Global pollution assignment

Explain four different forms of global pollution that may arise from a construction project and explain four key methods used to protect the natural environment against such pollutants Environmental Pollution Construction Sites Construction sites are found both within urban and rural areas, often in the close proximity of homes. Due to their proximity to homes and the materials used, construction sites may generate home pollution. This involves air, water, soil, and/or noise pollution. Additionally, construction work may reveal existing subsurface pollution.

In such situation, construction work is stopped ND costly remediation is needed. Thus, construction work may generate construction pollution problems affecting both home owners and construction site owners. Moreover, construction workers (especially in the past) may be exposed to pollution. These aspects Will be discussed in more details below, along with tips and measures to prevent and face pollution, as well as to recover the costs. If you live in a home close to a construction site (I. E. Within 1 block or less) you may face the following type of pollution: k Air Pollution- the air you breathe may be polluted due to the construction work. Apart from the noise, poor air quality is the most immediate pollution effect you may experience from a construction site. This means that airborne contaminants including contaminated particulate matter and volatile compounds are spreading around (mostly carried by wind) in the surrounding neighborhood (the main wind direction will influence the area most affected by air pollution around a construction site).

Contaminants spreading around in air can travel large distances in a short time. The main construction contaminants that spread around by wind

include: MI O (particulate matter tit diameter less than 10 microns generating polluted dust), Pass bound to particulate matter, Voss (volatile organic compounds), asbestos, gases such as carbon monoxide, carbon dioxide, and nitrogen oxides. * Water Pollution- the surface water runoff and groundwater at and close to a construction site become polluted with various materials used in the construction work.

As described for air pollution above, the following construction contaminants can pollute the water: Voss, paints, clues, diesel, oils, other toxic chemicals, and cement. The immediate effect is creating urbanity in the runoff water and affected surface and groundwater (since some of the runoff water may infiltrate in subsurface reaching groundwater. In fact both groundwater below your home and surface runoff close to your home may constitute a source of pollution emanating from construction sites.

Domestic animals and pets may drink contaminated water and soil may become contaminated too. Additionally, once the groundwater below your home become contaminated, it may affect you in the following ways: through direct consumption if you use water from a property well and indirectly by effecting the quality of your indoor air (vapor intrusion of the volatile contaminants from water). Overall, water pollution from construction sites is underestimated and has potential to generate severe environmental problems. Soil Pollution- soil at and around a construction site may become contaminated due to air transport followed by deposition of construction contaminants (listed at air pollution) as well as water runoff of construction contaminants (as listed for water pollution). Soil may constitute a sink for pollutants and some of those may accumulate in soil and persists over longer

periods of time (e. G. , Pass). Noise Pollution – noise is usually associated with construction work although modern preventive measures may substantially reduce the amount of noise (in the neighboring community).

Noise may adversely affect your health including effects such as: stress, sleep disturbance, high blood pressure and even hearing loss. Construction pollution involves the following main types of construction work: 1. Building construction pollution – represents the generation of construction contamination at sites where buildings are constructed which may involve also a demolition phase (if the construction site has an existing building 2.

Road construction pollution – represents the generation Of construction contamination at sites where roads are built Construction Pollution Prevention and Cost Recovery * Personal damage. From the perspective of the public, the best prevention is to spend as little time as possible outside (e. G. , in your yard or balcony) close to a construction site during operation time. Additionally, having a rich vegetation around your home (and between the home and the construction site) will act as a natural filter for the generated pollution, reducing the amount of pollution you may corner in contact with.

So, planting in your yards or even pot plants in a balcony can help. The greener the better. Also, regular spraying of water around the home will reduce the amount of dust and exposure through inhalation, although the soil and water pollution may increase (but these are less directly affecting you than air!). However, if you believe you are already negatively impacted by a construction site in the vicinity, especially if you have been recently

diagnosed with a medical condition involving the respiratory system, you may be entitled to compensation.

Evaluate your pollution case for free. * Property damage. From the perspective of the construction site owner / developer, you may be faced with building on polluted land (pollution could be discovered during construction excavation work). To prevent such situation, you should order a full land quality survey (environmental site assessment phase 1 and 2) before starting any construction work.

