



UNON Gigiri Compound Initial Environmental Review

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Initial Environmental Review

- **Objectives**

- “Gigiri Environmental Improvement Plan”
- Necessary steps for the implementation of an Environmental Management System (EMS)

- **Approach**

- Site visits, interviews
- Review of documents
- Discussion with external organisations and companies
- Various research into different topics
- Review and evaluation of local, national and international legislation, practices and standards

Initial Environmental Review - Report Structure

- Section 1: Introduction
- Section 2: General Information on
 - Environmental Management Systems,
 - Performance Benchmarking, and
 - Sustainability Reporting
- Section 3: Description of the Compound
- Sections 4 to 11: Environmental Aspects
Performance Benchmark
Environmental Objectives and
Improvement Programmes
- Section 12: Environmental Management System
Gap Analysis
- Section 13: Conclusion and Recommendations
- Section 14 to 17: Building Construction and Renovation

Environmental Aspects

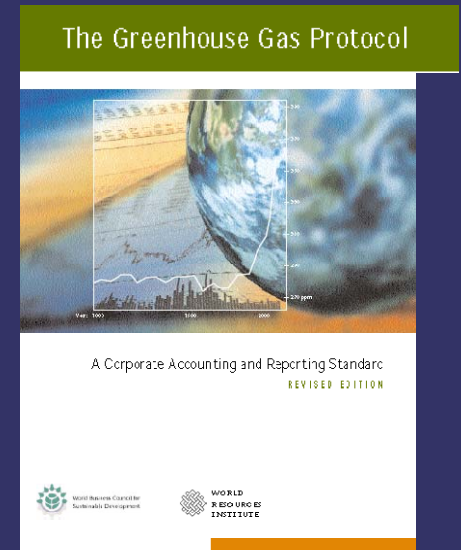
- Carbon Footprint / Climate Change
- Waste
- Water Use
- Waste Water
- Materials
- Biodiversity
- Soil and Groundwater Contamination
- Overall / Cross-cutting Topics (procurement policies and management of events and conferences)

Environmental Performance Benchmarking

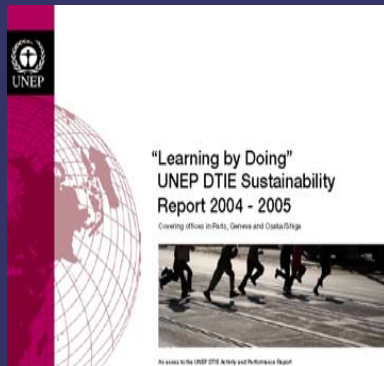
1. How aspects are managed



2. What aspects are measured & monitored



3. Quantifiable performance: outputs



amongst others...

Environmental Performance

Initiatives at the Compound

Energy saving initiatives, e.g.

- Water heating by solar power, energy saving bulbs, occupancy sensors, photo-sensitive lights
- Building design to reduce the need for electrical lighting and air-conditioning

Waste reduction and recycling initiatives, e.g.

- Waste separation and recycling projects already started
- Elimination of plastic bags at the Commissary
- Waste management initiatives at the Print Shop

