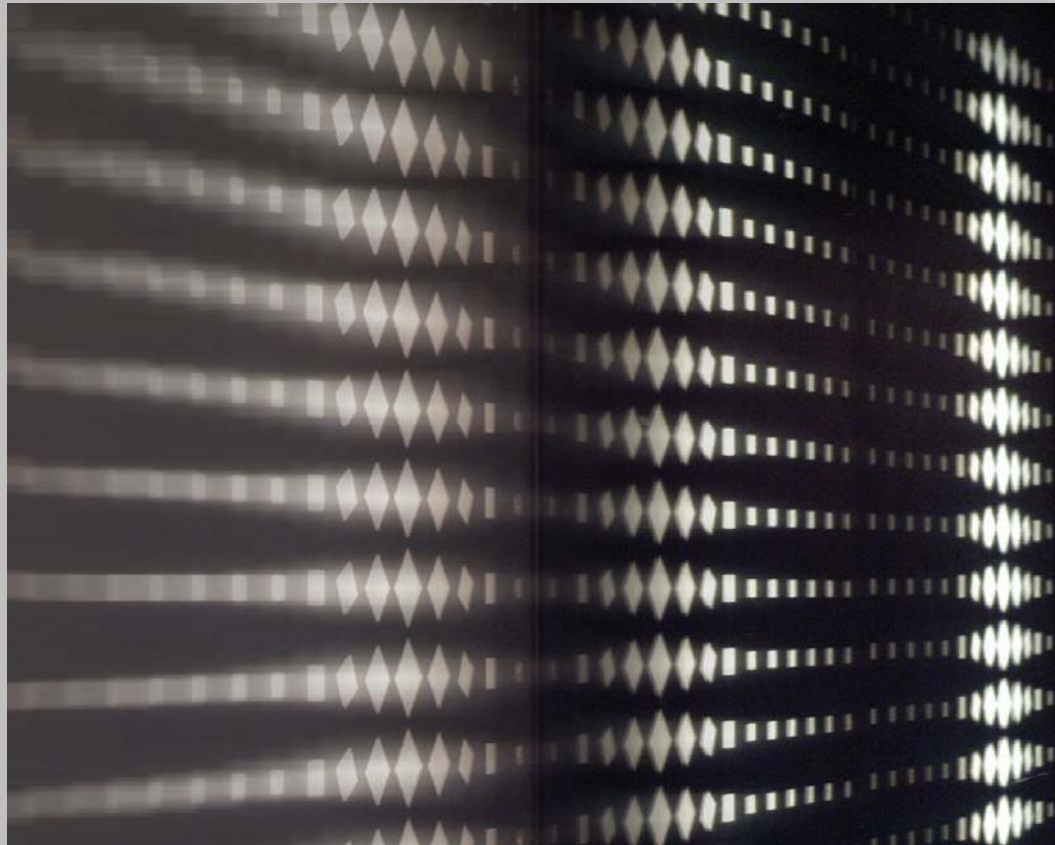


Technology.Transfer.Application.



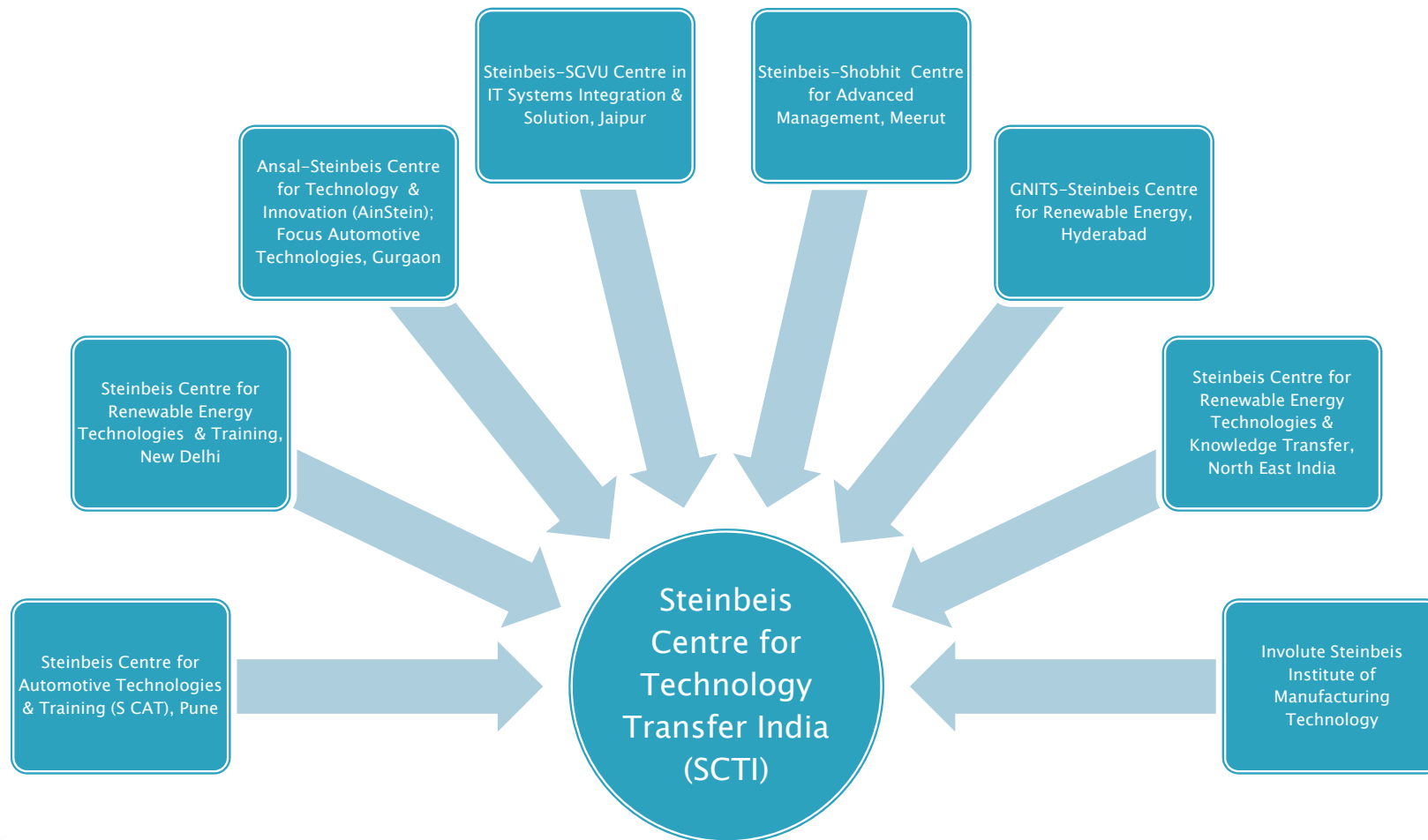
## **Waste Water & Ground Water Management Technology**

