

Answers to hospital-hygiene evaluation sheets.

: *High-risk areas* = Operating room, Sterilization room, Isolation unit, Delivery room, Kitchen, Laundry-room.

WATER SUPPLY

Whatever the project of water supply you are working on, the design is always following the same cycle. The procedure is represented by a serie of questions:

- | | |
|----------------------------------|-------------------------------------|
| 1) How much water do we need? | THE NEEDS |
| 2) Where can we find it? | THE WATER SOURCES |
| 3) Is the water drinkable? | THE QUALITY |
| 4) How to make it drinkable? | THE PRE-TREATMENT
THE TREATEMENT |
| 5) How to bring it to consumers? | THE STORAGE/ THE DISTRIBUTION |
| 6) Can we afford it? | THE COST |

In mergency, we will also ask the followin question:

- | | |
|-----------------------------------|--------------------|
| Can we set up the system rapidly? | THE TIME OF SET UP |
|-----------------------------------|--------------------|

You have to answer to questions in this order, one after the other

Each question could have several answers depending on the assumptions and the answers of the previous questions.

A good way is to do the cycle several times : the answer to one question can lead to a re-evaluation of the previous ones.

It is always better to spend time on the design instead of starting construction : usually it brings better solutions at a lower cost.

EXCRETA

Elimination technique

⇒ We favour the use of dry-pit latrines (Standard, or Ventilated Improved versions).

➔ Less of a problem in the event of water shortage

◇ Ventilated improved pit (VIP) latrines

⊖ This is the most appropriate form of latrine:

⇒ Minimizes bad odours

⇒ Reduces number of vectors

⇒ **Mandatory items:**

- * A drainage ditch around the facility
- * A night-time lighting system

⇒ **Do not cover the defecation hole with a lid.**

➔ Prevents circulation of air.

⇒ **Close the slab when there is 50 cm distance from the surface.**

See Public Health Engineering in emergency situations guideline pp. II 20-21

◇ Pit latrines

⇒ **Mandatory items :**

- * A drainage ditch around the facility
- * A night-time lighting system

⇒ **They must be covered by a lid:**

- * Avoid proliferation of vectors
- * Reduce spread of bad odours

⇒ **Close the slab when there is 50 cm distance from the surface.**

See Public Health Engineering in emergency situations guideline pp. II 18-19

◇ Alternating twin pit latrine

⇒ **The useful volume of the pit will depend upon the number of people and the life-span of the pit.**

⇒ **They must be regularly emptied.**

➔ 2 years after closure

- * Self-destruction of pathogens

See Public Health Engineering in emergency situations guideline pp. II 22-23

Latrine maintenance:

◇ It must be possible to **clean all parts** with water

◇ **MINIMUM CLEANING FREQUENCY:**

⇒Floor	☞ Once/ Day
⇒Walls	☞ Once/ Day
⇒Woodwork	☞ Once/ Day
⇒Ceiling	☞ Once/ Week

◇ **Never pour disinfectant** into the pit

⇒ **This prevents the natural biological decay of faecal matter**

Quantity

◇ We recommend the following ratios:

⇒ **1 / 20 Adults**

⇒ **2 / 20 Children**

Basic rules to be respected

◇ **HAND-CLEANING AREA:**

● The presence of a area to **wash hands** at the **exit to all latrines** is mandatory.

⇒ The area must be equipped with:

* **Water**

* **Soap or a 0.05%-chlorine solution**

Health Surveillance

This surveillance record is one of the tools used during an initial assessment in order to get a general idea of the health situation of a vulnerable population. This very general tool must be adapted to each context, which may require very specific details.

Identification

Supervisor:	Date:
Country:	Town / Village:
Area covered:	
Population:	Majority ethnic group:
Other NGOs or GOs present in the area:	
Climate (i.e.: rainfall, temperature, etc.):	
Geography (i.e.: altitude, type of land):	
Comments:	

Drinking water

Origin:	Extraction method:
Flow:	No. of users / water point:
Distance to travel:	Other beneficiaries (IDP):
Condition of the water points:	
Type of family reserve water stocks:	
Quality:	NTU turbidity: pH: Smell: Color: Residual chlorine: Fecal coliforms:
Treatment:	Storage:

Comments: (i.e.: organization /opinions of beneficiaries /cultural aspects, etc.):

Sanitation

General impression (i.e.: open defecation, etc.)