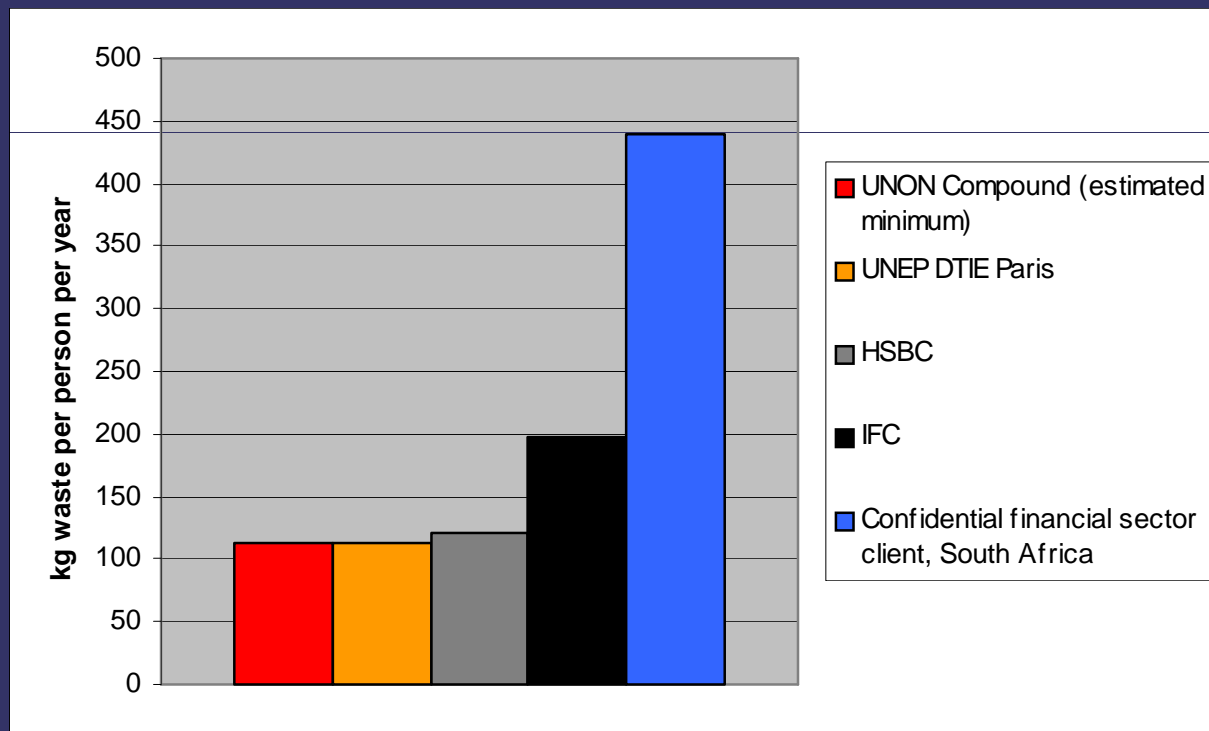
Initiatives to reduce water consumption, e.g.

- Dual flush systems, push tap mechanisms, automated urinal flush systems
