Convention on Environmental Impact Assessment in a Transboundary Context
United Nations Economic Commission for Europe

ENVIRONMENTAL IMPACT ASSESSMENT CHECKLIST
CONSOLIDATED LIST

Activities

References provided at end of document.

Project 1 - Crude Oil Refineries and installations for the gasification and liquefaction of coal or bitumous shale

Comments:

CATEGORY	FACTOR	COMMENTS
AIR	ammonia	hazardous substance, aquatic life, human health, water quality - reference 3
	benzene	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life
	carbon monoxide (CO)	greenhouse gases - reference 1
	carbon dioxide (CO2)	
	heavy metals:	reference 2
	lead (Pb)	human health, flora, fauna, soil
	nickel (Ni)	
	zinc (Zn)	
	copper (Cu)	
	hydrogen fluoride	hazardous substance, hazardous waste, corrosive material, human health - reference 3
	hydrogen sulphide	hazardous substance, hazardous waste, flammable gas, poison, health effects, aquatic life (long term) - reference 3
	mercaptans	human health, odour
	persistent organic pollutants	
	poly-aromatic hydrocarbons (PAH)	carcinogenic, priority toxic pollutant, human health, flora, fauna, aquatic life- reference 4
	organohalogens	
	hexachlorobutadiene	carcinogen, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life, reference 4 & 5
	1,2-dibromoethane (ethelene dibromide)	carcinogen, hazardous substance, hazardous waste, human health, fauna, aquatic life, water quality
	oxides of nitrogen (NOx) / NxO	acid rain, soil, flora, fauna, human health
	oxides of sulphur (SOx)	acid rain, photooxidants, soils, fauna, health
	phenol compounds	hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life
	radionuclides	human health, fauna, water, aquatic life
	sulphur compounds	flora, fauna, aquatic life, historical monuments
	photo chemical oxidants	ozone
	methane (CH4)	greenhouse gas, explosive
	non methane volatile organic compounds (VOC)	greenhouse gas, volatile, flora
	other hazardous substances	human health, flora, fauna
	particle emissions	climate change, flora, aquatic life, human health, historical sites
	oil vapour	human health, flora, aquatic life, historical sites
	odour	human health
	noise	
	waste heat	climate change, flora

CATEGORY	FACTOR	COMMENTS
WATER	ammonia	hazardous substance, aquatic life, human health, water quality - reference 3
	benzene	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life
	heavy metals:	reference 2
	lead (Pb)	human health, flora, fauna, soil
	zinc (Zn)	
	copper (Cu)	
	nickel (Ni)	
	hydrogen fluoride	hazardous substance, hazardous waste, corrosive material, human health - reference 3
	hydrogen sulphide	hazardous substance, hazardous waste, flammable gas, poison, health effects, aquatic life (long term) - reference 3
	organohalogens	reference 5
	hexachlorobutadiene	carcinogen, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life, reference 4 & 5
	1,2-dibromoethane (ethelene dibromide)	carcinogen, hazardous substance, hazardous waste, human health, fauna, aquatic life, water quality
	phenolic compounds	hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life
	sulphates	aquatic life, water quality
	other hazardous substances	water quality, aquatic life, human health
	nutrients	water quality, aquatic life
	oil products	
	chemical oxygen demand (COD)	
	total organic carbon (TOC)	
	biological oxygen demand (BOD)	
	change in pH	
CLIMATE	changes in ambient air temperature	
	particle emissions	
	greenhouse gases, ozone	methane gas, CO, CO2, SOx, NOx, photochemical oxidants
FLORA	changes in natural vegetation	pollutants, project location
	disturbance of aquatic habitat	
	disturbance of plant habitat	
	disturbance of natural vegetation	
	decrease in biodiversity	pollutants
	impact of threatened species	pollutants, project location
	changes in species population	
	changes in aquatic food web	pollutants, project location
	changes in mammal food web	
	impact on protected areas	
	changes to agricultural crops	
FAUNA	migratory changes - mammals	project location
	disturbance of wildlife habitat	
	decrease in biodiversity	pollutants, project location
	impact on threatened species	
	changes in species population	pollutants
	impact on threatened area	pollutants, project location
	changes in mammal food web	
SOIL	soil contamination	heavy metals, POP, radionuclides
	erosion	disturbance of surface area

CATEGORY	FACTOR	COMMENTS
LANDSCAPE	land use changes	
	visual aspects	
	physical composition	
	impact on sensitive lands	
HISTORICAL MONUMENTS	archaeological changes	
	palaeontological changes	
	changes to historical sites	acid rain pollution
HUMAN HEALTH & SAFETY	changes in ambient noise levels	during construction, plant operation
	changes in disease incidence	lung disease (heavy metals), pregnant woman (Hg), blood disorders (Pb,Cd,Co,Ni)
	risk of spills	
	risk of surface water contamination	
	risk of ground water contamination	
	risk of explosions	
CULTURAL HERITAGE	cultural changes	
	land use changes	
	way of life	
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	quality of recreational facilities	
	quantity of recreational facilities	
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

Project 2A - Thermal Power Stations and other combustion installations

Comments: If the fuel is treated by desulphurisation or de NO_x processes, the by-products from treatment processes should be considered under the EIA. Often by-product consists of sludge and water. This is to be further treated or disposed of in acceptable manners. Other by-products can consist of other chemical compounds resulting from the reaction of the unwanted by-product with another agent. The by-product is often a substance that can be used of in other processes.

CATEGORY	FACTOR	COMMENTS
AIR	ammonia (NH3)	greenhouse gas, aquatic life, flora, reference 1 & 3
	carbon monoxide (CO)	greenhouse gas, climate change, reference 1 & 3
	carbon dioxide (CO2)	greenhouse gas
	heavy metals:	micropollutants, health and ecological problems, persistence, toxicity and bio-accumulation characteristics - reference 2
	lead (Pb)	
	mercury (Hg)	
	cadmium (Cd)	
	nickel (Ni)	
	chromium (Cr)	
	zinc (Zn)	
	arsenic (As)	
	copper (Cu)	
	selenium (Se)	
	methane (CH4)	greenhouse gas, reference 1
	non-methane volatile organic compounds (NMVOC)	volatile, climate change, flora, reference 1
	oxides of nitrogen (NOx) / NxO	acid rain, human health, flora, fauna, historical sites, reference 1
	oxides of sulphur (SOx)	
	peroxiacethylnitrates (PAN)	flora
	persistent organic pollutants	reference 4
	poly-aromatic hydrocarbons (PAH)	carcinogenic, hazardous waste, priority toxic pollutant, human health, fauna, aquatic life
	benzo (a) pyrene	most common, most hazardous PAH
	photochemical oxidants	ozone
	radionuclides	human health, fauna, water, aquatic life
	other hazardous substances	human health, flora, fauna
	particle emissions	climate change, human health, historical sites, soil
	oil vapour	historical sites, human health, flora
	odour	human health
	noise	
	vibration	
	steam	waste heat, climate change
WATER	heavy metals:	leachates - contamination of ground water and surface water - reference 2
	lead (Pb)	
	mercury (Hg)	
	cadmium (Cd)	
	nickel (Ni)	
	chromium (Cr)	
	zinc (Zn)	
	arsenic (As)	
	vanadium (Vn)	
	nutrients	water quality, aquatic life
	oil products	
	persistent organic pollutants	reference 4
	poly-aromatic hydrocarbons (PAH)	carcinogenic, hazardous waste, priority toxic pollutant, human health, fauna, aquatic life
	benzo (a) pyrene	most common, most hazardous PAH
	sulphates	water quality, aquatic life

CATEGORY	FACTOR	COMMENTS
	other hazardous substances	water quality, aquatic life, human health
	dissolved solids	water quality, aquatic life
	suspended solids	
	total solids	
	temperature	aquatic life
	change in pH	water quality, aquatic life
CLIMATE	changes in ambient air temperature	
	particle emissions	
	changes in humidity	
	greenhouse gas emissions, ozone	CO, CO2, methane, NOx, NxO, SOx
FLORA	changes in natural vegetation	pollutants, project location
	disturbance of plant habitat	
	disturbance of natural vegetation	
	decrease in biodiversity	pollutants
	impact of threatened species	pollutants, project location
	changes in species population	
	changes in mammal food web	
	impact on protected areas	
FAUNA	disturbance of wildlife habitat	pollutants, project location
	decrease in biodiversity	
	impact on threatened species	
	changes in species population	
	impact on threatened area	
	changes in mammal food web	
SOIL	soil acidification	heavy metals, other pollutants
	soil contamination	
	by-products / wastes	
LANDSCAPE	land use changes	
	visual aspects	
	physical composition	
	impact on sensitive lands	
HISTORICAL MONUMENTS	changes to historical sites	soiling, staining, acid rain
HUMAN HEALTH & SAFETY	changes in ambient noise levels	during project construction, operation
	changes in disease incidence	
	risk of spills	
	risk of surface water contamination	
	risk of ground water contamination	
	increase risk of accidents	
	risk of explosions	
CULTURAL HERITAGE	land use changes	
	way of life	
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

Project 2B - Nuclear Power Stations

Comments: Consideration should be given to de-commissioning of plants and disposal of spent fuel.

CATEGORY	FACTOR	COMMENTS
AIR	heavy metals:	reference 2
	cadmium (Cd)	toxic pollutant, hazardous substance, human health and aquatic life
	beryllium (Be)	carcinogen, hazardous substance, priority toxic pollutant, soil, flora, fauna, human
	radioactive isotopes	human health, fauna
	radioactive actinides	
	water vapour	climate change
WATER	heavy metals:	reference 2
	cadmium (Cd)	toxic pollutant, hazardous substance, human health and aquatic life
	beryllium (Be)	carcinogen, hazardous substance, priority toxic pollutant, soil, flora, fauna, human
	iodine	human health, aquatic life, water quality
	radioactive isotopes	
	wastes / by-products	human health, aquatic life, water quality, fauna, flora, soil
	temperature change	water quality, aquatic life, climate
CLIMATE	changes in ambient air temperature	
	changes in surface water temperature	
	changes in humidity	
FLORA	disturbance of aquatic habitat	project location, changes in water temperature
	disturbance of plant habitat	project location
	disturbance of natural vegetation	project location, emissions
	decrease in biodiversity	emissions
	impact of threatened species	
	impact on protected areas	project location, emissions
FAUNA	disturbance of wildlife habitat	after accidents - deformation
	decrease in biodiversity	emissions
	impact on threatened species	
	impact on threatened area	
SOIL	soil contamination	radio-isotopes
	wastes / by-products	disposal sites, spent fuel
LANDSCAPE	land use changes	
	visual aspects	negative connotations when one sees nuclear power plants
	physical composition	
	impact on sensitive lands	
	wastes / by-products	disposal sites, spent fuel
HUMAN HEALTH & SAFETY	changes in disease incidence	
	increase risk of thyroid cancer	radioactive emissions
	increase risk of leukaemia	
	risk of surface water contamination	
	risk of ground water contamination	
	risk of nuclear accidents	
	risk of explosions	
CULTURAL HERITAGE	cultural changes	acceptance of nuclear power
	land use changes	
	way of life	
	acceptance of nuclear power plant	not in my back-yard syndrome

