

hope

European Hospital and
Healthcare Federation



HOPE EXCHANGE PROGRAMME 2023

"Climate and environment: challenges for hospitals and healthcare services"

Sustainability practices in German Hospitals



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Table of Contents

01

Introduction

RELATIONSHIP
BETWEEN CLIMATE
CHANGE AND
GERMAN
HEALTHCARE
SYSTEM

02

1st Practice

FOOD WASTE
MANAGEMENT

03

2nd Practice

ENERGY
CONSUMPTION
MANAGEMENT

04

3rd Practice

REVERSE OSMOSIS
FOR THE REUSE OF
WATER

05

Conclusions



Healthcare System And Climate Change

Global greenhouse gas emissions compared to other sectors (2019)

AVIATION

1,9%

SHIPPING
TRAFFIC

1,7%

HEALTHCARE
SECTOR

4,4%

THE GERMAN HEALTHCARE SYSTEM IS RESPONSIBLE FOR **5.2%** OF NATIONAL GREENHOUSE GAS EMISSIONS

Source: Karliner et al. (2019) *Healthcare Without Harm*
Levensen Klimaschutz in deutschen Krankenhäusern: Status quo, Maßnahmen und Investitionskosten 2023

Our Host Hospitals

ST. ELISABETH GRUPPE 
KATHOLISCHE KLINIKEN RHEIN-RUHR

- A hospital group in Rhein-Ruhr region
- Over 1600 beds
- 7136 employees
- 94.000 in-patients
- 186.000 out-patients

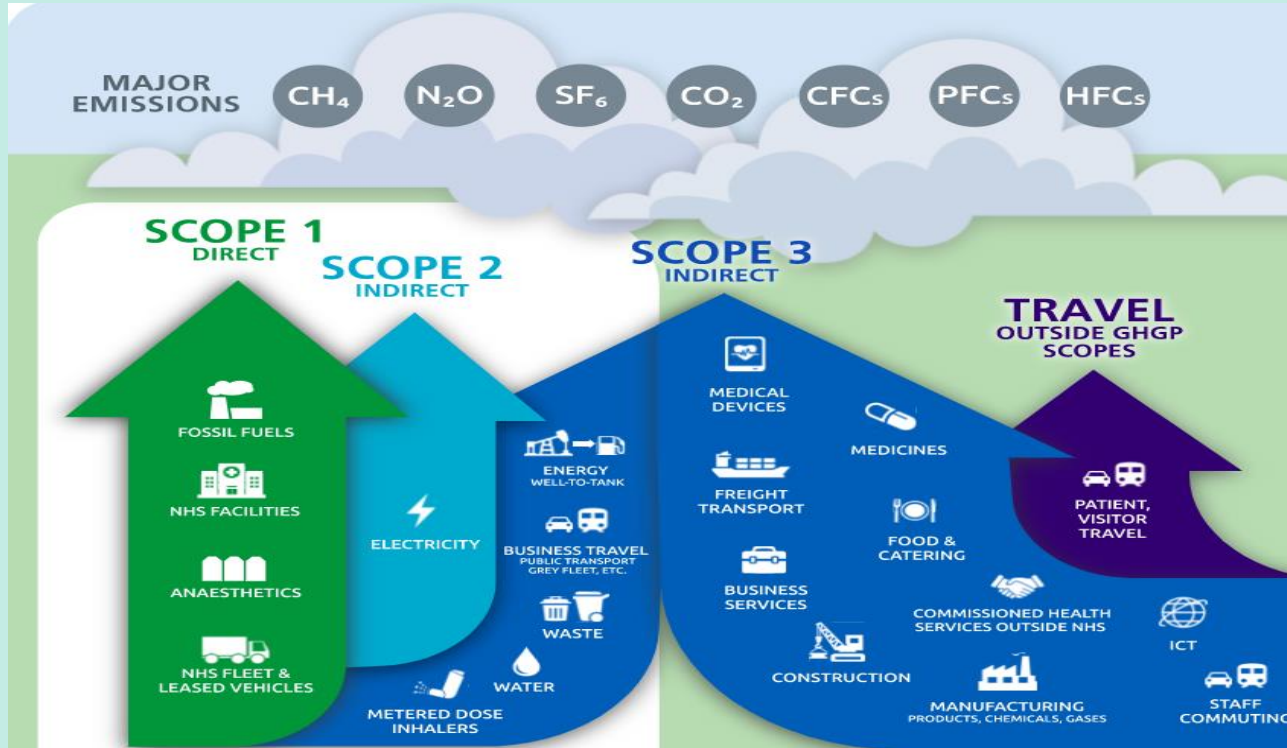


- The biggest acute care hospital in the region
- 1.370 employees
- 18.026 in-patients
- Over 48.309 out-patients

