Hindustan Coca-Cola Beverages Pvt Ltd
Varanasi

Raghu.G.S

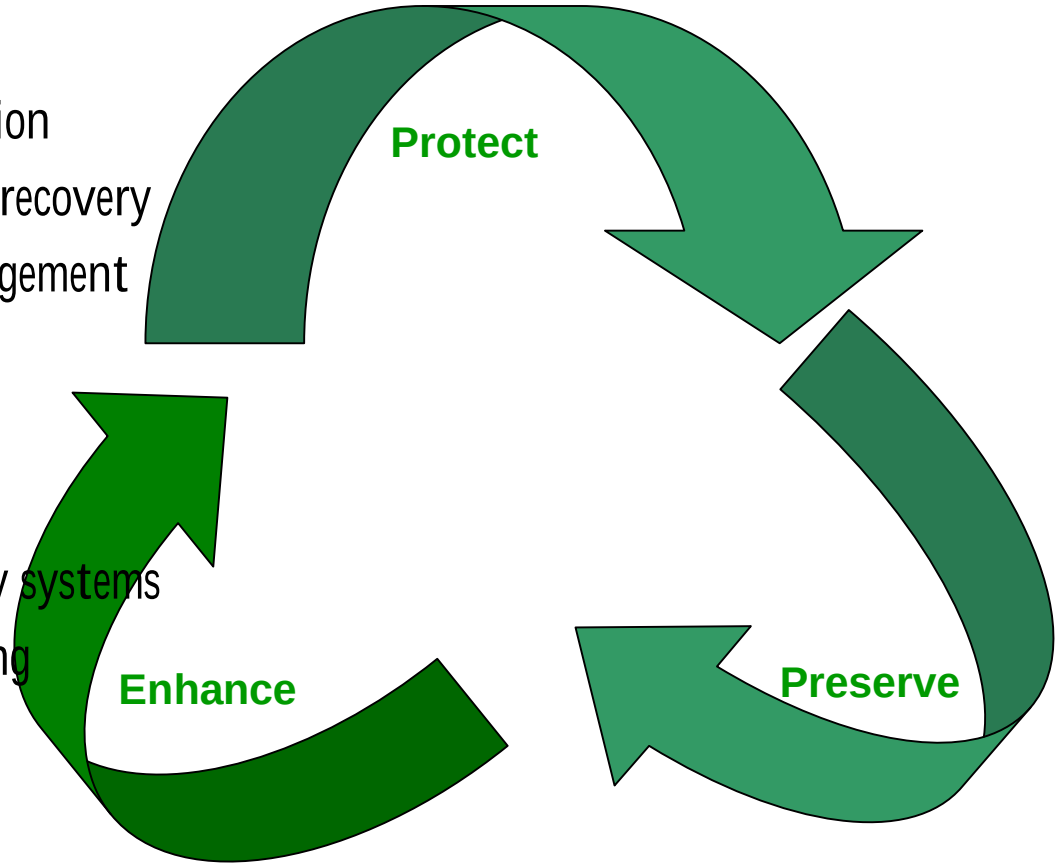
Raman Goel

Hindustan Coca-Cola Beverages Pvt Ltd, Varanasi

National Award for Excellence in Water Management - 2007

Outline

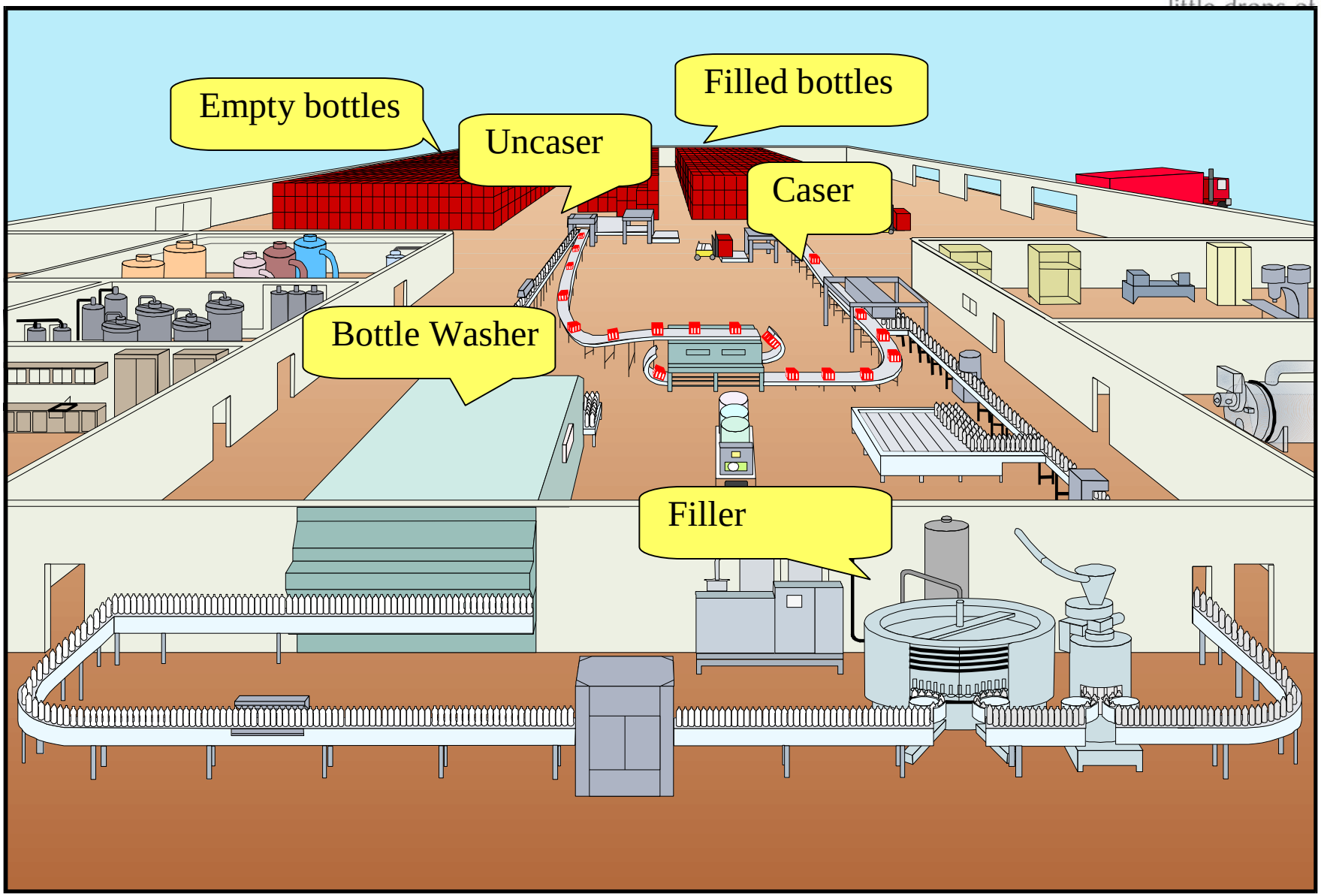
- Plant Introduction
- Beverage Manufacturing operation
- Plant Water usage without any recovery
- Vision – Water Resource Management
- WRM – Reduce
- WRM – Reuse
- WRM – Recycle
- Plant Water usage with recovery systems
- Recharge- Rain Water Harvesting
- Water Conservation Projects
- Way-forward
- Key Achievements and Recognition