CATEGORY	FACTOR	COMMENTS
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	wastes / by-products	economic and social costs of safe disposal
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

Project 3 - Installation for the production or enrichment of nuclear fuels, the reprocessing of irradiated nuclear fuels or the storage, disposal and processing of radioactive waste

Comments:

CATEGORY	FACTOR	COMMENTS
AIR	heavy metals:	reference 2
	cadmium (Cd)	toxic pollutant, hazardous substance, human health, aquatic life
	beryllium (Be)	carcinogen, hazardous substance, priority toxic pollutant, soil, flora, fauna, human health
	radioactive isotopes	human health, fauna
	radioactive actinides	
WATER	heavy oxygen	water quality, aquatic life
	heavy metals:	reference 2
	cadmium (Cd)	toxic pollutant, hazardous substance, human health and aquatic life
	beryllium (Be)	carcinogen, hazardous substance, priority toxic pollutant, soil, flora, fauna, human health
	iodine	human health, aquatic life, water quality
	radioactive isotopes	
	temperature change	water quality, aquatic life, climate
CLIMATE	changes in ambient air temperature	
	changes in surface water temperature	
	mists	
	changes in humidity	
FLORA	changes in natural vegetation	project location, emissions
	disturbance of aquatic habitat	temperature change, emissions
	disturbance of plant habitat	emissions
	disturbance of natural vegetation	
	decrease in biodiversity	
	impact of threatened species	
	changes in species population	
	changes in aquatic food web	emissions, changes to water temperature
	changes in mammal food web	emissions
	impact on protected areas	emissions, project location
FAUNA	disturbance of wildlife habitat	project location
	decrease in biodiversity	emissions
	impact on threatened species	
	changes in species population	
	impact on threatened area	
	changes in mammal food web	
SOIL	contamination	radio-active isotopes
	erosion	project location
LANDSCAPE	land use changes	
	visual aspects	
	physical composition	
	impact on sensitive lands	
HISTORICAL MONUMENTS	palaeontological sites	project location

CATEGORY	FACTOR	COMMENTS
HUMAN HEALTH & SAFETY	changes in disease incidence	emissions
	risk of surface water contamination	
	risk of ground water contamination	
	risk of nuclear accidents	
	risk of explosions	
CULTURAL HERITAGE	cultural changes	
	way of life	
	acceptance of "nuclear" material	
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	
	"not in my backyard" syndrome	
	risk of terrorist activities	

Project 4 - Major installations for the initial smelting of cast iron and steel and for the production of non-ferrous metals

Comments: One of the main sources of water pollution is drainage from surface and underground mines, waste rock stockpiles and tailings ponds wastewater. Both leaching and runoff contribute to the water pollution.

CATEGORY	FACTOR	COMMENTS
AIR	fluorides	flora, fauna
	heavy metals:	reference 2
	lead (Pb)	toxic, metabolic poison
	mercury (Hg)	natural vegetation
	cadmium (Cd)	carcinogen, property pollutant, hazardous substance, flora, fauna, human health
	copper (Cu)	destroys crops
	cobalt (Co)	hazardous substance, human health
	nickel (Ni)	carcinogen, hazardous substance, hazardous waste constituents, priority toxic pollutant, human health, aquatic life, fauna, soil
	chromium (Cr)	carcinogen, hazardous substance, hazardous waste constituents, priority toxic pollutant, human health, aquatic life, flora, fauna, soil
	selenium (Se)	hazardous waste, hazardous waste constituents, priority toxic pollutant, human health, aquatic life, fauna, soil
	zinc (Zn)	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life, flora, fauna
	hydrogen cyanide	hazardous substance, hazardous waste, poison gas, flammable gas, human health, reference 3
	hydrogen fluoride	hazardous substance, hazardous waste, corrosive material, human health, reference 3
	methane (CH4)	greenhouse gas, volatile, flora, reference 1
	non-methane volatile organic compounds (NMVOC)	volatile, climate change, fauna, human health, reference 1
	oxides of nitrogen (NOx) / NxO	acid rain, flora, fauna, climate, soil, historical sites, human health, reference 1
	oxides of metal (PbO, SbO, SnO,AlO)	acid rain, flora, fauna, climate, soil, historical sites, human health
	oxides of sulphur (SOx)	acid rain, flora, fauna, climate, soil, historical sites, human health, reference 1
	other hazardous substances	human health, flora, fauna
	persistent organic pollutants	reference 4
	poly-aromatic hydrocarbons	carcinogen, hazardous wastes, priority toxic pollutants, human health, flora, fauna, aquatic life
	particle emissions	human health, flora, fauna, historical sites
	oil vapour	human health, flora, historical sites
	tar fumes	human health, flora
	odour	human health
	noise	
	vibration	

CATEGORY	FACTOR	COMMENTS
WATER	cyanides	hazardous substance, hazardous waste constituents, priority toxic pollutants, human health, aquatic life, wildlife
	fluorides	flora, fauna
	heavy metals:	reference 2
	lead (Pb)	toxic, metabolic poison
	mercury (Hg)	natural vegetation
	cadmium (Cd)	carcinogen, property pollutant, hazardous substance, flora, fauna, human health
	copper (Cu)	destroys crops
	cobalt (Co)	hazardous substance, human health
	nickel (Ni)	carcinogen, hazardous substance, hazardous waste constituents, priority toxic pollutant, human health, aquatic life, fauna, soil
	chromium (Cr)	carcinogen, hazardous substance, hazardous waste constituents, priority toxic pollutant, human health, aquatic life, flora, fauna, soil
	selenium (Se)	hazardous waste, hazardous waste constituents, priority toxic pollutant, human health, aquatic life, fauna, soil
	zinc (Zn)	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life, flora, fauna
	hydrogen cyanide	hazardous substance, hazardous waste, poison gas, flammable gas, human health, reference 3
	hydrogen fluoride	hazardous substance, hazardous waste, corrosive material, human health, reference 3
	nutrients C/N/P	water quality, aquatic life
	persistent organic pollutants	reference 4
	poly-aromatic hydrocarbons	carcinogen, hazardous wastes, priority toxic pollutants, human health, flora, fauna, aquatic life
	phenolic compounds	hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life, wildlife
	sulphates	human health, water quality, aquatic life
	other toxic substances	water quality, aquatic life
	waste / by-products	water quality, human health, aquatic life
	suspended solids	water quality, aquatic life
	dissolved solids	
	total solids	
	chemical oxygen demand (COD)	
	total organic carbon (TOC)	
	change in pH	
	colour	
CLIMATE	changes in ambient air temperature	
	particle emissions	
	changes in humidity	
	greenhouse gas emissions	CO, CO2, methane, NMVOCs, NOx, SOx, CFC, HCFC

CATEGORY	FACTOR	COMMENTS
FLORA	changes in natural vegetation	project location, emissions
	disturbance of aquatic habitat	
	disturbance of plant habitat	
	disturbance of natural vegetation	
	decrease in biodiversity	
	impact of threatened species	
	changes in species population	
	changes in aquatic food web	
	changes in mammal food web	
	impact on protected areas	
FAUNA	migratory changes - birds	project location, emissions
	migratory changes - mammals	
	disturbance of wildlife habitat	
	decrease in biodiversity	
	impact on threatened species	
	changes in species population	
	impact on threatened area	
	changes in mammal food web	
SOIL	soil acidification	heavy metals, other pollutants
	soil contamination	
	erosion	project location
	changes in moisture content	lowering groundwater level for mining purposes, changes in surface waters for mining purposes
	changes in water table	lowering of groundwater for mining purposes
LANDSCAPE	land use changes	
	tailings ponds	leachates into water sources
	storage sites for waste rock	reduction in space for agriculture, noxious elements emitted to atmosphere
	visual aspects	
	physical composition	
	impact on sensitive lands	
HISTORICAL MONUMENTS	changes to historical sites	acid rain pollution
	changes to palaeontological sites	
HUMAN HEALTH & SAFETY	changes in ambient noise levels	
	changes in disease incidence:	lung disease (heavy metals), pregnant women (Hg, Pb), blood disorders (Pb, Cd, Co, Ni)
	risk of spills	
	risk of surface water contamination	
	risk of ground water contamination	
	risk of explosions/fire	
CULTURAL HERITAGE	cultural changes	
	land use changes	
	way of life	
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	quality of recreational facilities	
	quantity of recreational facilities	
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

Project 5 - Installation for the extraction of asbestos and for the processing and transformation of asbestos and products containing asbestos

Comments: Cigarette smoking in facilities with asbestos containing fibres has been known to increase risk of cancer.

CATEGORY	FACTOR	COMMENTS
AIR	asbestos fibres	carcinogen, hazardous waste, priority toxic pollutant, human health, fauna
	phenols	hazardous substance and waste, priority toxic pollutant, human health
WATER	suspended solids	water quality, aquatic life
	asbestos fibres	carcinogen, hazardous waste, priority toxic pollutant, human health, fauna
	phenols	hazardous substance and waste, priority toxic pollutant, human health, aquatic life
CLIMATE	particle emissions	
SOIL	soil contamination	
LANDSCAPE	physical composition	
HUMAN HEALTH & SAFETY	increase risk of disease	cancer, pulmonary problems
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	

Project 6A - Manufacture of basic chemicals, except fertilizers and nitrogen compounds

Comments: Includes petrochemical industry.

