Waste Water & Ground Water Management Technology

Steinbeis Centre For Technology Transfer, India
Steinbeis Global Network

- **Services:** customer driven services, contract based
- **Decentralized Transfer Network:** more than 900 Steinbeis Enterprises
- **Competence:** all fields of technology and management
- **Customers:** more than 10,000 per year (70% SME), 55 countries
- **Projects:** ~ 14,000: consultancy service, r&d, evaluation-/expert reports, training/further education
- **Staff:** professors (800), permanent staff (1300), project-based staff (3000)
- **Income (2011):** EUR 134 million (0% subsidies!)
- **Starting date:** 1983
- **Driving Force:** transfer entrepreneurship
Steinbeis India

Steinbeis Centre for Technology Transfer India (SCTI)

Steinbeis Centre for Renewable Energy Technologies & Knowledge Transfer, North East India

Steinbeis Centre for Renewable Energy Technologies & Training, New Delhi

Steinbeis Centre for Renewable Energy Technologies & Training (S CAT), Pune

Steinbeis-SGVU Centre in IT Systems Integration & Solution, Jaipur

Steinbeis-Shobhit Centre for Advanced Management, Meerut

Ansal–Steinbeis Centre for Technology & Innovation (AinStein); Focus Automotive Technologies, Gurgaon

GNITS-Steinbeis Centre for Renewable Energy, Hyderabad

Involute Steinbeis Institute of Manufacturing Technology

Technology . Transfer . Training
Steinbeis Services

Consulting

at every stage of the value chain

- new technologies
- process, methods and systems
- financing and shareholding
- regional business development
- corporate coaching
- (innovation-) management
- Marketing & sales
- Products

Extensive consultancy service within projects and companies along the economic value chain
Steinbeis Centre for Technology Transfer India

Relevant, trendsetting know-how and longlasting experience in all branches of technology. Special competence in economically important fields of technology and growth.

Research and development

- information and communication technology
- life sciences
- miniaturization
- optoelectronics
- process engineering
- new materials
- embedded systems
- environmental and power engineering
- industrial sensors

fostering successful transfer

Relevant, trendsetting know-how and longlasting experience in all branches of technology. Special competence in economically important fields of technology and growth.
Steinbeis Services

Evaluation and expert reports

forming the basis for decision making

- technologies
- technical and economic solvency
- business evaluation
- management
- shareholdings

Our evaluation and expert reports help you to make important decisions and acquire strategies to ensure future success.
Steinbeis Services

Training and employee development

as a key competitive factor

- courses of studies leading to officially acknowledged degrees at the Steinbeis University Berlin
- successful instruments for executive and technical qualification in seminars, workshops or individual in-house training

Trendsetting offers for qualification by interdisciplinary cooperation in all fields of study.

Steinbeis Haus in Berlin
location of the Steinbeis University
Establishment: 1998
Professors: 39
Teaching staff: 1158
active Students: 4257 (Ø33y)
Institutes: 109

Study Concept: Project Competence Program (BBA, MBE/MBA, PhD)
Financing: entirely private, free of subsidies
Technology Transfer – Steinbeis Model

State

promoter
tax administrator

Public

basic researcher

Knowledge Base

Sender/Provider

KTT

STEINBEIS

Private

tax payer

Enterprises

Receiver/User

Technology . Transfer . Training
Technology Transfer – Steinbeis Model

- Innovation potential from universities can catalyse economical growth
- Problems posed by the economy can generate research activities in universities
Technology Transfer – Steinbeis Model

Sources of knowledge

Win

Knowledge and Technology Transfer

Win

Win

Economy (SME) as client

• Task sharing
  Decentralized: expert knowledge
  Centralized: Business Administration + others

• „Solidarity principle“
  Equal treatment of big and small Transfer centres
  Fees result as percentage from centre's revenue
Technology Transfer – Steinbeis Model

Link and Coordinator between Science, Economy and Communities
Technology Transfer – Steinbeis Model

SU: Steinbeis Enterprise (unit)
StW: Steinbeis Foundation
SME: Small and medium-sized enterprises
Reg.: Region
Technology Transfer – Steinbeis Model

Steinbeis–Foundation

- formal background
- administrative support
- Consulting, Coaching
- PR, gen. Marketing
- Network fee
- Know-how
- rules of StW
- STC–Management

Steinbeis Transfer Center

Ministry of Science & Research

Government Commissioner

Ministry of Economic Affairs

Economy

universities

colleges

using facilities

direct contact

Technology Transfer Training
Technology Transfer – Typical Project Cycle
Technology Transfer – Steinbeis Model

- utilizing research results
- making expertise available
- offering holistic solutions
- expanding the transfer network
- operating through decentralization
- added value by networking
- safeguarding strict confidentiality
- providing commercial solutions for public sector assignments
- state as customer
  e.g. Regional Development
Water & Sanitation Issues in India
Actions Required

- Rain Water Harvesting is necessary for India’s proper water management.
- To Combat Drought related problems India should encourage water storage through recharging of Underground Aquifers through Rain–Water Harvesting or Floods.
- Irrigation systems should be improved for efficient utilization of water resources.
- Sanitation and Water Treatment should be bettered to ensure supply of safe drinking–water and good quality water for other domestic and agricultural purposes.
- Improvement of Institutional arrangements should be made for better management of water resources.
- Policy initiatives like ‘incentives for efficient water utilization’ should be introduced in order to bring proper water management from demand side.
Technology Requirement

- India should employ Innovative Technologies for Rain Water Harvesting, Ground Water Development and River Water Management for Water availability augmentation.