Varanasi Plant

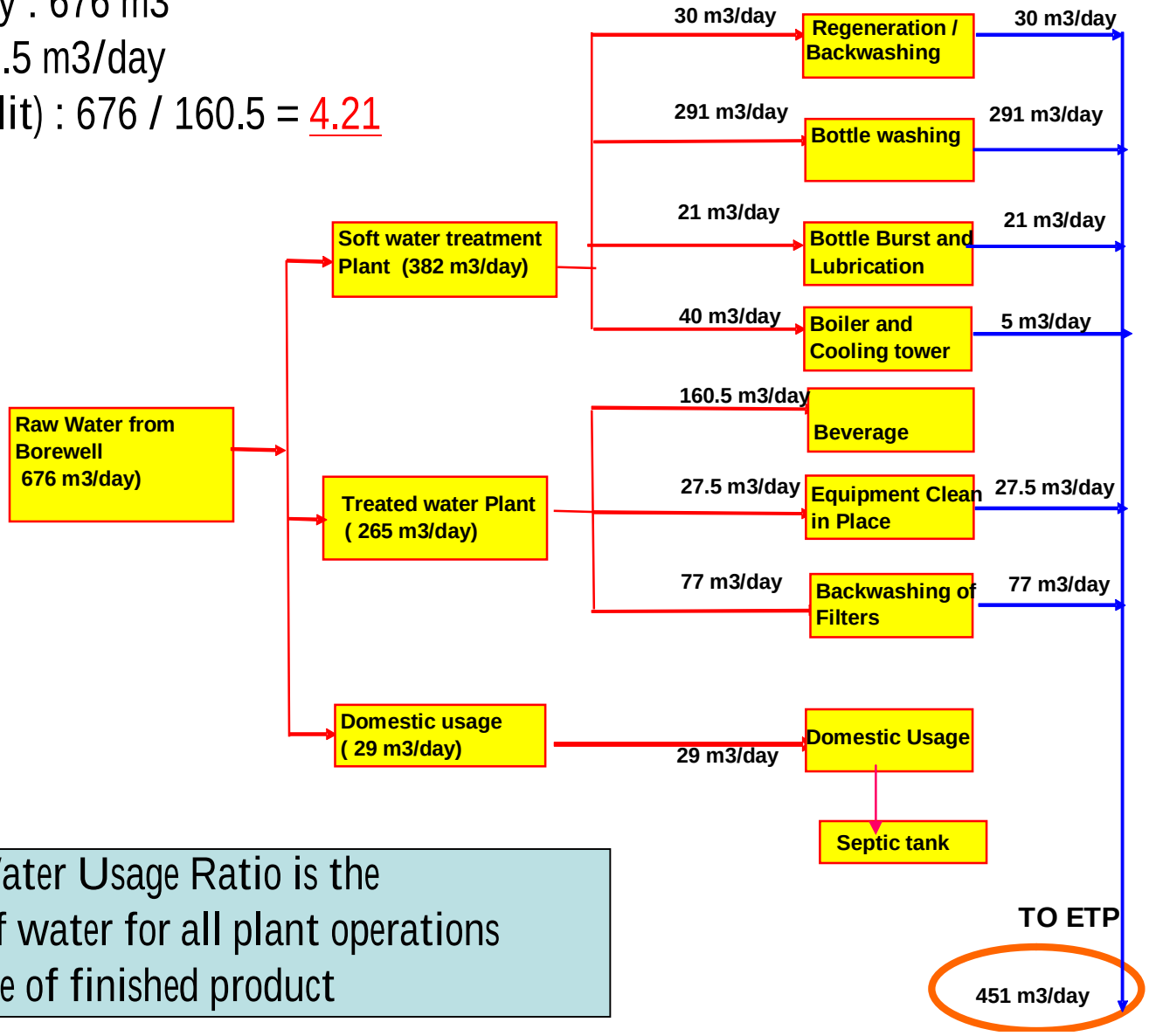
- Located in Mehandiganj, 22km from Varanasi.
- Capacity 600 bpm line. Coca-Cola acquired in year 1999
- Total land area 6.8 acres
- Total investment of Rs 76 crores (Including market investment)

Beverage Manufacturing -Plant Layout



Water Usage in the Manufacturing operation (Without Water recovery schemes)

Raw water used peak day : 676 m3
Beverage generated : 160.5 m3/day
Water usage Ratio (lit/ lit) : 676 / 160.5 = 4.21



Water Usage Ratio : Water Usage Ratio is the measurement of usage of water for all plant operations against the total volume of finished product

