



Circular Economy in Styria

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Department Waste Management and Sustainability



- **Public Administration** of the State of Steiermark/Styria
 - Directorate 14 – Water Management, Resources and Sustainability
 - **Department Waste Management and Sustainability**
 - Tasks:
 - Strategic planning of municipal waste management
 - Coordination of municipalities, waste management associations and further stakeholders regarding collection and treatment of municipal waste
 - Providing official experts for waste and resource management
 - Knowledge management for waste management
 - Awareness raising for waste management and sustainability
 - State funding for waste management and sustainability activities



Austrian Province of Steiermark



Steiermark

Area: 16,401 km²

Inhabitants: 1.2 Mio.



Photos: © Ingrid Winter



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Waste dump in the 1980's



nd
rk

Start of Separate Waste Collection – campaigns ~ 1990



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Source Separated Collection of Municipal Waste in Styria



● Municipal solid waste:

- 287 municipalities responsible for **collection**
- Most municipalities commission private waste management companies
- 17 **regional waste management associations** responsible for **treatment**



■ Door-to-door/kerbside collections:

+bulky waste in some municipalities

paper glass packaging lightweight packaging metal packaging biowaste residual w.



Source Separated Collection of Municipal Waste in Styria



● Municipal solid waste:

- Bring system: 286 waste collection centres for approx. 80 waste fractions
 - Recyclables (incl. wood waste)
 - Bulky waste (incl. wooden parts)
 - Green waste
 - C&D waste from households
 - Hazardous waste from households
 - WEEE and batteries
 - Packagings



Source Separated Collection of Municipal Waste in Styria



- Waste collection centres („resource parks“)

