WASTE MANAGEMENT
( Including the UNON Sustainable Procurement Policy)

ON THE UNITED NATIONS COMPOUND,
Gigiri, Kenya

Assessment and Recommendations
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Executive summary

In line with UNEP Governing Council decision 18/10 on good environmental housekeeping within UNEP, and following Executive Director approval (memo of 24 July 2003 on “greening the United Nations compound”), Step-by-Step undertook an assessment of activities on the UN compound with a focus on waste, energy, water and transport. This report on waste has been carried out in close cooperation with UNON, especially the Procurement, Travel and Shipping Section and the Facilities, Management and Transport Section.

After describing the waste-generating sources, streams, transit and recycling/disposal practices; the report provides conclusions and three core recommendations to bring about significant improvements to current practices, namely (a) the implementation of a comprehensive waste management system; (b) the reduction of waste production; and (c) the integration of local social and environmental considerations into UN activities.

The report further provides very practical recommendations for reducing waste generation and improving waste management on the UN compound (pages 15-18), and requests UNEP Executive Director approval on the means of implementation, which entail:

- Establishing a new professional post (P3) at UNON Headquarters. The P3 will implement a comprehensive Environment Management System (EMS) on the UN Gigiri compound; implement concrete activities to improve current waste management practices; and coordinate activities with UNON, UNEP and Kenyan authorities, industry and local communities (through initiatives such as recycling projects). The P3 would also subsequently be responsible for coordinating similar improvements on water, energy and transportation practices.
- Allocating an initial US$50,000 budget (detailed breakdown provided on page 19) to the P3 to undertake the most urgent activities, identified as: distribution of separated baskets to all UN compound staff; improvement of the waste stream; and, institution of an awareness raising campaign targeting UN staff members, with a training component for the cleaning personal.
- Calling for UNON to assist the P3 with EMS implementation and promote the management system to all staff members in full line with UNEP GC decision 18/10 on good environmental housekeeping within UNEP.

In addition, included as Annex 3, this report provides for Executive Director approval and implementation by UNON of a “UNON Sustainable Procurement Policy” that has been developed in close collaboration with the UNON Procurement, Travel and Shipping Section.
1. Introduction/ Mandate

UNEP GC18/10 inter alia calls on UNEP to “recommend strategies for the promotion of the best practices in environmental housekeeping for use by UNEP, and advise and encourage the rest of the UNEP system to develop and apply similar strategies for continually improving their own environmental performances and promoting sustainable development, with the aim of (a) reducing waste, (b) recycling, (c) conserving energy, water, paper and other natural resources”.

Subsequently, in 2001 the Board of Auditors to the United Nations General Assembly suggested that UNEP take the initiative in bringing to the attention of the UN system Chief Executives Board (CEB) the possibility of developing a framework to implement this environmental policy in the UN system. This recommendation requests UNEP to develop a policy framework for managing its own operations in an environmentally friendly manner (recycling, reducing energy consumption, considering environmental aspects in procurement, etc.) and to share it with other agencies in the UN system.

It is in this spirit that the “Step-By-Step” (SBS) group was established in 2002 to “green” the United Nations (UN) compound in Gigiri. SBS is composed of Nairobi-based professionals from a variety of UN agencies, and its objective is to improve the corporate environmental performance of the compound. The UNEP Executive Director backed this initiative (Log 860/03) in April 2003 and the Step-by-Step group began undertaking in-depth assessments of the environmental impact of the UN compound, as endorsed by the ED (memo from B. Kante to K. Toepfer of 24 July 2003 on “greening the United Nations compound”).

The present report on waste management is the first element of SBS’s overall assessment of UN compound activities that also focus on energy, water and transport.
2. Current waste generation practices on the UN compound

The main sources of waste, which are further described below, are:

a) Offices
b) Commercial activities:
   - Cafeterias
   - Print Shop
   - Commissary
   - Garden and landscaping
   - Clinic
c) Maintenance of buildings and machinery
d) Sewage
e) Toiletries (sanitary waste)

The waste categories generated from these sources consist primarily of paper, cardboard, plastic, organic material, glass, wood, metal, office equipment and machinery.

2.1. Offices

Office supply
UNON’s Contracts and Procurement Section receive purchase orders from the administrative offices of the different UN agencies on the compound. Through this process UNON supplies staff members with equipment (chairs, computers, etc.) and stationery (A4 paper, pens, etc.). A4 paper is of particular interest, as it is heavily consumed and generates the biggest portion of all office waste. The paper currently used is sourced from Brazilian or South African tree plantations. Egypt is the nearest alternative source of paper, as Kenya does not produce white A4 paper suitable for printing. However, Egypt is not necessarily the best viable alternative, as they import their pulp from Northern Europe.

In 2002 and 2003, UNON issued office paper to the various agencies on the UN compound as follows:

<table>
<thead>
<tr>
<th></th>
<th>Reams</th>
<th>Kg</th>
<th>Sheets</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNON</td>
<td>9,780</td>
<td>73,656</td>
<td>14,762,000</td>
</tr>
<tr>
<td>UN-Habitat</td>
<td>4,819</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNEP</td>
<td>14,995</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Agencies</td>
<td>560</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>29,524</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>73,656</td>
<td></td>
<td>14,762,000</td>
</tr>
<tr>
<td>2003</td>
<td>4,397</td>
<td></td>
<td>14,910,500</td>
</tr>
</tbody>
</table>

Approximately 37 sheets of A4 paper are used daily by each staff member (based on 246 working days a year and 1650 staff for the compound). As each ream costs approximately US$2, the total cost to supply office paper for the UN compound is about US$60,000 per year.

The A4 office paper is supplied in white only. The UNON Procurement, Travel and Shipping Section is the only unit to supply itself with, and use, recycled off-white paper. This laudable effort constitutes, however, less than 1% of all paper consumed on the UN compound. Through the UN bulletin board the Procurement, Travel and Shipping Section, who supply the various UN agencies (including UN-HABITAT and UNEP), proposed expanding the use of off-white paper, but received no expressions of interest. As a result, the Procurement, Travel and Shipping Section suggested the incentive of a subsidy (removing the UNON service charge), without
success. This response from UN agencies is unfortunate in that off-white recycled paper is of the same quality as bleached white paper, does not, contrary to popular belief, jam printers and is slightly cheaper than white paper. However, this lack of positive response to UNON’s efforts reveals well the limits of a voluntary approach. Accordingly, the Procurement, Travel and Shipping Section has for some years now been the sole UN compound consumer of off-white recycled paper.

**Office consumption**

In 2002 and 2003, 164 tonnes and 127 tonnes of respective waste paper were produced, consisting of approximately 47% A4 paper (see detailed assessment in Annex 1). This translates to 76.6 tonnes and 53.7 tonnes of A4 waste paper produced respectively in 2002 and 2003. Compared to the supply of A4 office paper from UNON, this data shows that office consumption (or the proportion of A4 paper ending in the dustbin) was about 100% in 2002 and 76% in 2003.

A slight overestimation in the production of waste paper may have occurred, due to the fact that some printed A4 paper may be brought onto the UN compound by individuals, and some UN agencies are purchasing A4 paper separately. However, by conservative estimate, two-thirds of the A4 office paper that is used on the UN compound ends up in the dustbin, and is not stored or filed for future reference.

Another observation of interest on the used A4 paper found in dustbins on the UN compound, is that only 15% is printed double-sided versus 85% single-sided. The poor figures for A4 double-sided paper correspond with printing by photocopying machines on a large scale, and very seldom to the efforts of individual staff members (see detailed assessment in Annex 1).

Almost all the A4 office paper found in the dustbins is white paper. Only about 1% is recycled off-white paper, because as mentioned above, the UNON Procurement, Travel and Shipping Section is the only unit consuming recycled off-white paper. This is consistent with the fact that A4 recycled paper is virtually non-existent on the UN compound. In addition, the waste A4 office paper not sorted at source for recycling, but is mixed in the dustbins with the others types office rubbish, such as organic waste, cardboard, plastics and used office supplies, and thus becomes contaminated and un-recyclable in the process.

