

State of Play in India for POU Devices

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U.S.-India Standards and Conformance Cooperation Project (SCCP)

Workshop on Water and Sanitation Systems in India



A picture of India's growth*

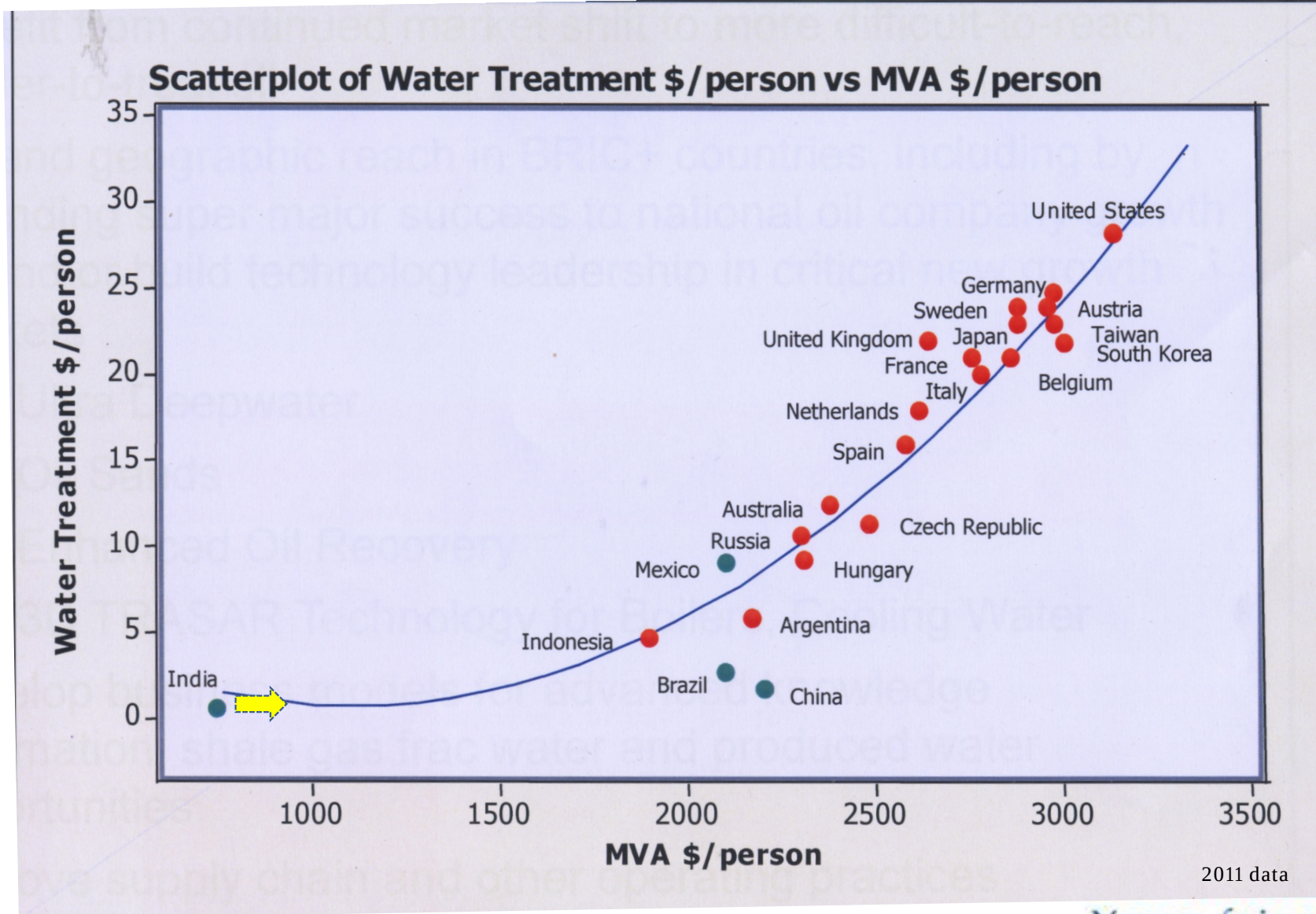


*The Economist, Oct. 2011

Jon Berkeley



Water treatment per capita: The World on a chart



MVA: Manufacturing Value Added \$ per capita

Distribution and POU challenges

- Most cities have Municipal Water Treatment but...
 - Filtration and Chlorination are primary municipal treatment methods
 - ✦ BMC: Vacuum chlorinators with measured output chlorine levels.
 - ✦ Microbiological purity is mostly ensured by residual chlorine
 - Ageing, tamper-prone infrastructure, along with poor handling creates contamination at the **point of use (POU)**
 - ✦ Estimated 250 MLD* (27%) distribution loss in Mumbai alone
 - ✦ Chemical contamination (lead, organics and heavy metals)
 - ✦ Physical contamination (intermediate storage and handling)
 - ✦ Microbial contamination (primarily due to handling and storage, and sometimes sewage contamination, also chlorine-resistant cysts)



* [Govt. of Maharashtra, public reports](#)

Water - what an average person needs

*Figures **far lower** than North America and Europe per capita water use*

Purpose / Usage*	Maximum	Average	Minimum
Drinking, Cooking & Dishwashing	50	40	30
Bathing	50	25	15
Toilet Flushing	50	40	30
Washing Clothes	50	20	15
Cleaning & Gardening	25	10	-
Car Washing	5	-	-
TOTAL	230	135	90

