



## Environmental Risk Assessment course

### Quiz Lesson 1

1. What is an environmental risk assessment study?
  - a. is a process of evaluating the likely environmental impacts of a proposed project or development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse.
  - b. takes on a broader view, looking at the natural sciences as well as social sciences
  - c. is a process for determining the probability of negative effects on human health or the environment as a result of exposure to one or more physical, chemical or biological agents
  
2. What is the full name of EPA?
  - a. United States Environmental Protection Agency
  - b. Environmental Program Association
  - c. European Environmental Agency
  
3. What is EPA's mission?
  - a. to protect human health and the environment
  - b. to protect socio-economic development of the country
  - c. to protect wildlife.
  
4. When did emerge the risk assessment interest?
  - a. 1990s
  - b. 1980s
  - c. 1970s
  
5. When did EPA has officially presented environmental risk assessment (ERA) documents?
  - a. 1990s
  - b. 1980s
  - c. 1970s

6. What are the strategies used in order to prevent risk?
  - a. Risk analysis
  - b. Management analysis
  - c. Data analysis
  - d. Risk progress
  
7. What are the main elements risk depends on?
  - a. How much exposure, how it affects, how much of a stressor is present
  - b. How much stressor is present, how it affects humans
  - c. How much exposure, how it affects, how much of a chemical is present
  
8. Hazard and risk are synonyms in the context of environmental risk assessment?
  - a. True
  - b. False
  - c. Partially true
  
9. What is the probability range value of an event/substance (others) when it affects almost everyone?
  - a. 0.41-0.6
  - b. 0.6-0.9
  - c. 0.9-1
  
10. What is the first step in creating an ERA?
  - a. Problem formulation
  - b. Analysis of exposure
  - c. Planning Assessment
  
11. Problem formulation during Environmental Risk Assessment does evaluate ecological responses to stressors under different conditions?
  - a. True
  - b. False
  - c. Partially true
  
12. Does planning and problem formulation stages have similarities in common?
  - a. True
  - b. False
  - c. Partially true
  
13. The exposure assessment describes the course a stressor takes from the source to the receptor and its characteristics.
  - a. True
  - b. False

- c. Partially true
14. What are the main steps for health risk assessment study?
- a. Hazard identification, dose-response assessment, exposure assessment, risk characterization
  - b. False
  - c. Hazard identification, dose-response assessment, risk characterization
15. What are the main paths of entry of a hazardous chemical into the human body?
- a. Skin and eye contact, inhalation, ingestion and others
  - b. Skin and eye contact
  - c. There are no paths of entry of a chemical into the human body
16. Is there a possibility to get exposure to different dangerous particles through atmospheric deposition?
- a. True
  - b. False
  - c. Partially true
17. What are the most dangerous particulate matter?
- a. PM<sub>2.5</sub> and PM<sub>50</sub>
  - b. PM<sub>10</sub> and PM<sub>50</sub>
  - c. PM<sub>2.5</sub> and PM<sub>10</sub>
18. Calcium oxide is one of the components of the greenhouse gases?
- a. True
  - b. False
  - c. Partially true
19. How does greenhouse gases contribute on warming the atmosphere?
- a. Absorb infrared radiation
  - b. Release infrared radiation
  - c. Absorb ultraviolet radiation.
20. The risk assessor describes the risk, indicates the overall degree of confidence in the risk estimates and summarizes the uncertainties and determine which ecological entities are at risk
- a. True
  - b. False
  - c. Partially true

## Quiz Lesson 2

1. Risk Assessment and risk management principles share the same concepts and objectives?
  - a. True
  - b. False
  - c. Partially true
  
2. Risk management program is the process of?
  - a. Deciding what should be done about a hazard, the population exposed, implementing decision and evaluating results
  - b. Deciding what should be done about the hazard and implement correct decisions in order to minimise or reduce side effects
  - c. Deciding what should be done about the hazard and the environment exposed and evaluate final results upon the hazard
  
3. Which are the characteristics risk management does involve?
  - a. Risk evaluation, risk communication, risk monitoring, risk identification
  - b. Risk evaluation, risk monitoring, emission and exposure control, risk communication
  - c. Risk evaluation, risk monitoring, emission and exposure control, risk characterization.
  
