

Water and Wastewater – Research, Innovation and Technology Transfer



8-9 November 2012
Hyderabad



**EU-India STI
Cooperation Days**

www.ebtc.eu



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About EBTC – Brief overview

4 locations across India

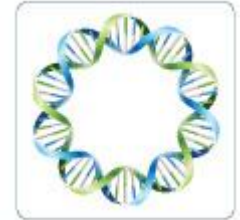
- New Delhi (HQ), Mumbai, Bengaluru, and Kolkata

4 focus Sectors with Specialists and teams

- Biotech, Energy, Environment and Transport

4 steps from Visibility to Incubation

- Promoting Europe in India and India in Europe
- Providing Information and Intelligence
- Supporting the market entry process from scratch
- Providing full service incubation support for businesses and R&D



High growth market, dynamic sectors

About EBTC: Consortium Partners



Guiding European Businesses to India

Step 1

Market Insight

- Guidance on doing business and research in India
- Information on regulatory framework
- Information on market access barriers
- Intellectual Property Rights (IPR)- Helpdesk
- Focused market reports



Step 2

Market Access Roadmap

- Screening of projects in India at national or state level
- Identification of potential business partners
- Design of market entry strategy
- Customised market intelligence

Step 3

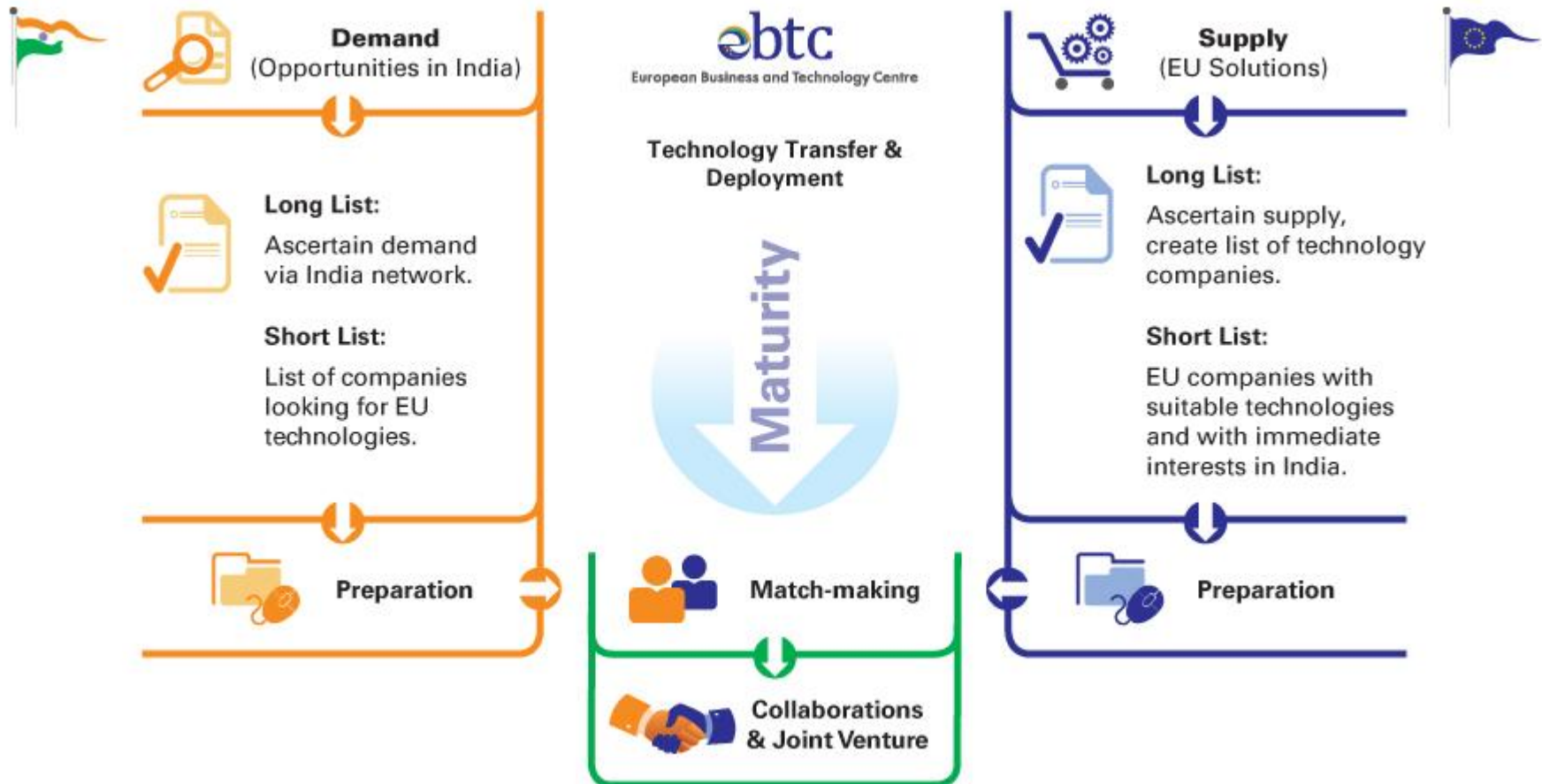
Market Strategy Implementation

- Proactive incubation services to acclimatize with minimum risk and costs
- Hands-on-support in bidding for projects
- Assistance in finalizing pilot projects
- Liaising with government and financial institutions



EBTC services: taking European organizations from the point of considering the Indian market to implementing their projects

Technology transfer and deployment



