

MEDITERRANEAN

Good Housekeeping
Practices for
Offices

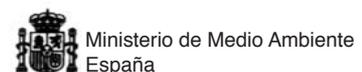
CLEANER

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Regional Activity Centre for Cleaner Production (RAC/CP)
Mediterranean Action Plan



UNEP



Good Housekeeping Practices for Offices

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1. BACKGROUND INFORMATION

1.1 Prologue

Each person that works in an office generates paper wastes, consumes energy with the computer equipment, illumination and air conditioning, uses sanitary water and uses inks, solvents or other dangerous substances (always in small quantity). Although it is true that these impacts are not significant if we valued them individually and taking into account that great part of the labour population is implied, does necessary to identify a series of patterns that cause a sustainable consumption of the resources by the workers of the offices.

Therefore, in this manual the reader will find the way to approach and to structure a plan for the improvement of the environmental management in the offices. To make it easy to follow and to extract those ideas that can be useful to any organization, it has been structured in differentiated blocks.

First, the strategy to implement a Good housekeeping programme (GHP) in the offices is presented. A good approach to the problem and the suitable strategy are keys in the attainment of the awaited results.

Next, the main good housekeeping practices that have been determined like most important in the administrative tasks are presented. They have been grouped in seven categories that make reference to the main implied vectors: criteria of purchase, efficiency in the use of the water, paper and energy, suitable maintenance, waste management and cleaning.

Last, the indicators are presented. To obtain good indicators is one of the most complex tasks of any process of continuous improvement but they facilitate to know if we are obtaining the objectives that we have settled. In addition, they allow us to inform to the addressees of the programs of the obtained improvements, fact really important to obtain the complicity of all the personnel.

1.2. Background

The present guideline on Good housekeeping practices is the result of a theoretical-practical work carried out by the Directorate General of Environmental Policy and Sustainability (henceforth DGPAS) of the Ministry of the Environment and Housing of the Government of Catalonia in cooperation with the Centre for the Enterprises and the Environment (Regional Activity Centre for Cleaner Production).

In 2002, it was commissioned to prepare a report entitled "Documentation Research prior to the definition and subsequent application of a Pilot Programme of Good Housekeeping Practices in Administrative and Related Areas". Subsequently, in 2003 and 2004, Good Housekeeping Practices Implementation Programmes have been developed at several Catalan headquarters offices of telecommunication and water suppliers companies.

After the mentioned experiences, the guideline was revised to reflect the experiences obtained through the pilot programmes with the following scope:

- Generically revise the methodology proposed in the document in accordance with the experience obtained through the development of the pilot programmes.
- Adapt or modify certain sections of the document in accordance with the conclusions drawn from said practical experiences.

In order to undertake this revision, several work sessions were convened with the actors that participate in the carried out of the first report and the pilot projects (among them the representatives of the participating companies). As a result of the agreements reached during these meetings, there were made the following modifications to the report:

- *Chapter "Implementation of the Good Housekeeping Programme"*. Content changes have been made in the section "Current Identification of the Administrative Area" and the methodology and guidelines proposed to undertake this initial diagnosis have been modified. The rest of the chapter is unchanged except for style modifications.

- *Chapters "Case Study: Training is Key" and "Case Study: Developing the Chosen Good Housekeeping Practices"*. These chapters have been deleted and a new "Case Studies" chapter covering the experiences of the participating companies has been added. This chapter has been included at the end of the document.

- *Chapter "Selection of Good Housekeeping Practices in the Administrative Area"*. No modifications have been made in this chapter. However, the source of some content has been explicitly indicated given that, as the appendix "Good Housekeeping Practices in Documentation" has been removed from the main body of the document, the bibliographical references from which the content is taken might not have been sufficiently evident, particularly since, in some sections, this content is a verbatim reproduction of the original document.

- *Chapter "Planning Indicators"*. This chapter has been completely re-written.

- *Chapter "Research documentation"*. This chapter has been deleted from the main body of the document. To replace it, a new Bibliography chapter has been written.

- *Appendix "Good Housekeeping Practices in Documentation"*. This appendix has been deleted from the document. As we have already stated above, we have indicated in the chapter "Selection of Good Housekeeping Practices..." the content that, according to this appendix, is identical in the original bibliography.
- The rest of the appendices have been deleted with the exception of the evaluation questionnaire.

1.3 Objectives and structure

One of the main recommendations done to the Regional Activity Centre for Cleaner Production in the last meetings of National Focal Points and the Contracting Parties, was to wide its scope of action to other areas of interest not only to the productive area. Thus, in the new biennium 2006-2007, the Regional Activity Centre for Cleaner Production has considered it and it will carry out activities in the services, products (in all their life cycle) and agriculture fields of action.

This guideline of Good housekeeping practices in the offices is the first of a series of guidelines and manuals that the Centre will carry out in the services sector.

The principal objective of this guideline is to present the opportunities to implement good housekeeping practices to the companies with offices and/or an administrative area to minimise the environmental impact of their activity, while at the same time they are encouraged to look into new ways of preventing pollution in their activities.

The guideline introduce, in an easy and tested way, how to implement a programme of good housekeeping practices in the offices and which are the handicaps and needs to take into account for its implementation.

The guideline is divides into six sections. Below, we provide a brief description of the contents of each section:

Section 1: Introduction

This section describes the background on how the guideline was carried out, its objectives and its structure.

Section 2: Implementation of the Good Housekeeping Programme

In this section, the main stages that make up a Good Housekeeping Programme are described and the guidelines to follow when implementing such a programme are outlined.

Section 3: Selection of Good Housekeeping Practices in Administrative and Related Areas

Section 3 provides a detailed description of the main aspects to be taken into account to select the good housekeeping practices in the different areas of the office. Furthermore, it presents how to manage in efficient way water, paper and energy and which would be the correct waste management.

Section 4: Indicators

This section presents some possible indicators to follow up the implementation of the programme of good housekeeping practices and which could be the communication mechanism of the results.

Section 5: Case studies

This section presents two real examples carried out in the pilot project campaign of implementation of a Programme of good housekeeping practices in the offices carried out in Catalonia.

Section 6: Bibliography

This section presents the bibliography use and related to good housekeeping practices.

2. IMPLEMENTATION OF THE GOOD HOUSEKEEPING PROGRAMME

In this chapter, the main stages that make up a Good Housekeeping Programme are described and the guidelines to follow when implementing such a programme are outlined.

2.1. Participation in the implementation of the Good Housekeeping Programme in the administrative area

Before presenting the implementation methodology the following question must be asked: who will participate in the Good Housekeeping Programme?

In order to guarantee that the Good Housekeeping Programme is undertaken correctly, the organisation must define the corresponding functions, responsibilities, authority and resources.

Management

Management has general responsibilities in the development, supervision and maintenance of the conditions that ensure the implementation of the Good Housekeeping Programme. Management must:

La Dirección tiene responsabilidades generales en el desarrollo, la supervisión y el mantenimiento de las condiciones que aseguren la implantación correcta del Programa de Buenas Prácticas Ambientales. La Dirección debe:

- Approve a defined implementation proposal for a Good Housekeeping Programme in the administrative area.
- Designate a specific representative who has a key role in the coordination of the Good Housekeeping Programme.
- Assign essential human, technological and financial resources throughout the implementation process.
- Revise and approve the actions or activities (*the selection of good practices to be implemented and the training plan*) proposed by the specific representative.

The Programme Coordinator

The responsibilities of the Good Housekeeping Programme Coordinator, i.e. the specific representative designated by Management, are to:

- Oversee the development and execution of the Programme.
- Establish priorities with regard to its implementation.
- Chair the meetings that are held with regard to its implementation.

- Inform everyone involved of the objectives and results.
- Inform Management of the Programme's development and present proposals for actions or activities for its implementation (the selection of good housekeeping practices to be implemented and the training plan).
- Act as the main guide and instructor of the Good Housekeeping Programme.

Similarly, the Programme Coordinator should also:

- Be familiar with or, better still, have experience in environmental matters.
- Have direct access to Management.
- Have great knowledge of the activities of the offices or the administrative area in question.
- Be a communicative person with pedagogical knowledge and/or experience.

Key Working Group

The Key Working Group (KWG) is a source of information with regard to the practical realities of the company with regard to environmental matters. The members of the KWG must be employees that belong to different departments/areas of the company and are familiar with the environmental situation of their own corresponding department/area. They must also have enough time to commit to the Good Housekeeping Programme. They do not necessarily have to be in charge of their department/area.

The following matters must be analysed by the KWG and the Programme Coordinator:

- The current situation with regard to environmental material in the administrative area.
- The good housekeeping practices to be implemented.
- The evaluation of the training plan and the results of implementing the Programme.

If the administrative area is small, this team is not necessary.

Area/Department Managers

The success of the implementation of the Good Housekeeping Programme requires all the departmental managers to be involved, because they are the ones who manage the resources of the area and the ones who define the day-to-day tasks of their staff.

The opinions of the departmental managers are fundamental to the definition of the good housekeeping practices that affect their department.

The staff involved

The members of staff that are involved are those that undertake administrative or similar tasks, therefore, they may also be executives and department managers, who can

encourage the implementation of the Good Housekeeping Programme through their own personal involvement and example.

The members of staff involved are those that can ensure the implementation of good housekeeping practices. Communication and training are key to success.

2.2. Implementation phases of the Good Housekeeping Programme in the administrative area.

The implementation of Good Housekeeping Programme is structured in the following phases:

- A. Initial Presentation of the Good Housekeeping Programme
- B. Identification of the current situation of the administrative area
- C. Selection of the Good Housekeeping Practices to be implemented and definition of indicators
- D. Good Housekeeping Practices training actions
- E. Evaluation of the results
- F. Monitoring and continuous improvement

A. Initial Presentation of the Good Housekeeping Programme

Presenting the Good Housekeeping Programme to all the personnel is the first communication action to be undertaken in order to guarantee the success of the process. The objectives, the phases, the role and the functions of everyone involved are explained during the presentation.

B. Identification of the current situation of the administrative area

What materials are used in the office? How much paper is consumed? Is the equipment used efficiently? What is the level of water consumption? Is the water used efficiently? etc. These are questions that need to be answered before selecting the necessary and effective Good Housekeeping Practices to be applied in the administrative area.

In order to respond to these questions, it is advisable to undertake an initial diagnosis to identify the environmental strengths and weaknesses of the centre in such a way that they constitute a base for the definition of the Good Housekeeping Practices to be applied.

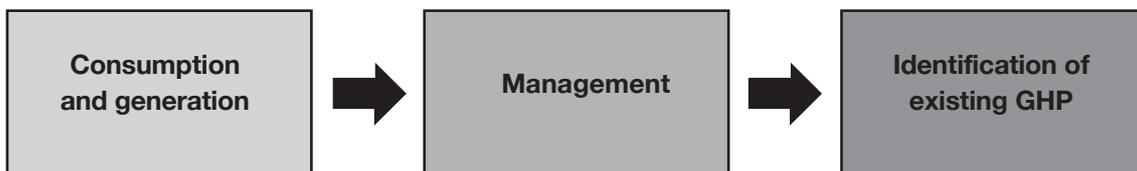
In this respect, all the different department managers that make up the KWG and, in some cases, other members of staff should participate in this process.

The members of the KWG can compile the information on the different environmental aspects of their departments and, in a subsequent meeting, present it to the Programme Coordinator and the rest of the KWG. This meeting can provide a global vision of the environmental aspects to be improved in the administrative area and, therefore, the starting point in order to propose an initial list of applicable Good Housekeeping Practices.

In order to analyse the state of the centre, firstly, its most significant aspects must be defined with respect to the environment. Normally, the most significant aspects or key work areas of administrative centres are the following:

- Waste
- Paper
- Water
- Energy
- Acquisition and use of materials
- Cleaning

Similarly, in order to characterise the behaviour of the centre with regard to these significant environmental aspects, it is advisable to compile information and analyse it from the following three perspectives:



Below, some examples of information compilation sheets are given. They are structured in accordance with the three key points mentioned above.

Example of an information compilation sheet for waste

A) GENERATION

Identify the following data for each type of waste generated in the centre:

Type of waste ¹	Quantity generated	Danger level ²	Source

1. Types of waste: paper-cardboard, plastic, packaging, batteries, fluorescent tubes, toner, scrap metal, obsolete electronic equipment, etc.

2. Danger: defined according to the Ia European Waste List (Decision 2000/532/EC).1

B) MANAGEMENT

◆ Is there a system in place to reduce waste generation? YES NO

.....

