Sustainable Procurement Guidelines for Cleaning Products and Services

Background Report

Freiburg, 6 May

Developed by ICLEI - Local Governments for Sustainability (ICLEI) for the United Nations Environment Programme – Division of Technology, Industry and Economics (UNEP-DTIE), 2008

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Messages from the United Nations and UNEP

"….I would like to make a public commitment. We are already moving towards making our Headquarters in New York climate-neutral and environmentally sustainable. I would like to see our renovated headquarters complex eventually become a globally acclaimed model of efficient use of energy and resources. Beyond New York, the initiative should include the other UN headquarters and offices around the globe.
We need to work on our operations too, by using energy more efficiently and eliminating wasteful practices. That is why, today, I am asking the heads of all UN agencies, funds and programmes to join me in this effort. And I am asking all staff members throughout the UN family to make common cause with me."

Ban Ki-Moon
UN Secretary General
New York, 5 June 2007
World Environment Day

Achim Steiner
Executive Director, UNEP
Geneva, 8 October 2007
117th Assembly of the Inter-Parliamentary Union

"Ban Ki-Moon is determined to put global warming at the top of the global political agenda and determined to build the trust so urgently needed if we are to succeed in combating climate change. Under his leadership, the UN is also determined to demonstrate its 'sustainability credentials' by action on the ground and by good housekeeping at home. Reviews are underway across all agencies and programmes to establish a strategy for a carbon neutral UN and to make the refurbishment of the UN headquarters in New York a model of eco-efficiency."*
UNEP is committed to take part in the fight for climate change and in showing leadership. We are committed to become carbon neutral by reducing our energy consumption and carbon footprint and by offsetting emissions.

Introduction to this document

This part of the sustainable procurement guidelines for cleaning products and services is aimed at readers who want to know the arguments and information behind the described sustainability criteria listed in the accompanying **Product Sheets** – **Cleaning Products (Basic and Advanced Criteria for Region 1 and Region 2)** and **Cleaning Services (Basic and Advanced Criteria for all Regions)**. It also provides advice on incorporating sustainability into United Nations procurement procedures.

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Abbreviations

APEO	Alkylphenolethoxylate
AOX	Adsorbable Organic Halogens
BCF	Bioconcentration factor
EDTA	ethylenediaminetetraacetic acid
IFRA	International Fragrance Association
LAS	Linear Alkyl benzene sulfonates (LAS)
NTA	Nitrilotriacetatic acid
OECD	Organisation for Economic Co-operation and Development
Pow	Octanol-water partition coefficient
SCCNFP	Scientific Committee on Cosmetic Products and Non-Food Products
UN	United Nations
UNEP	United Nations Environment Programme
VOC	Volatile organic compound

1. Introduction

Sustainable procurement means thinking carefully about what to buy, buying only what you really need, purchasing products and services with high environmental performance and considering the social and economic impacts of purchasing decisions.

This background report, together with the Product Sheets (on “Cleaning Products” and “Cleaning Services” - Basic and Advanced level), constitutes the sustainable procurement guidelines for cleaning products and services for the UN system. The main objective of this background report is to give comprehensive information on the rationale behind the sustainable procurement recommendations made in the Product Sheets. This covers aspects such as “key environmental impacts”, “key social considerations”, “appropriate verification schemes”, “indicative market availability of sustainable products” amongst others.

Scope

These guidelines cover both the procurement of cleaning products and cleaning services for offices.

The guidelines presented in the Product Sheets aim to cover all chemical products likely to be used by cleaning staff for cleaning. It does not include other cleaning products sometimes provided by contractors such as dish washing liquid or laundry detergents. It also does not include other products sometimes provided by cleaning contractors such as paper towels, toilet paper or bin liners.

In many organisations and offices cleaning is carried out by private companies, and in others directly by the staff themselves. The guidance presented in these guidelines is relevant in both cases.

2. Incorporating Sustainability into the UN Procurement Process

2.1 Relevant UN Procurement Procedures

This section aims to give an overview of relevant UN procurement procedures which should be considered when including sustainability criteria in the tendering process.

The UN Global Market Place (www.ungm.org) is the main purchasing platform for UN agencies. Here suppliers (vendors) can register themselves to offer cleaning services for specific UN agencies. This includes the following member organs of the UN and specialised agencies.

Agencies participating in the UNGM

▪ Food and Agriculture Organization of the United Nations (FAO) ▪ International Atomic Energy Agency (IAEA) ▪ The International Fund for Agricultural Development (IFAD) ▪ International Labour Organization (ILO) ▪ International Trade Centre UNCTAD/WTO (ITC) ▪ International Telecommunication Union (ITU) ▪ Organisation for the Prohibition of Chemical Weapons (OPCW) ▪ United Nations Development Programme (UNDP) ▪ United Nations Educational, Scientific and Cultural Organization (UNESCO) ▪ United Nations Population Fund (UNFPA) ▪ United Nations High Commissioner for Refugees (UNHCR)	▪ United Nations Children's Fund (UNICEF) ▪ United Nations Industrial Development Organization (UNIDO) ▪ United Nations Office for Project Services (UNOPS) ▪ United Nations Procurement Division(UN/PD) ▪ United Nations Office at Vienna (UNOV) ▪ United Nations Office at Geneva (UNOG) ▪ United Nations Economic Commission for Africa (UNECA) ▪ United Nations Relief and Works Agency (UNRWA) ▪ World Food Programme (WFP) ▪ World Health Organisation (WHO) ▪ Pan American Health Organisation (PAHO) ▪ World Intellectual Property Organization (WIPO) ▪ World Meteorological Organization (WMO)

The normal procurement procedures followed by the UN system are as follows (with minor variations among the agencies).

Values of purchase orders up to US$ 30,000

A direct selection of (normally three) possible suppliers is made by the procurement officer. Based on an analysis of the quotations received, the order is awarded to the supplier that meets the specifications and delivery terms and has the lowest price.

Values of purchase orders from US$ 30,000 up to US$ 100,000

Limited competitive bidding is carried out by inviting a selected short list of suppliers to respond, through sealed bids. The shortlist consists of suppliers from developing countries, including the recipient country; under-utilized donor countries and other donor countries. The order is awarded to the most qualified and responsive contractor submitting the lowest bid.

Values of purchase orders from US$ 100,000 and up

International competitive bidding is the preferred mode of conducting a competitive tender. If exigencies of a project so allow, suppliers are invited to bid by advertisement (see www.ungm.org and www.devbusiness.com) or other trade publications.

The system used for the evaluation of the bids depends on the type of method used for sourcing suppliers. If an Invitation to Bid (ITB) is issued, contracts are awarded to the lowest compliant bid, although there is flexibility in determining compliance.

If a Request for Proposals (RFP) is issued (typically used for the purchasing of more complex products and services), then the contract is awarded to the bid offering best value for money – this means an integrated assessment of technical, organisational and pricing factors and can also include social and environmental aspects.

Depending on the value of the contract and the procurement procedure used, typical procurement documents will have a number of sections where sustainability can be incorporated. These are described below.

Procurement planning – subject matter

The subject matter of the contract defines what will be purchased. It can integrate

sustainability objectives if there is a clear link and relevance to the purchase in question. As all conditions stipulated in the other sections of the tender need to maintain a clear link to the subject matter of the contract, clear and explicit wording of the subject matter is a strong way to ensure sustainable purchasing.

Requirement definition – specifications

These provide detailed information on the functionality, quality and specific characteristics of the product to be purchased. They provide the opportunity to set minimum environmental and/or social requirements which all bidders must meet.

Sourcing – selecting environmental and socially-responsible suppliers and manufacturers

These assess the technical and professional qualifications of vendors to produce and/or supply the requested products. If sustainability requirements are part of the subject matter or the technical specifications, selection criteria can be inserted that assess the sustainability performance of bidders. They can assess the bidding company's (and subcontractors) operations as a whole rather than only the products purchased under the specific contract. They can address the availability of information on products, existing experience of the bidder, and security of supply. This can be a useful approach to improve the general environmental management and corporate social responsibility of companies contracted by the UN.

Evaluation – using life-cycle costing and bonus system

These are the criteria used to evaluate and compare the different offers which meet the minimum specifications.

In sustainable procurement, it is essential to indicate that the contract will be awarded to the offer that gives "best value for money" – the term used if criteria other than just the price will be assessed when comparing offers. The evaluation criteria will then be used to evaluate the performance of an offer both in terms of price and other criteria.

