



PRIFYSGOL  
**BANGOR**  
UNIVERSITY

## Environmental Management System

### Evaluation of Environmental Aspects

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<b>ISO 14001:2015 Clauses</b>
6.1.2

## Evaluation of Environmental Aspects

### Methodology

This document outlines the methodology used to evaluate the significant impacts, considering a life cycle perspective, of the environmental aspects created by Bangor University (BU). The methodology used consists of establishing significance using criteria based around a formula of examining consequence and likelihood.

Significance = Consequence x Likelihood

Consequence is based on an examination of

- applicable legislative controls
- interest and damage to reputation
- environmental damage
- scale

Likelihood is established by consideration of

- controls in place
- frequency of occurrence
- risk of an incident occurring

Each component is given a score based on a scale from three (highest) to one (lowest).

An evaluation is undertaken of all direct and indirect environmental aspects (Table 2). It was decided that a threshold should be set at fifty, above which the aspects are considered significant and should be addressed within the University's Annual Objectives and Targets (Table 1). The Campus Environmental Performance Team will be responsible for endorsing any amendments considered necessary.

\* In the tables below, \* indicates a reversal of evaluation criteria D

**Table 1 – Significant Aspects**

<b>Aspects Ref</b>	<b>Aspect/Activity</b>	<b>Environmental Impact</b>	<b>Significance Rating</b>
A02	Heating of buildings by Oil	Emissions of CO <sub>2</sub> and other emissions harmful to the environment. Depletion of natural and finite resources.	<b>50</b>
A05	Lighting of Buildings – Non-LED	Emissions of CO <sub>2</sub> and other emissions harmful to the environment. Depletion of natural and finite resources.	<b>54</b>
A07	Water supply to buildings for domestic, office and teaching activities	Depletion of natural resources.	<b>88</b>
A08	Water supply to buildings for research activities - (equipment & aquaria)	Depletion of natural resources. Potential pollution to local watercourses and groundwater systems.	<b>80</b>
A09	Water use for horticulture	Depletion of natural resources.	<b>66</b>
A12	Drainage into Menai Straits (seawater)	Potential pollution to local watercourses. Adverse ecological impact.	<b>66</b>
A15	Generation of general waste	Depletion of resources. Contamination to land and water. Littering. Harmful emissions from incinerated waste.	<b>77</b>
A16	Generation of recyclable waste (inc. food waste)	Depletion of resources. Contamination to land and water. Littering. Harmful emissions from treatment facilities.	<b>70</b>
A17	Generation of waste from construction sites	Pollution to land, air and water through inadequate planning. Fly tipping. Potential hazardous waste.	<b>72</b>
A22	Standby generators (diesel)	Emissions of CO <sub>2</sub> . Pollution to land and air. Depletion of natural resources. Noise	<b>55</b>
A24	Use of vehicles (non-electric)	Depletion of resources (energy) and emissions (pollutants and contaminants) from operation and final disposal.	<b>55</b>

<b>Aspects Ref</b>	<b>Aspect/Activity</b>	<b>Environmental Impact</b>	<b>Significance Rating</b>
A26	Use of air-conditioning	Depletion of resources (energy) and emissions (pollutants and contaminants) from operation. Use of hazardous chemicals and contamination into land and watercourses.	<b>50</b>
A27	Use of chemical materials	Use of raw materials. Pollution of land, air, watercourses and groundwater.	<b>77</b>
A28	Use of biological materials	Generation of hazardous biological material (including non-native species). Use of hazardous chemicals.	<b>66</b>
A30	Use of refrigerators, freezers and cold stores	Depletion of resources. Possible accidental release of ozone.	<b>55</b>
A31	Storage of chemicals and disposal of chemical waste	Pollution of land, air, watercourses and groundwater.	<b>60</b>
A32	Storage of biological materials and disposal of biological waste	Potential uncontrolled releases polluting land, watercourses and groundwater.	<b>60</b>
A34	Fuel oil	Potential uncontrolled releases polluting land, watercourses and groundwater.	<b>60</b>
A35	Procurement of construction works and materials	Depletion of natural and other resources. Pollution during manufacturing.	<b>60</b>
A36	Procurement of goods	Depletion of resources. Depletion of natural resources.	<b>60</b>
A38	Business travel by bike, car, minibus or van	Emissions of CO <sub>2</sub> . Depletion of natural and finite resources. Noise.	<b>60</b>
A40	Business travel by airplane	Emissions of CO <sub>2</sub> . Depletion of natural and finite resources. Noise	<b>70</b>
A41	Commuter travel by staff and students	Emissions of CO <sub>2</sub> . Depletion of natural and finite resources. Noise	<b>70</b>
A42	Student travel to and from the University from their original home address	Emissions of CO <sub>2</sub> . Depletion of natural and finite resources. Noise	<b>60</b>

