2 These principles are internationally recognised as successful targets for environmental protection and management: -

7.2.1 **Integration principle**: to be applied by policy-makers in order to look for opportunities to embed environmental protection in other fields of policy that have impacts on the environment;

7.2.2 **Prevention principle:** government policy should aim to prevent, reduce or mitigate environmental harm;

7.2.3 **Rectification at source principle:** environmental damage should be addressed at its origin to avoid the need to remedy its effects later;

7.2.4 **Polluter pays principle:** actors who cause pollution or damage to the environment should be responsible for mitigation or compensation;

7.2.5 **Precautionary principle:** states that where threats to environment exist and may be serious or cause environmental damage, a lack of scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation; and

7.2.6 **Duty of care principle:** makes provision for the safe management of waste to protect human health and the environment.

8. Policy Interventions

It is suggested that the development of all pollution control measures in the Falkland Islands should be adapted from relevant UK and EU standards as necessary to fit the local context, with a staged approach with the implementation of pollution regulations. The following key policy interventions have been identified for pollution prevention and control in the Falkland Islands.

8.1 International Cooperation

8.1.1 Environmental problems are well known to have no legal boundaries and cooperation from the different countries is important.

8.1.2 As of January 2023, the Government of the United Kingdom and the Falkland Islands Government have entered into a bilateral agreement for the shipment of hazardous wastes and other wastes from the Falkland Islands to the UK.

8.1.3 As the Falkland Islands is not party to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, the transboundary movements of hazardous wastes and other wastes between the United Kingdom and Falkland Islands will be managed and regulated the bilateral agreement and any relevant national legislation in force. This will allow for the eventual exportation to the UK of waste streams that cannot be disposed of locally. This will limit the amount of pollution associated with these sources from entering in to the environment.

8.2 Legislation and Regulatory Framework

8.2.1 In the Falkland Islands there is currently fragmented, inadequate and piecemeal legislation regulating onshore pollution prevention and waste management that has developed over the years within the different sectors. See Annex 3 for all

existing legislation relating to pollution prevention and waste management in the Falklands Islands.

8.2.2 These aforementioned ordinances may require consequential amendments in order to comply with the Pollution Prevention and Waste Management Ordinance which will take legal precedence over existing Ordinances.

8.2.3 In light of the above, there will be a need to develop a new regulatory framework to deal with pollution prevention and waste management that is informed by international best practice, UK and EU legislation but fits within the Falkland Islands context.

8.2.4. The regulatory framework will essentially create:

- guiding legal principles that must be used for pollution prevention and waste management across all sectors
- limits to define major pollution sources,
- a permitting system for any development considered a major source
- standards to control pollution sources not considered major – e.g. small businesses or homes
- the designation of areas where higher standards or more consideration of pollution sources may be required, e.g. water catchment for Stanley
- standards and procedures for the safe handling of waste
- the ability to monitor, inspect and enforce compliance and liabilities

8.2.5 The regulatory framework for pollution and waste will:

(a) outline the guiding legal principles that must be used for pollution prevention and waste management across all sectors;

(b) set waste treatment, dumping and chemical safety standards;

(c) outline the legal rules relating to waste treatment, disposal, import, and export specifically, given the importance of waste flows in and out of the Falklands, and the Islands' limited disposal capacities. This could include import restrictions on certain goods such as plastics, organics diversion and composting to its landfill and

incinerator plans, and establish Basel-compliant waste handling and exportation standards for hazardous and non-hazardous wastes;

(d) setting monitoring and recordkeeping requirements for developments deemed significant/major based upon a holistic review of the circumstances, e.g. in relation to emissions to air, land and water;

(e) address general issues such as development of regulations, delegations, consultation processes, guidance, confidentiality issues in relation to information received during the permitting application process or during enforcement, exclusion of liability for FIG employees when they implement the law.