➔ Demand-supply matching essential for successful collaborations



Demonstration projects

- Develop pipeline and coordination of demonstration projects available with central and state research institutions e.g. DST
- Supporting global demonstration programmes e.g. large scale interdisciplinary programmes like Smart Grid, Carbon Capture and Storage (CCS) and Concentrated Solar Plants (CSP)

Laboratory to market movement

- Commercialization of research
- Facilitate the removal of barriers in basic and applied joint research between India and the EU
- Support the launch of products from joint research in the Indian market
- Support the incubation of joint research spinoffs in the Indian market

Intellectual Property Rights (IPR)

- IPR helpdesk: activities include information services, IP filing facilitation centre in India, IP services, and technology commercialization
- Coordinating with industry bodies for providing strategic inputs related to IP laws
- Research reports related to IP in coordination with EU partners
- Joint workshops on IPR with Indian partners

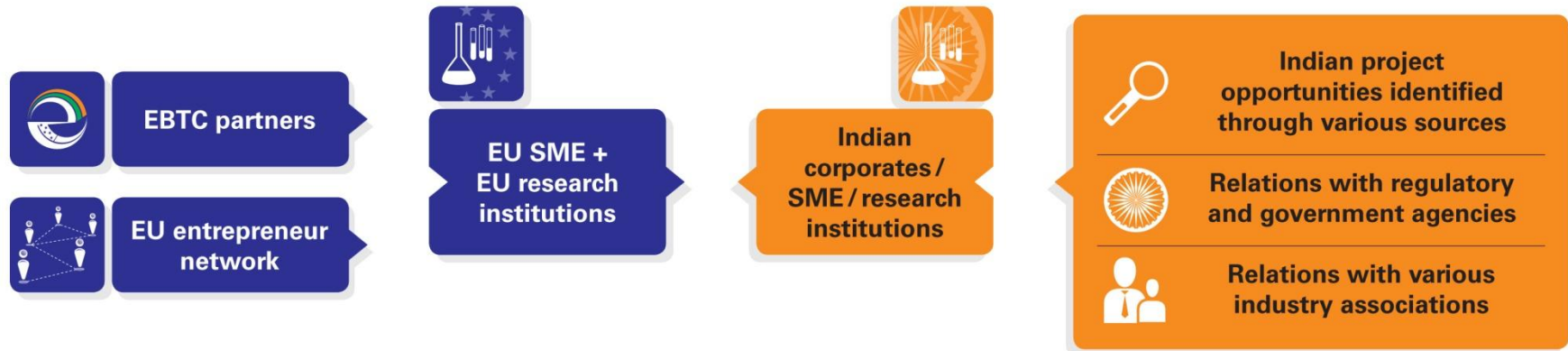
Key Issues of Industrial Research IPR Challenges



- IP licensing
- IP enforcement
- Non-Disclosure Agreements (NDA), Confidentiality Agreements (CA):
 - Validity and enforcement
 - Penalties
- IP management issues related to jointly developed technologies
 - Ownership issues
- IP issues related to cross-organization R&D engagements
- Restrictive terms in licensing agreements
- Trademark and copyright challenges

➔ IPR a crucial issue for collaborative research – address through EBTC IPR helpdesk

How EBTC works: from research to market



Why is it important?