**Table 2 – All activities and aspects**

Ref	Aspect/Activity	Environmental Impact	Consequence				Sub Total	Likelihood			Sub Total	Total
			A	B	C	D		X	Y	Z		
A01	Heating of buildings by LPG	Emissions of CO <sub>2</sub> . Depletion of natural and finite resources.	1	3	3	1	8	1	2	1	4	32
A02	Heating of buildings by Oil	Emissions of CO <sub>2</sub> and other emissions harmful to the environment. Depletion of natural and finite resources.	3	3	3	1	10	1	2	2	5	50
A03	Heating of buildings by Mains Gas	Emissions of CO <sub>2</sub> and other emissions harmful to the environment. Depletion of natural and finite resources.	1	3	3	3	10	1	2	1	4	40
A04	Heating of buildings by Electricity	Emissions of CO <sub>2</sub> and other emissions harmful to the environment. Depletion of natural and finite resources.	1	3	3	3	10	1	2	1	4	40
A05	Lighting of Buildings – Non-LED	Emissions of CO <sub>2</sub> . Depletion of natural and finite resources.	1	3	3	2	9	2	3	1	6	54
A06	Lighting of Buildings – LED or equivalent	Emissions of CO <sub>2</sub> . Depletion of natural and finite resources.	1	3	3	1*	8	2	3	1	6	48
A07	Water supply to buildings for domestic, office and teaching	Depletion of natural resources.	3	3	2	3	11	2	3	3	8	88
A08	Water supply to buildings for research activities (equipment & aquaria)	Depletion of natural resources. Potential pollution to local watercourses and groundwater systems.	3	3	2	2	10	2	3	3	8	80
A09	Water use for horticulture	Depletion of natural resources.	3	3	2	3	11	2	3	1	6	66
A10	Drainage of University campus sites into mains drains	Potential pollution to the ground, contamination to the treatment facility.	3	3	2	3	11	1	1	2	4	44
A11	Drainage of septic storage tanks	Potential pollution to groundwater systems and watercourses.	3	3	2	1	9	1	1	2	4	36
A12	Drainage into Menai Straits (seawater)	Potential pollution to local watercourses. Adverse ecological impact.	3	3	2	3	11	1	3	2	6	66

Ref	Aspect/Activity	Environmental Impact	Consequence				Sub Total	Likelihood			Sub Total	Total
			A	B	C	D		X	Y	Z		
A13	Disposal of electrical and electronic equipment (WEEE) (including temporary storage)	Use of raw or finite materials. Generation of hazardous and non-hazardous waste	3	3	3	3	12	1	2	1	4	48
A14	Generation of sanitary waste	Generation of hazardous waste. Harmful emissions from incineration.	3	1	2	1	7	1	3	1	5	35
A15	Generation of general waste	Depletion of resources. Contamination to land & water. Littering. Harmful emissions from incinerated waste.	3	3	3	2	11	2	3	2	7	77
A16	Generation of recyclable waste (inc. food waste)	Depletion of resources. Contamination to land & water. Littering. Harmful emissions from treatment facilities.	3	3	2	2	10	2	3	2	7	70
A17	Generation of waste from construction sites	Pollution to land, air and water through inadequate planning. Fly tipping. Potential hazardous waste.	3	3	3	3	12	2	2	2	6	72
A18	Generation of green waste	Generation of compostable waste.	3	2	2	2	9	1	2	1	4	36
A19	Generation of cooking waste oil	Pollution of land, watercourses and groundwater.	3	2	2	2	9	1	3	1	5	45
A20	Use of cleaning products	Use of resources. Pollution of land, watercourses and groundwater.	3	2	2	1	8	1	3	1	5	40
A21	Use of agricultural machinery building plant and equipment	Depletion of resources (energy) and emissions (pollutants and contaminants) from operation. Noise.	3	1	2	1	7	1	3	1	5	35
A22	Standby generators (diesel)	Emissions of CO <sub>2</sub> . Pollution to land and air. Depletion of natural resources. Noise	3	3	3	2	11	1	2	2	5	55
A23	Construction and refurbishment of buildings	Depletion of natural resources. Pollution.	3	2	2	2	9	1	2	1	4	45
A24	Use of vehicles (non-electric)	Depletion of resources (energy) & emissions (pollutants and contaminants) from operation and final disposal.	3	3	3	2	11	1	3	1	5	55
A25	Use of electric vehicles	Depletion of resources (energy) & emissions (pollutants and contaminants) from operation and final disposal.	3	2	3	1	9	1	3	1	5	45
A26	Use of air-conditioning	Depletion of resources (energy) & emissions (pollutants and contaminants) from operation. Use of hazardous chemicals and contamination into land & watercourses.	3	3	2	2	10	1	3	1	5	50