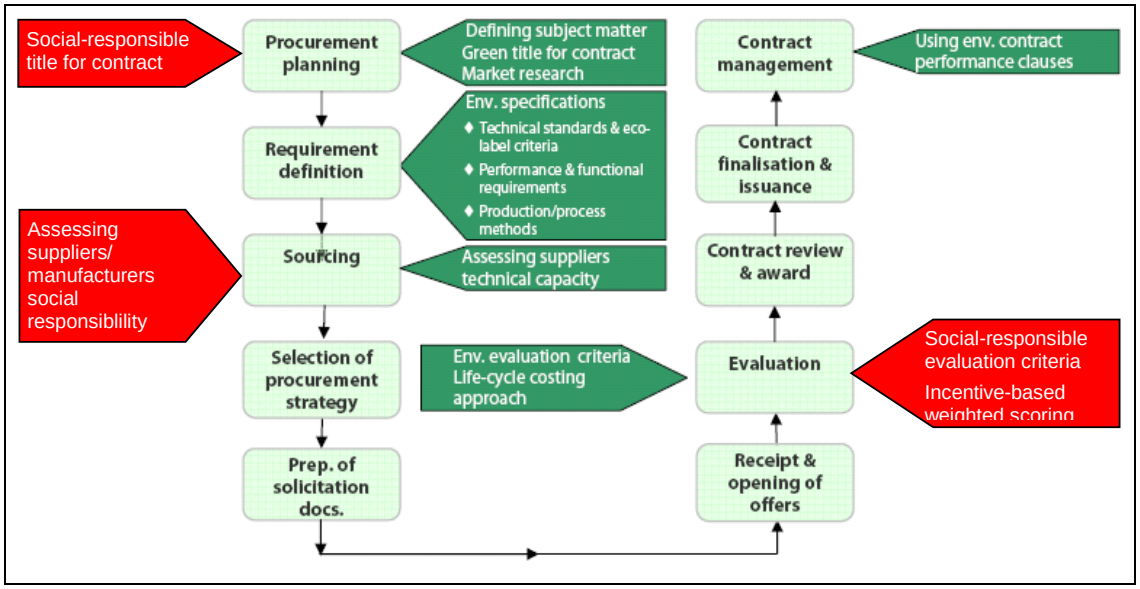
Tender documents must clearly set out the different evaluation criteria that will be used to evaluate bids (such as price, technical quality, environmental quality, social performance, etc.) as well as their relative weighting. In sustainable procurement, evaluation criteria can be used to encourage higher levels of sustainability performance than those demanded in the specifications, but without risking significant cost increases. Sustainability evaluation criteria should, altogether, account for at least 10 to 15 percent of the total points available. An example evaluation matrix is provided in the Annex of the "Sustainable Procurement Guidelines for Cleaning Products and Services Product Sheet" which accompanies this document.

Contract review and award – contract clauses

Contract clauses are binding on any company winning the bid, and should therefore be possible for any company to comply with. It makes sense to include sustainability criteria in the contract clauses only if they are not included in other sections of the tender. Contract clauses also include reference to penalties for non-compliance with the specifications or for cases where a supplier has provided a false written guarantee.

Figure 1 below outlines the procurement process as set out in the UNDP Procurement Manual. This diagram highlights the stages at which environmental and social procurement interventions should be integrated.

Figure 1: Environmental and socially-responsible interventions in the procurement process (Source: UNDP Environmental Procurement Practice Guide 2008, adapted by ICLEI)



2.2. The role of requisitioners

Requisitioners are UN officials that identify the need to purchase a product or a service and assist develop the technical specifications[1]. A report on Sustainable Procurement in the UN system of 2006 indicated that requisitioners "are in a sense the catalyst of the procurement process" and it is therefore "at this level that sustainable development criteria need to be established"[2]. The sustainability criteria (see Product Sheets) are designed to be used by requisitioners and procurement staff.

2.3. The United Nations Development Programme Environmental Procurement Practice Guide

This background report and the Product Sheets accompanying this document aim to provide specific procurement criteria for use in procurement documents. For additional guidance on building support for sustainable procurement and achieving ongoing implementation in your office, it is recommended that you read the UNDP Environmental Procurement Practice Guide (UNDP, 2008)[3]. While focusing on environmental procurement, this practice guide is relevant to sustainable procurement as well. This document provides useful information on planning and implementing environmental procurement including:

- implementing environmental procurement incrementally using the "UNDP green continuum",
- setting priorities for environmental procurement, and
- conducting market analysis to ensure the market will be able to respond to your green criteria.

Addressing these points will be important to ensure that sustainable procurement becomes "business as usual" within your office.

1 United Nations (2008) "United Nations Procurement Manual" Department Of Management Office Of Central Support Services Procurement Division available at http://un.org/Depts/ptd/pdf/pm_english_08.pdf

2 Background Paper on Sustainable Procurement and Environmental Management Programmes for the UN: http://www.unemg.org/download_pdf/EMG11/SustProcurement.pdf

3 United Nations Development Programme (UNDP), (February 2008) Environmental Procurement Practice Guide, UNDP Practice Series, Procurement Services Office, Quality Assurance and Professionalisation Unit, available at: http://www.undp.org/procurement/documents/UNDP-SP-Practice-Guide-v2.pdf

3. Key environmental impacts

All cleaning products contain an often complex mixture of chemical substances with different functions. Amongst the different functional elements are:

- **Surfactants**: Short for "surface active agent", these help to reduce the surface tension of the water used in cleaning, thus enabling it to mix with, and remove dirt more easily. As a result of their surface-active properties, surfactants are relatively toxic to aquatic organisms.
- **Chelating/complexing agents**: These are included to counter the effects of "hard" water which reduces the effectiveness of detergents. Phosphates and EDTA have traditionally been used as chelating agents in cleaning products.
- **Builders**: These have a similar effect to chelating agents, and are used to upgrade and protect the cleaning efficiency of surfactants, they help to soften the solution and to break up oily and greasy dirt. Phosphates have often been used as builders.
- **Solvents**: These help to break up dirt particles and dissolve them in the water solution.
- **Preservatives**: These help to increase the lifetime of the product by preventing bacteria from spoiling the solution[4].

The chemicals used for cleaning may have a number of adverse health and environmental effects. Cleaning products which have harmful ingredients may impact on the health of cleaning staff and on users of the buildings cleaned. Environmental effects can include chemical products entering the atmosphere and local water systems during production, use and disposal.

It is not possible to give a complete review of all the chemicals used in cleaning products and their potential health and environmental impacts, but a summary of the main groups of constituents and key substances is provided below. It should be noted that due to differing legislative frameworks and cleaning requirements/traditions, the ingredients and types of cleaning products used may vary from region to region.

Harmful/hazardous chemicals

A number of specific substances with potentially harmful impacts have traditionally been used in cleaning products and should be avoided where possible. Some of the most common substances are:

- **EDTA** (ethylenediaminetetraacetic acid) - a very strong complexing agent. Complexing agents may have the effect of re-mobilizing heavy metals into the aquatic environment. EDTA is particularly problematic in this regard as it is poorly biodegradable and relatively strong.
- **NTA** (Nitrilotriacetatic acid) - a possibly carcinogenic builder that requires the use of carcinogens and toxic substances in its production. It may also re-mobilise heavy metals in aquatic environments[5].
- **Phosphorus** (including phosphates and phosphonates) - used as a "builder" in cleaning products, phosphorus is a major cause of "eutrophication"[6] in water systems, though the impact depends on the wastewater treatment process and temperatures of the receiving waters in individual countries. In Sweden, for example, treatment is highly effective, and use of phosphorus no longer presents a major problem, however treatment in warmer climates can be more problematic. Phosphorus is a particular concern in laundry

4 Based on *The chemistry of cleaning,* Essential Industries, Inc, available at: http://www.essind.com/Cleaners/GC-chemistry.htm

5 International Occupational Safety and Health Information Centre, International Chemical Safety Card, No. 1283. Available at: http://www.ilo.org/public/english/protection/safework/cis/products/icsc/dtasht/_icsc12/icsc1238.htm

6 "Eutrophication" is a process whereby water bodies, such as lakes, estuaries, or slow-moving streams receive excess nutrients that stimulate excessive plant growth

detergents.

- **VOCs** (volatile organic compounds) – Volatile organic compounds (such as ethanol and isopropanol) are found in many cleaning products. VOC emissions cause ground level ozone and photochemical smog. When highly concentrated in the air, ozone can impair human health and can damage forests, vegetation and crops, reducing yields.
- **APEO's or APE's -** APEOs (Alkylphenolethoxylates), are highly harmful surfactants. In Europe APEO's were recently banned as part of a new detergents regulation[7] which states that only surfactants meeting strict biodegradability standards can be used in cleaning products. APEO's may still be in use in regions outside of Europe.
- **Heavy metals -** Heavy metals is a term used to cover a range of substances including arsenic, lead, cadmium, chromium and mercury. These metals are usually toxic and chronic low exposures can have serious health effects[8].