Until April 2004, Professional Clean Care was the company responsible for maintaining office cleanliness. The company had 105 employees on the compound, including their administrative staff. Since May 2004, a new company – Parapet Cleaning Service – provides the same service, but with a reduced personnel of about 80 employees. The personnel are divided into teams for specific areas. They carry all waste from the offices in plastic bags to 1m³ trolleys, or directly to the waste transit facilities, where the bags are emptied.
The new cleaning contractor has made operational improvements and there is now one functioning trolley per block on the UN compound. Adequacy of equipment issues still exist, however, as cleaning personnel currently hand-carry the bags of waste, which places a strain on the body.

Once filled with rubbish, the trolleys are brought to one of two existing waste transfer facilities: behind the old cafeteria or in the basement of block W.

2.2. Commercial activities

Cafeteria
The Intercontinental hotel chain operates the new cafeteria and the coffee lounge for the benefit of personnel on the UN compound. In the new cafeteria (across from the Bunson Travel Agency), Intercontinental staff are allowed to make use of any leftover food. The remainder – approximately 15 plastic bags – is collected to feed pigs outside the compound. In the old cafeteria (“Crackerjack”), run by another private contractor, the few leftovers are also collected as feed for pigs and dogs. This practice has been occurring for the past seven years.

Print Shop
The A4 paper for the Print Shop comes from South Africa or Brazil. The Print Shop generates an average of 1m³ wastepaper daily (about 300 kg). This amount is much higher during preparations for conferences and large meetings held on the UN compound. The Print Shop paper waste is taken to the waste disposal facility behind the old cafeteria. The Print Shop selects the types of paper to be used, which are then ordered by UNON’s Contracts and Procurement Section.

The Print Shop distributed 100% gray recycled paper for a time, but some UN compound agencies complained about the color (no complaints printer and copier jamming were received). The Print Shop still has large quantities of recycled paper in storage. All paper provided by the Print Shop is chlorine-free, although it is bleached with peroxide. The Print Shop is primarily concerned with providing quality paper to print on – paper that is not transparent – but is committed to using “green” paper if available and accepted by their clients. Used chemicals from Print Shop operations are stored on the UN compound pending identification of a proper disposal method.

The Chief of the Print Section, Mr. Henry Hunt, indicated that recycled paper might be up to 25% cheaper than normal white paper, if procured in large quantities. The Print Shop has also undertaken very useful research into other aspects of print-grade paper that can be made available. In addition, the Print Shop also requests environmental disclosure when ordering their paper. These two actions are part of a wider commitment on the part of the Chief of the Print Section and the officer responsible for UNON conference services, Rudy Van Dijck; both are
committed to greening the Print Shop activities through the implementation of a thorough Environment Management System, based on ISO 1400 guidelines.

**Commissary**
Every day the Commissary staff bring two trolleys of waste (about 600-800 kg) to the waste transfer facility behind the old cafeteria. This waste is primarily composed of cardboard and plastic. In addition, Commissary operations lead to the indirect generation of large amount of plastic waste through the provision of free plastic bags to customers. This form of plastic waste is not taken into account in this assessment as customers transport them to their private household. From there these plastic likely find their way to the Dandora dumpsite. At the present time, the commissary does not have a recycling system for any of the products they sell, including batteries, bottles and cans.

**Garden and landscaping**
Organic waste from garden and landscaping activities is composted, and the resultant material is used to improve the soil quality within the UN compound and the plant nursery. Composting heaps are located near the sports area and at block J. Normally the garden and landscaping activities produce 1-1.5 m$^3$ (about 400 kilos) of green waste every day. Approximately 1m$^3$ of compost is reused every day. The company in charge of gardening and landscaping on the UN compound is Diani Flowers. Through the course of interviews undertaken as part of this assessment, the head of Diani Flowers has expressed an interest in receiving organic waste from the cafeterias, as well as the households of UN personnel. In the past, the gardening section had received organic waste from the cafeterias from time to time, but experienced problems because the organic waste was not properly sorted at source.

**Clinic**
The cleaning personnel from Parapet Cleaning Services collect office rubbish from the clinic. Clinical waste is collected in special plastic bags while sharp clinical objects (syringes, etc.) are collected in small plastic containers. The company BINS collects all clinical waste once or twice per month, depending on the quantity generated. BINS then incinerates the clinical waste at its industrial area facilities in a small-scale incinerator whose emissions are not properly monitored. BINS claims that the incinerator burns the waste at 2000 degrees through the fuel-less self-combustion of waste. This homemade incinerator has no equipment for controlling temperature and reducing the discharge of gases or particles to the air (i.e. through the use of filters). The incineration of medical waste potentially results in the emission of carcinogenic gases, such as dioxins and furans.

### 2.3. Maintenance of buildings and machinery

Until 2002, used office material (computers, desks, etc.) was auctioned off to the highest bidder. However, the Procurement, Travel and Shipping Section of UNON have recently been looking at ways to donate such material to schools and charity organizations through the Kenyan Ministry of Education. Some difficulties have been encountered, as for every item donated, the Kenyan Customs authority requires an assessment of market value in order to calculate the amount of duty the beneficiary should pay. For example, a duty of KSh 2000 is normally charged for each computer donated.

In October 2004, UNON managed to donate most of its obsolete office material, including many computers, through the Ministry of Education, to as number of different schools identified by the
Association Secondary School Heads of Kenya. The remaining computers were given to Computers for Schools of Kenya. Until September 2004, while awaiting confirmation from the Ministry of Education, obsolete office equipment was stored at various locations on the UN compound. In addition, three containers near the gym are used as storage space for stationary with slow turnover.

The Building Ground Management Unit is responsible for the management of certain types of waste such as building material. Some of this waste is currently stored behind the old cafeteria, pending reuse on the compound or removal by BINS (most likely to the Dandora dumpsite). Of particular concern is environmentally hazardous waste, such as old transformers containing PCBs and old fluorescent lamps containing heavy metals. According to UNON, waste wood material is normally reused. However, it is unclear as to how this wood refuse is reused.

Used ink cartridges from UNON, UNEP and UN-Habitat are stored on the compound. The person responsible (W. Kaveke) has tried – without success – to find an adequate disposal method. At present, there is no facility for the recycling or reuse of ink cartridges in Kenya. The printer company Lexmark has been working on this issue for about four years, but has yet to identify possible solutions. Neither does printer manufacturer Hewlett Packard have plans to take action. Moreover, the Procurement, Travel and Shipping Section has not yet made any arrangements with the printer companies to address this issue.

2.4. Sewage

The solid waste from sewage is transported away and used as fertilizer. However, at this stage of the assessment, the details, including quantities, transport and sanitation treatment remain unknown.

2.5. Toilets

Staff members from the company Rentokil collect sanitary waste from the washrooms. They have 136 rubbish containers on the compound, which are emptied twice per month. The waste is taken to the BINS facilities in the industrial area where it is incinerated (using the same incinerator that burns medical waste from the clinic). It has not yet been possible to evaluate the exact number of kilos produced on a monthly basis.
Key waste management facts on the UN compound

Between 200 and 250 tons of waste (excluding paper and cardboard) is generated each year and transported from the UN compound to the unmanaged Dandora dumpsite.

About 75 tons of non-recycled A4 paper per year is procured by UNON (imported from Brazil).

Daily figures of paper products consumed per day on the compound:
* 800kg of paper
* 22 sheets of A4 paper per staff member

At least two-thirds of the A4 paper ends up in the dustbin and is not stored or filed for future reference.

All non-contaminated waste paper produced on the compound is recycled into toilet paper by the companies Chandaria or Pegan.

Approximately 15 bags of organic waste are generated in the new cafeteria daily.

The print shop generates around 1 m$^3$ of wastepaper daily (about 300 kg).

The commissary generates around 2 m$^3$ of waste daily (including 50 kg of cardboard).

1.0 to 1.5m$^3$ of “green” organic waste from garden and landscaping activities is generated daily.
   It is composted and used as fertilization for plants on the UN compound.