- New technologies should be encouraged for better water treatment and Sanitation. Sanitation is important for better health hazards as it directly affects the environment.

- India should encourage transfer of proven technologies of European Countries for application here in India for Waste Water Management and Efficient Utilization of Water Resources.
Steinbeis Water Technology Centers
.... Can support !!!

Steinbeis Transfer Center – Water Management and Hydraulic Engineering, Biberach, Germany.

Area of Expertise:

- Discharge Measurement in Sewage Treatment Plants.
- Evaluation Studies in on Flow Patterns in Channels and Canals.
- Sewer Inspections.
- Hydrometry in Town Drainage Systems.
Steinbeis Center for Ground Water, Modeling, Wiesloch, Germany.

Area of Expertise:

- Ground Water Model Calculations.
- Ground Water Model Development.
- Reports & Studies on Ground Water.
- Consulting.
- Scientific Research.
Some of the Projects done by Steinbeis Centers

- Modeling groundwater flow and heat transport in hydro geothermal Istibanja – Vinica, Macedonia.

- Flow and transport model calculations for VHH underground contamination at the premises of the Pfalz Flugzeugwerke GmbH, Speyer.

- Flow modeling techniques to influence the groundwater levels in the area through a planned Nassentsandung Winkhausen (Paderborn district).

- Model calculations of the impact of groundwater extraction on the site of MiRO Plant 2 on the regional groundwater flow.

- Model calculations for reactive transport in groundwater in connection with the incident VW sticks / Hall 23.
Model calculations for groundwater flow and solute transport in the area of former sand washing plant Detlef Klein GmbH, Roßstadt district, Lower Franconia.

Modeling of reactive solute transport in the framework of the joint research project of the Free State of Bavaria "sustainable legacy management involving the natural cleaning power," Project 5 "VHH incident acid resin landfill Birkach at Kronach".

BMBF project KORA Retention and degradation of pollutants, Project 3.3c "groundwater model for studies on the natural attenuation of HCH contamination Karlsruhe East / Killisfeld".

Over the scientific part "Hydrology" in the first stage of the realization of e–learning–based approach, "Introduction to Groundwater Flow Modelling" in the framework of the program "Regional and international approaches to transnational sustainable groundwater management".
Project Example – Water Management Systems for Residential & Commercial Complexes by Intaqua, Germany (Steinbeis Client)
Existing Systems of Water Management for Residential & Commercial Applications

**Traditional Method**

- Drinking Water Production in Water Treatment Plant
- Sewage Treatment Plant
- River

**Complete Recycling Method**

- Primary Water Supply to the House
- Retreated Water Recycled into the House
- Sewage Treatment Plant
- River

**Partial Recycling Method - 1**

- Primary Water Supply
- Treated Natural Source
- Recycled water for Toilet Flush Purpose
- Toilet, Shower, Kitchen

**Partial Recycling Method - 2**

- Water Supply to House
- Natural Source
- Recycled Water from Kitchen/Wash
- River
The problems with these methods of water management are

Long Pipelines are used hence increased chances of Water Contamination.

Not Strict separation between waste–water from Kitchen/Wash and waste–water from Urinals/toilets.

The increased contamination of ground water because of long canal between Sewer And Sewage Treatment Plant with increased leakage.

The partially treated sewage from sewage plant is dumped into rivers whose water is used by local inhabitants.

Environmental harm and economical loss because of improper water Management system.
Intaqua Model – Grey–Water Cycle and Black–Water Cycle

Because of combined system of independent Grey–Water Cycle and Black–Water Cycle there is no danger for water quality and at the same time achieves high water efficiency.
The Sewage Water is divided into two parts

1) Grey Water Cycle – Sewage water from Kitchen/Bath/Wash.

2) Black Water Cycle – Sewage water from Urinals/Toilet.

The Grey–Water sewage cycle is an open loop cycle where sewage water from Kitchen/Bath/Wash is treated separately and then fed into the open water reservoir after which it is treated in a treatment plant and then fed back to the house.

The Black–Water sewage cycle is run independently where dry excrete material or extracted mineral from urine is used for agricultural purpose and the water is recycled for use in toilets.
We invite you to partner with us for opening a Steinbeis Centre or for any of your technology requirements –

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Thank You