

**Projekte für IGW Fricke & Turk GmbH und Pöyry Environment GmbH Dep./Abt. IGW,
Witzenhausen**

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Research and Development

2006 ongoing	Evaluation of composting and AD technologies with respect to different stability parameters relevant in the UK and across Europe Various clients
2004 – 2007	LuxCycle - Research project on continuous dry mono-fermentation of energy crops (Luxembourg) Centre de Recherche Public Gabriel Lippmann
2003 – 2004	Development of renewable energy facility and bio-fuel crop production system (United Kingdom) Snowie Ltd; Stirling, Scotland
2002 – 2004	Assessment of the performance of a ballistic separator for material separation in MBT processes for the Stadler company (Germany)
2002 – 2003	Expert report, engineer services (Germany) City Cleansing Company of Berlin BSR
2001 – 2004	MBT Buchen (Germany) ISKA GmbH, Ettlingen
2001 – 2002	Trials on the landfill behaviour of MBT treated waste (Germany) ABZ Hanover
2001	Capability of the Linde tunnel composting technology to treat landfill leachate (Germany) Linde BRV, Bôle (Switzerland)
2001	Decomposition trials with ball mill output (Germany) Rethmann Entsorgungswirtschaft GmbH & Co. KG, Lünen
2001	ISKA process MBT plant Buchen (Germany) U-Plus GmbH
2001	Preparation of solutions to compare the variants for residual waste treatment (Germany) Rural District of Bad Tölz-Wolfratshausen
2001	Treatment trials at mechanical treatment plant Wilsum (Germany) Rural district of Grafschaft Bentheim
2001	Trials to assess the suitability of MBT treated fines fraction as landfill restoration layer (Germany) Rethmann Kreislaufwirtschaft GmbH & Co.

2000 – 2001	Assessment of the maturation of digestate from a Valorga plant with respect to stabilisation and options for the exhaust air cleaning (Germany) Steinmüller Rompf Wassertechnik GmbH & Co
2000 – 2001	Scientific-technical trials „Anaerobic and aerobic treatment of residual waste“ (Germany) KOGAS GmbH
2000	Concept development and cost determination for the further operation of the landfill including a MBT (Germany) WEV Westsächsische Entsorgungs- und Verwertungsgesellschaft mbH Markkleeberg
1999 – 2000	Proof of equivalence for landfill Stern-Anklam (Germany) Rethmann Kreislaufwirtschaft GmbH & Co. KG (1999 – 2000)
1997 – 1998	Evaluation of the OxiTop® System as a means of determining respiration activity (Germany) WTW, Weilheim
1997	Demonstration of the equivalency of bio-mechanical treatment of residual waste with incineration and preliminary planning of a bio-mechanical waste treatment plant
1996	Assessment of the Biodegma mobile aeration system for the biological treatment of residual waste (Germany) Biodegma and WGV Recycling GmbH Quarzbichl
1996	Assessment of the Kessler & Luch reverse aeration system for the biological treatment of residual waste WGV Recycling GmbH Quarzbichl (Germany)
1996	Performance test of a membrane to reduce odour in a windrow composting (Germany) WGV Recycling GmbH Quarzbichl
1995 – 1998	Research and development project SAGA (Germany) Southern Hesse working group on waste management (SAGA)
1995 - 1999	Collaborative research project on the biological treatment of waste to be landfilled (MBT); funded by the Germany Ministry for Education and Research (BMBF): "Stabilisation of residual waste through bio-mechanical treatment and its effects on the landfill"
1995 - 1996	Project within the collaborative research project on the biological treatment of waste to be landfilled (Germany) WGV Recycling GmbH Quarzbichl
1994- 1995	Evaluation of a concept for the excavation to recover landfill space District of Göttingen (Germany) (1994 – 1995)
1992 - 1995	Research project "Bio-mechanical treatment of residual wastes with consideration of aerobic and anaerobic processing technologies" (Germany) Waste Management Board Donau-Wald and Ministry for Regional Development and the Environment, Federal State of Bavaria
1993 - 1994	Development and testing of dedicated containers for the collection of organic waste (Germany) SSI Schäfer, Neunkirchen
1991 - 1992	Experiments on biodegradation of residual waste, material flows and optimisation of the bio-mechanical processing operation in Schaffhausen (Switzerland) Bühler-Miag, Braunschweig
1991	Development of a compost based growing media (Germany) City of Munich

