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CARL DUISBERG  
GESELLSCHAFT e.V



WORLD INTELLECTUAL  
PROPERTY ORGANIZATION

## **WORKSHOP ON INNOVATION SUPPORT SERVICES AND THEIR MANAGEMENT**

organized by  
the World Intellectual Property Organization (WIPO)  
and  
the Carl Duisberg Gesellschaft (CDG)  
in cooperation with  
the German Patent and Trademark Office (GPTO),  
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and  
the European Patent Office (EPO)

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SERVICE, CUSTOMER PROFILE AND CUSTOMER RELATIONSHIP  
WITHIN A NETWORK

*Document presented by Dipl.-Ing. Jan Bandera, Steinbeis Transfer Center, Stuttgart*

# Steinbeis Transfercentre Stuttgart International Technological Co-operation

*Jan E. Bandera*



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## Typical Problems of SMEs:

*not the fact of being small  
but of being isolated*



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## Services of Steinbeis-ITC ...

- International Business Development in the area of advanced technologies
  - Distribution agreements, agencies
  - Supplier search
  - Licensing
  - Strategic Alliances, Joint Ventures
  - R&D Co-operations



## ... Services

- Market assessment on domestic and foreign markets
- Scientific Scouting
- Managing consulting projects abroad
- Managing seminars abroad



## Principles of Operation

- Concentration on the client's needs and objectives
- Taking responsibility
- Observing confidentiality
- Striving for Win-Win relationship among partners

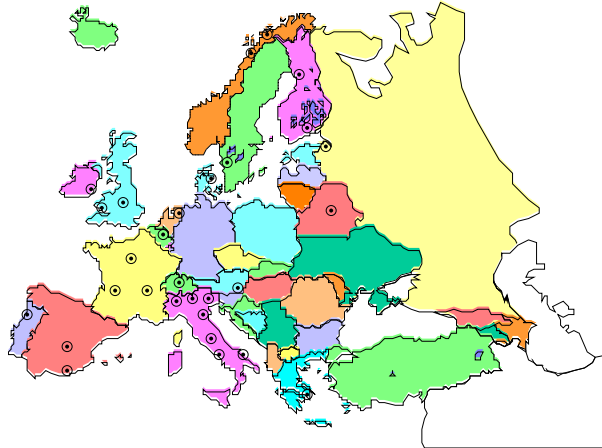


## Working Procedure

- Problem Analysis
- Market Assessment
- Partner Identification
- Partner Contact
- Contract Negotiation
- Implementation



## European Transfer Network



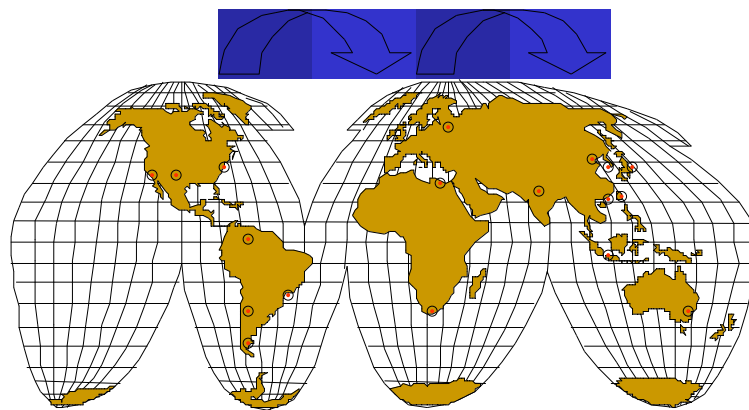
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## Partner Network



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## Current Projects ...



- Recycling of Electronic Waste
- Sodium Technology  
(destruction of PCB and chemical weapons)
- Recycling System for Urban Waste Water
- Solar drying of sewage treatment sludge






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## ... Current Projects

- Process Waste Water Treatment of Metal Industries
- Purification systems for industrial gas emissions 
- Automatic Cheque Reader 
- Anti-Graffiti Protection 
- Pipeline Milling Machine



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## Case Examples



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## Implementation



- Giving support to the communication
- Verifying commitment, helping to keep dead lines and reaching achievements (orchestra director)
- Supporting the quick adaptation to new circumstances
- Celebrating achievements together
- Building a trust interface and give practical help



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A short introduction  
into

## Solar Sludge Drying

The specialists  
in many areas ...