There are global and regional regulations/conventions about the labelling of potential health (and environmental) hazards of substances. If a product or substance has potentially harmful impacts it must be indicated. This covers products which are, for example, considered toxic, irritating, allergenic, carcinogenic, mutagenic, harmful to reproduction or corrosive. Although there are certain similarities, the regulations on labelling vary around the world. Most ecolabels restrict the use of substances which carry such hazard warnings. Given the huge variety of chemicals used (and potentially used in future) in cleaning products, such classification schemes are highly valuable for purchasers wishing to buy greener products. Labelling schemes are discussed further in section 5.1 below.

Disinfectants

Most disinfectants are, by their nature, potentially harmful to human health and other living organisms, and care needs to be taken in their use. For most cleaning purposes disinfecting is not necessary, but is frequently carried out as standard practice. It is only required for areas where there is a potentially hazardous build up of bacteria or areas which need to be as sterile as possible.

Many disinfectants are chlorine-based (sodium hypochlorite is a very common form of household bleach). Chlorine based bleaches have been found to have a number of health and environmental impacts. Chlorine based bleaches give off toxic fumes which can cause irritation to the throat. If the bleach comes into contact with the skin or eyes it can also cause irritation. However, the main potential health impact of using chlorine based bleach is the accidental mixing of the bleach with other cleaners, particularly those that are ammonia based or contain acids. The bleach can react with these chemicals to give off toxic gases such as chlorine gas. If these gases are inhaled, hospitalisation can be required. In higher concentrations sodium hypochlorite may also corrode metal surfaces and is toxic to aquatic life if it enters aquatic environments[9].

In addition, halogenated organic compounds may be formed by the reaction of active chlorine with organic substances and thus contributing to the AOX load of the aquatic environment. The AOX load is a measure of the presence of halogens (chlorine, fluorine, bromine, and iodine) within waste water[10]. Some of these halogenated compounds may be toxic and slowly degradable in the aquatic environment.

Given these potential impacts procurers may like to consider excluding chlorine based

7 Detergents Regulation (EC) No 648/2004, available at: http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=32004R0648&model=guichett

8 United Nations System-wide Earthwatch website "Heavy metals" available at: http://earthwatch.unep.ch/emergingissues/toxicchem/heavymetals.php

9 International Occupational Safety and Health Information Centre, International Chemical Safety Card, No. 0482 and 1119. Available at: http://www.ilo.org/public/english/protection/safework/cis/products/icsc/dtasht/_icsc04/icsc0482.htm and http://www.ilo.org/public/english/protection/safework/cis/products/icsc/dtasht/_icsc11/icsc1119.htm

10 Chlorine online, glossary, available at: http://www.eurochlor.org/mainglossary

bleach from the portfolio of cleaning products or at least aiming to minimise its use.

Biocides/Preservatives

Biocides are chemical agents that prevent the growth of micro-organisms and are typically used in liquid products as preservatives. Most substances used as preservatives may also be used as disinfectants. Some biocides are bioaccumulative, i.e. they accumulate in food as they move up the food chain.

There are two ways of determining the bioaccumulation of a chemical. The first is to measure what is called the "octanol-water partition coefficient[11]", the other is to determine the "bioconcentration factor (BCF)[12]". Most ecolabels refer to both measures of bioaccumulation.

Fragrances

Fragrances are often added unnecessarily to cleaning products, and serve no cleansing purpose but are simply designed to give off a "clean" smell.

Fragrances receive attention because of their potential hazard to health and also due to their bioaccumulative potential. The main hazard to health is their allergic potential. Contact allergy to perfume is relatively common. Unfortunately, data about the environmental fate and inherent properties of perfumes is very incomplete.

Most manufacturers who use perfume in their formulations refer to the Code of Practice of International Fragrance Association (IFRA), and it is a typical ecolabeling approach to demand that any fragrances used have been produced in accordance with this code.[13]

Biodegradability

The harmful nature of many ingredients in cleaning products makes it important that they biodegrade quickly in the environment. Biodegradation means that the substance is broken down by microbial action and is normally assessed both in terms of aerobic biodegradability (in the presence of oxygen), and anaerobic biodegradability (in the absence of oxygen). For cleaning products aerobic biodegradability is of most importance as once most waste cleaning products have been discharged as wastewater they will ultimately degrade in aerobic environments[14].

Surfactants are the key active ingredient in most cleaning products and they are often toxic to aquatic organisms. It is therefore particularly important that they biodegrade quickly in the environment. Some ecolabels specify that only surfactants are biodegradeable. Other ecolabels specify that the entire product or all of its components be biodegradable in order to reduce the impact of other harmful ingredients.

In either case it is important that the ingredient has been tested to be "readily biodegradeable" as defined by the international standards OECD 301A-301E or ISO 7827. This means that 70% of the product degrades within 28 days. If a product makes the general claim that their product is biodegradable there is no way of confirming the rate at which the substance biodegrades (ie. it could be that 2% of the product biodegrades within 50 years).[15]

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11 The octanol-water partition coefficient compares the solubility of a substance in octanol and water. This partition is expressed as Pow. The test is described in OECD guidelines No. 107 and 117. If the solubility of the substance in octanol is at least 1000 times greater than in water (log Pow >3), the substance is regarded as bioaccumulative.

12 The "bioconcentration factor (BCF)" measures the accumulation of substances in fish in accordance with OECD test methods 305 A-E. If the BCF of the substance is 100 or more, the substance is regarded as bioaccumulating.

13 IFRA Code of Practice: http://www.ifraorg.org/Home/Code,%20Standards%20Compliance/Code-of-Practice/page.aspx/88

14 Assessment of the environmental relevance of anaerobic biodegradation of surfactants. Available at: http://cat.inist.fr/?aModele=afficheN&cpsidt=999542

15 How Biodegradable is Your Cleaning Product? (ECO-buy newsletter article)

Packaging

As with any consumer product, it is important to consider packaging namely, the quantity and type of packaging used (particularly chlorinated plastics), and the opportunities for recycling or refilling.

Using refillable, bulk containers for chemicals is one approach to reducing packaging requirements. Using highly concentrated products, which are then diluted on site, is also an effective way of both reducing packaging and transportation costs.

In establishing purchasing criteria, and particularly limit values for certain substances, these should take into account the differences between the concentrated product supplied and the final diluted product used. If this is not recognized this can discriminate against concentrates in favour of ready-diluted products. The Terrachoice general purpose cleaners ecolabel, for example, sets different levels of acceptable VOC content for concentrated and diluted forms.

Cleaning techniques

One of the most effective ways to reduce the impacts of the chemicals used for cleaning is to use less of them. Altering the way cleaning contractors carry out the service has a major impact on the quantities used.

The following may frequently occur:

- Overuse of chemicals through incorrect dosage application (potentially due to lack of clear information on the product or lack of awareness of the cleaning staff),
- Excessive cleaning of certain areas, where less regular cleaning would be sufficient, and
- Unnecessary disinfecting of areas where this is not required, and over-frequent disinfecting in other areas.

These problems can be addressed through effective management, monitoring and training approaches, with potentially large reductions in chemical usage and also staff time.

Furthermore, modern cleaning techniques such as the use of microfibre mops and cloths, or dry-cleaning techniques for floors, can drastically reduce the need for chemicals.

4. Key social considerations

The major aim of including social considerations when procuring cleaning products and services is to preserve the basic rights, working conditions and safety of the people who work for cleaning contractors. The UN already has a number of existing initiatives that promote these aims. These are outlined below.

4.1. Corporate social responsibility and the ILO conventions

The basic reference point for workers' rights around the world are the Conventions of the International Labour Organization (ILO). Founded in 1919, the ILO is a tripartite body bringing together governments, employers and workers and promotes decent work, employment rights, job-related security and better overall living standards. The ILO Conventions are standards that define basic labour rights. Once adopted by the ILO and ratified by the signatory countries, Conventions are binding in nature.

For the cleaning industry the core ILO conventions should be binding over the whole supply chain. This includes suppliers of cleaning products and the cleaning service contractor. The ILO core conventions are as follows:

Freedom of association

- Freedom of Association and Protection of the Right to Organize (No. 87)

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http://www.ecobuy.org.au/director/publications/enewsletters.cfm?itemID=09C7B139E92E8CB1BBBEAA0CA065F7C3&articleID=097BE506A163A88FF3569536FDB6FF42

- Right to Organize and Collective Bargaining (No. 98)

Forced Labour

- Forced Labour (No. 29)
- Abolition of Forced Labour (No. 105)

Equality

- Discrimination (Employment and Occupation) (No. 111)
- Equal Remuneration (No. 100)

Elimination of child labour

- Minimum Age (No. 138)
- Worst Forms of Child Labour (No. 182)

More information is available at: www.ilo.org/public/english/standards/norm/index.htm.

