

Hazard Identification Tool Floods – Albania – 7 January 2009 FL-2009-000245-SRB

Disclaimer

The present hazard identification has been carried out based on publicly available information. An attempt has been made to identify locations of facilities and objects as precisely as possible. However, the list is not exhaustive or conclusive; other hazards may be present in the area and some of the identified locations may be obsolete. Furthermore, the estimated impact types should not be used as a basis for decision making on response measures, but further investigations should be made to verify the information provided in the HIT and to assess the actual impact.

➤ **Objective**

The objective of the Hazard Identification Tool (HIT) is to alert the United Nations Disaster Assessment (UNDAC) and other emergency responders as well as the UN Country Team to potential secondary risks after a natural disaster posed by large infrastructure and industrial facilities containing hazardous materials located in the affected area. This information can be shared with competent local and national authorities as appropriate. Any actual secondary risk should be addressed at the earliest possible stage.

➤ **Methodology of the HIT**

The methodology of the HIT is based on the Flash Environmental Assessment Tool (FEAT), a rapid assessment methodology to identify the most acute hazards to human health and the environment after natural disasters. The HIT is compiled based on research using publicly available information sources and provides a list of “big and obvious” facilities and objects that may pose a risk to human health and life, as well as the natural environment. The list includes indications of the substances that are expected to be present in these facilities, as well as the hazard types associated with these substances and related **estimated** impact types. Wherever the (expected) location of a facility could be identified, this information has been filled into the first column of the HIT. If the facility is expected to be present, but no location could be identified, this has been indicated. Whenever the location field has been left blank, it is not expected that these facilities are present in the country.

➤ **Event**

The Government of Albania declared a state of emergency on 7 January 2010, following heavy rainfall during November and December 2009 which caused water levels in the lakes and on the Drini River to rise, flooding the Shkodra and Lezha regions. Reportedly more than 1200 buildings/houses (some partially) and 9000ha farmland are flooded. The Interior Ministry reports on massive evacuations in the villages of Gur i Zi and Dajc communes. Meanwhile some 2500 people have been so far evacuated from the affected zones. This HIT covers mainly the Shkodra (highly industrialized) and Lezha regions.

➤ **The Joint UNEP/OCHA Environment Unit**

The Joint UNEP/OCHA Environment Unit is the United Nations mechanism to mobilize and coordinate the international response to environmental emergencies caused by natural disaster, technological accidents and complex emergencies.

List of Hazards

Location	Actual Hazard			Estimated Impact Type 
	Facility	Substances	Hazard Type	
<i>These facilities may be present in the affected area</i>	Hospital / sterilizing industry	ethylene oxide	gas toxic to humans, carcinogenic, mutagenic	Direct impact on human health
	Winning, preparing and distribution of drinking water (with chemicals)	chlorine	gas toxic to humans, gas toxic to the environment	direct impact on human health
	Electricity distribution	ammonia	gas toxic to humans, gas toxic to the environment	direct impact on human health, life support and nature direct
	Production of food and drink, incl. slaughterhouse	ammonia	gas toxic to humans, gas toxic to the environment	direct impact on human health, life support and nature direct
<i>These facilities may be present in the Lezha region.</i>	Aerospace manufacture / repair (land-side)	hydrofluoric acid, cyanide	liquid toxic to the environment, liquid toxic to humans , liquid toxic after contact with water	direct impact on life-support functions and nature (direct impact on human health)
<i>These may be present both in Shkodra and Lezha regions.</i>	Agricultural services (incl. small storage)	mixed chemicals (fire)	gas toxic to humans (toxic smoke)	direct impact on human health
<i>The agricultural facilities are present in the affected area. Primarily small family operations and subsistence farming, with little modern equipment. Agricultural products include wheat, corn, potatoes, vegetables, fruits, sugar beets, grapes.</i>	Agriculture (animals, crop, forestry, fruit, etc.)	organotin pesticide, organochlorine pesticide, phenoxyacetic acid derivative pesticide, carbamate pesticide, substituted nitro phenol pesticide, organophosphorus pesticide, pyrethroid pesticide, triazine pesticide, mercury based pesticide, dithiocarbamate pesticide, mixed chemicals (fire)	toxic/persistent, carcinogenic, mutagenic, liquid toxic to the environment, liquid toxic to humans, flammable liquid, gas toxic to humans, (toxic smoke)	long-term impact, direct impact on life-support functions and nature (direct impact on human health)
<i>Present in Lezhë. Gjader Air Base</i>	Airports (air-side)	kerosene	liquid toxic to the environment, toxic/persistent	long-term impact, direct impact on life-support functions and nature
	Artificial ski run	ammonia	gas toxic to humans, gas toxic to the environment	direct impact on human health
<i>These facilities may be present in the affected area. Especially activities such as breeding animals for meat and dairy products</i>	Breeding and keeping animals	mixed chemicals (fire)	gas toxic to humans (toxic smoke)	direct impact on human health