Solar drying of timber



Solar drying of tobacco



Solar drying of fruits



Greenhouses



Solar drying of sewage  
sludge



Solar drying of medicinal  
plants



## Background I

- End Product of sewage works: Cleared water and sludge
- Sludge contains still more than 95% of water
- Mechanical dewatering: still 65 - 75% water
- Water has to be handled, transported and disposed
- Interim storage is difficult

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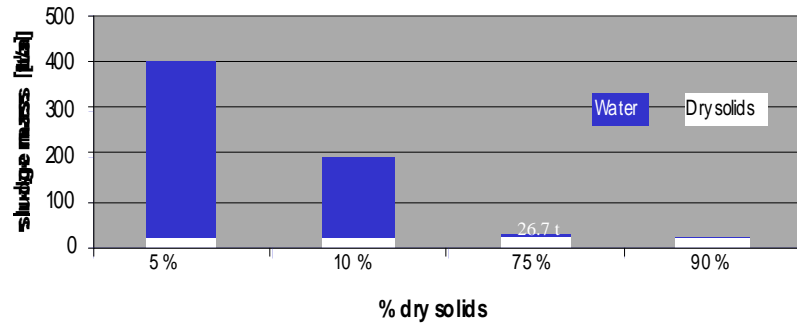
## Background II

- Dried sludge: biologically stable, odorless, remaining water content is negligible
- Conventional drying systems: High investment, high energy consumption, high running costs
- As the sun does not send a bill, solar drying is in many cases the solution

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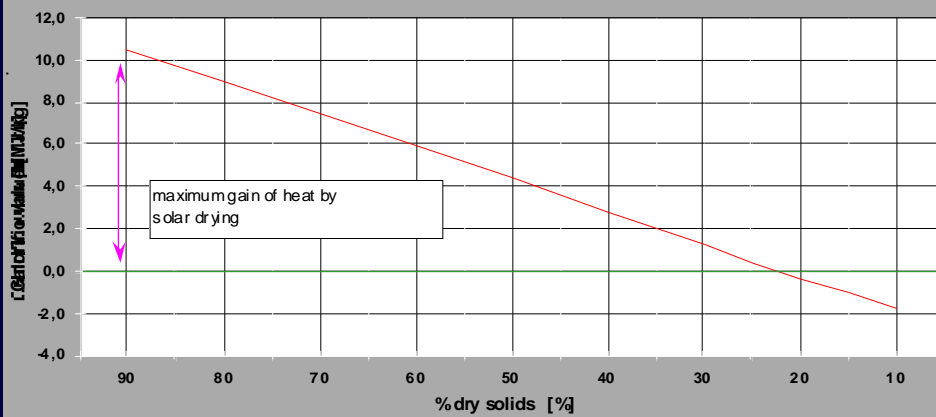
## Solar sewage sludge drying

quantity per 1 000 persons



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## Calorific value



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## Mass and Volume Reduction

- Handling cost
- Storage cost
- Transport cost
- Disposal cost
- Reduction of dependence (time and place)

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## Biological stability

- Odor reduction
- Pathogen reduction
- Storability
- Reduced transport problems
- Better acceptance (farmers, neighbourhood)

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## Others I

- High calorific value (incineration)
- Ecological (energy recovery)
- No leaching of nutrients (ground water)
- Good compatibility with plants (no burning)

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## Functioning of Thermo-System Solar Sludge Dryers

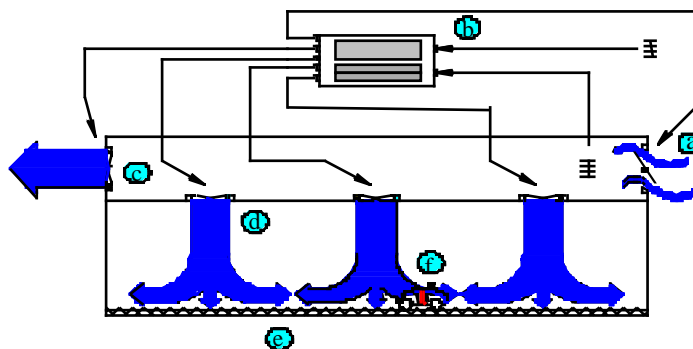


## Relevant Factors for the drying of sludge

- Air temperature
- Air humidity
- Air velocity
- Sludge temperature
- Surface of the sludge
- Physical and chemical properties of the sludge

