

**I·V·A·R**

# Promoting REUSE practice of Waste at IVAR Reuse Centre Green City - 2024

Interkommunalt Vann,  
Avløp og Renovasjon

Intermunicipal Water,  
Drainage & Renovation

ENVIRONMENTAL  
SITE

Tord Tjelflaat  
Ass. department manager ReUse

June 1st, 2024

# OUR MAIN GOALS

1

## **IVAR's social mission**

We shall be a leader within sustainable social solutions

2

## **IVAR - how we work**

We shall be knowledgeable and at the forefront of better solutions

3

## **IVAR - as a workplace**

We shall be a developing and inclusive workplace

# 1: IVAR's social mission

**We shall be a leader in sustainable social solutions**

- Be a local beacon for climate and the environment
- Deliver socially critical solutions - always
- Keep resources in the cycle



## 2: IVAR – how we work

**We must be knowledgeable and at the forefront of improved and new solutions**

- Be cost-effective and create smart solutions
- Seek cooperation to develop good services in the region
- Constantly improve



# 3: IVAR as a workplace

**We shall be a developing and inclusive workplace for all people – regardless:**

- young/old – age agnostic
- gender/culture
- religion/race
- sexuality
- refugees
- handicap/disability
- physical/mental health



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**Societies  
where nothing  
is being wasted:**

**A WASTELESS  
WORLD**

***Industry 5.0***

**Common  
Vision**

# The use and dispose community

- Norway is a world leader in use and throw away
- Since 1990, consumption in Norway has doubled.
- 430 kg/capita (private household)



# Second-Hand Booth at Forus Environmental station

How it works today (2024)

- Free submission
- REUSE bins at the station
- RE-CYCLE boxes at the station
- Store and free department
- Coop with municipal pop-up shop





# ReUse mapping project of 2021 - What is the potential for more and better reuse?

Four students with slightly different  
backgrounds

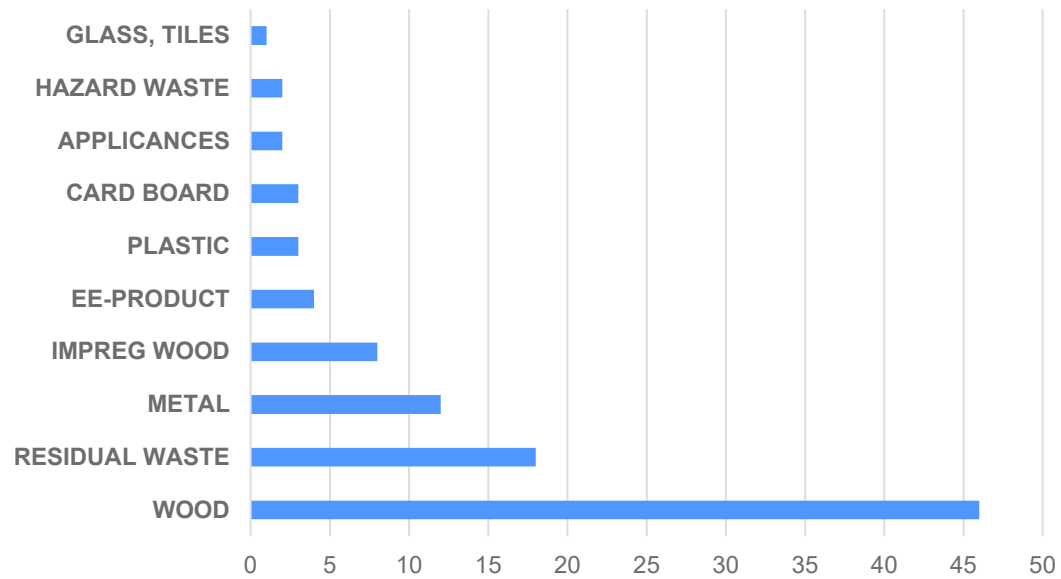
- Emilie K. R. Larsen BSc. in renewable energy  
NMBU, Oslo
- Frøydis Steinset MSc. in renewable energy  
NMBU, Stavanger
- Solveig B. J. Aarak, MSc. in Materials  
Science and Engineering, NMBU, Stavanger
- Tora Lindheim MSc. in International  
Environmental Studies, NMBU, Gran