Latrines

Type of latrine:

Type of slab:

Average depth:

Condition of latrines:

No. of latrines in use:

No. of people / latrine:

Distance / water point:

Comments (i.e.: organization /opinions of beneficiaries /cultural aspects, etc.):

Waste management

System of sorting / collection:

No. of waste pits:

System for managing medical waste:

No. of pinholes:

No. of organic waste pits:

No. and type of burner / incinerator:

Comments (i.e.: organization /opinions of beneficiaries /cultural aspects, etc.):

Drainage and wastewater	
Natural slope of the land:	Type of drainage:
Presence of stagnant water:	
Presence and quality of cesspools near water points:	
Comments (i.e.: organization /opinions of beneficiaries /cultural aspects, etc.):	

Carriers	(- = absence)	
Flies:	+++ / ++ / + / +- / -	Comments:
Mosquitoes:	+++ / ++ / + / +- / -	Comments:
Fleas:	+++ / ++ / + / +- / -	Comments:
Rats:	+++ / ++ / + / +- / -	Comments:
Other carriers:		Comments:
Control measures:		
Comments (i.e.: organization /opinions of beneficiaries /cultural aspects, etc.):		

Other
Cemetery:
School:
Market:
Comments:

VECTORS

PRINCIPAL VECTORS	HYGIENE MEASURES IN SITU	ESSENTIAL INDIVIDUAL PROTECTION	CHEMICAL CONTROL : PRODUCTS USED
MOSQUITOS	<ul style="list-style-type: none"> * Elimination of larval habitats * Covering water tanks * Weekly emptying of large tanks * Land drainage * Provision of water, soap and clothing * Reduce overcrowding 	<p>⇒ If viral epidemic (encephalitic yellow fever.):</p> <ul style="list-style-type: none"> • mosquito net • repellent <p>⇒ Preventative treatment of material distributed. Active treatment of all individuals by powdering.</p>	<ul style="list-style-type: none"> ☑ Fuel oil, petrol, malathion, temephos, deltamethrin, permethrin propoxur, pirimiphos-methyl.
LICE	<ul style="list-style-type: none"> * Provision of water, soap and clothing * Reduce overcrowding 	<p>⇒ Preventative treatment of material distributed. Active treatment of all individuals by powdering.</p>	<ul style="list-style-type: none"> ☑ Malathion, deltamethrin, permethrin.
FLIES	<ul style="list-style-type: none"> * Destruction of larval habitats or protection from flies (refuse, waste water, excreta). 		<ul style="list-style-type: none"> ☑ Used engine oil, diesel or kerosene, ashes or earth, malathion, deltamethrin.
FLEAS	<ul style="list-style-type: none"> * Chemicals are the chief weapons, (bed linen, clothing...), although regular cleaning of premises and incineration of collected dust will eliminate eggs and larva. 		<ul style="list-style-type: none"> ☑ Chlorinated solution, 4% cresyl, permethrine, propoxur.
RODENTS	<ul style="list-style-type: none"> * Elimination of waste and of likely reproduction sites (rubbish, scrubland..). * Suitable storage of foodstuff * Maintenance of premises, buildings; cleaning, disinfection, plugging holes in walls, doors, specific treatment ☉ Particular care must be taken of pharmaceutical and food stocks * Trapping. 		<ul style="list-style-type: none"> ☑ Organochlorines, chlorophacinone, coumatfen, coumachlor, calciferol.

¹ For directions on use (toxicity+++) and storage of insecticides and rodenticides, consult the MSF guide "Public Health Engineering in emergency situations" - Part III - Vector Control

Answers to hospital hygiene evaluation sheets

LINEN ROOM – LAUNDRY

Infrastructure

- ◇ It is **necessary** to have a section reserved for cleaning linen.
- ◇ This section should have distinct separate areas:
 - Physical separation of linen to be washed (dirty linen) and linen which has already been washed (clean linen).

Therefore the **need** to have separate circuits for **clean** linen and **dirty** linen is stressed here.

Equipment:

- ◇ It is important to have **specific equipment** for different types of linen.
To prevent contamination.
- ◇ **Detergent:**

Cf.: Cleaning premises.