**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



## Consulting

at every stage of the value chain

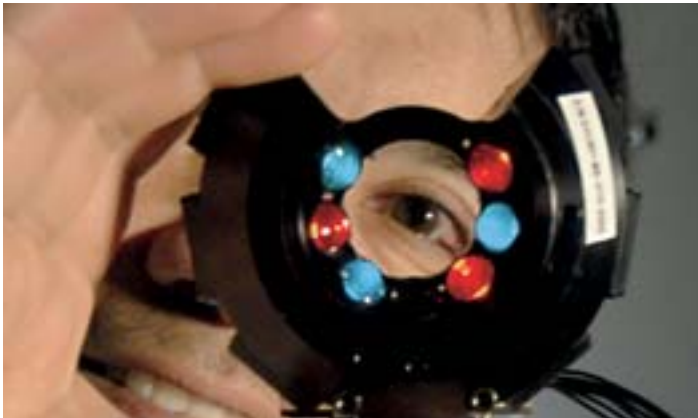


Extensive consultancy service within projects and companies along the economic value chain

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

## Research and development

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.

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

## Evaluation and expert reports

forming the basis for decision making



Evaluation and expert reports for  
companies, credit institutes and  
organizations

- 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.



## Training and employee development

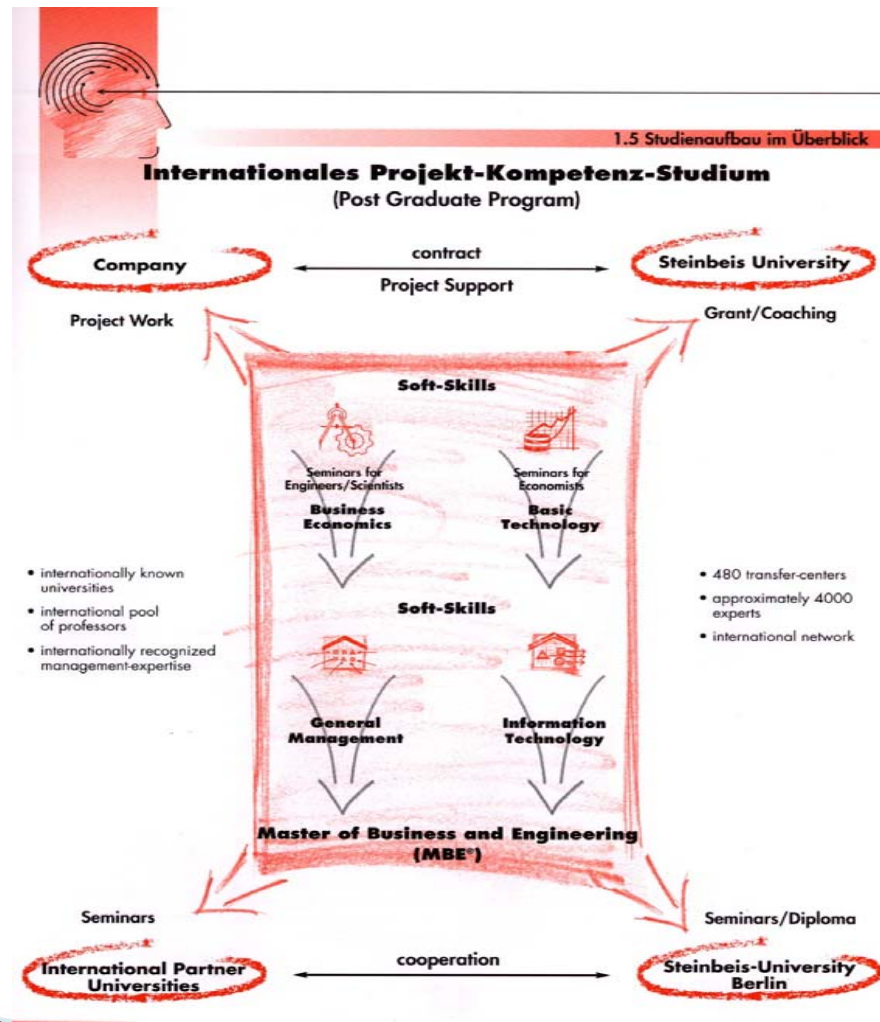
as a key competitive factor



Steinbeis Haus in Berlin  
location of the Steinbeis University

- **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.



■ Establishment: 1998

■ Professors: 39

■ Teaching staff: 1158

■ active Students: 4257 (Ø33y)

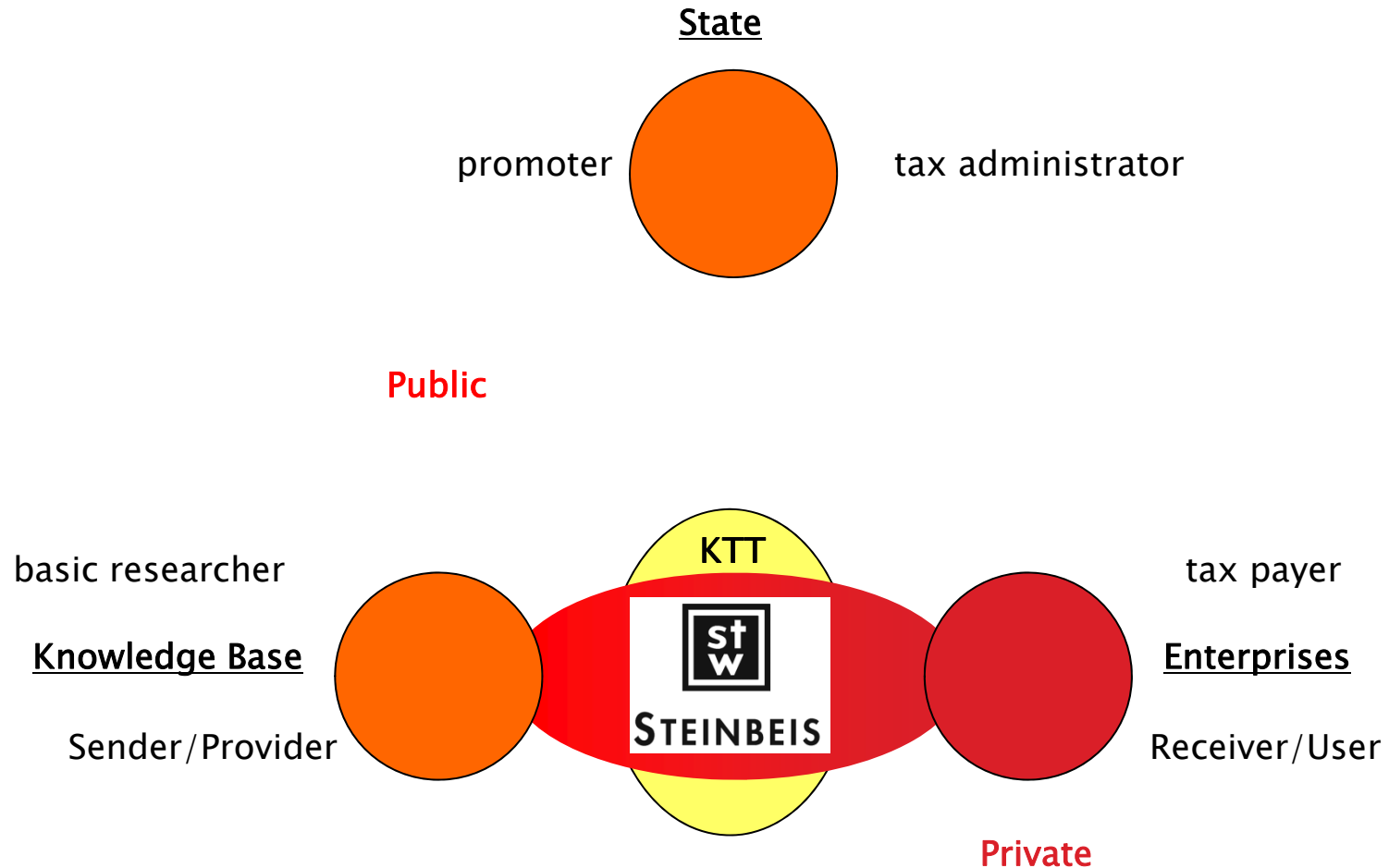
■ Institutes: 109

■ Study Concept:  
Project Competence Program (BBA, MBE/MBA, PhD)