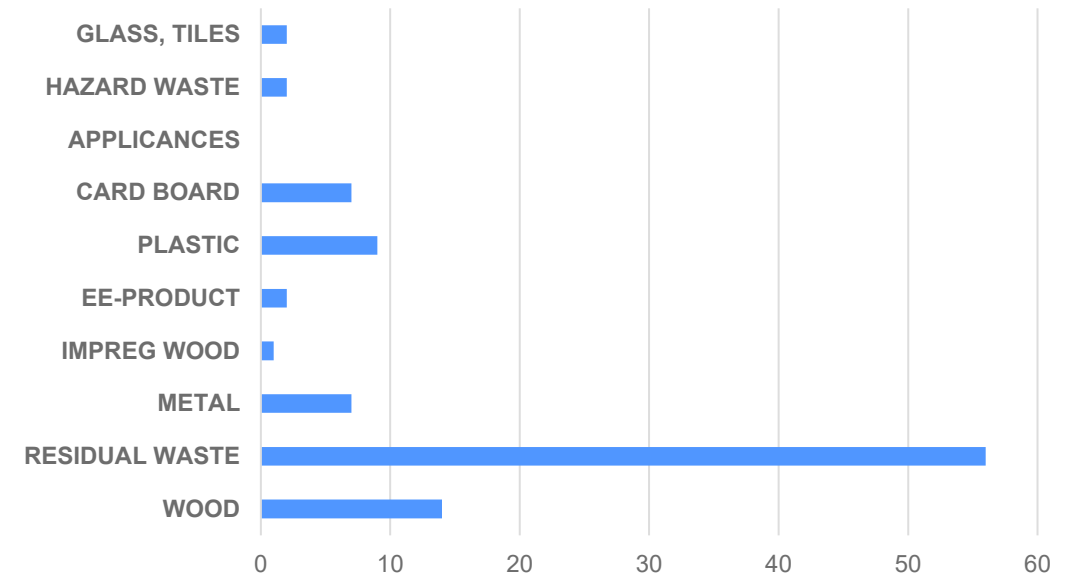
# Weight Ratio of ReUse items

# Volume Ratio of ReUse items

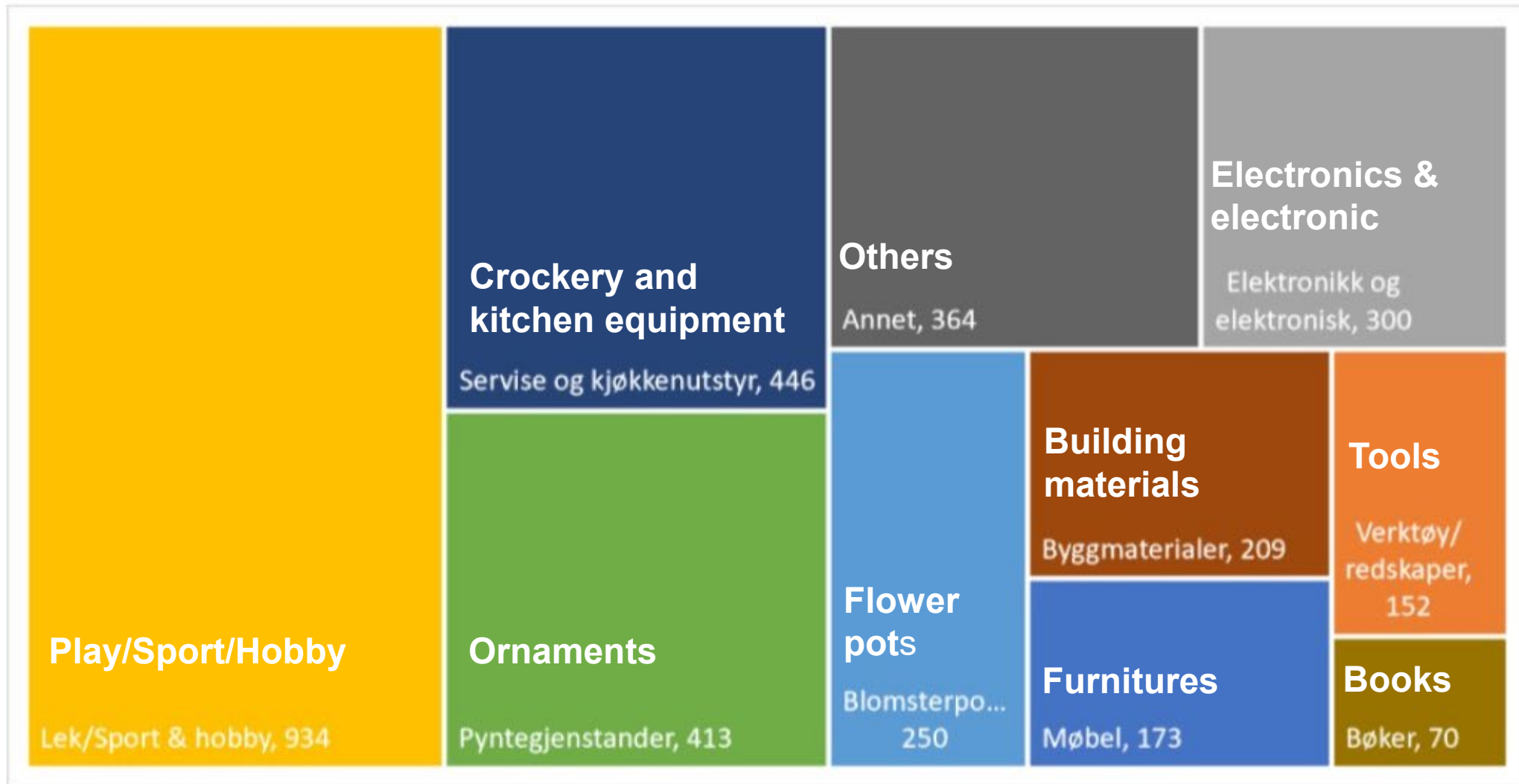
WEIGHT



VOLUME



# Category ReUsable articles in volumes



All usable articles collected are divided into different categories based on area of use. The size of the square illustrates the number of units in the category.

# Type of functional EE-articles, Potential for REUSE



The category 'electronic equipment' includes lamps, electronic toys, kitchen appliances, wall clocks, speakers, music players, curling iron, shaver, devices as Apple TV, Chromecast, X-box, Blue Ray player

