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# ENVIS ON HAZARDOUS WASTES

## Newsletter

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### Current News

#### Small offshore oil spills put seabirds at risk

*Seabirds exposed to even a dime-sized amount of oil can die of hypothermia in cold-water regions, but despite repeated requests by Environment Canada, offshore oil operators are failing when it comes to self-monitoring of small oil spills, says new research. Chronic pollution from many small oil spills may have greater population-level impacts on seabirds than a single large spill, suggest researchers.*

Chronic pollution from many small oil spills may have greater population-level impacts on seabirds than a single large spill, suggest researchers Gail Fraser and Vincent Racine of York U's Faculty of Environmental Studies. However, seabirds are rarely considered in the monitoring of small spills from offshore oil production projects in Newfoundland and Labrador even though Environment Canada has asked that they be included. In an article published in the international journal, *Marine Pollution Bulletin*, Fraser and Racine looked at how offshore oil operators monitored and responded to small spills (less than 1,000 litres) for three production projects off the coast of Newfoundland and Labrador. In three high-profile environmental assessments Environment Canada repeatedly requested that impacts on seabirds be monitored following small spills, but this has not happened.

According to the researchers, Industry self-monitoring of spills has failed to collect information that would allow researchers to understand the impact of chronic oil spills on seabirds calling for independent observers on the offshore platforms. Many seabird populations are declining and understanding sources of mortality is critical to their conservation. Fraser and Racine looked at reporting and monitoring of spills between 1997 and 2010. The researchers obtained operator spill reports under an Access to Information request. They found there were 220 daytime spills. Reporting on the presence or absence of seabirds was done in only 11 (five per cent) of the cases. The Canadian Wildlife Service's seabird survey protocol should be followed when a spill occurs, but none of the reports showed evidence of that. The time it takes for a small spill to dissipate was also not in the spill reports and this information is required to estimate possible interactions of oil spilled with seabirds. The lack of information on seabirds during oil spills indicates a need for third-party observers.

The joint federal and provincial Newfoundland & Labrador the Canada-Newfoundland Labrador Offshore Petroleum Board (C-NLOPB) is responsible for administering environmental assessment follow-up procedures, including monitoring and responses to oil spills. The C-NLOPB has repeatedly rejected calls for independent, third party observers on platforms while seemingly being incapable of enforcing Environment Canada's recommendations. However, during the White Rose environmental

assessment process the C-NLOPB publicly acknowledged "that should such circumstances arise, it is fully prepared to adopt a different regulatory approach, including consideration of full-time on-site oversight of the operations concerned." While the circumstances were not defined, Fraser argues that "A failure to collect information on seabirds during oil spills for 13 years is sufficient to demand the regulatory approach be changed to include third-party observers."



Oiled Thick-billed Murre, Cripple Cove (near Cape Race), Newfoundland

(Source: Gail S. Fraser, Vincent Racine. An evaluation of oil spill responses for offshore oil production projects in Newfoundland and Labrador, Canada: Implications for seabird conservation. *Marine Pollution Bulletin*, 2016; 107 (1): 36 DOI: 10.1016/j.marpolbul.2016.04.026; <https://www.sciencedaily.com/releases/2016/05/160526095451.htm>)

#### Tropical forest plant could save water from metal pollution

*A biomass recovered from common plant could help purify water from contamination of copper and zinc. A new article reports on the possible use of biosorbents derived from *Jatropha curcas* waste, to remove heavy metal ions from water*

Once released from the industry into the environment, accumulated toxins and trace amounts of heavy metals can contaminate waterways for decades or more in concentrations high enough to pose severe health risks on human health, let alone meet the standards for potability. Conventional methods for removing heavy metals from water -- such as treatment with activated carbon or more advanced technologies like ion-exchange resins -- have proved very effective, but they can, however, be too expensive for use in developing countries, especially in rural areas. This need for low cost, sustainable and ecological alternatives has fostered research on biosorption -- a biological method often advised as a cheaper and more effective technique for heavy metal ion removal and recapture from industrial wastewater.



Now, the article by Brazilian researchers -- Prof. Gustavo Ferreira Coelho from the University Center Dynamic of Cataracts in Parana and Prof. Affonso Celso Goncalves Junior from the Research Group on Soil and Environment -- published in *Open Chemistry* reports on the possible use of biosorbents derived from *Jatropha curcas* waste, to remove heavy metal ions from water. Native to the American tropics, perennial *Jatropha curcas* has already been hailed as unique as a potential substitute for petroleum, or as a source of biodiesel. Now, the article published in *Open Chemistry* suggests its use for removing heavy metal ions, i.e. -- copper and zinc, from water. The biosorbents obtained from the plant appear to act similarly to commonly used commercial adsorbents. But importantly, production of *Jatropha curcas* biosorbents is cheaper when compared to commercial alternatives.

Coelho and his team tested three different adsorbents obtained from *Jatropha curcas* seeds. They checked the influence of different conditions on the adsorption of copper and zinc ions on these adsorbents and were able to figure out optimal conditions determining the top parameters for adsorption. While still early, the researchers think that their findings add to solving the problem of water pollution by using cheap but effective and fully natural-derived adsorbents to remove heavy metal ions from water; an urgent problem for developing countries which struggle with drinking water shortages.