Ref	Aspect/Activity	Environmental Impact	Consequence				Sub Total	Likelihood			Sub Total	Total
			A	B	C	D		X	Y	Z		
A27	Use of chemical materials	Use of raw materials. Pollution of land, air, watercourses and groundwater.	3	3	3	2	11	2	3	2	7	77
A28	Use of biological materials	Generation of hazardous biological material (including non-native species). Use of hazardous chemicals.	3	3	3	2	11	2	3	1	6	66
A29	Use of radioactive materials	Release of radioactive material into air, land and ground water.	3	3	3	1	10	1	2	1	4	40
A30	Use of refrigerators, freezers and cold stores	Depletion of resources. Possible accidental release of ozone.	3	3	3	2	11	1	3	1	5	55
A31	Storage of chemicals and disposal of chemical waste	Pollution of land, air, watercourses and groundwater.	3	3	3	3	12	1	3	1	5	60
A32	Storage of biological materials and disposal of biological waste	Potential uncontrolled releases polluting land, watercourses and groundwater.	3	3	3	3	12	1	3	1	5	60
A33	Storage of radioactive materials and disposal of radioactive waste	Potential uncontrolled releases polluting land, air, watercourses and groundwater.	3	3	2	1	9	1	2	1	4	36
A34	Fuel oil	Potential uncontrolled releases polluting land, watercourses and groundwater.	3	3	3	3	12	1	3	1	5	60
A35	Procurement of construction works and materials	Depletion of natural and other resources. Pollution during manufacturing.	1	3	3	3	10	3	2	1	6	60
A36	Procurement of goods	Depletion of resources. Depletion of natural resources.	1	3	3	3	10	2	3	1	6	60
A37	Procurement of services	Depletion of resources.	1	1	1	1	4	2	3	1	6	24
A38	Business travel by bike, car, minibus or van	Emissions of CO <sub>2</sub> . Depletion of natural and finite resources. Noise.	1	3	3	3	10	2	3	1	6	60
A39	Business travel by public transport	Emissions of CO <sub>2</sub> . Depletion of natural and finite resources. Noise.	1	1	3	1	6	2	2	1	5	30
A40	Business travel by airplane	Emissions of CO <sub>2</sub> . Depletion of natural and finite resources. Noise.	1	3	3	3	10	3	3	1	7	70

Ref	Aspect/Activity	Environmental Impact	Consequence				Sub Total	Likelihood			Sub Total	Total
			A	B	C	D		X	Y	Z		
A41	Commuter travel by staff and students	Emissions of CO <sub>2</sub> . Depletion of natural and finite resources. Noise.	1	3	3	3	10	3	3	1	7	70
A42	Student travel to and from the University from their original home address	Emissions of CO <sub>2</sub> . Depletion of natural and finite resources. Noise.	1	3	3	3	10	3	2	1	6	60



<b>EVALUATION CRITERIA</b>		
<b>Consequence = A + B + C + D</b>		
<b>A</b>	<b>Is there any legislation affecting the aspect?</b>	
	The aspect is covered by legislation	3
	The aspect is likely to be covered by legislation	2
	The aspect is not covered by legislation	1
<b>B</b>	<b>What interest does the aspect raise?</b>	
	The aspect raises considerable global, national and local interest or would have serious detrimental effect on the reputation of the company	3
	The aspect raises some interest and may have some detrimental effect on the reputation of the company	2
	The aspect raises no interest and would have no detrimental effect on the company's reputation	1
<b>C</b>	<b>What environmental damage does the aspect cause?</b>	
	The aspect causes known detriment to the environment or a scarce, non-renewable resource	3
	The aspect causes some or possible detriment to the environment or a renewable resource in short supply	2
	The aspect causes no known detriment to the environment or a freely available renewable resource	1
<b>D</b>	<b>What is the scale of the aspect?</b>	
	The aspect occurs in high or large quantities	3
	The aspect occurs in medium quantities	2
	The aspect occurs in low or small quantities	1
<b>Likelihood = Z + Y + X</b>		
<b>X</b>	<b>How well is the aspect currently controlled?</b>	
	The aspect is not controlled by procedures, monitoring, preventative measures	3
	The aspect is controlled to some extent	2
	The aspect is well controlled by procedures, monitoring, etc	1
<b>Y</b>	<b>How frequently does the aspect occur?</b>	
	The aspect occurs on a daily basis or very frequently	3
	The aspect occurs occasionally / regularly	2
	The aspect occurs rarely	1
<b>Z</b>	<b>What is the risk of an incident or emergency occurring?</b>	
	There have been past incidents or there is a risk of an incident occurring	3
	There is some risk of an incident / emergency occurring relating to this aspect	2
	There is very little risk of an incident / emergency occurring relating to this aspect	1