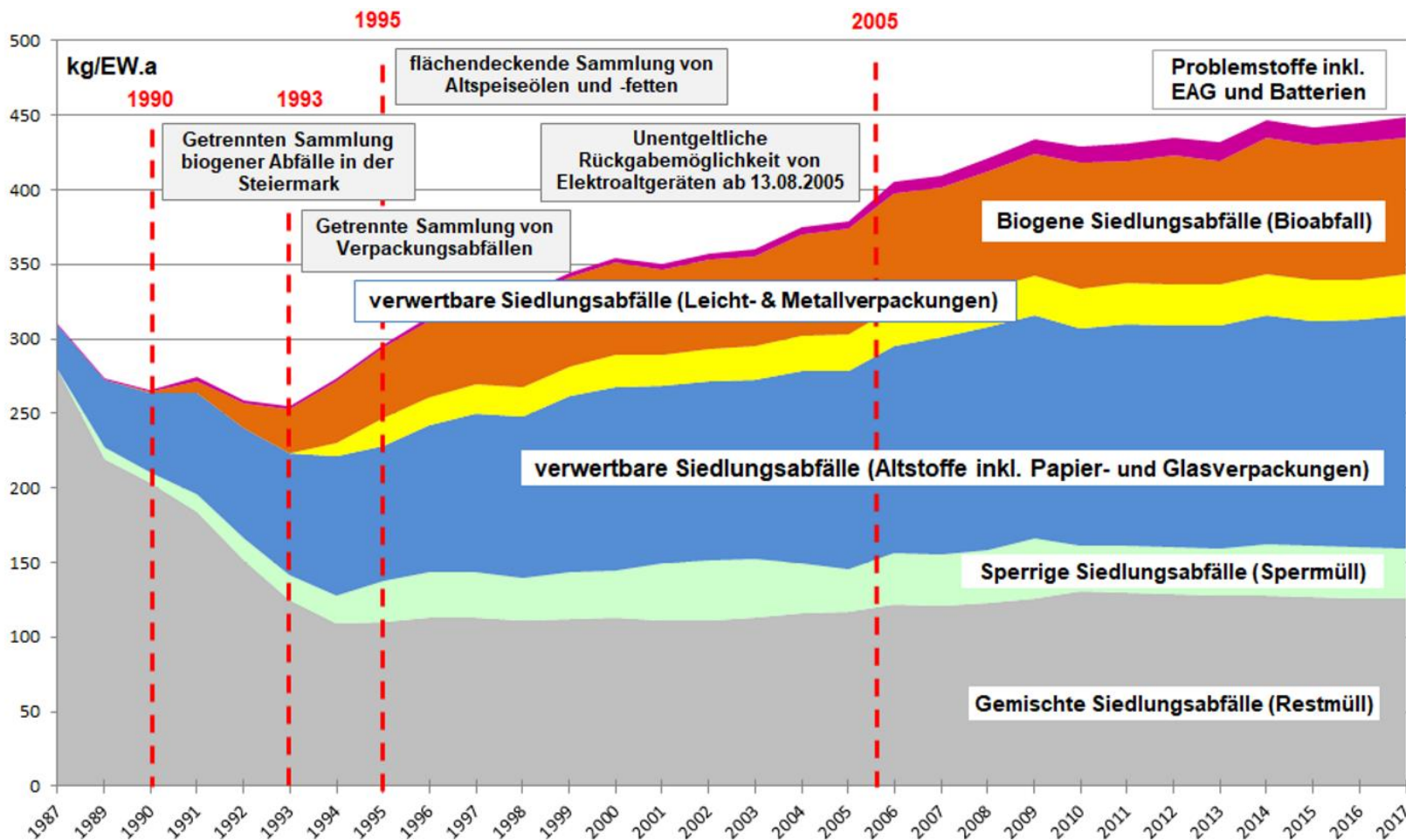


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Source separated waste collection as a driver for environment engineering



● Development of municipal waste amounts in Styria - 2017



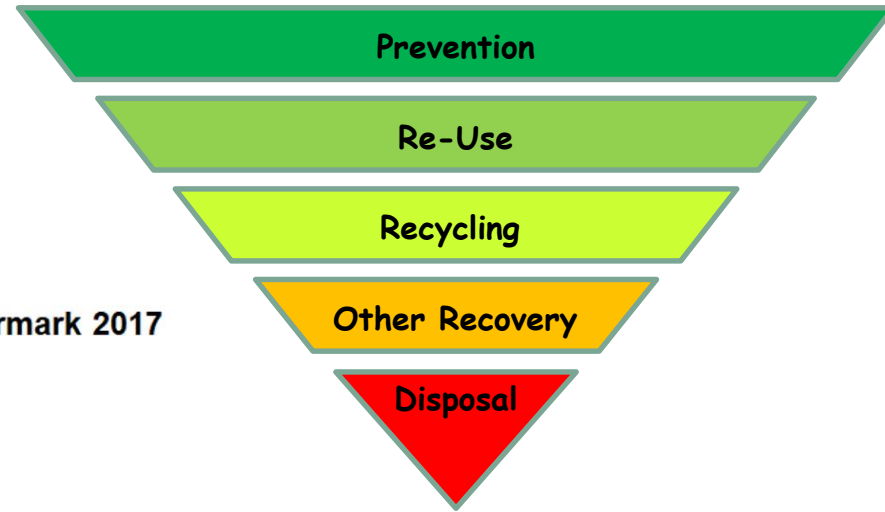
On the Path to Circular Economy



● Municipal Waste:

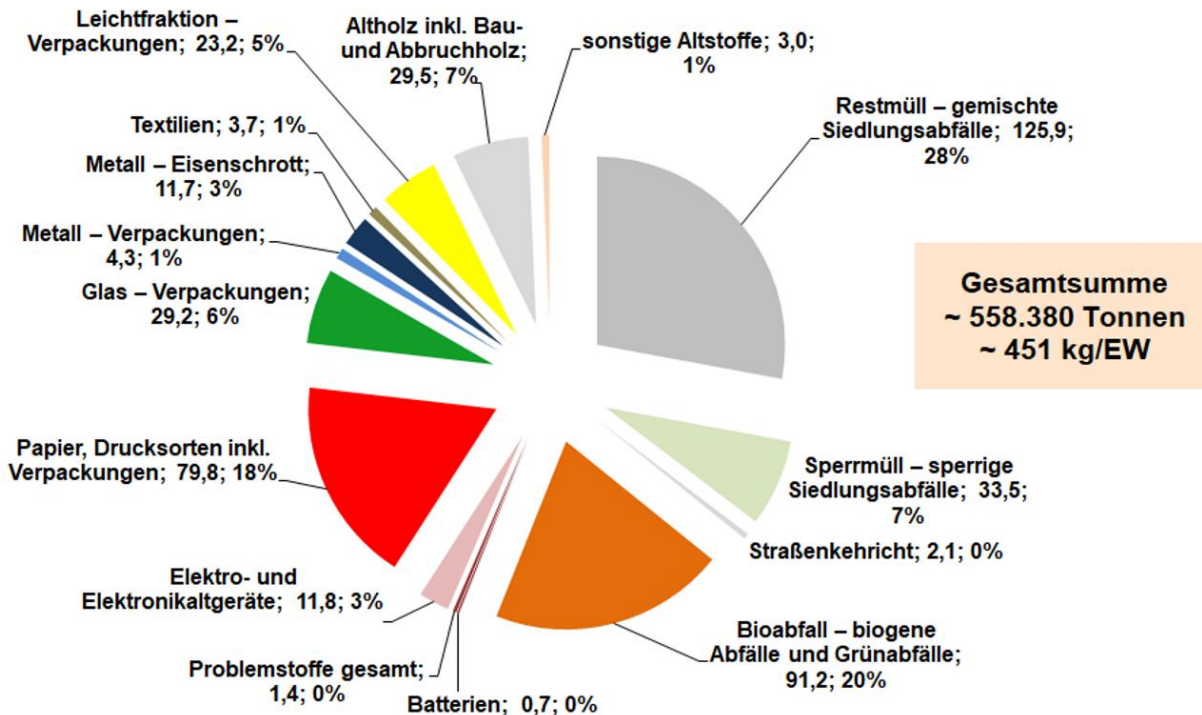
– Recycling rate: 61 %

– Landfilled: 0,7 %



Abfälle aus Haushalten und ähnlichen Einrichtungen - Steiermark 2017

Angaben in Kilogramm und in Gewichtsprozent (%)



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5. Disposal Treatment of Residual Waste until 2004



No disposal of untreated waste since 1.1.2004

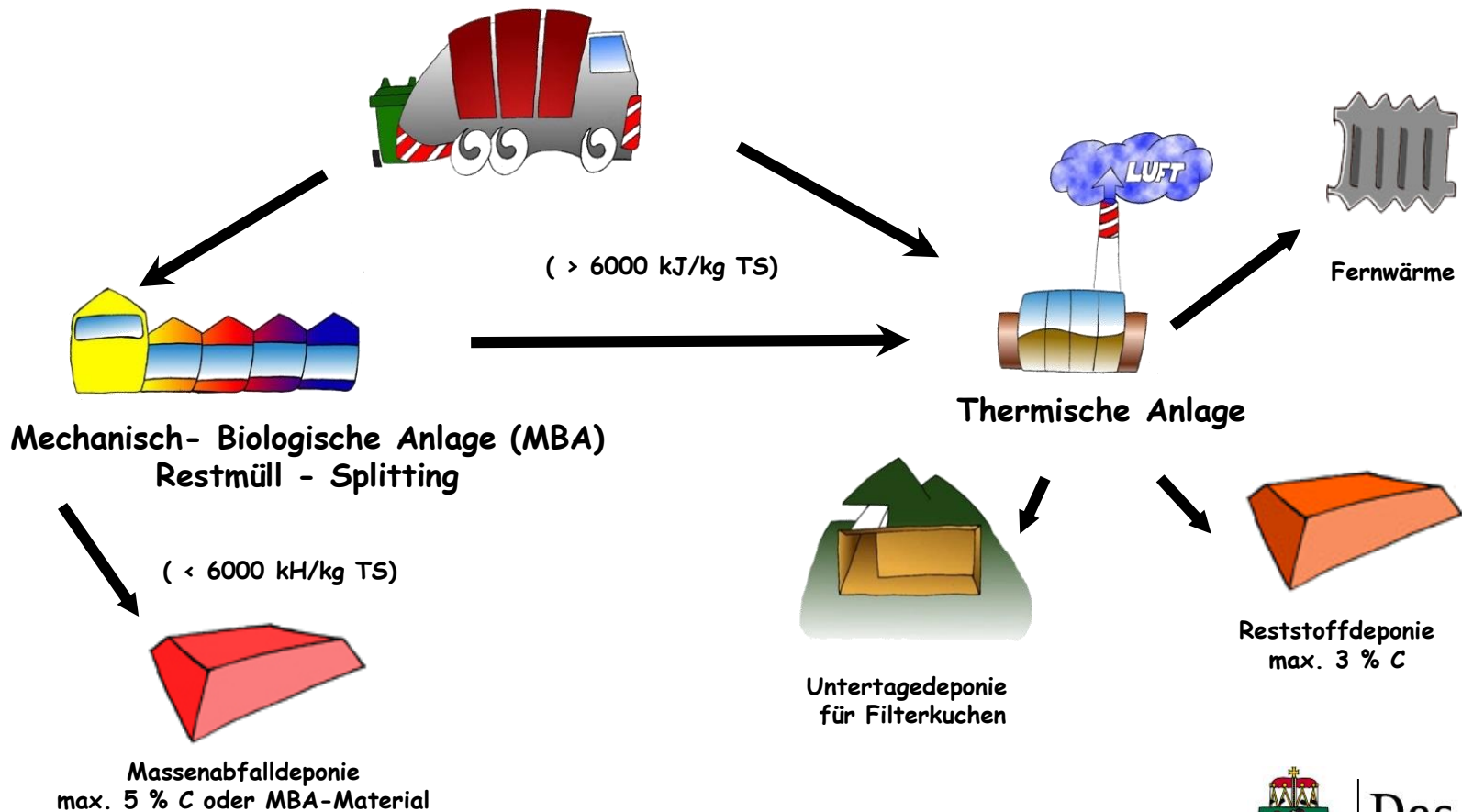


-90 % GHG-Savings
compared to disposal of
untreated waste



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5. Disposal Treatment of Residual Waste since 2004