(Source: Herbert Nacke, Affonso Celso Gonçalves, Marcelo Angelo Campagnolo, Gustavo Ferreira Coelho, Daniel Schwantes, Marcelo Gonçalves dos Santos, Dionir Luiz Briesch, Juliano Zimmermann. Adsorption of Cu (II) and Zn (II) from Water by *Jatropha curcas* L. as Biosorbent. *Open Chemistry*, 2016; 14 (1) DOI: 10.1515/chem-2016-0010; <https://www.sciencedaily.com/releases/2016/05/160523084206.htm>)

#### Microbial biosensor designed to evaluate water toxicity

*A paper-based biosensor covered with bacteria has been designed to detect water toxicity. This is an innovative and inexpensive biological tool which can be easy to use in economically restricted areas or developing countries*

The detection of toxic contaminants is an essential element of analysis and control of water quality, something very needed in an increasingly urbanised and industrialised world. Chemical analysis techniques are of great utility in determining specific substances, but are limited when used to analyse complex samples which can contain multiple contaminants. In this sense, the use of biosensors is appropriate, in which they measure the effect samples have on a biological element, such as enzymes or proteins, or on a vital parameter of an indicator organism.

"The innovation provided by our sensor is based on the use of absorbent paper matrices with entrapped bacteria with the aim of conducting colorimetric measures of toxicity," explains UAB researcher Ferran Pujol, who conducted this study as part of his PhD thesis. In this work, researchers used *Escherichia coli* (*E. coli*) cells as model bacteria. The paper was recently published in *Analytica Chimica Acta*. The detection technique proposed and validated by researchers is quick and simple. In fact, its mechanisms is similar to that of paper strips used to measure the pH of water. The samples analysed are added to the matrices together with the colouring agent ferrocyanide, which ranges from yellow to transparent when breathed in by the microorganisms. The paper changes colours according to the intensity of the cell metabolism of the bacteria, inversely proportional to the toxicity of the sample: the more the colour changes, the less contamination detected. These changes can be measured with optical techniques, by analysing the image or with the naked eye.



Paper matrices with entrapped bacteria and colouring showing samples of different toxicity levels

The bioassay, which researchers have applied a patent for, detects any contaminant which can be toxic for the microorganisms after some 15 to 30 minutes of coming into contact with the cells (time taken to conduct the test), such as heavy metals or hydrocarbons such as petroleum or benzene. The technique can be applied to both natural waters and urban and industrial wastewater. Using a material such as paper and without the need of complex tools makes this biosensor a simple and inexpensive technique which can be used to detect toxicity in contexts of economic restrictions or in developing countries, researchers indicate.

(Source: F. Pujol-Vila, N. Vigués, A. Guerrero-Navarro, S. Jiménez, D. Gómez, M. Fernández, J. Bori, B. Vallès, M.C. Riva, X. Muñoz-Berbel, J. Mas. Paper-based chromatic toxicity bioassay by analysis of bacterial ferricyanide reduction. *Analytica Chimica Acta*, 2016; 910: 60 DOI: 10.1016/j.aca.2016.01.006 ; <https://www.sciencedaily.com/releases/2016/04/160419100002.htm>)

### Trap and neutralize: A new way to clean contaminated groundwater

*A team of researchers has helped discover a new chemical method to immobilize uranium in contaminated groundwater, which could lead to more precise and successful water remediation efforts at former nuclear sites.*

Researchers in the lab of Daniel Giammar, the Walter E. Browne Professor of Environmental Engineering in the School of Engineering & Applied Science, ran a series of experiments in a laboratory setting using water containing uranium -- present in contaminated groundwater at various sites in the United States as a legacy of Cold War-era processing and waste disposal activities associated with nuclear materials production. Calcium and phosphate work together chemically to immobilize uranium, which is shown to lead to increased cancer risk and liver damage in humans when ingested. Past field studies, including one at the Hanford Site in the state of Washington, focused on an *in situ* solution that injected phosphates directly into contaminated groundwater. Remediation efforts were not fully successful, because the scale of overlap for the calcium, uranium and phosphates was limited.

According to the researchers, "A challenge with subsurface remediation is finding the right way to bring the necessary ingredients together in a poorly-mixed system. "In the field-scale test, much of the added phosphate never reached the uranium because it precipitated out near the injection well. The solution is to figure out scenarios where it is possible to send the phosphate to where the uranium is, and other scenarios where the phosphate can be added to a location where the natural groundwater flow will bring the uranium into contact with it." The research was led by Giammar and Vrajesh S. Mehta, who earned his PhD at the School of Engineering & Applied Science. Other co-authors are Zheming Wang, senior researcher at the Environmental Molecular Science Laboratory in Richland, Wash.; Jeffrey G. Catalano, Associate Professor of Earth and Planetary Sciences in Arts & Sciences at Washington University; and Fabien Maillot, former postdoctoral researcher in Catalano's lab.



Neutralizing and immobilizing uranium in groundwater is the focus of new research

In three different types of experiments conducted in Giammar's lab, the researchers first determined the exact level of calcium in the water. They were then able to add specific amounts of phosphate that formed calcium phosphate, chemically neutralizing and structurally incorporating the uranium. The exact combination of calcium and added phosphate rendered the uranium inert and trapped it in the groundwater. Giammar's lab will continue this research, with the goal of developing a technique to tailor the location of phosphate injection that would be used in conjunction with the groundwater's existing calcium to remediate the uranium also present. The results of this work suggest that there will not be a one-size-fits-all approach to using phosphate to remediate uranium-contaminated groundwater. With knowledge of the location of the uranium contamination and the composition of the groundwater, we can decide whether to inject phosphate directly into a plume of uranium-contaminated groundwater or to inject phosphate downstream of the uranium to form a calcium phosphate barrier.