1989 - 1990 Development and testing of a reed bed waste water treatment plant for the purification of leachate from a composting operation (Germany)
Ministry of the Environment, Federal State of Hesse, Wiesbaden

Design of Processing Facilities

2009 -ongoing AD facility for source separated organic kitchen waste (12,000 tpa) and green waste (6,000 tpa) in Novi Ligure (Italy)
Client: SRT
Basic design, final design, tender preparation and evaluation, detail design review, supervision of commissioning

2009 RDF production plant (mechanical preparation of RDF from residual waste fractions 220,000 tpa)
KDHEC, Korea
Modelling of mass balances and recycling rates, Plant process design, cost calculations

2009 MBT plant (mechanical preparation of RDF from residual waste fractions 100,000 tpa)
Symevad, France
Modelling of mass balances and recycling rates, Plant process design, cost calculations

2008 - 2009 RDF production plant (mechanical preparation of RDF from commercial waste fractions , 120,000 tpa)
L&T, Finland
Plant process design, cost calculations, drafting of procurement documents

2008 -ongoing AD facility for source separated biowaste (32,000 tpa) (dry system, horizontal digester)
Client: WGV Recycling GmbH
Feasibility study, All engineering duties and responsibilities, from planning and construction to control of entire warranty period

2008 Optimisation of a 25,000 tpa MBT in Germany
Client: KAEV Niederlausitz

2008 - 2009 RDF production plant (mechanical preparation of RDF from commercial waste fractions , 120,000 tpa)
L&T, Finland
Plant process design, cost calculations, drafting of procurement documents

2008 Development of a basic design for underground RDF preparation facility (90,000 tpa) as part of an integrated waste treatment facility; Korea

2008 -2009 AD facility for source separated food waste (25,000 tpa) and MSW derived organics (45,000 tpa) for UK waste contractor

2007-2008	Arc21 (Northern Ireland): 100,000 tpa in-vessel composting facility for source separated biowaste Technical advisor for the evaluation of tenders; technical expert in a law suit
2007	Development of a basic concept for RDF preparation from household and commercial waste in Korea
2007-2008	AD facility for source separated food waste (30,000 tpa) for UK waste contractor
2007	Development of a treatment approach for Korean Food Wastewater through Anaerobic Digestion for Korean private company
2005 - 2007	Composting plant Helsinki, Finland Capacity enhancement of an existing plant from 30,000 tpa to 69,000 tpa
2004 -2007	Lancashire County Council, UK: PFI contract procurement (build and operate) for a network of: <ul style="list-style-type: none"> - 2 MBT facilities processing 350,000 tpa MSW through mechanical pre-processing, anaerobic digestion and aerobic maturation - 2 aerobic composting facilities processing 110,000 tpa of green & kitchen waste - 1 MRF facility processing 75,000 tpa dry recyclables
2004 – 2000	NEWS, UK 150,000 tpa MBT for MSW including mechanical pre-processing, anaerobic dry digestion and aerobic maturation
2002-2004	Biogas plant at the landfill “Am Breitenberg”, District Werra-Meißner, Germany
2003 - 2006	Dorset County Council, UK: 120,000 tpa MBT for pre-processing and composting of MSW; Feasibility study, basic design, cost studies
2002 – 2003	MBT Schöneiche, Germany BSR Berliner Stadtreinigungsbetriebe
2001 – 2005	MBT Schöneiche, Germany Märkische Entsorgungsanlagen- Betriebsgesellschaft mbH (MEAB)
1999 – 2000	Landfill Diebesstieg, Germany City of Salzgitter
1994 – 1998	Research project on the bio-mechanical treatment of residual waste, Germany City Heilbronn and Ministry of Environment, Federal State of Baden-Württemberg
1999	MBT Halle-Lochau, Germany MBT 100,000 tpa Abfallwirtschaft Halle-Lochau GmbH
1997 – 1998	Composting plant Bützberg, Germany Fa. Bühler Deutschland GmbH, Braunschweig
1997 – 1998	MBT Lübben-Ratsvorwerk, 36.000 t/yr (Germany) - Kommunaler Abfallentsorgungsverband Niederlausitz, Lübben
1997	Landfill Schöneiche and MBT Vorketzin (Germany) Märkische Entsorgungsanlagen-Betriebsges. mbH, Neu Fahrland