.....

.....

◆ Are there containers to separate the different types of waste generated in the centre?
For what types of waste? YES NO

.....

.....

.....

C) IDENTIFICATION OF EXISTING GHP	
<p>◆ Is it usual practice to separate the different types of waste? <input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>If not, why not?</p> <p>.....</p> <p>.....</p> <p>.....</p>	
<p>◆ Is it usual practice to reuse paper? <input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>If not, why not?</p> <p>.....</p> <p>.....</p> <p>.....</p>	
<p>◆ If there are waste reduction systems in place, are they clearly identified? <input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>How ³?</p> <p>.....</p> <p>.....</p> <p>.....</p>	
<p>◆ If there are containers to separate different types of waste, are they correctly identified and are the types of waste clearly explained? <input type="checkbox"/> YES <input type="checkbox"/> NO</p>	
<p>3. Stickers, posters, etc...</p>	

Similarly, it must be taken into account that, in order to compile information about the environmental aspects of the building or work centre, it is necessary to consider factors such as the characteristics of the building (surface area, age, etc.) or the activity undertaken within it (number of workers, timetables, etc.).

Subsequently, this information may also be essential to calculate the indicators and to be able to interpret them correctly. For example, the ratio of water or electricity consumption per person may provide unrepresentative information if the data regarding the number of workers is not realistic.

For this reason, it is also a good idea to prepare a sheet to identify the general characteristics of the centre or for each one of the areas or departments to be studied. An example is given below:

Example of an information compilation sheet covering the general characteristics of the centre

A) CONTACT DETAILS
◆ Name of the work centre or department: Address:
◆ Activity of the centre:
B) STRUCTURE OF THE CENTRE
◆ Total surface area and number of floors: ◆ Age of the building (year of construction, alterations made, etc.): ◆ Characteristics of the rooms (number of rooms per floor, number of bathrooms, kitchen, etc.) ◆ Characteristics of the installations:
C) WORKERS
◆ Number of workers (permanent and temporary):..... ◆ Timetable: ◆ Holiday periods: ◆ Regular stops:

Finally, in this identification of the current-situation-of-the-centre phase, it is also advisable to foster the participation of the administrative area staff in order to collect their recommendations and ideas.

In order to facilitate this participation a brief questionnaire may be handed out to obtain suggestions and proposals. An example of this questionnaire is given below:

Example of staff questionnaire	
CENTRE OR ROOM:	
Questionnaire Number:.....	Date.....
Dear Colleague, we have just started the process to implement a Good Housekeeping Programme in our offices. We need your help to make practical and viable improvements.	
GENERAL	
What is your opinion of this initiative?	
Do you think it is necessary? Why?	
ENERGY	
Do you think efficient use is made of energy in the offices?	
Do you think that the lighting in the offices is appropriate? How could it be improved?	
Is the air-conditioning/heating in the offices appropriate all year round?	
What proposals would you make to reduce energy consumption?	

WATER
<p>Do you think we need to reduce water consumption in our offices? Why?</p> <p>Are you familiar with the water consumption reduction systems in the centre?</p> <p>What proposals would you make to reduce water consumption?</p>
PAPER AND CARDBOARD
<p>Do you use the selective paper and cardboard management system in the centre?</p> <p>Do you know how the selective paper and cardboard management system in the centre is used?</p> <p>What proposals would you make to reduce paper consumption in the offices?</p>
WASTE
<p>Do you use the different waste recycling bins? Are more bins necessary or do they need to be redistributed to improve waste management?</p> <p>What proposals would you make to reduce waste generation?</p> <p>What proposals would you make to improve waste management?</p>
MATERIALS
<p>What materials or products that you use in the office do you think cause most damage to the environment? Do you know of any substitute for this material/product?</p>
COMMENTS

These questionnaires or surveys do not just provide information about the level of implementation of good housekeeping practices and the use of the some of the centre's resources, but they also provide insight into the level of environmental awareness.

In the questionnaire it is advisable to encourage personnel to give their opinion of the consumption and management of certain environmental aspects of the centre and to propose improvements.

C. Selection of Good Housekeeping Practices to be implemented and definition of indicators

All the parties involved in the Programme (Coordinator, members of the KWG, etc.) should prepare a list of all the good housekeeping practices that can be implemented in the administrative area.

Subsequently, it is necessary to select the good housekeeping practices that are most suitable for implementation in the centre. To do this, it is advisable to analyse the following aspects:

a) *Environmental benefits*

Among the direct environmental benefits derived from the application of good housekeeping practices, we may consider the reduction of the generation and/or hazardousness of waste, water consumption, paper, materials and/or energy, and the improvement in the separation and management of waste.

In addition, indirect environmental benefits should also be considered. These may include an increase in staff environmental awareness and the ease with which other good housekeeping practices may be subsequently introduced both by Management and by members of staff acting on their own initiative.

b) *Technical viability*

The analysis of technical viability is especially indicated for good housekeeping practices that mean the modification and/or introduction of devices or installations. From this point of view, factors such as the properties of the product, the limitations of the installations, new maintenance requirements etc. should be considered.

c) *Ease of implementation*

With regard to good housekeeping practices that imply small changes in the behaviour or habits of the staff, it is advisable to take into account their ease of implementation.

In the following table criteria and examples regarding the ease of implementation of some good housekeeping practices are presented in accordance with their characteristics.

Criteria and examples of ease of implementation of good housekeeping practices	
+	-
<p>GREATER SIMPLICITY</p> <p>Turning the taps off when soaping hands</p>	<p>LESS SIMPLICITY</p> <p>Knowing how to use photocopiers and printers properly</p>
<p>NOT MANY PEOPLE INVOLVED</p> <p>Applying environmental criteria in purchasing</p>	<p>ALL PERSONNEL INVOLVED</p> <p>Using the lights only when necessary</p>
<p>THE ENVIRONMENTAL BENEFIT DERIVED FROM THE GOOD HOUSEKEEPING PRACTICE IS EVIDENT.</p> <p>Not having unnecessary wall and ceiling lighting</p>	<p>THE ENVIRONMENTAL BENEFIT DERIVED FROM THE GOOD HOUSEKEEPING PRACTICE IS NOT EVIDENT.</p> <p>Asking suppliers to have quality management systems</p>
<p>LITTLE TIME REQUIRED BY STAFF</p> <p>Double-sided printing</p>	<p>MORE TIME REQUIRED BY STAFF</p> <p>Informing the maintenance department if there is a leaking tap or cistern</p>
<p>CONCERNS COMPANY PERSONNEL</p> <p>Using email between staff from different departments</p>	<p>CONCERNS TEMPORARY OR SUBCONTRACTED PERSONNEL</p> <p>Having subcontracted or temporary cleaning staff separate waste</p>

d) Economic viability

Prior to the implementation of good housekeeping practices an economic analysis should be made in order to ascertain the required investment level, maintenance costs, economic benefits, etc. There are three types of good housekeeping practice according to their economic viability.

Small changes made to habitual practices

The majority of good housekeeping practices to be applied do not imply high investment or major costs; they do, however, provide benefits. In some cases applying them means taking advantage of company resources that are already in place (use of intranet, email, etc.). These good housekeeping practices can also generate other benefits.

New devices and installations or changes to existing ones

Some good housekeeping practices require an initial investment and their maintenance may incur some costs. This is the case, for example, of the installation of water- or energy-saving equipment and/or devices.

When these devices or installations replace others that have the same functions but are less efficient, it is advisable to compare the costs and benefits of the new installation to

the one that is to be replaced. In these cases it might be useful to calculate the additional profitability indexes, such as the payback period, the net present value or the internal profitability rate, in order to help us to decide whether it is viable and advisable to make the investment.

Personnel commitment

Other good housekeeping practices require the part-time commitment of specific personnel. They may require an initial investment in training and some time dedicated to maintenance.

Some examples are given in the following table:

Examples of good housekeeping practices according to economic viability
Small changes in habitual practices
Using the flush interruption on toilets that have this system Not using the toilet as an ashtray or waste paper basket Correcting documents on screen before printing them Sending messages and documents by email Turning the lights on only when necessary
New devices and installations or changes to existing ones
Installing water saving systems (flow reducers, aerators, diffusers, etc.) Insulating the hot water pipes and installing a condensation recirculation system Installing efficient lighting equipment and devices (fluorescent tubes with reflectors and electronic starters, presence detectors, etc.) Purchasing energy efficient air-conditioning/heating systems etc.
Personnel commitment
<p>Management Providing the resources and assigning the necessary people to apply good housekeeping practices</p> <p>Purchasing staff Checking the characteristics of the products that are purchased, requesting information regarding the environmental behaviour of suppliers</p> <p>The person responsible for paper Monitoring and measuring the quantities of paper that enter and leave the office</p> <p>The person responsible for waste Ensuring the correct separation of waste generated in the office and studying the amounts generated</p> <p>Etc.</p>

Finally once all the good housekeeping practices to be implemented have been selected, it is advisable to prepare a descriptive sheet for each one:

Example of a GHP description sheet		
Detailed description of the GHP		
Personnel involved		
Environmental benefits		
Technical viability		
Economic viability		
Investment	Benefits	Costs
Tasks required to implement it		
Personnel	Tasks	
Critical Points		
Indicator ¹		

¹ The methodology for correctly selecting and monitoring the indicators is described in the corresponding chapter.

Similarly, it is advisable for the good housekeeping practices that have been selected, described and analysed by the Programme Coordinator (and the KWG if one has been established) to be approved by Management.

D. Training and communication actions

D.1 The Training and Communication Plan

When designing the training plan it is important to be aware of the available communication media, the usual type of training activities, and the success of these activities in previous programmes. The objective is to use habitually effective media and modify or eliminate those that are not useful. It is important to choose appropriate times for the training sessions so that interference with work is reduced to a minimum, which will also make it easier for all the staff involved to follow the Programme.

The type of training activity, message and communication medium should be chosen in accordance with the following characteristics:

- type of good housekeeping practice
- target group
- number of people in the target group
- time and resources available

For example, in a centre with different work departments, it might be appropriate to establish different groups to attend different types of training in accordance with their characteristics.

Similarly, different types of training sessions could be determined when there are workers that undertake different types of activity within the same centre. For example, there could be one type of training session for office staff, another for technicians and maintenance workers, and another for cleaning, purchasing and human resources staff.

Management must approve the Training Plan, which must have been previously submitted to the Programme Coordinator.

D.2 Preparation and realisation of each training action

In order to prepare the training activities, the trainer(s) should consider the need to:

- Motivate the students and relate the subject matter to their interests/needs.
- Personalise the training taking into account the limitations and possibilities of the group.
- Provide a message with a specific recommendation.
- Foster the participation and involvement of the attendees.
- Stimulate initiative and creativity.
- Consider that in approximately one hour 20 people can be trained.

The Programme Coordinator should supervise the training plan and the support materials to be used by the trainer and take into account their suitability to the objective of the global Programme and to the aforementioned aspects.

The **training material** to be used by the trainer or by the attendees throughout the training sessions could be the following:

- *Presentation material* (training action programme)

Compilation of information required by the attendees in order to comfortably follow the course or training action: training staff, contents, timetable, duration, teaching method to be followed, participation expected from the attendees, etc.

- *Material for the attendees* (documentation to be used during the training action)

Material to be used by the attendees during the training action. Its structure, dimensions and content should be appropriate to the objectives and methodology of each training action. It should at the very least cover the key good housekeeping practices and the ideas that enable the development of the sessions to be followed in an orderly fashion and serve to remind the attendees of the content.

- *Audiovisual support material* (training programme support)

Material to be used to reinforce the transmission of the content. This may be used by the trainers in the training sessions (slides, posters, videos, PowerPoint presentations etc.) and also for distance learning (e.g. IT simulators).

- *Support material to develop activities* (practical guides)

Clear, simple and complete instruction guides to undertake the proposed activities.

- *Assessment material* (assessment guide)

Questionnaires, surveys or tests to assess the results of the training action.

Below are some examples of audiovisual support material used in the Good Housekeeping Practices Pilot Programme. It should be taken into account that they are only examples and would need to be adapted to the characteristics of each centre.

In any case, the objective of this type of tool is to capture the attention of the attendees and transmit clear messages to them that are easy to remember and understand. To achieve this, visual and graphic elements are usually used, such as slides, photographs, diagrams, tables, graphs etc.

Figure 1 shows an example of a **diagram** to illustrate a GHP. The aim of this diagram is to explain what consumption points should be dealt with to make more efficient use of the water in the centre.