(f) create an inspectorate and their powers;

(g) outline liabilities that apply from contravention of the law, including excess pollution, waste spills, and contravention of permits; these liabilities need to be clear and allow for accountability including criminal offences and sanctions for non-compliance with the law;

Designated authority for pollution and waste management

8.2.6. The FIG Environment Department should have authority through the new regulatory framework to;

(a) determine what sources of pollution are or will be classed as major with a clearly defined framework including risks to public health and environment, and the scale of pollution. Once defined the Environment Department will;

(b) develop a permitting/licencing system for larger developments with associated larger pollution risks or waste to control according to the aforementioned pollution limits. The permitting process will specify how licences are issued, cancelled, suspended, appealed and revoked;

(c) issue binding pollution limits on major sources of pollution for air, water and land, in a permit for major or significant developments when constructed or retrofitted. This includes but is not limited to the new power station, waste management facility, spoil dumps and landfill sites. The limits will be set based on scientific knowledge and as determined by a holistic review.

(d) develop standards for new and existing developments that are *not* classed as major pollution sources. That is, the developments that fall below the set pollution/ waste

thresholds will not require a permit but these will need to comply with certain standards in order to limit pollution/ waste. It is envisaged that small new developments, such as domestic properties and small businesses that cause low levels of pollution will need to comply with standards that will be implemented through the planning process;

(e) to designate certain special areas such as public water catchments, as requiring close consultation prior to further development, with additional standards to be set as needed to protect resources

(f) provide input into planning generally to reduce environmental harm, and to ensure that waste disposal is properly handled;

8.3 Education and Awareness

8.3.1 In order to successfully promote the Pollution Prevention and Waste Management Ordinance and make its implementation effective, the public will be informed in advance of any regulatory changes for Pollution and Waste Management through various educational mediums including; consultations, campaigns, workshops, drop-in sessions hosted by the Environment Department and through media channels.

8.3.2 Education and awareness campaigns will allow the public to become accustomed to changes in waste management practices, whilst providing educational resources on the importance of pollution prevention and control and Waste Management practices. During the lifecycle of relevant projects, mechanisms such as waste reduction, upcycling, recycling and reusing can be promoted.

8.4 Information Management

As stated under paragraph 4.4 above, there is currently no information on air quality in the Falkland Islands due to lack of monitoring. Information management is important for the development of appropriate pollution and waste indicators to ensure informed decision making. Therefore, there will be a need to establish effective and efficient information systems for pollution and waste management through, for example, the collation of air pollution emissions, water pollution and waste related statistics or the creation of registers of pollution and waste releases.

8.5 Holistic Consideration of Pollution and Waste Management During Planning

8.5.1 In light of the fact that the creation of pollution and waste mainly originates from human activities, there will be a need to consider the prevention and control of pollution and waste management strategies during the planning process and throughout the life cycles of relevant projects. Therefore, there is a need to develop mechanisms to ensure that integrated pollution prevention and waste management are considered during the development of government policies, strategies and programmes, all spatial and economic development planning processes and during the life cycles of the different projects within the relevant sectors. The integration of pollution prevention and waste management principles into the decision-making process across all relevant sectors will be important.

9. Roles and Responsibilities

DEPARTMENT	ROLE	RESPONSIBILITY
Environment Department	Drafting of Pollution standards	Develop standards for polluting activities that fall BELOW a defined threshold for land, air and water
Environment Department/ Attorney General's Office	Drafting of Pollution Prevention and Waste Management Ordinance	Develop overarching Ordinance which deals specifically with pollution and waste
Environment Department	Drafting and issuance of pollution permits	Develop permitting regulations for polluting activities that are ABOVE a defined threshold for land, air and water
Environment Department/Public Works Department/ Attorney General's Office	Drafting of regulations for waste incineration	Develop protocol for the handling of waste that can/cannot be incinerated i.e. transhipments to the UK
Public Works Department/Private Sector with guidance from Environment Department	Drafting of a management plan for disposal/storage of waste oils and spill minimisation/treatment	Create plan for the safe disposal/storage/handling of all waste oils from private, public and domestic sources,
Environment Department/ Customs and Immigration	Hazardous Waste identification	Creation of a hazardous waste inventory and handling guidelines/procedures
FIDC/Environment/Planning and Building Services/ Attorney General's Office	Updating building regulations and developing matching incentive schemes	Implement regulations that prioritise energy efficiency in buildings and coordinate incentive schemes from funding bodies (FIDC) to compliment updated regulations