■ Financing:  
entirely private,  
free of subsidies



# Technology Transfer – Steinbeis Model

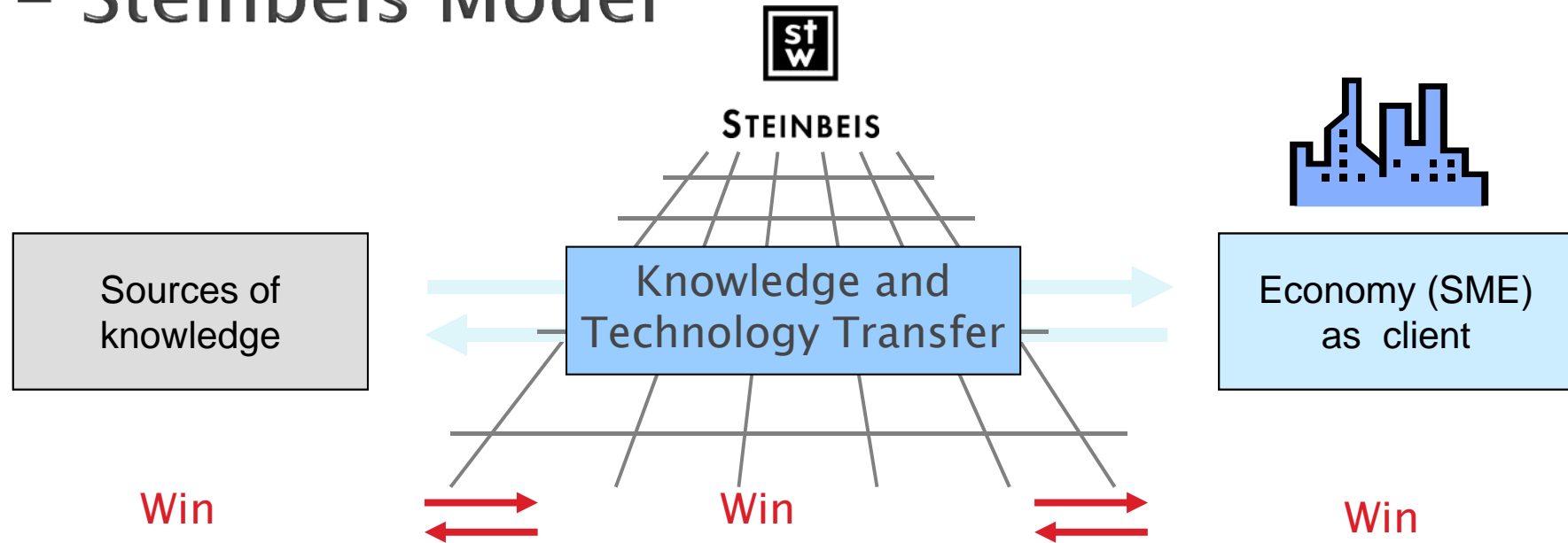


# Technology Transfer – Steinbeis Model



- Innovation potential from universities can catalyse **economical growth**
- Problems posed by the economy can generate **research** activities in universities