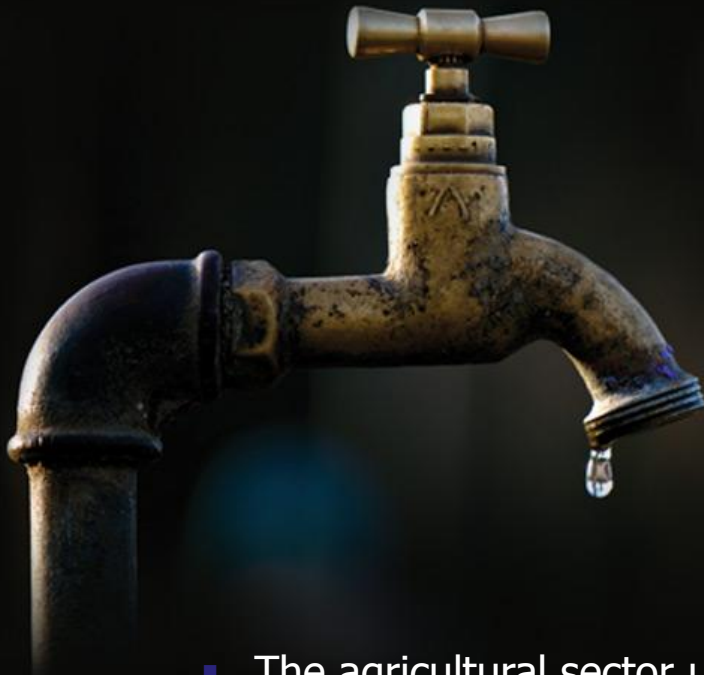
- Adapting advanced EU technologies in India.
- Collaborative research and product development.
- Business development for EU entities.
- Assisting Indian companies with EU solutions for its projects.
- Indian entities can work jointly to leverage cost advantages.
- Bringing value to EU and Indian entities.
- Lowering the cost of technology transfer.

How will it be executed?

- Starting point: Indian or EU entity looking for collaboration.
- Identify collaboration partner through EBTC network.
- Connect Indian and EU entities.
- Mentor and handhold the collaboration, including structuring joint working relationship, facilitating financing, assisting in mitigating IPR issues (which can arise).
- Feedback from EBTC to EU and Indian institutions.

 **EBTC's powerful collaborative matrix**

Water and Wastewater in India



- The agricultural sector uses around 80% of the available freshwater supply and wastes one-half to four-fifths of the irrigation water.
- About 80% of water supplied (especially in urban areas) becomes wastewater.
- **Therefore, it can be construed that in India, at present, one needs to deal primarily with wastewater (fresh water is a really scarce!)**

Water

- The water sector is dominated by the government in areas related to its universal service obligations. At present, drinking water investments constitute about 3% of the national budget.
- Due to these steps, today 85% of the urban and 75% of the rural population has access to public water supplies.
- Various estimates suggest that there is a 'billion-dollar market' (approx €11 billion) waiting to be tapped, and this covers only the construction segment.
- Additionally, it is estimated that the equipment market is worth approximately €220-367 million, and expected to have double-digit growth rates every year.

Wastewater

- Indian water treatment equipment industry is well established and cost-competitive. Locally fabricated equipment is about 30% cheaper than imported equivalents, but Indian firms have limited capabilities in designing technologies for larger scale water treatment plants.
- The market is evolving from chemical treatment and demineralisation technologies to greater use of membrane technology, thereby enhancing the quality of water available for re-use.
- As per market estimates massive investments (€ 1.6 bn) required for wastewater, however there is still limited focus on O&M.

Water and Wastewater: Policy and Regulatory Framework

Water

- As per the Indian Constitution, water is in the domain of the states with the central government only advising the states by issuing a non-binding National Water Policy. Despite this asymmetry, central schemes have had a significant effect on addressing the gaps in the access to freshwater
- The Ministry of Water Resources is the principal agency responsible for water in India and as such, oversees the planning and development of the resource from policy formulation to infrastructure support.
- Other central ministries and departments working in water are: Agriculture, Power, Environment & Forests, Rural Development, Industry, Urban Development, Pollution Control Boards...