CATEGORY	FACTOR	COMMENTS
AIR	ammonia (NH3)	hazardous substance, aquatic life, human health, water quality, reference 1 & 3
	acrylonitril	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, reference 3 & 5
	aerosols	ozone, climate change
	carbon monoxide (CO)	greenhouse effect, reference 1
	carbon dioxide (CO2)	greenhouse effect
	dinitrobenzenes	hazardous substance, hazardous waste constituents, human health, aquatic life, reference 5
	dinitrotoluenes	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life, reference 5
	ethylene oxide	potential occupational carcinogen, hazardous waste, flammable, human health, water quality, reference 3
	heavy metals	flora, fauna, soil, human health
	hydrocarbons	
	benzene	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life
	hydrogen cyanide	hazardous substance, hazardous waste, poison gas, flammable gas, human health, reference 5
	hydrogen fluoride	hazardous substance, hazardous waste, corrosive, human health, reference 5
	hydrogen sulphide	hazardous substance, hazardous waste, flammable gas, poison, human health, aquatic life, reference 5
	methane (CH4)	greenhouse gas, volatile, reference 1
	non-methane volatile organic compounds (nmVOC)	greenhouse gas, volatile, flora, reference 1
	oxides of nitrogen (NOx) / NxO	acid rain, climate change, flora, fauna, human health, historical sites, aquatic life reference 1
	oxides of sulphur (SOx)	
	persistent organic pollutants	reference 4
	poly aromatic hydrocarbons	carcinogen, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life
	brominated flame retardants	
	organohalogen compounds	reference 5
	carbon tetrachloride	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life
	1,2-dibromoethane	carcinogen, hazardous substance, hazardous waste, human health, flora, fauna, aquatic life
	1,2-dichloroethylene	hazardous waste, priority toxic pollutant, human health, aquatic life
	hexachlorobenzene	carcinogen, hazardous waste, priority toxic pollutant, human health, flora, fauna, soil, aquatic life
	hexachlorobutadiene	carcinogen, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life
	pentachlorophenol	hazardous substance, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life
	polychlorinated biphenyl (PCB's)	carcinogen, hazardous material, hazardous waste constituents, priority toxic pollutant, human health, fauna, aquatic life, soil

CATEGORY	FACTOR	COMMENTS
	tetrachloroethylene	carcinogen, hazardous waste, priority toxic pollutant, human health, aquatic life
	trichloroethylene	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, fauna, aquatic life
	phenol	hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life
	photochemical oxidants	climate change, ozone
	solvents	air quality, flora, human health
	other hazardous substances	human health
	particle emissions	flora, human health
	oil vapour	human health, flora, historical sites
	odour	human health
WATER	ammonia (NH3)	hazardous substance, aquatic life, human health, water quality, reference 1 & 3
	acrylonitril	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, reference 3 & 5
	dinitrobenzenes	hazardous substance, hazardous waste constituents, human health, aquatic life, reference 5
	dinitrotoluenes	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life, reference 5
	ethylene oxide	potential occupational carcinogen, hazardous waste, flammable, human health, water quality, reference 3
	hydrogen cyanide	hazardous substance, hazardous waste, poison gas, flammable gas, human health, reference 5
	hydrogen fluoride	hazardous substance, hazardous waste, corrosive, human health, reference 5
	hydrogen sulphide	hazardous substance, hazardous waste, flammable gas, poison, human health, aquatic life, reference 5
	persistent organic pollutants	reference 4
	poly aromatic hydrocarbons	carcinogen, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life
	brominated flame retardants	
	organohalogen compounds	reference 5
	carbon tetrachloride	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life
	1,2-dibromoethane	carcinogen, hazardous substance, hazardous waste, human health, flora, fauna, aquatic life
	1,2-dichloroethylene	hazardous waste, priority toxic pollutant, human health, aquatic life
	hexachlorobenzene	carcinogen, hazardous waste, priority toxic pollutant, human health, flora, fauna, soil, aquatic life
	hexachlorobutadiene	carcinogen, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life
	pentachlorophenol	hazardous substance, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life
	polychlorinated biphenyl (PCB's)	carcinogen, hazardous material, hazardous waste constituents, priority toxic pollutant, human health, fauna, aquatic life, soil
	tetrachloroethylene	carcinogen, hazardous waste, priority toxic pollutant, human health, aquatic life
	trichloroethylene	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, fauna, aquatic life

CATEGORY	FACTOR	COMMENTS
	phenolic compounds	hazardous substance, hazardous waste, priority toxic pollutant, aquatic life, human health
	solvents	aquatic life, water quality
	heavy metals	aquatic life, water quality, human health
	oil products	aquatic life, water quality, fauna
	nutrients	aquatic life, water quality
	other hazardous substances	
	chemical oxygen demand (COD)	
	biological oxygen demand (BOD)	
	dissolved oxygen	
	total organic carbon (TOC)	
	suspended solids	
	dissolved solids	
	total solids	
	temperature	
	change in pH	
	colour	water quality
	odour	
CLIMATE	changes in ambient air temperature	
	smog	
	changes in humidity	
	greenhouse gas emissions	CO2, CO, NOx, NxO, SOx, nmVOCs, CH4
FLORA	changes in natural vegetation	pollutants, project location
	disturbance of aquatic habitat	
	disturbance of plant habitat	
	disturbance of natural vegetation	
	decrease in biodiversity	
	impact of threatened species	
	changes in species population	
	changes in aquatic food web	
	changes in mammal food web	
	impact on protected areas	
FAUNA	disturbance of wildlife habitat	pollutants, project location
	decrease in biodiversity	
	impact on threatened species	
	changes in species population	
	impact on threatened area	
	changes in mammal food web	
SOIL	soil acidification	heavy metals, pollutants
	soil contamination	
LANDSCAPE	land use changes	
	visual aspects	
	physical composition	
	impact on sensitive lands	
HISTORICAL MONUMENTS	changes to historical sites	acid rain
HUMAN HEALTH & SAFETY	changes in ambient noise levels	
	changes in disease incidence	
	risk of spills	
	risk of surface water contamination	
	risk of ground water contamination	
	risk of explosions	

CATEGORY	FACTOR	COMMENTS
CULTURAL HERITAGE	cultural changes	
	land use changes	
	way of life	
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	quality of recreational facilities	
	quantity of recreational facilities	
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

Project 6B - Manufacture of fertilizers and nitrogen compounds

Comments:

CATEGORY	FACTOR	
AIR	ammonium nitrate	non-toxic, human health, reference 3
	ammonia	hazardous substance, aquatic life, human health, water quality, reference 1 & 3
	chlorine	hazardous substance, poison, aquatic life, human health, reference 3
	hydrogen chloride (HCl)	hazardous substance, fauna, human health
	heavy metals	reference 2
	cadmium	human health, flora, fauna, soil
	methane (CH4)	volatile, greenhouse gas, reference 1
	oxides of nitrogen (NOx) / NxO	acid rain, flora, fauna, water, human health
	non-methane volatile organic compounds (NMVOC)	greenhouse gas, volatile, flora, reference 1
	other hazardous substances	
	particle emissions	human health, climate change, historical sites
	odour	human health
	noise	
WATER	ammonium nitrate	non-toxic, human health, reference 3
	ammonia	hazardous substance, aquatic life, human health, water quality, reference 1 & 3
	chlorine	hazardous substance, poison, aquatic life, human health, reference 3
	heavy metals	reference 2
	cadmium	human health, flora, fauna, soil
	nutrients C/N/P	water quality, aquatic life
	salts	
	other hazardous substances	
	biological oxygen demand (BOD)	
	chemical oxygen demand (COD)	
	total organic carbon (TOC)	
	dissolved organic carbon (DOC)	
	suspended solids	
	dissolved solids	
	total solids	
	temperature	
	change in pH	
CLIMATE	changes in ambient air temperature	
	particle emissions	
	changes in humidity	
	greenhouse gas emissions	NOx, NxO
FLORA	changes in natural vegetation	pollutants, project location
	disturbance of aquatic habitat	
	disturbance of plant habitat	
	disturbance of natural vegetation	
	decrease in biodiversity	
	impact of threatened species	
	changes in species population	
	changes in aquatic food web	
	changes in mammal food web	
	impact on protected areas	

CATEGORY	FACTOR	COMMENTS
FAUNA	disturbance of wildlife habitat	pollutants, project location
	decrease in biodiversity	
	impact on threatened species	
	changes in species population	
	impact on threatened area	
	changes in mammal food web	
SOIL	soil acidification	heavy metals, other pollutants
	soil contamination	
LANDSCAPE	land use changes	
	visual aspects	
	physical composition	
	impact on sensitive lands	
HISTORICAL MONUMENTS	changes to historical sites	acid rain
HUMAN HEALTH & SAFETY	changes in ambient noise levels	
	changes in disease incidence	
	risk of spills	
	risk of surface water contamination	
	risk of ground water contamination	
	risk of explosions	
CULTURAL HERITAGE	cultural changes	
	land use changes	
	way of life	
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	quality of recreational facilities	
	quantity of recreational facilities	
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

Project 6C - Manufacture of plastics in primary forms and of synthetic rubber

Comments:

CATEGORY	FACTOR	COMMENTS
AIR	acrylonitrile	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, fauna, aquatic life, reference 3, 4, 5
	ammonia	hazardous substance, aquatic life, human health, water quality, reference 3
	chlorine	hazardous substance, hazardous waste, priority toxic pollutant, human health, reference 3
	ethylene oxide	potential occupational carcinogen, hazardous waste, flappable, human health, reference 3
	heavy metals	reference 2
	methyl isocyanite	potential occupational carcinogen, hazardous waste, human health, reference 3
	non-methane volatile organic compounds (NMVOC)	volatile, greenhouse gases, flora, reference 1
	organic acids	flora, fauna, historical monuments
	persistent organic pollutants	reference 4 & 5
	polychlorinated biphenyl (PCB's)	carcinogen, hazardous material, hazardous waste, constituents, priority toxic pollutant, human health, flora, fauna, soil, water aquatic life
	organotin compounds	reference 5
	tetrabutyltin	priority hazardous substance, aquatic life, human health
	triphenyltin-compounds	
	other hazardous substances	human health, flora, fauna
	particle emissions	climate change, human health, historical sites, soil
	odour	human health
	noise	
WATER	acrylonitrile	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, fauna, aquatic life, reference 3, 4, 5
	ammonia	hazardous substance, aquatic life, human health, water quality, reference 3
	aniline	hazardous substance, hazardous waste, human health
	benzene	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life
	chlorine	volatile, toxic hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life, reference 3
	ethylene oxide	potential occupational carcinogen, hazardous waste, flappable, human health, reference 3
	heavy metals	carcinogen, hazardous substance, hazardous waste, aquatic life, human health, reference 2
	hexachloroethane	toxic
	nutrients	aquatic life
	organotin compounds	reference 5
	tetrabutyltin	priority hazardous substance, aquatic life, human health
	triphenyltin-compounds	
	phenolic compounds	hazardous substance, hazardous waste, priority toxic pollutant, aquatic life, human health
	suspended solids	water quality, aquatic life
	total dissolved solids	
	total solids	
	biological oxygen demand (BOD)	

CATEGORY	FACTOR	COMMENTS
	chemical oxygen demand (COD)	water quality, aquatic life
	total organic carbon (TOC)	
	dissolved oxygen	
	temperature	
	change in pH	aquatic life
	colour	landscape
	odour	human health, landscape
CLIMATE	changes in ambient air temperature	
	particle emissions	
	mists	
	greenhouse gas emissions	
FLORA	changes in natural vegetation	pollutants, project location
	disturbance of aquatic habitat	
	disturbance of plant habitat	
	disturbance of natural vegetation	
	decrease in biodiversity	
	impact of threatened species	
	changes in species population	
	changes in aquatic food web	
	changes in mammal food web	
	impact on protected areas	
FAUNA	disturbance of wildlife habitat	pollutants, project location
	decrease in biodiversity	
	impact on threatened species	
	changes in species population	
	impact on threatened area	
	changes in mammal food web	
SOIL	soil acidification	heavy metals, pollutants
	soil contamination	dioxins
LANDSCAPE	land use changes	
	visual aspects	
	physical composition	
	impact on sensitive lands	
HISTORICAL MONUMENTS	changes to historical sites	acid rain
HUMAN HEALTH & SAFETY	changes in ambient noise levels	
	changes in disease incidence	
	increase risk of cancer	
	risk of spills	
	risk of surface water contamination	
	risk of ground water contamination	
	risk of fire	
	risk of explosions	
CULTURAL HERITAGE	cultural changes	
	land use changes	
	way of life	