The research findings were recently published in the journal *Environmental Science & Technology*.

(Source: Vrajesh S. Mehta, Fabien Maillot, Zheming Wang, Jeffrey G. Catalano, Daniel E. Giammar. Effect of Reaction Pathway on the Extent and Mechanism of Uranium(VI) Immobilization with Calcium and Phosphate. *Environmental Science & Technology*, 2016; 50 (6): 3128 DOI: 10.1021/acs.est.5b06212 ; <https://www.sciencedaily.com/releases/2016/04/160413140126.htm>)

### Recyclable, sugar-derived foam: A renewable alternative to traditional polyurethanes?

*Polyurethanes in products from cushy sofas to stretchy spandex have made sitting, sleeping and walking more comfortable. But once they have served their purpose, most of the non-degradable materials pile up in landfills. Now scientists report a potential way to reduce future waste: a chemically recyclable foam made using a new sugar-derived material.*

Polyurethanes are highly versatile materials. In addition to furniture and clothing, manufactures use them in electronics, cars, floors and medical devices. But the materials come from petroleum, and efforts to recycle them are limited. To tackle the huge amount of waste this creates, scientists are pursuing more sustainable options. Marc A. Hillmyer and colleagues developed an efficient method to make a sugar-derived rubbery polyester compound called poly(-methyl- -valerolactone), or PMVL, that can be used in new chemically-recyclable polyurethanes



Using this new polymer, the researchers made flexible polyurethane foams that were comparable in performance to commercial analogs. To test whether the foams could be recycled, the team first added a catalyst, then heated the materials to a high temperature. Through this process, the researchers recovered up to 97 percent of the starting -methyl- -valerolactone (MVL) monomer in high purity. The researchers then used what they recovered to re-make PMVL with essentially identical properties.

(Source: Deborah K. Schneiderman, Marie E. Vanderlaan, Alexander M. Mannion, Tessie R. Panthani, Derek C. Batiste, Jay Z. Wang, Frank S. Bates,

Christopher W. Macosko, Marc A. Hillmyer. Chemically Recyclable Biobased Polyurethanes. ACS Macro Letters, 2016; 515 DOI: 10.1021/acsmacrolett.6b00193; <https://www.sciencedaily.com/releases/2016/04/160413113310.htm>

### Fetal and newborn dolphin deaths linked to Deepwater Horizon oil spill

Scientists have finalized a study of newborn and fetal dolphins found stranded on beaches in the northern Gulf of Mexico between 2010 and 2013. The study team identified substantial differences between fetal and newborn dolphins found stranded inside and outside the areas affected by the 2010 Deepwater Horizon oil spill.

The study team evaluated 69 perinatal common bottlenose dolphins in Alabama, Louisiana and Mississippi, the areas most affected by the spill, and 26 others found in areas unaffected by the spill. The work was conducted as part of an effort to investigate an "unusual mortality event" in the Gulf primarily involving bottlenose dolphins, beginning in early 2010 and continuing into 2014. Scientists saw higher numbers of stranded perinatal dolphins in the spill zone in 2011 than in other years, particularly in Mississippi and Alabama, the researchers report. The young dolphins, which died in the womb or shortly after birth, "were significantly smaller than those that stranded during previous years and in other geographic locations". According to the researchers, Bottlenose dolphin gestation takes about 380 days, so perinatal dolphins that died in the early months of 2011 could have been exposed in the womb to petroleum products released the previous year. Dolphin dams losing fetuses in 2011 would have been in the earlier stages of pregnancy in 2010 during the oil spill. The researchers report that 88 percent of the perinatal dolphins found in the spill zone had lung abnormalities, including partially or completely collapsed lungs. That and their small size suggest that they died in the womb or very soon after birth -- before their lungs had a chance to fully inflate. Only 15 percent of those found in areas unaffected by the spill had this lung abnormality. The team also found that the spill-zone dolphins were "particularly susceptible to late-term pregnancy failures, signs of fetal distress and development of in utero infections including *brucellosis*," a bacterial infection that can affect the brain, lungs, bones and reproductive function. Extensive testing found no evidence that an unusual or highly pathogenic *Brucella* strain was involved. These findings support that pregnant dolphins experienced significant health abnormalities that contributed to increased fetal deaths or deaths of dolphin neonates shortly after birth.



A previous study by many of the same researchers revealed that nonperinatal bottlenose dolphins stranded in the spill zone after the spill were much more likely than other stranded dolphins to have severe lung and adrenal gland damage "consistent with petroleum product exposure. These diseases in pregnant dolphins likely led to reproductive losses. These new findings add to the mounting evidence from peer-reviewed studies that exposure to petroleum compounds following the Deepwater Horizon oil spill negatively impacted the reproductive health of dolphin populations living in the oil spill footprint in the northern Gulf of Mexico.