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## Schematic Diagram



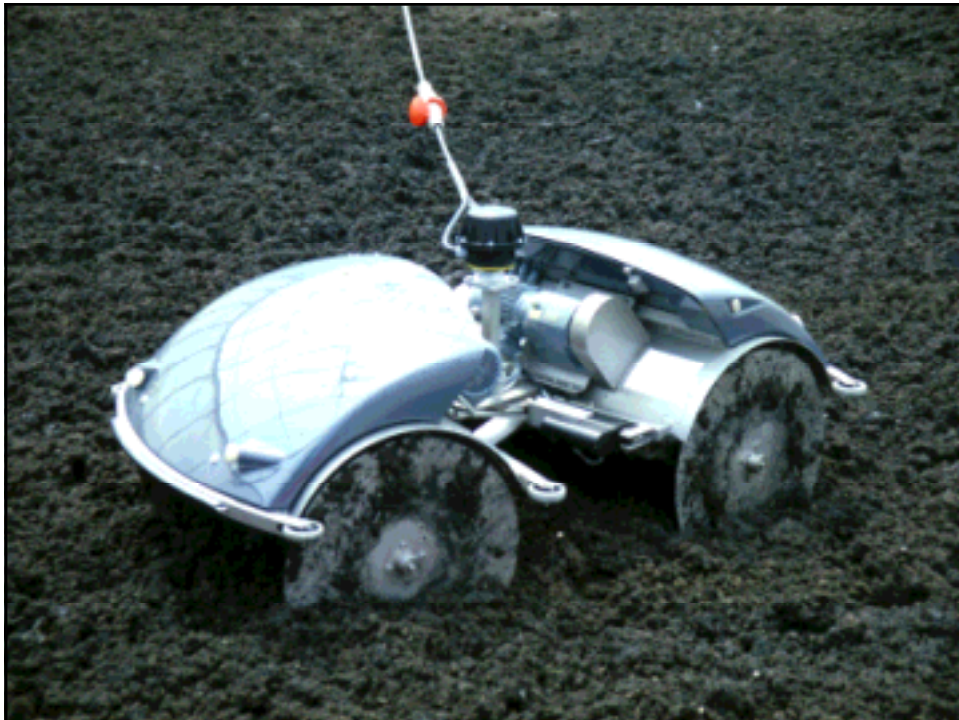
- |                      |                       |                             |
|----------------------|-----------------------|-----------------------------|
| a: Air exchange flap | b: Microprocessor     | c: Air exchange ventilators |
| d: Ventilators       | e: Optional: Drainage | f: ‚Electric Mole‘          |

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## The ,Electric Mole'...

- replaces mass by (microprocessor) intelligence
- is a fully independent, self-controlled machine (robot)
- can be adapted to different requirements (size of drying chamber, sludge)

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## Advantages I

- Mass and volume reduction with solar energy
- Very low running costs
- Initial d.s. is free: Filter cake or liquid sludge
- Final d.s. is free: 40 % or 90 %
- Particel size can be influenced (also after years)
- All ways of disposal are available
- Height, length and width are free within a wide range
- No unnecessary expensive equipment
- -> low investment costs

## Advantages II

- Automatic control of all relevant parameters
- Flexible system: transparent roofing to fully automatically controlled drying plant
- All components are industrial standard.
- Additional options like the PC-based controlling system, composting function, Snow-thawing device, pathogen reduction...



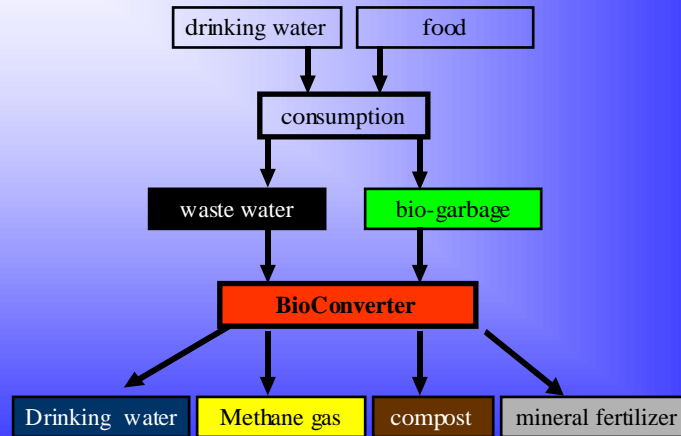




## Examples of Solar Sludge dryers



## Productdescription INTAQUA BioConverter



©T&U Recycling GmbH

## Advantages of the BioConverter

- saving up to 80% of drinking water demand
- no costs of sewer connection
- no waste water
- 50% up to 70% reduction of garbage
- production of energy
- production of mineral fertiliser and compost
- minimal space requirement
- total watermanagement & aid assistance
- price reduction for pilot installation

## Cost comparison

	sea-water desalination plant	sea-water desalination plant + BioConverter	BioConverter
water quality	drinking water	drinking water	service water (dw-quality)
costs/m <sup>3</sup>	<b>2,90-3,50 DM</b>	<b>1,29 DM</b>	<b>0,60 DM</b>

## General advantages

- odourless operation
- production of water meeting highest international standards
- conversion of biogarbage into energy & compost
- pollution of the environment impossible
- flood resistance
- automatical operation
- increasing occupancy rates (ecological hotelmanagement)
- sustainable conservaion of tourism sites

## Investment and savings

Basis of calculation: Hotel with 250 rooms, sophisticated category

	sewer	soil-filter	BioConverter
investment	1.500.000.-DM	755.000.-DM	1.200.000.-DM
interest / repayment p.a./9,5% period of 20 years	167.780.-DM	84.450.-DM	134.230.-DM
<b>savings</b>			
drinking water costs	<b>non</b>	<b>non</b>	<b>80% saving</b>
waste water fees	<b>non</b>	<b>100 % saving</b>	<b>100% saving</b>
garbage fees	<b>non</b>	<b>non</b>	<b>30-70% saving</b>
energy-costs	<b>non</b>	<b>non</b>	<b>Positiv energy balance</b>