4.2. The Global Compact

The Global Compact is a framework for businesses that are committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labour, the environment and anti-corruption. The principles include:

Human Rights

- Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and
- Principle 2: Make sure that they are not complicit in human rights abuses.

Labour Standards

- Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
- Principle 4: the elimination of all forms of forced and compulsory labour;
- Principle 5: the effective abolition of child labour; and
- Principle 6: the elimination of discrimination in respect of employment and occupation.

Environment

- Principle 7: Businesses should support a precautionary approach to environmental challenges;
- Principle 8: undertake initiatives to promote greater environmental responsibility; and
- Principle 9: encourage the development and diffusion of environmentally friendly technologies.

Anti-Corruption

- Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.
- The Global Compact is a purely voluntary initiative with two objectives:
- Mainstream the ten principles in business activities around the world;
- Catalyse actions in support of broader UN goals, such as the Millennium Development Goals (MDGs).

The UN currently encourages suppliers to sign up to the Global Compact and collects information on the proportion of goods and services procured where the supplier is a signatory. In 2007, 15,50% of suppliers were signatories (as a percentage of orders over 30,000 USD).

4.3. Occupational Health and Safety Procedures

Cleaning staff and cleaning chemical manufacturers are exposed to many hazards as part of

their work. An important social consideration when procuring cleaning services is the occupational health and safety practices of the cleaning service or chemical manufacturing companies. The International Labour Organisation has published a set of guidelines on occupational safety and health management systems (ILO-OSH 2001)[16].

The guidelines refer to a number of practices which companies should adopt including:

- An occupational health and safety policy,
- First aid and accident arrangements,
- Occupational health and safety training for staff,
- Regular equipment maintenance, and
- A process for reporting hazards and accidents.

There is also often a range of legal requirements for supplying a safe workplace that contractors will need to comply with in their own countries. Referring to these guidelines and the relevant legislation in your country when sourcing suppliers will ensure these aspects are addressed by your contractors.

4.4. Social Accountability 8000 Standard

Social Accountability International is an international non-profit human rights organisation that promotes the rights of workers through the voluntary Social Accountability 8000 Standard (SA 8000). The standard is based on international human rights norms and national labour laws and thereby includes the Core Conventions of the International Labour Organization (ILO).

It is an auditable international standard – comprising of nine accountability requirements - for a third-party verification system, setting out the voluntary requirements to be met by employers in the workplace, including workers' rights, workplace conditions, and management systems. To certify conformance with SA8000, every facility of a company seeking certification with SA8000 is audited. The certification provides a public report of good practice to consumers, buyers, and other companies and is intended to be a significant milestone in improving workplace conditions. Numerous industries are certified internationally, including furnishings, cleaning services, chemicals and metal products.For more information visit: http://www.sa-intl.org

4.5. Upcoming ISO Social Responsibility Standard (ISO 26000)

The International Standards Organisation (ISO) is currently in the process of developing a new standard – Standard 26000 on Social Responsibility – scheduled to be published in 2010.

The new standard is intended for use by organisations of all types (public and private sectors) in developed and developing countries and will serve to assist them in their efforts to operate in a socially responsible manner. ISO 26000 will contains guidelines, not requirements, and therefore will not be for use as a certification standard like ISO 9001:2000 and ISO 14001:2004. The new ISO standard will be consistent with the ILO Core Conventions.

For more information, visit: http://iso.org/sr

4.6. UN Supplier Code of Conduct

The UN also publishes a "UN supplier code of conduct informing its suppliers of the overreaching values that the UN expects its suppliers to achieve"[17]. This code covers the

16 International Labour Office, Guidelines on occupational safety and health management systems. OSH – 2001 http://www.ilo.org/public/english/protection/safework/cops/english/download/e000013.pdf

17 United Nations Suppliers Code of Conduct: http://www.ungm.org/SustainableProcurement/toolsSuppliers/tools.aspx

issues outlined in the ILO labour conventions, the Global Compact and the ILO OH&S guidelines.

4.7. UNON Fair Employment Package Policy

The United Nations Office at Nairobi (UNON) has developed a "Guaranteed Fair Employment Package" (or 'Fair Pack' policy) aimed at improving the working conditions of contractor's employees (including cleaning contractors) working at the UNON Gigiri Complex in Nairobi. Compliance with the "Fair Pack Policy" can form part of the conditions of contract.

The policy states that contractors must provide a minimum wage, health insurance, maternity leave and assistance with transport amongst other work conditions. In areas where certain work conditions are not required by law, incorporating policy such as this cleaning service contracts may be a way of ensuring contractor staff are fairly treated.

5. Legislation impacting the procurement of cleaning products and services

Although UN procurement organizations are not always directly affected by legislation it is important to be aware of it. Legislation may already sufficiently address some important environmental and social aspects, which need not therefore be addressed by procurers. For example, certain hazardous substances may be banned, or suppliers may be required to provide a take-back and disposal service. Examples of key legislation relevant to the procurement of cleaning products and services is provided below.

5.1. Hazardous chemical labelling systems

Many countries have a hazardous chemical labelling system which provides information to end users on the health and environmental impacts of the chemical they are using. These systems will usually provide advice on safe handling and storage techniques for the substance.

Several countries and regions have developed these systems independently meaning there are many different labelling requirements around the world. To align the requirements of these systems the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) was developed.

The GHS is a non-legally binding international agreement established by the UN. The agreement provides international harmonised criteria for classifying substances and mixtures according to their health, environmental and physical hazards. It also provides harmonized hazard communication symbols and statements, including requirements for labelling and safety data sheets.

The labelling requirements of this scheme are:

- A Symbol – A pictogram must be displayed depending on the specific hazard category or class the substance belongs to under the scheme.
- A Signal word - means a word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used in the GHS are "Danger" and "Warning".
- A Hazard statement - a phrase assigned to a hazard class and category that describes the nature of the hazards of a hazardous product (e.g. "May be harmful if inhaled")
- A precautionary statement - a phrase (and/or pictogram) that describes recommended measures that should be taken to minimise or prevent adverse effects resulting from exposure to a hazardous product (e.g. Keep out of reach of children).

- A Product identifier – this includes the chemical identity of the substance, for mixtures the label should include the chemical identities of all the hazardous ingredients.
- Supplier identification – the name, address and phone number of the supplier.

A safety data sheet (or Material Safety Data Sheet) must be provided. – this document provides information on the hazards of the product and safe storage, handling and disposal techniques.

At the time of publication, sixty-five countries were in the process of adopting legislation to implement this agreement. Once the GHS is in force in all countries, common purchasing criteria that exclude certain categories of harmful substances will be able to be developed. The common labelling requirements will also make it easier for suppliers to demonstrate that their products meet the criteria.

Many UN offices are in countries where the GHS is being implemented. Given this, the GHS categories and classifications have been used in the development of the cleaning products and services criteria. However, in recognition of the fact that full implementation of the GHS may be some time away, the current chemical classification systems of the United States and the European Union have also been provided in order to give procurers a choice as to the most relevant system for their country.

A summary of the laws relating to chemical labelling in a number of countries and their progress towards implementing the GHS is provided below.

European Union

The European Union is currently moving to adopt the GHS system. A transitional period during which both the current legislation and the new Regulation will be in place stipulates that the deadline for substance reclassification is 30 November 2010 and for mixtures 31 May 2015. The current Directives on classification, labelling and packaging, i.e. Council Directive 67/48/EEC and Directive 1999/45/EC, will be repealed on 1 June 2015.

The current labelling requirements are that the label must contain (amongst other information):

- A danger symbol,
- A “Risk phrase” (or R-Phrase) which indicates the precise nature of the risk (such as or R45: May cause cancer or R50: Very toxic to aquatic organisms),
- A “Safety phrase” (S-Phrase) which provides advice on safety practices relating to the substance (such as S17: Keep away from combustible material or S49: Keep only in the original container).

A comparison between the GHS system and the current European system is available at:

http://ec.europa.eu/enterprise/reach/docs/ghs/ghs_comparison_classifications.pdf.

Canada

Canada is conducting consultation, economic analysis and drafting recommendations on the implementation of the GHS.

A comparison between the GHS system and the current Canadian system is available at:

http://www.hc-sc.gc.ca/ahc-asc/pubs/ghs-sgh/analys/index-eng.php.

United States

In the United States the GHS is being compared and aligned with the current hazardous goods labelling system.

The current labelling requirements for hazardous substances are outlined in OSHA Hazard Communication Standard 29CFR1910.12001(HCS).

A comparison between the two systems is available at:
http://www.osha.gov/dsg/hazcom/GHSOSHAComparison.html.

Chile

The Ministry of Health in Chile is currently leading the implementation of the GHS along with a number of other departments.