Environment Department/PWD	Develop Waste Management standards for Camp	Create a management plan for all wastes in Camp
Environment Department/PWD	Export/ Import of Hazardous Waste: - utilising the Bilateral Agreement with the UK and working together with relevant UK government agencies;- creating procedures for the appropriate handling, transportation and disposal of hazardous materials	Develop protocol and procedures for the exportation of wastes that cannot be processed on the Islands

Annex 1

Environmental Policy Principles

The Integration Principle

Integration is the principle that Environmental Protection should be integrated into the making of policies. This means that policymakers should look for opportunities to embed Environmental Protection and/or enhancement across fields of policy – not just those directly related to the environment i.e. in the updated National Infrastructure Plan.

The Prevention Principle

The prevention principle means that government policy should aim to prevent environmental harm. This principle underpins many aspects of environmental policy to ensure that environmental damage, such as CO_2 emissions, pollution or biodiversity loss is avoided. This principle is most effective when considered at an early stage when a new policy development has the potential to negatively impact the environment. In situations where, environmental damage has already occurred, the prevention principle should be followed in order to prevent any further environmental damage e.g. the dispersal of plastics at Eliza Cove. This can have economic benefits as it prevents additional costs and complexities that arise when environmental damage occurs.

There may be situations in which the risk of some environmental damage has to be accepted because it would be disproportionate to prevent all possible damage. Where this is the case, the policymaker should consider applying the rectification at source or polluter pays principles.

The Rectification at Source Principle

The rectification at source principle states that environmental damage should, as a priority, be addressed at its origin to avoid the need to remedy its effects later. Rectification at source should result in approaches that are more cost-effective, efficient, and equitable in the long-term.

It may not always be possible to identify or address all environmental damage at its origin. Where it is not possible to address it at source, there should be consideration of trying to contain or limit the environmental harm as much as possible.

The Polluter Pays Principle

The polluter pays principle means that, where possible, the costs of pollution should be borne by those causing it, rather than the person who suffers the effects of the resulting environmental damage, or the wider community.

The polluter pays principle serves several functions and may be used through different phases of policymaking. It can be used in the design of a policy (before the damage has occurred) to prevent or deter environmental damage. In cases where pollution cannot be avoided or is caused by accident, the polluter pays principle can be used to restore or redistribute the costs of environmental damage. Applying this principle helps to incentivise individuals or groups to avoid causing environmental damage and encourage sustainable practices.

When applying this principle, the followed should be addressed; (i) who is responsible for the pollution; (ii) how does the designation of responsibility for the pollution cause the most environmental benefit i.e. in order to change behaviour it may be more effective to charge the consumer than the polluter i.e. increased taxation on environmentally polluting products; (iii) it may be beneficial to charge an entire sector than one polluting business; (iv) how much the polluter should pay; (v) how the polluter should pay i.e. either directly by charges or fees or indirectly through regulatory or contractual agreements.

The Precautionary Principle

The precautionary principle assists the decision-making process in the face of a lack of scientific certainty. The principle helps policymakers deal with risks which may not be precisely calculable in advance. The approach to the precautionary principle seeks to manage the likelihood and severity of environmental harm occurring based on exposure to a specific hazard. This is distinct from an approach that solely considers hazards that can cause environmental harm.

The precautionary principle is applicable where there is plausible evidence of a risk that a particular policy could cause serious or irreversible damage to the environment, alongside a lack of scientific certainty about the likelihood or severity of this damage. The precautionary principle supports policymakers in their management of that risk.

In applying the principle, the policymaker needs to make a reasonable assessment, using the best available scientific evidence, of the risk. Risk in this case should be understood as a combination of the likelihood of the environmental damage occurring and its severity. Identifying the risk of serious or irreversible harm whilst considering whether the level of uncertainty determines the acceptable level of risk; as the risk of serious damage increases, the level of certainty required before rectifying the situation is reduced.

Duty of Care Principle

The duty of care applies to anyone who imports, produces, carries, keeps, treats, disposes of, or are a dealer or broker that has control of, controlled waste. A person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm (the general environmental duty).