(Source: KM Colegrove, S Venn-Watson, J Litz, MJ Kinsel, KA Terio, E Fougères, R Ewing, DA Pabst, WA McLellan, S Raverty, J Saliki, S Fire, G Rappucci, S Bowen-Stevens, L Noble, A Costidis, M Barbieri, C Field, S Smith, RH Carmichael, C Chevis, W Hatchett, D Shannon, M Tumlin, G Lovewell, W McFee, TK Rowles. Fetal distress and in utero pneumonia in perinatal dolphins during the Northern Gulf of Mexico unusual mortality event. Diseases of Aquatic Organisms, 2016; 119 (1): 1 DOI: 10.3354/dao02969; <https://www.sciencedaily.com/releases/2016/04/160412104802.htm>)

### Oil and gas wastewater disposal may harm West Virginia waterways

Scientists draw conclusions after study at natural gas, oil extraction wastewater disposal facility

Unconventional oil and gas (UOG) operations combine directional drilling and hydraulic fracturing, or "fracking," to release natural gas and oil from underground rock. Recent studies have centered on potential water pollution from this process that may increase endocrine disrupting chemicals (EDCs) in surface and ground water and whether populations living near these operations have an increased risk of disease. Now, researchers from the University of Missouri (MU) report high levels of EDC activity in the surface water near a hydraulic fracturing wastewater disposal facility in West Virginia. Scientists warn that this level of activity may be associated with negative health effects in aquatic organisms, other animals and humans.

Surface water samples collected on the disposal facility site and immediately downstream exhibited considerably greater EDC activity than surface water samples collected immediately upstream and in a nearby reference stream. The level of EDC activity was within the range or higher than the level known to impact the health of aquatic organisms. Dozens of chemicals may be used in fracturing at one site and approximately 1,000 different chemicals are reportedly used across the industry; more than 100 of these chemicals are known as or suspected to be EDCs. Large volumes of wastewater are produced in the process of fracking. Fracking wastewater is laden with chemicals used to drill and frack the well and may also contain radioactive compounds and heavy metals released from deep underground.



Disposal wells, like the one in the current study, are used only to dispose of fluids associated with oil and natural gas production, according to the U.S. Environmental Protection Agency. Approximately 36,000 of these disposal wells are currently in operation across the U.S., and little work has been done to evaluate their potential impacts on nearby surface water. Given the large number of disposal wells in the U.S., it is critical for further investigation into the potential human and environmental health impacts.

(Source: Susan C. Nagel et al. Endocrine Disrupting Activity in Surface Water Associated with a West Virginia Oil and Gas Industry Wastewater Injection Disposal Site. *Science of the Total Environment*, April 2016; <https://www.sciencedaily.com/releases/2016/04/160407150800.htm>)

### Arsenic water purification with waste materials

*Sand, coral and even waste building materials can become extremely efficient sorbents for water purification from arsenic, if they are treated for this purpose. Scientists have revealed a new technology during experiments. In practice, they succeeded to purify at least 3.6 m<sup>3</sup> of water with the help of 200 grams of sorbent from the available raw materials, the cost of which will be a little more than \$1 to end consumers.*

This may be a Vietnamese sand, corals, in our region, one can use sand, waste from the production of bricks, aerated concrete, according to the researchers. For the experiments in the laboratory they used a solution in which the arsenic concentration was up to 50 times higher than the standards set by the World Health Organization. Arsenic in drinking water is a huge problem for many countries across the world: India, China, USA, Argentina, Chile, Poland, Hungary and others. In Russia, arsenic containing regions are the Trans-Baikal, Khabarovsk, Perm, Stavropol, Magadan, Penza region, Dagestan, Tuva. This technology allows any country to find the cheapest material to produce sorbents. Scientists in different countries are studying the same corals and sand as sorbents. But the researchers succeeded in making these simple materials to work very effectively, using simple and inexpensive processes in terms of future production. They used chemical adsorption resulting in contaminant deposition on the sorbent surface. The laboratory used electrokinetic adsorption, in which the positively charged heavy metal ions are attracted to the negatively charged surface of a sorbent.

According to the researchers, this technology can be used for purification of private wells water and waste industrial water. One glass sorbent should be enough for at least 60-90 days, and if there is catastrophically much arsenic in water. Furthermore, sorbent can be regenerated at least 10 times. The researchers also claim that, if a leading Bayer sorbent Bayoxide® E 33 on the market costs about \$ 27 per kg, their technology can do sorbent by cost at \$ 4-5 per kg. It is clear that it is not necessary "to fill in" a filter with only our sorbent. One needs only some part, the rest volume can be safely filled with any known sorbent -- one gets a high quality filter with a wide range of applications. The scientists have already submitted an application for patenting the technology. They are also looking for Russian and foreign investors to introduce their development.

(Source:<https://www.sciencedaily.com/releases/2016/03/160316085113.htm>)

### Sponge structure key to mopping up oil spills

*An interconnected structure, which water can easily flow through, is key to creating a highly effective mechanical sponge for clearing oil spills.*

The traditional method of clearing an oil spill, containing it with the use of booms and then 'sucking' the oil from the surface of the water, looks set to be replaced with polyurethane foams that can sponge the oil directly out of the water. The researchers wanted to



understand what the key features of such foams are, and how they can affect their performance. The experimental and theoretical study shows that with highly interconnected open porous structures, and pore sizes below 500 micrometres, it is possible to reach absorption capacities as high as 30 grams of oil per gram of polyurethane. Chemical functionalization of the porous structure did not appear to enhance the oil absorption efficiency, but did significantly contribute to the selectivity of the process. It came as a surprise that there is an absence of considerations of the structure or even characterization of the foams employed in several previous studies. Understanding this is key to evaluating proposed treatments and coatings, and their effectiveness.