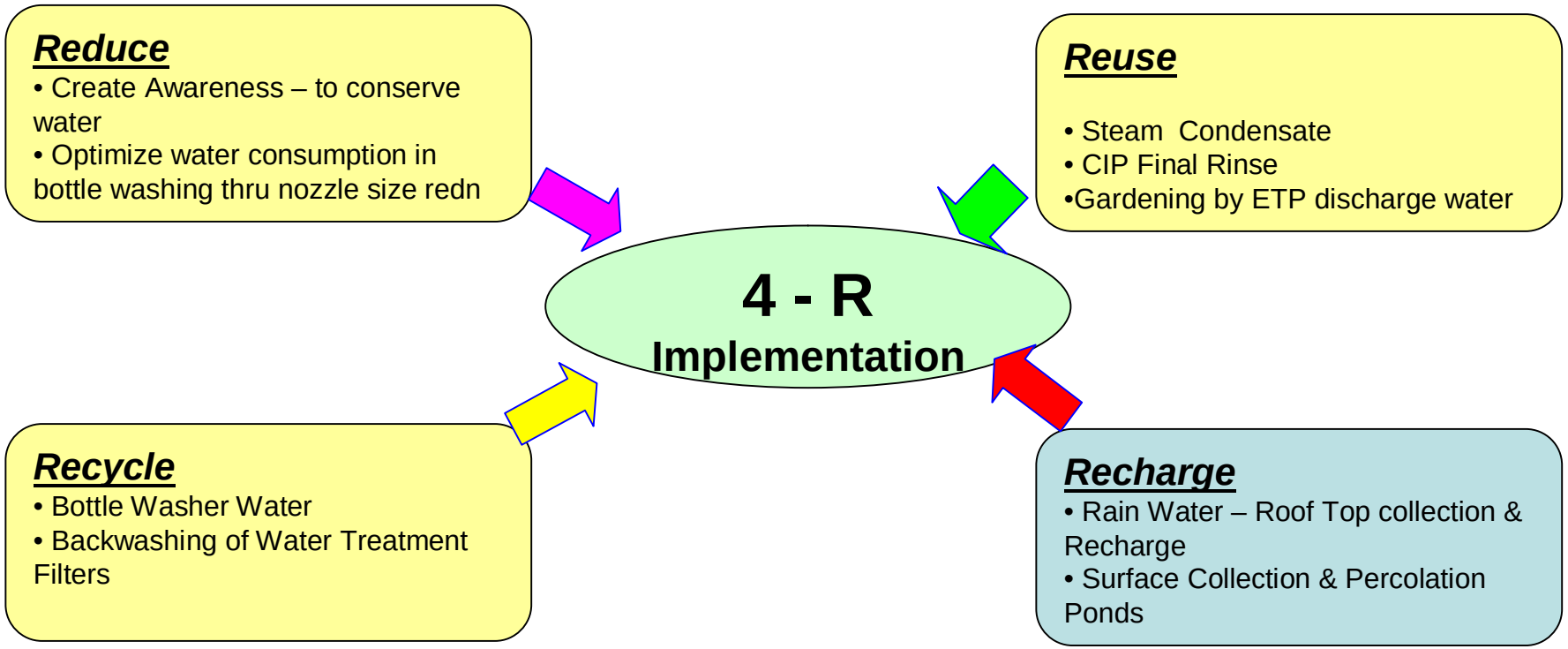
Water Resource Management Policy

Mission

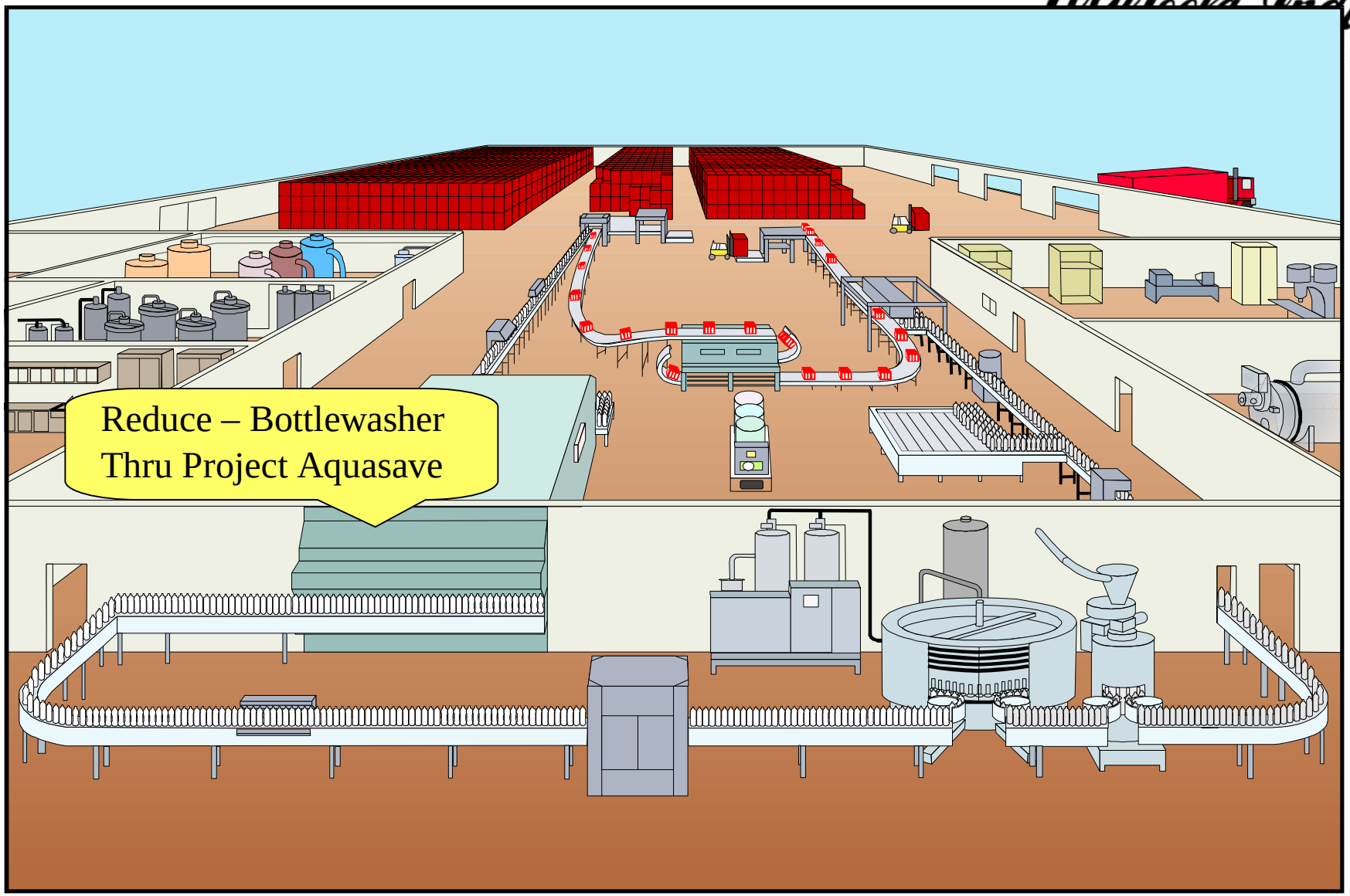
We the team "V" HCCBPL, Varanasi shall ensure efficient & effective use of water during beverage manufacturing process in our plant by continually improving the infrastructure, monitoring & controlling the consumption of water at individual areas & imparting awareness to our associates.