Stages

Stage	Uncontaminated linen	Contaminated linen	Surgical linen
Decontamination with disinfectant	NO	YES	YES
Rinsing	NO	YES	YES
Washing with detergent	YES	YES	YES
Rinsing	YES	YES	YES
Drying	YES	YES	YES
Mending	YES	YES	YES
Linen sent to be sterilized	NO	NO	YES
Autoclave	NO	NO	YES
Ironing*	NO	NO	YES
Distributed to different wards	YES	YES	NO

* Ironing is a compulsory stage for all types of linen in equatorial regions in order to destroy any Tumbu worm eggs.

NB:

Uncontaminated linen is any linen which has not been soiled by infectious matter (for example, curtains, screens, etc.).

Contaminated linen is any linen which may be soiled with infectious matter (for example bed linen, aprons, etc.).

Surgical linen is any linen requiring sterilization before it is used again (for example, drapes, gowns, etc.)

TB II-2 Sanitation / Hygiene Checklist

This checklist is intended to inform the reader about the key aspects of sanitation and hygiene. It is the job of the technician to identify what areas of the checklist are relevant to their particular assessment. The collection of unnecessary data is frustrating, inefficient and surprisingly easy to do, so always double-check the relevance of all data to be collected. The focus should always be on sanitation/hygiene issues that impact on public health i.e. the likely transmission routes of sanitation/hygiene related illness.

A. Excreta Disposal

1. Facilities:

- Types of defecation facilities: defecation areas / trench latrines / pit latrines / sewage system / other.
- Number, placement and location of defecation facilities in the affected area.
- Average number of persons per defecation facility. What are the capacity / plans if the number of affected people increase?
- Are defecation facilities provided per individual family (or group of families) or are they communal facilities.
- Cultural preferences for design and placement of facilities (gender segregated, family, etc). Are people washers or wipers / squatters or sitters?
- Materials used for anal cleansing.
- Utilisation of defecation facilities, if not why not?
- Safe access to facilities for women children handicapped people, as well as vulnerable groups? Is lighting provided for use at night?

2. Maintenance of facilities:

- Cleanliness of facilities is there any visible open defecation (look behind old buildings and outskirts). Is there a significant presence of flies?
- Organisation of cleaning, who is responsible?

3. Proximity of defecation facilities to water sources, storage areas, distribution points and shelters. What is the static ground water level in the area?

4. Local material used / available for the construction of latrines?

B. Hygiene

1. Facilities:

- Hand washing facilities: number, utilisation, are they located near the defecation facilities?
- Soap: available and used for hand washing and body washing (ask for hand washing)?
- Showers: number, location and utilisation ?
- Washing facilities: number, location, and utilisation ?

2. Cleanliness/maintenance of hygiene facilities, who is responsible?

3. Hygiene promotion: ongoing or planned (by which agencies and who is targeted?)

4. General level of hygiene practised by affected population: if poor, why? Is it due to lack of soap or water or other reasons?

5. Menstruation: what supplies are available, what are women using?

C. Waste Water and Runoff Water Disposal

1. How is the wastewater controlled, soak pits with or without grease traps, drainage systems etc. ?

2. Are there any pools of stagnant water?

3. How is runoff water controlled, drainage ditches, gabions etc. ?

D. Refuse Disposal

1. Type of solid waste generated (what garbage is observed, amount, location)?

2. Waste collection and disposal system: describe type (garbage pits, containers, incinerators, etc), utilisation. How and where is the waste disposed off, how often, what means are available and who is responsible?
3. Risk of contamination of water sources?
4. Cleanliness of area?

E. Burial of Dead

1. Cultural practices: funeral and burial procedures (type of cremation, burial etc).
2. Is there a health risk (e.g. cholera) or risk of water source contamination?

SITE PLANNING

Extract from UNHCR handbook for emergencies

Bibliography

UNHCR handbook for emergencies

Engineering in emergency (Red R :Intermediate technologie publication)

Public health technician in precarious situation (MSF)

GENERAL CONSIDERATION

At the start of a refugee emergency the immediate provision of essential goods and services is generally more important than efforts to change the way people have already arranged themselves on a site.

- Water supply
- Jerrycans
- Food
- Shelters
- Blankets
- Cooking set
- Sanitation

As soon as time and needs permit, or when refugees are to be moved to another site, site planning is essential.