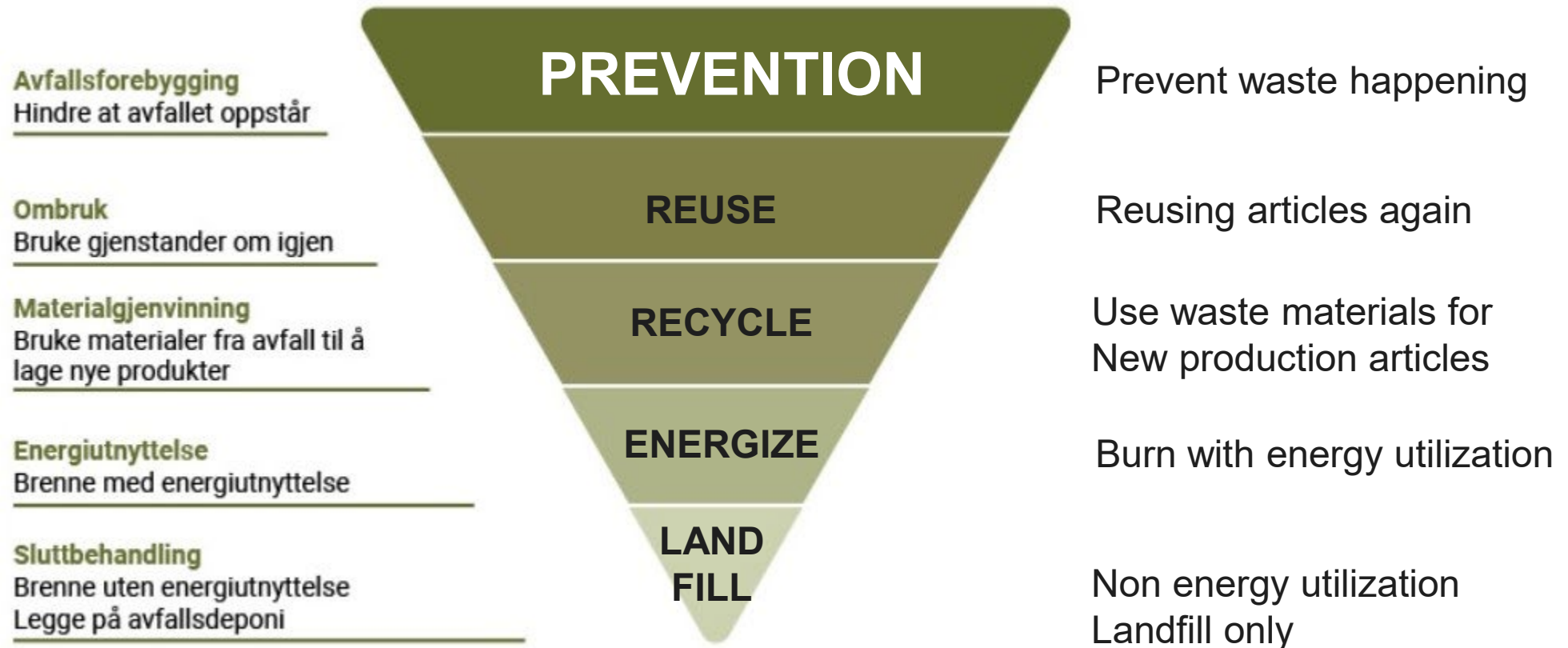
# Reconsidering PHYSICAL WASTE

**Surplus, Used and Released products and materials that can be**

- Repurposed
- Reused
- Repaired
- Reconfigured
- Refurbished
- Redesigned
- Rehabilitated