Japan

Japan has made significant progress towards adopting the GHS. The Industrial Safety and Health Law has been amended in order to implement GHS labelling requirements and a national standard on labelling of chemicals based on the GHS has been published.

Further information and links to relevant documents are available on the GHS website http://www.unece.org/trans/danger/publi/ghs/implementation_e.html#Japan.

Thailand

Thailand has also made significant progress towards implementing the GHS. It is expected that the Hazardous Substance Committee's Notification on GHS will enter into force in 2008. There are proposed transitional periods: 1 year for substances and 3 years for mixtures and products (by 2011) controlled under the Hazardous Substance Act.

Further information and links to relevant documents are available on the GHS website: http://www.unece.org/trans/danger/publi/ghs/implementation_e.html#Thailand.

Other Areas

According to the GHS website the GHS is not currently being implemented in Panama, Kenya, Ethiopia or Lebanon. However, it is possible that labelling of hazardous substances may be occurring in these countries.

5.2. Other relevant legislation

Europe

Banned or Restricted Substances

Many harmful substances found in cleaning products may be banned or restricted in many countries. Therefore it will not be necessary to specify in the purchasing criteria that it be excluded. Some examples of substances that are banned in Europe and the relevant legislation are listed below.

- Directive 76/769/EEC[18] and its subsequent amendments restrict the chemical properties of products. It is stated that products classified as Toxic (T) or Very Toxic (T+) may not be placed on the market for sale to the general public. They are only permitted for certain specialist uses (such as in laboratories) and as such will not be available to contracting authorities.
- Regulation (EC) No 648/2004 updates and expands restrictions on the testing and sale of detergents. In particular it aims to increase the protection of the aquatic environment against the harmful effects of surfactants[19], through stricter testing of biodegradability. Now, only surfactants meeting strict biodegradability standards can be used in cleaning products. In certain situations producers can apply for derogation (exemption) from this,

18 Directive 76/769/EEC of 27 July 1976 on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations.

19 Surfactants (surface active agents) are the most important ingredients in cleaning products, due to their capability to wet hydrophobic surfaces, remove dirt and keep it in suspension.

but in practice, such products would never be legally available to public consumers.

- Council Directive 76/768/EEC on cosmetic products and its subsequent amendments and Council Directive 94/36/EC of 30 June 1994 on colours for use in foodstuffs and its subsequent amendments are relevant regulations that apply to cleaning products. These Directives restrict the use of, and set strict labelling requirements for certain dyes and fragrances.

REACH Regulation (1907/2006)[20]

The REACH (registration, evaluation, authorisation and restrictions of chemicals) Regulation (1907/2006) was adopted in December 2006, and entered into force on 1 June 2007. It provides a new regulatory framework for the collection of information on the properties of chemicals on the European market, and also for future restrictions on their use.

Under the new regulation manufacturers and importers will be required to gather information on the properties of their chemical substances (both existing and new), which will allow their safe handling, and to register the information in a central database run by the European Chemicals Agency (ECHA) in Helsinki. It also calls for the progressive substitution of the most dangerous chemicals when suitable alternatives have been identified.

The central database developed as part of this regulation could be used by purchasers to verify supplier compliance with certain purchasing criteria. However, it will take some years before the system will be fully operational.

North America

The US Environmental Protection Agency provides a list of toxic/polluting substances on its website - http://www.epa.gov/ebtpages/pollutants.html. Any legislation or programs associated with each of the listed pollutants can be accessed by clicking the relevant links[21].

In the United States banned substances vary between states, for example, 25 states have passed laws limiting the amount of phosphates in cleaning products.[22]

Consolidated List of Products

A useful source of information on banned products in different countries is the Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or not Approved by Governments. This list complements and consolidates other information on hazardous chemicals produced within the United Nations system, including the Prior Informed Consent (PIC) circulars issued by the secretariat, maintained jointly by the United Nations Environment Programme (UNEP) and the Food and Agriculture Organization of the United Nations (FAO), of the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. The criteria excludes the use of any product on this list. In the current issue of the List, all the products covered under the Rotterdam Convention are marked by an asterisk(*) to highlight their special status.

More information available at: http://apps.who.int/medicinedocs/en/d/Js4902e/1.html

20 REACH in Brief, http://ec.europa.eu/environment/chemicals/reach/pdf/2007_02_reach_in_brief.pdf
21 US Environmental Protection Authority website http://www.epa.gov/ebtpages/pollutants.html
22 "Cleaning up the Cleansers: A Costly Patchwork of State Phosphate Bans" (Enviro.blr.com news article) .http://enviro.blr.com/news.aspx?id=88148

6. Sustainable procurement guidelines – information sources and rationale

6.1. Background on developing the recommended criteria

The criteria in the background document have been developed by conducting an assessment of the different ecolabels. These criteria cover an enormous range of substances which pose a variety of health and environmental risks. For a number of these chemicals there is ongoing debate by chemists, health professionals, environmental scientists and the cleaning products industry as to the nature and severity of the impacts these substances may have on human health or the environment.

There is also debate about appropriate trigger levels and which verification testing methods should be used. This made it impossible to create a common criteria that covered all of the requirements of the different ecolabels.

ICLEI felt it was important that they not be involved in making a judgement on which substances, trigger levels or testing methods were the best or most important and should therefore be included in the purchasing criteria.

To avoid this, an analysis of the most common criteria was conducted. Criterion that were similar were grouped and the most common criterion were included in the proposed cleaning product purchasing criteria. The criterion that allowed the most ecolabels to demonstrate compliance was chosen. In some cases this required small adjustments to the criteria wording.

A comparison of the various ecolabels is available in Annex 1. The criteria are available in "Sustainable procurement guidelines for cleaning products and services - Product sheets".

6.2. Environmental labels for cleaning products

The criteria included in the product sheets for Cleaning Products and Cleaning Services are based on the criteria of various ecolabels for cleaning products and services. Information on the ecolabels used is outlined in the table below.

There are a wide variety of labels available and also several classification schemes for labels, namely, Type I, II and II, as defined by the International Standards Organisation (ISO). In brief, labels classified as **Type I** labels are the most useful group for procurers. These labels are based on life-cycle environmental impacts and the criteria are set by an independent body and monitored through a certification or auditing process. Transparency and credibility is thus ensured by third-party certification. A number of Type I and "Type I like" labels are presented in the below subsection for office stationery products.

For more information on environmental labels and the use of environmental labels in the UN procurement process, please consult "A Guide to Environmental Labels for procurement Practitioners of the United Nations system" published by UNOPS and UNEP (as part of the HLCM/SUN sustainable procurement initiative) (July 2009). For more information regarding ecolabels available globally, please consult the website of the Global Ecolabelling Network (GEN): http://www.globalecolabelling.net

A number of ecolabels for cleaning products exist in the different regions, although none could be identified in Japan, Latin America, East Africa or the Middle East. The following table displays the labels identified.

Name/Website	Region	Number of products/companies labelled

Ecologo www.ecologo.org	North America	45 labelled companies for general purpose cleaners, 35 for bathrooms cleaners, 30 for degreasers, 11 hand dish washing products, 6 for industrial cleaners, 39 for window and glass cleaners.
Greenseal www.greenseal.org	US	137 companies labelled for Industrial and institutional cleaners, 8 companies labelled for household cleaners.
European Ecolabel (Flower) http://ec.europa.eu/environment/ecolabel/index_en.htm	Europe	82 companies labelled for all purpose cleaners, sanitary cleaners and window cleaners, 15 companies labelled for detergents for domestic (or similar) dishwashers, 46 companies labelled for hand dish washing detergents, 21 companies labelled for laundry detergents for domestic washing machines.
Nordic Swan www.svanen.nu	Europe (mainly Scandinavia)	21 companies labelled for cleaning products, 4 companies labelled for microfibre cloths and mops.
Austrian Ecolabel (Umweltzeichen) http://www.umweltzeichen.at/filemanager/list/15672	Austria	7 companies labelled for All purpose and sanitary cleaners, 3 companies labelled for hand dish washing detergents
Bra Miljöval/Good Environmental Choice http://www2.snf.se/bmv/english.cfm	Europe (mainly Scandinavia)	30 companies labelled for Cleaning products
Thai Green Label http://www.tei.or.th/greenlabel	Thailand	2 companies labelled for Detergents, 2 companies labelled for dish washing detergents, 2 companies labelled for surface cleaners

The criteria underlying these ecolabels are similar, but there are important differences between them. This is principally in terms of how the criteria are worded, the specific restricted substances, trigger levels, testing methods and the different types of chemical classification.

It is challenging, therefore, to derive from these labels a universally applicable set of criteria. The environmental issues introduced in Section 2 are covered by the majority of the ecolabels studied.