Site planning should start from the characteristics and needs of the individual family, and reflect the wishes of the community as much as possible.

However, a refugees settlement is not a natural community and particular care will be required to ensure that special needs are met.

The overall physical layout of a site as well as other aspects of site planning should reflect a decentralized community-based approach focusing on family, village or ethnic groups.

Whatever the circumstances, the overriding aim must be to avoid artificial, high density, refugee camps.

SITE PLANNING

Needs

The lack of a suitable and well planned site and a adequate shelter is common in the early stage of a refugee emergency. This can adversely affect the well-being of the refugees, and in some cases their protection, as well as the delivery of assistance.

Aim

To meet the need for suitable shelter and related building and services on a appropriate and properly planned site.

Principles of response

- Avoid high-density refugee camp.
- Involve the refugees, whose home it will be.
- Only select a site where the basic needs, especially for water, can be met.
- Site planning is essential, and should reflect a decentralized, small community approach, preserving past social arrangements as far as possible.

Shelter must provide protection from the elements, space to live and a sense of home. Local materials and designs are best: take account of local standards.

So-called temporary arrangements often come to last much longer than expected; thus a well planned response is necessary from the start.

Site selection, planning and the provision of shelter require expertise and must be closely integrated with the planning of other services especially water and sanitation.

Action

- Assess the suitability of the refugee site and ensure that it meets the basic criteria.
- Simultaneously assess the future needs and provide the necessary materials to meet the immediate needs.
- Take the most urgently required measures to improve site planning and layout, and upgrade these as soon as possible.

SITE SELECTION

1- General

Take care to choose the best site of sites available, they may be home to many thousands of people for months or even years. A poor site can add significantly to the misery of the refugees and complicate the task of running a camp. Often temporary camps become permanent settlement. It may be wise to understand why the site is not already in use.

2- Water supply

The availability of an adequate amount of water on a year round basis has proved in practice to be the single most important criterion and commonly the most problematic. A site should not be selected on the assumption that water can be acquired merely by drilling, digging, or tankering. Drilling may not be feasible and may not provide adequate water. No site should be selected where the tankering will be required over a long period.

3- Topography and drainages

Drainage can often be a problem, the whole site should be located above flood level, preferably on a gently sloping area.

Flat sites can present serious problem. Avoid swamps or area likely to become marshy or soggy during the rainy season.

4- Surface area

The site must allow sufficient usable space for the present refugees and future growth. WHO recommends 30 sq meters per person, plus necessary land for communal and agricultural activities. Of this 3,5 sq meters is the absolute minimum floor space per person in emergency shelter.

5- Security and protection

For reason of security, countries of asylum shall, as far as possible, settle refugees at a reasonable distance from the border of their country of origin.

6- Accessibility

The site must be accessible all year round and close to assure communication links and preferably also to sources of the necessary supplies such as food, cooking fuel and shelter material.

7- Environmental conditions

Avoid area of major environmental health hazards such as malaria, onchocerciasis, shistosomiasis, etc...

8- Soil conditions

The soil type affect sanitation and the living environment, it should allow water absorption and the retention of human waste. Avoid excessively rocky or impermeable site.

9- Vegetation

As far as possible the site should have a good ground cover like grass, bushes, trees. Covering vegetation provide shade, and reduces erosion and dust. During construction care should be taken to do as little damage as possible to this vegetation and topsoil.

10- Land rights

The land should be exempt from right of use by other people. This can be a major cause of local resentment. Always pay attention to legal and traditional rights and customs.