Annex 2

Effects of Pollution on Human and Environmental Health

1.1 Air pollution

Chemicals such as arsenic, nickel, benzene, nitrogen oxides are produced from the burning of diesel. These microscopic particles, also referred to as particulate matter, or PM, are small enough to penetrate deep into the lungs and contribute to a range of health problems including cell mutations that can lead to cancer. Long-term exposure to diesel fumes poses the highest cancer risk of any toxic air contaminant. Studies show that workers who are regularly exposed to diesel fumes are more likely to develop lung cancer than those who are not exposed to diesel emissions. As an example, in California one study estimated that approximately 70% of the cancer risk that the average inhabitant faces are associated with breathing in diesel exhaust particles.

In the Falkland Islands the prevailing wind direction is westerly/north westerly accounting for over 50% of the wind direction per year. This suggests that the dispersal of pollutants from the power station are blown across the centre of Stanley, including the Infant and Junior School, King Edward Memorial Hospital as well as many residential homes. Although less frequent, south/south easterly winds make up 10% of the annual wind direction a year, on these days any particulates produced from the power station are blown directly towards the Falkland Islands Community School.

Exposure to diesel exhaust fumes can have immediate effects on health such as irritation of the airway and eyes, headaches, light-headedness and nausea and can exacerbate pre-existing medical conditions such as asthma and hay fever. This often disproportionately affects the most vulnerable in the population, including children, the elderly and the infirm. Children's lungs are especially affected as their respiratory systems are still developing, exposure to diesel exhaust can reduce lung function.

Air pollution is not only detrimental to human health but can damage soil and crops by reducing growth and survivability of seedlings. Acid rain caused by sulphur dioxides (SO_2) and nitrogen oxides (NOx) emissions in the atmosphere can cause damage to waterways by increasing acidity. This results in more aluminium absorption from soil, making the environment toxic for organisms. Pollutants can slow growth rates, cause disease and make plants and animals more vulnerable to fluctuations in air temperature. In some cases, these pollutants can inhibit an organism's ability to

reproduce. It also reduces the ability of ecosystems to provide services such as carbon sequestration and nutrient cycling.

1.2 Land Pollution

Land pollution is the degradation of soil through contaminants, largely as a result of unsustainable agricultural practices and the improper disposal of waste, illegal dumping, and the extraction of natural resources and littering. Different waste materials and pollutants like heavy metals, pesticides, plastic, litter and pharmaceuticals leach in to soil and groundwater, changing the natural composition. Some of these pollutants remain in the environment indefinitely.

Pollution on land can lead to a loss of fertile soil for agriculture, threatening food security. It can also contaminate drinking water, endanger wildlife through entanglement or through ingesting toxins, threaten habitats, increase the risk of wildfires and contribute to human health issues including cancer, respiratory illnesses and congenital disabilities.

1.3 Water pollution

Water quality is an important aspect of public health and the environment. However, water is uniquely vulnerable to pollution as toxic substances can dissolve in to water bodies such as rivers, lakes and oceans and remain there indefinitely.

These toxic substances come in many different forms and caused by a number of anthropogenic activities including agriculture, mismanagement of sewage and wastewater, oil pollution and toxic chemical substances. The effects of water pollution and environmental health are catastrophic with an estimated 1.8 million deaths per year being attributed to water pollution and approximately 1 billion people suffer from illness associated with waterborne pathogens found in contaminated drinking water.

Faecal contamination in the water can cause the occurrence of enteric viruses, coliphages, infectious microorganisms and pathogens which may be derived from sewage. Health outcomes of bathing in or ingesting contaminated water can include gastrointestinal and respiratory infections, which are found to be associated with faecal contamination. In the Falkland Islands water quality is tested once a month in Stanley Harbour to establish the level of pollution that occurs in the

natural environment and to assess whether it is safe for recreational use. Water is tested for *Escherichia coli,* intestinal enterococci and *Coliform.* Consistent monitoring shows that levels of these pollutants exceed the safe threshold defined by the World Health Organisation and Blue Flag guidelines in Stanley Harbour deeming it unsuitable for recreational use. In some instances, Coliform exceeded 20x the safe levels and up to 10x the safe levels of E.coli at two water testing sites.