5. Disposal Mechanic-Biological Treatment (MBT)



Rotting Tunnel



Heap Rotting



Landfill



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4. Thermal Recovery



Thermal recovery plant for municipal and industrial waste



Cement mill for co-incineration



4. Substitute Fuel for Cement Mill

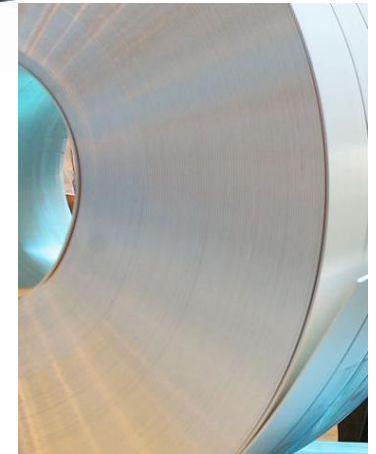


Substitute waste for cement mill



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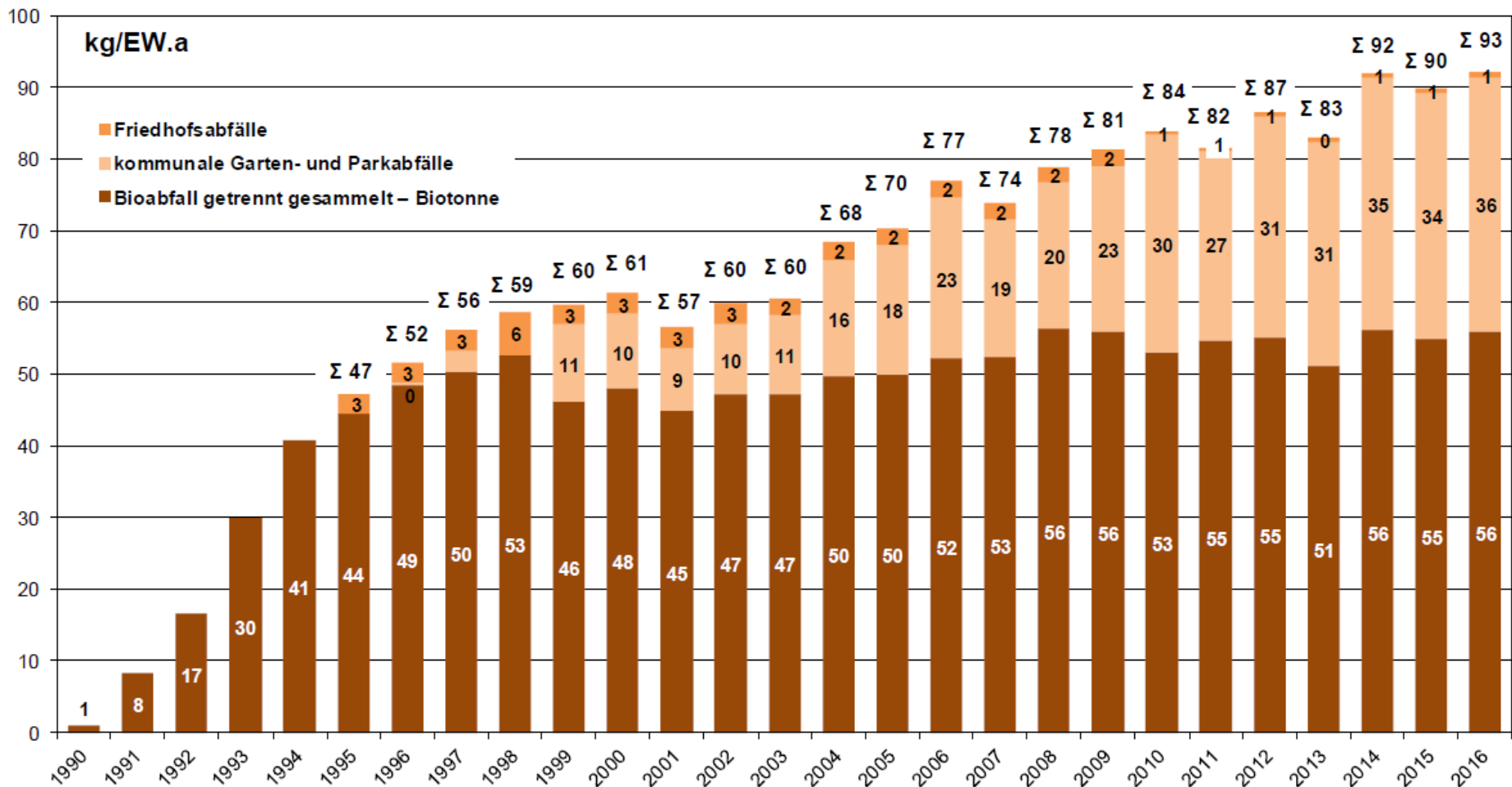
3. Recycling of Waste Materials and Packagings