ORGANIZATION AND CONTROL

Physical layout

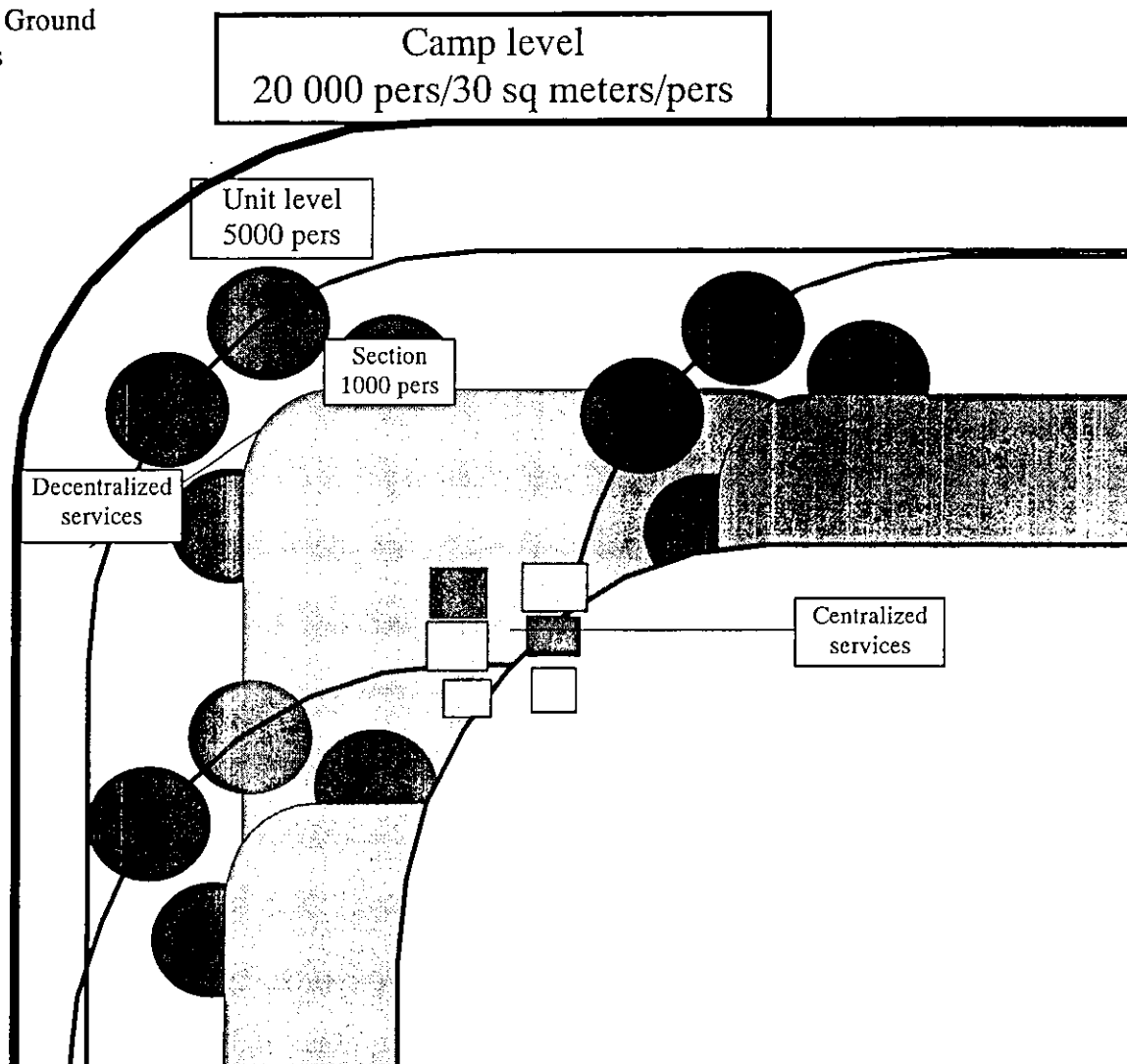
The basic principle should be to organize the site into small community units or villages containing the decentralized community services. These village units are in turn organized around the central core services.

Decentralized services

- Water point
- Washing facilities
- Supplementary feeding center
- health post
- School
- Market
- Cultural center
- Recreation Ground
- Workshops

Centralized services

- Administration office
- New arrival office
- Dispensary / Hospital
- Therapeutic feeding center
- Store (food and non food)
- Cemetery (away from other services)



Waste:

Collection:

◇ **Compulsory sorting of waste at source:**

Separation:

- * Domestic refuse (DR)
- * Soft waste (SW)
- * Sharps (S)

NB: DESIRED TYPE OF SORTING:

Bins for DR	Bins for SW	Boxes for sharps
Papers	Soiled linen	Needles
Newspapers	Laboratory products	Scalpels and/or razor blades
Nappies (diapers)	Swabs	
Visitors' meal trays	Dressings	
Meal trays from hospital departments	Gloves	
Bottles/vials	Syringes	
Garden refuse	IV sets	
Food preparation remains	Specimen jars	
Plasters	Anatomical refuse	
Glass	Meal trays from isolation ward	
Staff meal trays	Placenta	
	Tubes	
	Compresses	
	Catheters and drains	
	Out-of-date medicines	
	Out-of-date vaccines	
	Broken thermometers	
	Laboratory slides	
	Used medical equipment	

*X-ray plates are to be stored separately since they fall into the category of radioactive refuse.