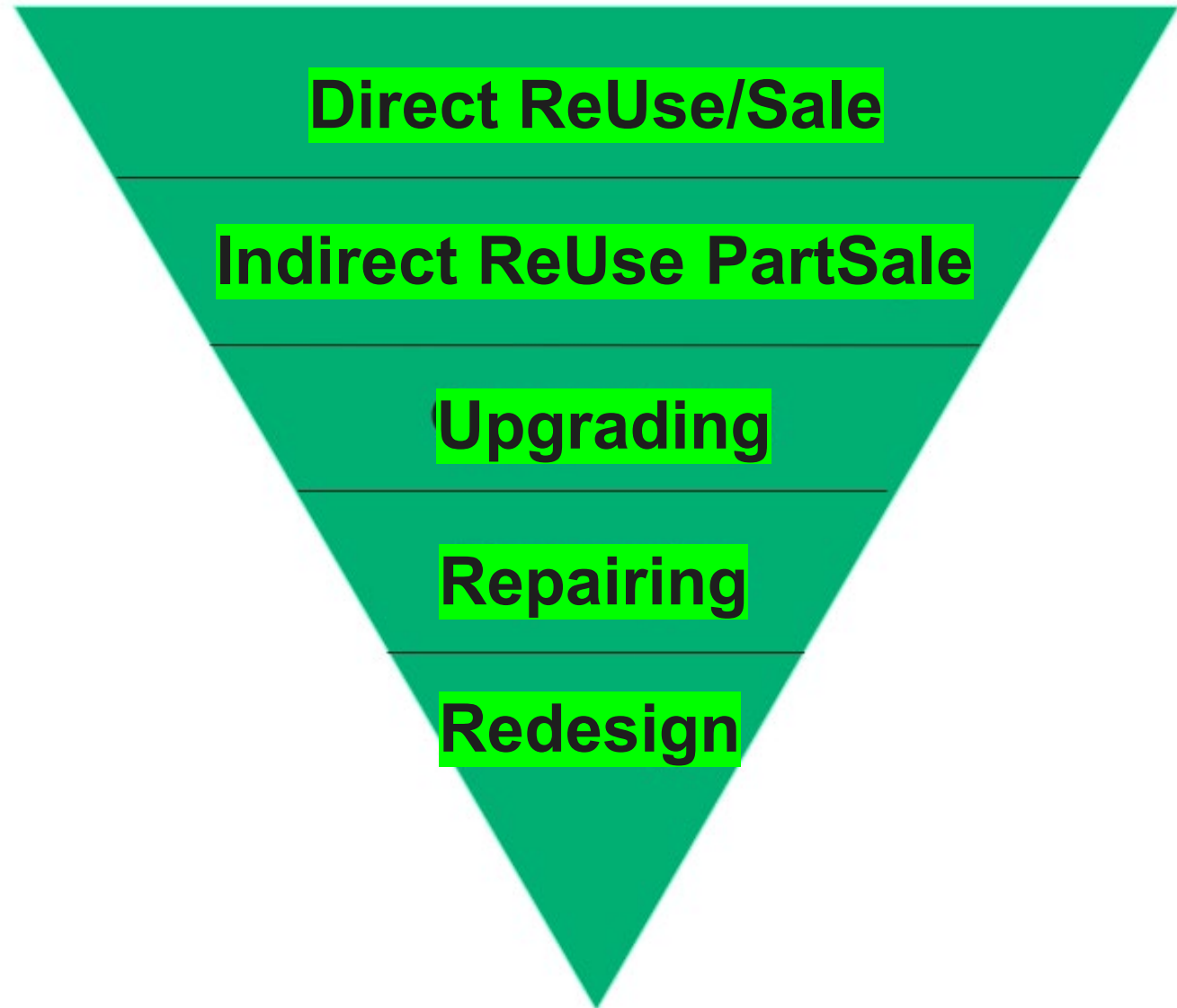


# Hierarchy of WASTE Handling Priority starting with PREVENTING WASTE HAPPENING – IN THE FIRST PLACE



Kilde: Miljødirektoratet 2016 / Miljøstatus.no

# IVAR's ReUse Pyramid



Løwenstrasse

# IVAR Gjenvinningsstasjon Forus

Betaling

Små elektrisk

- Ting til Bruktbuå
- Stearnllys
- Spell/Fliser
- Glava
- Små elektrisk
- Mobil, iPad mm
- PC/harddisk
- PC/TV/flatskjerm
- TV/Monitor
- Ledninger/Kabler
- Små elektrisk
- Ting til Bruktbuå
- Glassflasker

Til gjenv.stasjonen

Utkjøring

Bruktbuå

Henting Bruktbuå

Utkjøring fra Bruktbuå

Asfalt

Glava Fliser/Betong

Rene masser

Hageavfall

Salg av kompost

Lukkings fra Gjenvinningsstasjonen

Fartig avfall

Administrasjon

Fartig avfall

Gassbeholdere

Kuldemøbler  
Hvitevarer  
Tøy

Vinyl, belegg  
Isoporplater  
peil/fliser mm  
Glass/Met

- Isopor
- Tre
- Imp tre
- Rest
- Plast
- Papp
- Metall
- Rest
- Gips
- MDF
- Tre
- Dekk myu feig
- Glava