- Grey water recycling

Environmental Performance

Performance of the Compound

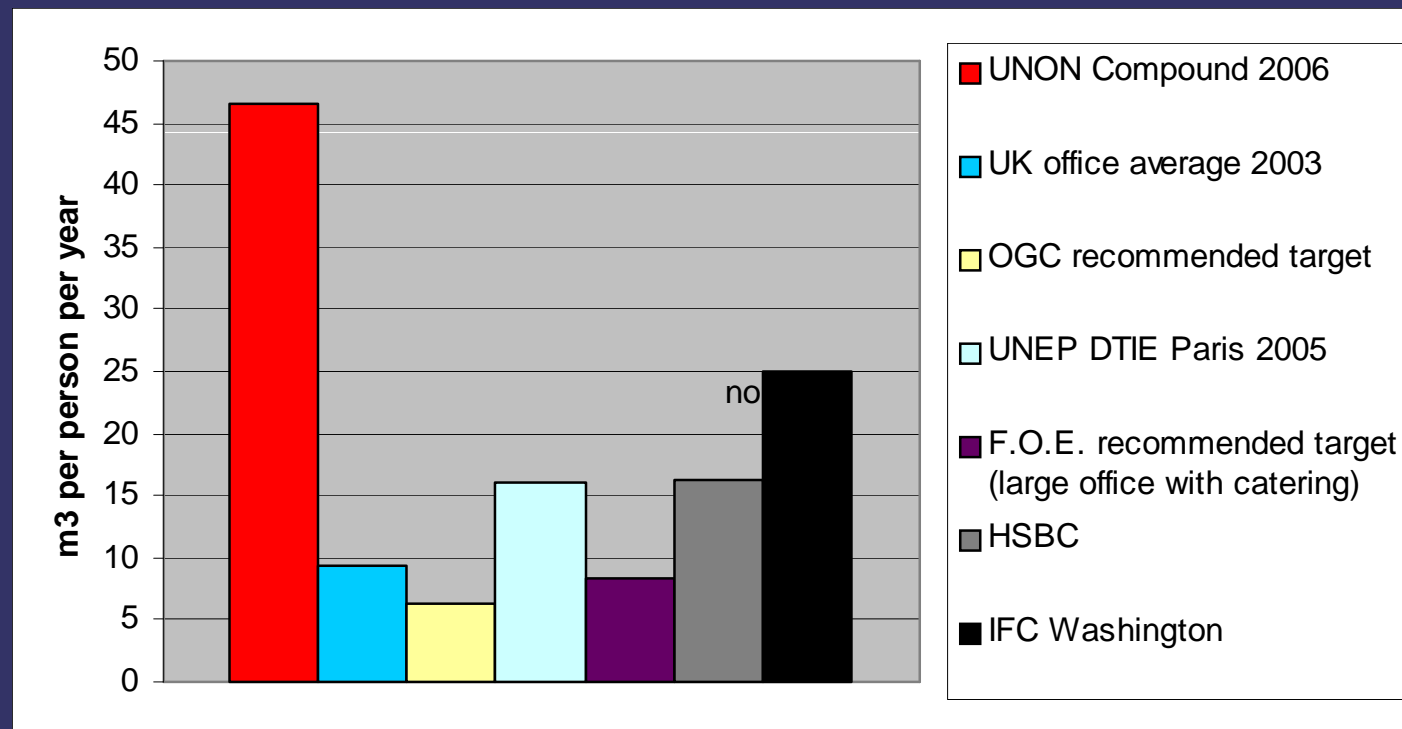
Kilogrammes of waste generated per person