CATEGORY	FACTOR	COMMENTS
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	quality of recreational facilities	
	quantity of recreational facilities	
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

Project 6D - Manufacture of pesticides and other agrochemical products

Comments:

CATEGORY	FACTOR	COMMENTS
AIR	aerosols	ozone, photochemical oxidants
	acrylonitril	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, reference 3, 4, 5
	ammonia	hazardous substance, aquatic life, human health, water quality, reference 3
	chlorine	hazardous substance, poison, aquatic life, human health, reference 3
	ethylene oxide	potential occupational carcinogen, hazardous waste, poison gas, flammable gas, reference 3
	heavy metals (lead)	human health, flora, fauna, soil, reference 2
	hydrogen cyanide	hazardous substance, hazardous waste, poison gas, flammable gas, human health, reference 3
	hydrogen fluoride	hazardous substance, hazardous waste, corrosive, human health, reference 3
	methyl isocyanate (MIC)	lethal; toxic, incurable lung disease, reference 3
	non-methane volatile organic compound (NMVOC)	greenhouse gases, volatile, flora, reference 1
	persistent organic pollutants	reference 4 & 5
	chlordane	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health
	fenthion	insufficient data
	toxaphene	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, fauna
	organohalogen compounds	reference 5
	aldrin	carcinogen, hazardous substance hazardous waste, priority toxic pollutant, human health
	carbon tetrachloride	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, fauna, aquatic life, human health
	DDT and other derivatives	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, fauna, human health
	dichloroanilines (2,3;2,4;2,5;3,4)	
	dieldrin	
	endosulfan	hazardous substance, hazardous waste, priority toxic pollutant, human health
	endrin	
	hexachlorobenzene (HCB)	carcinogen, hazardous waste, priority toxic pollutant,, flora, fauna, human health
	hexachlorocyclohexane (lindane)	carcinogen, hazardous waste, priority toxic pollutant, human health and safety, no data for fauna
	pentachlorophenol	hazardous substance, hazardous waste, priority toxic pollutant, human health
	tetrachloroethylene	carcinogen, hazardous waste, priority toxic pollutant, human health
	trichlorobenzenes	priority toxic pollutant, insufficient data to human health
	1,1,1-trichloroethane	hazardous substance, priority toxic pollutant, human health and safety, fauna
	organophosphorus compounds	reference 5
	dichlorvos	hazardous substance, human health
	fenitrothion	volatile, insufficient information
	malathion	hazardous substance, human health
	parathion	hazardous substance, hazardous waste, human health
	phosgene	hazardous substance and waste, insufficient data, reference 3

CATEGORY	FACTOR	COMMENTS
	organotin compounds	reference 5
	tributyltin-compounds	insufficient information
	trifluralin	carcinogen, insufficient information , reference 5
	other hazardous substances	human health, flora, fauna
	particle emissions	climate change, human health, historical sites
	odour	human health
	noise	
WATER	aldehydes	
	furfural	hazardous substance, hazardous waste, human health, aquatic life
	ammonia	hazardous substance, aquatic life, human health, water quality, reference 3
	chlorine	hazardous substance, poison, aquatic life, human health, reference 3
	heavy metals (lead)	human health, fauna, aquatic life, reference 2
	persistent organic pollutants	reference 4 & 5
	chlordane	carcinogen, hazardous substance, hazardous waste, priority toxic, pollutant, human health, aquatic life
	fenthion	insufficient data
	toxaphene	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, fauna, aquatic life
	organohalogen compounds	reference 5
	aldrin	carcinogen, hazardous substance hazardous waste, priority toxic pollutant, human health aquatic life
	carbon tetrachloride	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, fauna, aquatic life, human health
	DDT and other derivatives	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, fauna, human health, aquatic life
	dichloroanilines (2,3;2,4;2,5;3,4)	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, fauna, aquatic life
	dieldrin	
	endosulfan	hazardous substance, hazardous waste, priority toxic pollutant, human health , aquatic life
	endrin	
	hexachlorobenzene (HCB)	carcinogen, hazardous waste, priority toxic pollutant,, flora, fauna, human health, aquatic life
	hexachlorocyclohexane (lindane)	carcinogen, hazardous waste, priority toxic pollutant, human health and safety, no data for fauna, aquatic life
	pentachlorophenol	hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life
	tetrachloroethylene	carcinogen, hazardous waste, priority toxic pollutant, human health, aquatic life
	trichlorobenzenes	priority toxic pollutant, insufficient data to human health, aquatic life
	1,1,1-trichloroethane	hazardous substance, priority toxic pollutant, human health and safety, fauna, aquatic life
	organophosphorus compounds	reference 5
	dichlorvos	hazardous substance, human health, aquatic life
	fenitrothion	volatile, insufficient information, aquatic life
	malathion	hazardous substance, human health, aquatic life
	parathion	hazardous substance, hazardous waste, human health, aquatic life
	other pesticides not listed	aquatic life
	trifluralin	carcinogen, human health, aquatic life, reference 5

CATEGORY	FACTOR	COMMENTS
	nutrients C/N/P	water quality, aquatic life
	total organic carbon (TOC)	
	biological oxygen demand(BOD)	
	chemical oxygen demand (COD)	
	dissolved oxygen	
	suspended solids	
	dissolved solids	
	total solids	
	temperature	
	change in pH	
	colour	water quality
	odour	
CLIMATE	changes in ambient air temperature	
	particle emissions	
	greenhouse gas emissions	
FLORA	changes in natural vegetation	pollutants, project location
	disturbance of aquatic habitat	
	disturbance of plant habitat	
	disturbance of natural vegetation	
	decrease in biodiversity	
	impact of threatened species	
	changes in species population	
	changes in aquatic food web	
	changes in mammal food web	
	impact on protected areas	
FAUNA	disturbance of wildlife habitat	pollutants, project location
	decrease in biodiversity	
	impact on threatened species	
	changes in species population	
	impact on threatened area	
	changes in mammal food web	
SOIL	soil acidification	heavy metals, other pollutants
	soil contamination	PCDDs, organochlorine compounds
LANDSCAPE	land use changes	
	visual aspects	
	physical composition	
	impact on sensitive lands	
HISTORICAL MONUMENTS	changes to historical sites	acid rain pollution

CATEGORY	FACTOR	COMMENTS
HUMAN HEALTH & SAFETY	changes in ambient noise levels	
	changes in disease incidence	
	increase risk of cancer	
	risk of spills	
	risk of surface water contamination	
	risk of ground water contamination	
	risk of explosions	
CULTURAL HERITAGE	cultural changes	
	land use changes	
	way of life	
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	quality of recreational facilities	
	quantity of recreational facilities	
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

Project 6E - Manufacture of paints, varnishes and similar coatings, printing ink and mastics

Comments:

CATEGORY	FACTOR	COMMENTS
AIR	aerosols	ozone
	ammonia	hazardous substance, aquatic life, human health, water quality, reference 3
	heavy metals	reference 2
	lead (Pb)	
	chromium (Cr)	
	zinc (Zn)	
	copper (Cu)	
	hydrogen fluoride	hazardous substance, hazardous waste, human health, reference 3
	hydrogen sulphide	hazardous substance, hazardous waste, human health, aquatic life, reference 3
	persistent organic pollutants	reference 4
	brominated dibenzofurans	priority toxic pollutant, human health, aquatic life, possible carcinogen
	dioxins	
	chlorinated paraffins	
	poly-aromatic hydrocarbons (PAH)	carcinogen, hazardous waste, priority toxic pollutant, human health
	organohalogen compounds	reference 5
	carbon tetrachloride	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, fauna, aquatic life
	1,2-dichloroethane	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health
	hexachlorobutadiene	carcinogen, hazardous waste, priority toxic pollutant, human health
	polychlorinated biphenyls (PCB's)	carcinogen, hazardous materials, hazardous waste constituents, priority toxic pollutant, human health, fauna, aquatic life
	tetrachloroethylene	carcinogen, hazardous waste, priority toxic pollutant, human health
	1,1,1-trichloroethane	hazardous waste, priority toxic pollutant, human health
	trichloroethylene	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health
	organotin compounds	reference 5
	triphenyltin-compounds	insufficient data
	non-methane volatile organic compounds (VOC)	volatile, flora
	phosgene	hazardous substance, hazardous waste, poison gas, human health, reference 3
	other hazardous substances	
	particle emissions	
	odour	
	noise	

CATEGORY	FACTOR	COMMENTS
WATER	ammonia	hazardous substance, aquatic life, human health, water quality, reference 3
	aniline	hazardous substance, hazardous waste, human health, aquatic life
	benzidine	carcinogen, hazardous waste, priority toxic pollutant, human health, aquatic life
	heavy metals:	reference 2
	lead (Pb)	
	chromium (Cr)	
	zinc (Zn)	
	copper (Cu)	
	hydrogen sulphide	hazardous substance, hazardous waste, human health, aquatic life, reference 3
	nutrients C/N/P	water quality, aquatic life
	organohalogen compounds	reference 5
	carbon tetrachloride	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, fauna, aquatic life
	dichloroethane	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life
	hexachlorobutadiene	carcinogen, hazardous waste, priority toxic pollutant, human health, aquatic life
	polychlorinated biphenyls (PCB's)	carcinogen, hazardous materials, hazardous waste constituents, priority toxic pollutant, human health, fauna, aquatic life
	tetrachloroethylene	carcinogen, hazardous waste, priority toxic pollutant, human health, aquatic life
	trichloroethane	hazardous waste, priority toxic pollutant, human health, aquatic life
	trichloroethylene	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life
	organotin compounds	reference 5
	triphenyltin compounds	insufficient data, aquatic life
	phenolic compounds	hazardous substance, hazardous waste, priority toxic pollutants, aquatic life, human health
	other hazardous substances	water quality, aquatic life
	biological oxygen demand (BOD)	aquatic life, water quality
	chemical oxygen demand (COD)	
	dissolved oxygen	
	total organic carbon (TOC)	
	suspended solids	
	dissolved solids	
	total solids	
	temperature	aquatic life, change in microclimate
	change in pH	aquatic life
CLIMATE	changes in ambient air temperature	
	particle emissions	
	greenhouse gas emissions	

CATEGORY	FACTOR	COMMENTS
FLORA	changes in natural vegetation	pollutants, project location
	disturbance of aquatic habitat	
	disturbance of plant habitat	
	disturbance of natural vegetation	
	decrease in biodiversity	
	impact of threatened species	
	changes in species population	
	changes in aquatic food web	
	changes in mammal food web	
	impact on protected areas	
FAUNA	disturbance of wildlife habitat	pollutants, project location
	decrease in biodiversity	
	impact on threatened species	
	changes in species population	
	impact on threatened area	
	changes in mammal food web	
SOIL	soil acidification	heavy metals, other pollutants
	soil contamination	
LANDSCAPE	land use changes	
	visual aspects	
	physical composition	
	impact on sensitive lands	
HISTORICAL MONUMENTS	changes to historical sites	acid rain pollution
HUMAN HEALTH & SAFETY	changes in ambient noise levels	
	changes in disease incidence	
	risk of spills	
	risk of surface water contamination	
	risk of ground water contamination	
	risk of explosions	
CULTURAL HERITAGE	cultural changes	
	land use changes	
	way of life	
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	quality of recreational facilities	
	quantity of recreational facilities	
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