1997	MBT Schöneicher Plan, 350,000 t/y (Germany) Berliner Städtereinigung, Berlin
1996	MBT Kirschenplantage (Germany) Publicly owned waste management company for the District of Kassel
1995	Composting facility Mechernich (Germany) District Euskirchen
1995	Design and test of an improved window aeration system - Publicly owned waste management company for the District of Kassel (Germany)
1995	Improvement of an M.U.T. composting plant (Danotrommel) Katowice (Poland, 1995)
1994 – 1995	Landfill Vogelsang (Germany) MBT pilot plant and composting plant – City Heilbronn and Ministerium of Environment Baden-Württemberg
1994 - 1995	Test and design of an improved window aeration Kessler & Luch, Gießen (Germany, 1994 – 1995)
1993	MBT Deggendorf (Germany) ZAW Zweckverband Abfallwirtschaft Donau-Wald
1993	MBT Quarzbichl (Germany) WGV GmbH, Eurasberg

Environmental Monitoring

2006	Waste audits (Germany) ISKA GmbH, Ettlingen
2004	Odour monitoring MBT Canford (United Kingdom) District Canford
2004	Performance test of mechanical preparation of residual and commercial waste (Germany) Stratmann - Stadler Anlagenbau GmbH
2004	Trials of mechanical preparation of residual waste (Germany) Stadler Anlagenbau GmbH
2004	Waste audit of residual waste (Germany) Thöni Industriebetriebe GmbH
2003	Waste audit of residual waste and recyclables District Canford (United Kingdom) District Canford
2002	Waste audits (Germany) Fa. Stadler
1998	Analyses (Germany) Waste Management Board Saale-Orla
1996	Waste audits (Germany) District of Rendsburg-Eckernförde
1995	Assessment of odour emissions (Germany) South Hesse Working Group on Waste management (SAGA)
1994 – 1996	Waste audits (Germany) City of Heilbronn
1991 - 1995	Waste audits (Germany) Five districts within the Waste Management Board Donau-Wald
1991 – 1992	Waste audits (Germany) District of Cham
1991 – 1992	Waste audits (Germany) City of Rosenheim
1990 - 1991	Waste audits (Germany) City of Munich
1990	Waste audits (Germany) District of Garmisch-Partenkirchen

Strategy Development and Expert Reports

2006	Modelling costs of food waste collection ORA/Bedfordshire
2006	Technical and economical assessment of the ISKA MBT plants Buchen und MBA Heilbronn (Germany) Fricke Beratungen Göttingen (Germany)
2005	Feasibility Study "Processing of leachate" Jaakko Pöyry Infra Soil & Water Ltd. (Finland, 2005)
2003 - 2004	Ecological assessment of different options to recover food waste oil and grease (Austria) Environmental Association Vorarlberger Gemeindehaus, Dornbirn (Austria)

2003	Feasibility study on the utilization of UK supermarket waste with anaerobic digestion including design and cost calculations
2003 - 2004	Residual waste, biologically stabilized residual waste - SYNCOAL (Italy) Thöni Industriebetriebe GmbH
2002	Energy crops – Potential and feasibility study of anaerobic digestion Ministry of the Environment Luxembourg
2001 - 2003	Residual Waste Management Concept Vorarlberg (A)
2000 - 2001	Technical report “Energy recovery” on behalf of City Cleansing of Berlin BSR, large scale trials on the preparation of RDF from MBT screen overflow for various industrial options
2000 - 2002	Feasibility studies including costings and technical assessment for MBT Cröbern, operational since 2005
2000	Waste treatment facility Wiesbaden LHW (Germany) Waste management company City of Wiesbaden
1999 - 2000	Cost assessment of building and operating a MBT plant (Germany) BUND Kreisverband Meiningen
1998 – 1999	Landfill Lampertheimer Wald (Germany) Abfallwirtschaft district Bergstraße, Lampertheim
1998 - 1999	MBT Wiesbaden (Germany) Waste management company City of Wiesbaden
1998	Ideas competition Wiesbaden (Germany) Disposal company of the state capital Wiesbaden
1998	Proof of equivalence and MBT pre-concept District Heppenheim (Germany)
1995 - 1997	Waste management improvement measures in Katowice (Poland) Ministry of Environmental Protection and Water Management (ESMU) Warszawa (EU-funded project)