The researchers believe that due to the simplicity of the polyurethane foam they propose, commercialisation of the materials for oil spill remediation could happen very soon. Their next steps are to develop composite materials for wider water remediation. These could be low environmental impact -- using materials derived from waste -- and have biodegradable or biocompatible properties. The researchers will explore the use of these systems not only for clearing oil spills, but also other contaminants such as heavy metals or pesticides.

(Source: Javier Pinto, Athanassia Athanassiou, Despina Fragouli. Effect of the porous structure of polymer foams on the remediation of oil spills. Journal of Physics D: Applied Physics, 2016; 49 (14): 145601 DOI: 10.1088/0022-3727/49/14/145601 ; <https://www.sciencedaily.com/releases/2016/03/160301204931.htm>)

## Policies

### Amendments to the Ship breaking Code, 2013

Government has decided to amend the Ship breaking Code 2013 to address issues like disposal of radioactive materials and oil spills. The proposed amendments include necessary steps by a recycler to prevent spilling of oil and hazardous substances in the sea, besides safe disposal of radioactive material. Government has decided to amend the Shipbreaking Code, 2013, to address issues like disposal of radioactive materials and oil spills. The proposed amendments include necessary steps by a recycler to prevent spilling of oil and hazardous substances in the sea, besides safe disposal of radioactive material.

(Source:<http://www.indiaenvironmentportal.org.in/content/430820/amendments-to-the-shipbreaking-code-2013/>)

### Cuncolim locals demand inspection of hazardous waste at industrial estate

Cuncolim locals have demanded that the government carry out an inspection of the hazardous waste dumped at Cuncolim industrial estate, waste from steel factory and pollution caused by the fish meal plants. They have demanded that the authorities take care of the hazardous waste left behind in a plot by Sunrise Zinc Ltd. in a captive landfill site to prevent contamination of land, water bodies, fields and wells. The Cuncolim residents are unhappy that their industrial estate is one of the most polluted one in Goa; and, besides having to deal with steel slag waste, fumes from alloy factories, they have to bear the stench from the fish meal plants as well.

(Source: <http://www.heraldgoa.in/Goa/Cuncolim-locals-demand-inspection-of-hazardous-waste-at-industrial-estate/102951.html>)

### Order of the National Green Tribunal regarding disposal of hazardous waste by a small scale industry, Delhi, 24/05/2016

Order of the National Green Tribunal in the matter of M/s P.S. Industries & Others Vs. Delhi Pollution Control Committee & Others dated 24/05/2016 regarding disposal of hazardous waste by a small scale industry, Delhi. NGT directs the industry to maintain its ETP properly and ensure that it does not discharge the effluent in excess of the prescribed parameters and enter into an agreement with the

CETP or even directly with Ramky Enviro Engineers Ltd. for collection, storage and disposal of hazardous waste.

(Source:<http://www.indiaenvironmentportal.org.in/content/429545/order-of-the-national-green-tribunal-regarding-disposal-of-hazardous-waste-by-a-small-scale-industry-delhi-24052016/>)

#### **Order of the National Green Tribunal regarding storage of hazardous waste, Delhi, 19/05/2016**

Order of the National Green Tribunal in the matter of M/s Ashok Vihar Mitra Mandel Vs. The Govt. of NCT of Delhi & Others dated 19/05/2016 regarding dumping of hazardous wastes containing heavy metals in the green belt, Delhi. Report submitted before the Tribunal points out that soil is highly polluted at the places, where hazardous waste is being thrown indiscriminately, outside the boundary wall of CETP. The report also shows very high polluting parameters in the ground water as well as in the soil. NGT directs DDA, DSIIDC, NDMC, CPCB and DPCC to hold a meeting on the methodology to be adopted for removal of hazardous waste dumped outside the boundary wall of CETP as well as other malba.

(Source:<http://www.indiaenvironmentportal.org.in/content/429447/order-of-the-national-green-tribunal-regarding-storage-of-hazardous-waste-delhi-19052016/>)

#### **Order of the National Green Tribunal regarding dumping of hazardous wastes containing heavy metals in the green belt, Delhi, 25/04/2016**

Order of the National Green Tribunal in the matter of M/s Ashok Vihar Mitra Mandel Vs. The Govt. of NCT of Delhi & Ors. dated 25/04/2016 regarding dumping of hazardous wastes containing heavy metals in the green belt, Delhi. CPCB has come up with a Reply dated 22nd April, 2016. The CPCB in its Reply has revealed facts emerging out of the analysis of soil samples collected from the area in question.

(Source:<http://www.indiaenvironmentportal.org.in/content/428224/order-of-the-national-green-tribunal-regarding-dumping-of-hazardous-wastes-containing-heavy-metals-in-the-green-belt-delhi-25042016/>)

#### **Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016**

The new Hazardous Waste Rules will ensure resource recovery and disposal of hazardous waste in environmentally sound manner. The Rules are environment and industry- friendly. The provisions of the new Rules are in line with this Government's priority for Ease of Doing Business and Make in India, but with responsible concerns for sustainable development. For the first time, Rules have been made to distinguish between Hazardous Waste and other wastes. Other wastes include: waste tyre, paper waste, metal scrap, used electronic items, etc. and are recognized as a resource for recycling and reuse. These resources supplement the industrial processes and reduce the load on the virgin resource of the country.