Environmental Performance

Performance of the Compound

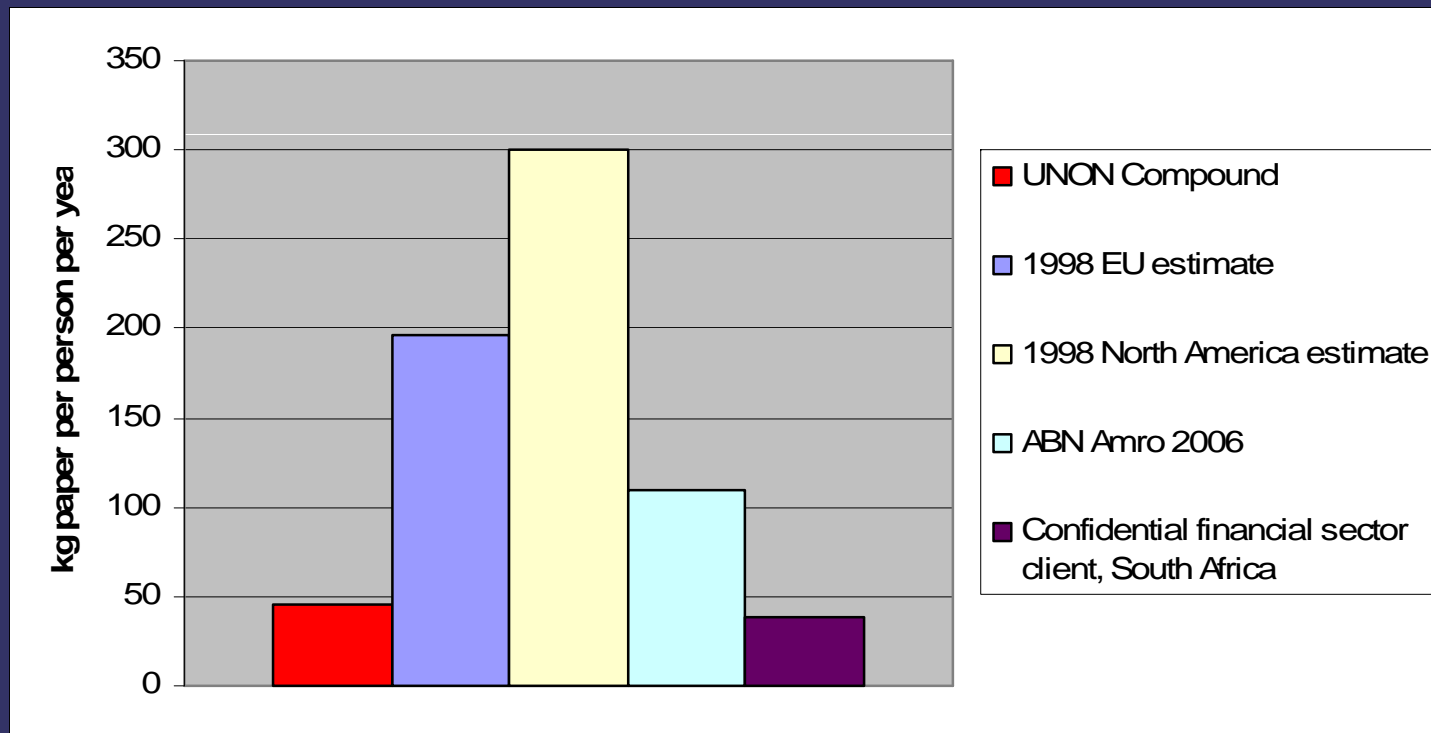
Water consumption



Environmental Performance

Performance of the Compound

Paper consumption



Environmental Performance

Improvement opportunities

Comprehensive monitoring regimes for

- Energy and travel
- Different waste types generated at the Compound
- Water and waste water
- Materials

Reduce consumption of

- Energy associated with electricity and transport

Improve waste management

- Waste separation and storage, especially of hazardous waste
- Contractual matters and auditing of waste carriers

Increase awareness of

- Handling and storage of hazardous substances and hazardous waste
- Waste water effluent management released to the environment

Gigiri Environmental Improvement Plan

- **Carbon Footprint / Climate Change**

- Establish the carbon footprint of the Compound
- Reduce the carbon footprint and greenhouse gas emissions of the Compound

Environmental improvement programmes	Estimated costs	Priority
Establish a monitoring regime for energy (electricity, diesel for generators, and LPG) consumption Data capturing	< USD 5k	High
Establish a monitoring system for the determination of GHG emissions associated with travel Data capturing	Staff time	High
Compile an annual GHG Inventory in line with the GHG Protocol Corporate Accounting and Reporting Standard Public reporting	Mainly staff time, up to USD 50k for consulting costs	High
Estimate GHG emissions from other sources (refrigerant gasses, transport of goods and materials, and consumption of paper) Data capturing	Staff time	Medium
Reduce energy consumption in the areas of: 1 Electricity, heating and cooling 2 Transport	Targets setting > USD 50k* Staff time to > USD 5k	Medium
Establish programmes to off-set greenhouse gas emissions Targets setting	< USD 5k	Medium - Low