3. Example - Source Separated Collection of Biowaste for Recycling



● Biowaste, amounts in kg/cap. in indicated years

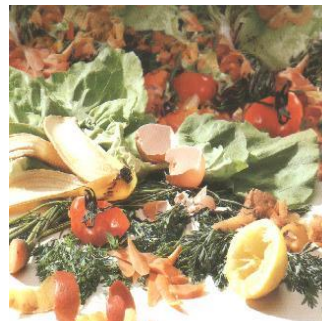


3. Example - Recycling of Biowaste from Source Separate Collection



- **Source separated biowaste from households is composted:**

Rural clamp composting



Waste

Product:

high quality **compost** for humus formation in agriculture



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3. Styrian Composting Technology



KOMPTECH[®]

Technology for a better environment



2017: Advanced electric drive for mobile biomass processing

www.komptech.com



3. Recycling of Waste Cooking Oils and Fats from Source Separate Collection



1994: the world's first biodiesel filling station in Mureck



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3. Source Separated Waste Collection as a Driver for Environmental Engineering



● Example: Separate collection of glass (start: 1977)



clear glass



stained glass



flat glass



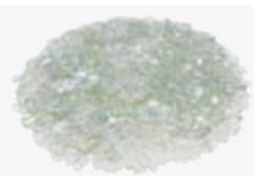
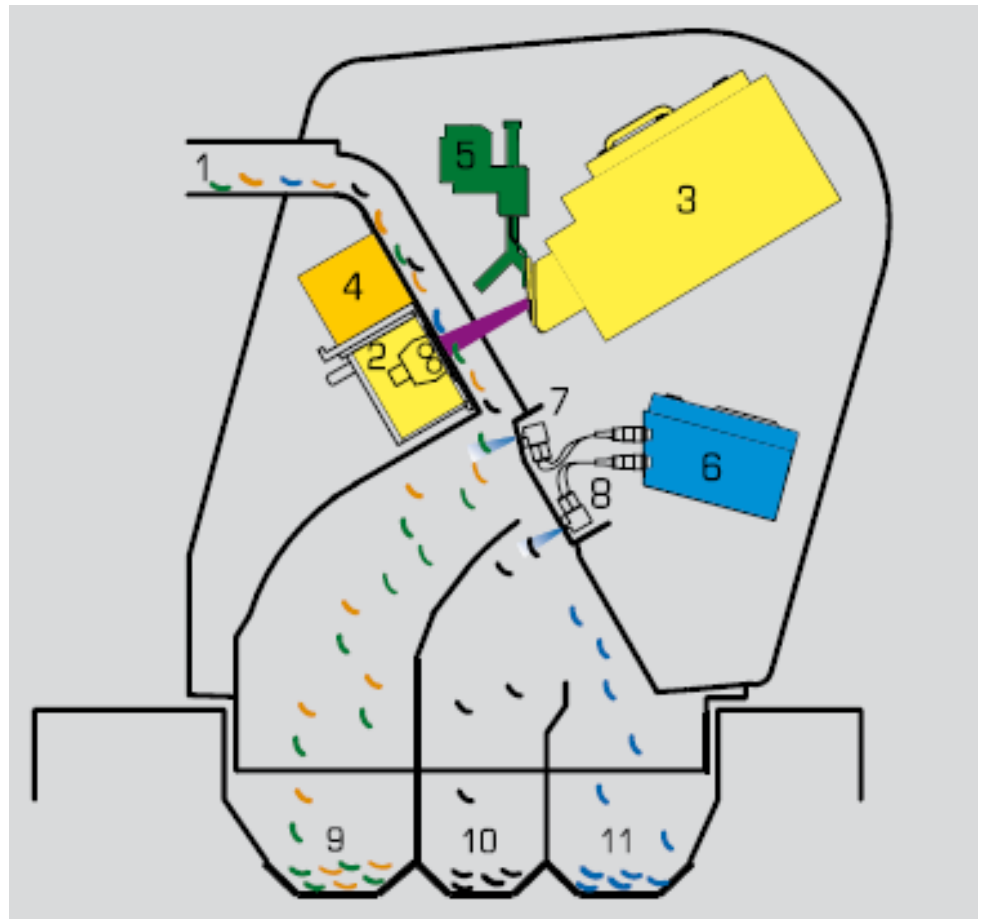
3. Example: Styrian Glass-Sorting Technology



