Water and Energy Saving

Doing an Energy and Water Audit.

It is important to do audits when you begin your programme to be more environmentally and socially positive, as not only will you be able to tell if your interventions are working, they are also a positive re-inforcement that helps motivate people further.

An audit is simply making a list of all energy and water devices in the building, which would include:

Light fittings, the type of bulb, and their wattage.
Computers
Printers
Monitors
Photocopiers
Hot air hand dryers
Airconditioners
Kettles and urns
Stoves and other cooking appliances
Microwaves
Fridges and deep freezers
Warmers
Coffee machines
Washing machines
Dryers
Dishwashers
Hot water Geysers

The water audit will look at listing:
Taps (internal and external)
Urinals
Toilets
Washing machines
Dishwashers

Once you know what you have, you can consider what you can change most easily, and how you plan to change the others.

Energy Saving:

Lights:

In purchasing light bulbs, as a general rule, the bulb cost is the smallest cost. Energy costs over a bulb's useful life are many times the original purchase cost. Evaluate bulbs by comparing lumens per watt.

- convert inefficient incandescent bulbs to efficient compact or other fluorescent bulbs. A 9-watt compact fluorescent bulb, replacing a 60-watt incandescent bulb, is 85% more energy efficient and lasts nine times longer.
- replace incandescent reflector bulbs with lower wattage ellipsoidal reflector bulbs
- install lighting controls (timers or occupancy sensors) to turn off lights in unoccupied areas such as storage rooms, employee rest rooms, walk-in coolers, etc.

Office equipment considerations include purchasing:

- computers, monitors and printers with power down features that consume 60% less energy when machines are idle
- copy and fax machines which have power down/stand-by features that operate when machines are idle

Lighting and heating issues:

Although low voltage lights do give more light for it's size than incandescent, the heat the transformers and lights give off should also be considered. Not only is this usually a waste of energy, but in many instances, needs to be balanced for by using more energy to cool the space!

Compact flourescents (CFLs), although needing to be disposed of sensitively, are a great way forward. Lower energy consumption, good quality light, and cool to run. Where possible, deep shades can be used with CFL's to replace super hot spotlights.

Water Saving

Increase water use efficiency:

- water-saving showerheads and tap aerators
- laundry washers which use final rinse water for prewashing of the next load of laundry
- capture water in a dish, while the hot water arrives at the tap.
- ensure that hot water is only used when necessary - using water from the hot water tap for only a few seconds will simply increase your energy costs.
- Low-flush toilets (in the meantime, fill a plastic bottle with water, and place it in the cistern in such a way that it does not block the mechanism)
- Limit the amount of hot water used for cleaning.

- Instruct staff to report any equipment in need of repair (e.g., leaking faucet, malfunctioning air conditioner).
- A dripping tap can waste about 20 000 liters of water per year.

Tap aerators, low flow showers, dual flush toilets, preventative maintenance, repair and water wise education should all form part of the mix, reaching easily a 20% reduction in water usage.

Energy Saving.

- Heating and cooling systems in unoccupied rooms or areas can be turned off completely or thermostats on central systems can be set very high in the summer or very low in the winter
- Energy will be saved by reducing heat gain in summer and heat loss in winter.
- Ensure that staff turn off room lights, televisions and radios when rooms are unoccupied. Instruct staff to use natural lighting when making up and cleaning rooms. Limit the use of artificial lighting.
- Establish cleaning schedules for lighting fixtures both inside and outside rooms. All fixtures become dirty with use and will produce more light after cleaning.

Maintenance Department

- Regularly check and clean filters.
- Clean condenser and evaporator coils on air conditioners. As dirt and dust collect on finned surfaces, the AC system's efficiency is reduced.
- Select high efficiency units when replacing AC equipment. Like most equipment, the high efficiency units may be more expensive than average efficiency units, but the higher initial outlay can be recovered through increased energy savings in as little as 2 to 5 years. A note of caution: Be sure that the air conditioning unit selected has adequate moisture removal capacity. Some high efficiency models sacrifice moisture removal capacity in order to boost their overall heat removal capacity. In hot and humid climates such as along the coast, this can be counter productive as chronic excessive moisture can lead to mold and mildew growth.
- Caulking and weatherstripping, two low-cost weatherization measures, should also be a continuous part of a room maintenance program. Seal cracks around windows, doors, and through-the-wall or window type AC units with caulk. Weatherstrip doors and operable windows.
- Make sure that bathroom and other exhaust fans do not run constantly. Fans that operate continuously remove excessive amounts of heated or cooled air from rooms. Consider connecting fans to the light switches in bathrooms to reduce excessive operation.
- Check and repair leaking hot water taps. Do not allow water that you have paid to heat to go down the drain unused. A dripping hot water faucet can waste about 20 000 liters of water per year, and large amounts of energy.
- Install flow restrictors in showers and faucets to reduce hot water usage.
- Reduce domestic hot water temperature at the geyser

What is the Institute for Zero Waste in Africa?

Our Mission Statement

Working towards a world without waste through public education and practical application of Zero Waste principles.

Charter Principles

1. Redesign products and methods of production to eliminate waste by mimicking natural processes and developing closed-loops
2. Convert waste to resources for the benefits of local production and the creation of a healthy and sustainable society.
3. Resist incineration and land filling in order to promote innovation in resource conservation and methods of production
4. Collaborate with others with common interests worldwide

Objectives

1. To advance the education of the public by all appropriate communication means and through supporting the elimination of waste and the associated health impacts.
2. To promote and fund appropriate research for the public benefit, including education
3. To promote the effectiveness of other Zero Waste initiatives
4. To promote the principles of waste avoidance and minimisation, re-use, repair, recycling and composting, through sustainable resource management in accordance with best environmental options.

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