Waste A4 office paper is mixed in the dustbin with other types of office rubbish, such as organic waste, thus contaminating the paper and rendering it un-recyclable.
3. Waste transit facilities

Waste taken to the two waste transit facilities originates primarily from three sources: staff offices, the print shop and the commissary (see above for details on waste origin).

An employee of the company Multiple Wastepaper Collectors manually separates paper and cardboard from the rest of the waste that is deposited at the two facilities. The waste is handled as follows:

- **Waste transit facility behind the old cafeteria:** All office paper waste is placed in trolleys when the sorter is absent, and sorted when the employee arrives. The sorting is done by throwing paper and cardboard into a cage, and placing all other types of waste into the skips (approx. 7.5 m$^3$ container) or on the ground (and later transferred to skips).
- **Waste facility at block W:** Everything that is not paper or cardboard is sorted once a day into a trolley and taken to the main waste transit facility and put in skips. Paper and cardboard is sorted inside the cage, by placing cardboard on one side and paper on the other.

At the waste transit facility behind the old cafeteria, much of the separated waste is lies piled on the ground, which, among other things, attract animals. In addition, the cage where most of the wastepaper is kept poses a safety risk when maneuvering in and out of it.

Safety and health are of major concern at the transit facility behind the old cafeteria, as the sole employee works without proper equipment (gloves, etc.) and below minimum UNON standards for contractors.

4. Recycling and disposal of waste

4.1. Waste (excluding paper and cardboard)

The private company BINS collects the waste (excluding paper and cardboard), which amounts to approximately two skips per week. Normally, however, both skips are not full. The skips are manually loaded and taken and dumped at the illegal Dandora dumpsite. BINS get paid for the number of times they come to the compound to collect skips. In 2002, BINS came 37 times to collect 105 skips, while in 2003 they came 47 times to collect 135 skips. Knowing the volume of the skip (7.5m$^3$) and the approximate density of the waste (0.25 ton/m$^3$), this represents between 150 and 200 tons of waste produced per year on the UN compound (details in Annex 2).
At the Dandora dumpsite, the “residents” people wait for the arrival of garbage trucks, particularly those from UN compound, as they contain waste that can be reused and recycled for profit – glass, plastic, metal and other items.

Two types of waste are not separated: organics (generally food leftovers) and plastic bags. It appears that most used plastic bags in Nairobi end up in Dandora, as it is the only dumpsite authorized – although illegal – by the Nairobi municipality.

It is important to mention here that in city of Nairobi plans, Dandora has been zoned as a middle-class neighborhood. Dandora has no system to prevent toxic and other hazardous wastes from being brought to the site; systematic operations at Dandora are nonexistent. The truck drivers decide the tipping method and site. Moreover, there is no equipment to manage the dumpsite, which lacking landfill, means that there is a considerable risk that leachate will contaminate the surrounding surface and groundwater (including Nairobi River). In total, approximately 1600 tons of waste is dumped each day at the Dandora dumpsite.

### 4.2. Recycling and disposal of cardboard and paper

Multiple Wastepaper Collectors (MWC) collects paper waste from the UN compound twice weekly, with additional visits as required. UNON does not pay for this service. MWC generates income by selling the paper waste to paper recycling companies (Pegant and Chandaria).

MWC use two trucks to collect paper waste, one can transport 3.5 tons and the other can haul 3 tons.
The trucks are loaded with paper waste by hand. The paper is then taken and sold to Pegant or Chandaria for a price that varies according to the paper quality. But, there is hardly any variation in the paper coming from the UN compound, and the paper is always sold for 3 or 4 Ksh/kg. With the money received from this sale, MWC then buys recycled toilet paper back from Chandaria and delivers this to UNON for use on the compound. The remaining money covers MWC expenditures (truck maintenance and fuel, driver and the UN compound full-time sorter costs) with some leftover as profit. As UNON policy permits the use of white toilet paper only, MWC purchases white toilet paper for UNON. However, the toilet paper provided by MWC is not sufficient to meet the needs of the UN compound, so UNON procures additional white toilet paper from Chandaria or Pegant.

Chandaria and Pegant are two major recycling companies in Nairobi. They have several factories and can process all types of paper and cardboard. Most of the UN waste paper that is taken to either of the two companies is sent directly to pulping, while some non-confidential paper is normally sorted into different categories. The pulp is sent through a de-inking process, in which chemical agents (silicate and hydrogen peroxide) are used. The pulp is then colored or bleached with peroxide, and manufactured into either toilet paper or different kinds of tissue. Chandaria has the capacity to recycle 50 tons of wastepaper per day, while Pegant is able to process of 25-27 tons per day.

Pegant recycled toilet paper ‘Think: made in Kenya from 100% Kenyan raw material’

(nb: inaccurate, considering that the paper is originally from Brazil or South Africa)
The price of the different categories of wastepaper and cardboard ranges from 3 to 12 Ksh/kg. Pegant pays to any supplier (including MWC) 10-12 Ksh for white paper, 6 Ksh for waste paper that does not contain ink, 3-5 Ksh for cardboard, and 3 Ksh for assorted waste (containing ink).

The costs of repurchasing toilet paper from the two companies is indicated below:

<table>
<thead>
<tr>
<th></th>
<th>Pegant</th>
<th>Chandaria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colored toilet paper</td>
<td>430 Ksh</td>
<td>440 Ksh</td>
</tr>
<tr>
<td>White (bleached) toilet paper</td>
<td>488 Ksh</td>
<td>501 Ksh</td>
</tr>
</tbody>
</table>

*Prices for 40 rolls, 17.2.2004*

In addition, Pegant and Chandaria explained that they are facing competition from imported toilet paper, especially from Egypt and South Africa. This imported paper is often not recycled but made from European pulp.

### 4.3. Facilities for UN personnel household waste

Previously, there had been sorting facilities at the main gate on the UN compound for staff-generated household waste. Facilities existed for five types of waste: paper, metal, glass, textiles (cloth) and organics. The Mukuru Recycling Project, established by UN-HABITAT, used to collect this waste, the profits and utilization of which benefited many slum dwellers. The facilities have since been removed from the front gate due to security concerns and are now located behind the tennis courts, where they remain unused. Despite frequent use of, and support for, these waste recycling facilities by UN staff members, there is currently no plan to reestablish the household waste collection facilities, which would continue to benefit the Mukuru Recycling Project. The construction of the new petrol station, the new commissary and the UN recreation center outside of the main UN compound security perimeter provides a unique opportunity to relaunch and encourage staff use of the household waste collection facilities.
5. Conclusions and recommendations

It is admirable that a number of initiatives exist today to address waste management on the UN compound (e.g. paper and cardboard, if not contaminated, are recycled, and some garden refuse is being composted). It is also important to recognize that there are certain constraints on waste management that are difficult for UN agencies to directly address. For example, the lack of legal and well-managed landfill sites in the Nairobi area and the lack of recycling facilities for items such as ink cartridges and chemicals from the Print Shop leave little option for the proper disposal of some of the UN compound waste.

5.1. Core areas of waste management

Nonetheless, the current waste management practices on the UN compound can and should be significantly improved, particularly in three core areas:

1. Implementation of a comprehensive waste management system: Conventionally, waste management initiatives on the UN Gigiri compound have been made on a very ad hoc basis with ineffective results. Developing and implementing a targeted and systematic waste management system based on environmentally and socially sound principles is necessary in order to minimize the impacts of UN activities on the environment. A comprehensive Environment Management System (EMS) is essential. As an example of an issue that an EMS would successfully address, currently much of the good quality waste paper, which could otherwise be recycled, is rendered un-recyclable when mixed with and contaminated by organic waste. An EMS would be able to establish a mechanism to separate waste streams at source (the office), and maintain the separation during the waste transit and transport stages.

2. Reduction of waste production: Current initiatives seek primarily to optimize the use of waste material (e.g. recycling and composting). There are at the present time only a minimum number of activities aimed at reducing (or reusing) the waste produced on the UN compound. Reduction and reutilization are key to improving the environmental performance of the UN compound. In this context, a sustainable procurement policy and staff awareness-raising activities, as part of a comprehensive EMS, are recommended.