List of Hazards

Location	Actual Hazard			Estimated Impact Type 
	Facility	Substances	Hazard Type	
<i>These facilities are present in the affected areas.</i>	Bus-, tram- and metro, taxi stations	solvents, cleaning agents	liquid toxic to the environment, liquid toxic after contact with water, carcinogenic, mutagenic, flammable liquid, toxic/persistent	direct impact on human health, long-term impact
<i>May be present in the towns of Lezhë and Shkodër and large urban centres of the affected areas.</i>	Car scrap yard	cleaning agents, solvents	liquid toxic to the environment, flammable liquid, toxic/persistent, liquid toxic after contact with water, carcinogenic, mutagenic	long-term impact, direct impact on life-support functions and nature
<i>These facilities may be present in the affected areas.</i>	Defense	hydrazine, fuel, explosives	liquid toxic to the environment, liquid toxic to humans, flammable liquid, toxic/persistent (explosive)	long-term impact, direct impact on life-support functions and nature (direct impact on human health)
<i>The Komani Hydro Power plant is situated on the Drin River, which ends in Shkodër. Other dams in the country are:</i> <ul style="list-style-type: none"> • Vau i Dejës Hydro Power Plant • Skavica Hydro Power Plant • Fierza Hydro Power Plant • Devoll Hydro Power Plant • Bratilo Hydro Power Plant 	Energy production and distribution (steam, propane / butane, oil and solvents, etc.)	natural gas, propane, butane, ammonia	flammable gas, gas toxic to the environment, gas toxic to humans	direct impact on human health
<i>These facilities may be present in the affected areas.</i>	Environmental services	mixed chemicals (fire)	gas toxic to humans, (toxic smoke)	direct impact on human health
	Fish farming	mixed chemicals (fire)	gas toxic to humans (toxic smoke)	direct impact on human health
<i>These facilities may be present in the affected areas.</i>	Forestry and -services (incl. small storage)	mixed chemicals (fire)	gas toxic to humans (toxic smoke)	direct impact on human health
<i>These facilities may be present in the affected areas.</i>	Galvano industry	chromium (III)	toxic/persistent, carcinogenic, mutagenic, solid toxic after contact with water	direct impact on human health
<i>These facilities may be present in the affected area</i>	Gas distribution	natural gas	flammable gas, gas toxic to the environment	direct impact on human health
<i>These facilities may be present in the affected area</i>	Gas service stations (with LPG)	liquefied petroleum gas (LPG)	flammable gas, gas toxic to the environment	direct impact on human health
	Glass production	hydrogen fluoride	explosive, solid toxic after contact with	direct impact on human health