- Tre
- Imp tre
- Gips
- Rest
- Metall
- Papir/papp
- Plast
- Rest
- MDF
- Tre

- Små el.
- Sparely/Batter
- Blibatt
- Brannslukningsapparater
- Små el.
- Ledninger
- PC/Harddisk
- TV/monitor
- Små elektrisk
- PC/harddis
- Mobil, iPad, PC
- Ting til Bruktbuå
- St

Vinduer  
Klor  
PCB

REUSE - STATION

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What have we done?  
Weigh up and pricing  
of goods



What have we done?  
2HandArch Exhibition



# What have we done? 2HandArch Exhibition



# With an 'average' topped green REUSE box as a unit of measurement



Measured in  
boxes of 1.09  
m<sup>3</sup>

# Estimated potential for collection of REUSABLE units\*

\*Excluding hazardous waste



Målt i  
kasser på  
1,09 m<sup>3</sup>



Normaluke:  
Ca. 12 kasser

Normal week 12 boxes



Identifisert potensial per uke:  
Ca. 339 kasser

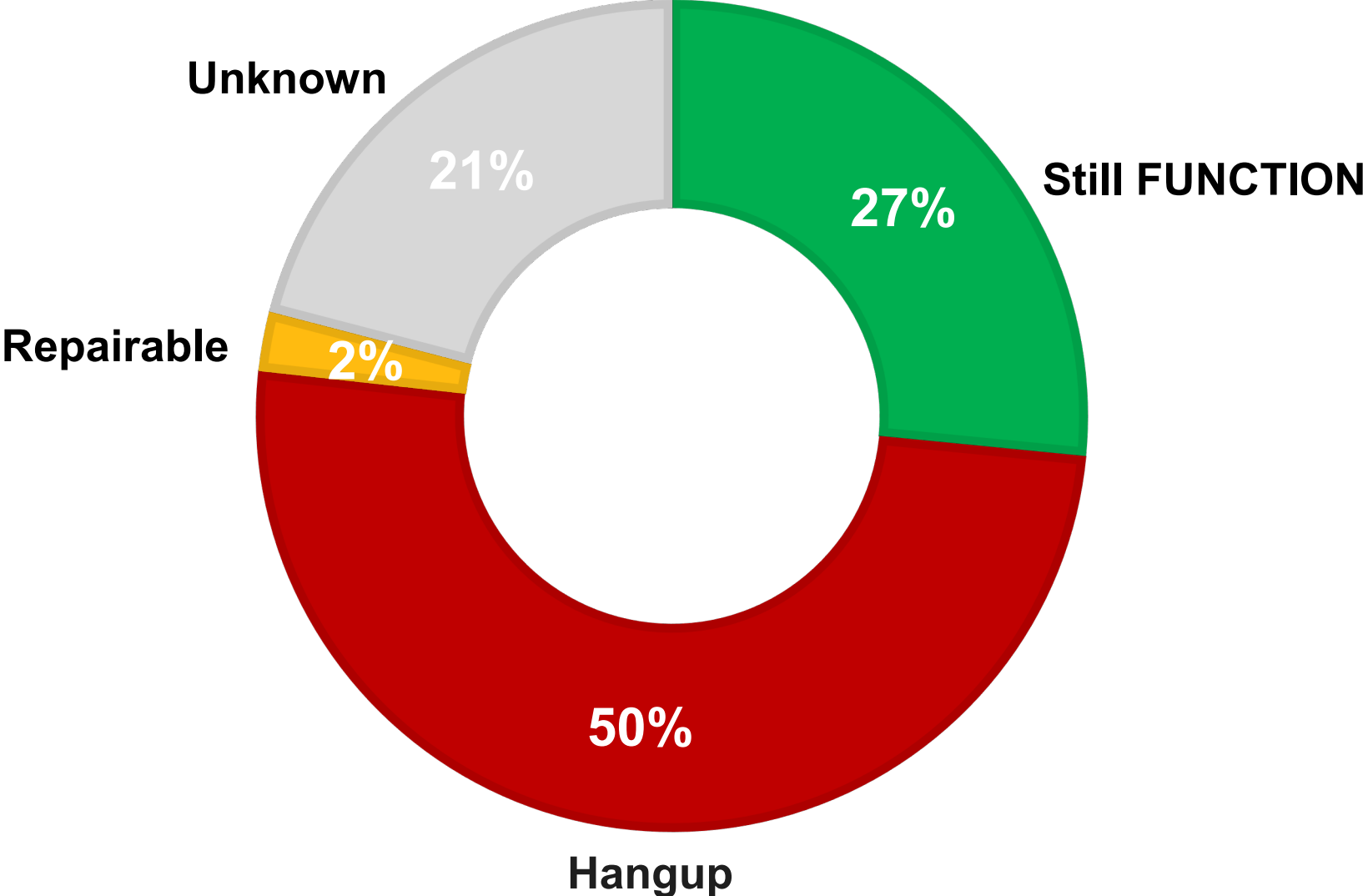
Identified potential per week - approx 339 boxes