3. Integration of local social and environmental considerations into UN activities: UNEP, UNON, UN-Habitat and the other UN agencies with offices in Nairobi are in an excellent position to contribute to the improvement of local social and environmental conditions. Initiatives such as provision of recyclable material to community groups that can in turn use the material for income generation are one type of activity that benefit both the UN and local people. A number of these successful partnership projects with the local community should be implemented and maintained.

With these core recommendations in mind, Step-by-Step, in close collaboration with UNON, has developed a set of further practical suggestions that will improve waste management on the UN compound in a comprehensive manner.
5.2. Specific practical recommendations

5.2.1. Waste management at its source

- **Compound-wide**
  - Adopt a “sustainable UNON sustainable procurement policy”, including “UNON guidelines for suppliers” (Annex 3) that specifies the quality of goods and services expected.
  - Monitor the different waste streams on the UN compound and maintain accurate statistics on waste.
  - Install containers for each recyclable or dangerous materials (glass, batteries, metals, plastics and organics) of easy access to staff (strategic between the office and their car or at the new petrol station).
  - Separate streams of office paper/cardboard from all other waste by providing separate bins in the office (see below) and by providing contractors with better equipment (such trolleys) to transport paper/cardboard and other waste separately to the transit facilities.
  - Promote awareness-raising among UN staff members, using incentives where appropriate (such as forums to discuss recycling, prizes for innovative ideas, etc).
  - Train contractors (cleaning personnel) on new collection practices to sort different waste streams.

- **Staff offices**
  - Raise public awareness on the benefits of reducing, recycling and reusing waste and how to achieve this (Annex 4).
  - Ensure that all copying machines and printers have double-sided copying/printing capacity.
  - Promote the use of recycled paper (at least 50% recycled material, preferably from local sources) and from plantation wood; alternatively, tree-free paper (made from the African plant kenaf or hemp) is an option.
  - Implement a policy that documents/reports printed externally are printed on paper that is at least 50% recycled, preferably more.
  - Equip each office with recycling receptacles (e.g. one box for paper and a basket for other types of waste – the estimate cost to install these baskets for each of the 1650 staff is given below).

<table>
<thead>
<tr>
<th>Installation of new baskets in each office for waste separation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of basket</strong></td>
</tr>
<tr>
<td>Bamboo</td>
</tr>
<tr>
<td>Steel Walnut</td>
</tr>
<tr>
<td>Office paper box*</td>
</tr>
</tbody>
</table>

*Option 3 would reuse the existing empty office paper boxes that the paper arrives in, as they are perfect in size, readily available, cost-free and are themselves constructed of paper.

- Provide cleaning personal with adequate equipment (trolleys, bags, etc) to transport sorted-at-source paper, cardboard and other waste from staff offices to the waste transit facilities. This equipment should be conducive to their well-being and facilitate their work.

- **Commissary**
  - Raise public awareness of the entire life cycle of plastic bags.
o Phase out use of plastic bags through: (a) requiring clients to purchase plastic bags, and allocating the money generated to waste management projects or (b) issuing a directive to prevent the use of plastic bags altogether.

o Cooperate with the Ministry of Environment on this issue, especially the Assistant Minister, Wangari Mathai, and the non-governmental organization Green Belt Movement (gbm@wananchi.com; tel 272-76-22) to undertake a campaign.

o Ensure that products sold by the commissary have low impact on the environment (request the commissary to follow the UNON guidelines for suppliers).

o Actively involve the commissary in returning environmentally harmful products suppliers.

• **Print Shop**
  o Adopt an Environmental Management System (EMS) and obtain ISO 14001 certification – this could provide a comparative advantage for the Print Shop to the other local print shops.
  o Ensure that publications are printed on 100% environmentally-friendly paper that is either recycled or made from alternative sources (e.g. such as the magazine “Our Planet”).
  o Cooperate with Kenyan industry and government representatives to seek methods to recycle, or preferably eliminate, the chemicals used by the Print Shop.

• **Maintenance of buildings and computers**
  o Cooperate with Lexmark towards identifying a system whereby ink cartridges can be refilled and make this a requirement of the “UNON sustainable procurement policy”.
  o Resolve duty issues associated with donations of obsolete office furniture and equipment.

5.2.2. **Waste management at the transit facilities**

- Ensure the health and safety of the waste sorter by providing proper equipment such as dress, gloves, broom and a dust mask.
- Build a better storage facility for waste behind the old cafeteria and at block W (Proposal is shown below).
Proposal for rebuilding of the deposit behind the old cafeteria

**Description of the proposed waste transit facilities**

**Behind the old cafeteria:** There needs to be a functioning door on the upper side of the paper-cage for safety and health reasons. The separation of paper and cardboard could benefit from a dividing wall within the cage. There also needs to be separate containers for plastic, organics (with lid), wood, metal, glass and other. The separate containers should be designed so that the staff working there and emptying waste bags can deposit waste without too much physical strain. A volume of 1.5 x 1.5 x 1.5m for each container (except for plastic, which would require volume of 3 x 1.5 x 1.5m) would be sufficient. At present there is an unoccupied area of 5.5m x 6.5m available behind the old cafeteria that could be converted to house these containers.
At block W: Step By Step recommends that the paper-cage be divided into two compartments, a larger one for paper and a smaller one for cardboard. A small set of steps should be built outside the paper-cage for easy access. There should also be three containers (1.5 x 1.5 x 1.5m), one each for plastic, glass and others.

At the gate/outside the compound: The waste facility could be placed at the parking lot near the visitors’ pavilion, or outside the compound at the new petrol station. It would be the same type of containers and lifting system as in the other facilities. The containers should have a lid.

For the containers, Step-By-Step suggests a simple solution such as something similar to the diagram for the deposit facility at block W: containers with a bottom that can be opened. This container design will ease the work of the sorter and personnel while taking it from the paper-cage/containers to the lorry for further transport. This would necessitate a crane or lifter of some sort. A simple block and tackle mechanism worked by hand is suggested here, but could be replaced with an electric version. The recommended 1.5 x 1.5 x 1.5m size of the containers is based on observations of the amount of waste produced. The volume of the containers should be enough to handle one week’s worth of waste from the UN compound.

- Cooperate more closely with Green Belt Movement, BINS and Multiple Wastepaper Collectors in order to find a solution to the issue of plastic, metal and glass recycling.
- Re-establish the Mukuru project with household waste benefiting slum dwellers. It should be possible to install recycling facilities at the new petrol station.

5.2.3. Recycling and elimination of waste
- Use recycled and not bleached toilet paper, which is more environmentally-friendly and easily sourced in Kenya.
- Support recycling initiatives in Nairobi (e.g. the Mukuru project), which can be done in liaison with UNDP or an implementing partner such as the Intermediate Technology Development Group – East Africa.
- Garner support from the top UN management, especially at UNEP and UNON
- Allow staff members the opportunity to make comments and suggestions through a special UN bulletin board linked to the UNON Intranet.
- Provide continuous training in waste management to staff members and contractors, as well as assign clear responsibility to all stakeholders (UNON, sub-contractors, etc.) to take into account in waste management on the UN compound (see Annex 5).

