



IFC

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Cumulative Impact Study Uruguay Pulp Mills

Annex I: Glossary

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ANNEX I

Glossary

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Activated sludge process	Biological treatment of wastewater where micro-organisms remove organic matter. The micro-organisms, known as activated sludge, are recycled back into the system. Also known as "Activated Sludge Treatment" or "Waste Activated Sludge Treatment"
Adsorbable Organic Halogens (AOX)	Adsorbable Organic Halogens is a measurement often used in waste water testing to indicate the overall level of the halogens, fluorine, chlorine, bromine and iodine. This "sum parameter" comes from a standard analytical procedure, which gives no information on the source or nature of halogens present nor on their toxicity. It has the advantage of being simple to measure; alternative methods of measuring levels of individual compounds are complex and require costly equipment.
Airborne Particulates	Total suspended particulate matter found in the atmosphere as solid particles or liquid droplets. Chemical composition of particulates varies widely, depending on location and time of year. Airborne particulates include: windblown dust, emissions from industrial processes, smoke from the burning of wood and coal, and the exhaust of motor vehicles
Afforestation Air Contaminant	The planting of trees on open land. Any particulate matter, gas, or combination thereof, other than water vapour or natural air. (See: air pollutant.)
Air Dry (AD)	Refers to the weight of dry pulp in equilibrium with the atmosphere. As a convention, the term "air dry" signifies 90% dry fibre and 10% moisture. For example, one air dry ton (ADt) of pulp is 900 kg oven dry (OD) pulp. The abbreviation t_{90} is frequently used in Scandinavia.
Air Pollutant	Any substance in air which could, if in high enough concentration, harm man, other animals, vegetation, or material. Pollutants may include almost any natural or artificial composition of matter capable of being airborne. They may be in the form of solid particles, liquid droplets, gases, or in combinations of these forms. Generally, they fall into two main groups: (1) those emitted directly from identifiable sources and (2) those produced in the air by interaction between two or more primary pollutants, or by reaction with normal atmospheric constituents, with or without photo-activation
Air Pollution	The presence of contaminant or pollutant substances in the air that do not disperse properly and interfere with human health or welfare, or produce other harmful environmental effects
Algae	Simple rootless plants that grow in sunlit waters in relative proportion to the amounts of nutrients available. They can affect water quality adversely by lowering the dissolved oxygen in the water. They are food for fish and small aquatic animals, and may be beneficial or harmful, depending on the local situation.

Algal Blooms	Sudden spurts of algal growth, which can affect water quality adversely and indicate potentially adverse changes in local water chemistry
Ambient Air	Any unconfined portion of the atmosphere: open air, surrounding air
Anadromous	Fish that spend their adult life in the sea but swim upriver to fresh-water spawning grounds to reproduce
Anaerobic	A process that occurs in, or is not destroyed by, the absence of oxygen
Aquifer	An underground geological formation, or group of formations, containing usable amounts of groundwater that can supply wells and springs
Area Source	Any small source of non-natural air pollution that is released over a relatively small area but which cannot be classified as a point source. Such sources may include multiple vehicles and other small fuel combustion engines.
A-Scale Sound Level	A measurement of sound approximating the sensitivity of the human ear, used to note the intensity or annoyance of sound
Attenuation	The process by which a compound is reduced in concentration over time, through adsorption, degradation, dilution, and/or transformation
Autotrophic	An organism that produces food from inorganic substances
Background Level	The concentration of substances in a definite area during a fixed period of time prior to the starting up or on the stoppage of a source of discharge/emission under control
Best Available Technique (BAT)	Techniques that an institution determines, after examination for efficacy under field conditions and not solely under laboratory conditions, to be the best available (taking cost into consideration). BAT is a requirement under the EU Directive on Integrated Pollution Prevention and Control.
Benthic (Benthos)	A form of aquatic plant or animal life that is found on or near the bottom of a stream, lake or ocean
Bioaccumulation	The accumulation of a substance in an organism. Uptake can occur through inhalation, ingestion and/or dermal contact. The rate of accumulation depends on the concentration of the substance, the frequency of exposure, and the balance between the accumulation and elimination of the substance in the tissues.
Biochemical Oxygen Demand (BOD)	<p>A measure of the amount of oxygen consumed in the biological processes that break down organic matter in water.</p> <p>BOD₅ - the amount of dissolved oxygen consumed in five days under specified conditions by biological processes breaking down organic matter</p>