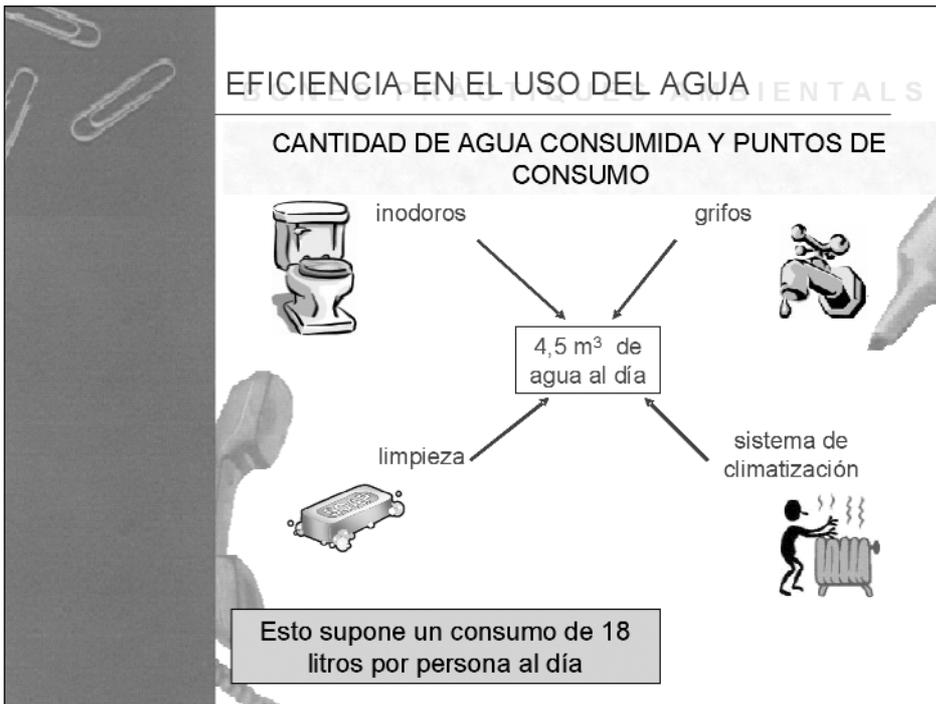


Figure 1: Diagram used in the training sessions of the GHP Pilot Programme.

It also shows the total quantity of water consumed in the centre and the consumption per person per day. The aim of these figures is to capture the attention of the attendees.

Figure 2 shows an example of a **slide**. It shows the actions to be undertaken for a particular good housekeeping practice, in this case waste separation.

The slide is titled "Separar y gestionar" and "Separar los residuos". It lists three types of waste: "Papel y cartón", "Pilas", and "Tóners y cartuchos". To the right of these items, it states: "® varios contenedores habilitados por todo el edificio" and "el personal subalterno los recoge y los deposita en los contenedores habilitados". At the bottom, the slogan "CADA RESIDUO EN SU LUGAR" is displayed. The slide includes small icons for a stack of paper, a battery, and a printer cartridge.

Figure 2: Slide used in the training sessions of the GHP Pilot Programme.

The aim of this image is to show the attendees how and where to separate the waste produced in the centre.

It is advisable to present the messages directly and clearly to the attendees in order to make the session as easy to understand as possible.

Finally, figure 3 shows a **graph** used in the Pilot GH Programme to illustrate air-conditioning consumption with regard to the rest of the electricity consumption.

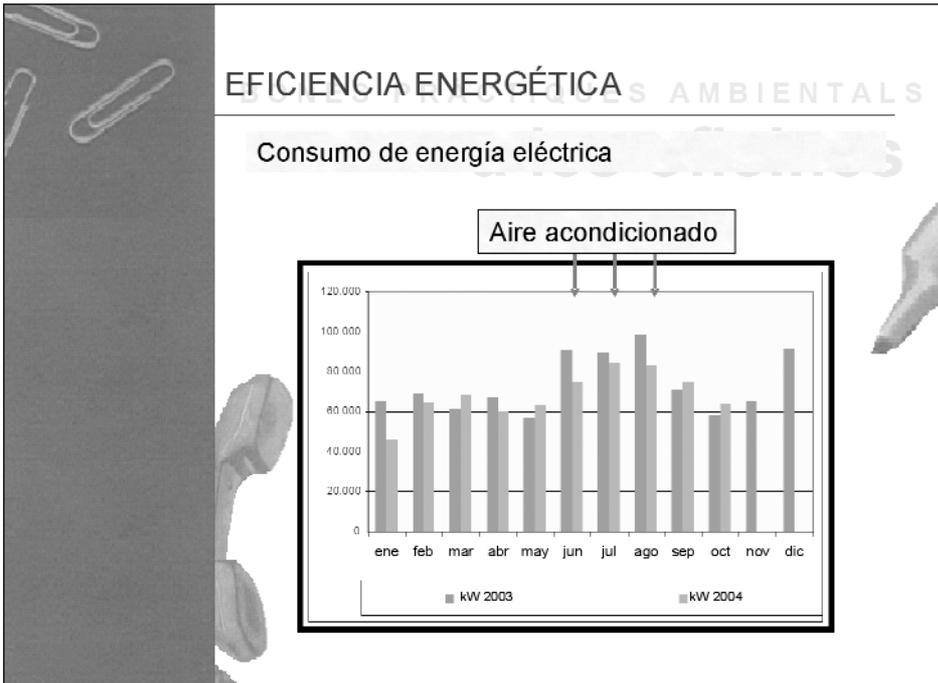


Figure 3: Graph used in the training sessions of the Pilot GH Programme.

In this case it is observed that the highest levels of energy consumption correspond to the summer months, that is, they correspond to the months when the air-conditioning is used.

D.3 Communication media and messages to be used

Good housekeeping practices communication media may be enough to implement good practices. In many cases they complement the training action. The following may be used:

- Internal publication (corporate newsletter)
- Intranet (corporate internal web connection)
- Quality and/or environmental management procedures
- Circulars
- Posters

- Pamphlets
- Leaflets
- Screensavers
- Stickers
- Calendars
- Pens, etc.

The different types of training materials may contain generic messages or messages that are specific to a particular good practice.

- *Generic awareness-raising material*

This might comprise internal newsletters, intranet, screensavers, posters etc. For example, posters showing all the good practices may be displayed in rest areas, where all members of staff may have enough time to read them and reflect on their messages.

In other areas, such as those near photocopiers, printers, bathrooms etc, posters dealing with a single good housekeeping practice might be displayed along with all the generic recommendations associated with it, for example, all the recommendations for saving water.

- *Signs and/or specific material*

This might comprise stickers, posters, calendars, etc. They should be placed at strategic points with practical recommendations and specific messages that refer to a particular good housekeeping practice. For example, save water, turn off the light (on light switches) turning taps off fills the reservoirs (bathrooms) etc.

Below are some messages that could be included in the training support material:

Examples: seven messages for seven GHPs	
Good housekeeping practice	Message
General criteria in purchasing office material and equipment	Applying good criteria when purchasing office materials means taking into account their repercussions on the environment
	Apply good criteria when purchasing office materials; choose the best for the environment
Efficient use of water	Let's make good use of water
	Turning the taps off fills the reservoirs
	Save water now, don't wait until restrictions are applied
	We want to have water for as long as we live. Save water!
Efficient use of paper	Paper has two sides, use them both!
	We want to preserve the forests. Let's reduce paper consumption.
Energy efficiency	It is not always necessary to consume energy. Let's not use more than necessary
Appropriate use and maintenance of office materials	Let's use the materials sensibly, let's not waste them
Waste management	What do we do with waste? In this office we reduce, we recycle and we reuse
Cleaning	Have you noticed? Not all cleaning products damage the environment
	We don't need to dirty to clean
	Let's clean the office without dirtying the environment.

Below are some examples of material used to support a Pilot Good Housekeeping Programme in administrative or similar centres:

a) Posters: The posters that are included as examples deal with different environmental aspects of the centre: water, energy, waste and paper. Each one contains a summary of the good housekeeping practices that can be applied with the aim of reminding the personnel of the Programme messages.

These posters are placed in different locations around the centre at strategic points depending on the message they contain.

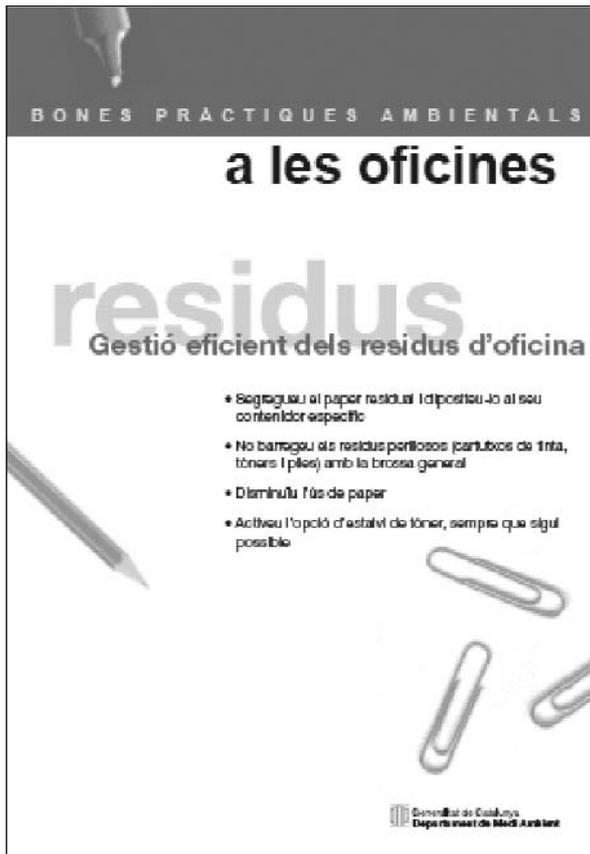


Figure 4: Poster on the efficient use of paper in the office (example).

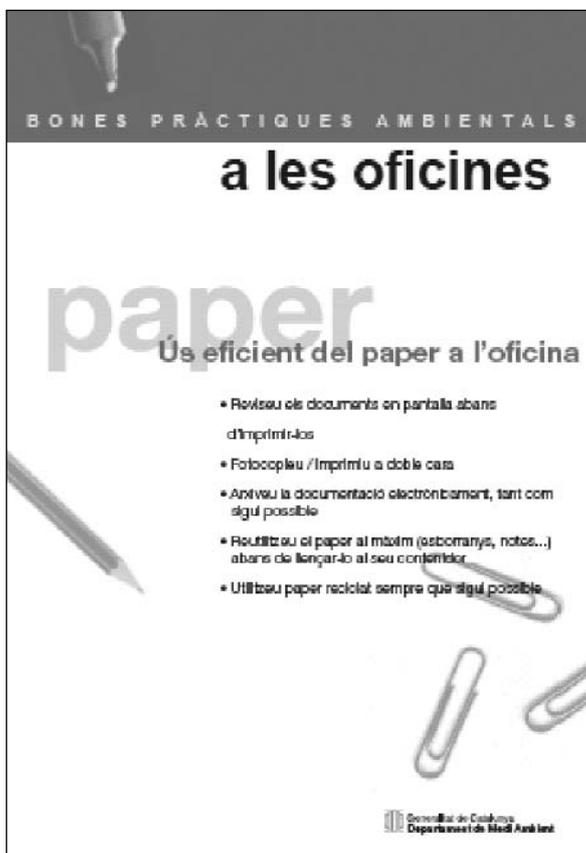


Figure 5: Poster on the efficient management of office materials (example).

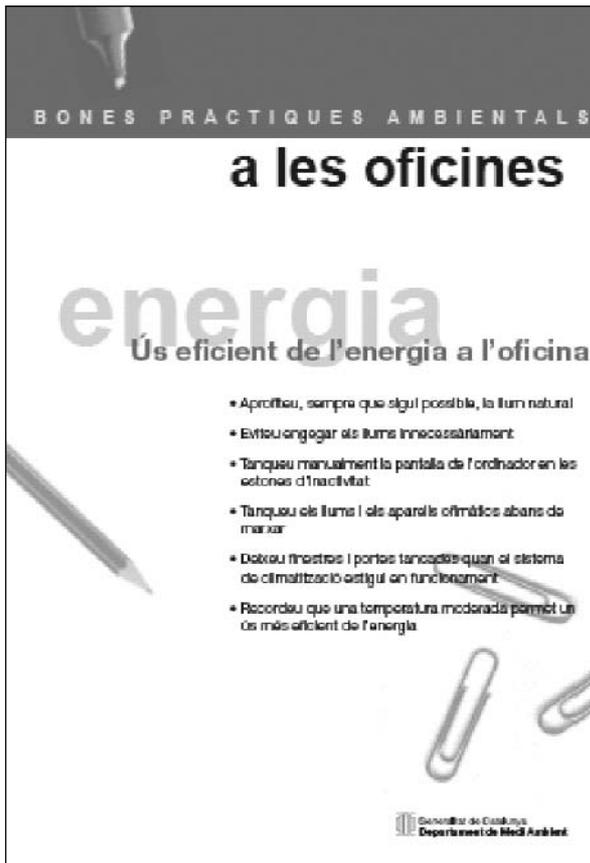


Figure 6: Poster on the efficient use of energy in the office (example).