5.2.4. Implementation mechanisms
- Establishment of a new professional post (P3) at UNON. The P3 will implement a comprehensive Environment Management System (EMS) on the UN Gigiri compound; implement concrete activities to improve current waste management practices; and coordinate activities with UNON, UNEP and Kenyan authorities, industry and local communities (through initiatives such as recycling projects). The P3 would also subsequently be responsible for coordinating similar improvements on water, energy and transportation practices.
- Allocation of an initial US$50,000 budget (detailed breakdown provided on page 19) to the P3 to undertake the most urgent activities, identified as: distribution of separated baskets to all UN compound staff; improvement of the waste stream; and, institution of an awareness raising campaign targeting UN staff members, with a training component for the cleaning personal.
- Call for UNON to assist the P3 with EMS implementation and promote the management system to all staff members in full line with UNEP GC decision 18/10 on good environmental housekeeping within UNEP.
## 6. Proposal of schedule of implementation for priority activities

<table>
<thead>
<tr>
<th>Objective</th>
<th>Target</th>
<th>Date to reach target</th>
<th>Costs (+) Savings (-)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve the management of office waste</td>
<td>Begin separating waste at source</td>
<td>01.12.04</td>
<td>16500 x 0,62 + US$1354</td>
<td>One new basket in every office and one in each hallway, which can be done at no cost if empty cardboard boxes used</td>
</tr>
<tr>
<td></td>
<td>Install deposit facilities between each block for organic, cardboard, plastic, metals and glass</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Produce awareness-raising material for staff</td>
<td>01.12.04</td>
<td>+US$3000</td>
<td>3000 flyers and a small number of posters</td>
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<tr>
<td></td>
<td>Increase the use of recycled paper to 50%</td>
<td>01.01.06</td>
<td></td>
<td>UNON instigate staff awareness raising campaign</td>
</tr>
<tr>
<td></td>
<td>Provide the cleaning personnel appropriate equipment for the transportation of waste</td>
<td>01.12.04</td>
<td>+US$10,000</td>
<td>20 trolleys and transport equipment (backpacks) for the cleaning personnel</td>
</tr>
<tr>
<td></td>
<td>Ensure all staff members use and print on double-sided office paper</td>
<td>01.12.04</td>
<td>-US$ 25,348</td>
<td>1650 persons save 42.5% of their paper expenses</td>
</tr>
<tr>
<td>Improve the management of waste from commercial activities</td>
<td>Use recycled paper for all documents printed in the Print Shop</td>
<td>01.02.05</td>
<td></td>
<td>Paper should be at least 50% recycled, or made from alternative sources</td>
</tr>
<tr>
<td></td>
<td>Include environmental considerations in all new contracts with contractors</td>
<td>01.01.06</td>
<td></td>
<td>- Reduce waste production by 10% from 2001 level</td>
</tr>
<tr>
<td></td>
<td>- No use of harmful chemicals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Sorting of waste at source</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improve the management of the waste transit facilities</td>
<td>Construct better waste transit facilities at both locations</td>
<td>01.12.04</td>
<td>+US$25,000</td>
<td>- Build 12 containers for separating waste categories</td>
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<td></td>
<td>- Build a mechanism for lifting the containers onto a truck</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Waste deposit facilities for different household waste streams (outside UN compound)</td>
<td>01.12.04</td>
<td>+US$5,000</td>
<td>- To encourage staff to recycle household waste and address security concerns</td>
</tr>
<tr>
<td>Other</td>
<td>Draft new toilet paper procurement policy to source the most environmentally-friendly product available</td>
<td>01.12.04</td>
<td></td>
<td>Use of non-bleached, recycled toilet paper only</td>
</tr>
<tr>
<td></td>
<td>Staff awareness raising activities required to ensure acceptance</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Annex 1 - Composition of office waste on the UN compound

Assessment from 20 January to 06 February 2004

Introduction
In January – February 2004, the Step-By-Step group has carried out a thorough investigation of this waste and especially from the waste from offices. Offices (or, more specifically, staff working in the offices) generate a considerable source of waste, and by making the staff aware of the current situation; one can hope to sensitize them to improve their behavior. This in turn can lead to staff support for development of environmental policies and practices on the UN compound, with the objective to reduce waste.

Methodology
For approximately two hours during eight random days, three people sorted waste in different categories to see the distribution. The different categories were:

A. Paper: single-sided, double-sided, publications, other (especially toilet paper)
B. Cardboard
C. Other, including plastic and organic

In the paper category, we collected the normal A4 paper that was printed on one or two sides. The other paper consisted of A4 paper that was shredded, torn apart, or crumbled, as well as publications or other types of paper. During the last five days, UN publications were sorted as a separate group. The plastic category was found to contain mostly bottles, cups and bags. The category of organic and other waste consisted mostly of fruit and flowers but also some glass and metal. Except for the fourth and fifth day, we sorted two trolleys (approx. 2m³) of waste every day. On the fourth day, one and a half trolleys were sorted, and the fifth day one trolley and a big bag were sorted. The first four days we worked at the waste-deposit behind the old cafeteria, and the following four days we sorted at the deposit at block W. This was done in order to get a good overall picture of the office waste from the entire compound.

Dates and origin of waste studied

<table>
<thead>
<tr>
<th>Date</th>
<th>Origin of Waste Studied</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 Jan 2004</td>
<td>Most of the waste was from UNEP, UNESCO.</td>
</tr>
<tr>
<td>21 Jan 2004</td>
<td>Most of the waste was from UNDP.</td>
</tr>
<tr>
<td>22 Jan 2004</td>
<td>Most of the waste was from UNESCO, World Food Programme.</td>
</tr>
<tr>
<td>27 Jan 2004</td>
<td>Most of it was from UNICEF. Some of the waste was wet because of rain, and this accounts for some of the weight. We also started separating publications from the other waste paper since it seemed like they constituted a considerable weight-fraction. We also found many UN-folders and these were also regarded as publications. This group constituted 37%.</td>
</tr>
<tr>
<td>28 Jan 2004</td>
<td>Most of the waste came from UNEP and UNICEF. We found a lot of plastic (32%).</td>
</tr>
<tr>
<td>04 Feb 2004</td>
<td>The waste was mostly from UNEP, and some from UNON and UNDP. There was quite a lot of cardboard this time (21%). This might be due to changing of office equipment. Few publications.</td>
</tr>
<tr>
<td>05 Feb 2004</td>
<td>Much of the waste was a bit wet after rain. The waste was from UNEP (DEWA, DPDL).</td>
</tr>
<tr>
<td>06 Feb 2004</td>
<td>The waste was from UNEP. Found that 53% was single-sided paper.</td>
</tr>
</tbody>
</table>

Note: It was possible to determine where was the waste from asking to the cleaning personnel and checking the addresses on the A4 papers.
## Separation of waste in different categories on the waste disposal behind block-W

<table>
<thead>
<tr>
<th>Category</th>
<th>Deposit 1 (behind Old Cafeteria)</th>
<th>Deposit 2 (block W)</th>
<th>Total mean</th>
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<tbody>
<tr>
<td></td>
<td>Day 1</td>
<td>Day 2</td>
<td>Day 3</td>
</tr>
<tr>
<td>Paper</td>
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<tr>
<td>1. Sided</td>
<td>16,4</td>
<td>26,6</td>
<td>20,3</td>
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<td>2. Sided</td>
<td>11,4</td>
<td>22,9</td>
<td>13,9</td>
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<tr>
<td>Other papers</td>
<td>50,0</td>
<td>42,4</td>
<td>53,4</td>
</tr>
<tr>
<td>Others</td>
<td>50,0</td>
<td>42,4</td>
<td>53,4</td>
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<td>Publications</td>
<td></td>
<td>37,5</td>
<td>3,7</td>
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<tr>
<td>Cardboard</td>
<td>7,6</td>
<td>7,2</td>
<td>6,7</td>
</tr>
<tr>
<td>Plastic, organic, other</td>
<td>26,0</td>
<td>23,8</td>
<td>19,6</td>
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<tr>
<td>Plastic</td>
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<td>1,5</td>
<td>9,0</td>
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<tr>
<td>Organic, others</td>
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<td>7,5</td>
<td>22,8</td>
</tr>
<tr>
<td>%</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Total kg</td>
<td>113,5</td>
<td>57,1</td>
<td>96,8</td>
</tr>
</tbody>
</table>

All data in percentages, except the last line in kg

### Results

The total amount of waste sorted was 817.6 kg. The result is presented in Figures 1, 2 and 3 below. To clarify, we measured in weight percent, and if we had measured in volume, plastic for example, would be more prominent. The table above indicates the specific amount for each day and each category.
Figure 1. Chart showing the distribution of different categories of waste

Figure 2. Chart showing the distribution of different categories of paper

Figure 3. Chart showing the distribution of plastic, organic, other
Annex 2 – Quantities of waste directed to the dumpsite

<table>
<thead>
<tr>
<th>Date</th>
<th>Receipt No</th>
<th>Normal Skips</th>
<th>Extra Skips</th>
<th>Total skips</th>
<th>Date</th>
<th>Receipt No</th>
<th>Normal Skips</th>
<th>Extra Skips</th>
<th>Total skips</th>
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Total skips: 105 + 21 = 126
Normal Skips: 75 + 24 = 99
Extra Skips: 30 + 17 = 47
Total skips: 126

Volume of each skip (7.5M3) = 126 x 7.5 = 945
Total volume = 945
Density (0.25 ton/ M3) = 1016.25
Estimate total tones = 254
Difference 2003/02 = 29%
Annex 3 - UNON - SUSTAINABLE PROCUREMENT POLICY

UNON - SUSTAINABLE PROCUREMENT POLICY

1. Background

Sustainable procurement is the process by which organisations purchase supplies or services taking into account:

- best value for money considerations including price, quality, availability, functionality, etc.;
- environmental aspects ("green procurement": the effects on the environment that the product and/or service has over its whole lifecycle, from cradle to the grave);
- the entire lifecycle of products;
- social aspects: effects on issues such as poverty eradication, international equity in the distribution of resources, labour conditions, human rights, etc. These issues are addressed separately through UNON’s “Fair Pack” policy.