Biological Oxidation	The process of bacteria and micro-organisms feeding on and decomposing complex organic materials. Final products are mostly carbon dioxide and water. Used in self-purification of water bodies and in activated sludge wastewater treatment
Biological Treatment	A treatment technology that uses bacteria to reduce the organic content of waste waters. This treatment breaks down organic materials, generally to benign components, mostly water and carbon dioxide.
BK, BKM, BKME	Abbreviations for Bleached Kraft, Bleached Kraft Mill, and Bleached Kraft Mill Effluent. All refer to a pulp mill that operates by the kraft or sulphate process, and bleaches some or all of the product.
Black Liquor	The liquor that exits the digester with the cooked chips at the end of the Kraft cook is called "black" liquor. Black liquor is burned in the recovery boiler to produce energy and recover chemicals.
Bleaching	In the context of this report, refers to raising the brightness of chemical pulps by selective chemical removal of residual lignin and other coloured materials.
Brightness	The reflectance or brilliance of the paper when measured under a specially calibrated blue light. Not necessarily related to color or whiteness. Brightness is expressed in % of an arbitrary brightness level. Most mills use the ISO scale today.
Brown Stock	Kraft slush pulp prior to bleaching. Unbleached pulp from an alkaline pulping process.
Carrying Capacity	In recreation management, the amount of use a recreation area can sustain without deterioration of its quality In wildlife management, the maximum number of animals that an area can support during a given period of the year
Cellulose	It is a high molecular weight, stereoregular, and linear polymer of repeating beta-D-glucopyranose units. Simply speaking it is the chief structural element and major constituents of the cell wall of trees and plants.
Chemical Oxygen Demand (COD)	A measure of the oxygen required to oxidise virtually all compounds in water, both organic and inorganic, in specified laboratory test conditions.
Coefficient of Haze (CoH)	A measurement of visibility interference in the atmosphere
Coliform Organism	Micro-organisms found in the intestinal tract of humans and animals. Their presence in water indicates faecal pollution and potentially dangerous bacterial contamination by disease-causing micro-organisms.
Condensate	Water condensed from steam which has come into contact with a surface at a lower temperature. Contaminated or foul condensate usually refers to a condensed vapor from evaporation of black liquor.

Confined Aquifer	An aquifer in which ground water is confined under pressure which is significantly greater than atmospheric pressure
Conservation	Avoiding waste of, and renewing when possible, human and natural resources. The protection, improvement, and use of natural resources according to principles that will assure their highest economic or social benefits
Contaminant	Any physical, chemical, biological, or radiological substance or matter that has an adverse affect on air, water, or soil
Contingency Plan	A document setting out an organised, planned, and coordinated course of action to be followed in case of a fire, explosion, or other accident that releases toxic chemicals, hazardous wastes, or radioactive materials that threaten human health or the environment
Cooking	In the context of the pulp industry, reacting fibrous raw material (normally wood) with chemicals under pressure and temperature to separate fibres from lignin
Cooking Liquor	Liquor made up of selected chemicals and used for cooking pulp. e.g. cooking liquor in kraft pulping mainly consists of NaOH and Na ₂ S, and is known as “white liquor”.
Decibel (dB)	A unit of sound measurement. In general, sound doubles in loudness for every 10 dB
Delignification	The removal of lignin, the material that binds wood fibers together, during the chemical pulping or bleaching processes
Detergent	Synthetic washing agent that helps to remove dirt and oil. Some contain compounds which kill useful bacteria and encourage algae growth when they are in wastewater that reaches receiving waters
Digester	The reaction vessel in which wood chips or other plant materials are cooked with chemicals (white liquor in the context of this report) to separate fiber by dissolving lignin
Dispersant	A chemical agent used to break up concentrations of organic material such as spilled oil
Disposal	Final placement or destruction of toxic, radioactive, or other wastes; surplus or banned pesticides or other chemicals; polluted soils; and drums containing hazardous materials from removal actions or accidental releases. Disposal may be accomplished through use of approved secure landfills, surface impoundments, land farming, deep well injection, ocean dumping, or incineration