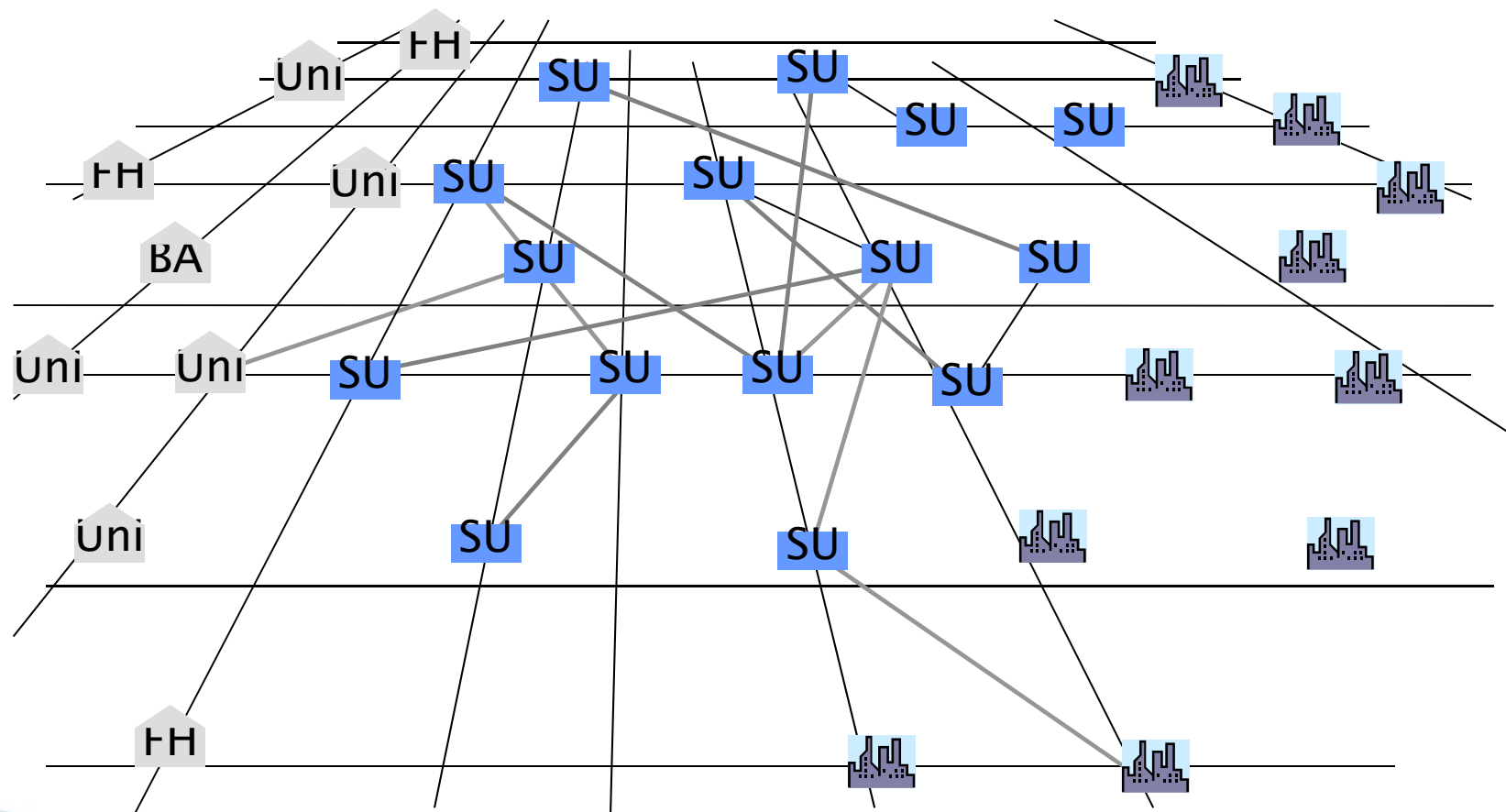
# Technology Transfer – Steinbeis Model



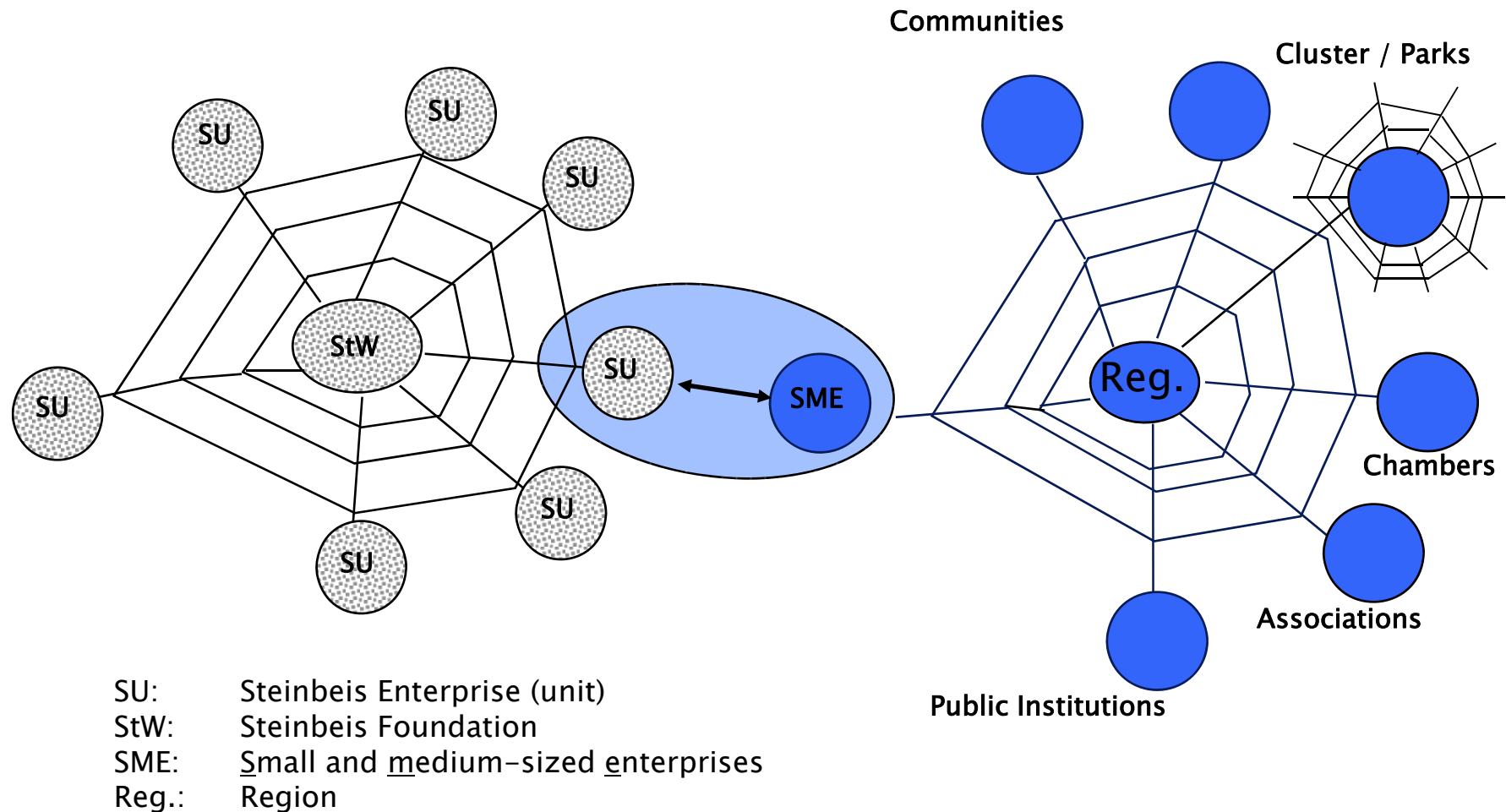
- Task sharing  
Decentralized : expert knowledge  
Centralized : Business Administration + others
- „Solidarity principle“  
Equal treatment of big and small Transfer centres  
Fees result as percentage from centre's revenue