It is UNON’s responsibility to ensure that negative impacts on the environment are kept as low as possible. UNON is a major purchaser of goods and services and can therefore have a significant effect on the local environment. Sustainable Procurement as adopted by the United Nations Office at Nairobi (UNON) is based on:

1.1. Paragraph 18c of the Plan of Implementation agreed to at the World Summit on Sustainable Development held in Johannesburg in 2002, which states that relevant authorities at all levels should “promote procurement policies that encourage development and diffusion of environmentally sound goods and services”;

1.2. Principles 7, 8 and 9 of the UN Global Compact, asking businesses (suppliers) to support a precautionary approach to environmental challenges, undertake initiatives to promote greater environmental responsibility, and encourage the development and diffusion of environmentally friendly technologies.

1.3. Decision 18/10 of UNEP Governing Council that “calls on the Executive Director to consider and recommend strategies for the promotion of best practices in environmental housekeeping for use by the United Nations Environment Programme at its headquarters and in its regional offices...,” keeping in mind that UNON is the sole provider of goods and services to UNEP.

2. Objective

UNON’s sustainable procurement policy is intended to act as a driver for reducing the environmental and social impacts of all procurement decisions and maximising the positive effects. This can be done if the policy is endorsed at the senior management level, and mechanisms are put in place to ensure that it is mainstreamed as part of the corporate procurement process.

3. Strategy

UNON will adopt a risk-based strategy in which actions in the procurement process will be prioritised by:

3.1. Identifying the products and suppliers associated with the highest risks to UNON, i.e.

3.1.1. Environmental risk, focusing on the most energy-consuming equipment, and products containing hazardous materials;

3.1.2. Risk to the organizations reputation, focusing on contractors who dispose of the organization’s waste illegally;

3.1.3. Risk to security of supply, focusing on important suppliers with poor environmental performance.

3.2. Integrating sustainability principles in various stages of the procurement cycle, by
3.2.1. Choosing when possible environmentally sound means of satisfying the organization’s needs for goods, works and services;

3.2.2. Taking into consideration environmental and social impacts in designs and functionality, performance and technical specifications as well as entire lifecycle costing;

3.2.3. Encouraging suppliers to comply with global environmental standards (such as ISO) and contributing to raising their (suppliers’) environmental consciousness and understanding of “green principles” through the organization of training seminars and workshops so as to guarantee effective implementation of the contract clause related to an environmental and social responsibility;

3.2.4. Selecting suppliers against pre-established criteria for compliance with global environmental standards;

3.2.5. Using environmental and social criteria in tender evaluation (contract award criteria must be determined at an early stage and communicated to potential suppliers);

3.2.6. Incorporating environmental and social considerations in contract management with sustainability in mind.

3.2.7. Requiring suppliers to comply with the procurement guidelines.

3.3. Training staff dealing with procurement for effective implementation of the sustainable procurement policy.

3.4. Promoting, advertising, explaining the sustainable procurement policy and its goals to the wide audience of the beneficiary (all the staff supplied by UNON) to ensure their understanding and participation.

4. Specific Areas of Action

4.1. Natural Environments

4.1.1. Management of the land of the UN Complex at Gigiri in an environmentally responsible and sensitive manner, which involves adoption of responsible measures for the disposal of solid and liquid wastes, and responsible land use practices to minimize soil erosion and to protect amenity interests.

4.1.2. Management of water resources in an environmentally responsible manner encompassing the principles of sustainability and resource conservation which involves using water supplies to buildings and facilities with minimal wastage and maintaining the quality of water resources.

4.1.3. Maintenance of air quality in the environs of the UN Complex which involves minimizing discharges to air of contaminants and protecting people from airborne contaminants.

4.2. Developed Environment

4.2.1. Maintenance and enhancement of the natural character of the UN Complex at Gigiri, which includes the aesthetic qualities of the environment and its amenity value.

4.3. Resource Conservation

4.3.1. Management of procurement processes in a reasonable and practicable manner consistent with environmental responsibilities, which includes encouraging alternative methodologies or sources to minimize materials used and waste production, and emphasizing good purchasing practices and compliance with consent procedures.
4.3.2. Management of utilization processes in an effective and efficient manner, which involves promoting and implementing practices to minimize waste and minimizing or mitigating adverse effects from waste discharges.

4.3.3. Making progress towards effective energy management, which involves promoting energy efficiency measures within buildings and facilities, minimizing the environmental effects of energy utilization activities and enhancing the use of renewable energy sources and improved energy utilization technologies.

5. Measures: To achieve the objectives named in point 4 above, the following activities will be undertaken:

5.1. Energy

5.1.1. UNON shall use building systems equipment and controls with the highest energy efficiency. Use all heat recovery technologies with minimum energy savings of 20% from the current levels.

5.1.2. Install and monitor energy and water use monitoring and controls program to ensure that mechanical ventilation, air-conditioning, lighting, etc. is used only for occupied spaces, and that neither energy nor water is wasted.

5.1.3. Use viable renewable energy technologies to reduce environmental impact – such as the use of solar cells, fuel cells etc. for water heating, exterior lighting, fountain operations, standby generators, etc.

5.1.4. Energy procurement – buy percentage (target 30% by 2006) of electricity that is generated from Green Power Sources, such as solar cells, etc.

5.1.5. Employ systems for natural cooling and ventilation.

5.1.6. Employ daylight dimming and occupancy sensors to control lighting loads.

5.1.7. Install efficient drives and controls, using variable voltage, variable frequency drives and anticipatory controls.

5.1.8. Install variable frequency drives and power factor correction devices.

5.2. Water

5.2.1. Limit storm water run-off.

5.2.2. Reduce demand for potable water and generation of wastewater by decreased consumption and use of low water flow plumbing fixtures and appliances.

5.2.3. Pervious paving and garden roofs, to further reduce storm water run-off.

5.2.4. Contain storm water and steam condensation in above or under-ground pond, for use for garden irrigation;

5.2.5. Limit or eliminate use of potable water for irrigation.

5.2.6. Install water efficient models when replacing any water fixtures on the complex.

5.3. Waste

5.3.1. Construction waste management – maximize recycling and salvaging efforts during demolition and construction and avoid sending construction debris to landfills.
5.3.2. Offer furniture for sale or donation prior to disposal.

5.3.3. Minimise waste production within the compound.

5.3.4. Implement a comprehensive waste management system, from production until elimination from the UN Gigiri compound, including sound management to reduce, reuse and recycle waste.

5.3.5. Ensure that the elimination of waste (to landfill, recycling paper plant, etc.) from the UN Gigiri compound is done in accordance with UN environmental and social standards.

5.3.6. Awareness raising activities vis-à-vis office waste promoting “sort at source” practices to facilitate recycling.

5.4. Climate Change

5.4.1. Eliminate the use of ozone-depleting refrigerants in building mechanical ventilation, air conditioning and fire safety equipment.