Wastewater

- Wastewater shares the policy and regulatory framework with water; however with some differences such as the role of bodies such as the Central Pollution Control Board (CPCB) becomes more critical.
- At the state level, the state departments of environment and forests with the advice and assistance of the state pollution control boards (SPCBs) are responsible for enforcing the environmental acts and rules, and monitoring them.
- Further, many ad hoc expert appraisal committees (at the centre and state level) play a significant role in the grant of environmental clearances.

Water and Wastewater: Indicative Opportunity Spaces

Water

- Water supply and efficient use and reuse of water particularly in industrial processes for high polluting sectors such as cement, pulp.
- Provision of better design, manufacture and installation of various types of rainwater harvesting systems.
- Water use efficiency solutions such as efficient irrigation solutions
- Water measurement and analysis instruments.
- Municipal and household water purification systems.

Wastewater

- Joint ventures with Indian firms to offer integrated solutions in water treatment.
- Sewerage treatment, and efficient recovery and reuse of water particularly in industrial sectors.
- Design, manufacture and installation of various types of wastewater systems, sewage system rehabilitation and septic system rehabilitation.

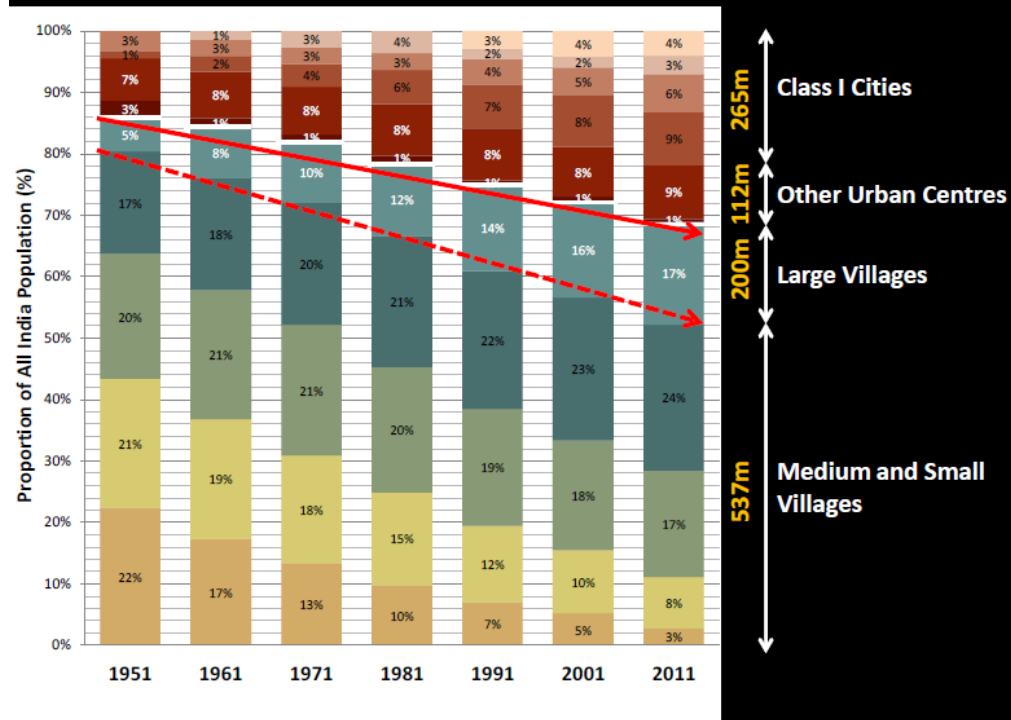
- Targeted governmental schemes and incentives available
- Large global players often work with Indian counterparts to establish business in India to address the vast unmet needs for water and wastewater related environmental services

India's Dominant Developmental Dynamic is Urbanization

Challenges

- Increasing population and demand for water
- Water abstraction for cities increasingly from afar (countryside)
- No 24x7 scheme as yet
- Intermittent supply is the norm
 - Average 1-2 hours
 - Increasing groundwater abstraction by households, industries to supplement water needs
- Large populations dependent on water tankers
- High losses – Both technical and financial
- Low quality
- System of water demand and supply needs reforms and innovative solutions

Distribution of India's Population by Settlement Size : 1951-2011



Source: iihS

- Main challenge is not technical in nature. It is SYSTEMIC.