Dissolved Oxygen (DO)	The oxygen freely available in water. Dissolved oxygen is vital to fish and other aquatic life and for the prevention of odours. Traditionally, the level of dissolved oxygen has been accepted as the single most important indicator of a water body's ability to support desirable aquatic life. Secondary and advanced waste treatments are generally designed to protect DO in waste-receiving waters.
Dissolved Solids	Disintegrated organic and inorganic material contained in water. Excessive amounts make water unfit to drink or use in industrial processes
Dredging	Removal of mud from the bottom of water bodies using a scooping machine. This disturbs the ecosystem and causes silting that can smother and/or kill aquatic life. Dredging of contaminated muds can expose aquatic life to heavy metals and other toxics
Dregs	In the context of the kraft pulping process, the solids which settle down in the green liquor clarifiers in the Causticizing process
Dump	A site used to dispose of solid wastes without environmental controls
Elemental Chlorine Free (ECF)	ECF pulps are bleached exclusively with chlorine dioxide rather than elemental chlorine gas or hypochlorites as a bleaching agent. This virtually eliminates the discharge of detectable dioxins in the effluent of pulp manufacturing facilities
Ecological Impact	The effect that a man-made or natural activity has on living organisms and their non-living (abiotic) environment
Ecology	The relationship of living things to one another and their environment, or the study of such relationships
Ecosystem	The interacting system of a biological community and its non-living environmental surroundings
Effluent	Wastewater—treated or untreated—that flows out of a treatment plant, sewer, or industrial outfall. Generally refers to wastes discharged into surface waters
Emission	Pollution discharged into the atmosphere from smokestacks, other vents, and surface areas of commercial or industrial facilities; from residential chimneys; and from motor vehicle, locomotive, or aircraft exhausts
Endangered Species	Animals, birds, fish, plants, or other living organisms threatened with extinction by man-made or natural changes in their environment
Enrichment	The addition of nutrients (e.g., nitrogen, phosphorus, carbon compounds) from effluent or agricultural runoff to surface water. This process greatly increases the growth potential for algae and aquatic plants

Environment	The sum of all external conditions affecting the life, development and survival of an organism
Environmental Audit	An independent assessment of the current status of a party's compliance with applicable environmental requirements An independent evaluation of a party's environmental compliance policies, practices, and controls
Environmental Impact Statement	A document required for major projects or legislative proposals significantly affecting the environment. A tool for decision making, it describes the positive and negative effects of the undertaking and lists alternative actions
Eutrophication	The slow aging process during which a lake, estuary, or bay evolves into a bog or marsh and eventually disappears. During the later stages of eutrophication the water body is choked by abundant plant life as the result of increased amounts of nutritive compounds such as nitrogen and phosphorus. Human activities can accelerate the process
Evaporation Ponds	Areas where sewage sludge is dumped and allowed to dry out
Extractives	Non-structural chemical components of wood that are extracted into the wastewater during the wood pulping process.
Feasibility Study	Analysis of the practicability of a proposal; e.g., a description and analysis of the potential development alternatives for a site or alternatives for a site. The feasibility study usually recommends selection of a cost-effective alternative.
Fugitive Emissions	Emissions not caught by a capture system, usually from small or ill-defined points
Green Liquor	The liquor that results when the inorganic smelt from the recovery furnace is dissolved in water is called "green" liquor. It is a solution of various salts, mostly sodium carbonate and sodium sulphide.
Grits	In kraft mills, the inert lime rejected from the slaker in the recausticising department, includes impurities such as sand and unconverted limerock or limemud.
Ground Water	The supply of fresh water found beneath the Earth's surface, usually in aquifers, which is often used for supplying wells and springs. Because ground water is a major source of drinking water there is growing concern over areas where leaching agricultural or industrial pollutants or substances from leaking underground storage tanks are contaminating ground water
Habitat	The place where a population (e.g., human, animal, plant, micro-organism) lives and its surroundings, both living and non-living
Hydrogeology	The geology of ground water, with particular emphasis on the chemistry and movement of water

Hydrology	The science dealing with the properties, distribution, and circulation of water
kappa Number	A measure of lignin in pulp, according to a standard laboratory procedure. Bleachable grades of unbleached kraft pulp generally have a kappa number from 5 to 35, depending on the wood species and the extent of delignification. When extended delignification is practiced in a mill, the wide range of lignin content is more accurately reflected by the kappa number than by the permanganate number (K No.).
Kraft Pulp	Chemical wood pulp produced by cooking wood chips in a hot solution of sodium sulphide and sodium hydroxide. Originally a strong, unbleached coniferous pulp for packaging papers, kraft pulp has now spread into the realms of bleached pulps from both coniferous and deciduous woods for printing papers
Landfills	Land disposal sites for solid wastes at which the waste is spread in layers, compacted to the smallest practical volume, and cover material applied
Lignin	Complex mixture of organic substances present in wood that binds to cellulose fibers and gives plant tissues their strength. Lignin is separated from wood fibres during the pulping process.
mg/L	Milligrams of the substance in question, contained in one litre of solution. Roughly speaking, parts per million. This is a common unit for assessing water quality.
Mitigation	Measures taken to reduce adverse impacts on the environment
Monitoring	Periodic or continuous surveillance or testing to determine the level of compliance with statutory requirements and/or pollutant levels in various media or in humans, animals, and other living things
NCG	Non-condensable gases are gases emitted from several parts of the kraft pulping process that do not condense in the commonly installed condensing equipment. TRS, turpentine vapors and/or methanol are the predominant components. NCG are extremely malodorous, and are the dominant cause of the notorious kraft mill odour. They are contained and incinerated in modern mills.
Non-detectable	Refers to failure to detect a substance when analysing a sample. The minimum level of detection depends on many factors in addition to the characteristics of the substance itself, so the threshold of detection cannot be defined simply. The lower limits of detection of most pollutants are decreasing rapidly with time, due to extensive research, so that caution is required in interpreting the term "non-detectable"