5.4.2. Promote activities that will make UNON accountable for its corporate impact on climate change (such as the use of mileage points from official travel to support sustainable forest management).

5.4.3. Encourage activities aimed at reducing official travel (such as the use of video conferencing).

5.5. Hazardous Materials

5.5.1. All fertilisers and pesticides used should be non-toxic, environmentally friendly and where possible, organic. Natural and organic fertilisers and pesticides should be used in preference to chemical alternatives. Where a chemical is required to address a persistent problem, then low toxicity products should be selected.

5.5.2. Chemicals, detergents and other cleaning materials to be used should be of an environmentally friendly, non-toxic nature.

5.5.3. No additional products that are known to be harmful to the environment shall be used.

5.6. Buildings

5.6.1. Response time for building maintenance and repairs is monitored and minimized. Neglected maintenance tasks generally increase energy use and potential harm to the environment.

5.6.2. Prior to beginning new building projects, an environmental impact assessment is completed and potential impacts are minimized through appropriate selection of materials and design elements.

5.6.3. Building construction or renovation makes use of environmentally friendly materials and disposal procedures.

5.6.4. Buildings are constructed incorporating energy efficiency and renewable energy technologies.

5.7. Transportation

5.7.1. CO₂ emission levels are taken into consideration in the purchase of vehicles.

5.7.2. Convert from fossil fuels to other alternatives in the existing vehicle fleet.

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1 The UN publication, Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments, contains a full list.
5.7.3. Promote public transport use by staff and adopt measures that will facilitate public transportation (such as road improvements, enabling professional staff to use UN public transport).

5.7.4. Promote bicycle use by (a) improving cyclist facilities (provision of bicycle storage areas or locks, as well as a change room with showers and lockers) and (b) improving infrastructure for bicycles with a long-term plan to construct bicycle paths to nearby residential areas (such as Gigiri, Runda, Muthaiga, Spring Valley and Westlands).

5.8. Timber

5.8.1. Products made from camphor, cedar, elgon teak, wild olive, meru oak, podo, east African rosewood will not be considered².

5.8.2. All wood should be certified as coming from plantation forests.

5.8.3. Untreated wood is preferable as it is recyclable.

6. Review: This policy will be review in five-year intervals to ensure incorporation of the latest global changes in the approach to sustainable procurement.

² In compliance with the 1986 Presidential Ban on the exploitation of indigenous forests and legal notice 171.
<table>
<thead>
<tr>
<th>Theme</th>
<th>Base sustainability</th>
<th>Additional sustainable innovations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>Use building systems equipment and controls with the highest energy efficiency.</td>
<td>Use viable renewable energy technologies to reduce environmental impact – such as the use of solar cells, fuel cells etc. for water heating, exterior lighting, fountain operations etc.</td>
</tr>
<tr>
<td></td>
<td>Use all heat recovery technologies with minimum energy savings of 20% from the current levels.</td>
<td>Energy procurement – buy parts of electricity that is generated from Green Power Sources, such as solar cells, windmills, geo-thermal or hydro electrical plants etc.</td>
</tr>
<tr>
<td></td>
<td>Install and monitor energy and water use monitoring and controls program to ensure that HVAC, lighting etc. is used only for occupied spaces, and that no energy is wasted.</td>
<td>Employ systems for natural cooling and ventilation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Employ daylight dimming and occupancy sensors for to control lighting loads.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Install efficient elevators/escalators drives and controls, using variable voltage, variable frequency drives and anticipatory controls.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Install variable frequency drives and power factor correction devices.</td>
</tr>
<tr>
<td>Water</td>
<td>Limit storm water run-off.</td>
<td>Employ pervious paving and garden roofs, to further reduce storm water run-off.</td>
</tr>
<tr>
<td></td>
<td>Reduce the potable water demand and generation of wastewater by use of low water consumption, plumbing fixtures and appliances.</td>
<td>Contain storm water and steam condense in above or under-ground pond, for use for garden irrigation; limit or eliminate use of potable water for irrigation.</td>
</tr>
<tr>
<td>Waste</td>
<td>Construction waste management – maximize recycling and salvaging efforts during demolition and construction and avoid sending construction debris to landfills.</td>
<td>Enhance windows glazing and replacement to insulated double wall curtain wall.</td>
</tr>
<tr>
<td></td>
<td>Provide safe exterior lighting avoiding any light pollution – no direct beam lighting leaves the building site.</td>
<td>Employ desiccant dehumidification in selected areas.</td>
</tr>
<tr>
<td></td>
<td>Minimize or eliminate the use of ozone-depleting refrigerants in building HVAC and fire safety equipment.</td>
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</tr>
<tr>
<td></td>
<td>Construction materials- maximizes use of materials with recycled content. In addition, use as much of rapidly renewable materials as possible.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improved indoor air quality and working environment by properly designed HVAC, lighting and interior finishes.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Measures for maintaining proper indoor air quality and comfort during construction.</td>
<td>Premium greening specification and green-labeled products and equipment procurement.</td>
</tr>
<tr>
<td></td>
<td>Low odor, VOC and EMF emission materials and environmentally friendly chemicals so as to ensure health and comfort of the installer and occupant.</td>
<td></td>
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</table>
6. UNON supplier sustainable procurement guidelines

The sustainable procurement guidelines form part of the contractual conditions in all contracts signed between the United Nations Office at Nairobi (UNON) and companies providing such goods and services, as part of the overall UNON effort towards sustainable procurement. The social aspect (issues such as poverty eradication, equity in the distribution of resources, labor conditions and human rights) is described separately in the “Fair Pack“. UNON expects its suppliers to work actively to improve the environment and pursue any initiatives that bring about that improvement.

It is UNON’s policy to purchase products and services by taking into account four main procurement principles: the best value for money (price, quality, availability, functionality, etc.); effective competition; fairness, integrity and transparency; and the interest of the UN. Other important factors considered in sustainable procurement are:

- Environmental aspects (“green procurement”: the effects on the environment that the product and/or service has over its whole lifecycle, from cradle (production) to grave (elimination));
- The entire lifecycle of products.

The “UNON supplier sustainable procurement guidelines” is part of a UNON global effort called the “UNON – sustainable procurement policy” that is intended to act as a driver for reducing the environmental and social impact of all procurement decisions and maximizing the positive effects.

Before any contract is awarded, the contractors will be required to submit evidence of compliance with the “UNON supplier sustainable procurement guidelines”

General Guidelines for Suppliers

The environmental aspects or “green procurement” and the lifecycle of product aspect or “sustainable principle” covers all, but is not limited to, the provisions stated below:

- In general, products that are harmful to the environment shall not be used in the provision of services or supply of goods. In particular, those products relating to pharmaceuticals and chemicals containing substances that are on the “Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or not Approved by Governments”, yearly updated and edited by the United Nations, shall not be considered at all;
- Energy sources that have minimal impact on global warming / greenhouse gases must be used;
- Materials should be easily recyclable using locally available facilities and have minimum impact on the release of greenhouse gases, ozone-depleting gases and on ecological balance, during production, use and disposal;
- Equipment that contains ozone-depleting substances (ODSs) that are controlled by the Montreal Protocol (eg. Methyl Bromide, CFC gases and Persistent Organic Pollutants (POPs)) will not be considered at all.

More specific guidelines on the supply of goods and provision of services are indicated below.

(A) Supply of Goods

Furniture and wood products:
Durable furniture with minimal impact on the environment (i.e. easy to reuse, recyclable) will be considered above all.

In compliance with the 1986 Presidential Ban on the Exploitation of Indigenous Forests in Kenya, products made from any indigenous woods will not be considered, in particular: Mahogany, Camphor (Ocotea usambarensis), Cedar (Juniperus procera), Elgon Teak (Olea capensis), Wild Olive (Olea europaea), Meru Oak (Vitex Keniensis), Podo (Podocarpus latifolius) and East African Rosewood (Hagenia abyssinica).

All wood used should be from plantation forests, such as Pine (Pinus radiata, Pinus patula) and Cypress (Cupressus lusitanica) and from on-farm forestry, such as Blue Gum (Eucalyptus camaldulensis, E. salinga and others), Grevillea (Grevillea robusta) and Neem (Azadirachta indica). Untreated wood is preferred because while beautiful, it is also recyclable.