6.3. Environmental labels for cleaning services

Only two ecolabels were identified for cleaning services: Green Seal in the US (www.greenseal.org) and the Nordic Swan in Europe (mostly Scandinavia) (www.svanen.nu).

Although, as yet there are not many labelled providers, the criteria of the ecolabels provide a very valuable source of inspiration for the appropriate issues to address for cleaning services. Importantly, for most aspects, there should be little regional differentiation in their applicability (with the exception of the cleaning products used and perhaps waste separation systems). Good practice should therefore be possible to apply globally. The issues can be categorised as:

- the use of green cleaning products and green cleaning techniques,
- appropriate work instructions and cleaning plans for the buildings,
- training for staff on cleaning techniques and the handling of chemicals and waste, and
- monitoring and reporting on performance, training and chemical use.

The Green Seal criteria go into substantially more detail than those of the Nordic Swan, with

highly prescriptive approaches for many types of cleaning procedure. Whilst this may be useful guidance for cleaning organisers it seems too detailed and complicated to use as a form of minimum general specification.

6.3. Other guidance on green cleaning

A number of other sources provide useful guidance on green cleaning:

- European Commission GPP Training Toolkit. (http://ec.europa.eu/environment/gpp/toolkit_en.htm) – This provides public purchasing criteria for both cleaning products and cleaning services, together with background information on the reasons for the development of the criteria. It has been used as the starting point for these guidelines.
- US Responsible Purchasing Network – Guide to Cleaners. (www.responsiblepurchasing.org/purchasing_guides/cleaners/purchasing_guide.pdf) – This provides some general guidance on the application of green cleaning, including links to North American best practice examples .
- INFORM (US) Green Cleaning Toolkit. (www.informinc.org/toolkit.php) – Provides a variety of tools to assist in the application of green cleaning.
- Swedish Environmental Management Council's (MSR) procurement criteria for chemical products (Not yet available in English – www.msr.se) – Provides concrete purchasing criteria which can be used directly by public authorities or other major purchasers.
- The US Environmental Protection Agency has an Environmentally Preferable Purchasing (EPP) Guide for cleaning products (http://www.epa.gov/epp/pubs/cleaning.htm), which is largely based around the Green Seal criteria.
- EcoBuy (Australia) Guide to Green Purchasing (restricted access for members only - www.ecobuy.org.au) – Provides concrete advice principally on the products, but also on cleaning approaches.
- Several local or regional governments also have guidance on green cleaning such as the New York Guidelines for schools (http://www.ogs.state.ny.us/bldgadmin/environmental/GreenGuidelines.pdf).

6.4. Global and regional market availability of sustainable cleaning products and services

Information on market availability of sustainable cleaning products and services in the countries covered by this report is limited. However in the US it has been established that currently, truly green cleaners account for 2% to 5% of the products sold in the $17.5 billion U.S. cleaning products market for household, janitorial, food service, and laundry chemicals. Many products with green components have been available for some time, including concentrates sold with dilution and dispensing systems that require less energy to ship, zinc-free floor finishes, cold-water laundry detergents, and right-sized packaging.[23]

23 Significant Opportunities Exist for Green Cleaning Products According to Kline Report (Press Release): http://www.klinegroup.com/news/green_cleaning_products_05-20-08.asp

7. Implementing the sustainable procurement guidelines

7.1 Using a life-cycle costing approach

The most common misconception about sustainable purchasing is that green products cost more. However, this does not necessarily hold true. Although in some cases the sustainable alternative may have a higher purchase price, if we analyse all the costs (throughout the working life of the product), the greener alternative may be cheaper over time.

If contracting authorities wish to ascertain, which products are most cost effective for them they need to apply Life-Cycle Costing (LCC) approaches in their procurement decisions. This means comparing not just the initial purchase price of a product, but all future costs as well such as:

- Usage costs (energy/water consumption, cleaning chemical use),
- Maintenance costs, and
- Disposal costs.

Procurers could also consider costs relating to improvements in staff productivity or avoided sick leave.

This approach has been well documented for products such as electrical appliances, where an energy efficient version will cost less over the longer term due to reduced energy costs. Unfortunately there has been comparatively little work done on quantifying the lifecycle costing of cleaning products and services. Two examples where some of these ongoing costs have been quantified are provided below.

A European Commission study on the Costs & Benefits of GPP in 2007[24] examined the cost implications of purchasing green (ecolabelled) cleaning products on the overall cleaning budget.

Significantly between 92% and 97% of the money spent on cleaning is spent on staff costs, and therefore differences in product prices have a largely minimal impact on overall cleaning budgets. Reconsidering the cleaning frequency for different parts of the building may therefore be beneficial both in terms of human resources and chemicals needed for carrying out the service.

With regards to the products themselves a mixed picture emerged as the following table demonstrates.

Table 2. Cost differences between green and non-green products

Country	Price difference between green and non-green product (%)		
	All-purpose and floor care products	Sanitary cleaning products	Window cleaners
Sweden	-74% (i.e. green product less expensive)	-82%	-9%
Germany	+36%	+148%	-36%
Spain	+131%	+92%	-94%
Czech Republic	+158%	+2%	-

These differences reflect the advanced development of the market for green cleaning products in the Nordic countries, and indicate that in countries where the market is not so well developed, products currently cost substantially more. However this increased cost may be offset by cleaning practices which minimise the use of chemicals.

24 Study on costs/benefits of Green public procurement in Europe. Available at: http://ec.europa.eu/environment/gpp/index_en.htm

The University of California Davis Medical Center (UCDMC) conducted a cost comparison of microfibre mops compared to standard mops. This study considered mop costs, labour costs, chemical costs, water usage and electricity usage for washing. The study found the use of microfibre mops resulted in:

- 60% lifetime cost savings for mops,
- 95% reduction in chemical costs,
- 20% labour cost savings per day,
- 95% less water and chemical use.[25]

The study also identified that the use of microfibre mops may result in reduced costs resulting from worker injuries. This is because they are much lighter than a conventional mop and they require less cleaning solution, meaning staff do not need to repeatedly lift heavy buckets of water[26]. Using less toxic cleaning chemicals may also result in reduced worker injuries and may increase productivity. However no quantified information on the costs savings attributable to this was available.

7.2. Verification of requirements

The procurement of sustainable cleaning products may raise some difficulties for purchasers to both identify and judge compliance with, in particular, environmental criteria, given the complexity of the chemical information to be assessed.

In regions where ecolabels exist the environmental criteria underlying the ecolabel can be used in procurement. As long as there is a sufficient supply of ecolabelled products on the market, the burden placed on the procurer when it comes to verifying compliance with criteria (e.g. specifications), will be limited as the majority of suppliers will likely offer ecolabelled products. However, of course other forms of verification must always be accepted and this must be made explicit in the tender documents. In regions where ecolabelled products are not as abundant, the issue is not so easy to address, and a more limited set of environmental criteria will need to be used, with which procurers are easily able to verify compliance.

The main source of information for procurers for chemical cleaning products is the safety data sheet, sometimes known as a Material Safety Data Sheet or MSDS. In many countries, producers are required by law (see section 5) to provide users with detailed health, safety and environmental information on all their products, using a common format. A safety data sheet is also a requirement of the GHS (globally harmonised system of classification and labelling of chemicals).

However, it should be noted that not all important environmental and health concerns are fully dealt with by the safety data sheet or other standard accompanying information – many issues covered by certain ecolabels are, for example, not covered in the safety data sheet.

Furthermore, classified hazardous ingredients need only be mentioned in the safety data sheet if they make up higher than a certain percentage of the weight of the final product. Below this weight threshold, the supplier does not need to include the information on the safety data sheet. Under the GHS and also in European legislation, the legal weight threshold is considerably higher than that used by the European Ecolabel, for example – typically 1% of the final product weight in the safety data sheet, compared to 0.1% or 0.01% for the European Ecolabel (though this varies from ingredient to ingredient).

International Chemical Safety Cards (ICSC) are similar in format to an MSDS and provide information on health and safety impacts for a large number of common chemicals. They

25 Please note: some caution should be exercised when using the results of this study as the cleaning requirements of hospitals are different to offices. For example, microfibre mop heads need to be changed for every room in a hospital to prevent cross contamination. In an office this may not be necessary.

26 Using Microfiber Mops in Hospitals, US Environmental Protection Agency http://www.epa.gov/region09/waste/p2/projects/hospital/mops.pdf

may be found on the International Occupational Safety and Health Centre website: http://www.ilo.org/public/english/protection/safework/cis/products/icsc/dtasht/index.htm. Procurers could use this database to help verify the claims of manufacturers.

Another approach to verification could be that the supplier is required to provide a list of ingredients that make up more than 0.01% of the product. The procurer can then verify the criteria by comparing the ingredient list to internationally recognised lists of dangerous chemical substances such as the "Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or not Approved by Governments" annually updated and edited by the UN. Criteria which can be verified in this way have been included in the Basic Sustainability Criteria in the Product Sheet.