Figure 7: Poster on the efficient use of water in the office (example).

b) Leaflets: The messages contained in each of the posters above are presented in a more suitable format for individual use. These leaflets can be given out to the workers as a quick reference tool and reminder.

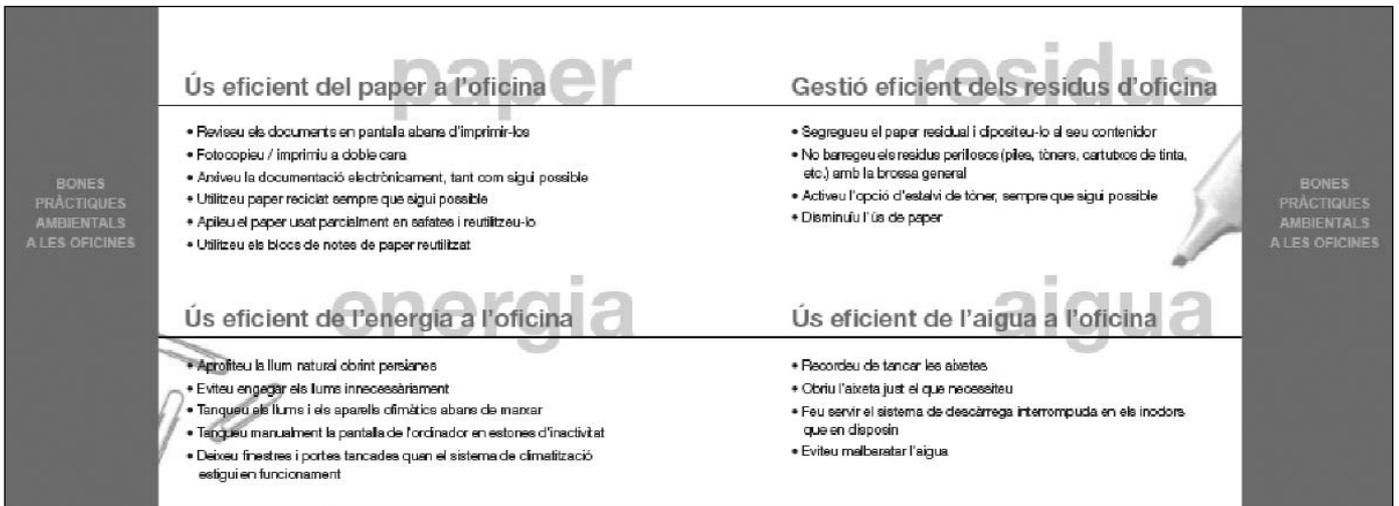


Figure 8: Leaflet from the campaign for Good Housekeeping Practices (example).

D.4. Typical training structure

In order to structure a training session you must take into account that the main objective is to make the personnel aware of the importance of integrating good housekeeping practices into their daily professional activity and instil in them the desire to behave correctly. With this aim in mind, it is advisable to develop the following points during the session:

a) Presentation of the problem

The reasons why the workers have been convened and the objectives of the training session. It is advisable to open the debate with open questions, such as, the consequences of wasting a resource, the economic cost of a particular action, etc. in order to capture the attention of the attendees.

b) Management in our offices

Presentation of the advantages and disadvantages of good housekeeping practices in our offices and their environmental and economic consequences.

An example of this is the presentation of paper management in the offices and the inclusion of consumption data broken down by department, person etc. For example, in order to promote a more efficient use of paper, the quantity of paper that is consumed by each person could be shown with the quantity of resources necessary to produce it (wood, water, energy, land...) and the waste generated to produce that amount of paper.

c) Presentation of the alternatives

Presentation of the alternative(s) to improve our environmental behaviour. Specific and simple recommendations should be used. It is advisable to express between 2 and 4 good housekeeping practices related to the aforementioned problems.

d) Monitoring the implementation of the alternatives and the environmental benefits

Presentation of the indicators to be used to monitor the implementation of the alternatives and indicate where the workers can look up the results.

Finally, present the specific environmental benefit that this would mean for everyone.

D.5 Evaluation of each training action

With regard to this objective, it is a good idea to provide the attendees with a questionnaire to record their opinions, find out their comprehension levels and evaluate the level of impact the communication media and messages have had. An example of this type of questionnaire:

Example of a course evaluation questionnaire		
Name of course:		
Time and date:		
Trainers:		
<i>We are interested in your opinion of the course you have attended. Please fill in this questionnaire.</i>		
<i>Thank you for your collaboration.</i>		
How to answer the questionnaire:		
Carefully read the questions and tick the boxes that correspond to your opinion.		
Course content		
Expectations		
The course was in line with my expectations.	6	5
The course was only in line with my expectation in some aspects.	4	3
The course was not in line with any of my expectations.	2	1
Knowledge		
I have learnt a lot from the course.	6	5
The course has expanded my knowledge of the subject matter.	4	3
I did not learn anything new.	2	1
Usefulness of the training		
I will take advantage of /I will practically apply the knowledge I have acquired.	6	5
The training was only useful in some respects.	4	3
It is highly unlikely that I will ever apply the training.	2	1

Quality of the training		
I consider that I have received high quality training.	6	5
The training was somewhat lacking in quality.	4	3
Poor quality.	2	1
Development of the course		
Interest		
The course was very interesting.	6	5
The course had some interest.	4	3
The course was not at all interesting.	2	1
Practical elements		
The practical part of the course was sufficient and appropriate.	6	5
The practical part of the course was insufficient but appropriate.	4	3
The practical part of the course was inappropriate.	2	1
Facilities, media and duration		
The facilities, media and duration of the training were appropriate.	6	5
Some aspects were not satisfactory.	4	3
I am not at all satisfied with the organisation (media, facilities and duration) of the course.	2	1
Speakers		
Participation		
The speaker encouraged participation.	6	5
The speaker sometimes encouraged participation.	4	3
The speaker did not encourage participation.	2	1
Speaker's performance		
I found of the speaker's performance satisfactory.	6	5
I some aspects of the speaker's performance satisfactory.	4	3
I found the speaker's performance unsatisfactory.	2	1
Documentation and teaching material		
Material		
The material was appropriate to the objectives and teaching methodology.	6	5
The information contained in the material was, in some cases, insufficient and/or it was not structured correctly.	4	3
The material was not appropriate for the course.	2	1
Comments:		
.....		
.....		
.....		

E. Evaluation of the results

In order to evaluate the results, it is necessary to have previously defined a set of indicators that provide information about the environmental behaviour of the centre and about the changes that might come about once the Good Housekeeping Programme has been implemented.

Chapter 4, "Indicators", contains a detailed description of the indicators, the factors to take into consideration when selecting them, how to interpret them, etc.

There should be a specific person in charge of measuring and monitoring each indicator. This person must also inform the Programme Coordinator of the state and evolution of the corresponding indicator and a report of all the indicators should be prepared so that the results can be analysed in subsequent meetings and appropriate decisions can be made. It is advisable to submit this report for analysis by the members of the KWG before each working meeting.

Below is an example of an environmental indicator monitoring sheet. This is useful to record all the data derived from measuring and monitoring each of the indicators so that the results can be evaluated and interpreted.

When using this type of sheet, it is advisable to adapt it to the needs and characteristics of the indicator.

Example of an environmental indicator monitoring sheet													
COMPANY:	DEPARTMENT:												
ENVIRONMENTAL INDICATOR													
CODE:													
DESCRIPTION:													
ABSOLUTE VALUE: RELATIVE VALUE:													
UNIT:													
REFERENCE NUMBER:													
OBSERVATIONS FOR DATA COMPILATION:													
ENVIRONMENTAL INDICATOR CALCULATION													
.....													
.....													
.....													
STATISTICAL INFORMATION (see example given below)													
 <table border="1" style="margin-top: 10px; width: 100%; border-collapse: collapse;"> <caption>Data for Total Consumption Bar Chart</caption> <thead> <tr> <th>Year</th> <th>Total Consumption (Kg)</th> </tr> </thead> <tbody> <tr> <td>2001</td> <td>~17000</td> </tr> <tr> <td>2002</td> <td>0</td> </tr> <tr> <td>2003</td> <td>0</td> </tr> <tr> <td>2004</td> <td>0</td> </tr> <tr> <td>2005</td> <td>0</td> </tr> </tbody> </table>		Year	Total Consumption (Kg)	2001	~17000	2002	0	2003	0	2004	0	2005	0
Year	Total Consumption (Kg)												
2001	~17000												
2002	0												
2003	0												
2004	0												
2005	0												
OBSERVATIONS													
.....													
.....													

It is a good idea to inform the rest of the personnel of the results and conclusions of these meetings by means of emails, informative notes, circulars, etc. The indicators should be presented as simple and direct graphs (see example below).

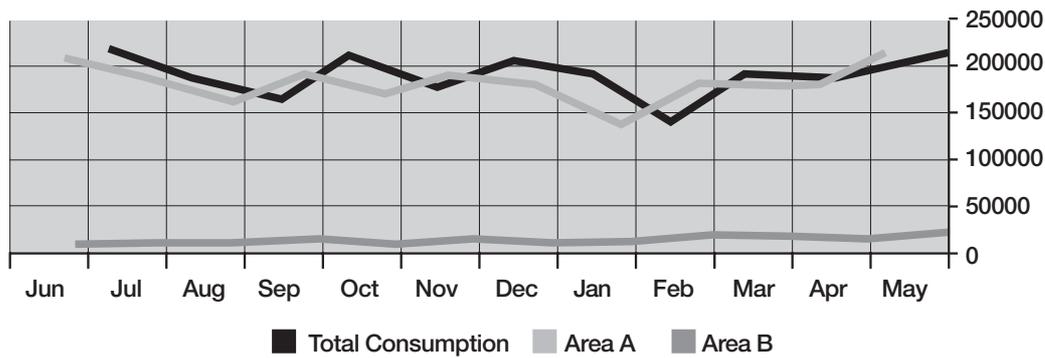


Figure 9: Energy consumption (kWh/worker).

First meeting to evaluate the results

The first meeting is recommended to be held one month after the last training action. The possible subject matter for this meeting could be:

- the evaluation of each training action
- the level of GHP implementation according to the evaluation of the training sessions
- the initial development of the indicators

The need for more training activities or more communication messages to reinforce the GHPs might also be discussed.

Meetings held after 4 and 8 months

The following ideas might be discussed for each GHP in these meetings:

- suggestions made by workers
- the opinion of the people in charge of implementing them
- the need to add more resources
- current state and development of the indicators
- validity of the indicators
- the benefits obtained

These meetings serve to measure the level of effectiveness of the Programme and the actions to be improved in cases where the results have not been suitable.

Assessment after 12 months

In this meeting the presence of the manager or the director of the company is essential. The environmental culture that has been acquired by the company thanks to the Good Housekeeping Programme and the cost/economic benefit to the company can be asses-

sed during this meeting. The same points for each GHP as in the previous meetings may be analysed in order and improvement and monitoring methods may be established.

F. Continuous improvement and monitoring

It is advisable to integrate the monitoring of the application of good housekeeping practices into other management tasks within the company (environment, quality, personnel management etc.). It is a good idea to calculate the indicators at least every six months and to revise the need to undertake specific training actions to reinforce and ensure the maintenance of the application of the good practices every year. In fact, it is a question of studying the results of the training actions in order to make sure they were successful or to reinforce or redirect the actions.

In order to improve the company, it is also a good idea to periodically (for example, every two years) question the need to design and apply a new programme of good practices. If the actions have been successful and we have achieved significant improvement, it might be a good time to set new and more ambitious objectives. The involvement of the Management and the Programme Coordinator are essential to achieving this.

In general, the indicators should show an environmental improvement in the first stage of implementation of the Good Housekeeping Programme.