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Location	Actual Hazard			Estimated Impact Type 	
	Facility	Substances	Hazard Type		
<i>The Komani Hydro Power plant is situated on the Drin River, which ends in Shkodër. Other dams in the country are:</i>	Hydro dams (large)	---	---	water	Dam stability might be affected, dammed water, high voltage electricity
<i>These facilities may be present in the affected areas.</i>	Ice skating rink	ammonia	gas toxic to humans, gas toxic to the environment		direct impact on human health
<i>These facilities are likely to be present in the affected areas,</i>	Iron and steel foundries	cleaning agents, solvents	liquid toxic to the environment, flammable liquid, toxic/persistent, liquid toxic after contact with water, carcinogenic, mutagenic		direct impact on human health, direct impact on life-support functions and nature, long-term impact
<i>These facilities may be present in the affected areas.</i>	Laundry, carpet clean, hair dresser, undertaker, fitness, etc.	dibenzoyl peroxide, chlorosilane, hydrogen peroxide	liquid toxic to the environment, liquid toxic to humans, toxic/persistent, gas toxic to the environment		direct impact on life-support functions and nature (direct impact on human health)
<i>These are likely to be present in Lezhë, and the Lezha region. These may be present in Shkodër on lake Shkodra.</i>	Loading and storage ships (oil and solvents, hazardous, etc.)	oil and solvents, fire	liquid toxic to the environment, toxic/persistent, combustible		direct impact on human health
<i>These facilities may be present in the affected areas.</i>	Manufacturing synthetic fibers	acrylic acid	liquid toxic to the environment, flammable liquid		direct impact on life-support functions and nature
	Marshalling yards	chlorine, liquefied petroleum gas (LPG)	gas toxic to humans, gas toxic to the environment, flammable gas		direct impact on human health
<i>These facilities may be present in the affected areas. Indication of copper mines and mining waste stock piles in the Shkodra region. Albania's important mineral deposits included chromium, copper, iron ore.</i> http://minerals.usgs.gov	Mining: gold, copper, nickel etc.	arsenic, mercury, cyanide	toxic/persistent, carcinogenic, mutagenic, solid toxic after contact with water, liquid toxic to the environment, liquid toxic to humans, liquid toxic after contact with water, gas toxic to the environment		long-term impact (direct impact on human health, direct impact on life-support functions and nature)

List of Hazards

Location	Actual Hazard			Estimated Impact Type 
	Facility	Substances	Hazard Type	
v/minerals/pubs/country/maps/94019.gif				
<i>These facilities may be present in the affected areas.</i>	Oil and gas mining (on-shore, off-shore)	oil and solvents, natural gas	liquid toxic to the environment, toxic/persistent, flammable gas, gas toxic to the environment	direct impact on human health
<i>These facilities are likely to be present in the affected areas, especially in large urban centres.</i>	Photo and film development	solvents	liquid toxic to the environment, liquid toxic after contact with water, carcinogenic, mutagenic	long-term impact
	Production of accumulators and batteries	mixed chemicals (fire)	gas toxic to humans, toxic/persistent (toxic smoke)	direct impact on human health
<i>These facilities may be present in the affected areas.</i>	Production of agricultural chemicals	chlorine, carbon disulfide	gas toxic to humans, gas toxic to the environment, liquid toxic to the environment	direct impact on human health
	Production of cardboard and paper	chlorine bleaching	gas toxic to humans, gas toxic to the environment	direct impact on life-support functions and nature
<i>These facilities may be present in the affected areas.</i>	Production of chemicals - other	dimethylsulphate, chloride salts	liquid toxic to the environment, liquid toxic to humans	direct impact on human health, direct impact on life-support functions and nature
<i>These facilities may be present in the affected areas.</i>	Production of clothing (incl. painting and printing)	solvents	liquid toxic to the environment, liquid toxic after contact with water, carcinogenic, mutagenic	long-term impact
	Production of cokes	oxigas	flammable gas, gas toxic to the environment	direct impact on human health
<i>These are likely produced in Shkodër and the Shkodra region, but may be produced elsewhere in the affected area.</i>	Production of cokes electrodes	liquid acid, hydrogen, methanol	liquid toxic to the environment, flammable liquid, flammable gas, gas toxic to the environment, carcinogenic, mutagenic	direct impact on life-support functions and nature (direct impact on human health, long-term impact)
	Production of color and paint	solvents	liquid toxic to humans, liquid toxic after contact with water, carcinogenic, mutagenic	direct impact on life-support functions and nature