However if this is not possible and you are faced on building on a polluted land, you may be able to recover remediation costs from the original polluters. In this situation, specialized forensic investigations and legal advice (using top specialized Legal Firms) are commended. For further details and obtaining a free evaluation please contact environmental pollution centers. Elution prevention and environmental management The risk of adverse environmental impacts can be significant during construction.

For large scale developments, we would expect all potential pollution risks and all aspects of site work, which may impact on the environment, to be systematically identified, as well as preventative measures and mitigation. For small scale developments, please refer to our Standing advice for small scale local development (1 ask). Any information supporting planning application should include a dedicated pollution prevention section, as well as any additional information that may be necessary.

This information should incorporate the principles of all proposed pollution prevention and mitigation measures for all construction elements potentially

capable of giving rise to pollution during all phases of construction, reinstatement after construction and final site decommissioning. This approach provides a useful link between the principles of development that will need to be outlined at the early stages of the project and the method tenements which are usually produced following award Of Contract (just before development commences).

The pollution prevention section should set out the principles of all proposed pollution prevention and mitigation measures on the following issues, where relevant, to the proposed site: * Monitoring proposals, contingency measures and emergency plans, including an environmental checklist to monitor and plan the timing of works to avoid construction of roads, dewatering of pits and other potentially polluting activities during periods of high rainfall. This should cover: 1. Daily visual inspections and the recording of required environmental actions (egg in relation to silt management); 2. Rapports for planning activities in relation to heavy rain (up to 3 day forecast); 3. Identification of all construction elements and their location in relation to sensitive receptors, including any watersides, water supplies, and water-dependent species; * Details of how the works will be programmed to avoid any adverse impact on sensitive receptors. A timetable of works that takes into account all environmental sensitivities, such as fish spawning, which have been raised by SEEP SON or there stakeholders should be included. Protection of development in relation to unstable land including peat landslides or landslip is not an area within our expertise or remit. This is a matter for the planning and building standards authorities and civil engineers who will determine if a peat stability assessment is required.

Where an assessment is required, our main interest relates to the consequences of a peat-slide or bog burst which can result in severe environmental damage including the pollution of the surrounding area.

The risk of this occurring should form part of any peat debility report and any associated pollution prevention measures should be included in planning submissions. * Surface water management plan – The site specific principles of how drainage will be controlled should be detailed in the planning submission. * Particulate or chemical contamination of watersides due to, for example, track or cable crossings or dewatering of excavations. Any proposed discharges should be set out and dilution data provided.

Any desalination works, excavations, ground disturbance or striping of vegetation and/or topsoil should be carried out so as to avoid pollution of the water environment. Sediment – resulting from operations including stockpile storage, storage of weather sensitive materials at lay-down areas, haul routes, access roads, earthworks, drainage channels, vehicle access over watercourses, construction of watercourse crossings and digging of excavations. Permanent and temporary drainage arrangements for access tracks, turbines and substation should be based on sustainable drainage principles. Dust Management – proposals for dust management including dust sprays. Excavation works, particularly through drilling and blasting, may cause nuisance to adjacent land users due to the generation of dust and Jose. Comments from local authority Environmental Health Officers should be sought on the potential nuisance to adjacent land users during the construction and decommissioning phases of the project. * Concrete production/use – Environmental impacts resulting from concrete batching

plant operations, use of blinding cement on roadways, wash-out during construction, poor integrity of shuttering.

Discharge to watersides and pH impact on petulant (where relevant) should be avoided. * Mineral oils, fuel transport and storage – Environmental impacts resulting from spillages, refueling and burst cables. Contingency plans for large oil spills that cannot be dealt with at a local level, details of designated funded fuel stores and mobile funded stores. Our preferred option is for a site compound to avoid fuel and other chemicals being stored at numerous locations around the site. Maintenance of vehicles and plant should be carried out only on impermeable areas where any oil spillages can be contained.