Non-Point Source	<p>Pollution sources which are diffuse and do not have a single point of origin or are not introduced into a receiving stream from a specific outlet. The pollutants are generally carried off the land by stormwater runoff. The commonly used categories for non-point sources are: agriculture, forestry, urban, mining, construction, dams and channels, land disposal, and saltwater intrusion</p> <p>May also refer to diffuse sources of atmospheric emissions</p>
Opacity	<p>The amount of light obscured by particulate pollution in the air; clear window glass has a zero opacity; a brick wall has 100 percent opacity. Opacity is used as an indicator of changes in performance of particulate matter pollution control systems</p> <p>May also refer to obstruction of light in water.</p>
Organochlorine	<p>Chlorine which is combined with organic molecules or bound to them. Many organochlorines are formed in bleaching processes whenever chlorine or chlorine-based compounds are used. Thousands of chlorinated organic compounds exist, but only a small proportion of those in pulp mill effluents have been identified. AOX is one of many ways of measuring organochlorines, and it expresses the result the weight of organically bound chlorine, not the weight of chlorinated organic molecules.</p>
Oven dry (OD)	<p>Pulp or paper dried in an oven by a standard laboratory procedure to the point where it contains no moisture. The term Bone Dry (BD) was commonly used synonymously. When applied to market pulp, the oven dry weight of the pulp divided by 0.9 by definition equals the air dry weight (see Air dry).</p>
Oxidation Pond	<p>A man-made lake or body of water in which organic components of waste water are consumed by bacteria. It is used most frequently with other waste-treatment processes.</p>
Particulates	<p>Fine liquid or solid particles such as dust, smoke, mist, fumes, or smog, found in air or emissions</p>
Permanganate Number	<p>A mill test that measures the degree of cooking, or delignification of kraft pulp. Although, it is related to lignin content, it does not have a linear relationship to it. For both high yield and low lignin content pulps, the kappa number was developed to provide a linear measure of lignin over a wide test range.</p>
pH	<p>A measure of the acidity or alkalinity of a liquid or solid material</p>
Physical and Chemical Treatment	<p>Processes generally used in large-scale waste-water treatment facilities. Physical processes may involve air-stripping or filtration. Chemical treatment includes coagulation, chlorination, or ozone addition. The term can also refer to treatment processes, treatment of toxic materials in surface waters and ground waters, oil spills, and some methods of dealing with hazardous materials on or in the ground</p>

Plantation	Plantations are the intentional planting of trees for the production of wood products and other purposes, such as cattle grazing, production of honey and special oils from leaves, CO ₂ sequestration, and prevention of soil erosion.
Point Source	A stationery location or fixed facility from which pollutants are discharged or emitted. Also, any single identifiable source of pollution, e.g., a pipe, ditch, ship, ore pit, factory smokestack
Pollutant	Generally, any substance introduced into the environment that adversely affects the usefulness of a resource
Pollution	Generally, the presence of matter or energy whose nature, location or quantity produces undesired environmental effects
Potable Water	Water that is safe for drinking and cooking
ppm	Parts per million, a way of expressing tiny concentrations of pollutants in air, water, soil, human tissue, food, or other products
Precipitator (electrostatic)	A piece of equipment which uses electrostatic forces to recover solids from a gas stream by the use of high voltages applied to plates or wires in the stream.
Precursors	A group of unchlorinated dioxins/furans which have the potential to be transformed into chlorinated dioxins/furans during combustion or treatment with elemental chlorine such as in the pulp bleaching process.
Pretreatment	Describes initial treatment processes before an effluent reaches primary treatment. The processes are designed to remove grit, coarse material and debris, to neutralize acid or alkaline wastes, and to equalize the effluent characteristics and flows. This is carried out by mixing the collected effluent streams and directing occasional large flows or concentrated streams to spill tanks or basins. This is a normal part of operations in a modern pulp mill.
Primary treatment	Process and equipment intended to remove suspended solids from the effluent. Normally includes dewatering the recovered settled solids or sludge to facilitate disposal to landfill or by combustion. Incidental removal of BOD, AOX and COD also occurs. Primary treatment is a pre-requisite for most secondary treatment processes.
Receiving Waters	A river, lake, ocean, stream or other watercourse into which wastewater or treated effluent is discharged
Recovery Boiler	Boiler used to burn black liquor from chemical pulping for recovery of inorganic chemicals as well as for energy production
Residual	Amount of a pollutant remaining in the environment after a natural or technological process has taken place, e.g., the sludge remaining after initial wastewater treatment, or particulates remaining in air after the air passes through a scrubbing or process