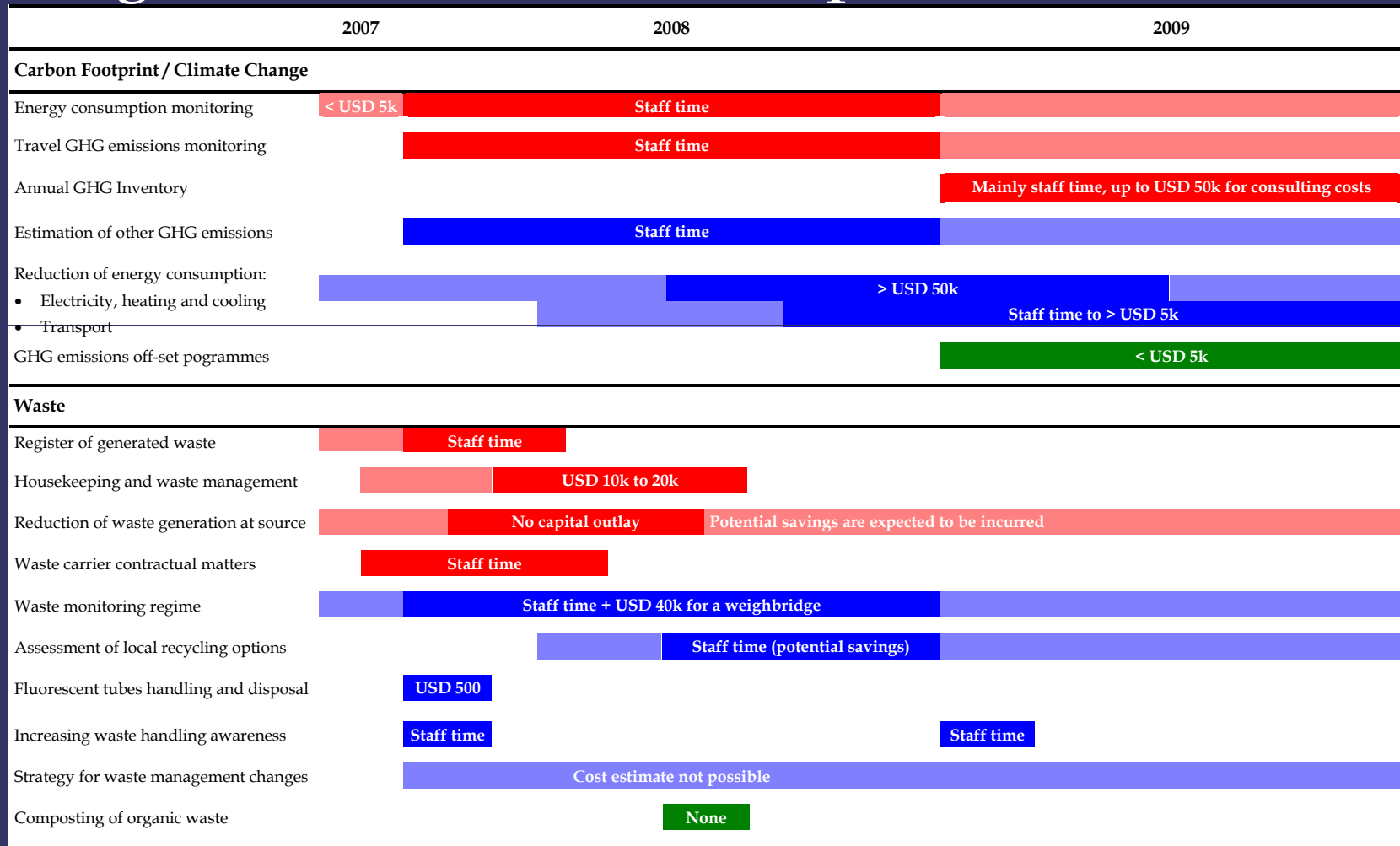
Gigiri Environmental Improvement Plan

- **Waste**

- Manage waste generated on site in line with best practice
- Reduce weight of waste generated and sent to landfill or incineration by at-source reduction and increased recycling

Environmental improvement programmes	Estimated costs	Priority
Compile a register of all waste generated at the compound, covering source, pathway and receptor. Data capturing	Staff time	High
Reduce waste generation at source Waste generation	No capital outlay, potential savings are expected to be incurred	High
Improve housekeeping and general management of waste Waste handling	USD 10k to 20k	High
Improve the control of contractual matters with waste carriers Waste handling	Staff time*	High
Increase awareness for waste handling by regular training Waste handling	Staff time	Medium
Establish a waste monitoring regime Data capturing	Staff time + USD 40k for a weighbridge	Medium
Assess local recycling options	Staff time (potential savings)	Medium
Assess handling and disposal of fluorescent tubes	> USD 500	Medium
Identify possibilities for UNEP to drive change locally Developing new opportunities	Cost estimate not possible	Medium
Consider composting of organic waste from the cafeteria together with garden waste	None	Low

Gigiri Environmental Improvement Plan



Gigiri Environmental Improvement Plan

	2007	2008	2009
Water Use			
Water consumption monitoring		Staff time + approx. USD 2.5k	
Measures to reduce water consumption		USD 385k to 1,190k	
Abstracted water resources assessment		Cost est. not poss.	
Waste Water			
Effluent monitoring		USD 5.5k to 9.5k per year	
Effluent management		USD 42k to 80k (assessment of drains' integrity, installation of a wash bay, etc.)	
Materials			
Bulk fuel storage and investigation		USD 60k (inv.)	USD 110k to 115k (earthworks)
Haz. materials storage and handling		Staff time + USD 75k to 86k (improving storage cond. and surveys)	
Efficient and responsible use of paper		Mainly staff time	
Local sourcing and disposal of materials		No cost estimate possible	
Soil and Groundwater Contamination			
Soil and groundwater investigations		USD 28k to 40k	
Biodiversity			
Biodiversity programme		Mainly staff time	
Overall/ Cross-Cutting Topics			
Environm. procurement programme		Staff time	
Environm. requirements for vndors		Staff time	