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	Facility	Substances	Hazard Type	
<i>These are likely produced in Shkodër and the Shkodra region, but may be produced elsewhere in the affected areas.</i>	Production of electro motors- and generators	cleaning agents, solvents	liquid toxic to the environment, flammable liquid, toxic/persistent, liquid toxic after contact with water, carcinogenic, mutagenic	long-term impact, direct impact on life-support functions and nature
	Production of fertilizer	ammonium nitrate, ammonia	liquid toxic to the environment, liquid toxic to humans, gas toxic to humans, gas toxic to the environment	direct impact on human health
	Production of fireworks	ammonium nitrate, ammonia	liquid toxic to the environment, liquid toxic to humans, toxic/persistent, gas toxic to humans, gas toxic to the environment	direct impact on human health
	Production of industrial gasses	monovinylchloride, ethene, hydrogen chloride, propane, oxygen	gas toxic to humans, carcinogenic, mutagenic /gas toxic to the environment/gas toxic to humans, gas toxic to the environment/flammable gas, gas toxic to the environment/GMR	direct impact on human health
<i>These facilities may be present in the affected areas.</i>	Production of inorganic chemical base materials	ammonium nitrate	explosive, solid toxic after contact with water	direct impact on human health
<i>These facilities may be present in the affected areas.</i>	Production of iron and steel base materials	oxigas	flammable gas, gas toxic to the environment	direct impact on human health, direct impact on life-support functions and nature
	Production of lacker and varnish	toluene diisocyanate	liquid toxic to the environment, toxic/persistent	direct impact on human health
<i>These facilities may be present in the affected areas.</i>	Production of lamps	hydrogen	flammable gas, gas toxic to the environment	direct impact on human health
	Production of leather	galvano, zinc bath	liquid toxic to the environment, liquid toxic to humans, toxic/persistent	direct impact on human health, long-term impact, direct impact on life-support functions and nature
	Production of lubricants	oil and solvents	liquid toxic to the environment, toxic/persistent	long-term impact, direct impact on life-support functions and nature
<i>Likely to be present in Shkodër's industrial surroundings, but may be produced elsewhere in the affected areas.</i>	Production of oil and solvents products (base materials)	oil and solvents	liquid toxic to the environment, toxic/persistent	long-term, direct impact on life-support functions and nature
<i>These facilities may be present in the affected</i>	Production of organic chemical	organotin compound (liquid), n.o.s.,	toxic/persistent, carcinogenic,	direct impact on human health, long-

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	Facility	Substances	Hazard Type	
<i>areas.</i>	base materials	dibromomethane, tetrabromoethane, pentachloroethane, chromic fluoride (solution), arsenic compound - liquid, n.o.s., arsenic chloride, hexachlorobenzene, butadienes (inhibited), pentachlorophenol, acrylonitrile, monovinylchloride, organic peroxide, bromine, chlorine, dimethylsulphate, fluorosulfonic acid, acrolein (inhibited), mercury compound (liquid), n.o.s., vinyl bromide (inhibited), fluorine, butane, trichlorobenzenes-liquid, hydrazine, anhydrous, bromomethylpropanes, chlorobenzene, hexachlorocyclopentadiene, formaldehyde (solution), vinyl chloride (inhibited)	mutagenic, liquid toxic to the environment, liquid toxic to humans, flammable gas, gas toxic to the environment, gas toxic to humans, explosive	term impact, direct impact on life-support functions and nature
	Production of perfumes and cosmetics	solvents	liquid toxic to the environment, liquid toxic after contact with water, carcinogenic, mutagenic	long-term impact
	Production of pharmaceutical base materials	methanol, ammonia, isopropanol, pentane, medicine	liquid toxic to the environment, carcinogenic, mutagenic /gas toxic to humans, gas toxic to the environment/ flammable liquid/ST	direct impact on human health
<i>These facilities may be present in the affected areas.</i>	Production of photochemical products	solvents	liquid toxic to the environment, liquid toxic after contact with water, carcinogenic, mutagenic	direct impact on human health, long-term impact
<i>These facilities may be present in the affected areas.</i>	Production of rubber (incl. tires)	chloroprene	carcinogenic, mutagenic, liquid toxic to the environment	long-term impact
	Production of soap and detergents	chloride salts	liquid toxic to humans, liquid toxic to the environment	direct impact on human health