4. Risk management is more of a science based assumption process
  - a. True
  - b. False
  - c. Partially true
  
5. One of the steps in order to implement a succesfull risk management studies is to indentify the hazards of the bussines
  - a. True
  - b. False
  - c. Partially true
  
6. What are the main steps in implementing a risk management program?
  - a. identify hazard, asses risk, control risk, review and maintain control measures
  - b. identify hazard, asses risk, control risk, characterize risk.
  - c. identify hazard, characterize risk, control risk, maintain control measure.
  
7. For a better vision upon indetifying hazards we should take into account?
  - a. Characteristics and exposure
  - b. Environmental exposure and pathway
  - c. Receptor and pathway

8. The risk assessment likelihood is rated as one of the follows:
  - a. Rare, unlikely and certain;
  - b. Rare, unlikely, likely, very likely and certain;
  - c. Abstent, rare, likely and certain.
  
9. One of the effective ways for a succesfull risk management controls is to substitute the cause of the hazard with something safer
  - A. True
  - B. False
  - C. Partially true
  
10. During risk management process, regular site inspections and audits should be performed in order to achieve an effectis risk check control
  - A. True
  - B. False
  - C. Partially true
  
11. What is the correct order of the hierarchy of controls for an effective risk management tool
  - A. Administrative control, eliminate hazard and substitute hazard
  - B. Administrative control, substitute hazard and control hazard
  - C. Administrative controls, substitute hazard and eliminate hazard

## Quiz Lesson 3

1. Which is the driver that determine the appearance of chemical contamination of soil?
  - a) Climate change
  - b) Industrialization
  - c) Population growth
2. In order to meet the main objectives of Land Management it is necessary to?
  - a) To carry out a study related to the human health risk assesment
  - b) To understand the processes in the soil ecosystem induced by threats
  - c) To apply measures to improve soil quality
3. The decision-making process of the Risk Based Land Management concept assume:
  - a) The rehabilitation of contaminated land
  - b) The application of a remedial method
  - c) Protection of environment
4. The *Dose d.c.* in the case of exposure through dermal contact is measured in?
  - a) mg/kg
  - b) mg/kg/day
  - c) mg/day
5. What it represents Risk Based Remediation Goals for contaminated land management?
  - a) Represents the limit targets of soil pollutants after the application of remedial technologies
  - b) Is a regulation for soil quality assessment
  - c) Is a standard for the application of technologies for the remediation of polluted soils
6. What suppose Green and Sustainable Remediation (GSR)?
  - a) The development of indicators to assess sustainable environmental remediation
  - b) A regulation to improve soil quality
  - c) The application of a Sustainable Remediation Method

7. Physical pollution consists in?
  - d) Pollution with heavy metals
  - e) Termic pollution
  - f) Introduction of invasive species
  
8. What do you think that the impact of hydrocarbons produce on vegetation?
  - d) The uncontrolled growth due to carbon intake
  - e) The root suffocation of the plant
  - f) It has no effect
  
9. When applying the electrochemical remediation, the pH increases at?
  - d) Anode
  - e) Cathode
  - f) Both anode end cathode
  
10. The number of environmental policies related to soil conservation laws in the year 1990, according to European Environment Agency, is about?
  - d) 20 soil conservation laws
  - e) 32 soil conservation laws
  - f) 14 soil conservation laws

## Quiz Lesson 4

1. According to WHO data, air pollution is responsible, every year, for:
  - a. 1.8 million of all deaths from stroke
  - b. 1.4 million of all deaths from lung disease and lung cancer
  - c. 2.4 million of all heart disease deaths
  
2. Health Impact Assessment (HIA) can be defined as:
  - a. a scientific evaluation of potential adverse health effects, resulting from human exposure to a particular hazard
  - b. a practical approach used to judge the potential health effects of a policy, program, or project on a population
  - c. both answers are correct
  
3. Health Impact Assessment process consist in \_\_\_ steps?
  - a. 5
  - b. 3
  - c. 7
  
4. The reporting step of Health Impact Assessment process should include:
  - a. the plan of HIA and the identification of which health risks and benefits to consider
  - b. scope description, stakeholders' opinions, and evidence available from various sources
  - c. a policy, or a project for which an HIA would be beneficial
  
5. A health risk assessment process can include the following steps:
  - a. Screening, Hazard identification, Dose-response assessment, Scoping
  - b. Reporting, Exposure assessments, Pollutant identification, Monitoring
  - c. Exposure assessment, Dose-response assessment, Hazard Identification, Risk characterization
  
6. Estimation of pollutant concentrations for the geographic areas of interest is a part of the:
  - a. dose-response assessment process
  - b. risk characterization process