(Source:<http://www.indiaenvironmentportal.org.in/content/427481/hazardous-and-other-wastes-management-and-transboundary-movement-rules-2016/>)

#### **Toxic industrial waste awaits disposal in Odisha**

Although the Odisha State Pollution Control Board (OSPCB) makes tall claims of monitoring reuse and disposal of industrial waste, 23 million tonne of waste is lying undisposed in the state, which can be extremely hazardous for the environment. Of the total 43 million tonne waste generated in 2014-15, only 20 million tonne has been reused or disposed of. Fly ash constitutes half of the total waste. Large quantities of unused industrial units are lying in Angul, Cuttack, Dhenkanal, Jagatsinghpur, Jajpur, Jharsuguda, Kalahandi, Keonjhar, Koraput, Rayagada, Sambalpur and Sundargarh districts. The unused waste has been stored in industrial units by taking necessary environmental precautions. Since mostly fly ash waste is generated from the industries compared to other waste, Odisha has made provisions for the use of fly ash. The OSPCB has opened a Fly Ash Resource Centre.

(Source:<http://timesofindia.indiatimes.com/city/bhubaneswar/Toxic-industrial-waste-awaits-disposal-in-Odisha/articleshow/51612284.cms>)

#### **Order of the National Green Tribunal regarding dumping of hazardous wastes containing heavy metals in the green belt, Delhi, 28/03/2016**

Order of the National Green Tribunal in the matter of M/s Ashok Vihar Mitra Mandel Vs. The Govt. of NCT of Delhi & Others dated 28/03/2016 regarding dumping of hazardous wastes containing heavy metals in the green belt, Delhi. The Counsel appearing for Delhi Pollution Control Committee submits that samples have been collected from the place which is allegedly used for dumping of hazardous wastes and analysis of samples will bring out the merit of the present case.

(Source:<http://www.indiaenvironmentportal.org.in/content/427010/order-of-the-national-green-tribunal-regarding-dumping-of-hazardous-wastes-containing-heavy-metals-in-the-green-belt-delhi-28032016/>)

#### **Question raised in Lok Sabha on Classification of Industries, 08/03/2016**

Question raised in Lok Sabha on Classification of Industries, 08/03/2016. Pursuant to a proposal received from Central Pollution Control Board (CPCB) the Ministry has approved a new concept for the categorization of industries based on the relative pollution potential of the industrial sectors. As per the new concept, Pollution Index scores have been worked out based on the emissions (air pollutants), effluents (water pollutants), hazardous wastes generated and consumption of resources, for various industrial categories. Based on the relative scores, the industries have been categorized as Red category having score more than or equal to 60, Orange category having score between 41 to 59, Green category having score between 21 to 40 and White category having score less than 20. As per the classification, Red category covers 60 industrial sectors, Orange category covers 83 industrial sectors, Green category covers 63 industrial sectors and the newly introduced, White category covers 36 industrial sectors, which are least polluting/nonpolluting. Under the ease of doing business, the Ministry has approved self-certification for industries (covered within the DIPP definition of Start-ups) which fall in 'White category' of industrial sectors and locate their establishment in conformity with approved land-use.

(Source:<http://www.indiaenvironmentportal.org.in/content/426175/question-raised-in-lok-sabha-on-classification-of-industries-08032016/>)

#### **Guidelines on implementing liabilities for environmental damages due to handling & disposal of hazardous waste and penalty**

This document outlines various liabilities to be imposed on a responsible party for causing environmental damages arising from improper handling/disposal of hazardous waste. These liabilities are applicable to the occupier, transporter, operator of a facility and importer as the case may be, hereinafter referred to as responsible party. The guidelines also identify the compensation liabilities on a responsible party for causing impacts such as injury, loss of life, effects on flora and fauna, loss of livelihood, reduced yield from crops, property loss, etc. However, evaluation and implementation of the same are not covered in the scope of this document, which may be dealt with by the concerned agency of respective State/UT Government. Role of the responsible party and the concerned SPCB/PCC have been outlined in the event of occurrence of incidences. Further, an attempt has also been made to provide an indicative cost for assessment and remediation, which may, however, vary case to case. The document also provides guidelines for evaluating and implementing financial penalty for violation of provisions stipulated under the Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2008.

(Source:<http://www.indiaenvironmentportal.org.in/content/427933/guidelines-on-implementing-liabilities-for-environmental-damages-due-to-handling-disposal-of-hazardous-waste-and-penalty/>)

### Judgement of the National Green Tribunal regarding emission and deposition of lead particles in air, water and soil by M/s. Perfect Alloys, Chengannoor village, Alapuzha District, Kerala, 17/12/2015

Judgement of the National Green Tribunal (Southern Zonal Bench, Chennai) in the matter of Kunjoonjamma Jose Vs Kerala State Pollution Control Board & Others dated 17/12/2015 regarding emission and deposition of lead particles in air, water and soil alleged to have been effected by the M/s. Perfect Alloys. M/s. Perfect Alloys is stated to be having an industrial unit engaged in recycling of lead from used acid batteries after their service life to produce lead ingots mainly for reuse in the manufacture of new lead acid batteries. The unit is stated to be situated adjacent to the residence of the applicant who is living in Block No .8 Survey No. 30/4 of Chengannoor village, Alapuzha District. The industrial activities of M/s. Perfect Alloys shall be closed forthwith till the SPCB grants renewal of Consent to Operate beyond 30-09-2015 which shall be done by the SPCB strictly in accordance with law, after satisfying that all directions, suggestions of the SPCB in its Status Report filed dated 22-04-2015 and 07-05-2015 are fully and effectively complied with. The polluting industry shall deposit an amount of equal to 10% of annual income from the financial year 2002-03 to 2013-14 for 12 years which shall be deposited with SPCB to be maintained in a separate fund, "Environment Protection Fund, Chenagannoor" and shall be used for the purpose of further remediation as decided by the SPCB.