binder+co

Umwelttechnik

- world's first optical glass-sorting system
- world's first industrial solution for sorting special heat-resistant types of glass



3. Example: Styrian Sorting Technology



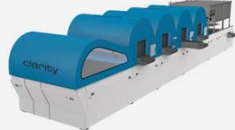
CLARITY glass



CLARITY glass is Binder+Co's innovative and efficient sensor based sorting solution for waste glass cullet. It reliably separates contaminants and ensures pure colors.

[Read More](#)

CLARITY plastic



CLARITY plastic is Binder+Co's innovative and efficient sensor based sorting solution for different types of plastic. It reliably separates contaminants and ensures pure material qualities.

[Read More](#)

CLARITY msw



CLARITY msw is Binder+Co's innovative and efficient optical sorting solution for domestic and commercial waste. It reliably separates contaminants and ensures high material qualities.

[Read More](#)

CLARITY metal



CLARITY metal is Binder+Co's innovative and efficient sensor based sorting solution for metals. It reliably separates contaminants and ensures pure metal fractions.

[Read More](#)

CLARITY slag



CLARITY slag is Binder+Co's innovative and efficient sensor based sorting solution for incineration slag. It reliably recovers glass and metal.

[Read More](#)

CLARITY paper



CLARITY paper is Binder+Co's innovative and efficient sensor based sorting solution for fiber materials. It reliably separates

CLARITY rdf



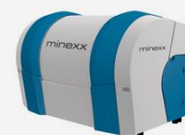
CLARITY rdf is Binder+Co's innovative and efficient sensor based sorting solution for refuse derived fuels. It reliably separates

CLARITY electro



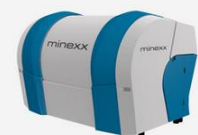
CLARITY electro is Binder+Co's innovative and efficient sensor based sorting solution for WEEE. It reliably separates contaminants and

MINEXX mineral



MINEXX mineral is Binder+Co's innovative and efficient sensor based sorting solution for minerals. It reliably separates colors and

MINEXX salt



MINEXX salt is Binder+Co's innovative and efficient optical sorting solution for salt. It reliably separates contaminants and ensures

binder+co

Umwelttechnik

CLARITY demolition



CLARITY demolition is Binder+Co's innovative and efficient sensor based sorting solution for construction and demolition waste. It reliably

MINEXX gem



MINEXX gem is Binder+Co's innovative and efficient sensor based sorting solution for the exploitation of gemstones.

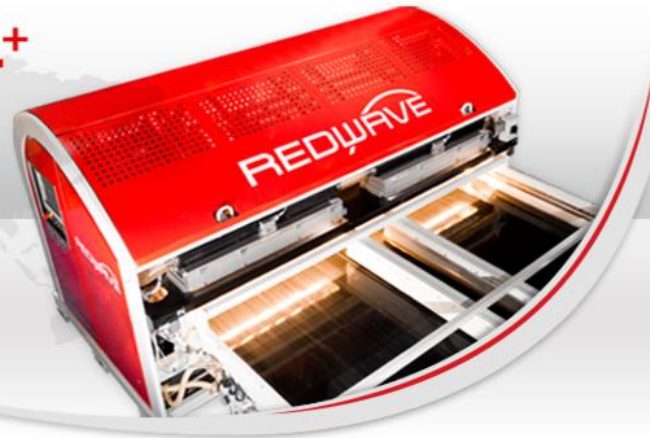


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3. Example: Styrian Sorting Technology



REDWAVE
recycling
solutions



REDWAVE

a division of BT-Wolfgang Binder GmbH

REDWAVE NIR

zur Materialerkennung

REDWAVE NIR



Papiersortierung



Kunststoffsartierung



Glassortierung

REDWAVE NIR-SSI



Sortierung von Feinmaterial
(Flakes, medizinischer Abfall, E-Schrott, PVC Abscheidung aus Pulper Zopf, EBS)