For criteria where such lists are not available, contracting authorities will need to consider other forms of proof, such as self-declarations and test reports. These criteria have been included under the Advanced Sustainability Criteria to reflect the greater effort required in verifying these requirements.

Suppliers can verify compliance with certain cleaning service requirements by demonstrating that they hold an ecolabel or have an Environmental Management System (EMS) in place.

It is important to note that it is not possible to require that the contractor has in place a specific ecolabel, EMS or reporting framework even though these can be used to demonstrate compliance if relevant information is included. Instead, purchasers will often need to rely on contractors supplying appropriate documentation of their capacity to take the necessary environmental management measures, and for these measures to be properly documented and reported during the contract. As such, when setting criteria, it is important to outline what documentation should be provided.

7.3. Developing work instructions

A large proportion of the environmental and health impacts of cleaning services are a result of the way in which the cleaning services are carried out. These impacts can be managed by requiring the contractor to develop detailed work instructions in cooperation with the contracting authority. The work instructions should provide detailed steps for cleaning staff to follow and will be one of the main mechanisms used to implement the environmental and/or occupational health and safety practices.

In particular, when developing work instructions the current frequency of cleaning should be reconsidered. In some cases, areas may be being cleaned when they don't require cleaning. This results in the overuse of cleaning chemicals and costs the contracting authority more in cleaning staff time. To reduce this waste the contracting authority should create an inventory of rooms and spaces and specify the level of use and required level of hygiene. For example a kitchen will need to be cleaned more frequently than a boardroom.

It is also a good opportunity to consider where and how certain cleaning products are used. Some cleaning products are often used too frequently or may even be unnecessary from a hygiene perspective. Such products include toilet bowl freshener, cistern additives, deodorising blocks for urinals, air freshener, chemical drain cleaners, fabric softeners, floor finish based on water insoluble polymers, disinfectants, aerosol cans and propellants. The work instructions could specify where and how these products are used to ensure they are used only when absolutely necessary.

7.4. Gaining the support of cleaning staff

Green cleaning products and tools often require the use of specific application techniques if they are to be effective. The implementation of a new sustainable purchasing policy for cleaning products and services will therefore require the support of cleaning staff.

Cleaning staff may initially be resistant to these changes. They may also have

preconceptions about the effectiveness of different green cleaning techniques. It is important the contracting authority and the contractor work with cleaning staff to ensure the new cleaning practices are adopted.

Support for new methods can be fostered by:

- conducting regular training programs,
- conducting demonstrations of the new techniques to show that they are as effective as the previous techniques,
- providing explanations of the health and safety benefits to staff,
- ensuring new staff inductions include training in green cleaning techniques,
- involving cleaning staff in trials of new cleaning products and methods,
- encouraging staff to provide feedback on the techniques and adapting them if necessary where they are not practical, and
- enlisting the support and advice of senior cleaners who are respected amongst the staff.

The City of Santa Monica employed a combination of these methods effectively when implementing their green cleaning program. Information on their approach is outlined in an US Environmental Protection Authority case study titled “The City of Santa Monica’s Environmental Purchasing” (pages 11 to 15)[27].

27 The City of Santa Monica’s Environmental Purchasing” (pages 11 to 15) available at: http://www.santa-monica.org/EPD/SP/pdf/SantaMonica_EPA_Case_Study.pdf

8. Information sources

Ecolabels and other criteria sources

- Austrian Ecolabel (Umweltzeichen) All purpose and sanitary cleaners, hand dish washing detergents: http://www.umweltzeichen.at/filemanager/list/15672
- Bra Miljöval/Good Environmental Choice Cleaning products: http://www2.snf.se/bmv/english.cfm
- European Ecolabel All Purpose cleaners, Household cleaners: http://ec.europa.eu/environment/ecolabel/product/index_en.htm
- Green Seal Environmental Standard for industrial and institutional cleaners, cleaning services: http://www.greenseal.org
- Kenya United Nations Office at Nairobi, Sustainable Procurement Policy (unpublished)
- Kenya United Nations Office at Nairobi, Guaranteed Fair Employment Package (unpublished)
- Nordic Swan cleaning products, microfibre cloths and mops: http://www.svanen.nu
- Terrachoice Environmental Marketing Ecologo, general purpose cleaners, bathrooms cleaners, degreasers, hand dish washing products, industrial cleaners, window and glass cleaners: http://www.ecologo.org
- Thai Green Label Detergents, dish washing detergents, surface cleaners: http://www.tei.or.th/greenlabel

Legislation

- Council of the European Communities, Council Directive 76/769/EEC of 27 July 1976 on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations, available at: http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=31976L0769&model=guichett
- European Commission Environment Directorate Council, (October 2007), REACH in Brief available at: http://ec.europa.eu/environment/chemicals/reach/pdf/2007_02_reach_in_brief.pdf
- European Parliament, Regulation (EC) No 648/2004 of the European Parliament and of the Council of 31 March 2004 on detergents, available at: http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=32004R0648&model=guichett
- Globally Harmonised System of Classification and Labelling of Chemicals (GHS): http://www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html

Studies, websites and other information

- Berna J. L. (2001) “Assessment of the environmental relevance of anaerobic biodegradation of surfactants”, Tenside, surfactants, detergents vol. 38, no2, pp. 86-93 (27 ref.), available at: http://cat.inist.fr/?aModele=afficheN&cpsidt=999542
- Chlorine online, “Glossary”, available at: http://www.eurochlor.org/mainglossary
- Clement S. (2006) “The Procura+ Manual 2nd ed.: A guide to cost effective Sustainable Public Procurement”. ICLEI, Freiburg, Germany. Downloadable at:

http://www.procuraplus.org

- Ecobuy (2007) "How Biodegradable is Your Cleaning Product?" What Goes Around Comes Around Newsletter Issue 4 - June 2007 available at: http://www.ecobuy.org.au/director/publications/enewsletters.cfm?itemID=09C7B139E92E8CB1BBBEAA0CA065F7C3&articleID=097BE506A163A88FF3569536FDB6FF42
- Enviro.blr.com "Cleaning up the Cleansers: A Costly Patchwork of State Phosphate Bans", 9 April 2008, available at: http://enviro.blr.com/news.aspx?id=88148
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Annex 1 – Differences in approaches between ecolabels

Biodegradability

- Ecologo states that **the product** must be readily biodegradable (**or that each component** is such). This is determined using any of the six test methods described in the OECD Guidelines for Testing of Chemicals (301 – A-F).
- Green Seal states that **all organic ingredients** must be readily biodegradable using the same definition, but refers to four ISO tests: ISO 9439, ISO 10708, ISO 10707, or ISO 7828 (it seems these are equivalent tests to the OECD ones, and should not cause a major problem), and gives certain specific criteria which must be met within these tests within 28 days. Additionally, FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act (or FIFRA) registered ingredients are automatically accepted.
- The European Ecolabel for All purpose cleaners states that all **surfactants** must be readily biodegradable according to the same OECD tests, and also states limits: 60% biodegradability (mineralisation) within 28 days. It also mentions to EU DID-list which already indicates ready biodegradability. It also refers to a slightly different approach to measuring biodegradability based on dissolved organic carbon, with slightly different limits and also the need for justification of the approach.
- The Nordic Swan states that all **surfactants** must be readily biodegradable according to the same OECD tests, also stating that other appropriate tests may be used. It also refers to the DID-list. It also includes limits for other ingredients in the product for aerobic and anaerobic biodegradability.
- The Thai Ecolabel states that the **product** must be readily biodegradable using the OECD 301B test, or similar. It also refers to a Thai standard.
- MSR guidance states that **surfactants** must meet the ready biodegradability requirements of the OECD 301A-F tests, with a limit of 60% measured as CO2/BOD, or 70% measured as DOC.
- The European Ecolabel and Nordic Swan also demand anaerobic degradability

Bioaccumulation

- Ecologo states that it shall not be formulated or manufactured with **ingredients** which are bioaccumulating. It has a complicated definition of bioaccumulation: A substance is bioaccumulating if it has a Bioconcentration Factor (BCF) of over 100 or a log BCF of over 2 according to several tests:
- Code of Federal Regulation 40CFR797.1520
- ASTM[28] E-1022-84 Standard Practice for conducting bioconcentration test with fishes and salt-water bi-valve mollusk
- OECD Guidelines for Testing Chemicals 305C, Bioaccumulation: Degree of Bioconcentration in Fish
- Ecologo also exempts ingredients which:
- Are readily biodegradable
- Have a water solubility greater than 1500 mg/L when tested using a method consistent