**BAD MERGENTHEIM-
CARITAS KRANKENHAUS
BBT GRUPPE**







1st Practice Food Waste Management

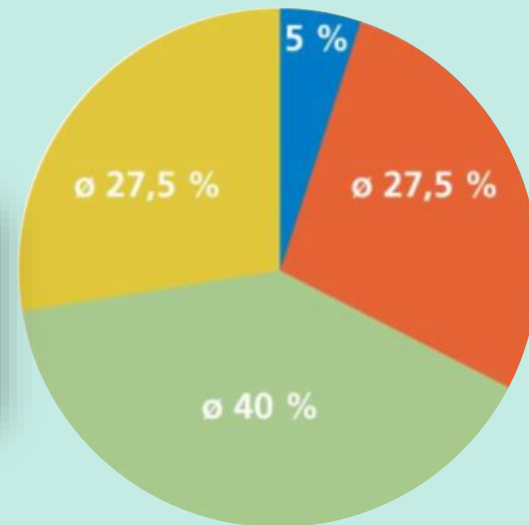




STATUS QUO

- AVERAGE WASTE IN A MEAL 108g
- ON A PLATE 50g

	Warehouse	(> 5 %)
	Production	(20–35 %)
	Overproduction	(25–55 %)
	On a plate	(25–30 %)



ST. ELISABETH GRUPPE 
KATHOLISCHE KLINIKEN RHEIN-RUHR

Projekt ÖKOPROFIT
From 2000

Food waste distribution in 267
german company restaurants
nationwide September 2017.
Source: United against waste



SOLUTIONS

WAREHOUSE

ACTIONS

1. IMMEDIATE

- * Produce only for short term usage
- * Reevaluation of warehouse procedures

2. PLANNED

- * Produce for long term usage
- * Reevaluation of equipment

COMMUNICATION

ACTIONS

1. IMMEDIATE

- * reevaluate meal orders every day
- * ward-kitchen; meal assistants-kitchen

2. PLANNED

- * reevaluate portion sizes
- * educate personnel on menu options
- * IT related improvements

OVERPRODUCTION

ACTIONS

1. IMMEDIATE

- * « just in time» production
- * standartization of the portions and recipes

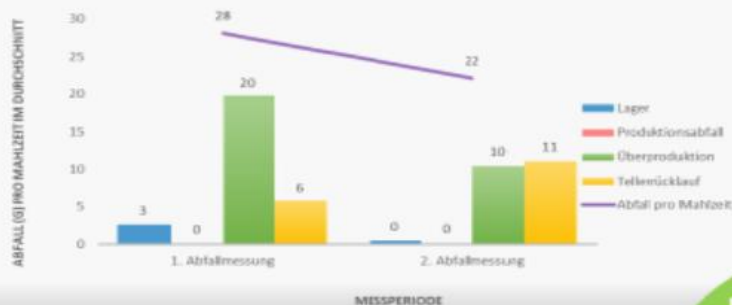
2. PLANNED

- * Adjust cafeteria market and demand changes
- * Structuring menu choices for inpatients