Additional information pertaining to the storage of oil can be found below. * Road and crane hardstand – Environmental impacts resulting from construction, use, and decommissioning of such infrastructure. Guidance on minimizing impact from construction of access roads can be found in “ Forests and Water Guidelines” Fourth Edition (2003) which can be obtained from the Forestry Commission. Where tracks or hardstand will be located on peat and will carry heavy loads, evidence will be necessary of additional consideration of specific mesas rest required to deliver best practice should be included. Pollution risks and impacts on other environmental sensitivities as a result of the timing of operations. For example, construction of roads, dewatering of pits and other potentially polluting activities should be avoided during erodes of high rainfall periods of high rainfall, or at particular times of the year e. G. Fish spawning. The SEES should demonstrate which periods Of the year would be best practice for construction at the site to avoid pollution

risks and other environmental sensitivities. Welfare arrangements Details of waste water drainage from temporary and permanent facilities for workers on site should be provided. Our preference would be for waste water and solid waste to be transported away from the site and disposed of using standard waste handling facilities during the construction period. Site restoration – It is good practice for large scale developments to be subject to conditions requiring the submission of a restoration and aftercare scheme. The restoration principles should be set out within the submission.

It should also outline the proposals for phased working and progressive restoration. Consideration should be given to the effect that any restoration will have on the water environment including groundwater quality and quantity and should include an assessment of the effect that any backfilling below the water table will have on groundwater flow. * Environmental accident management procedures – This should include toolbox talks relating to * Site environmental management – arrangements for pollution prevention. He appointment of an appropriately qualified and experienced environmental manager to supervise operations on site during the whole construction period, and with the authority to stop work and implement remedial work with immediate effect. * Site Waste Management Plan (SWAMP) which identifies all waste streams and proposals for their management, including peat, soils and other materials excavated on site and the importation of any waste materials to the site. Additional information on Swaps can be found on the Sustainable Waste Management section of our website.

Our Regulatory Position Statement – Developments on Peat (8. Numb) and Guidance on the Assessment of Peat Volumes, Reuse of Excavated peat and Minimization of Waste (2. NUMB) may also be of help. This includes reference to guidance Developments on Petulant: Site Surveys and Best Practice (ask). SEEP policy and guidance SEEP produces a series of Pollution prevention Guidelines (Pigs) and the principles of any relevant Pigs should be incorporated into proposals. Particular attention should be paid to the Construction Pigs .

Construction pigs : PIG 1 General guide to the prevention of pollution * PIG 5 Works and maintenance in or near water * PIG 6 Working at construction and demolition sites SEEP have also worked jointly with Highland Council to produce a guidance note on Construction Environmental Management Process for Large Scale Projects . SEEP SON, Scottish Renewable and FCC have also produced Good practice during windward construction (kick) which provides useful pollution prevention advice applicable to many types of projects.

We also have useful guidance on the sustainable reuse of Greenfield soils in construction (2. Numb). Regulatory and best practice advice Standing advice for small scale local development (1 ask) The storage of any oil on site must be undertaken in accordance with The Water Environment (Oil Storage) (Scotland) Regulations 2006. For best practice advice please refer to PIG 7 Refueling facilities , PIG 8 Safe storage and disposal of used oils and PIG 27 Installation, decommissioning and removal of underground storage tanks .

Further information on the types of storage tanks to be used and additional publications can be found within the Pollution Control section of the website. The construction industry is a major source of pollution, responsible for round 4% of particulate emissions, more water pollution incidents than any other industry, and thousands of noise complaints every year. Although construction activities also pollute the soil, the main areas of concern are: air, water and noise pollution.

Air Pollution Construction activities that contribute to air pollution include: land clearing, operation of diesel engines, demolition, burning, and working with toxic materials. All construction sites generate high levels of dust (typically from concrete, cement, wood, Stone, silica) and this Can carry for large distances over a long period of time. Construction dust is classified as IMO – particulate matter less than 10 microns in diameter, invisible to the naked eye.

Research has shown that IMO penetrate deeply into the lungs and cause a wide range of health problems including respiratory illness, asthma, bronchitis and even cancer. Another major source of IMO on construction sites comes from the diesel engine exhausts of vehicles and heavy equipment. This is known as diesel particulate matter (DAMP) and consists of soot, sulfates and silicates, all of which readily combine with other toxins in the atmosphere, increasing the health risks of particle inhalation.

Diesel is also responsible for emissions of carbon monoxide, hydrocarbons, nitrogen oxides and carbon dioxide. Noxious vapors from oils, glues, thinners, paints, treated woods, plastics, cleaners and other hazardous

chemicals that are widely used on construction sites, also contribute to air pollution. Water Pollution Sources of water pollution on building sites include: diesel and oil; paint, solvents, cleaners and other harmful chemicals; and construction debris and dirt. When land is cleared it causes soil erosion that leads to silt-bearing run- off and sediment pollution.