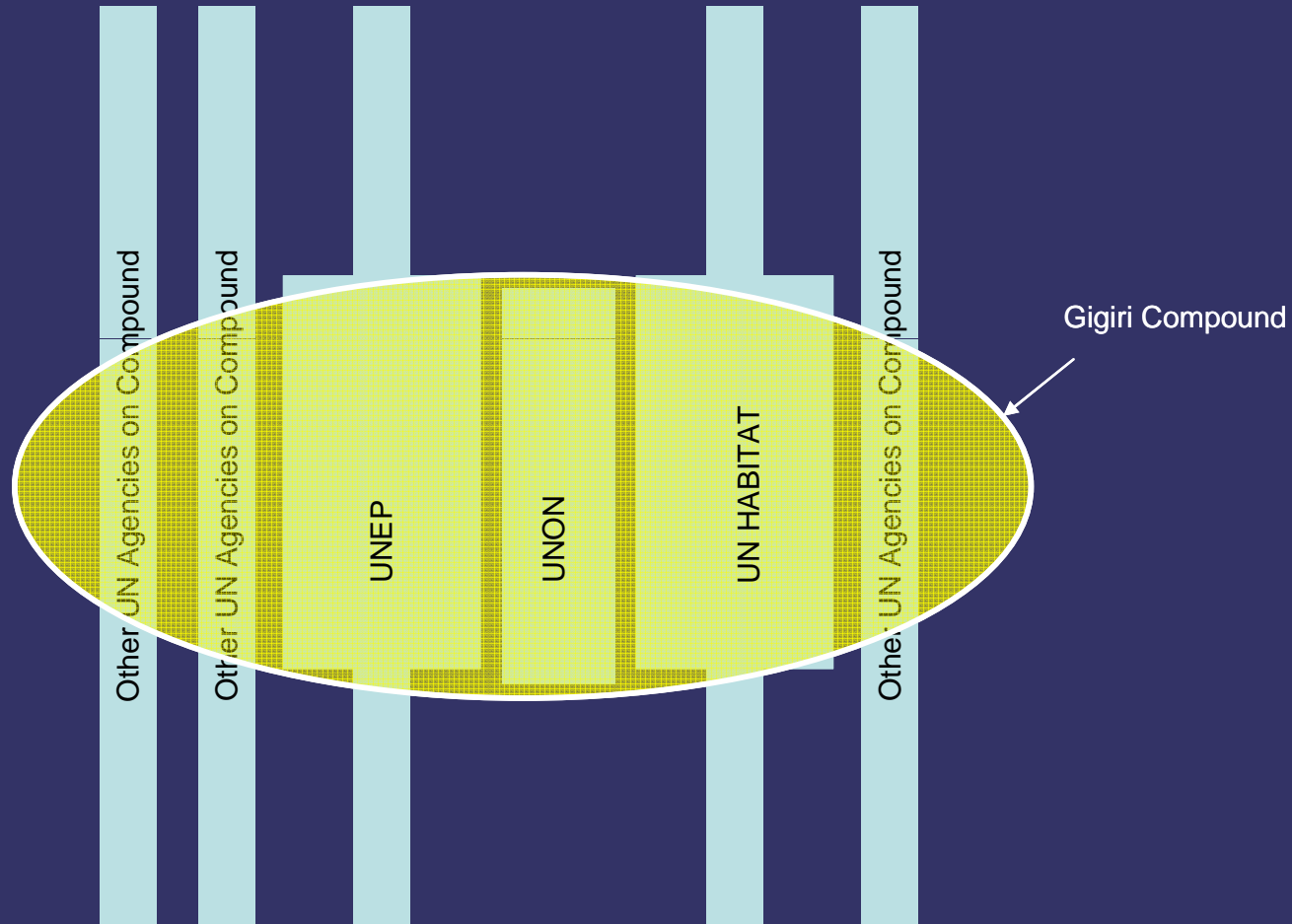
Implementation and Certification of an EMS

Recommendations:

- Appointment of a full-time environmental coordinator
- Undertake awareness-raising and training drive
- Define the scope and boundaries of the EMS
- Define an Environmental Policy for the Compound
- Implement the recommended environmental improvement programmes

- Third party certification can add reputational value, however, the main value of an EMS is the direction and focus it gives to environmental management at a site

Scope of Public Reporting vs EMS



Implementation and Certification of an EMS

Costs and Time:

- **Implementation of an ISO 14001 compliant system: 2 years if there is a dedicated environmental coordinator role driving implementation**
- **Costs are associated with the environmental improvement programmes; external consultant costs are estimated to be between USD 10k to 80k**
- **Certification of an EMS compliant to ISO 14001 would require additional costs of about USD 10k to 15k for an external accreditation body**

Implementation and Certification of an EMS