(Source:<http://www.indiaenvironmentportal.org.in/content/423193/judgement-of-the-national-green-tribunal-regarding-emission-and-deposition-of-lead-particles-in-air-water-and-soil-by-ms-perfect-alloys-chengannoor-village-alapuzha-district-kerala-17122015/>)

### Judgement of the National Green Tribunal regarding industries involved in the illegal sale of hazardous waste materials to the public, Karur, Tamil Nadu, 15/12/2015

Judgement of the National Green Tribunal (Southern Zone, Chennai) in the matter of M/s. Tamil Nadu HDPE Knitted Fabrics Manufacturers Association Vs Central Insecticides Board and Registration Committee & Others dated 15/12/2015 regarding certain industries involved in the illegal sale of hazardous waste materials to the public by misusing the export quota. The applicant states that, against the guidelines and rules several units have illegally mushroomed in the area of Karur and started manufacturing Long Lasting Insecticide Impregnated Mosquito Net (LLIN) products using the insecticide alpha-cypermethrin, which is a highly toxic and hazardous material, under the guise of export which again is a prohibited activity as per the norms of the 1st respondent (Central Insecticides Board and Registration Committee, Ministry of Agriculture). Application stands dismissed as it is devoid of merits both on facts and in law. The applicant has not produced any evidence of misuse of the permission granted to the LLIN manufacturing units to prove that they are selling the products in the domestic market and causing pollution and health hazard to the public.

(Source:<http://www.indiaenvironmentportal.org.in/content/423209/judgement-of-the-national-green-tribunal-regarding-industries-involved-in-the-illegal-sale-of-hazardous-waste-materials-to-the-public-karur-tamil-nadu-15122015/>)

### Centre gets three more weeks to declare cigarette butts 'toxic waste'

The National Green Tribunal (NGT) granted the Centre three more weeks to formulate a reply regarding its stand on declaring cigarette and bidibutts "toxic waste". The Union Ministry of Environment, Forests and Climate Change (MoEFCC), the Ministry of Health and Family Welfare and the Central Pollution Control Board (CPCB) have been asked to file their response on prohibiting consumption of tobacco in any form in all public places as it spoils the aesthetics and spreads communicable diseases. Non-government organisation Doctors for You, a organisation working towards cancer care, had

moved the NGT praying that the Centre be directed to declare cigarette and bidi butts "toxic waste". The organisation said: "Smoking and chewing tobacco should be allowed only in designated places where norms for disposal of cigarette or bidi butts and toxic saliva are in place. Such designated areas should be licensed and monitored jointly by the Environment and Health Ministry." The outfit claimed that discarded cigarette butts or filters that litter the streets continue releasing nearly 4,000 toxins that are also present in cigarette smoke. Cigarette butts are the most littered item globally. The filters are designed to trap tar and other toxins before they reach a smoker's lungs.

A cigarette butt is made of cellulose acetate, a plastic filter that traps remnants of a smoked cigarette. Cellulose acetate is degradable under ultraviolet rays, but not biodegradable and can persist in the environment for generations. A cigarette butt takes almost 18 months to degrade and even un-smoked filters exhibit a small level of toxicity and there is no process of segregation of cigarette butts from waste. The petitioner brought forth the findings of the Kerala State Forest Department, which revealed that around 60 hectares of forest was lost between February 2009 and March 2010 due to fires started by carelessly thrown cigarette butts. Regarding tobacco spits, the petitioner said they not only ruin aesthetics, leading to wastage of public money on upkeep and maintenance, but also spread diseases. It cited the example of Howrah Bridge, whose pillars are reportedly corroding due to acids in tobacco spits. The saliva of tobacco users is laden with carcinogens and toxic chemicals which contaminates the environment.

(Source:<http://www.thehindu.com/news/national/other-states/centre-gets-three-more-weeks-to-declare-cigarette-butts-toxic-waste/article7835167.ece>)

### GPCB unearths illegal dumping of chemicals

In an overnight operation, a team of Gujarat Pollution Control Board (GPCB) unearthed an illegal pipeline built by a chemical unit in Vatva Phase I GIDC to dump hazardous untreated effluents into the Kharicut canal. The pipeline was nearly 500 meter long with its opening into the canal. The unit has a history of similar offences and show-cause notices have been issued several times for violating environmental norms. The company, Jinadal Texfab processes textiles in Vatva GIDC. It was issued a closure notice in 2013 for similar offence of dumping untreated chemical waste in the canal. However, after the company complied to the GPCB norms it was allowed to operate. The company is likely to be issued a closure notice by the GPCB for violating the environment norms for illegal dumping of hazardous chemicals in Kharicut canal.