Green Tech Cluster Styria – World`s 1st in Green Tech



● www.greentech.at



GREEN ENERGY



GREEN BUILDING



GREEN RESOURCES



GREEN EFFICIENCY



MORE GREEN TECH



**GREEN
TECH
CLUSTER**



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2. Re-Use

- Repair subsidy for electric household devices

www.reparaturfuehrer.at



www.abfallwirtschaft.steiermark.at/reparaturpraemie

→ Lebensressort



- Re-Use-Shops

- 50 socioeconomic re-use shops
- 3 re-use shops in waste collection centres



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1. Waste Prevention Zero-Waste Festivals



www.gscheitfeiern.steiermark.at



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1. Waste Prevention – Example Beverages



● z.B. deposit bottles for beverages



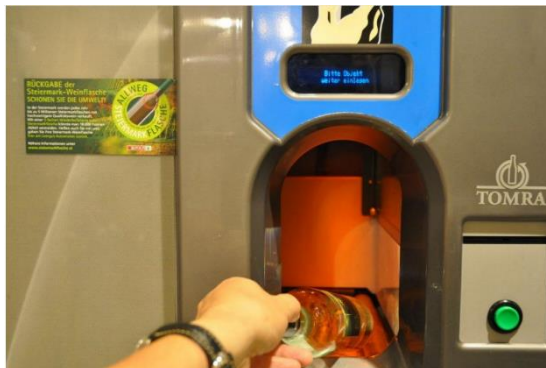
österreichisches
Mehrweg-Logo



Umweltzeichen Mehrweg



● Styria-wine-bottles: optional return for re-use



www.steiermarkflasche.at



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Supporting Sustainability in SMEs



- **Economic development scheme**
(support of environmental and sustainability projects)



WIRTSCHAFTSINITIATIVE
NACHHALTIGKEIT



a joint initiative of:



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Steiermark



MINISTERIUM
FÜR EIN
LEBENSWERTES
ÖSTERREICH



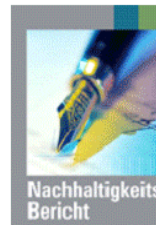
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Supporting Sustainability in SMEs - WIN



● 3 core areas

A Sustainable management, corporate social responsibility

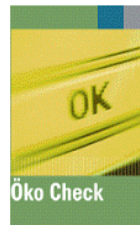


Beratungsmodulare in den drei Kernbereichen
WIRTSCHAFTSINITIATIVE NACHHALTIGKEIT - WIN

B environmental management systems



C product and process integrated environment and climate protection



waste management, resource efficiency, energy efficiency, mobility management ...



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Supporting Sustainability in SMEs - WIN



WIN wirkt

In 12 Jahren haben 2.100 steirische Unternehmen mit WIN-Anreizen von 8,6 Mio € für Beratung und Umsetzung rund 69 Mio € in Umweltschutz investiert und Umweltressourcen gespart. Weitere 115 Mio € Investitionen planen die Unternehmen.



WIN Beratungs- und
Umsetzungsförderung
Σ 8,6 Mio €

Realisierte Umweltinvestitionen
bei steirischen Unternehmen
Σ 69 Mio €

geplante Umweltinvestitionen
der Unternehmen
Σ 115 Mio €

Interreg Europe Project CONDEREFF



CONDEREFF
Interreg Europe



European Union
European Regional
Development Fund

www.interregeurope.eu/condereff

**Construction & demolition
waste management policies for
improved resource efficiency**



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Re-Use and Recycling C&D Waste EU-Project CONDEREFF