- c. exposure assessment process
7. What European Air Quality Index presents?
- a. the potential impact of air quality on health, driven by the pollutant for which concentrations are poorest due to associated health impacts
  - b. the potential impact of air quality on health, driven by the pollutant for which concentrations are moderate due to associated health impacts
  - c. the potential impact of air quality on health for each pollutant, disregarding the associated health impacts
8. According to EU Air Quality Directives the daily limit value for PM<sub>10</sub> is:
- a. 40 µg/m<sup>3</sup>
  - b. 20 µg/m<sup>3</sup>
  - c. 50 µg/m<sup>3</sup>
9. What is the main source of NO<sub>x</sub> emissions?
- a. waste incineration
  - b. fuel combustion
  - c. industrial processes
10. What does premature death indicator represent?
- a. the number of deaths that occurs before the average age of death in a certain population
  - b. the number of years of what could have been a healthy life that were instead spent in states of less than full health
  - c. the number of years of life lost due to premature death
11. Which one of the presented HRA tools was created by World Health Organization?
- a. EIS-PA
  - b. BenMap-CE
  - c. AirQ+
12. What do health risk assessment tools have in common?
- a. concentration-response associations
  - b. technical complexity and format
  - c. exposure information sources
13. The French Institute of Health Surveillance (InVS) has implemented a model of epidemiological surveillance in nine French cities in:

- a. 1995
- b. 1997
- c. 2003

14. What software was used for the case study interactive application?

- a. National Instruments LabVIEW
- b. Microsoft SQL Server Express
- c. both answers are correct

15. The second step of the health risk assessment process was:

- a. health data collection
- b. air pollution exposure estimation
- c. delimitation of study area

16. To meet the assumption of a homogenous quality of ambient air in the chosen clutter which areas will be selected for Health Risk Assessment?

- a. urban areas separated by a green belt
- b. continuous urban areas
- c. peripheral areas with wide surface waters

17. What the relative risk (RR) represents?

- a. the ratio of the probability of an outcome in an exposed group to the probability of an outcome in an unexposed group
- b. the ratio of the probability of an outcome in an unexposed group to the probability of an outcome in an exposed group
- c. none of the above

18. The values greater than 1 of relative risk can be interpreted as:

- a. exposure does not affect the outcome
- b. a risk factor
- c. a protective factor

19. The number of events that cannot be attributed to a pollution difference was calculated with the formula:

a. 
$$NR = \frac{RR_{(E_z-E_r)} - 1}{RR_{(E_z-E_r)}} * N$$

b. 
$$NA_{tot} = \sum NR$$

c. 
$$PR = N - NR$$

20. In the health risk assessment process GIS technologies can be used for:
- a. selection of study areas and identification of major pollutants
  - b. air quality and health data acquisition
  - c. both answers are correct

## Quiz Lesson 5

1. The first process in conventional water treatment is:
  - a. Coagulation-flocculation
  - b. Filtration
  - c. Screening and straining
2. Most suspended solids from raw water are removed by:
  - a. Screening and straining
  - b. Sedimentation
  - c. Filtration
3. Disinfection is extremely important in the supply of safe drinking-water because:
  - a. it ensures microbial pathogens are destroyed or inactivated
  - b. it ensures chemical constituents are removed
  - c. it ensures chemical and microbial constituents are removed
4. The risks to health from disinfection by-products, comparing with the risks associated with inadequate disinfection are:
  - a. extremely small
  - b. the same
  - c. extremely high
5. Infections spread through contaminated drinking water are:
  - a. Water-borne
  - b. Water-based
  - c. Water-washed
6. Which one is a drawback of multiple-barriers approach:
  - a. different stages of water supply system can function as barriers
  - b. water quality is guaranteed by the so-called end-product testing
  - c. water quality risk is not relying on a single barrier in the supply system
7. Watch list mechanism introduced in European Drinking Water Directive is related to:
  - a. Materials that come into contact with water intended for human consumption
  - b. Treatment chemicals and filter media that come into contact with water intended for human consumption
  - c. Emerging compounds, such as endocrine-disrupting compounds, pharmaceuticals and microplastics

8. The risk approach to water safety introduced in European Drinking Water Directive cover:
  - a. Water supply from the catchment area, abstraction, treatment, storage and distribution to the point of compliance
  - b. Water supply from the catchment area, abstraction, treatment to storage and distribution point
  - c. Water supply from treatment, storage and distribution to the point of compliance
  