Chemical pollutants also pose a threat to public health and come from a variety of different sources including heavy metals such as arsenic and mercury to pesticides and nitrate fertilisers also often find their way in to water bodies. If ingested, these toxins can result in a myriad of health issues such as cancer, hormonal changes and altered brain function. Children and pregnant women are at particular risk of suffering from ill-health due to water polluted with chemicals.

Water pollution also impacts the environment. Nutrient enrichment from sewage outfall can lead to an algal bloom. When a bloom occurs it blocks out sunlight, this is detrimental to aquatic plants as it will prevent the plants from photosynthesizing and reduces oxygen levels in the water making it uninhabitable for marine life.

Annex 3

Summary of Existing Legislation Relating to Pollution Prevention and Waste Management

1. The existing legislation includes the Planning Ordinance 1991 in which the planning officer has an obligation to institute a survey of the Falkland Islands examining the matters which may be expected to affect the development of the Falkland Islands or the planning of their development[4]. In terms of section 13(3)(d) of this Ordinance, the matters that must be kept under review includes policies that should be followed in relation to the prevention or reduction of pollution. The Planning Ordinance further has provisions dealing with the storage, treatment or removal of any deposit or waste material and the penalties that will apply in cases of non-compliance with waste land notices.

2. Paragraph 17 to the Schedule for the Planning (General) Regulations 1991 specifies the fees payable for permission to use land for disposal of refuse or waste materials

3. The Litter Ordinance 1986 is aimed at preventing littering, but it is weak in its effect and enforcement.

4. The Building Control Ordinance 1994 which gives the Governor power to make regulations for purposes of preventing waste or contamination of water[5], relating to waste disposal units[6] and storage, treatment and removal of waste[7].

5. The Building Regulations of 1999 requires septic tanks and soakaways to be 'designed, constructed and sited as not to create a risk of pollution of any river, spring, stream, watercourse or well which is used or likely to be used to supply water for drinking, cooking or other domestic purposes'.[8] In addition, the building Regulations further provides that septic tanks and soakaways must be so sited that it is not by reason of proximity to any building used by people a likely source of danger to health or a likely nuisance. The Building Regulations

[4] See section 13(1) of the Planning Ordinance.
[5] See section 3(1)(b) of the Building Control Ordinance.
[6] See Schedule 1, paragraph 3(a)(x).
[7] See Schedule 1, paragraph 3(a)(xii).
[8] See Regulation 62(2)(a) of the Building Regulations.

further has regulations dealing with the discharge of waste and waste water from homes and premises.

6. The Fishery Products (Hygiene) Regulations 2012 further outlines the special conditions for handling fishery products on shore and these conditions states that waste stored in an establishment must not become a source of pollution of its surroundings; provides for the need for a hygienic waste water disposal system in places where fish is sold; requires fish establishments on land to have a hygienic waste water disposal system; prohibits the accumulation of Waste in working areas on shore.

7. The Fisheries (Action Plans) Regulations 2021 also provides that the Action Plans drafted by the Fisheries Director in terms of section 17E of the Fisheries Ordinances must include goals relating to caring for the environment which are to minimise and mitigate pollution or contamination of land, air and water through sound management; ensuring the minimisation of waste products and encouraging re-use and recycling of waste; and to demonstrate a commitment to climate change responses as appropriate and practicable[9].

8. The Fishery Products Ordinance 2006 outlines offences relating to pollution of controlled waters, which can be inland waters[10]; furthermore, consent to the discharge of trade effluent or sewage effluent into controlled waters is required from the Governor.

9. The Organic Foods Ordinance 2000 provides that the storage facilities for livestock manure must be of a capacity to preclude the pollution of water by direct discharge, or by run-off and infiltration of the soil[11].

10. The Child Minding and Day Care Regulations 2018 provides that the registered person of a child minding and day care premises must ensure that the premises are kept free from offensive odours and must make suitable arrangements for the disposal of general and clinical waste[12].