Ringlemann Chart	A series of shaded illustrations used to measure the opacity of air pollution emissions. The chart ranges from light grey through black and is used to set and enforce emissions standards
Riparian Habitat	Areas adjacent to rivers and streams that have a high density, diversity, and productivity of plant and animal species relative to nearby uplands
Risk Assessment	The qualitative and quantitative evaluation performed in an effort to define the risk posed to human health and/or the environment by the presence or potential presence and/or use of specific pollutants
Risk Management	The process of evaluating alternative regulatory and non-regulatory responses to risk and selecting among them. The selection process necessarily requires the consideration of legal, economic and social factors
River Basin	The land area drained by a river and its tributaries
Runoff	That part of precipitation, snow melt, or irrigation water that runs off the land into streams or other surface-water. It can carry pollutants from the air and land into the receiving waters
Secondary Treatment	A stage of waste treatment in which micro-organisms decompose organic constituents in the effluent. In the process, they use oxygen for their metabolism and to oxidize the waste material. Most secondary treatment processes also reduce toxicity. Frequently known as “biological treatment”
Solid Waste	Non-liquid., non-soluble materials ranging from municipal garbage to industrial wastes that may contain complex, and/or hazardous, substances. Solid wastes include sewage sludge, agricultural refuse, demolition wastes, and mining residues
Sulphate Pulp	A term that is often used for kraft pulp, especially in Scandinavian literature.
Surface Water	All water naturally open to the atmosphere (rivers, lakes, reservoirs, streams, impoundments, seas, estuaries, etc.) and all springs, wells, or other collectors which are directly influenced by surface water
Suspended Solids	Small particles of solid pollutants that float on the surface of, or are suspended in effluent or other liquids
SWOT Analysis	A tool for evaluating Strengths, Weaknesses, Opportunities and Threats for a project.
Tertiary Treatment	This is a final process of effluent treatment after primary and secondary treatment steps. It embraces a broad range of processes used to remove items such as colour, odour, taste and toxicity. It is often used for removing nutrients, especially phosphorus, from municipal effluents, but is very rarely used in the pulp industry.

Total Chlorine Free (TCF)	Refers to bleaching pulp without use of chlorine in any form. Hydrogen peroxide, oxygen ozone or peracetic acid are the most common TCF bleaching agents.
Total Reduced Sulfur (TRS)	A general term for sulphur gases emitted from the kraft process, excluding sulphur dioxide and trioxide. Generally considered to include hydrogen sulphide, dimethyl sulphide, dimethyl disulphide and methyl mercaptan. These gases are the principal cause of the classic kraft mill odour. They are generated by the reaction of sodium sulphide with some of the wood components. TRS is normally expressed as elemental sulphur.
Total Suspended Solids (TSS)	A measure of the suspended solids in wastewater, effluent, or water bodies, determined by using tests where the sample is passed through a filter screen and the material captured is weighed.
Turbidity	Haziness in air caused by the presence of particles and pollutants A similar cloudy condition in water due to suspended silt or organic matter
µg/L	Micrograms per litre. Roughly speaking, a part per billion, or only one-thousandth of the strength of one mg/L.
Vegetative Propagation	Non-genetic manipulation to obtain the reproduction a new tree seedling from a small portion of a mother tree.
Volatile Organic Compound (VOC)	Any organic compound which participates in atmospheric photochemical reactions
White Liquor	White liquor is the aqueous solution of sodium hydroxide & sodium sulfide used as the cooking liquor in Kraft pulping.
Zero Concentration	Zero concentration of any substance is unattainable in today's world of rapid advances in analytical chemistry. A substance may be non-detectable but it is scientifically inaccurate to state that the concentration of any substance in an effluent sample is zero. The authors have, therefore, refrained from such terms as "zero concentration" or "elimination" of discharges of specific substances, unless they are qualified by adjectives such as "virtual", or in a special situation such as "a waste stream is totally eliminated".
Zooplankton	Tiny aquatic animals eaten by fish