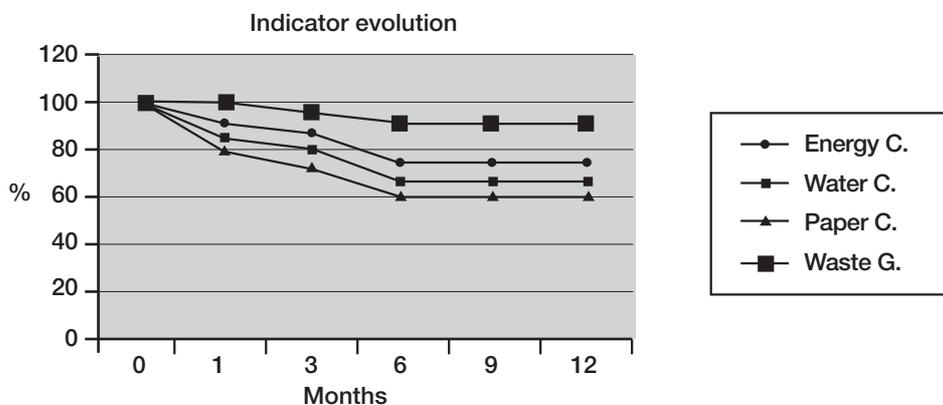


Figure 10: Percentage evolution of energy, water and paper consumption and waste generation in a fictitious administrative area.

After this first stage, the indicators cannot be optimised any further; new improvements need to be implemented in order to progress.

3. SELECTION OF GOOD HOUSEKEEPING PRACTICES IN ADMINISTRATIVE AND RELATED AREAS

Good housekeeping practices can be grouped into seven generic areas according to their application:

1 General criteria when purchasing office material and equipment

- 1.1. Criteria to require of suppliers
- 1.2 Environmental criteria applicable to purchasing office material
- 1.3 Environmental criteria applicable to purchasing office machines and drinks machines

2 Water use efficiency

- 2.1 Facilities maintenance
- 2.2 Installation of water saving mechanisms and/or systems
- 2.3 Saving water in refrigeration/central heating
- 2.4 Efficient water use by personnel

3 Paper use efficiency

- 3.1 Measuring paper consumption
- 3.2 Saving paper when printing and photocopying
- 3.3 Reusing paper
- 3.4 Saving paper in internal documents and communications
- 3.5 Saving paper in subscriptions
- 3.6 Saving paper in external communications
- 3.7 Other paper saving measures

4 Energy efficiency

- 4.1 Activity-appropriate lighting
- 4.2 Installation of energy-efficient lighting
- 4.3 Lighting maintenance
- 4.3 Lighting efficiency
- 4.4 Adaptation of the facilities for efficient air-conditioning/heating
- 4.5 Efficient use of the air-conditioning/heating facilities
- 4.6 Purchase of energy-efficient air-conditioning/heating systems
- 4.7 Efficient use of IT equipment

5 Appropriate use and maintenance of office materials

6 Office waste management

- 6.1 Resources and organisation to correctly manage waste
- 6.2 Separation of office waste

7 Environmental practices in office cl

Good Housekeeping Practices may affect:

- Management
- Maintenance/Administration Department (in some cases, certain maintenance operations, such as changing cartridges and toner are done directly by the administration department)
- Purchasing Department
- IT Department
- Human Resources Department (Training)
- All user personnel

3.1. General criteria when purchasing office material and equipment

This section defines the criteria that enable us to differentiate products that negatively affect the environment to a greater or less degree. In general, these are the basic criteria to apply to products:²

- Eco-labels recognised by official organisations or other criteria, such as:
- A complete list of the components of the product.
- Mono-material products or easily separable modules.
- Recycled or easily recyclable materials.
- Reusable packaging or as little packaging as possible.
- Low environmental impact packaging.

3.1.1 Criteria to require of suppliers³

The good practices in this section are aimed at the purchasing department:

- ISO 14001/EMAS environmental management certificate or other criteria, such as:
 - ISO 9000 Quality Management System.
 - An internal environmental management system or they have undertaken a pollution prevention study.
 - Application of good management practices in production, storage, cleaning and maintenance.
 - Environmental training programme for personnel and the corresponding records.

In order to obtain this data it is advisable to prepare a brief questionnaire for suppliers.

²⁻³ Taken from *Críteris ambientals per a plecs de prescripcions tècniques*. Catalan Centre for Recycling.

3.1.2 Environmental criteria applicable to purchasing office material⁴

The good practices in this section are aimed at the purchasing department

Within the concept of office material we can distinguish different types of products. The environmental criteria applicable to the most usual materials are given below.

PAPER

The environmental criteria applicable to purchasing paper are based on three characteristic aspects of its production process: the source of the pulp, the bleaching process and the management of emissions and dumping generated during the process.

Source of the pulp

- a) Recycled paper, pulp from old paper (RP).
- b) Chemical pulp prepared using wood from other uses (RW).
- c) Pulp from sustainable forests (SF).
- d) Chemical pulp prepared using cellulose from unsustainable forests (UF).

Bleaching process

- e) Unbleached paper (without dye extraction) (UP).
- f) Totally chlorine-free paper (TCF the maximum concentration of the chlorine compound in the pulp is less than 15 ppm) (TCF).
- g) Elemental chlorine free paper (ECF it may contain significant amounts of chlorine dioxide with the corresponding effect on wastewater (ECF).
- h) Elemental chlorine paper (it may also contain other compounds) (CP).

Emissions/waste management by the manufacturer

- i) The paper manufacturer has an environmental management system and it controls its emissions during the production process (EM).

It is possible to purchase paper with different types of labels. The following table shows the criteria used to determine the different certificates:

⁴ Taken mostly from *Guía práctica de la oficina verde*. IHOBE.

Certificate	RP	SF	UP	TCF	ECF	M
Emblem of environmental quality guarantee	X			X		
The Blue Angel	X			X		
The White Swan		X				X
EU Eco-label		X				X
Milieukeur ⁽¹⁾	X	X		X		
The Austrian Eco-label	X			X		

⁽¹⁾ The three characteristics are taken into account in offset paper.

Paper or different paper products may have one or more of the aforementioned characteristics.

Environmental criteria:

- Check the label and choose paper that has one of the certificates mentioned above.
- Choose unbleached recycled paper, whenever possible.
- Purchase low-weight paper, provided that it is appropriate for the work to be done and suitable for the office photocopiers and printers.

CLASSIFICATION AND FILING

There are a great many classification and filing articles in offices; in this section we distinguish between:

- Filing material: filing cabinets, boxes and folders
- Classification material: folders, pockets and dossiers
- Binding material: covers and binders

Environmental criteria:

- Purchase mono-material filing materials, preferably recycled cardboard.
- Purchase classification material made of recycled cardboard or easily recyclable plastic that can be correctly managed and separated in the office.
- Purchase binding covers made of recycled cardboard or easily recyclable plastic that can be correctly managed and separated in the office. Try to reuse metal binders or recover as scrap.

WRITING MATERIALS⁵

Writing materials can be classified in the following way:

- Markers and ballpoint pens
- Pencils
- Highlighter pens

Environmental criteria:

- Purchase markers and ballpoint pens made of recycled plastic, metal or wood.
- Purchase unlacquered pencils or propelling pencils.

⁵ Taken from *Guía práctica de la oficina verde*. IHOBE.

- Purchase water based refillable highlighter pens. Replace liquid text markers with dry fluorescent pencils (dry fluorescent pencils do not contain solvents, they usually last longer and they are made of wood and not PVC or other plastics).

OFFICE CONSUMABLES

The products that are most consumed in the office are:

- Glue: adhesive sticks, gum arabic (liquid), cow gum (paste or liquid) and other glues (contact glues or quick dry glues).
- Correctors: correction fluids and tapes.
- Tape: transparent adhesive tape and packing tape.
- Others: adhesive putty (Blu-Tack), erasers, etc.

Environmental criteria:

- Purchase refillable water-based glue, adhesive sticks and correction fluids; avoid organic solvents (acetone, ethanol, xylol, etc.).
- Buy cellulose acetate tape instead of plastic tapes, which are difficult to recycle and are not separated in the office.
- Purchase correction tape that is refillable and/or made of recyclable plastic that can be correctly managed and separated in the office.

NON-CONSUMABLE OFFICE MATERIALS⁶

Non-consumable office materials are long lasting. They include scissors, desktop staplers, pencil sharpeners, stackable trays, staple removers, etc.

Environmental criteria:

- Purchase long-life materials that can be repaired and refilled.
- Purchase mono-material products - usually metallic, free of mixtures.
- Purchase products manufactured with recycled material (for example, staplers with recycled plastic parts, recycled metal or plastic scissors).
- Avoid purchasing stackable trays that are not easily recyclable and that are not separated in the office.

IT CONSUMABLES

IT consumables include:

- Diskettes, CDs, etc.
- Toner, ink cartridges and ribbons for printers, photocopiers and fax machines

The second category may prove to be problematic due to the pigments of the dye or toner, heavy metals and preservatives.

⁶ Taken mostly from *Guía práctica de la oficina verde*. IHOBE.

Environmental criteria:

- Purchase toners and ink cartridges from companies that completely reuse part or all of the components of the toners and cartridges.
The manufacturer must guarantee the quality of the product and be responsible for any damage caused to the printer.
- Purchase ink cartridges that can be dismantled, i.e. the print head units and the ink tanks are two separate elements. The print head units can be used up to 5 times.

3.1.3 Environmental criteria applicable to purchasing office machines and drinks machines

The good housekeeping practices in this section are aimed at the purchasing department.

OFFICE MACHINES⁷

The machines we usually find in offices as follows:

- Personal computers
- Printers
- Photocopiers
- Fax machines
- Calculators

They generate emissions (ozone, noise, dust, etc.), they consume energy and they generate large amounts of waste due to their ever-decreasing life cycles.

Environmental criteria:

- Take into account environmental criteria when buying office machines (energy consumption, longevity and materials). Purchase office machines with environmental certificates like the German Blue Angel and the EU Eco-label or machines that comply with the criteria established by the European Commission Decision of 22 August 2001 (2001/686/CE).
- Purchase IT equipment that bears the Energy Star logo or products with energy consumptions lower than those established by the Energy Star programme.
- Purchase monitors that are designed in accordance with the established requirements in regard to contrast, flickering, and magnetic, electrical and electrostatic emissions.
- Purchase equipment from companies that promote the recycling or reuse of old equipment in an environmentally appropriate manner.
- Purchase printers with modified processes that do not produce ozone.
- Purchase photocopiers and printers that allow recycled paper. Certified machines manufactured by major companies usually allow recycled paper. Purchase photocopiers that allow double-side printing and reductions.

⁷ Taken mostly from *Guía práctica de la oficina verde*. IHOBE.

- Do not use thermal papers for faxes as it harms the environment; use normal paper.
- Purchase solar calculators that do not require batteries and that can use the mains electrical supply. For print-out calculators make sure they are refillable and that they can be constantly used.

DRINKS MACHINES⁸

- Use hot drinks machines that allow you to use your own cup instead of the plastic ones provided.
- Acquire soft drink vending machines that use returnable glass bottles.
- Acquire a water cooler rather than vending machines; this allows the number of bottles and cans in the administration area to be reduced.

3.2. Efficient Use of Water⁹

3.2.1 Facilities maintenance

- Establish a maintenance programme to guarantee the detection and repair of leaks, monitor the water- saving devices and the insulation of the hot water pipes, etc.

3.2.2 Installation of water saving mechanisms and/or systems

The good practices in this section are aimed at the maintenance department:

- In order to reduce water consumption it is advisable to install water-saving systems, such as:
 - Flow reducers on taps (toilets, kitchens and showers). These devices can be incorporated into the pipes to avoid consumption over of a certain level (normally 8/10 litres per minute).
 - Aerators / diffusers on the taps in the toilets and kitchens. These devices can be fitted to the taps in order to incorporate air into the water flow and thus reduce water consumption without affecting the user. They can reduce water consumption by as much as 40%.
 - Automatic taps - push button or foot switch operated.
 - Flush interruption systems on toilets with low cisterns. These systems allow the flush to be interrupted by means of a voluntary stop when the button is pressed for a second time.
 - Counterweights in the cisterns. These systems are attached to the flush mechanism of the cistern and they use the effects of gravity to work. The water flow is interrupted when the handle is released.

⁸ Taken from *Guía práctica de la oficina verde*. IHOBE.