Project 6F - Manufacture of pharmaceuticals, medicinal chemicals and botanical products

Comments:

CATEGORY	FACTOR	COMMENTS
AIR	aldehydes	poisonous
	ammonia	hazardous substance, aquatic life, human health, water quality, reference 3
	aniline	hazardous substance, hazardous waste, human health
	arsenic	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, flora, fauna, human health, aquatic life
	ethylene oxide	potential occupational carcinogen, reference 3
	heavy metals	human health, flora, fauna, soil, reference 2
	non methane volatile organic carbons (NMVOC)	greenhouse gases, volatile, flora, reference 1
	persistent organic pollutants	reference 4
	dioxins	priority pollutant, possible carcinogen, human health, aquatic life, soil
	phosgene	hazardous substance, hazardous waste, poison gas, human health, reference 3
	other hazardous substances	
	particle emissions	climate change, human health, historical sites
	odour	human health
WATER	alcohols	
	methyl alcohol	hazardous waste, human health, aquatic life
	aldehydes	
	formaldehyde	Poisonous
	ammonia	hazardous substance, aquatic life, human health, water quality, reference 3
	aniline	hazardous substance, hazardous waste, human health, no criteria set for water
	arsenic	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, flora, fauna, human health, aquatic life
	dichloroethelyne	hazardous waste, priority toxic pollutant, human health, aquatic life
	heavy metals	
	persistent organic pollutants	reference 4 & 5
	dioxins	priority toxic pollutant, human health, aquatic life, possible carcinogen, soil
	organohalogen compounds	reference 5
	chloroform	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life
	1,2-dichloroethane (ethylene dichloride)	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, flammable, human health, fauna, aquatic life, water
	tetrachloroethylene	carcinogen, hazardous waste, priority toxic pollutant, human health, fauna, aquatic life, water
	nutrients C/N/P	water quality, aquatic life
	other hazardous substances	
	biological oxygen demand (BOD)	
	chemical oxygen demand (COD)	
	dissolved oxygen	
	total organic carbon (TOC)	
	suspended solids	

CATEGORY	FACTOR	COMMENTS
	dissolved solids	water quality, aquatic life
	total solids	
	temperature	
	change in pH	
	colour	water quality
	odour	
CLIMATE	changes in ambient air temperature	
	particle emissions	
	greenhouse gas emissions	
FLORA	changes in natural vegetation	pollutants, project location
	disturbance of aquatic habitat	
	disturbance of plant habitat	
	disturbance of natural vegetation	
	decrease in biodiversity	
	impact of threatened species	
	changes in species population	
	changes in aquatic food web	
	changes in mammal food web	
	impact on protected areas	
FAUNA	disturbance of wildlife habitat	pollutants, project location
	decrease in biodiversity	
	impact on threatened species	
	changes in species population	
	impact on threatened area	
	changes in mammal food web	
SOIL	soil acidification	heavy metals, other pollutants
	soil contamination	
LANDSCAPE	land use changes	
	visual aspects	
	physical composition	
	impact on sensitive lands	
HISTORICAL MONUMENTS	changes to historical sites	acid rain pollution
HUMAN HEALTH & SAFETY	changes in ambient noise levels	
	changes in disease incidence	
	risk of spills	
	risk of surface water contamination	
	risk of ground water contamination	
	risk of explosions	
CULTURAL HERITAGE	cultural changes	
	land use changes	
	way of life	
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	quality of recreational facilities	
	quantity of recreational facilities	
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

Project 6G - Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations

Comments:

CATEGORY	FACTOR	COMMENTS
AIR	aerosols	ozone
	ammonia	hazardous substance, aquatic life, human health, water quality, reference 3
	ethylene oxide	potential occupational carcinogen, hazardous waste, flammable, reference 3
	organohalogen compounds	reference 5
	carbon tetrachloride	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life
	1,2-Dichloroethane	
	hexachlorobutadiene	carcinogen, hazardous waste, priority toxic pollutant, human health, aquatic life
	tetrachloroethylene	
	1,1,1-trichloroethane	hazardous waste, priority toxic pollutant, human health, aquatic life
	trichloroethylene	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life
	non methane volatile organic compounds (NMVOC)	greenhouse gases, flora, human health, reference 1
	phosgene	hazardous substance, hazardous waste, poison gas, human health, reference 3
	other hazardous substances	
	particle emissions	human health, flora, historical sites
	odour	human health
WATER	ammonia	hazardous substance, aquatic life, human health, water quality, reference 3
	organohalogen compounds	reference 5
	carbon tetrachloride	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life
	1,2-Dichloroethane	
	hexachlorobutadiene	carcinogen, hazardous waste, priority toxic pollutant, human health, aquatic life
	tetrachloroethylene	
	1,1,1-trichloroethane	hazardous waste, priority toxic pollutant, human health, aquatic life
	trichloroethylene	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life
	phosphates	eutrophication of freshwater, undesirable environmental effects
	nutrients C/N/P	water quality, aquatic life
	other hazardous substances	
	biological oxygen demand (BOD)	aquatic life, water quality
	chemical oxygen demand (COD)	
	dissolved oxygen	
	suspended solids	
	dissolved solids	
	total solids	
	temperature	
	change in pH	aquatic life, water quality
CLIMATE	changes in ambient air temperature	
	smog	
	greenhouse gas emissions	

CATEGORY	FACTOR	COMMENTS
FLORA	changes in natural vegetation	pollutants, project location
	disturbance of aquatic habitat	
	disturbance of plant habitat	
	disturbance of natural vegetation	
	decrease in biodiversity	
	impact of threatened species	
	changes in species population	
	changes in aquatic food web	
	changes in mammal food web	
	impact on protected areas	
FAUNA	disturbance of wildlife habitat	pollutants, project location
	decrease in biodiversity	
	impact on threatened species	
	changes in species population	
	impact on threatened area	
	changes in mammal food web	
SOIL	soil acidification	heavy metals, other pollutants
	soil contamination	
	pH of soil	other pollutants
LANDSCAPE	land use changes	
	visual aspects	
	physical composition	
	impact on sensitive lands	
HISTORICAL MONUMENTS	changes to historical sites	acid rain, soiling, staining
HUMAN HEALTH & SAFETY	changes in ambient noise levels	
	changes in colour of air	
	changes in disease incidence	
	risk of spills	
	risk of surface water contamination	
	risk of ground water contamination	
	risk of explosions	
CULTURAL HERITAGE	cultural changes	
	land use changes	
	way of life	
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	quality of recreational facilities	
	quantity of recreational facilities	
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

Project 6H - Manufacture of other chemical products not elsewhere classified

Comments:

CATEGORY		COMMENTS
AIR	ammonia	hazardous substance, aquatic life, human health, water quality, reference 3
	aerosols	ozone
	acrylonitril	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, aquatic life, human health, reference 3, 4, 5
	chlorine	hazardous substance, poison, human health, aquatic life, reference 3
	ethylene oxide	potential occupational carcinogen, hazardous waste, flammable, reference 3
	heavy metals	reference 2
	hydrogen cyanide	hazardous substance, hazardous waste, poison gas, flammable, human health, reference 3
	hydrogen fluoride	hazardous substance, hazardous waste, corrosive, human health, reference 3
	hydrogen sulphide	hazardous substance, hazardous waste, flammable gas, poison, human health, aquatic life, reference 3
	methane	greenhouse gas, flora, reference 1
	non-methane volatile organic compounds (NMVOC)	flora, human health, greenhouse gases, reference 1
	organohalogen compounds	reference 5
	organophosphorus compounds	
	organotin compounds	
	oxides of nitrogen (NOx)	acid rain, flora, fauna, historical sites, human health, reference 1
	oxides of sulphur (SOx)	
	persistent organic pollutants	reference 4
	phosgene	hazardous substance, hazardous waste, poison gas, human health, reference 3
	photochemical oxidants	ozone, climate change
	other hazardous substances	human health, flora, fauna
	particle emissions	human health, flora, historical sites, climate change
	odour	human health
WATER	ammonia	hazardous substance, aquatic life, human health, water quality, reference 3
	acrylonitril	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, aquatic life, human health, reference 3, 4, 5
	chlorine	hazardous substance, poison, human health, aquatic life, reference 3
	heavy metals	reference 2
	hydrogen sulphide	hazardous substance, hazardous waste, flammable gas, poison, human health, aquatic life, reference 3
	organohalogen compounds	reference 5
	organophosphorus compounds	
	organotin compounds	
	nutrients C/N/P	aquatic life, water quality
	oil products	
	other hazardous substances	
	biological oxygen demand (BOD)	
	chemical oxygen demand (COD)	
	total organic carbon (TOC)	
	suspended solids	

CATEGORY	FACTOR	COMMENTS
	dissolved solids	aquatic life, water quality
	total solids	
	temperature	
	change in pH	
CLIMATE	changes in ambient air temperature	
	smog	
	greenhouse gas emissions	
FLORA	changes in natural vegetation	pollutants, project location
	disturbance of aquatic habitat	
	disturbance of plant habitat	
	disturbance of natural vegetation	
	decrease in biodiversity	
	impact of threatened species	
	changes in species population	
	changes in aquatic food web	
	changes in mammal food web	
	impact on protected areas	
FAUNA	disturbance of wildlife habitat	pollutants, project location
	decrease in biodiversity	
	impact on threatened species	
	changes in species population	
	impact on threatened area	
	changes in mammal food web	
SOIL	soil acidification	heavy metals, other pollutants
	soil contamination	
LANDSCAPE	land use changes	
	visual aspects	
	physical component	
	impact on sensitive lands	
HISTORICAL MONUMENTS	changes to historical sites	acid rain, staining, soiling
HUMAN HEALTH & SAFETY	changes in ambient noise levels	
	changes in colour of air	
	changes in disease incidence	
	risk of spills	
	risk of surface water contamination	
	risk of ground water contamination	
	risk of explosions	
CULTURAL HERITAGE	cultural changes	
	land use changes	
	way of life	
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	quality of recreational facilities	
	quantity of recreational facilities	
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

Project 6I - Manufacture of man-made fibres

Comments:

CATEGORY	FACTOR	COMMENTS
AIR	acrylonitril	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life, reference 3, 4, 5
	ammonia	hazardous substance, aquatic life, human health, water quality, reference 3
	chlorine	hazardous substance, poison, aquatic life, human health, reference 3
	ethylene oxide	potential occupational carcinogen, flammable, reference 3
	heavy metals	reference 2
	lead	
	hydrogen sulphide	hazardous substance, hazardous waste, flammable gas, poison, human health, aquatic life, reference 3
	non-methane volatile organic compounds (NMVOC)	greenhouse gases, volatile, flora, reference 1
	oxides of nitrogen (NOx) / NxO	acid rain, flora, fauna, historical sites, human health, reference 1
	oxides of sulphur (SOx)	
	other hazardous substances	human health, flora, fauna, soil, water
	particle emissions	human health, historical sites, soil
	odour	human health
WATER	acrylonitrile	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life, reference 3, 4, 5
	ammonia	hazardous substance, aquatic life, human health, water quality, reference 3
	chlorine	hazardous substance, poison, aquatic life, human health, reference 3
	heavy metals	reference 2
	hydrogen sulphide	hazardous substance, hazardous waste, flammable gas, poison, human health, aquatic life, reference 3
	resins	soil contamination
	other hazardous substances	human health, aquatic life, water quality
	biological oxygen demand (BOD)	water quality, aquatic life
	chemical oxygen demand (COD)	
	dissolved oxygen	
	suspended solids	
	dissolved solids	
	total solids	
	temperature	
	change in pH	
	colour	water quality
	odour	
CLIMATE	changes in ambient air temperature	
	particle emissions	
	greenhouse gas emissions	nmVOCs, NOx, NxO, SOx

CATEGORY	FACTOR	COMMENTS
FLORA	changes in natural vegetation	pollutants, project locations
	disturbance of aquatic habitat	
	disturbance of plant habitat	
	disturbance of natural vegetation	
	decrease in biodiversity	
	impact of threatened species	
	changes in species population	
	changes in aquatic food web	
	changes in mammal food web	
	impact on protected areas	
FAUNA	disturbance of wildlife habitat	pollutants, project locations
	decrease in biodiversity	
	impact on threatened species	
	changes in species population	
	impact on threatened area	
	changes in mammal food web	
SOIL	soil acidification	heavy metals, other pollutants
	soil contamination	
LANDSCAPE	land use changes	
	visual aspects	
	physical components	
	impact on sensitive lands	
HISTORICAL MONUMENTS	changes to historical sites	acid rain, soiling, staining
HUMAN HEALTH & SAFETY	changes in ambient noise levels	
	changes in disease incidence	
	risk of spills	
	risk of surface water contamination	
	risk of ground water contamination	
	risk of explosions	
CULTURAL HERITAGE	cultural changes	
	land use changes	
	way of life	
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	quality of recreational facilities	
	quantity of recreational facilities	
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

Project 7 - Construction of motorways, express roads and lines for long-distance railway traffic and of airports

Comments:

CATEGORY	FACTOR	COMMENTS
AIR	ammonia (NH3)	hazardous substance, human health, aquatic life, water quality, reference 1
	carbon monoxide (CO)	greenhouse gas, reference 1
	carbon dioxide (CO2)	
	heavy metals:	reference 2
	lead (Pb)	human health, flora, fauna, aquatic life, soil
	cadmium (Cd)	
	copper (Cu)	
	zinc (Zn)	
	methane (CH4)	greenhouse gas, volatile, human health, reference 1
	non-methane volatile organic compounds (NMVOC)	greenhouse gases, volatile, flora, fauna, human health, reference 1
	oxides of nitrogen (NOx) / NxO	acid rain, photoxidants, ozone, acidification of soils, flora, human health, reference 1
	oxides of sulphur (SOx)	
	organohalogen compounds	reference 5
	polyaromatic hydrocarbons (PAH)	carcinogen, priority toxic pollutant, human health, flora, fauna, aquatic life
	persistent organic pollutants	reference 4
	dioxins	incomplete combustion, possible carcinogen, priority toxic pollutant, fauna, human health, soil, aquatic life
	furans	
	halogenated scavengers	leaded gasoline
	other hazardous substances	human health, flora, fauna, water
	particle emissions	climate change, human health, flora
	odour	human health
	noise	
	vibration	
WATER	pesticides	water quality, aquatic life
	oil products	aquatic flora/fauna, soil
	herbicides	
	nutrients	
	anti-skid chemicals	
	de-icing agents	
	other hazardous substances	human health, aquatic life, water quality
CLIMATE	changes in ambient air temperature	
	particle emissions	
	greenhouse gas emissions	CO, CO2, NH3, CH4, NOx, NxO, SOx
FLORA	changes in natural vegetation	location, emissions
	disturbance of plant habitat	
	disturbance of natural vegetation	
	changes in species population	
	impact on protected areas	
FAUNA	migratory changes - birds	location
	migratory changes - mammals	
	disturbance of wildlife habitat	
	impact on threatened species	location, emissions
	changes in species population	
	impact on threatened area	
	changes in mammal food web	

CATEGORY	FACTOR	COMMENTS
SOIL	soil acidification	salts, de-icing agents
	soil contamination	heavy metals, other pollutants
	erosion	location, route selection
LANDSCAPE	land use changes	
	visual aspects	
	physical composition	
	impact on sensitive lands	
HISTORICAL MONUMENTS	archaeological changes	construction
	palaeontological changes	
	changes to historical sites	acid rain pollution
HUMAN HEALTH & SAFETY	changes in ambient noise levels	
	increase risk of accidents	
	changes in disease incidence	
	risk of spills	
	risk of surface water contamination	
	risk of ground water contamination	
CULTURAL HERITAGE	cultural changes	
	land use changes	
	way of life	
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	quality of recreational facilities	
	quantity of recreational facilities	
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

Project 8 - Large diameter oil and gas pipelines

Comments: When planning the pipeline route plan in such a way that there is the greatest distance possible from populated areas. Ensure that there is sufficient monitoring facilities to test for leaks, in populated areas an odorant can be added to the gas. Most common cause for accidents occurs as a result of corrosion, operator error; pipe defect, weld defect of relief equipment.

CATEGORY	FACTOR	COMMENTS
AIR	CO	greenhouse gas, reference 1
	hydrocarbons	
	methane (CH4)	greenhouse gas, volatile, reference 1
	nitrous oxides (NOx) / NxO	acid rain, flora, fauna, human health, water quality, reference 1
	non-methane volatile organic compounds (NMVOC)	volatile, greenhouse gases, human health, reference 1
	odour	human health, safety
WATER	toxic substances	water quality, aquatic life
	oil products	
	stream crossings	soil erosion, aquatic life
	groundwater contamination	
FLORA	disturbance in natural vegetation	construction and pipeline clearance
	impact on protected areas	
	disturbance of plant habitat	route clearance
FAUNA	disturbance of wildlife habitat	absence of natural vegetation along pipeline route
	migratory changes - mammals	
	disturbance of aquatic habitat	stream crossings
SOIL	soil contamination	leaks
	erosion	construction, stream crossings
LANDSCAPE	land use changes	
	visual aspects	
	physical composition	
	impact on sensitive lands	
HISTORICAL MONUMENTS	archaeological changes	
	palaeontological changes	
HUMAN HEALTH & SAFETY	risk of spills	
	risk of surface water contamination	
	risk of ground water contamination	
	risk of explosions	
	pressure monitoring system	detect leaks, problem in line
	route selection	distance to populated areas, density/population control
CULTURAL HERITAGE	land use changes	
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	employment opportunity	
	economic development - transboundary	

Project 9 - Trading ports and also inland waterway traffic

Comments:

CATEGORY	FACTOR	COMMENTS
AIR	carbon dioxide (CO2)	greenhouse gas
	non-methane volatile organic compounds (NMVOC)	volatile, climate change, flora, human health, aquatic life, reference 1
	oxides of nitrogen (NOx) / NxO	acid rain, flora, human health, aquatic life
	oxides of sulphur (SOx)	
	other hazardous substances	
	heavy metals:	reference 2
	lead (Pb)	human health, soil, flora, aquatic life
	particle emissions	climate change, historical sites
	noise	human health
	vibration	
WATER	ballast water	water quality, aquatic life
	de-icing agents	
	dredge spoils	
	heavy metals:	
	lead (Pb)	
	nutrients C/N/P	
	oil products	
	other hazardous substances	
	streamflow variation	shoreline erosion, land use, aquatic life
	changes to estuaries	
	suspended solids	water quality, aquatic life
	dissolved solids	
	total solids	
	sedimentation	changes in water flow, aquatic life
	scouring	
	turbidity	aquatic life
	temperature	water quality, aquatic life
	colour	
	odour	water quality
CLIMATE	changes in ambient air temperature	
	changes in surface water temperature	
	particle emissions	
	greenhouse gas emissions	CO, CO2, NOx, NxO, SOx
FLORA	disturbance of aquatic habitat	pollutants, waterway traffic
	disturbance of plant habitat	
	decrease in biodiversity	
	impact of threatened species	
	changes in species population	
	changes in aquatic food web	
	changes in mammal food web	
	impact on protected areas	
FAUNA	migratory changes - birds	pollutants, waterway traffic
	migratory changes - fish	
	decrease in biodiversity	
	impact on threatened species	
	changes in species population	
	impact on threatened area	
	changes in mammal food web	

CATEGORY	FACTOR	COMMENTS
SOIL	soil contamination	emissions, spills
	coast line erosion	
	river bank erosion	
LANDSCAPE	land use changes	
	visual aspects	
	physical composition	
	impact on sensitive lands	
HISTORICAL MONUMENTS	archaeological changes	
	palaeontological changes	
	changes to historical sites	acid rain, soiling, staining
HUMAN HEALTH & SAFETY	changes in ambient noise levels	
	changes in disease incidence	
	risk of spills	
	risk of surface water contamination	
	risk of explosions	
CULTURAL HERITAGE	cultural changes	
	land use changes	
	way of life	
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	quality of recreational facilities	
	quantity of recreational facilities	
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

Project 10 - Waste disposal installations for the incineration, chemical treatment or landfill of toxic and dangerous waste

Comments: Different areas of the environment are affected in different manners for the three of waste disposal installations. Incineration has a greater affect on air pollution; chemical treatment on water pollution; and landfill on ground water pollution.
Landfills produce large amounts of greenhouse gases due to the biological decomposition of organic matter under anaerobic conditions.
Leachates from landfills pollute groundwater and soils by trace metals and other toxic substances.
Incineration produces air pollution from the flue gases - dust, acidic gases, vaporized metals and metal salts being the major pollutants.