28 ASTM is an international standards organisation, originally called American Society for Testing and Materials

with ASTM E1148-87, Standard Test Method for Measurement of Aqueous Solubility

- Have an octanol-water partition coefficient of log P less than 3 using the OECD 117 or 107 tests
- The European Ecolabel states that biocides that are classified with R50-53 or R51-53 may not be bioaccumulating defined as having a log Pow equal to or greater than 3 (unless the BCF is less than 100). No specific test is stated. Biocides are also only allowed as preservatives.
- The Nordic Swan also restricts biocides only with the same limit values for log Pow and BCF. It also refers to OECD 107 and 117 for the log Pow value, and OECD 305 A-E for BCF
- MSR uses the same approach as the European Ecolabel and Nordic Swan
- Bioaccumulation is not mentioned by the Green Seal or the Thai Ecolabel

Hazardous/harmful classification

Many different approaches are used here:

- The Ecologo restricts products (apart from certain exceptions) which are classified as:
- Harmful or irritant (according to the US Federal Hazardous Substances Act (16 CFR Part 1500), or Part 1 and 2 of the Canadian Consumer Chemicals and Containers Regulations of the Hazardous Products Act).
- (For institutional/industrial settings) Hazardous (according to the US Federal Hazardous Substances Act (16 CFR Part 1500), or Class D or E of the Canadian Controlled Products Regulations (SOR/88-66) of the Hazardous Products Act). (includes **chemicals** which are classified as) carcinogenic (included in the International Agency for Research on Cancer (IARC) in groups 1, 2A and 2B) (includes **chemicals** which are classified as) endoctrine disrupters (i.e. chemicals identified by the European Union as priority for research).
- Have limited effects on aquatic life based on whole formulation short-term sensitivity toxicity testing of the recommended dose – here a variety of limit values and testing approaches are included in an Annex.
- With a flash point less than 61 degrees (in undiluted form), based on an ASTM test.
- The European Ecolabel restricts **ingredients** which have been given an R-phrase covering carcinogenic, mutagenic, harmful to reproduction, harmful to the aquatic environment and some others, also sensitisation to a degree. It also calculates the toxicity to aquatic organisms using the critical dilution volume toxicity (CDV Tox)
- The Nordic Swan uses both hazard symbols and the risk-phrases for **products,** and **ingredients** which are carcinogenic, mutagenic, reproduction toxic, sensitising, or harmful to the aquatic environment (for the last one certain limit values are acceptable). It also calculates the toxicity to aquatic organisms using a similar critical dilution volume approach as the European Ecolabel. It also restricts substances considered by the EU as potential endoctrine disruptors.
- The Green Seal restricts **undiluted products** which are toxic, giving specific limit values and testing methods rather than referring to classification. Also **ingredients** shall not be classified as carcinogenic or repoductive toxic referring to the IARC and cetain US Acts/bodies. **Undiluted products** shall not be skin sensitizing according to OECD test 406 (other tests also accepted). **Undiluted products** must not be corrosive to the skin and eyes according to the Human Skin Construct Systems and the bovine opacity and permeability test (BCOP), other tests also accepted. **Undiluted products** must not be combustible using an American open cup test or ISO closed cup test, or an ASTM test. It also has **product as used** restrictions on aquatic toxicity with a specific limit value with an ISO and CFR test mentioned.
- MSR also restricts **substances** classified as toxic, very toxic, carcinogenic, mutagenic,

reproduction toxic, environmentally dangerous, or allergenic, giving the specific risk phrases

- The Thai label does not cover this

VOCs

- Ecologo sets restrictions on quantities of VOC content in both the diluted and concentrated product, with a number of test methods described. There are different limits for different products:
  - not contain more than 1% by weight in the diluted product (3% for window cleaners, degreasers, 5% for industrial cleaners)
  - not contain more than 12% by weight in the concentrated product (25% for window cleaners, degreasers, industrial cleaners, bathroom cleaners)
- Green Seal uses the California Air Resources Board Method 310 as the testing system, and limits VOCs in the product as used as follows (same as Ecologo – no limits for the concentrated product):
  -1% by weight for general purpose cleaners and bathroom cleaners
  - 3% by weight for glass cleaners
- The European Ecolabel restricts the VOC content to 10% by weight for all purpose, window and sanitary cleaners for the product as sold
- The Nordic Swan does not cover this aspect – in general most VOCs would be classified according to one of the restricted R-phrases so a specific ban may not be necessary
- The Thai ecolabel limits VOCs to 25% by weight.

Phosphorus/phosphates/phosphonates

- The European Ecolabel for all purpose, window and sanitary cleaners limits the total quantity of elemental phosphorus in the product, covering all phosphorus containing ingredients such as phosphates and phosphonates:
  - 0.02 g/functional unit for all purpose
  - 1g/100g of product for sanitary cleaners
  - 0 for window cleaners
- For the Nordic Swan, again it is for all phosphorus containing ingredients. There may also not be any phosphonates:
  - 0.5g/litre in-use solution for diluted products
  - 0.05g/litre in-use solution for concentrate
- For the Green Seal, the product as used cannot contain more than 0.5% by weight of total phosphorus. No further description is given
- For the Ecologo – builders may not contain any quantity of phosphates
- The Thai Ecolabel bans phosphonates used as builders, and limits phosphorus to 0.5% by weight

Packaging

- Ecologo demands the product (packaging):
  - is a concentrate, or if inappropriate, that they are sold in bulk
  - is not packaged in chlorinated packaging materials
  - that efforts have been made to include post-consumer recycled content
  - is not manufactured with propellants
  - is not sold as a disposable wipe product

- Green Seal demands that primary packaging shall be recyclable or that manufacturers provide for the returning and refilling of packaging. Products must be a concentrate.
- The European Ecolabel demands that :
  - plastic materials are labelled in line with European legislation
  - that the packaging shall be easily separable into monomaterial parts. Other specific requirements for other types of cleaning products
- The Nordic Swan demands the appropriate labelling of plastic parts, no plastics containing chlorinated materials such as PVC, and has a specific weight/utility ratio for the quantity of packaging
- The Thai ecolabel has restrictions on the amount of heavy metal used in printing on packaging, and appropriate labelling of plastic parts
- MSR states no PVC shall be used, and that plastic materials are appropriately marked, and that clear dosage instructions are included

Other restricted substances

Ecologo	Green Seal	European Ecolabel	Nordic Swan	Thai Ecolabel	MSR
PH (not lower than 3.0, not higher than 11.0) Some exceptions				Sulphuric and Sulphonic acid	
Aromatic solvents				A number of solvents are restricted	Aromatic solvents
Halogenated solvents				A number of solvents are restricted	Halogenated solvents only upto 0.2% by weight
Certain ethylene glycol ethers and their acetates					
APEO surfactants	APEOs	APEOs	APEOs	APEOs	APEOs
EDTA and NTA and their salts		EDTA, NTA	EDTA, DTPA, NTA and phosphonates	Phosphonates and NTA	EDTA limited to 0.2% by weight
Ozone depleting potential of zero	Ozone depleting compounds				
No ingredients for changing the scent		Fragrances must have been manufactured according to IFRA norms	Fragrances must have been manufactured according to IFRA norms		Fragrances must have been manufactured according to IFRA norms
Only food grade dyes of no more than 0.1% by weight undiluted		Dyes must be permitted by cosmetic and foodstuff directives	Either approved by foodstuffs regulations or not bioaccumulating		
No toxic metals (incl. Arsenic, cadmium, chromium, lead, silver and mercury)	Heavy metals (incl. Arsenic, cadmium, chromium, lead, mercury, cobalt, nickel, selenium)		Silver nanoparticles	Limits to certain heavy metals (arsenic, lead, cadmium, chromium, mercury, selenium, nickel)	
	DBP (Dibutyl phthalate)				

	Optical brighteners				
		Nitromusks and polycyclic musks (long list)	Nitromusks and polycyclic musks (long list – similar but not the same as EU Ecolabel)		Musk xylene and musk ketone have a limit set by the cosmetics directive
		Quaternary ammonium salts which are not readily biodegradable	Quaternary ammonium salts which are not readily biodegradable		
			Enzymes must not be present in aerosols. In others they must be liquid or in the form of granulate that does not release dust		
			Retroactive chloro-compounds such as sodium hypochloride		Compounds with an active chlorine content above 0.1% must not be used
			Chloro-organic compounds		
			Benzalconiumchloride		
			Linear alkylbenzene sulphonates (LAS)		
			Perfluorinated substances and polyperfluorinated alkylated substances (PFAS)		
			Methyldibromo Glutaronitrile (MG)		
				Dimethylsilicon copolymers	
				Fatty acid salts or di/triethanolamine	
				Branched carboxylic acids and alcohols and PEG esters	
				Quaternary protein hydrolsate	
					Perborates and inorganic boric acids