⁹ Taken from *Guía de l'ecoauditoría sobre el uso eficiente del agua en la oficina*. Ecology and Development Foundation.

- In order to reduce the volume of cold water that flows directly into the plumbing system, it is advisable to insulate the hot water pipes between the production centre and the showers and taps.

3.2.3 Saving water in refrigeration/central heating

The good practices in this section are aimed at the maintenance department:

COOLING TOWERS

The consumption of the cooling towers of a building can be as much as 20 / 30% of total water consumption. Water loss in the cooling towers is due to:

- Evaporated water
- Drainage necessary to maintain the quality and smooth running of the system by reducing the soluble and insoluble pollutants that are produced during the evaporation process.
- Water is added in the tower to compensate for these losses.

In order to reduce water consumption in the cooling tower it is necessary to have:

- A suitable operation and maintenance programme (pH controls, alkalinity, conductivity, hardness, algae, concentrations of disinfectant products and corrosion inhibitors and precipitation). Depending on the characteristics of the tower, this will allow the purge water to be reduced and so the initial concentration ratio can be increased. The concentration ratio (CR) is the relationship between the loss compensation water volume (W) and the purge volume (P):

$$CR=W / P$$

A suitable operation and maintenance programme can increase the initial concentration level of 2 or 3 to 6 or more.

MACHINES WITH WATER RECIRCULATION

Cooling machines with water recirculation consumes a lot of water. Machines of this type installed in offices are usually air-conditioning units or ice makers. In order to reduce consumption:

- Connect the machine to a cooling tower.
- Assess the possibility of changing the machine for an air-cooled system.

CENTRAL HEATING BOILER

In order to reduce water consumption in the boiler, the following measures can be taken:

- Insulate the distribution pipes and the hot water storage units.
- Check for leaks periodically and repair them as soon as possible.
- Install a condensation recirculation system.

These measures will also help you to save energy.

3.2.4 Efficient water use by personnel

The good housekeeping practices that are expressed below are the responsibility of the Human Resources Department (Training).

- Identify the saving elements and inform users that they have been installed in their offices.
For example, place stickers in toilets to inform staff about the flush interruption systems in the toilets or the wastage caused by leaking taps.
- Inform personnel of the need to inform maintenance staff if they notice that any of the taps, cisterns or water pipes are leaking or not working properly.

The good housekeeping practices below are aimed at all personnel in the administrative area:

- Turn off the taps when they are not in use.
- Inform the maintenance department if a tap, cistern or water pipe is leaking.
- Avoid using the toilet as an ashtray or a waste paper basket. Do not throw paper into the toilet except toilet roll. Do not throw cigarette ends in to the toilets.
- Use the flush interruption function on toilets that have this system.
- Set the air-conditioning and heating systems to reasonable levels.

3.3. Efficient use of paper¹⁰

The good practices in this section are meant to be applied by Management:

- Designate someone to control the amount of paper that enters the office.
- Provide all the necessary resources requested by the designated paper controller and the rest of the staff, with the aim of reducing paper consumption (for example, the installation of a system to send faxes directly from the computers).

3.3.1 Measure paper consumption

The paper controller may adopt the following good practices:

- Request information about the technical and environmental characteristics of the paper and other management tasks detailed below.
- Monitor and record the number of photocopies made every month (both internally and externally). This is one of the main sources of paper consumption and it will give us a good idea of the progress we are making.

¹⁰ Text taken mostly from *Guía de ahorro y reciclaje de papel en oficinas*. Ecology and Development Foundation.

3.3.2 Save paper when printing and photocopying

PHOTOCOPIES

All members of staff can adopt the following good housekeeping practices:

- Make double-sided copies whenever possible.
- Use recycled paper provided the photocopier will accept it.
- Reduce the size of images to be photocopied whenever possible and whenever it supposes a reduction in paper consumption.

PRINTING

It is advisable to prepare a style manual, which is to be approved by the Management. In this, the font size and style, margins, front cover designs and the rest of the characteristics of the different documents issued by the company (faxes, quotes, reports, letters, etc.) will be defined. When designing the guide, paper saving should be taken into consideration. All members of staff can adopt the following good housekeeping practices:

BEFORE PRINTING

- Correct the document on screen to avoid unnecessary printing.
- Choose the smallest font size possible according to the guidelines included in the company style guide.
- Avoid printing drafts whenever possible.

PRINTING

- Print on both sides whenever possible.
- When draft printing is unavoidable:
 - Print on both sides of the paper or on the clean side of sheets that have already been used.
 - Print 2 pages on 1 sheet and/or select the minimum print quality resolution, if the printer has this capability.
 - Use recycled paper if the printer accepts it.
- Save unprinted files in the computer. Avoid saving paper copies of documents and reports.
- Avoid printing emails – read them on screen.
- Learn how to use the photocopiers and printers properly, keep the instructions next to the machines so they can easily be consulted. A simple instruction manual can be prepared for using printers and photocopiers. The Human Resources (training) department may be responsible for producing this.

3.3.3 Reuse paper

The paper controller may adopt the following good practices:

- Establish the same system for reusing paper in all departments.

All members of staff can adopt the following good housekeeping practices:

- Use the clean side of already used paper for notes, drafts, internal communications, etc.
- Reuse envelopes to send documents, as subfolders etc.

3.3.4 Save paper in internal documentation and communications

All members of staff can adopt the following good housekeeping practices:

- Use the Intranet if the company has one.
- Use email to communicate with other departments.
- Print one circular per department and make a list of names so that each person can pass the circular on to the next person on the list after reading.
- Use the document sharing option in computers.

3.3.5 Save paper in subscriptions

All members of staff can adopt the following good housekeeping practices:

- Share publications, organise a space to be used as a library so that all members of staff can quickly and easily consult the publications.
- Subscribe to electronic editions of magazines, newspapers and publications. Many subscriptions are available in electronic format, which enables you to copy and save them and print only the articles that you are interested in.

The administration department can adopt the following good practices:

- Monitor subscriptions and cancel subscriptions to publications that are not read.
- Monitor the number of copies of each publication or document that arrives in the company. Sometimes correspondence still arrives for people who no longer work there.

3.3.6 Save paper in external communications

Management is responsible for:

- Approving the company style manual, taking into consideration space optimisation in letters, reports, presentations, fax cover pages etc. in order to save paper.

All members of staff can adopt the following good housekeeping practices:

- Send messages and documents by email.
- Check the names on mailing lists before printing documentation.
- Send faxes directly from computers if they have a modem. Configure the computer to send faxes by modem, without having to print.

3.3.7 Other paper saving measures

It is the responsibility of the maintenance or administration department to:

- Replace paper towels with cotton ones, given that it is often the case that rather than use electric hand dryers some members of staff use toilet roll.
- Avoid using bleached or coloured toilet roll. Recycled toilet roll with ecological certificates (Emblem of Environmental Quality Guarantee) is available.

3.4. Energy Efficiency

3.4.1 Activity appropriate lighting¹¹

The following good housekeeping practices are aimed at the maintenance department:

- Organise lighting according to activity type and limit intensity.
As a reference guide, the minimum lighting requirements demanded by Royal Decree 486/1997 of 14 April in order to establish the minimum safety and health requirements in the workplace (Official Gazette 97, 23 April 1997) are reproduced below.

Workplace area ¹	Minimum illumination level (lux)
Areas where the following tasks are undertaken:	
- Low visual demands	100
- Moderate visual demands	200
- High visual demands	500
- Very high visual demands	1,000
Areas or premises that are used only occasionally	50
Areas or premises that are used frequently	100
Occasionally used walkways	25
Frequently used walkways	50

¹ The illumination level for an area where a task is undertaken is measured in accordance with the height that said task is undertaken at; in the case of general use areas this is 85 cm and for walkways it is ground level.

¹¹ Taken from the *Manual de buenas prácticas ambientales en oficinas*. AGBAR.

These minimum levels should be doubled in the following circumstances:

- a. In general use areas or premises and walkways, when, due to their characteristics, state or occupation, there are risks of falls, bumps or other accidents.
 - b. In areas where work is being undertaken that might endanger the worker or third parties when there is a lack of sufficient light or when the luminance contrast or the colour between the object to view and the background is very weak.
- Avoid unnecessary lighting on walls and ceilings.
 - Use light-coloured paint on walls.

3.4.2 Installation of energy-efficient lighting¹²

The following good housekeeping practices are aimed at the maintenance department:

- Use fluorescent tubes with reflectors and replace conventional starters with electronic starters (electronic ballast).
- Avoid the use of compact fluorescent lamps and fluorescent tubes when the lights are frequently switched on and off (for example, bathrooms and stairs).
- Replace conventional incandescent lamps with compact fluorescent lamps or low-consumption halogen lamps. These lamps provide more light than conventional incandescent lamps.¹³
- Use presence detectors to control the lights in individual use rooms or rooms that are used intermittently like bathrooms. In these spaces, it is also advisable to use timers to control the lights.
- Install flux regulators when there is a lot of natural light. These devices reduce the intensity of the light from the lamps in accordance with the external lighting. Choose light regulators that save energy.
- Install switches that allow the lights to be turned on and off from different points in corridors and on stairs.

3.4.3 Lighting maintenance

The following good housekeeping practices are aimed at the maintenance department:

- Periodically clean lamps.
- Place stickers on the light switches to remind users to turn the light off when they are not necessary.

¹² Taken from *La guía de la energía*, available on: www.energuia.com, the website of the Ministry of Industry, Trade and Tourism of the Government of Catalonia: www.gencat.es/dict/energia/bt.htm

¹³ Taken from Focus: *Guía de eficiencia energética ambiental para la empresa*. IHOBE and CADEM.

3.4.4 Good housekeeping practices with respect to habitual lighting use¹⁴

The following good practices are aimed at all members of staff:

- Use lights only when necessary. Turn off the lights in rooms that are not being used.
- Take advantage of and use natural light as much as possible. Open curtains and blinds.
- Turn off the lights when the office is empty.

3.4.5 Adaptation of the facilities for efficient air-conditioning/heating¹⁵

The maintenance department shall adopt the following good housekeeping practices:

- Install appropriate insulation, double-glazing, properly sealed windows and doors (40% of heat loss is through windows).
- Install insulation in the ceiling, walls and floors, when offices are refurbished. Avoid using insulation foam that contains ozone-depleting gases; use materials such as fibreglass, mineral wool, perlite, etc.
- Place furniture and installations in such a way that they can receive solar heat and natural ventilation. Use systems like internal and external blinds, reflective glass, solar protectors, etc.
- Install air-conditioning units in shaded areas of the office.
- Install thermostats on the radiators or a regulator on the boiler.

3.4.6 Efficient use of air-conditioning/heating systems¹⁶

All members of staff can adopt the following good housekeeping practices:

- Close the windows when the heating or air-conditioning system is in use. Turn off the heating and air-conditioning systems in rooms that are not being used.
- In winter, maintain the temperature at 19-20°C in order to be comfortable and achieve minimum consumption.
- In summer, open the windows and use curtains to avoid the heat of the sun and reach a suitable temperature. Avoid using the air-conditioning as far as possible. If the air-conditioning has to be used, set the temperature to between 23 and 25°C and close the windows. A temperature reduction of one degree equates to an 8% increase in energy consumption.
- Turn off the air-conditioning/heating at night and turn it back on in the morning after ventilating the office and closing the windows.

14-15-16 Taken from *Manual de buenas prácticas ambientales en oficinas*. AGBAR.

3.4.7 Purchase of energy-efficient air-conditioning/heating systems

The purchasing or contracting department is responsible for adopting the following good housekeeping practices:

- Purchasing air-conditioning systems with thermostats and numerical temperature readouts.
- Purchasing systems that have an energy efficiency quotient¹⁷ and performance level higher than the minimum values established in the Thermal Installations Regulations for Buildings and the UNE standards referred to in these regulations.
- Requesting installers to justify their systems and the possibility of using energy-saving measures, such as:
 - When designing thermal installations, taking into account the internal conditions (activity, mean radiant temperature, average air speed of the area etc.), the external conditions and the criteria and precepts that enable us to estimate and achieve the desired levels of well-being, security and the rational use of energy.
 - Taking into consideration the power division: with the aim of making the centralised production of heat or cold appropriate to the maximum performance. It is necessary to have the appropriate number, power and type of generators for the thermal energy demands of the installation.