# Technology Transfer – Steinbeis Model

Link and Coordinator between Science, Economy and Communities

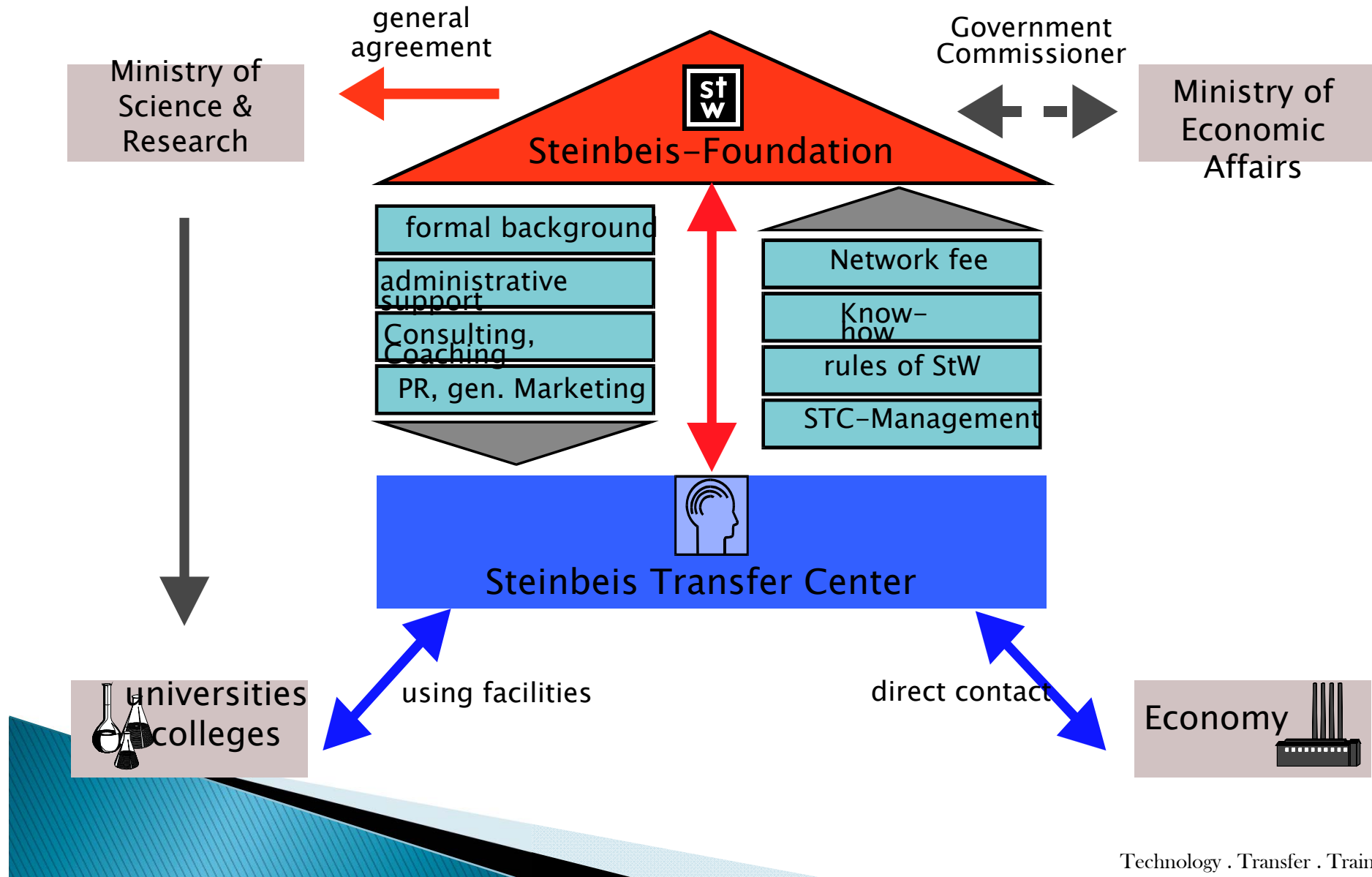


# Technology Transfer – Steinbeis Model

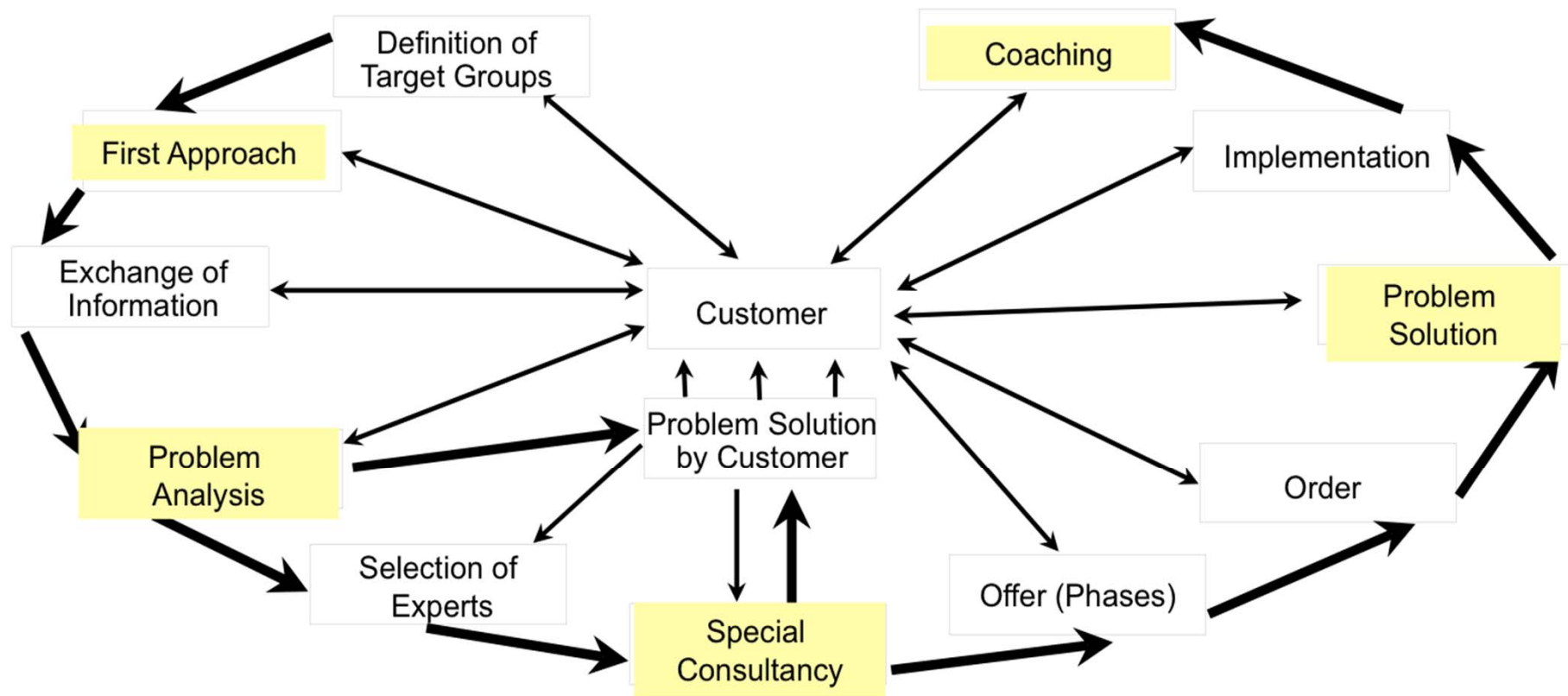




# Technology Transfer – Steinbeis Model



# 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.
- ❖ Consulting Services in Sewer Issues, Hydraulic Power Plant and Efficiency Studies

# Steinbeis Water Technology Centers .....can support.

*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.

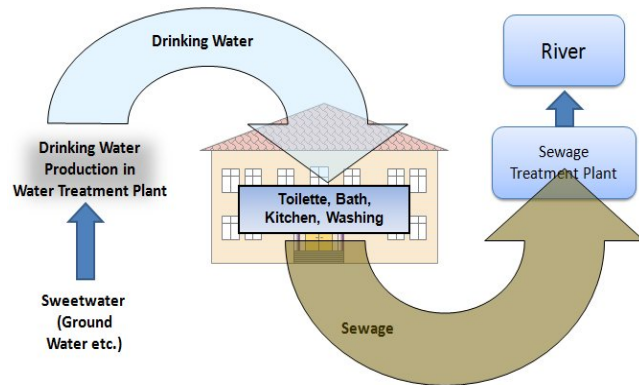
## Contd.