- Project partners >>

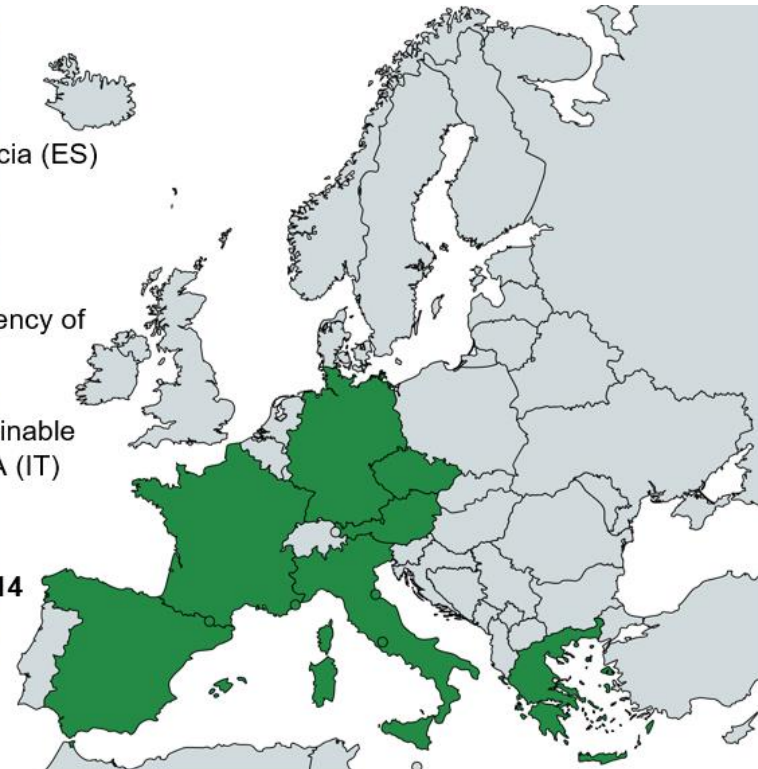
- Start:
01/06/2018

- Duration:
36 months +
24 months monitoring

- Budget in total:
€ 1.617.955,-

8 Partner aus 7 EU-Ländern

- Polytechnic University of Valencia (ES)
- Region of Thessaly (GR)
- Auvergne-Rhône-Alpes Energy Environment Agency (FR)
- The Regional Development Agency of the Pardubice Region (CZ)
- Italian national agency for new technologies, energy and sustainable economic development – ENEA (IT)
- Lazio Region (IT)
- Amt der Steiermärkischen Landesregierung, Abteilung 14 Referat Abfallwirtschaft und Nachhaltigkeit (AT)
- ISW Institute for Structural Policy and Economic Development (DE)



Re-Use and Recycling C&D Waste EU-Project CONDEREFF



- **Objective:**
Dismantling instead of ...



Foto: Erdbau Taucher

CONDEREFF
Interreg Europe



European Union
European Regional
Development Fund



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Re-Use and Recycling C&D Waste EU-Project CONDEREFF



... demolition ball



CONDEREFF
Interreg Europe



European Union
European Regional
Development Fund



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Re-Use and Recycling C&D Waste

EU-Project CONDEREFF



● Objective: improved framework conditions

– EU Construction and Demolition Waste Protocol and Guidelines:

- Improved waste identification, source separation and collection
- Improved waste logistics
- Improved waste processing
- Quality management
- Appropriate policy and framework conditions



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Re-Use and Recycling C&D Waste

EU-Project CONDEREFF



- Plans for Styria
- Styrian C&D waste management manual 2016: inclusion of re-use



www.baurestmassen.steiermark.at

CONDEREFF
Interreg Europe



European Union
European Regional
Development Fund

- Improvement of database regarding re-use of C&D waste
- Advancement of online-recycling exchange market for C&D waste



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VERMEIDEN | REDUCE

WIEDERVERWENDEN | REUSE

TRENNEN | SAMMELN | RECYCELN

VERWERTEN

DEPONIEREN

WISSEN

Wirf deinen Dreck nicht einfach weg!



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Abfall- und Ressourcenwirtschaft

Abfallwirtschaft

Abfallwirtschaft Steiermark

Abfallaufkommen



Siedlungsabfälle, Problemstoffe, Gewerbeabfälle, Abfallberichte ...

Abfalltrennung



Abfall-TRENN-ABC, Abfall-ABC-Steiermark (APP), Trennblätter ...

Abfallwegweiser Österreich



Bundesländer: Kontakte, Abfalldaten, Fachserver ...

Betriebe



Abfallbeauftragter, AWK, Abfallkatalog, Behörden ...

Baurestmassen Leitfaden



Bauwerber, Planer, Recycler, Abbruchunternehmen ...

EDM - Servicestelle



Abfallbilanzmeldung, eADok, EDM-Portal ...

Frühjahrsputz



Kontakte, AktivbürgerInnen, Stop Littering, Anmeldung ...

Grundlagen



Akteure, Rechtsvorschriften, Fachprogramme, Visionen, ...

Publikationen



Landes-Abfallwirtschaftsplan, Infoblätter, Berichte, Projekte ...

Reparaturführer



Reparaturbetriebe suchen, Registrieren, Tipps und Tricks ...

Rund geht`s!



Die Initiative, viele Beispiele, Rund geht's auf Facebook ...

Suche



Suche von Beiträgen nach persönlichen Anforderungen ...

Links zu Partnerwebseiten



awv.steiermark.at



gscheitfeiern.at



lebensmittel.steiermark.at



nachhaltigkeit.steiermark.at



win.steiermark.at



umwelt.steiermark.at



lebensressort.steiermark.at



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