9. To ensure safe drinking water:
  - a. Water supplier is responsible for all aspects of drinking water quality management
  - b. National authority responsible with public health is responsible for all aspects of drinking water quality management
  - c. Agencies with responsibility for specific areas within the water cycle should be involved in the management of water quality
  
10. Surveillance of drinking-water quality is performed by:
  - a. National authority and surveillance agency
  - b. Water supplier
  - c. Surveillance agency
  
11. Health-based targets are set by:
  - a. Water supplier
  - b. National authority responsible for public health
  - c. Authority responsible with water resources
  
12. An event that can introduce a hazard to a water supply is:
  - a. a hazardous event
  - b. an incident
  - c. an emergency
  
13. Water quality targets
  - a. are established in terms of a quantifiable reduction of the disease or are estimated based on information concerning exposure and dose-response relationships
  - b. are set for constituents (microbial contaminants or chemical constituents), which represent a public health risk either by short-term or large-term exposure with significant health implications
  - c. are guideline values of chemicals concentration of concern from water resources or from materials which represent a health risk from long-term exposure and where fluctuations in concentration are small or occur over long periods
  
14. Water safety plan is the responsibility of:
  - a. Surveillance authority
  - b. Water supplier
  - c. National authority responsible for public health

15. Quantitative risk assessment methods
  - a. use risk ranking models to rank scenarios, events or options in terms of risk or impact
  - b. involves the use of expert groups for assessing water quality issues
  - c. is based on models for generating chain of events and estimating risk levels in numbers.
  
16. Describe the water supply, from the source to the point of supply is a step in:
  - a. the development of health-based targets
  - b. system assessment
  - c. operational monitoring
  
17. Relationship between control measure performance, as determined by measurable parameters, and hazard control performance is established in the step of:
  - a. Identifying control measures
  - b. Hazard analysis
  - c. Operational monitoring
  
18. An emergency response plan is developed for:
  - a. Specific incident situation
  - b. Unforeseen situations
  - c. Normal operation conditions
  
19. Which one is not a supporting programme:
  - a. Trainings
  - b. Communication strategy
  - c. Preventive maintenance
  
20. The most common physical hazard in water is:
  - a. Legionella
  - b. lead
  - c. sediment

## Quiz Lesson 6

1. What is the gasification process?
  - a. a thermo-chemical process that takes place at high temperatures in the presence of an excess amount of air
  - b. a thermo-chemical process that takes place at low temperatures in the absence of oxygen
  - c. thermo-chemical process that takes place at high temperatures in the presence of a calculated amount of air
  
2. Municipal solid waste landfilling refers to:
  - a. field disposal of waste to improve soil characteristics
  - b. the main global waste treatment solution
  - c. a complex multi-compartment reactor built in compliance with the relevant legislation
  
3. The elemental analysis of household waste refers to:
  - a. simple percentage chemical composition in the form of C, H, N, S, O, Cl
  - b. the content of pollutants
  - c. ash content
  
4. Depending on the origin of the waste, it can be classified into:
  - a. household and similar waste, special waste, ultimate waste, inert waste
  - b. household and similar waste, inert waste, nuclear waste, municipal waste
  - c. waste from medical activity, waste from agriculture and food industry, industrial and commercial waste
  
5. The most used method for municipal solid waste management in the European Union is:
  - a. composting
  - b. incineration
  - c. landfilling

6. The variation of the composition of household waste depends on:
  - a. the composition of household waste does not depend on any factor
  - b. the degree of development of the society
  - c. season, geographical position, degree of development of society, standard of living
  
7. The byproducts of the pyrolysis process are:
  - a. biogas, pyrolysis oil, char
  - b. pyrolysis gases, tar, char
  - c. flue gases, ash, water vapor
  
8. What are the main categories that effects the environment?
  - a. pollution and waste
  - b. noise pollution
  - c. landscape degradation
  
9. Which of these impact indicators are risks to human health?
  - a. human toxicity potential (HTP)
  - b. nutrification potential (NP)
  - c. noise
  
10. The main greenhouse gases are:
  - a. carbon dioxide (CO<sub>2</sub>), methane gas (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O)
  - b. carbon dioxide (CO<sub>2</sub>), hydrochloric acid (HCl), nitrous oxide (N<sub>2</sub>O)
  - c. methane gas (CH<sub>4</sub>), sulfuric acid (H<sub>2</sub>S), carbon oxide (CO)