(Source:<http://timesofindia.indiatimes.com/city/ahmedabad/GPCB-unearths-illegal-dumping-of-chemicals/articleshow/49561018.cms>)

### SPCB wants action plan on chrome ore overburden

With huge overburden of chrome ore creating environmental problems, the State Pollution Control Board (SPCB) has directed that a comprehensive overburden management action be prepared for Sukinda Valley.

In a recent meeting with chromite mines, the pollution board has directed that all lessees of working and non-working chromite ore mines will have to prepare a comprehensive action plan for overburden management. The working and non-working mines, which are generating hazardous waste or likely to do so, have been instructed to comply with the provisions of Hazardous Waste (Management and Handling) Rules or face closure. The mine owners will have to indicate the number of active and non-active overburden dumps and if the dumping is being done as per the approved mining scheme. The lessees will also have to inform the area and current volume of overburden. The SPCB has also asked them to point out if there are plans for re-handling of the overburden for recovery of chrome ore. The area stabilisation through plantation or with coir mat, proposal for progressive stabilisation, run-off management will have to be shared with the board. The mine owners have also been asked to put in place systems for

channelisation of the surface run off to the effluent treatment plant (ETP). The lessees have been warned against allowing any discharge outside without treatment. The Odisha Mining Corporation, Idcol and Mishrilal Mines Pvt Ltd have been asked to complete upgradation of the ETPs for South Kaliapani, Tailangi and Saruabil Mines respectively. Till the time upgradation is complete, wastewater must be adequately treated in the existing plants for compliance of the environment norms. All the mines, which have not installed online and real time monitoring facilities at the inlet and outlets of the ETPs, have been directed to complete the same or face revocation of consent licence. Tata Steel and OMC have been asked to wrap up installation of online monitoring in Damsal nullah.

(Source:<http://www.newindianexpress.com/states/odisha/2015/oct/08/SPCB-Wants-Action-Plan-on-Chrome-Ore-Overburden-826494.html>)

#### Order of the National Green Tribunal regarding pollution caused by steel pickling units, Delhi, 28/08/2015

Order of the National Green Tribunal (Principal Bench, New Delhi) in the matter of Rakesh Jain & Others Vs DPCC dated 28/08/2015 regarding pollution caused by steel pickling units, Delhi. During the course of the arguments, the counsel appearing for the DPCC has placed on record a flow chart of pickling process based on physical inspection of the Units by the Board. DPCC found that the residues from acid dip tank which includes spent bath, spent acid, spent residue containing metallic salts of Nickel, chromium and iron are the hazardous waste under category 12.1 and 12.3 of the list and there is no mechanism existing in the premises of the Applicant Units to treat this hazardous waste.

(Source:<http://www.indiaenvironmentportal.org.in/content/417841/order-of-the-national-green-tribunal-regarding-pollution-caused-by-steel-pickling-units-delhi-28082015/>)

#### Government plans CFL return scheme to curb mercury pollution

Under the draft scheme, manufacturers will set up centres to collect old and discarded CFLs, which will come under the concept of Extended Producer Responsibility (EPR). The environment ministry has proposed a scheme whereby old compact fluorescent lamp (CFL) bulbs can be returned to the manufacturer for Rs. 10, as part of

an initiative to control mercury pollution from CFLs. Stating that the recovery, recycling and disposal of mercury from used CFLs or other mercury lamp needs to be regulated, the draft said that, "the most practical option for collection of the used CFLs seems to be bringing the same under the EPR". EPR means responsibility of any producer of electrical or electronic equipment, for their products beyond manufacturing until environmentally sound management of their end-of-life products. The producers are required to collect e-waste generated by setting up collections centres or take-back systems either individually or collectively. The draft noted collection of used CFLs in view of its wide usage could be a major problem. Thus, it suggested setting up of neighbourhood collection centres in various municipal wards by producers to facilitate collection, safe storage and transfer of CFL or other mercury containing lamps to TSDFs (Treatment, Storage and Disposal Facility) for appropriate disposal. The draft is a result on an ongoing case against environment ministry in the National Green Tribunal (NGT) regarding mercury pollution from CFLs.

(Source:<http://www.livemint.com/Politics/TdmETqyzRwIIdWHut9NN/Government-plans-CFL-return-scheme-to-curb-mercury-pollution.html>)

#### Order of the National Green Tribunal regarding dumping of Dolochar - the hazardous industrial waste, District Saraikella Kharsawan, Jharkhand, 31/07/2015

Order of the National Green Tribunal (Principal Bench, New Delhi) in the matter of Residents of Village Kadamdih Through Umang Choudhary V/s. State of Jharkhand & Ors. dated 31/07/2015 regarding dumping of Dolochar-the hazardous industrial waste, District Saraikella Kharsawan, Jharkhand. The learned Counsel appearing for the Applicant pointed out from Study of iron and sponge industries conducted by the Centre for Science and Environment annexed to the rejoinder reply as annexure-1 dated 13.02.2015 that the Dolochar is a solid waste generated by sponge iron industries and its indiscriminate disposal would lead to ground water contamination as well as the effect of Dolochar on agricultural productivity.

(Source:<http://www.indiaenvironmentportal.org.in/content/415994/order-of-the-national-green-tribunal-regarding-dumping-of-dolochar-the-hazardous-industrial-waste-district-saraiella-kharsawan-jharkhand-31072015/>)



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