Vision

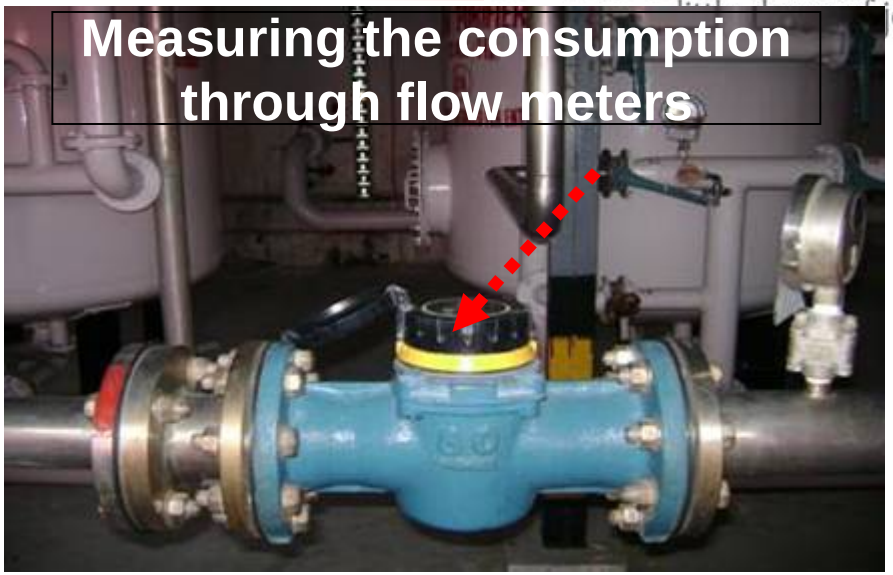
Efficiently reduce, re-use, recycle & recharge water as a responsible corporate citizen.