[9] See Regulation 7 of the Fisheries (Action Plans) Regulations 2021
[10] See section 7 of the Fishery Products Ordinance 2006
[11] See section 12(d) of the Organic Foods Ordinance 2000
[12] See Regulation 40(3) of the Child Minding and Day Care Regulations 2018

11. The General Development Order 1991 prohibits shops specified under Schedule 1 and certain offices specified under Schedule 2 to be used for the deposit of refuse or waste materials of any kind. (see Articles 3(4)(j) and 4(10) of the General Development Order).

12. The Criminal Procedure and Evidence Ordinance 2014 further provides for the disposal of samples taken in terms of that Ordinance and states that such samples can be disposed of as clinical waste[13].

13. The Dogs (Fouling of Land) Ordinance 2000 which make provision with respect to the fouling of land by dogs and provides for offences that apply should a person who is in charge of a dog that defecates on land fails to remove the faeces from such land[14].

14. In terms of section 4(1)(i) of the Livestock and Meat Products Ordinance 2010 the Governor is given power to make regulations relating to the disposal of waste produced in the course of slaughtering animals or preparing meat.

15. The Livestock and Meat Products (Animal By-Products) Regulations 2015 specifies how animal by products must be disposed of, which includes by incineration; co-incineration; burning; or by burial[15].

16. In terms of Regulation 7(1)(a) of Livestock and Meat Products (Hygiene) Regulations 2015 the abattoir operator must put in place measures to control hazards in primary production and associated operations including measures to control contamination arising from the air, soil, water, feed, fertilisers, veterinary medicinal products, the storage, handling and disposal of waste.

17. Regulation 8(1) of the Livestock and Meat Products (Hygiene) Regulations further states that the competent authority must publish guidance on good hygiene practice for the control of

[13] See the Criminal Procedure and Evidence Ordinance 2014, Code 'C' Code of Practice for the Detention, Treatment and Questioning of Persons by Police Officers, paragraph C17.16(b)
[14] See section 3 of the Dogs (Fouling of Land) Ordinance 2000.
[15] See Regulations 13 to 16 of the Livestock and Meat Products (Animal By-Products) Regulations.

hazards in primary production and associated operations. Such Guidance may include the proper disposal of dead animals, waste and litter. These regulations also provide for the need to store and handle waste and hazardous substances so as to prevent contamination by a person in control of an animal going for slaughter. (see Regulation 9(1)). The competent authority is further mandated to put in place measures aimed at the proper disposal of dead animals, waste and litter (see Regulation 9(3)(f)). Part D of Schedule 1 of these regulations further outline other rules relevant to Waste Management for abattoir operators.

18. Section 41(1) of the Mining Ordinance 2005 provides that any person who wishes to obtain ancillary rights in his favour, i.e. the applicant, shall endeavour to negotiate an agreement with every owner and occupier of the relevant land in order to prospect, explore or mine on or in land, or to erect or put in place or construct any necessary buildings, pipes or cables, roads or other access ways or discharge waste water or other waste on land.

19. Paragraphs 13 of Schedule 1 and 3 of the Mining (Prospecting and Exploration for Minerals) Regulations 2022 provides that the licensee must remove and properly dispose of all equipment, vehicles, buildings and waste materials, used, placed or erected on the licensed area in connection with carrying out the work programme before the date on which the licence expires. Furthermore, paragraph 12(1) of Schedule 3 of the Mining (Prospecting and Exploration for Minerals) Regulations 2022 provides that before commencing activities under the work programme the licensee must carry out an assessment of the potential environmental impacts and the management plan they will implement to manage/remedy those impacts, including the management and disposal of waste and spoil.

20. The Governor is empowered in terms of section 10(b)(ii) of the Stanley Common Ordinance 1999, to make regulations designating specific areas of the Common as areas where refuse, waste water or sewerage may be deposited, treated or carried and within which associated development may be carried out (where that development is necessary or desirable for the better establishment and management of any such area).

21. Paragraph 4 of Schedule 3 of the Stanley Common (Permitted Development) Regulations 2021 provides that all waste receptacles must be adequately secured to prevent the contents being

dispersed in high winds. In addition, the Director of Policy and Economic Development has an obligation to ensure that such receptacles are checked and emptied regularly.