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# Department of Land, Water and Environment

###### Environmental Impact Assessment (634731)

#### **Syllabus**

1- Definition of environment? What is EIA?

-Impact Prediction and Evaluation-An Overview

- Introduction and definitions

- The predictive process

- The baseline survey

- Predictive techniques

- Evaluation

- Formalized evaluation methods

- Evaluation of individual impacts

- Cost-benefit analysis

- Risk assessment

- The RA process

- RA for waste facilities

- RA and decision-making

- Hazard assessment by structured checklist

- Uncertainty

- Mitigation

2- Geology and Soils

- Introduction

- Geology

- Soils

- Scoping impacts on geology and soils

- Physical disturbance

- Pollutant effects

- Baseline geological and soil surveys

- Geology and physical characteristics of soil

- Soil sensitivity and chemical characteristics

- Prediction and evaluation of geological and soil impacts

- Physical disturbance

- Pollutant effects

- Evaluation of the significance of existing ground

contamination - Mitigation

- Mitigation of physical disturbance of geology and soils

- Soil pollution mitigation

3- Ground and Surface Water

- Introduction

- Groundwater

- Surface waters

- Water quality assessment and control

- Scoping water impacts

- Leachate

- Baseline hydrology and water quality

- Prediction of impacts on groundwater and surface water

- Predicting the impact of leaching to groundwater

- Predicting the impact of discharges to surface waters

- Prediction of other water impacts

- Evaluation of predicted water impacts

- Mitigation of water impacts

- Leachate management

4- Air Quality and Climate

- Introduction

- Definitions and issues

- Scale of impacts

- Scoping of air pollution impacts

- Types of air pollutants

- Sources of release

- Types of impacts

- Baseline conditions and survey

- Sources of air quality data

- Sampling strategies

- Prediction of impacts

- Characterization of emissions

- Dispersion modeling

- Impact evaluation

- Human health

- Loss of amenity

- Fauna and flora

- Climate

- Mitigation of impacts

5- Public Health

- Introduction

- The issues

- Epidemiological studies

- Scoping of impacts

- Public health prediction and evaluation

- Hazard identification

- Hazard analysis

- Risk estimation

- Risk evaluation

- Mitigation of impacts

6- Landscape and Visual Amenity

- Introduction and definitions

- Scoping landscape impacts

- Baseline conditions and survey

- Landscape character

- Extent of visibility

- Prediction and evaluation of impacts

- Landscape impact evaluation

- Mitigation

7- Noise and Vibration

- Introduction and definitions

- Scoping noise and vibration impacts

- Baseline conditions and survey

- Prediction of noise and vibration levels and evaluation of impacts

- Traffic

- Construction

- Operation

- Noise and vibration mitigation

8- Transport

- Waste facility transport issues

- Scoping transport impacts

- Sources of impacts

- Nature of transport impacts

- Baseline traffic survey

- Prediction and evaluation of transport impacts

- Mitigation of transport impacts

9- Social and Economic Impacts

- Introduction and definitions

- Scoping social and economic impacts

- Baseline social and economic conditions

- Prediction and evaluation of impacts

- Mitigation

10- Land-use and Heritage

- Introduction and definitions

- Scoping land-use impacts

- Baseline conditions

- Prediction and evaluation of impacts

- Mitigation

11- Accidental and Sudden Occurrences

- Introduction

- Scoping of impacts

- Impact prediction and evaluation

- Hazard identification

- Hazard analysis

- Estimation of risk

- Risk evaluation

- Mitigation of impacts

12- Landfill Gas

- Introduction

- Gas generation, composition and migration

- Gas control measures

- Scoping impacts of LFG

- Baseline survey

- Mitigation

13- Residuals

- Introduction

- Scoping impacts

- Prediction and evaluation of impacts

- Solid residues

- Liquid residues

- Mitigation

14- Monitoring, Auditing, and EA

- Issues and definitions

- Compliance and process monitoring

- Issues

- Authorizations

- Waste management licenses

- Discharge consents

- Quality assurance and monitoring

- Environmental management auditing

- Background

- UK and EC environmental audit schemes

- EA auditing

- Cause-effect assessment and monitoring

- Issues

- Water quality effects

- Air quality

- Public health monitoring

- Conclusions - integration of monitoring and auditing functions

15- Quality Management and the Environmental Statement

- Introduction and quality problems

- EA project management

- General requirements

- Procedural management

- Technical management

- Contract management

- Content and presentation of the ES

- Issues

- Content of the ES

- Presentation of the ES

- Review of the ES

16- Dealing with Sitting Disputes-the Role of Communication in EA

- Introduction

- Characteristics of sitting disputes over waste facilities

- NIMBY as a psychological and cultural phenomenon

- NIMBY as a problem of trust

- NIMBY as a problem of information

- NIMBY as a problem of flawed decision processes

- Risk communication

- Risk communication requirements

- Public participation methods

- Conflict management

- Improving communication in EA

- The communications plan and use of techniques

17**- References:**

- Selected articles of interest to Environmental Impact Assessment.

- Recommended text:

Environmental Impact Assessment for Waste Treatment and Disposal

Facilities. J. Petts and G. Ed Uljee. 1994. John Wiley and sons.