**Annual amount of electrical waste: 2 350 000 kg**  
**Potential for REUSE: 30 000 kg**



# How much e-waste still FUNCTION?



# A significant proportion of USABLE articles are found among hazardous waste

Type of hazardous waste	Percent usable*
Cleanser	77 %
Lye, drain opener, chlorine	61 %
Aerosols	42 %
Paint	23 %
Solvent	87 %
Oil	42 %

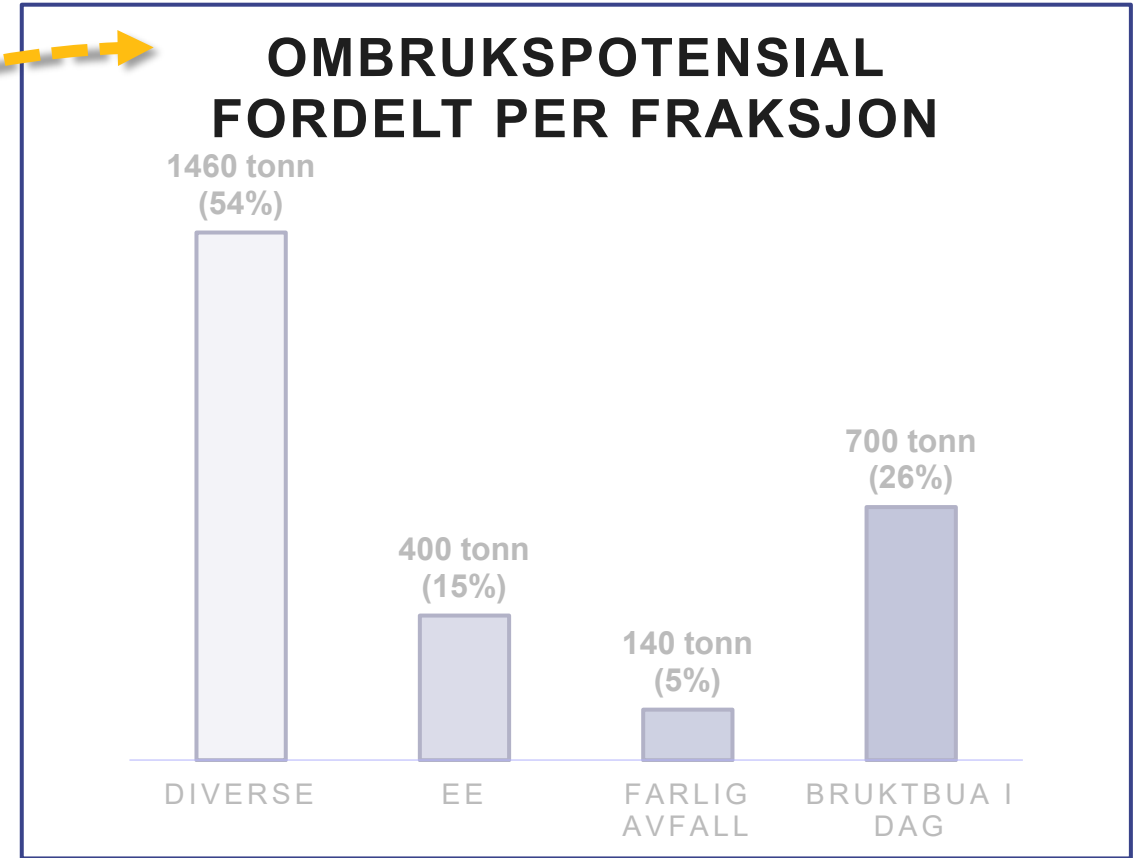
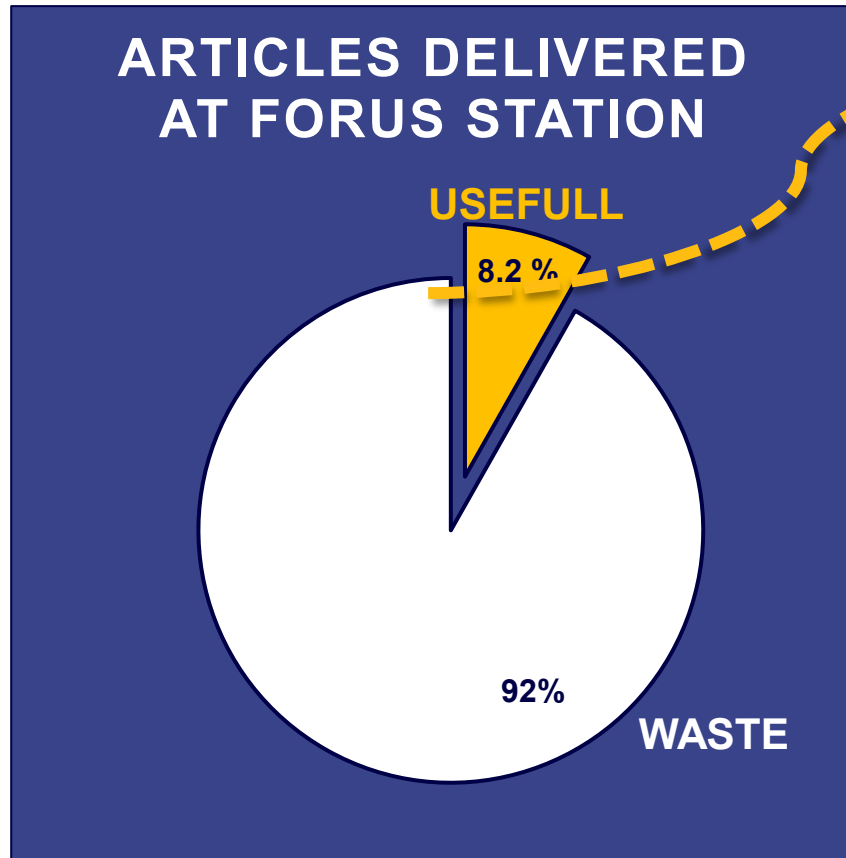
\*of total registered weight