Silt and soil that runs into natural waterways urns them turbid, which restricts sunlight filtration and destroys aquatic life. Related Reading... * Echo Friendly Construction Methods and Materials * Water and Sustainable Design * Using Lime in Building Techniques * Cob Building * Insulation Materials Surface water run-off also carries other pollutants from the site, such as diesel and oil, toxic chemicals, and building materials like cement. When these substances get into waterways they poison water life and any animal that drinks from them.

Pollutants on construction sites can also soak into the groundwater, a source of human drinking water. Once contaminated, groundwater is much more difficult to treat than surface water. Noise Construction sites produce a lot of nose, mainly from vehicles, heavy equipment and machinery, but also from people shouting and radios turned up too loud. Excessive noise is not only annoying and distracting, but can lead to hearing loss, high blood pressure, sleep disturbance and extreme stress. Research has shown that high noise levels disturb the natural cycles of animals and reduces their usable habitat.

Measures to Prevent Pollution Good construction site practice can help to control and prevent pollution. The first step is to prepare environmental risk assessments for all construction activities and materials likely to cause

pollution. Specific measures can then be taken to mitigate these risks: * To prevent erosion and run-off, minimize land disturbance and leave maximum vegetation cover. * Control dust through fine water sprays used to dampen down the site. * Screen the whole site to stop dust spreading, or alternatively, place fine mesh screening close to the dust source. Cover skips and trucks loaded with construction materials and continually damp down with low levels of water. * Cover piles f building materials like cement, sand and other powders, regularly inspect for spillages, and locate them where they will not be washed into waterways or drainage areas. * Use non-toxic paints, solvents and other hazardous materials wherever possible * Segregate, tightly cover and monitor toxic substances to prevent spills and possible site contamination. * Cover up and protect all drains on site . Collect any wastewater generated from site activities in settlement tanks, screen, discharge the clean water, and dispose of remaining sludge according to environmental regulations. * Use low sulfur diesel oil in all vehicle and equipment engines, and incorporate the latest specifications of particulate filters and catalytic converters. K No burning of materials on site. * Reduce noise pollution through careful handling of materials; modern, quiet power tools, equipment and generators; low impact technologies; and wall structures as sound shields.

Pressure to Clean Up The UK Environment Agency and other government bodies are putting increasing pressure on construction companies to reduce pollution and conform to environmental regulations. In the past the pollution fines have been low and environmental regulations slack, and it could have been received as cheaper to pollute than to prevent pollution. This situation

is now changing, and enforcement Of environmental regulations is not only very expensive but can be irreversibly damaging to the reputation of a firm.

Measures to reduce and control pollution are relatively inexpensive and cost-effective, and the construction industry needs to incorporate these into an environmental management strategy. By employing these practices, the construction industry is well positioned to clean up its act. There is an urgent need to address the great challenges of our times: climate hang, resource depletion, pollution, and peak oil. These issues are all accelerating rapidly, and all have strong links with the building industry.

There is a growing consensus from scientists and the oil industry that we are going to reach peak oil in the next twenty years, and that we might have reached this point already. Global demand is soaring, whilst global production is declining, and oil is set to become increasingly expensive and scarce. The building industry is hugely dependent on cheap oil, from the manufacture and transportation of its materials, to the machinery and tools used in emulation and construction. In the ASK, it uses vast quantities of fossil fuels, accounting for over half Of total carbon emissions that lead to climate change.

The built environment is also responsible for significant amounts of air, soil and water pollution, and millions of tones of landfill waste. This is a situation that clearly needs to change. Reducing Energy Consumption With the inevitability of declining fossil fuels, and the threat of global climate change, reducing our energy consumption is an essential survival strategy. Choosing to build green saves energy. The low embodied energy of green rodents

ensures that very little energy went into their manufacture and production, with a direct reduction in carbon emissions.

Echo friendly design methodology can further reduce energy consumption by minimizing energy inputs for heating, cooling and light, and incorporating energy efficient appliances. Saving energy for the occupant also saves money – an issue that will become increasingly important as the cost of fossil fuels Inevitably rises in the near future. Related Reading… * What is Echo Friendly Construction? * New Developments: Environmentally Friendly Concrete Building Healthier Homes Echo-friendly construction can not only help to create a better outdoor environment, it can also help to build a healthier indoor environment.