Reduzierung

21 %

MHW Cafeteria - Frühstück
Abfall (g) pro Mahlzeit im Durchschnitt



Reduzierung

23 %

MHW Cafeteria - Mittagessen
Abfall (g) pro Mahlzeit im Durchschnitt



Reduzierung
MHW
Gesamt

15,75%
im Durchschnitt

Reduzierung

2 %

MHW Pat.-verpflegung - Frühstück
Abfall (g) pro Mahlzeit im Durchschnitt



Reduzierung

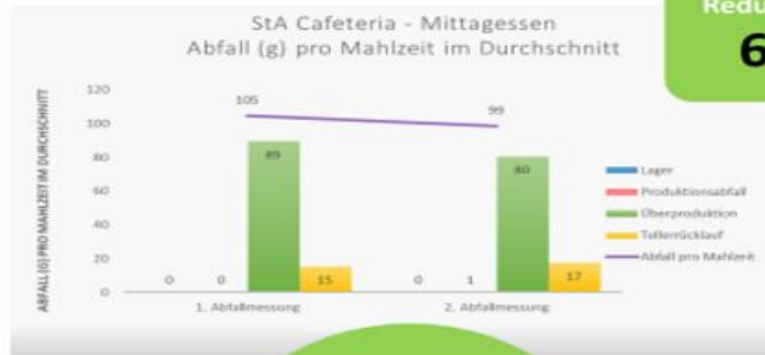
17 %

MHW Pat.-verpflegung - Mittagessen
Abfall (g) pro Mahlzeit im Durchschnitt



St. Elisabeth-Gruppe – St. Anna Hospital – Gesamt Veränderung in %

Reduzierung
6 %



Reduzierung
StA
Gesamt
10,7 %
im Durchschnitt

Reduzierung
5 %

StA Pat.-verpflegung - Mittagessen
Abfall (g) pro Mahlzeit im Durchschnitt



Reduzierung
21 %

StA Pat.-verpflegung - Abendessen
Abfall (g) pro Mahlzeit im Durchschnitt

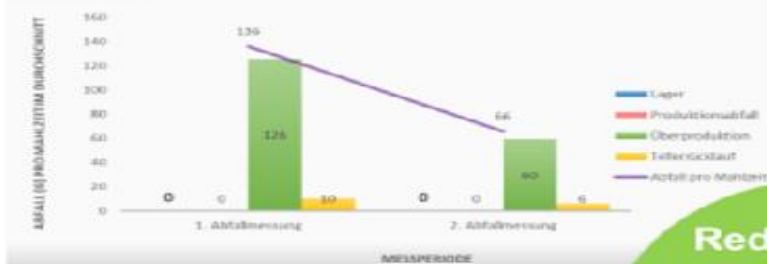


St. Elisabeth-Gruppe – Marienhospital Herne – Gesamt Veränderung in %

Reduzierung

51 %

MHH Cafeteria - Mittagessen
Abfall (g) pro Mahlzeit im Durchschnitt



Reduzierung
MHH
Gesamt

40 %

im Durchschnitt

Reduzierung

29 %

MHH Pat.-verpflegung - Mittagessen
Abfall (g) pro Mahlzeit im Durchschnitt

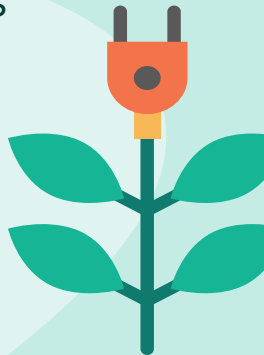


2nd Practice

Energy Consumption Management

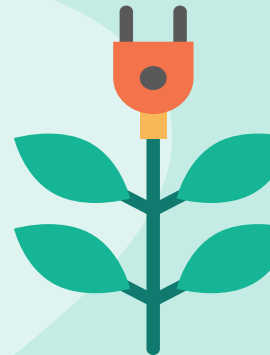
Background

- Impact on climate change (consumption, emissions, waste, water, chemicals)
- Hospital groups or networks since 2000s
 - Resource sharing, more efficient use of materials and energy
 - Efficient transportation, more efficient use of staff resources
 - Sustainable infrastructure reduced energy consumption



The Problems

- Older buildings vs newer buildings
 - Energy efficiency (design, insulation, heating)
 - Technology integration (building management systems, energy monitoring tools)
 - Building materials (sustainable, energy-efficient)
- Energy «draining» kitchens
 - Energy consumption per meal (resources, equipment)



The solutions

Older Buildings vs Newer Buildings

Building designs as a challenge in efficient energy management

1. Simple things make an impact

Insulation:
50%
of windows already
upgraded
100% by September 2023)

LED lighting:
11%
reduction in energy
costs compared to 2022
(St Marien Hospital Eickel)

2. How much can be improved? Cultural heritage issues

3. Smart energy regulation

(smart building management systems, energy monitoring tools)

4. Efficient utilisation of available resources - «Fernwaerme»

- "district or remote heating"
- Centralized heating distributed to multiple buildings through an underground network of pipes)
- Non green and/or green energy sources

5. The future

Solar Panels?

12%

Expected
reduction in
energy
consumption

«Energy Draining» Kitchens

- Is one central kitchen better than many smaller kitchens?
 1. Centralized meal production
 2. Improved logistics
 3. Lower energy consumption
 4. Innovation
(cooling with glycol)



3rd Praticce

Water purification



The fresh water is the same as it was from the beginning.
It has been drunk and digested billions of times.
The earth and the air have cleaned it again and again.
This no longer works today because the man has contaminated the
earth, the air and nature.

**At least 120 million tons of
cosmetics, pharmaceutical products
and hormones (e.g. birth control pills)
pollute the fresh water**

Reverse Osmosis

With reverse osmosis, tap water is passed through a semi-permeable, laser-perforated membrane pressed through its ultrafine pores.

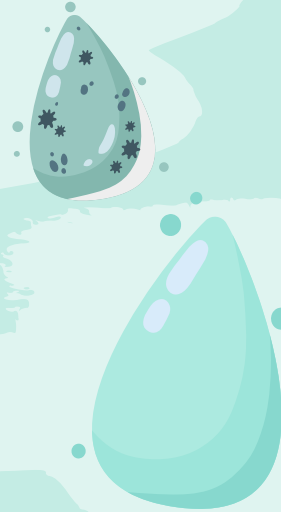
A molecular separation process takes place: The water molecules can pass through the membrane, while the dissolved substances such as salts, lime, nitrate, heavy metals, radioactive particles, organic compounds (dioxins, THMs) or pesticides are retained at a rate of 90 - 99%, depending on the molecular diameter.