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Location	Actual Hazard			Estimated Impact Type 
	Facility	Substances	Hazard Type	
	Production of steel pipes	cleaning agents, solvents	liquid toxic to the environment, flammable liquid, toxic/persistent, liquid toxic after contact with water, carcinogenic, mutagenic	long-term impact, direct impact on life-support functions and nature
	Production of sugar	sulfur dioxide	gas toxic to humans, gas toxic to the environment	direct impact on human health, direct impact on life-support functions and nature
	Production of synthetic resin	toluene diisocyanate, acrylic acid	liquid toxic to the environment, liquid toxic to humans, toxic/persistent, flammable liquid	direct impact on life-support functions and nature
<i>These facilities are present in the affected areas, specifically in Shkodra.</i>	Production of textiles	solvents	liquid toxic to the environment, liquid toxic after contact with water, carcinogenic, mutagenic	long-term impact
<i>These facilities may be present in the affected areas.</i>	Production of wood	solvents	liquid toxic to the environment, liquid toxic after contact with water, carcinogenic, mutagenic	long-term impact
	Radioactive and nuclear industry (Nuclear plants incl. cooling towers; research reactors)	radioactive material	<i>specialized expertise needed</i>	direct impact on human health, long-term impact
<i>These facilities are likely to be present in the affected areas.</i>	Railway stations (no marshalling)	cleaning agents, solvents	liquid toxic to the environment, flammable liquid, toxic/persistent, liquid toxic after contact with water, carcinogenic, mutagenic	direct impact on human health, long-term impact, direct impact on life-support functions and nature
<i>These facilities may be present in the affected areas.</i>	Recycling	fire	combustible	direct impact on human health
<i>These facilities may be present in the affected areas.</i>	Recycling of liquids and rubber	trichlorobenzenes, trichloride ethanes	liquid toxic to the environment, liquid toxic to humans, carcinogenic, mutagenic, toxic/persistent	long-term impact, direct impact on life-support functions and nature
<i>These facilities may be present in the affected areas.</i>	Recycling of oil and solvents and lubricants	oil and solvents	liquid toxic to the environment, toxic/persistent	long-term impact
<i>These facilities may be present in the affected areas.</i>	Refinery of vegetable oil, solvents and grease	ammonia	gas toxic to humans, gas toxic to the environment	direct impact on human health, direct impact on life-support functions and nature
<i>These facilities may be present in the affected areas.</i>	Refinery of oil and solvents and gas (incl. storage)	oil and solvents, natural gas	liquid toxic to the environment, toxic/persistent, flammable gas, gas	direct impact on human health

List of Hazards

Location	Actual Hazard			Estimated Impact Type 
	Facility	Substances	Hazard Type	
			toxic to the environment	
<i>These facilities may be present in the affected areas.</i>	Scrap yards (collection)	cleaning agents, solvents	liquid toxic to the environment, flammable liquid, toxic/persistent, liquid toxic after contact with water, carcinogenic, mutagenic	long-term impact, direct impact on life-support functions and nature
<i>May be present in Lezhë and the Lezha region.</i>	Ship dismantling	cleaning agents, solvents	liquid toxic to the environment, flammable liquid, toxic/persistent, liquid toxic after contact with water, carcinogenic, mutagenic	direct impact on human health, long-term impact, direct impact on life-support functions and nature
<i>May be present in larger communities (particularly Lezhë and Shkodër cities)</i>	Swimming facilities	chlorine bleaching	gas toxic to humans, gas toxic to the environment	direct impact on life-support functions and nature
<i>These facilities may be present in the affected areas.</i>	Synthetic manufacturing	phenolic resin	liquid toxic to the environment	direct impact on life-support functions and nature
<i>May be present in Lezhë and Lezha region.</i>	Tanker cleaning	oil and solvents, cleaning agents	liquid toxic to the environment, liquid toxic after contact with water, carcinogenic, mutagenic, liquid toxic to the environment, toxic/persistent	direct impact on human health
	Tanning industry	aniline, cyanide, ammonium sulfate, sulfuric acid, arsenic, chromium (III)	carcinogenic, mutagenic, liquid toxic to the environment, liquid toxic after contact with water, liquid toxic to humans, toxic / persistent, solid toxic after contact with water	direct impact on human health, long-term impact
<i>These facilities may be present in the affected areas.</i>	Textile industry (dyes)	naphthalene, benzene, bromine, chlorine, alkali, sodium nitrate, sodium sulfide	toxic / persistent, solid toxic after contact with water, carcinogenic, mutagenic, liquid toxic to the environment, liquid toxic to humans, gas toxic to the environment, gas toxic to humans	direct impact on human health
<i>These facilities are likely to be present in the affected areas.</i>	Trading and repair cars, motorcycles, service stations	cleaning agents, solvents	liquid toxic to the environment, flammable liquid, toxic / persistent, liquid toxic after contact with water, carcinogenic, mutagenic	long-term impact, direct impact on life-support functions and nature
	Trading professional fireworks (large enterprises)	fireworks	explosive	direct impact on human health