- ❑ 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



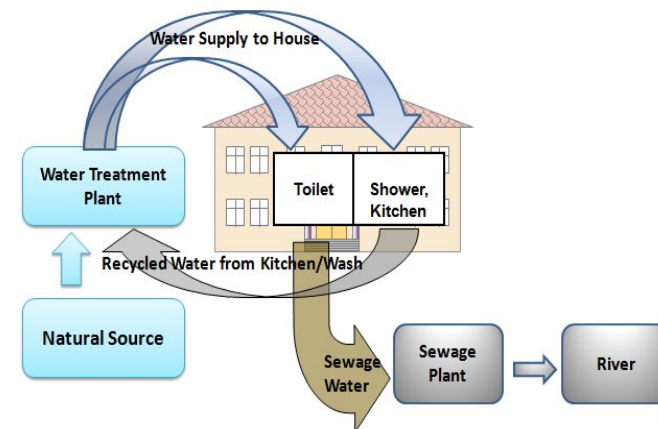
**Traditional Method**



**Complete Recycling Method**



**Partial Recycling Method - 1**



**Partial Recycling Method - 2**

# Existing Systems of Water Management for Residential & Commercial Applications

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.

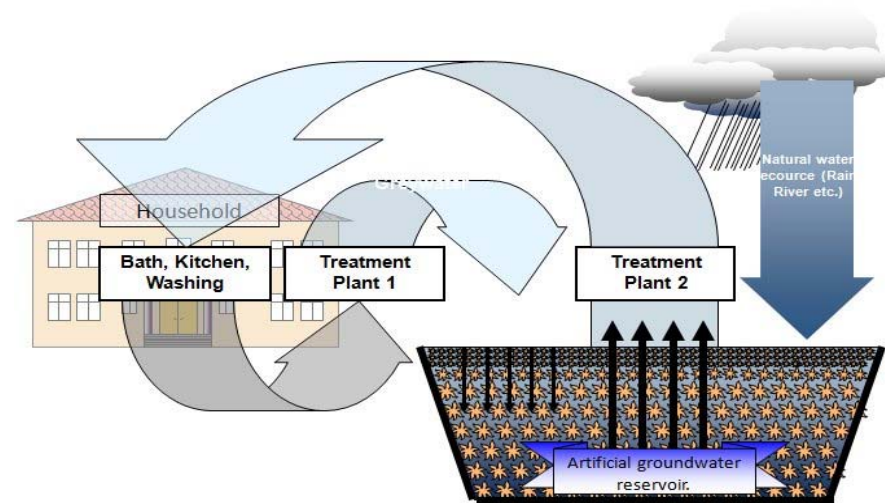
The increased contamination of ground water because of long canal between Sewer And Sewage Treatment Plant with increased leakage.

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

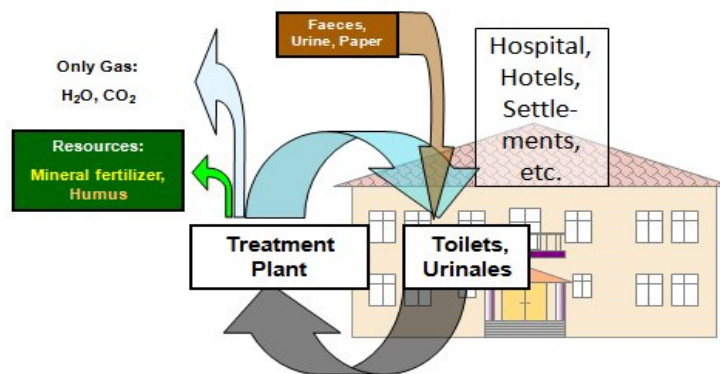
Environmental harm and economical loss because of improper water Management system.

# Intaqua Model – Grey–Water Cycle and Black–Water Cycle

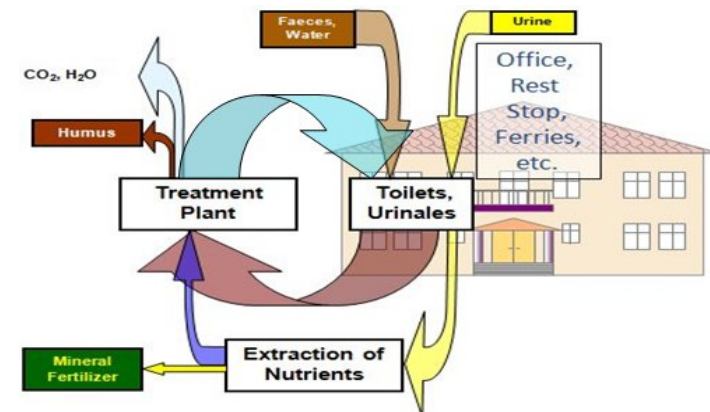
Because of combined system of independent Grey–Water Cycle and Black–Water Cycle there is no danger for water quality and at the same time achieves high water efficiency.



## Grey–Water Cycle Solution



## Black–Water Cycle Solution – 1



## Black–Water Cycle Solution – 2

# Solution

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 –

Vineet Kumar Goyal  
Director, Steinbeis Centre for Technology Transfer India

[vineet@steinbeisindia.com](mailto:vineet@steinbeisindia.com)

040-32212456

[www.steinbeisindia.com](http://www.steinbeisindia.com), [www.stw.de](http://www.stw.de)

# Thank You