Reutilization of Purified Water

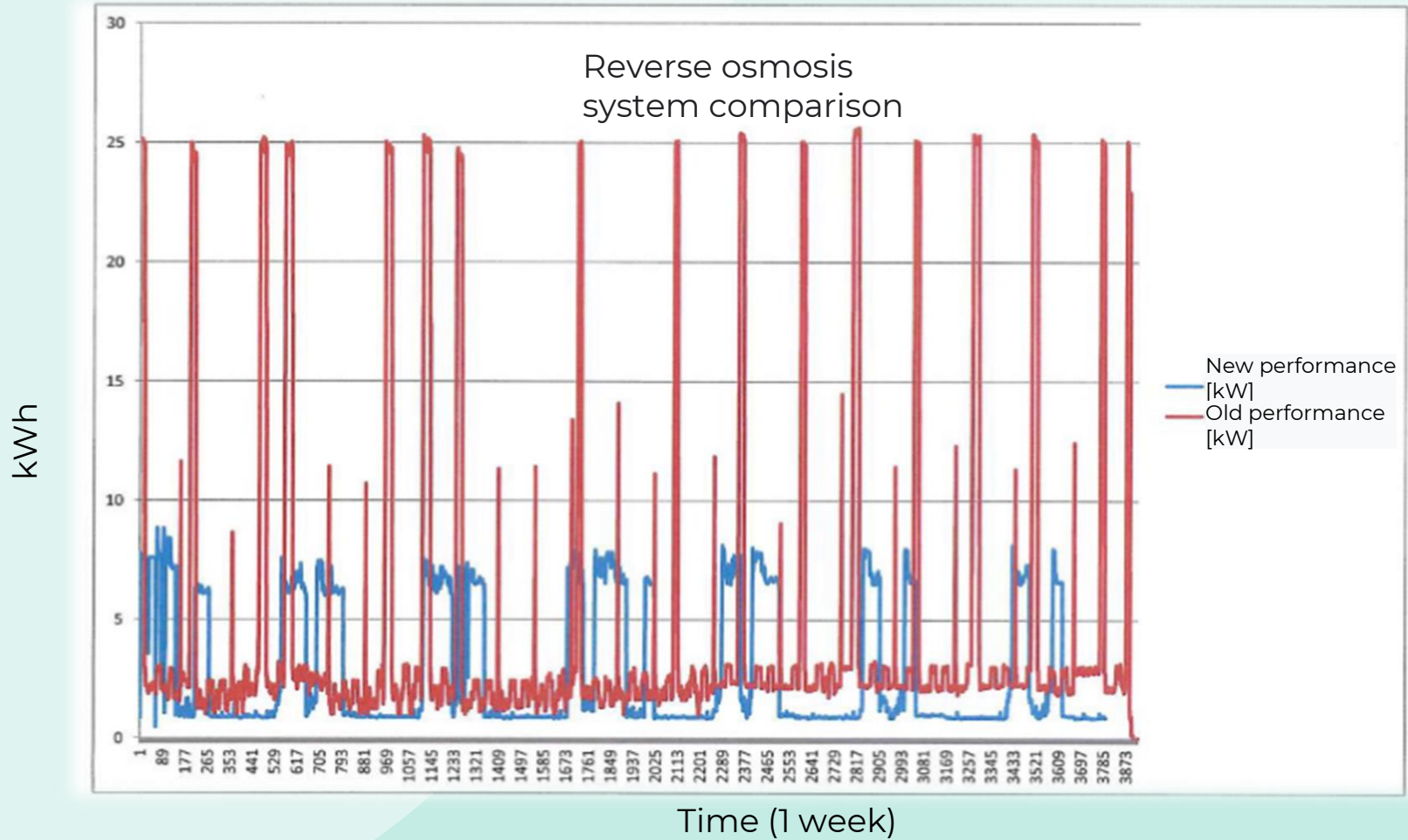
Huge amounts of energy and water are used in hospitals to maintain **high standards of hygiene** in patient care and clinical operations. The average **water consumption** in German hospitals **per bed per day is 300 to 600 liters** (3 times that of residential buildings).

The water comes from a water softening system, passes through the reverse osmosis and is then transported into the pure steam of the **sterilization system** or the **kitchen**.



The degree of utilization of the new system increases roughly from 70 to 90%, water savings are at 4,500m³/year, electricity savings are 12,800 kWh/year

Energy efficient water treatment



Conclusions

- Mindset of the personnel and administration is the driving force on sustainable innovation in a hospital
- If we want to improve the quality of the environment in which we live, the only way is to involve everyone
- Every small step forward can inspire people around us and bring about changes for a sustainable healthcare future

01

02

03

Thank you for your attention!