3.4.8 Efficient use of IT equipment

All members of staff can adopt the following good housekeeping practices:

- Switch monitors off when they are not being used (during meetings, lunch breaks, etc.), as screen savers do not save energy (they use twice as much energy as the PC).¹⁸
- Use the sleep mode when you are not using the computer. The sleep mode preserves the power of the battery, but it turns off the microprocessor clock, the screen, the hard disc drive, the CD-ROM and DVD-ROM drives and the LS-120 unit (if installed), the external monitor connector, the external keyboard, the parallel port, the series port and the disk drive.
- Use the standby mode for brief periods of inactivity. The standby turns off the monitor, stops hard disc activity and switches off other internal devices so that the computer consumes less battery power.
- Use the sleep mode on medium speed fax machines that bear the Energy Star logo. The sleep mode uses 25% less energy than the standby mode when they are prepared to send and print.

¹⁷ Taken from *Guía práctica de la oficina verde*. IHOBE.

- Switch off the machines at the end of the working day or when they are not going to be used for a considerable period.

The maintenance or IT department can adopt the following good housekeeping practices:

- Place machines that are in constant use in areas of the office where there is air circulation.

The human resources (training) department can adopt the following good housekeeping practices:

- Teach staff how the machines work and the different ways that energy can be consumed (deep sleep mode, low-power mode, auto-off feature, off mode, etc.).

3.5. Appropriate use and maintenance of office materials

All members of staff can adopt the following good housekeeping practices:

WRITING MATERIALS

- Keep writing material tidy so that markers, pencils and pens do not get lost and are fully used.
- Keep the lids on markers and highlighters when they are not being used so that they do not dry up.
- Share markers as much as possible.

GLUE AND CORRECTION FLUIDS

- Put the tops on after each use to avoid unnecessary evaporation (organic solvents) and to prevent them from drying out.

NON-CONSUMABLE DESK MATERIALS

- Remove paper clips, staples and other metallic items from paper before disposing of it.

BATTERIES

- Switch off machines that are not being used so that the batteries last longer.

3.6. Office waste management

3.6.1 Resources and organisation to correctly manage waste

Management is responsible for applying the following good practices:

- Providing resources so that workers can separate waste.
- Designating someone to monitor the quantities of waste and manage them. The following tasks may be undertaken by this person:

These good housekeeping practices are aimed at the person responsible for waste:

- Providing everyone with suitable bins to separate waste. These bins should be marked clearly and kept in a suitable place.
- Managing waste by means of a collection centre, the municipal waste management and collection services or the services of other towns near the premises. Establishing for each type of waste the appropriate collection frequency and management, in accordance, for example, with the European Waste List.¹⁹
- Managing special waste through an authorised waste management entity, if there is no municipal collection and management system in place.
- Ensuring that all waste generated in the office is separated correctly and monitoring the amounts generated.
- Informing staff of the waste separation and waste management results in the office.

3.6.2 Separation of office waste

All members of staff can adopt the following good housekeeping practices:

- Separating waste at source (in the place where it is produced).
- Separating waste and placing each type in the appropriate area.
- Not mixing dangerous waste.
- Making piles of paper rather than screwing them up and flattening cardboard boxes in order to save space.

¹⁹ Waste is coded according to the European Waste List, Decision 2000/532/CE.

3.7. Cleaning²⁰

The cleaning service is usually provided by a subcontractor or the Maintenance Department. The good housekeeping practices to be applied are given below:

- Reducing consumption of chemical products, not using unnecessary products, using appropriate amounts etc.
- Being familiar with symbols indicating toxins and danger and having the safety sheets for the products.
- Choosing products that are the least aggressive from an environmental and health perspective. For example, biodegradable cleaning products.

¹⁸ Taken from *Guía práctica de la oficina verde*. IHOBE.

4. INDICATORS

4.1. Indicator selection

Environmental indicators provide the information required to evaluate the results of the actions undertaken in the Good Housekeeping Programme. Monitoring enables continuous improvements to be made and contributes to greater staff involvement.

However, it is not easy to find a balanced indicator that provides the information we need without implying an excessive amount of work in terms of data collection and processing. Therefore, it is important to choose carefully and realistically, according to our means, if we are to succeed in this respect.

There are two types of indicator: **results indicators and habit indicators.**

4.1.2. Results indicators

Results indicators provide information about the results of the environmental vectors in question, for example, resource consumption, emissions, waste, etc.

Results indicators must respond to the environmental changes in the company or department where the GHPs have been implemented, so they may be considered for the different environmental vectors that are relevant in the offices and administrative areas:

- A) Purchasing and supplies
- B) Water use efficiency
- C) Paper use efficiency
- D) Energy efficiency
- E) Use of office materials
- F) Office waste management
- G) Cleaning

Generally, the consumption level of the different types of resources (energy, water, paper, office products, cleaning products, etc.) or generation, in the case of waste, is used as the base for indicators.

The absolute data with regard to consumption can be obtained by collecting historical data from invoices, waste reports, sales statistics, and inventories or by reading the meters for certain resources.

The indicator to calculate consumption variation for a certain resource or product or to calculate waste generation, after the implementation of a certain GHP is expressed in the following manner:

$$DC = [(C1(A) - C2(A)) / C1(A)] * 100$$

Where:

DC: the consumption variation of a certain resource or product (or waste generation) over a certain period of time following the implementation of the good housekeeping practice.

C1(A): the consumption of a certain resource or product (or waste generation) over a certain period of time prior to the implementation of the good housekeeping practice.

C2(A): the consumption of a certain resource or product (or waste generation) over a certain period of time following the implementation of the good housekeeping practice.

DC is positive if consumption (resource or product) or the generation (waste) has been reduced after the implementation of the measure or action; and it is negative if consumption or generation has increased.

There are other factors that may influence the consumption variation. They must be taken into account, both when determining the indicators and when evaluating the results.

Some of these factors are:

- **Number of workers**

The results of the indicators, generally, vary according to the number of employees in the centre or area. It should be taken into account that in some centres the number of workers that are usually in the office is not stable; rather it varies in accordance with temporary contracts, holiday periods etc. Water consumed by 150 people cannot be evaluated in the same way as water consumed by 200 people.

- **Holiday periods or shorter working days**

Another factor to take into consideration is that there are fewer workers during holiday periods.

Similarly, in some companies, there are sometimes periods of shorter working days, above all in summer, and this has a bearing on the total number of hours that workers spend in the centre.

- **Seasonal variations**

Some of the results of the indicators vary according to the time of year. For example, in some companies, paper consumption increases considerably at the end of the year.

Similarly, some resource consumption indicators may vary according to factors such as the use of air-conditioning in summer and heating in winter. In some cases, extreme temperatures in winter or summer may also influence the results.

Similarly, it should also be taken into account that in summer there are more daylight hours than in winter and therefore electricity consumption will be affected.

- **State of the water and energy supply systems and equipment**

Other factors to take into account include changes made to water and energy equipment and/or supply systems. For example, monthly electricity consumption results will differ if temperature regulators have been installed in the centre between one month and the next.

It is advisable to take into account whether any major changes have been made with regard to electronic and/or IT equipment and water and energy equipment or supply systems (thermostats, water pipe insulation, changes to the lighting system etc.).

- **Surface area of the building**

This parameter should be taken into account to calculate energy indicators and when comparing different buildings or work centres.

The aspects described above (number of workers, seasonal variations, surface area etc.) can also be introduced into indicator calculations in order to obtain results that are more representative of the centre.

So, for example, if in the consumption calculation for a certain resource, the variation in the number of employees is to be taken into account, the formula can be expressed as follows:

$$DC = [(C1 - C2) / C1] * 100$$

Where:

DC: the % reduction or increase in consumption (resource or product) or generation (waste) over a certain period of time.

$C1 = C1' / ET1$, where $C1'$ is the consumption (resource or product) or generation (waste) associated to a given period of time prior to the implementation of the measure, and $ET1$ is the average number of employees in the same time period.

$C2 = C2' / ET2$, where $C2'$ is the consumption (resource or product) or generation (waste) associated with a given period of time after applying the measure, and $ET2$ is the average number of employees in the same time period.

Therefore, this indicator enables us to observe the consumption trend of a certain resource or product or waste generation, taking into account the number of employees. It is, therefore, especially suitable when there have been considerable variations in the time periods.

These are just a few examples of environmental indicators. They can be used as a base to define others. Similarly, we can relate these or other indicators or absolute values to the operational units that have produced them. This relationship is called a ratio.

Examples of ratios include the consumption of photocopies per worker, recycled paper consumption with respect to total paper consumption, water consumption per use type, generation of recyclable waste, etc.

Finally, we can also propose indicators that reflect the economic benefits created by the implementation of certain good housekeeping practices. Examples include the economic saving obtained by reducing the consumption of paper, energy, water etc.

4.1.2. Habit indicators

Habit indicators provide information about the level of integration of the good housekeeping practices into daily tasks such as, for example, the environmental information or education level of the personnel in regard to waste management.

Thus, in order to ascertain the level of environmental information with regard to some of these aspects, the following indicators may be used: the number of courses undertaken in the subject, the number of attendees, the number of posters or leaflets used, etc.

As with the results indicators, absolute values can also be used to obtain ratios that enable us to establish comparisons with other experiences: number of courses per employee, percentage of attendees with respect to the total number of workers, etc.

Similarly, complex indicators can be defined by combining simple ones. For example, if several training actions have been undertaken in regard to a certain aspect, we can use an indicator that considers them as a whole (number of courses and the number of campaigns, etc.).

4.2. Monitoring the indicators

Once we have determined the indicators it is essential to prepare guidelines for compiling and recording the data and for monitoring it. The role of the people designated to undertake these tasks is very important and therefore, they have to be very familiar with the Good Housekeeping Programme, which data to collect, how often to collect the data, what type of treatment is to be undertaken and the use of the indicators.

With the information provided by the indicators, the following can be undertaken:

- **analysis of time series:** comparison with previous values in order to evaluate the evolution of the indicator
- **comparative evaluation between different departments or companies** (benchmarking): definition of the strengths and weaknesses of our centre, in comparison with other departments, offices and companies.

Using the results from the time series and the comparative evaluation between companies we can redefine the objectives of some of the good housekeeping practices.

The following example of a fictitious company may help us understand the use of this type of data processing:

A leading brewery has all its administration, marketing and sales offices in one building. This centre monitors paper consumption in its offices by means of a series of environmental indicators.

Some of the results of these indicators are:

1. *The time analysis of the results of the photocopy consumption indicator shows that since the start of the Good Housekeeping Programme, a reduction in paper consumption has been observed. The Programme Coordinator determines that this reduction is a consequence of making better use of the photocopier (double-sided copies).*

April, however, shows an increase in photocopy paper consumption with respect to previous months.

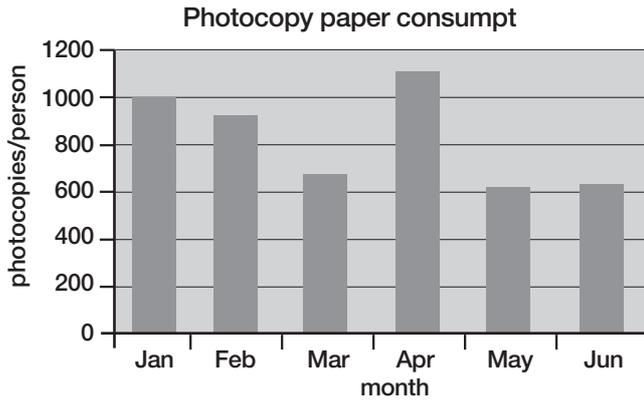


Figure 11: Fictitious example of the time analysis of photocopy paper consumption.

Upon evaluating the possible causes, the maintenance manager determined that, due to a malfunction during the month of April, it was impossible to use the double-sided copy function, so almost double the amount of paper was consumed. Thanks to the monthly indicator of photocopy paper consumption, the error was discovered and the problem was solved.

2. The comparative evaluation of the results of this indicator between the different floors of the building provided the following results:

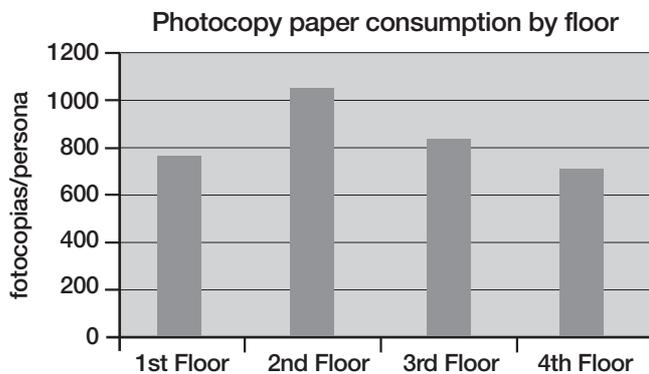


Figure 12: Fictitious example of the comparative evaluation of the photocopy paper consumption on the different floors of the building.