NB: EUROPEAN STANDARDS: guideline values: (WHO waste classification)

◇ Ideally, waste bins should be **distinguished** according to **colour**.

◇ **Sharps boxes:**

should have a tamperproof closure.

The following are therefore prohibited: storage jars, coke cans, bottles, etc.

An RCS-type system (reusable container for sharps) is more suitable. It is relatively inexpensive and more reliable.

◇ **Bins:**

The bins should **preferably have a cover secured to the base.**

Storage:

Waste should not be stored for more than 4 days.

Decomposition of putrefactive matter.

Bad smells.

Attraction of vectors.

NB: FRENCH STANDARDS: guideline values: (storage time)

Treatment:

◇ **Internal:**

☞ **Incineration:**

A **difference** should be made between **incinerators** and **waste reducers**. In future, incinerators should be installed as a matter of course and the use of waste reducers prohibited, except in places where the amount of refuse to be processed each day is very small (less than 5 litres per day).

Mechanical loading systems are preferable to **manual loading** as **mechanical loading** incurs **fewer risks** for staff. However, it is highly unlikely that mechanical loading systems will be possible in our facilities. Therefore **staff must be thoroughly trained**.

The **door** must be **sufficiently large** and at a **suitable height**. These two factors are extremely important for staff safety.

Unburned waste found in the cinders is a sure indicator that the device used is a **waste reducer**.

Incineration areas and waste reduction areas should be arranged according to the attached plan (incinerator, ash hole, area for storage before combustion, washing area and drying area).

☛ **Landfilling:**

It is **essential** that the **landfill sites are protected** (by fences, barbed wire, etc.)

It is frequently preferable to cover pits with movable slabs, to avoid any risk of falling in.

Certain standards are to be observed to avoid any contamination of the aquifer by leachates (rainwater which has passed through and has been contaminated by decomposing waste):

The pit should slope so that water flows from the inside outwards.
The pit should have an adequate drainage system.
The pit should have an impervious basal layer.

*Cf. Public Health engineering in emergency situations, p. II 30.
Cf. Enclosed sheet: "How does a model refuse disposal site work?"*

NB: FRENCH STANDARDS: guideline values:

The law of 13 July 1992 prohibits the dumping of refuse apart from final waste (i.e. any waste which may or may not be the result of refuse treatment and is no longer likely to be treated in the prevailing technical and economic conditions, in particular by extraction of the useful part or by reduction of its pollutant or hazardous nature) as from 1 July 2002. Therefore the term "disposal site" will no longer be used; the terms "technical landfill sites" and "centres for storing final waste" should be used instead.

A legal text of 1996 specifies that disposal sites shall be:

- at least 200 m away from habitation or areas where activities are carried out
- the leachates shall be collected and treated
- the sites shall be subject to regular checks
- the sites shall be monitored for at least 30 years after closure.

In France there have been three types of disposal site hitherto:

- ◆ *Class 1 disposal sites* : which in future will be the centres for storing final waste, will receive special refuse, and will have to conform to the following standards :
 - the base of the landfill must consist, over a depth of at least 5 metres, of material with less than 10^{-9} m/s permeability ;
 - the degree of exposure to precipitation should be less than 750 mm/year ;
 - the site cover should be watertight and convex.
- ◆ *Class 2 disposal sites* : which currently take domestic refuse and special industrial refuse. These sites should disappear by 2002 and should have a minimum 5m deep basal layer with a degree of permeability of between 10^{-9} and 10^{-6} m/s
- ◆ *Class 3 disposal sites* : which currently take inert refuse (demolition rubbish, excavated material, rubble, etc.) and which should also be closed down by 2002. These sites should have a basal layer with a degree of permeability which may exceed 10^{-6} m/s.

◇ **External :**

- **The waste removal process from collection to destruction should be checked regularly (once a month).**
- **The use of communal containers should be prohibited.**
 - Otherwise sorting refuse would be pointless.