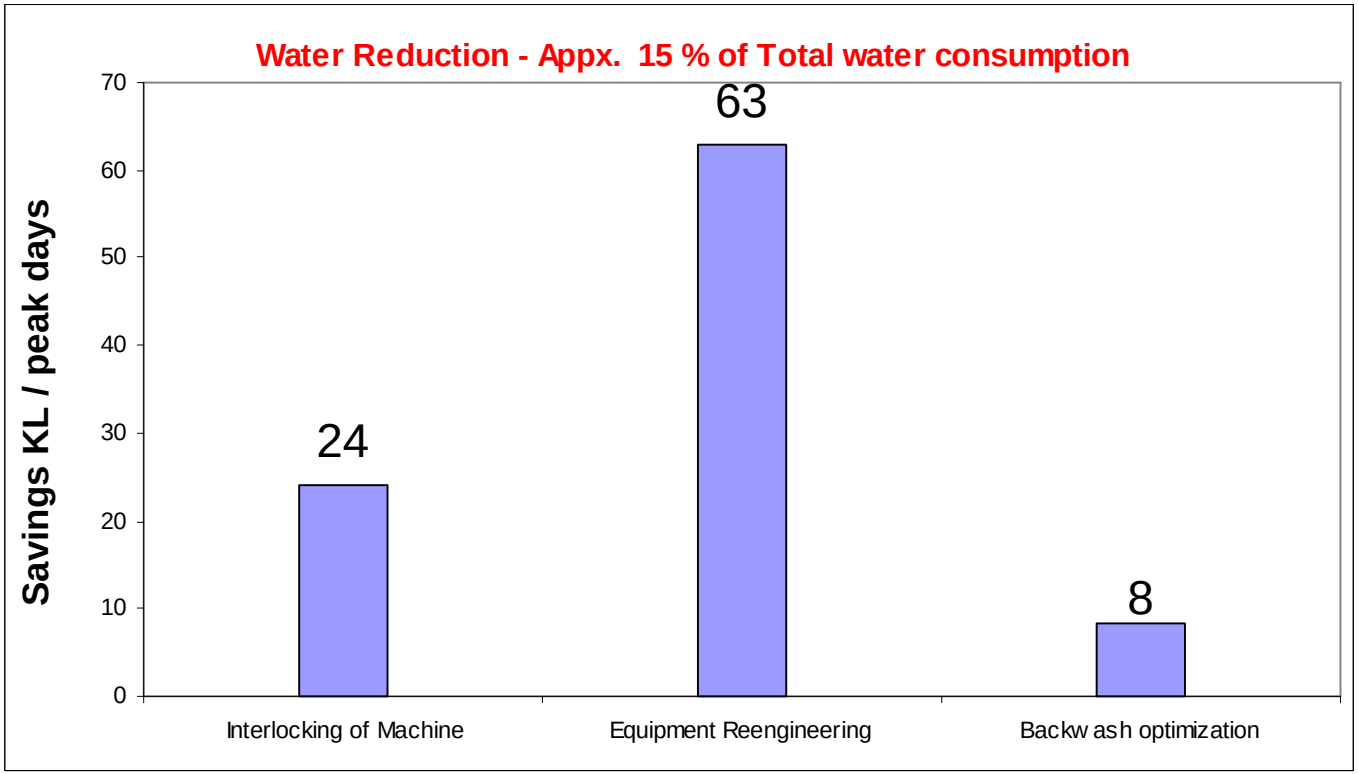
Water Conservation - Reduction



Water Saving Devices …Project Aquasave



Water Conservation By Reduction



Interlock

-Final rinse washing operation with running of the Bottle washer approx 8% saving

Reengineering

- Bottle washer jet size optimization to 1.5 mm from 2.5 mm
- Installation of push button type taps in washrooms