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Location	Actual Hazard			Estimated Impact Type 
	Facility	Substances	Hazard Type	
<i>These facilities are likely to be present in the affected areas.</i>	Truck and (rail) lorry repair shops	cleaning agents, solvents	liquid toxic to the environment, flammable liquid, toxic/persistent	long-term impact, direct impact on life-support functions and nature
<i>These facilities may be present in the affected areas.</i>	Wholesale chemical products	mixed chemicals (fire)	gas toxic to humans (toxic smoke)	direct impact on human health
<i>These facilities may be present in the affected areas.</i>	Wholesale fertilizers	ammonium nitrate	explosive, solid toxic after contact with water	direct impact on human health
	Wholesale fire products (SME)	fire	combustible	direct impact on human health
<i>These facilities may be present in the affected areas.</i>	Wholesale liquid and gas fuels	oil and solvents, natural gas	liquid toxic to the environment, toxic/persistent, flammable gas, gas toxic to the environment	long-term impact, direct impact on life-support functions and nature (direct impact on human health)
<i>These facilities may be present in the affected areas.</i>	Wholesale mineral oil and solvent product (excl. fuels)	oil and solvents	liquid toxic to the environment, toxic/persistent	long-term impact
<i>These facilities may be present in the affected areas.</i>	Wood treating industry	pentachlorophenol, creosote, chromium (III), arsenic, copper salts	liquid toxic to humans, solid toxic after contact with water / liquid toxic to the environment, carcinogenic, mutagenic / toxic / persistent	direct impact on human health, direct impact on life-support functions and nature

Explanation of the impact types



Direct impact on human health

- adverse health effects, possibly leading to immediate death



Long-term impact on life-support functions, nature and humans

- toxic persistent substances entering the food chain and natural ecosystems and effects of carcinogenic substances.



Direct impact on life-support functions and nature

- crops, fish resources, agricultural land, water supply
- biodiversity and ecosystems

Indication of priority

The colors in the 'Impact column' indicate the priority to be given to this specific hazard.
(Red = Priority nr. 1, Orange = Priority nr. 2, Blue = Priority nr. 3)

Information sources

- **World Energy Council: Survey of Energy Resources 2007**
http://www.worldenergy.org/publications/survey_of_energy_resources_2007/default.asp
- **UNEP/GRID Arendal – Maps and Graphics Library**
<http://maps.grida.no/>
- **Official Energy Statistics**
<http://www.eia.doe.gov/emeu/cabs/index.html>
- **IAEA Country profiles and databases on Nuclear Power Plants and Research Reactors**
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2003/CNPP_Webpage/pages/countryprofiles.htm
<http://www.iaea.org/programmes/a2/index.html>
<http://www.iaea.org/worldatom/rrdb/>
- **ICOLD World Register of Large Dams**
<http://www.icold-cigb.net/recherchedidentification.aspx?typrech=rg>
- **Stockholm Convention on Persistent Organic Pollutants (POPs) - National Implementation Plans**
<http://www.pops.int/documents/implementation/nips/submissions/default.htm>
- **UNEP PCDD/PCDF Inventories**
http://www.chem.unep.ch/pops/pcdd_activities/inventories/default.htm
- **Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal**
<http://www.basel.int/natreporting/compilations.html>
- **Maps of Oil and Gas infrastructure**
http://www.lib.utexas.edu/maps/map_sites/oil_and_gas_sites.html
- **International Minerals Statistics and Information**
<http://minerals.usgs.gov/minerals/pubs/country/>
- **MineSite – Information on World Mining Operations**
<http://www.infomine.com/minesite/>