The comparison of the results of the monthly indicator "photocopy paper consumption" for all the floors showed that the second floor was making much more photocopies than the rest. Upon analysis of the possible causes it was discovered that on the second floor default print setting was not double-sided printing.

4.3. Communicating the results

It is advisable to place the results of the indicators at the disposal of all the workers in the company.

These results should be presented clearly and simply so that all employees can understand them.

The recommended communication channels for these results are the company Intranet and notice board.

The results can also be presented as absolute or relative values.

With respect to **absolute values**, it must be taken into account that they indicate a global reflection of the environmental impacts, but they do not help to compare the evolution of the parameters or to understand the magnitude of the problem. (Example: total energy consumption (kWh/month).)

Therefore, in order to evaluate these values, they have to be compared to other absolute values or to an objective that we want to achieve. This has to be developed over several months or years (time series analysis). Absolute values are usually shown on trend graphs.

Relative values, however, inform us of the effectiveness of the environmental management in the company with regard to their unit of measurement. (Example: energy consumption per person per month (kWh/person/month) or photocopier paper consumption per employee.)

These data allow comparisons to be made between different companies and departments, that is to say, benchmarking.

Percentages are another type of relative indicator. They are used to determine the total proportion that corresponds to a subgroup. (Example: percentage of recyclable waste with respect to total waste.)

These relative values are usually represented on pie charts or, in the case of results over a certain time period, bar charts could also be used.

In order to capture the attention of the staff when communicating the results of the indicators, consider doing so by means of clear, high-impact messages. Similarly, these messages may also contain the environmental or economic benefit that was obtained or the economic or environmental cost.

For example, when communicating paper consumption results:

If a large company has managed to reduce its paper consumption by one tonne per year due to the implementation of a Good Housekeeping Programme and other initiatives, the environmental benefit created by this reduction could be transmitted to the employees using messages like this:

"With the paper we have saved, we have managed to save 0.4 hectares of forest, that is, 17 20-year-old trees".

5. CASE STUDIES

5.1. Case Study 1: Grup Aigües Barcelona

Company

Grup Aigües Barcelona (henceforth Grup AGBAR) was founded 130 years ago as an integral water cycle company. Its activity is centred on water management, that is to say, the catchment, transport, purification and distribution of drinking water in addition to collection, wastewater treatment, reuse and return to the natural environment.

Moreover, Grup AGBAR has now diversified its activities to include other sectors such as maintenance, IT, telecommunications, construction and so on.

Background

The Quality and Environment Department of the Water and Sanitation Sector (AMA) of Grup AGBAR with the collaboration of the Centre for the Enterprise and the Environment (CEMA) and the Directorate General of Environmental Policy and Sustainability (DGPAS) (both belonging to the Ministry of the Environment and Housing of the Government of Catalonia), decided to implement a Good Housekeeping Programme in its EMATSA and Sorea, SA offices.

EMATSA and Sorea, SA form part of the Water and Sanitation Sector of Grup AGBAR. They are the companies in charge of providing services related to the integral water cycle in Tarragona, Catalonia and the Balearic Islands respectively.

Implementation of the Good Housekeeping Programme

1. Scope

The offices chosen to implement the Programme were the five offices of **Sorea, SA** and two offices of EMATSA:

- Barcelona (Sorea Depuració central offices)
- Granollers
- Sant Cugat
- Calafell
- Palafrugell
- Tarragona

The number of people involved in the Programme in each office is shown in the following table:

OFFICE	PEOPLE
Barcelona	32
Granollers	16
Sant Cugat	20
Tarragona	11
Calafell	9
Palafrugell	10
TOTAL	96

2. Implementation of the Good Housekeeping Programme at AGBAR

The programme was implemented in the offices in accordance with the following six phases:

2.1. Initial presentation of the GH Programme to the personnel involved

The objectives, programme phases and the responsibilities of those involved were defined during this stage. A Programme Coordinator was designated for each one of the offices.

2.2. Analysis of the current situation in the offices

In this phase, a diagnosis of the current situation in the offices was prepared.

Based on this diagnosis, the company considered that the most relevant aspects in which environmental impact could be reduced were: paper consumption and waste management. Workers were designated to be responsible for waste and for paper.

These people were responsible for:

- compiling the information
- monitoring the indicators
- channelling the proposed improvements
- channelling complaints and proposals
- informing staff of the programmed activities

This initial diagnosis phase was key to subsequently deciding the measures to be applied in the offices.

2.3. Selection of the GHPs to be implemented

In this phase, based on the most relevant environmental aspects in the offices, a list was drawn up of the GHPs that could be applied. Based on this first list, for each one of the proposed GHPs, the Programme Coordinator estimated the associated investment and costs, viability and ease of implementation. Finally, this information was used to decide which GHPs to implement.

The good housekeeping practices that were implemented concerned:

- The efficient use of paper
- Waste management in the offices

One of the keys to the Efficient Use of Paper is to minimize consumption. Accordingly, good housekeeping practices were implemented to:

- a. Encourage the correct use of photocopiers
- b. Encourage the correct use of printers
- c. Replace paper files with digital ones
- d. Optimise IT applications
- e. Promote the use of used paper
- f. Use recycled paper

The second objective with regard to the efficient use of paper was to adopt the use of recycled paper. Accordingly, appropriate measures were introduced with regard to both purchasing and staff awareness.

With respect to *Waste Management in the offices*, the most important objective was to minimize waste generation. Thus the GHPs were implemented to:

- a. Classify and separate waste
- b. Separate and manage special and non-special waste
- c. Reduce toner consumption
- d. Reduce paper consumption
- e. Reduce office consumables consumption

2.4. Definition of the indicators

The indicators proposed to monitor the GHPs for paper and waste were the following:

- *Paper:*
 - Total paper consumption (kg).
 - White paper consumption (kg).

- Recycled paper consumption (kg).
 - Use of recycled paper with respect to the total quantity of paper (%).
 - Number of photocopies (number).
 - Paper expenditure reduction (euros) (due to the reduction in consumption and/or use of recycled paper)
- *Waste:*
 - Quantity of paper to be recycled (kg of recycled paper).

Indicator measurement was started prior to the training sessions so that the impact of the sessions could be evaluated.

2.5. Training and communication actions

In order to implement the programme, a series of training sessions were planned for each of the aforementioned Sorea and EMATSA offices:

The sessions were aimed at all office staff. The number of attendees per session was small (maximum of 20 people per group) so the relationship between the trainer and the attendees could be closer and more dynamic. The sessions were prepared and given by qualified external personnel.

The training sessions lasted approximately one hour and dealt with:

- the efficient use of paper
- efficient waste management

At the same time, the material required for the staff awareness campaign and the messages it would contain were prepared: The material used as dissemination tools were posters and leaflets.

Two different types of posters were designed - one for efficient paper use and one for efficient waste management. These posters contained all the recommendations related to the chosen GHPs. These posters were then placed in the areas where the activity they described was undertaken.

For example, the poster on Efficient Use of Paper was displayed where there were printers and photocopiers, above waste paper bins etc. The Efficient Waste Management poster was placed above the bins in the offices.

The second awareness tool, the leaflets, contained the most important messages and recommendations relating to the two GHPs and they were distributed to all employees.

2.6. Monitoring and evaluation of the implementation of the Good Housekeeping Programme

The evaluation of the results was undertaken based on the evaluation of the indicators defined at the start of the Programme. The results of the indicators a year after implementing the Programme in the centres were as follows:

PAPER

- **Total paper consumption.**

It is difficult to see on the measured period the trends, as the general consumption patterns of the offices are not linear. There are several external factors that intervened as for example, the period of time where the company proceeds to send the bills to its customers. In general, it is estimated that there has been a sensible reduction of total paper consumption due to, mainly, the replacement of paper documents by digital format, the modification of the computer programmes to reduce printing and due to the use of printing to double face.

- **Use of recycled paper.**

Approximately 30% increase in the use of recycled paper. In some office the percentages were as high as 100%, that is to say, white paper was completely replaced by recycled paper.

- **Number of photocopies.**

During the first months of the Programme, a clear reduction in the number of photocopies was observed.

WASTE

- **Quantity of paper to be recycled.**

The quantity of paper to be recycled increased by 25%, that is to say, on average 15 kg more paper per month than before the Programme.

5.2. Case Study 2: Abertis Telecom

Company

Abertis Telecom is in the Spanish territory the main group in infrastructures and telecommunication services. Thanks to Tradia and Retevision, it has more than 3,000 places for spreading and distribution of radio and television signs, both analogical and digital.

It also offers the wider catalogue of mobile telecommunication services for security and emergency bodies and telecommunication services for telephone companies. It takes part of the leader private corporation in the territory as regards transportation and communication infrastructures.

Background

The Environment Department of Retevisión (the present Quality and Environment Department of Abertis Telecom) with the collaboration of the Centre for the Enterprise and the Environment (CEMA) and the Directorate General of Environmental Policy and Sustainability (DGPAS) (both belonging to the Ministry of the Environment and Housing of the Government of Catalonia), decided to implement a Good Housekeeping Programme in its offices of the corporate building Torre Barcelona.

Implementation of the Good Housekeeping Programme

1. Scope

The office chosen for this programme was their Headquarters in Barcelona, which is focussed on the telecommunications sector and has 200 employees.

2. Implementation of the Good Housekeeping Programme at Retevisión (nowadays Retevisión is part of the Abertis Telecom)

The programme was implemented in the Retevisión offices, that nowadays is part of Abertis Telecom, in six phases, as in the previous case study. The first three phases, corresponding to the Initial Presentation of the GH Programme to the staff, the Identification of the current situation in the offices and the Selection of the GHPs to be implemented, were developed in a very similar fashion to the Sorea, SA case.

For this reason, we have decided not to include these phases in order to avoid repetition.

2.4. Definition of the indicators

The indicators to monitor the GHPs for paper and waste were the following:

- **Paper:**
 - Number of photocopies per person per month.
 - Number of pages printed per person per month.

- Quantity of personnel that reuse paper with respect to total personnel (%).
- Use of recycled paper with respect to the total quantity of paper (%).

- **Waste:**

- Number of toners per kg of paper consumed.
- Number of toners selectively collected at source with respect to number of toners consumed.
- Quantity of batteries selectively collected at source with respect to the quantity of batteries in the bin (%).
- Quantity of bottles returned with respect to the quantity of bottles served (%).

In a similar fashion to the previous case, indicator measurement was started prior to the training sessions so that the impact of the sessions could be evaluated.

2.5. Training and communication actions

The training sessions were directed at all office staff. They lasted approximately one hour and they dealt with GHPs relating to:

- the efficient use of paper
- efficient waste management
- environmental criteria in purchasing office material and equipment

A training session was held for 25 people – 2 employees from each department. The session was prepared and given by qualified external personnel.

At the same time, the material required for the staff awareness campaign and the messages it would contain were prepared: As in the previous case study, posters and leaflets were used to disseminate the information.

2.6. Monitoring and evaluation of the implementation of the Good Housekeeping Programme

The evaluation of the results was based on the evaluation of the indicators defined at the start of the Programme with a periodicity of 6 months. A year after the Good Housekeeping Programme was implemented, the results were as follows:

PAPER

- Number of photocopies per person per month.
During the first six months of the year, the average number of photocopies per person per month was 630. This figure was reduced to 450 during the second half of the year. This equates to a paper consumption reduction of 23% in the second six-month period.

This reduction in the number of photocopies was considered to be due to the change in the habits of the staff, both with regard to the number of photocopies made and the increase in the use of the double-sided copy function.

- Number of pages printed per person per month.

As the same multifunctional equipment was used for both printing and photocopying, the results of this indicator are the same as in the case of the photocopies. Therefore, there was a reduction in the amount of printing in the second half of the year with respect to the first half.

This reduction in the amount of printing was also considered to be due to the changes in staff habits with regard to printing: better use of the double-sided printing option and printing more than one page per sheet.

- Quantity of personnel that reuse paper with respect to total personnel (%).
The data for this indicator had to be extracted by means of a survey. Currently, the office staff reuse all used paper.
- Use of recycled paper with respect to the total quantity of paper (%).
The data obtained by this indicator was the same for both periods. The percentage of recycled paper in both periods was 91% compared to 9% for white or new paper.

WASTE

- The data corresponding to the waste indicators is not currently available.

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