About

- Aqua-Q – Swedish Cleantech company has provided innovative products & services within online microbe detection & ozonation domains since its establishment in 1992. Aqua-Q's latest technology offering enables detection of possible pathogenic bacteria, parasites (Cryptosporidium and Giardia) and Super Bugs in real time.

Challenges

Auqa Q:

- Establishing a pilot project together with the partner and the end user having commercial activities in focus
- Site surveys - Gathering background information of the site
- Education of the product and hygienic aspects
- Software development, remote access through cloud configuration
- Prepare to adapt to new environment minimizing the cultural difference

Private firms, Institutions, Builders-

- Technical feasibility – gaps in claim/actual result
- Climatic conditions – will it be able to treat arsenic and flouride in Indian climate?
- Is it user friendly? will the villagers of India be able to use it?
- What is the life cycle for the device?

About

- More than 50 years of experience in the field of environmental technologies for groundwater decontamination, industrial effluent water treatment, potable water purification, surface water treatment, lake decontamination, air purification and treating mineral waste. Sale of water treatment technology, equipment leasing without service, equipment leasing with complete service, contracting models, BOO, BOOT
- Demonstration plant for Arsenic treatment for Agriculture

Challenges

- The cost of the plant depends on the material that needs to be purified
- Keeping price economical without compromising on quality
- To find quality human resources locally
- Adaptation of technology to the local need
- Spares Management
- Maintenance of the water treatment plant

Case SolarSpring (Germany)

About

- Objective – enter into Indian Market . Working system in Hope project, New Delhi.
 - Discussions with Indian Manufacturers for developing local supply chain
- MD – Desalination (Oryx, MMD), Solar Pumping System, Solar UF Purification, Solar UV Disinfection, Solar AO Disinfection,
 - Desalination with membrane distillation (MD) -> looking for pilot plant application
 - Solar UF purification, Solar UV and Solar AO Disinfection, Solar Pumping Systems
 - > ready to enter Indian Market / more demo possibilities needed
 - Target Segments – Residential complexes, Hospitals, Communities
 - Have the potential to address the nexus of energy- Water-food

Challenges :

- Finding a suitable partner
- Finding demonstration possibilities (e.g. technology center, public demo sites,...)
- To protect Product in the Indian Market (IPR issues)
- Local component
- Developing a Business case – understanding prices , needs and markets

About

- Floating Solar power generation and water purification system, can be installed on existing reservoirs, ponds, canals, lakes. Generate clean energy as well as conserve water.
- Scalable from 10 KW to 50 MW
- WBREDA and West Bengal State Minor Irrigation Corporation Limited – Irrigation Pumps / Rural Electrification
- Exploring opportunities with Government of Jharkhand - 1 MW Plant

Challenges

- Demonstration Project
- Financing
- Land based generation is cheaper.
- Identification of Investor
- Identification of Power plant developer
- Operation of Plants

About

- Offshore Wind Turbines platforms(Sweden), Tidal Turbine (Netherlands), Wave Based Generation(Italy – Prototype stage) -
- Excellent sources of energy for coastal belts.
- Can also address the energy- water – food issues

Challenges

- Wide scope of combining Energy and water
- Price of energy generation is not discovered yet. No tariff for offshore based generation
- Risk Perception-very high
- Unavailability of bankable resources maps -of wind and water resources
- Scope of water purification, desalination, de-centralised energy generation and distribution
- Needs supporting funds, Local investors and local supply chains

Summary - Challenges

- Identification of Partners- Capability, Trust, cross cultural issues
- Funding
- Demonstration of projects – Stakeholder participation
- Local adaptation of the technology
- O&M - Spares, After sales service, development of local supply chains
- Sub -Sector Specific issues to be addressed
- Visibility of lessons – “Success” as well as “Failures”. Needs documentation
- Pooling of Technologies

Upcoming EBTC Events 2012



- **Environment Business & Research Delegation, India Water Impact Summit, New Delhi, 3-5 December 2012.**
- **Transport Business & Research Delegation to the Urban Mobility Conference cum Exhibition, New Delhi, 6-8 December 2012.**
- **Seminar on Sustainable Solutions for Jatropha-based Biofuels in India, New Delhi, 11-12 December 2012.**

www.ebtc.eu/events.html



Thank You!

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