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