Purchase of new furniture will be considered only as older material becomes obsolete.

Paper and Paper Products:
Paper products. Paper products must be chlorine free, recycled, (the term recycled paper means that the paper products contain at least 75% recycled paper in the product), and must be approved by recognized Environmental Standards bodies, such as the International Association of Paper Merchants.

Equipment:
Durable equipment that has minimal impact on the environment (i.e. green batteries, energy efficient printers with double-sided printing facilities) and equipment that can be refilled, recharged or reused will be given priority. Equipment that has too long of a lifecycle (plastic bags, or those containing PVC, chlorine, heavy metal and ODSs) will not be purchased.

Other:
Carpets should be manufactured from natural fibers, textiles should be free of hazardous fire preventive chemicals, etc.

Provision of Services
Contractors engaged by UNON to provide services should ensure that harmful substances are not used.

Chemicals, detergents and other cleaning materials: The contractor must provide a list of such chemicals to UNON specifying their chemical composition, which must be of non-toxic nature and environmentally friendly. Containers containing chemicals must be clearly labeled.

Fertilizers and Pesticides: All fertilizers and pesticides used should be non-toxic, environmentally friendly and where possible, organic. Natural and organic fertilizers and pesticides should be used in preference to chemical alternatives. If a toxic chemical is still required to address a persistent problem, a low toxicity product should be selected.

Fair trade products: Drinks (tea, coffee) and food should be registered fair trade products (eg. Max Havelaar, Fair-trade) produced in an environmentally friendly manufacturing process. Organic and locally or regionally sourced products should be given priority.

Provision of Staff Goods and Services
Lifecycle costs should be minimized through resource management. Land preservation, waste management, water conservation and energy efficiency should be considered at all times, and should take into account the following:

Resource consumption (energy, water and materials) should be minimized, while not detracting from a comfortable and safe work environment;
Fixtures and appliances must be designed with low-water use operation;
Asbestos must not be used and guidelines for the removal of asbestos should be followed;
Increased equipment and systems efficiency: efficient lighting, equipment and systems designs that are properly monitored, tuned / maintained;
Emphasis on reduction of waste at source in facility planning, design, construction and operation.
The creation of healthy environments by improving the indoor air, light, noise, temperature and humidity without major energy loss.
Annex 4 – Waste paper public awareness handout

Dear staff member,

We would like to encourage you to consider an **environmentally friendly** approach to the use of paper. To do this we suggest that all staff implement the following measures, based on three core principles, known as the “3 R’s”: (1) reduce, (2) reuse and (3) recycle.

(1) **Reduce usage of paper by:**
   - Sending documents electronically (email and CTS) rather than in hard copy
   - Not printing out documents unnecessarily if you can read them clearly on the computer screen

(2) **Reuse paper by:**
   - Using only scrap or previously used paper for your handwritten notes and sketches
   - Using both side of the paper! Reuse paper by re-printing on the unused side or by using it as your draft paper

(3) **Recycle by:**
   - Using white paper for external correspondence only and using gray paper for internal communication. In both cases requests the our provider of stationary in your organization to buy recycled paper only (it can be ordered easily)
   - Separating waste paper from other waste in your office rubbish bin. This paper is recycled after it leaves your office.
   - Being aware that much of the good quality waste paper, which could otherwise be recycled in rendered un-recyclable when mixed with and contaminated by organic waste.

**Important tips for printing:**
   - See if your printer can print on both sides (many copy machine printers do).
   - If you have several printers to choose from, use the one that can print on both sides.
   - Find out if you can install an online printer that has the option of printing on both sides.
   - Try to print two pages side-by-side on one A4 if you are able to read smaller print. In Microsoft Word, go to “File”, then “Print” and then “Properties” to select different printing options.

**Facts about the consumption of A4 paper on the UN compound:**
   - Did you know that it is almost exclusively white paper (raw material from Brazilian tree plantation) that is consumed on the UN compound (less than 1% brown recycled paper is used)?
   - Did you know that approximately 85% of A4 paper found in the garbage bins is printed on one side only?
   - Did you know that we consume 800 kg of paper each day at the compound?
## Annex 5 - Waste management contact list

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<thead>
<tr>
<th>Institution</th>
<th>Name</th>
<th>Room</th>
<th>Tel</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNON, Store</td>
<td>William Kaveke</td>
<td>X-basement</td>
<td>20-62-3539</td>
</tr>
<tr>
<td>UNON, Documentation Unit</td>
<td>Henry Hunt</td>
<td>DP-51</td>
<td>20-62-2518</td>
</tr>
<tr>
<td>UNON, Procurement, Travel and Shipping Section</td>
<td>Josie Villamin</td>
<td>W-243</td>
<td>20-62-3584</td>
</tr>
<tr>
<td>UNON, Facilities Management and Transport Section</td>
<td>Barnaby Jones</td>
<td></td>
<td>20-62-3901</td>
</tr>
<tr>
<td>UNON, Building and Grounds Management Unit</td>
<td>Jack Howard</td>
<td>G-204</td>
<td>20-62-1075</td>
</tr>
<tr>
<td>UNON, Chief of the Office of the Director General</td>
<td>Paul Akiwumi</td>
<td>R-204</td>
<td>20-62-3177</td>
</tr>
<tr>
<td>UN-Habitat Human Settlement Officer Infrastructure</td>
<td>Graham Alabaster</td>
<td>M-134</td>
<td>20-62-3054</td>
</tr>
<tr>
<td>UNDP Sanitation Programme (Sustainability/ Energy and Environment Unit)</td>
<td>Dr. Chris Gakahu, Ass Res. Rep</td>
<td>Q-332</td>
<td>20-62-4458</td>
</tr>
<tr>
<td>UNEP, DTIE Production and Consumption Branch</td>
<td>Isabella Marras, Bass Deleuw</td>
<td></td>
<td>+33 1 44 37 14 39</td>
</tr>
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<table>
<thead>
<tr>
<th>Contractors</th>
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<th>Tel</th>
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<tr>
<td>Professional Clean Care</td>
<td>Peter Kiintu</td>
<td></td>
<td>20-62-2570</td>
</tr>
<tr>
<td>Rentokil</td>
<td></td>
<td></td>
<td>552300</td>
</tr>
<tr>
<td>Diani Flowers</td>
<td>Urs Ringler</td>
<td>Gardeners Shed</td>
<td>20-62-2640</td>
</tr>
<tr>
<td>Inter-Continental</td>
<td>Multiple Wastepaper Collectors</td>
<td>Mrs Wariithi</td>
<td>512219 or 0733, 668553</td>
</tr>
<tr>
<td>Pegant</td>
<td>Parrin K. Shah (director)</td>
<td></td>
<td>540471</td>
</tr>
<tr>
<td>Chandaria</td>
<td>Arvind Sharma (mill manager)</td>
<td></td>
<td>802252</td>
</tr>
<tr>
<td>BINS</td>
<td>Michael Njeru</td>
<td></td>
<td>533088</td>
</tr>
<tr>
<td>Parapet Cleaning Services</td>
<td>Malline Ndambiri</td>
<td></td>
<td>20-62-2503</td>
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<table>
<thead>
<tr>
<th>Other stakeholders</th>
<th>Name</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Belt Movement</td>
<td><a href="mailto:gbm@wananchi.com">gbm@wananchi.com</a></td>
<td>Tel: 20 57 3057/1523</td>
</tr>
<tr>
<td>Intermediate Technology Development Group - Eastern Africa</td>
<td>David Kuria Programme Manager, Water and Environmental Sanitation Unit</td>
<td>P.O. Box 39493, 00623 Nairobi, Kenya AAYMCA Building, Along State House Crescent, Off State House Avenue Tel: +254 020 2713540 / 2715299 / 2719313 / 2719413 Fax: +254 020 710083 Email: <a href="mailto:david.kuria@itdg.or.ke">david.kuria@itdg.or.ke</a></td>
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