# How big is the REUSE potential annually?

## REUSABLE POTENTIALS PER FRACTION



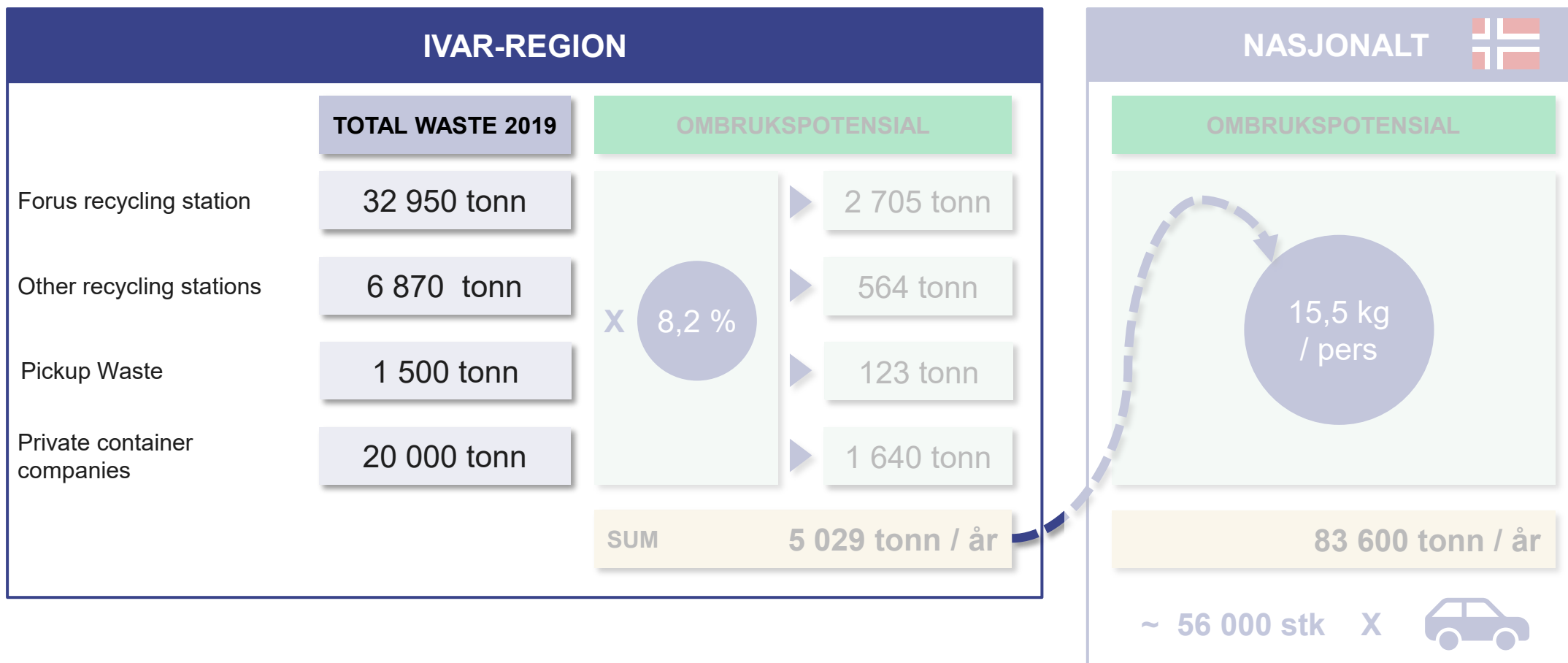
VARIOUS

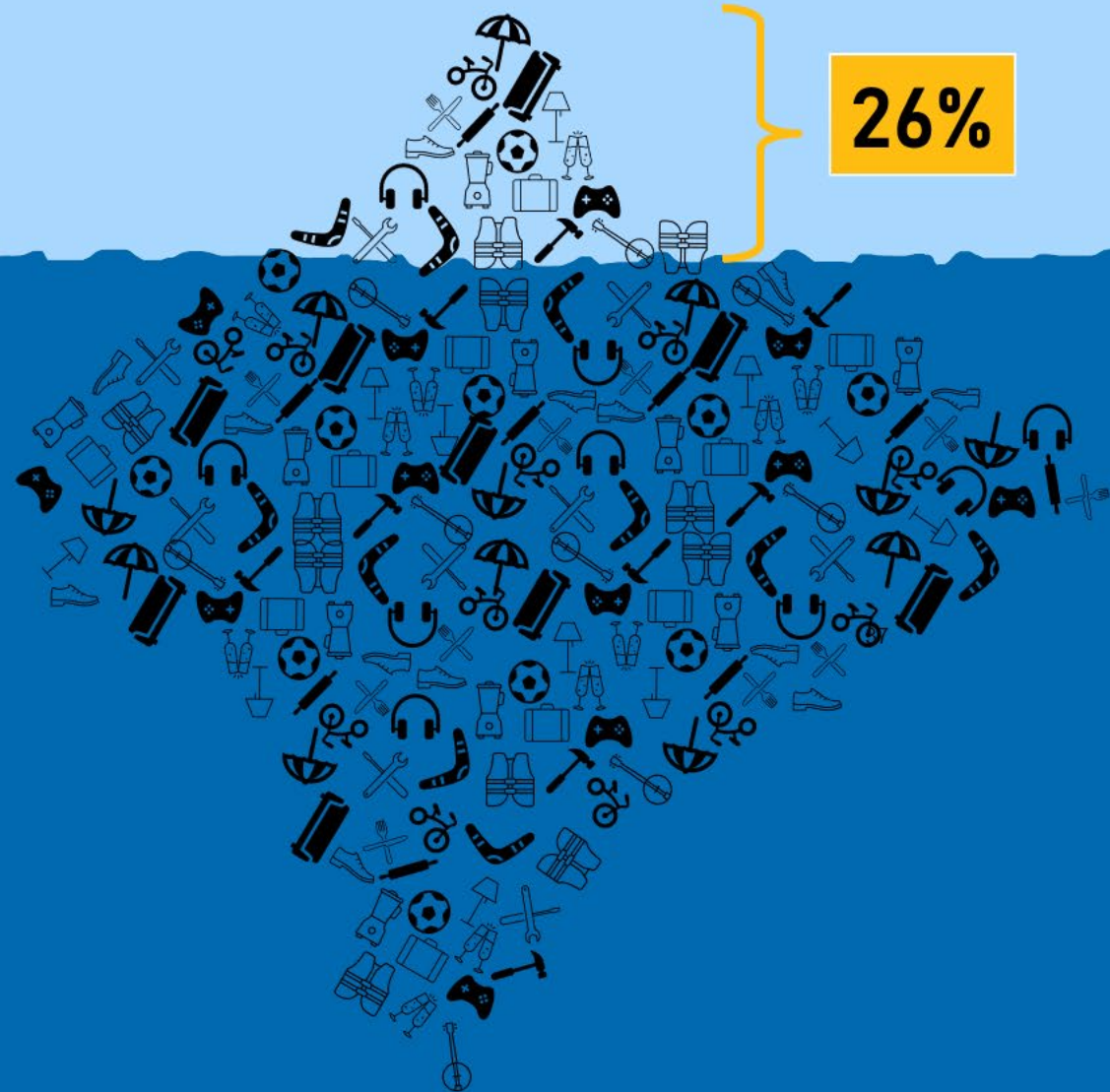
EE

HAZARD WASTE

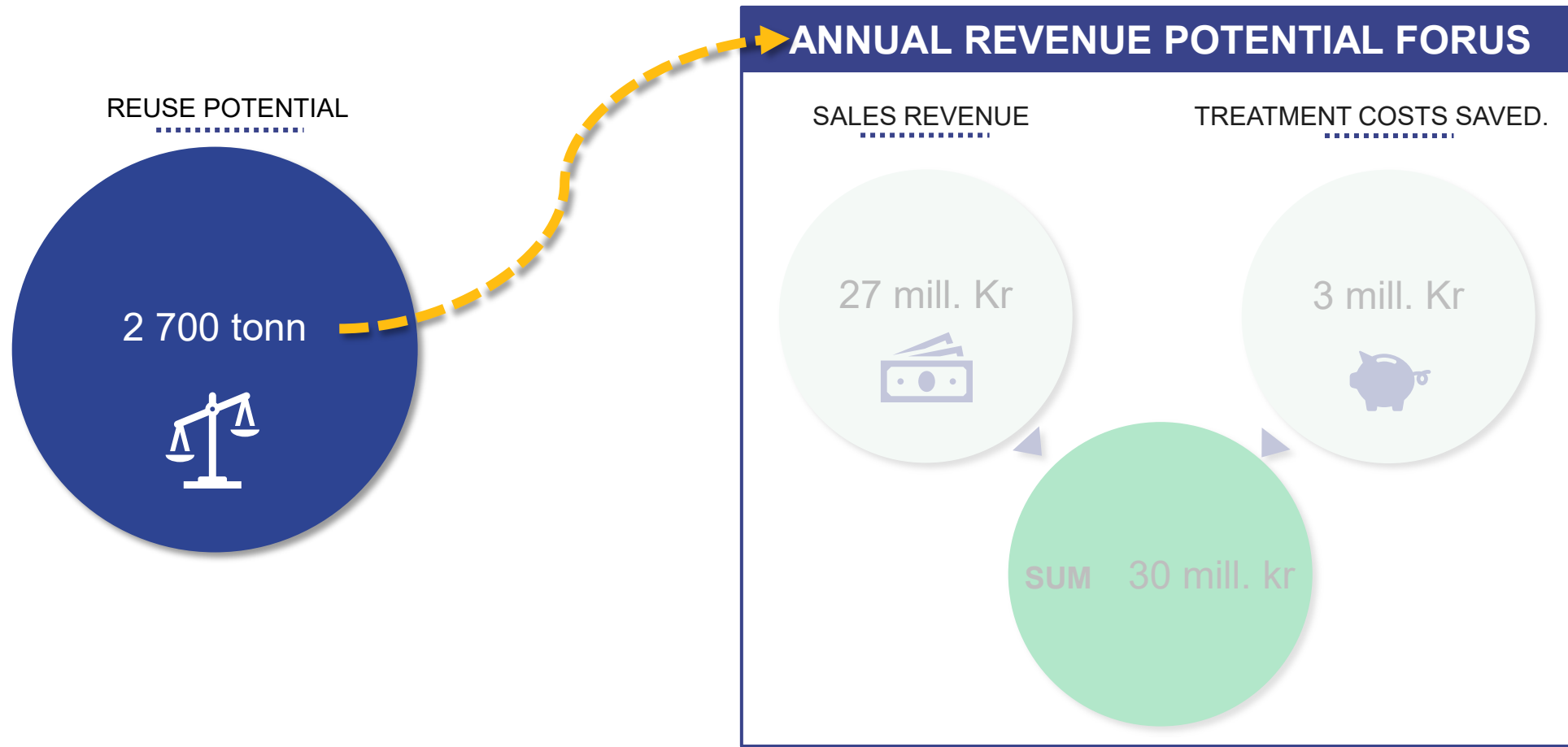
SALE ABLE

# Total: Annual REUSE potential regionally and nationally





# What can IVAR gain annually from capturing the REUSE potential at Forus?



# IVAR ReUse Center



# Hazardous waste is frequently sent for combustion



<https://nor01.safelinks.protection.outlook.com/?url=https%3A%2F%2Ftv.nrk.no%2Fse%3Fv%3DNNFA21072721%26t%3D324s&data=05%7C01%7CAse-Lill.Hansen%40ivar.no%7C6b3a542753634ec3888b08dba2490d96%7Cb107316ee5f0473c949b9227ddaef28b%7C0%7C0%7C638282206862763078%7CUnknown%7CTWFpbGZsb3d8eyJWljojMC4wLjAwMDAiLCJQljojI2ludMzliLCJBTiI6I1k1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=HQvsskQZf2Eo6eyaN%2BjP8szGhwVc q6vrUyGXTHTvVSM%3D&reserved=0>

# Basis: ReUse mapping report at IVAR in 07.08.21

## Coop: Exploring INDUSTRY 5.0 principles vs IVAR

Translated original slides performed  
INDUSTRY 5.0 Ambassador Norway

### INDUSTRY 5.0 WASTELESS LEGAL FRAMEWORK



#### WASTE PREVENTION POLICY

1. *Nothing that can be USED or UTILIZED AGAIN should become waste*
2. *Everything should be considered PRIMARILY as PRE-WASTE EXISTING RESOURCE (part of the On-The-Ground-Mines) and remain in the system*
3. *The secondary use or utilization is not limited to the primary function of the product or material and can be executed by everyone respecting regulations and safety conditions.*
4. *Collecting, sorting, balling, transportation, and trade are not considered secondary utilization.*
5. *If not utilized at the original location, must be offered to others before being wasted*
6. *There is no waste if we do not waste*