2004 -2009	Lancashire County Council, UK: PFI contract procurement (build and operate) for a network of: <ul style="list-style-type: none"> – 3 MBT facilities processing 510,000 tpa MSW through mechanical preprocessing, anaerobic digestion and aerobic maturation – 3 aerobic composting facilities processing 165,000 tpa of green/ kitchen waste – 2 MRF-facilities processing 75,000 tpa dry recycables
2002 - 2006	Biogas plant at the landfill “Am Breitenberg”, District Werra-Meißner, Germany
2003	Feasibility study on the utilization of UK supermarket waste with anaerobic digestion including design and cost calculations
2004 - 2005	NEWS, UK: 150,000 tpa MBT for MSW including mechanical preprocessing, anaerobic dry digestion and aerobic maturation
2002 - 2004	Assessment of the performance of a ballistic separator for material separation in MBT processes for the Stadler company
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2001 - 2003	Residual Waste Management Concept Vorarlberg (A)
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1997	Demonstration of the equivalency of bio-mechanical treatment of residual waste with incineration and preliminary planning of a bio-mechanical waste treatment plant
1995 - 1999	Collaborative research project on the biological treatment of waste to be landfilled (MBT); funded by the Germany ministry for education and research (BMBF): "Stabilisation of residual waste through bio-mechanical treatment and its effects on the landfill"

Public relations campaigns

1996	Improvement of the source separation of organic waste in the City of Katowice (Poland) - population 9,000 - City of Katowice (Poland)
1995	Six months training course to become an "expert in biological waste treatment and recycling" (Germany) Employment Centre Kassel, Institute for Agricultural Education, Witzenhausen
1994	Introduction of source separation collection for organic kitchen and garden in the district of Straubing (Germany)
1993	Development and production of a media package about waste minimisation and recycling for tourism operators in the District of Garmisch-Partenkirchen (Germany) District of Garmisch-Partenkirchen
1993	Introduction of source separation collection for organic kitchen and garden in the City of Straubing (Germany)

- 1991 - 1993 Introduction of source separation collection for organic kitchen and garden in the district of Cham Germany
- 1991 – 1992 Introduction of source separation collection for organic kitchen and garden in the City of Rosenheim (Germany)
- 1990 – 1996 Introduction of source separation collection for organic kitchen and garden in the City of Munich (Germany)
- 1991 Introduction of source separation collection for organic kitchen and garden in the City of Munich (Germany)
- 1991 Introduction of source separation collection for organic kitchen and garden in the District of Garmisch-Partenkirchen (Germany)

Trainings/Education

- 1996 - 1997 Nine months training course to become an "expert in biological waste treatment and recycling" (Germany)
Job Centre Kassel, Institute for Agricultural Education, Witzenhausen
- 1996 Trainee course "ENERGY, WASTE AND REFUSE" - IFOA Istituto Formazione Operatori Aziendali (Italy)
Co-operation with DEULA Witzenhausen
- 1995 Six months training course to become an "expert in biological waste treatment and recycling" (Germany)
Employment Centre Kassel, Institute for Agricultural Education, Witzenhausen
- 1992 Training course in "Composting" for employees of the supply and disposal industries (Germany)
Institute for Advanced Vocational Training, Mühlhausen
- 1991 One week training course for staff of composting plants (Germany)
Waste Management Board Donau-Wald
- 1988 Four week training course on organic waste management for waste management company staff (Austria)
Roth GmbH, Graz
- 1987 - 1989 Advanced training courses for waste management consultants (one year graduate training course) (Germany)
Job Centre Celle
- 1987 – 1989 Course in „Composting and ecological waste management“ within a re-training program to become a gardener/landscaper (Germany)
Job Centre Celle