CATEGORY	FACTOR	COMMENTS
AIR	nitrogen and compounds	human health, flora, fauna, soil
	ammonia and compounds	flora, fauna, soil
	persistent organic pollutants (POP)	reference 4
	dioxins	possible carcinogen, priority toxic pollutant, fauna, human health, soil, aquatic life
	furans	possible carcinogen, priority toxic pollutant, fauna, human health, soil, aquatic life
	polychlorinated biphenyl (PCB)	carcinogen, hazardous material, hazardous waste constituents, priority toxic pollutants, human health, fauna, aquatic life
	carbon dioxide (CO2)	greenhouse gas, reference 1
	methane (CH4)	greenhouse gas, volatile, reference 1
	non-methane volatile organic compounds (NMVOC)	greenhouse gases, flora, human health, reference 1
	oxides of nitrogen (NOx) / NxO	acid rain, flora, fauna, soil, human health, photoxidants, reference 1
	oxides of sulphur (SOx)	acid rain, flora, fauna, soil, human health, photoxidants, reference 1
	heavy metals:	reference 2, human health, flora, fauna, soil
	lead (Pb)	
	mercury (Hg)	
	cadmium (Cd)	
	chromium (Cr)	
	nickel (Ni)	
	zinc (Zn)	
	copper (Cu)	
	arsenic (As)	
	particle emissions	human health, historical sites, flora, climate change
	odour	human health
	noise	
WATER	faecal coliforms	human health, water quality, aquatic life
	heavy metals:	reference 2, human health, flora, fauna, aquatic life, soil
	lead (Pb)	
	mercury (Hg)	
	cadmium (Cd)	
	chromium (Cr)	
	zinc (Zn)	
	copper (Cu)	
	arsenic (As)	
	nutrients C/N/P	water quality, aquatic life
	persistent organic pollutants (POP)	reference 4
	dioxins	possible carcinogen, priority toxic pollutant, fauna, human health, soil, aquatic life

CATEGORY	FACTOR	COMMENTS
	furans	possible carcinogen, priority toxic pollutant, fauna, human health, soil, aquatic life
	polychlorinated biphenyl (PCB)	carcinogen, hazardous material, hazardous waste constituents, priority toxic pollutants, human health, fauna, aquatic life
	salts	water quality, aquatic life
	oils	
	other hazardous substances	
	change in pH	
	suspended solids	
	dissolved solids	
	total solids	
	chemical oxygen demand (COD)	
	total organic carbon (TOC)	
	colour	
	odour	
CLIMATE	changes in ambient air temperature	
	particle emissions	
	changes in humidity	
	greenhouse gas emissions, ozone	CO2, methane gas, NMVOCs, NOx, SOx, CFC, HCFC
FLORA	changes in natural vegetation	project location, emissions
	disturbance of aquatic habitat	
	disturbance of plant habitat	
	disturbance of natural vegetation	
	decrease in biodiversity	
	impact of threatened species	
	changes in species population	
	changes in aquatic food web	
	changes in mammal food web	
	impact on protected areas	
FAUNA	disturbance of wildlife habitat	project location, emissions
	decrease in biodiversity	
	impact on threatened species	
	changes in species population	
	impact on threatened area	
	changes in mammal food web	
SOIL	soil acidification	heavy metals, other pollutants
	soil contamination	
LANDSCAPE	land use changes	
	visual aspects	
	physical composition	
	impact on sensitive lands	
HISTORICAL MONUMENTS	changes to historical sites	acid rain, soiling, staining
HUMAN HEALTH & SAFETY	changes in ambient noise levels	
	changes in disease incidence	
	increase in cancer	
	risk of spills	
	risk of surface water contamination	
	risk of ground water contamination	
	risk of explosions	

CATEGORY	FACTOR	COMMENTS
CULTURAL HERITAGE	cultural changes	
	land use changes	
	way of life	
	changes to indigenously harvested food species	POPs
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	quality of recreational facilities	
	quantity of recreational facilities	
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

Project 11 - Dams and Reservoirs

Comments:

CATEGORY	FACTOR	COMMENTS
AIR	odour	human health
	noise	
	vibration	
WATER	heavy metals:	molecular bonding in soils, reference 2, human health, flora, fauna, aquatic life
	mercury (Hg)	
	arsenic (As)	
	selenium (Se)	
	vanadium (Vn)	
	beryllium (Be)	
	faecal coliforms	water quality, aquatic life, human health
	nutrients	water quality, aquatic life
	biological oxygen demand (BOD)	
	chemical oxygen demand (COD)	
	total organic carbon (TOC)	
	dissolved oxygen	
	inundation of lands	landscape, flora, fauna, soil, socio-economic
	basin hydraulic loss	aquatic life, landscape, soil
	streamflow variation	aquatic life, landscape, erosion/ sedimentation, flora, fauna
	changes to estuaries	aquatic life, flora, fauna, landscape, erosion
	sedimentation	aquatic life, water quality
	scouring	aquatic life
	turbidity	aquatic life, water quality
	change in pH	
CLIMATE	changes in surface water temperature	
	changes in humidity	
FLORA	changes in natural vegetation	reservoir, changes in water system
	disturbance of aquatic habitat	
	disturbance of plant habitat	
	disturbance of natural vegetation	
	decrease in biodiversity	
	impact of threatened species	
	changes in species population	
	changes in aquatic food web	
	changes in mammal food web	
	impact on protected areas	
FAUNA	migratory changes - fish	reservoir, changes in water system
	migratory changes - mammals	
	disturbance of wildlife habitat	
	decrease in biodiversity	
	impact on threatened species	
	changes in species population	
	changes in mammal food web	
SOIL	shoreline erosion	changes in water system
LANDSCAPE	land use changes	
	visual aspects	
	physical composition	
	impact on sensitive lands	
HISTORICAL MONUMENTS	historical sites	changes in water levels
	archaeological changes	
	palaeontological changes	

CATEGORY	FACTOR	COMMENTS
HUMAN HEALTH & SAFETY	changes in disease incidence	
	increase in parasitic disease	increase humidity along shoreline, changes in natural vegetation
	risk of surface water contamination	heavy metals in intermolecular bonding of soils, other pollutants
CULTURAL HERITAGE	cultural changes	
	land use changes	
	way of life	
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	quality of recreational facilities	
	quantity of recreational facilities	
	present use of natural resources	
	potential use of natural resources	increase recreation, fishing, swimming
	employment opportunity	recreation facilities, dam site
	economic development - transboundary	hydro-electricity sales, recreational opportunities

Project 12- Groundwater abstraction activities

Comments:

CATEGORY	FACTOR	COMMENTS
AIR	noise	
WATER	change in level of water table	flora, drinking water
	salination	water quality, human consumption
FLORA	changes in composition of flora	availability of water to vegetation
	species diversity	
FAUNA	species diversity	change of vegetation
SOIL	erosion	
	changes in moisture content	flora
	changes in water table	water availability to others - socio-economic
LANDSCAPE	land use changes	
	physical composition	
	visual aspects	
	impact on sensitive lands	
HUMAN HEALTH & SAFETY	risk of ground water contamination	
CULTURAL HERITAGE	cultural changes	
	land use changes	
	way of life	
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

Project 13 - Pulp and paper manufacturing

Comments:

CATEGORY	FACTOR	COMMENTS
AIR	carbon monoxide (CO)	flammable, greenhouse gas, human health, reference 1
	carbon dioxide (CO2)	greenhouse gas, reference 1
	chlorine (Cl) and compounds	hazardous substance, poison, toxic, aquatic life, human health, reference 3
	persistent organic pollutants (POP)	reference 4
	polychlorinated dibenzo-p-dioxins (PCDD)	carcinogenic, fauna, human health, aquatic life, soil
	dibenzofurans (PCPF)	fauna, human health, aquatic life, soil
	polychlorinated biphenyls (PCB)	carcinogens, hazardous materials, hazardous waste constituents priority toxic pollutants, aquatic life, soil, human health
	poly-aromatic hydrocarbons (PAH)	carcinogen hazardous waste, priority toxic pollutant, fauna, human health
	mercaptans	human health, odour
	non-methane volatile organic compounds (NMVOC)	volatile, greenhouse gases, human health, flora, reference 1
	oxides of nitrogen (NOx) / NxO	acid rain, flora, fauna, human health, photoxidants, ozone, soil
	oxides of sulphur (SOx)	
	other hazardous substances	human health, flora, fauna, water
	particle emissions	flora, historical sites, human health, climate change
	oil vapour	soiling, staining, historical monuments, flora
	odour	human health
	noise	
	vibration	
WATER	adsorbable organic halogenated compounds (AOX)	carcinogen, hazardous substance, hazardous wastes, priority toxic pollutants, human health, aquatic life, water quality
	chlorine (Cl) and compounds	hazardous substance, poison, toxic, aquatic life, human health, reference 3
	persistent organic pollutants (POP)	reference 4
	polychlorinated dibenzo-p-dioxins (PCDD)	carcinogenic, fauna, human health, aquatic life, soil
	dibenzofurans (PCPF)	fauna, human health, aquatic life, soil
	polychlorinated biphenyls (PCB)	carcinogens, hazardous materials, hazardous waste constituents priority toxic pollutants, aquatic life, soil, human health
	phenols	hazardous substance, hazardous waste, priority toxic pollutant, aquatic life, human health
	sulphates	water quality, aquatic life
	nutrients C/N/P	
	wastes / by-products	human health, aquatic life, water quality
	biochemical oxygen demand (BOD)	water quality, aquatic life
	chemical oxygen demand (COD)	
	total organic carbon (TOC)	
	dissolved oxygen	
	suspended solids	
	dissolved solids	
	total solids	
	oil products	
	other hazardous substances	
	temperature	water quality, aquatic life, climate change

CATEGORY	FACTOR	COMMENTS
	change in pH	water quality, aquatic life
	colour	
CLIMATE	changes in ambient air temperature	
	changes in surface water temperature	
	particle emissions	
	mists	
	greenhouse gases	CO,CO2, nmVOC, NOx, NxO, SOX
FLORA	changes in natural vegetation	emissions, project location
	disturbance of aquatic habitat	
	disturbance of plant habitat	
	disturbance of natural vegetation	
	decrease in biodiversity	
	impact of threatened species	
	changes in species population	
	changes in aquatic food web	
	changes in mammal food web	
	impact on protected areas	
FAUNA	disturbance of wildlife habitat	emissions, project location
	decrease in biodiversity	
	impact on threatened species	
	changes in species population	
	impact on threatened area	
	changes in mammal food web	
SOIL	soil acidification	heavy metals, other pollutants
	soil contamination	dioxins
	erosion	changes in natural landscape
	wastes / by-products	flora, fauna, human health
LANDSCAPE	land use changes	
	visual aspects	
	physical composition	
	impact on sensitive lands	
HISTORICAL MONUMENTS	changes to historical sites	acid rain, soiling, staining
HUMAN HEALTH & SAFETY	changes in ambient noise levels	
	changes in disease incidence	
	risk of spills	
	risk of surface water contamination	
	risk of ground water contamination	
	risk of explosions	
CULTURAL HERITAGE	cultural changes	
	land use changes	
	way of life	
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	quality of recreational facilities	
	quantity of recreational facilities	
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

Project 14 - Major mining, on-site extraction and processing of metal ores or coal

Comments: This can be both open pit and underground mines.