#### DEFINITION OF WASTING

1. *WASTING is the process in which a product or material of any kind, form, and volume become waste (see waste legislation for the definition of waste)*
2. *WASTING is a system failure and should be prevented first without any limitation or legal restrictions*
3. *WASTING is not a feature of a product or material, but the result of human behavior*
4. *SINGLE-USE represents one of the most applied forms of wasting*



High Time we Recover from a  
WasteFull to a WasteLess World

# INDUSTRY 5.0 Norge

## PREVENTS WASTING, in any form



### Physical:

- Surplus, used and released products and materials that can be Repurposed, Reused, Repaired, Reconfigured, Refurbished, Redesigned, Rehabilitated
- Products considered waste or garbage, placed in waste containers and in landfills, but still usable – as expiry food

### Social:

- People - hindered a meaningful life; too young/old, wrong gender/culture, religion/race, sexuality, physical and mental health, refugees, handicap/disability
- Animals - hindered their 5 freedoms; from hunger/thirst, discomfort, pain, injury/disease, fear/distress and living under normal behaviour

### Urban:

- Empty buildings, factories, apartments, shopping centres, unused plots of land, decommissioned industry, unregulated property, infrastructure routes

### Process:

- Non effective or inoperable process that turns people into pawns without meaning or purpose. Methodology that does not take human considerations and needs into production/service delivery processes. Meaningless and inappropriate processes

### Time:

- Waste of omnipresent time – with one big difference, every single second is irrevocable, reuse is impossible. Hence, time should be utilised in the best possible way - for desired results and experiences

AVOID USE & DISCARD IN EVERY SENCE

INDUSTRY 5.0 Ambassador, Norway  
Svein Gaute Bleivik