Average requirement of water in terms of litres per consumer per day (lpcd)

The Brihanmumbai Municipal Corporation (BMC) has started supplying **135 litres** of water per capita per day as part of its plan to augment supply. The move follows a circular issued in August 2013.
(Source: DNA, Oct. 26, 2013)

India's Water Challenges are on Many Dimensions

- Availability
 - Current supply inadequate for demand
 - Supplemental sources (tankers, borewell) are expensive and have their own safety issues
- Safety/Quality
 - Many contaminants present by the point of consumption
 - Water quality varies across neighborhoods
 - 'Last mile' issues - Distribution, Handling and Storage
- Sanitation
 - Inadequate, contributing to water quality issues
 - Sewage/Wastewater contamination
- Consumer Awareness
 - Remains an issue, though getting alleviated by POU brands and community outreach efforts
 - Boiling is the gold standard for safe drinking water



How does the POU Industry respond to India's Safe Drinking Water challenges?



HOLISTIC

WATER & WASTE WATER TREATMENT
TECHNOLOGY • RELIABILITY • SERVICE

EUREKA FORBES 
Your friend for life

POU Products for Indian Context

- The winning products in POU offer:
 - Well-designed integration of multiple technologies to address physical, chemical and microbiological contaminants
 - Modular approaches to regional challenges of specific contaminants
 - Consumer-friendly and appealing aesthetics
 - ✦ End-of-life sensors, and use informatics.
 - Robust enough for both challenging supply chain and wide-ranging use conditions
 - Work under low pressure or even gravity feed
 - Trusted brand and certifications
 - Comprehensive service
 - Value-for-money (both device and service costs)



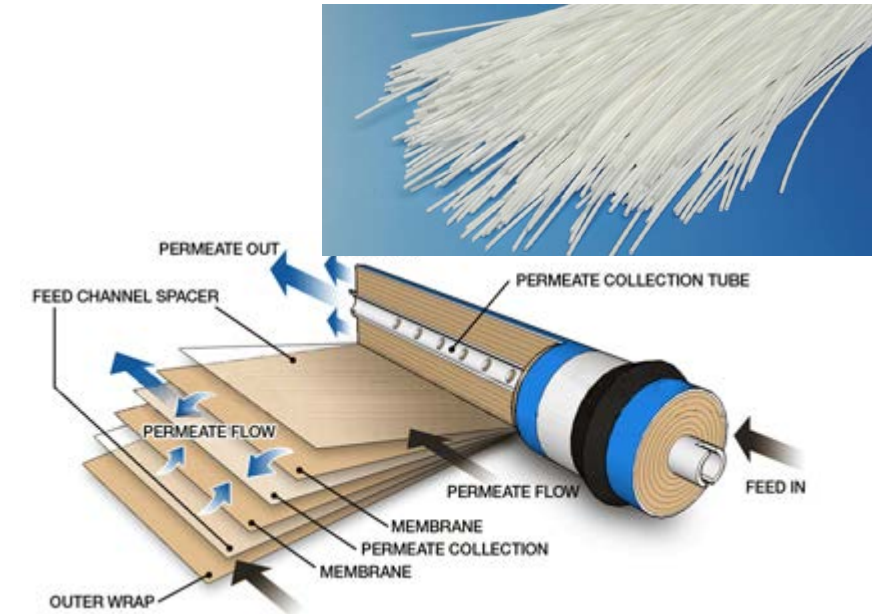
Multiple POU Technologies Used

- Particulate Filtration Technologies
 - Non-woven media
 - Needle-punched media
 - SMS media
 - Spiral-wound and Molded
- Adsorption Technologies
 - GAC
 - PAC
 - Carbon Block
 - Functionalized Carbon Block
 - Proprietary substrates targeted at specific contaminants
- Disinfection Technologies
 - Ultraviolet (UV)
 - Biocidal Resins and Anti-microbials
 - Charge-based Nano-Scale media
- Sequestration Technologies
 - Specific Contaminant Sequestration
 - Absorption-Adsorption



Multiple POU Technologies Used

- Membrane Filtration & Osmosis Technologies
 - Ultra-filtration (UF)
 - Nano-filtration (NF)
 - Reverse Osmosis (RO) – Domestic, Brackish and SWRO
 - Advanced life-extending RO configurations
- Integrated Product Design
 - Complete product design and development
 - Allied Expertise Areas (Electronics, Mechanical, Refrigeration etc.)
 - Gravity (6-15 lph) to High Flow Systems (150 lph) in Residential POU
 - As high as 1000 lph in Commercial POU
- Performance Maintenance
 - Nationwide network of service technicians
 - Periodic maintenance schedules ensuring high quality performance throughout life



Quality & Performance – POU Devices

- Trusted brand - an indicator of expertise, quality and reliability
 - Expectation of multiple endorsements and validations built in brand image
 - Curated product recommendations
 - ✦ Right technology for the right market
- Certifications
 - Components & Safety
 - ✦ NSF/ANSI 42, 44, 53, 55, 58, 62
 - WQA S-100, S-200, S-300, S-400
 - ✦ WQIA Seal of Purity
 - Microbiological Purifiers
 - NSF P231 and P248
 - US EPA Guide Standard and Protocol for Testing
 - WHO
- Test Reports from leading, independent organizations
 - Independent leading laboratories (AWRTC, UL, CFTRI, NIV, NICED etc.)
 - Leading hospitals (AIIMS, Apollo etc.)





THANK YOU