CATEGORY	FACTOR	COMMENTS
AIR	carbon monoxide (CO)	greenhouse gases, reference 1
	carbon dioxide (CO2)	
	cyanides	hazardous substances, hazardous waste constituents, priority toxic pollutants, human health, aquatic life
	chlorine (Cl) and compounds	hazardous substance, poison, toxic, aquatic life, human health, reference 3
	heavy metals:	others may be present depending on the composition of the ore, and the ore being mined, reference 2
	lead (Pb)	toxic, metabolic poison
	mercury (Hg)	natural vegetation, human health, fauna
	nickel (Ni)	carcinogen, hazardous substance, hazardous waste constituents, priority toxic pollutant, human health, aquatic life
	zinc (Zn)	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life, flora, fauna
	copper (Cu)	destroys agricultural crops
	cadmium (Cd)	carcinogen, priority pollutant, hazardous substance, flora, fauna, human health
	hydrogen cyanide	hazardous substance, hazardous waste, poison gas, flammable gas, human health, reference 3
	hydrogen fluoride	hazardous substance, hazardous waste, corrosive material, human health
	hydrogen sulphide	hazardous substance, hazardous waste, flammable gas, poison, human health, aquatic life
	persistent organic pollutants	reference 4
	poly-aromatic hydrocarbons (PAH)	carcinogenic, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life
	methane (CH4)	explosive, climate affecting, reference 1
	mercaptans	human health, odour
	non-methane volatile organic compounds (NMVOC)	greenhouse gases, volatile, flora, human health, aquatic life, reference 1
	oxides of nitrogen (NOx) / NxO	acid rain, flora, human health, aquatic life, reference 1
	oxides of sulphur (SOx)	
	phosgene	hazardous substance, hazardous waste, poison gas, human health, no criteria set for water, reference 3
	other hazardous substances	human health
	particle emissions	human health, climate change, historical sites
	oil vapour	
	odour	human health
	noise	
	vibration	
	steam (waste heat)	climate change
WATER	chlorides	hazardous substance, poison, aquatic life, human health
	cyanides	hazardous substances, hazardous waste constituents, priority toxic pollutants, human health, aquatic life
	chlorine (Cl) and compounds	hazardous substance, poison, toxic, aquatic life, human health, reference 3
	heavy metals:	others may be present depending on the composition of the ore, and the ore being mined, reference 2
	lead (Pb)	toxic, metabolic poison

CATEGORY	FACTOR	COMMENTS
	mercury (Hg)	natural vegetation, human health, fauna
	nickel (Ni)	carcinogen, hazardous substance, hazardous waste constituents, priority toxic pollutant, human health, aquatic life
	zinc (Zn)	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life, flora, fauna
	copper (Cu)	destroys agricultural crops
	cadmium (Cd)	carcinogen, priority pollutant, hazardous substance, flora, fauna, human health
	nutrients	water quality, aquatic life
	tars	water quality, aquatic life, human health
	other hazardous substances	
	suspended solids	water quality, aquatic life
	dissolved solids	
	total solids	
	dissolved oxygen	
	temperature	
	change in pH	
	colour	
	odour	
	tailings pond slurries	
	lowering of ground water level for mining purposes	water quality, aquatic life, flora
CLIMATE	changes in ambient air temperature	
	particle emissions	
	mists	
	greenhouse gases	CO, CO2, NOx, NxO, SOx, nmVOCs
FLORA	changes in natural vegetation	emissions, project location, water level
	disturbance of aquatic habitat	
	disturbance of plant habitat	
	disturbance of natural vegetation	
	decrease in biodiversity	emissions, project location
	impact of threatened species	emissions, project location, water level
	changes in species population	
	changes in aquatic food web	
	changes in mammal food web	
	impact on protected areas	
FAUNA	migratory changes - birds	pollutants, project location
	migratory changes - mammals	
	disturbance of wildlife habitat	
	decrease in biodiversity	
	impact on threatened species	
	changes in species population	
	impact on threatened area	
	changes in mammal food web	
SOIL	soil acidification	heavy metals, other pollutants
	soil contamination	
	erosion	changes in natural landscape
	changes in moisture content	changes in water table
	wastes /by-products	

CATEGORY	FACTOR	COMMENTS
LANDSCAPE	land use changes	
	visual aspects	
	physical composition	
	impact on sensitive lands	
	surface requirements - open pit	relocation of settlements, rivers etc
	subsidence	damage to buildings, monuments, roadways, water courses
	tilt of surface	damage
	dump zones from washery tailings	water, soil, human health, flora, fauna
HISTORICAL MONUMENTS	changes to historical sites	acid rain, soiling, staining
	palaeontological sites	
	archaeological sites	
HUMAN HEALTH & SAFETY	changes in ambient noise levels	
	changes in disease incidence	lung disease, blood disorders, respiratory disease, cancer
	deterioration of general state of health	
	risk of spills	
	risk of surface water contamination	
	risk of ground water contamination	
	risk of explosions	
CULTURAL HERITAGE	cultural changes	
	land use changes	
	way of life	
	resettlement of homes, towns	
	re-routing of roadways, rivers, streams	
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	quality of recreational facilities	
	quantity of recreational facilities	
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

Project 15 - Offshore hydrocarbon production

Comments:

CATEGORY	FACTOR	COMMENTS
AIR	carbon monoxide (CO)	greenhouse gas, reference 1
	heavy metals:	reference 2
	lead (Pb)	
	methane (CH4)	greenhouse gases, volatile, reference 1
	non-methane volatile organic compounds (NMVOC)	
	oxides of nitrogen (NOx) / NxO	acid rain, flora, fauna, human health, historical sites, reference 1
	oxides of sulphur (SOx)	
	persistent organic pollutants	reference 4
	poly-aromatic hydrocarbons (PAH)	carcinogenic, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life
	photochemical oxidants	ozone, climate change
	other hazardous substances	
	particle emissions	human health, historical sites
	oil vapour	human health, aquatic life
	odour	human health
	noise	
WATER	oil products	water quality, aquatic life
	heavy metals:	water quality, aquatic life, reference 2
	lead (Pb)	
	salinity	water quality, aquatic life
	sulphide	aquatic life, water quality
	) temperature	water quality, aquatic life
	chemical oxygen demand (COD)	
	total organic carbon (TOC)	
	debris	
	turbulence	
CLIMATE	changes in ambient air temperature	
	particle emissions	
	greenhouse gas emissions	CO, CH4, NOx, NxO, SOx, NMVOC
FLORA	disturbance of aquatic habitat	barges, oil rigs
	decrease in biodiversity	oil, disturbance of habitat
	impact of threatened species	
	changes in species population	
	changes in aquatic food web	
	impact on protected areas	
FAUNA	migratory changes - birds	
	migratory changes - fish	
	decrease in biodiversity	
	impact on threatened species	
	changes in species population	
	impact on threatened area	
LANDSCAPE	land use changes	
	visual aspects	
	physical composition	
HISTORICAL MONUMENTS	historical sites	acid rain, soiling
HUMAN HEALTH & SAFETY	changes in disease incidence	
	risk of spills	
	risk of surface water contamination	
	risk of explosions	

CATEGORY	FACTOR	COMMENTS
CULTURAL HERITAGE	way of life	
	special waters	Eskimos, northern wildlife
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	employment opportunity	
	economic development - transboundary	

Project 16 - Major storage facilities for petroleum, petrochemical and chemical products

Comments: Storage facilities can exist in both above ground and below ground storage tanks. In storage tank technologies the most common problem that exists is groundwater contamination from spills or leakage. Leakage most often occurs as a result of corrosion. Several preventative measures to consider when installing storage tanks include: cathodically protecting tanks, installing double walled tanks or using fibreglass or corrosion resistant tanks. External factors contributing to corrosion consist of high water table, saline water and moist soil conditions. These factors make site selection for underground storage facilities an important consideration.

CATEGORY	FACTOR	COMMENTS
AIR	persistent organic pollutants (POPs)	minor evaporation when filling tanks, reference 4
	poly-aromatic hydrocarbons (PAH)	carcinogenic, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life
	non-methane volatile organic compounds (NMVOC)	greenhouse gases, volatile, flora, human health, reference 1
	other hazardous substances	human health, flora, fauna
WATER	chemical oxygen demand (COD)	water quality, aquatic life
	total organic carbon (TOC)	
	adsorbable organic halogenated compounds (AOX)	water quality, aquatic life, carcinogen, flora, fauna, human health
	oil products	water quality, aquatic life
	other hazardous substances	depends on chemical products being stored in tanks
FLORA	changes in natural vegetation	
	disturbance of plant habitat	
	disturbance of natural vegetation	
FAUNA	disturbance of wildlife habitat	
SOIL	soil contamination	
	erosion	
LANDSCAPE	land use changes	
	visual aspects	
HUMAN HEALTH & SAFETY	risk of spills	
	risk of ground water contamination	
	risk of surface water contamination	
CULTURAL HERITAGE	land use changes	
SOCIO-ECONOMIC	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

Project 17 - Deforestation of large areas

Comments:

CATEGORY	FACTOR	COMMENTS
AIR	carbon dioxide (CO2)	greenhouse gases, reference 1
	methane (CH4)	
	non methane volatile organic compounds (NMVOCs)	greenhouse gases, volatile, flora, human health, reference 1
	oxides of nitrogen (NOx)	acid rain, flora, fauna, greenhouse gas, reference 1
	noise	during cutting, human health
	vibration	
	particulate emission - dust	
WATER	heavy metals	
	nutrients	water quality, aquatic life
	suspended solids	
	dissolved solids	
	total solids	
	chemical oxygen demand (COD)	
	total organic carbon (TOC)	
	sedimentation	
CLIMATE	greenhouse gas emissions	CO2, CH4, NMVOCs, NOx
FLORA	changes in natural vegetation	
	disturbance of plant habitat	
	disturbance of natural vegetation	
	decrease in biodiversity	
	impact of threatened species	
	changes in species population	
	changes in mammal food web	
	impact on protected areas	
FAUNA	migratory changes - birds	
	migratory changes - mammals	
	disturbance of wildlife habitat	
	decrease in biodiversity	
	impact on threatened species	
	changes in species population	
	changes in mammal food web	
SOIL	soil acidification	
	soil contamination	
	erosion	
	desertification	
LANDSCAPE	land use changes	
	visual aspects	
	physical composition	
	impact on sensitive lands	
HISTORICAL MONUMENTS	palaeontological sites	
HUMAN HEALTH & SAFETY	risk of surface water contamination	runoff, leachates
	risk of ground water contamination	leachates
CULTURAL HERITAGE	cultural changes	
	land use changes	
	way of life	

CATEGORY	FACTOR	COMMENTS
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	quality of recreational facilities	
	quantity of recreational facilities	
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

References

1. Proceedings of the EMEP Workshop on Emission Inventory Techniques, Regensburg, Germany, 2-5 July, 1991, EMEP/CCC-Report 1/91
2. Economic Commission for Europe Convention of Long-range Transboundary Air Pollution, Task Force on Heavy Metal Emissions, June 1994
3. Economic Commission for Europe, Convention on the Transboundary Effects of Industrial Accidents
4. Economic Commission for Europe, State of Knowledge Report of the UN ECE Task Force on Persistent Organic Pollutants
5. Recommendations to ECE Governments on the Prevention of Water Pollution from Hazardous Substances