Conventional building materials and methods have been linked to a wide range of health problems. Chemical pollutants from paints, solvents, plastics and composite timbers, along with biological pollutants such as dust mites and moulds are known to cause Symptoms such as asthma, headaches, depression, eczema, palpitations and chronic fatigue syndrome. Green buildings eliminate these problems through good ventilation design, breathable walls, and the use of natural, non-toxic products and materials.

There are many good reasons why we should use echo-friendly construction methods and materials, It can improve the health of our planet, and the health of our own lives. It also supports local business and helps strengthen the local economy, which in turn helps to build our communities into vibrant, prosperous and desirable places to live. A Necessary Choice Green building is not only a wise choice for our future; it is also a necessary choice. The

construction industry must adopt echo-friendly practices and materials that reduce its impacts, before we reach a point of irreversible mage to our life supporting systems.

The UK Government is beginning to recognize this urgency, and is committed to integrating green specifications into building regulations and codes, but the process of developing policy is slow. The industry needs to take its own initiative and find alternative ways to build, using green, renewable energy resources, and adopt non-polluting practices and materials that reduce, recycle and reuse, before it is too late. Echo-friendly, or ecological, construction is building a structure that is beneficial or non-harmful to the environment, and resource efficient.

Otherwise known as green building, this type of construction is efficient in its use of local and renewable materials, and in the energy required to build it, and the energy generated while being within it. Echo-friendly construction has developed in response to the knowledge that buildings have an often negative impact upon our environment and our natural resources. This includes transporting materials hundreds or thousands of miles, which has a negative impact in the energy required to transport them, and also in emissions of hazardous chemicals from a poorly designed building that rates, and traps them.

The Range of Ecologically Built Structures Many options are now available to those wishing to design and build an echo- friendly dwelling. Architects, engineers and builders worldwide are now using construction techniques that have been developed throughout human history, in response to local

environmental concerns and the physical resource opportunities available, coupled with 21st century technological refinements.

These range from rammed earth construction, which involves clay-based material mixed with water and then rammed into brick or solid all form, suitable in hot and dry climates, to straw bale houses, literally using bales of straw as the core structure. Straw is a great insulator, is a breathable material that filters the air passing through it, and contrary to expectation, is fire-resistant when compressed. And it is low cost. See our page www. Sustainability. Co. K/astrolabe for instructions on how to build. Other options are so-called earth ships, which use recycled car tires filled with earth as the buildings walls, or Yurts or Gears, the semi-permanent nomadic tents of Inner Asia, that utilities local wood, wool and canvas, to literally live on, with the and. These examples can be seen as development that has a low impact upon the environment, which utilities and blend in with the local environment, and could be dismantled and moved easily. Related Reading… Stone vs. Brick * Careers and Courses for Echo Build * using Lime in Building Techniques Features of Ecological Building and Some Techniques In more conventional building construction, it is how technology and building materials merge and create ecological resources that are the key to green success, as well as using simple and readily available materials. For example, sing pulped recycled paper for roof insulation is a simple but highly effective ecological resource. The damage to human health from asbestos insulation, laid out in rolls in thousands of UK homes, is now well known.

Asbestos also takes hundreds Of years to decompose in landfill. Other features Of an ecological building might include : * The varied use of solar

panels for domestic hot water heating, * Water conservation, possibly including biological waste water treatment and re-use, and the simple collection and recycling of rainwater for garden use, Low energy lightships, which can last up to 100 times longer than regular bulbs, Cellulose insulation (like the paper in the above example), * Non-toxic or lead-free paints and wood preservatives, * Locally-grown and harvested timber from sustainable managed forests.

Where to Find Examples of Ecological Building Local Councils and Housing Associations in the UK are now exploring the benefits of ecological construction, and estates constructed on these principles have been built in Edinburgh, in the Camaraderie's village of March, and several in London. An interesting project in the capital is Bedded, in the borough of Sutton, which utilities solar heating and heat given off by he occupants, combined with a small power plant using wood off-cuts, to heat and power each house, and achieves zero carbon emissions.

The estate was planned to be built with materials that were sourced from within 35 miles. This development consists of 82 housing units, owned and managed by the Peabody Trust. It is a great example of a sustainable development building estate, combined with the principles of social housing.