Checklist of Environmental Aspects and the Impacts

Resource Usage

- energy usage
- electricity depletion of coal reserves and generation of greenhouse gases
  - issues for consideration when developing improvement options
    - heating efficiency and wastage
    - lighting efficiency
    - use of power-management feature on equipment
    - unnecessary usage
    - use of inefficient equipment
    - reuse of waste heat where viable
    - co-generation opportunities
- gas depletion of gas reserves and generation of greenhouse gases
- liquid fuel depletion of oil reserves and generation of greenhouse and other harmful gases
- steam depletion of fuel reserves and generation of greenhouse gases
- water usage
- depletion of town water reserves
  - examples of ways in which water use can be reduced:
    - maintain equipment to minimise leakage
    - mulch and other measures to reduce need for watering gardens
    - native plants to reduce need for water and fertilisers
    - focus on equipment and practices which use the most water in a building or on a site
- chemical purchase and/or usage
- environmental contamination by chemicals and chemical residues
  - examples of ways in which this contamination can be reduced:
    - purchase of smaller package sizes in line with need
    - use existing stock (share chemicals) where possible rather than buying new chemicals
    - reuse or recycling of waste
    - minimise use of environmentally-toxic chemicals (find safer alternatives)
- paper use
- paper manufacture and even recycling has various environmental impacts and leads to pollution
  - examples of ways of reducing paper use:
    - examining all paper usage and eliminating usage where possible
    - double-sided printing (and providing equipment capable of double-sided printing)
    - collection and reuse of paper printed on one side
- use or disposal of packaging
packaging is often seen as unavoidable, but it can be reduced by bringing pressure on suppliers to:
- minimise the amount of packaging used
- collect and reuse packaging
- use environmentally-friendly materials (paper rather than plastic)

- equipment usage (including vehicles)
- inefficient resource usage because of poor maintenance of equipment and because equipment is too old
- wasted resources due to equipment running when not in use or under-utilised
- excessive resource usage because of inefficient operation (eg. long flush/wash cycles)
- opportunities to use more efficient or cleaner fuel source for equipment

- storage issues
  - minimising risk of spillage and pollution by using good storage practices:
    - good basic housekeeping
    - labelling and segregation of chemical classes
    - bunding of liquids
    - removal from site of excess raw materials and other stock that is unlikely to be used
    - ready access to MSDS in the event of a leak or spill
    - availability and adequacy of spill kits
    - staff competent in mitigating the environmental effect of a leak or spill

- production
- minimising rework and scrap to minimise resource wastage

**Waste Generation (waste generated but not discharged to environment on-site)**

- temperature effects (eg. creating of vapours potentially harmful to sewer workers)
- may lead to contamination of town water
- segregation to maximise reuse and recycling opportunities
- disposal to general garbage
- pressure on land-fills due to large volume of general garbage
- leakage of oil
- leakage of PCBs from old electrical equipment (especially from old capacitors)
- leakage of CFCs and HCFCs from closed-cycle cooling equipment
- long-term contamination of land fills from nicad, mercury and lead-acid batteries
- reuse, recycling and disposal of construction waste
- production
- minimising the amount of waste and scrapped product generated on-site
Reuse and Recycling

- mulching and composting or organic waste
- recycling (or reusing):
  - glass, plastic and metals
  - paper
  - cardboard
  - packaging
  - chemicals
  - old equipment and furniture
- reducing use of disposable cups, plates, cutlery etc.
- use of recycled paper and other products to support the recycling industry (create a demand for such items)
- converting paper printed on one side to notepads to facilitate reuse
- production
  - recyclability of manufactured products (LCA)
  - reuse of waste materials generated on-site
  - reuse of waste heat

Heritage Issues and Public Utility

- interaction with heritage issues
- preservation of heritage structures (eg. buildings)
- preserving natural ecosystems and rare plants
- preserving culturally significant sites
- creation of conditions conducive for breeding of mosquitoes, mice, cats and other pests
- spread of human, animal or plant disease within the site
- interaction with local community issues
- changes affecting visual appeal of buildings and property
- shadows cast by buildings during the day
- light pollution at night
- changes affecting traffic density and associated hazards, and availability of local parking
- changes affecting access to public land
- vibration from equipment
- littering local environment
- activities affecting land conservation
- disturbance of natural habitats or bio-systems
**Systems**

*The following list is not a list of environmental aspects and impacts, but rather a checklist of system aspects.*

- environmental awareness education (including knowledge of environmental aspects) to:
  - staff whose duties may lead to intended and unintended environmental impacts
  - general staff
  - students (for educational institutions)
  - contractors and collaborators
  - provision of information
  - knowledge of applicable legislation by those with responsibilities for compliance
  - provision of sources of expert advice as required
  - record-keeping
  - provision of information to create incentive for reducing waste and minimising environmental impacts
  - assignment of responsibilities and appropriate authorities
  - management responsibilities
  - operational responsibilities
  - emergency responsibilities
  - operational control
  - identification of environmental risks
  - identification of legal and other obligations
  - assessment of potential impacts and effectiveness of existing environmental controls
  - development of new procedures to minimise environmental impacts
  - training in (and resourcing of) these procedures
  - improvement programs
  - control of the work of contractors working on-site
  - written conditions of contract and adequate instruction
  - controls to ensure performance
  - safe storage of materials
  - means of reporting incidents and environmental hazards and taking action
  - monitoring
  - key waste quantities and waste costs
  - potential legal non-conformances and significant environmental impacts (intended and unintended)
  - competency in dealing with emergencies
  - identification of foreseeable loss-of-control incidents which may lead to significant environmental impacts
  - this may include:
    - flood (contamination of flood water)
    - fire (and control of fire water)
    - power failure
    - loss of control of a process
Positive Environmental Aspects

- improving education and environmental awareness (staff, students, suppliers, customers)
- use of "Green" products (to support reuse and recycling industries)
- clean up of past environmental damage
- "spread the word" to others (co-workers, local community, sports groups etc.) on environmental sustainability