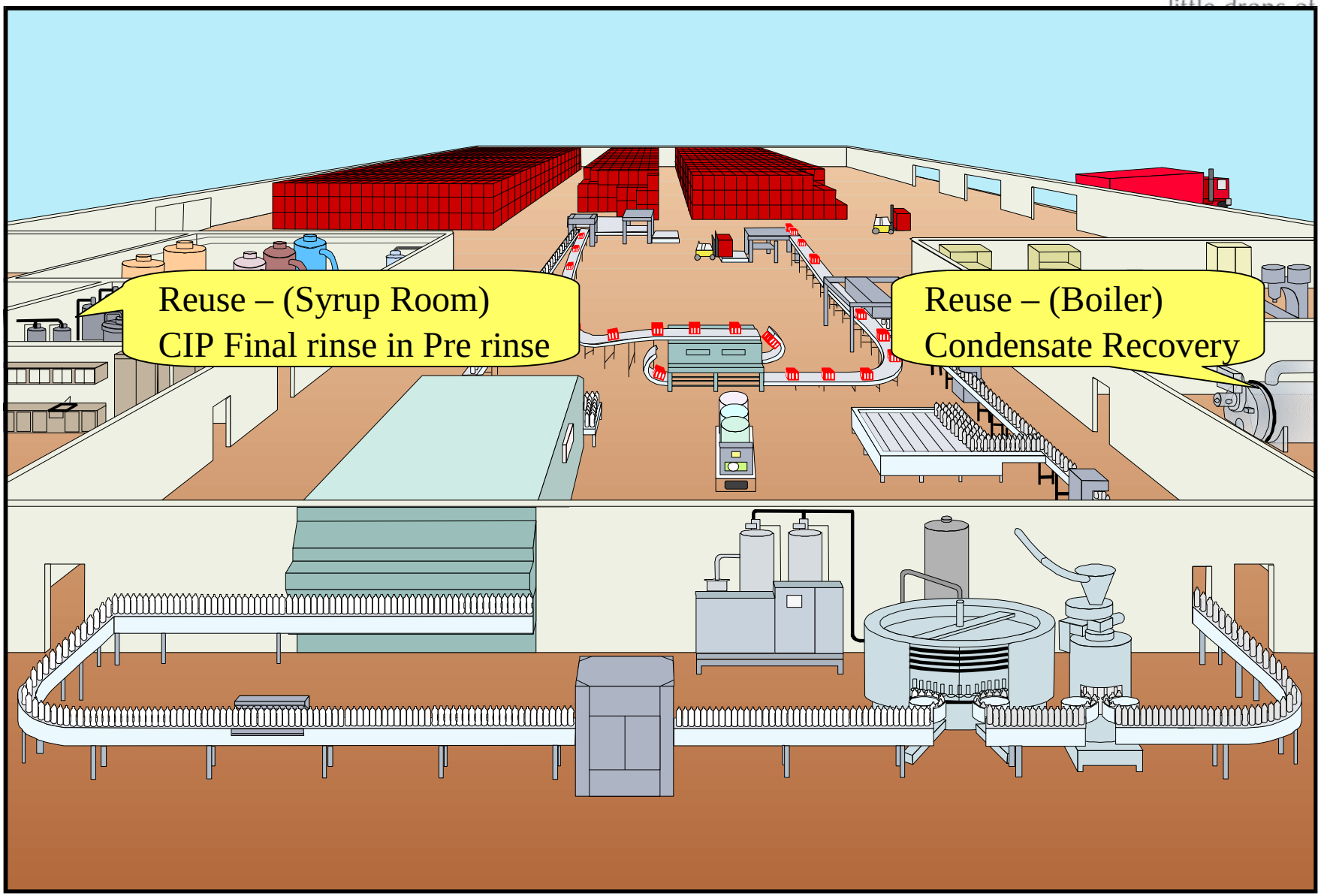
Process optimization

-Backwash timing and frequency optimization.

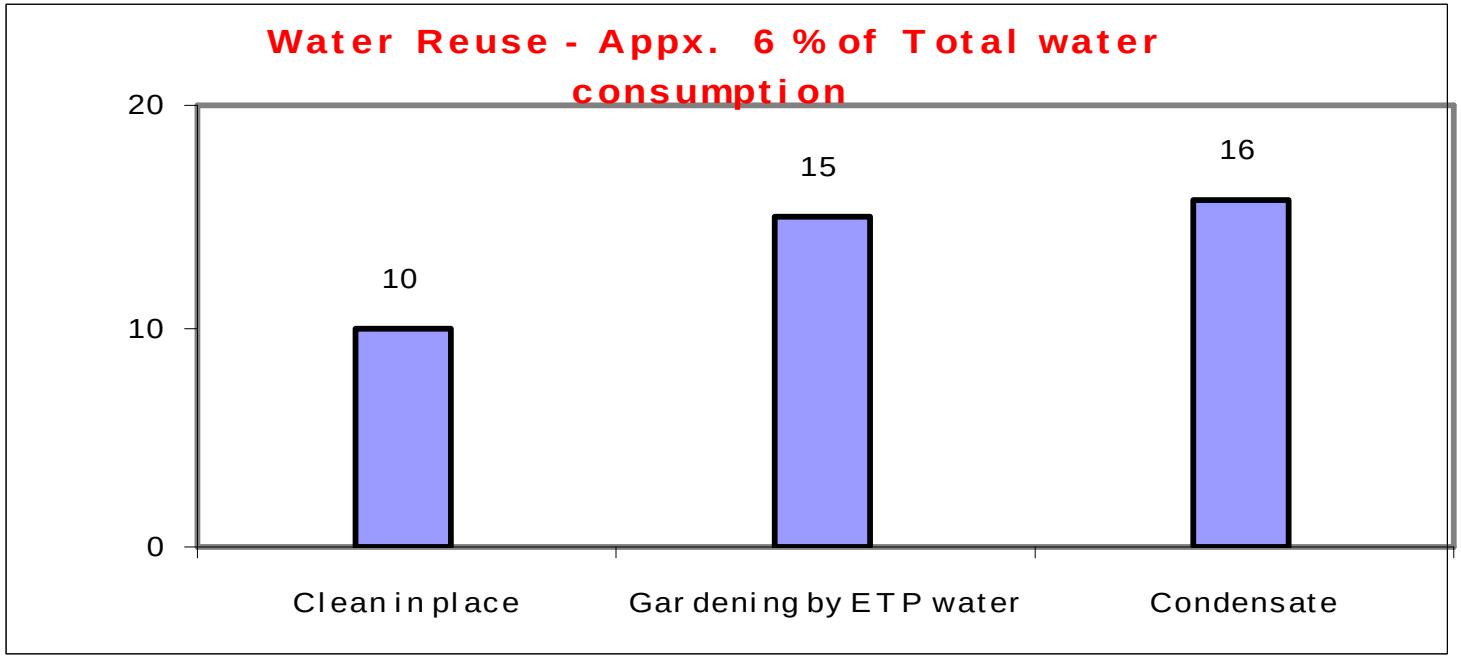
Awareness

- Emphasis on dry cleaning of floor
- WRM team in place to put into practice the vision

Water Conservation - Reuse



Water Conservation By Re-use

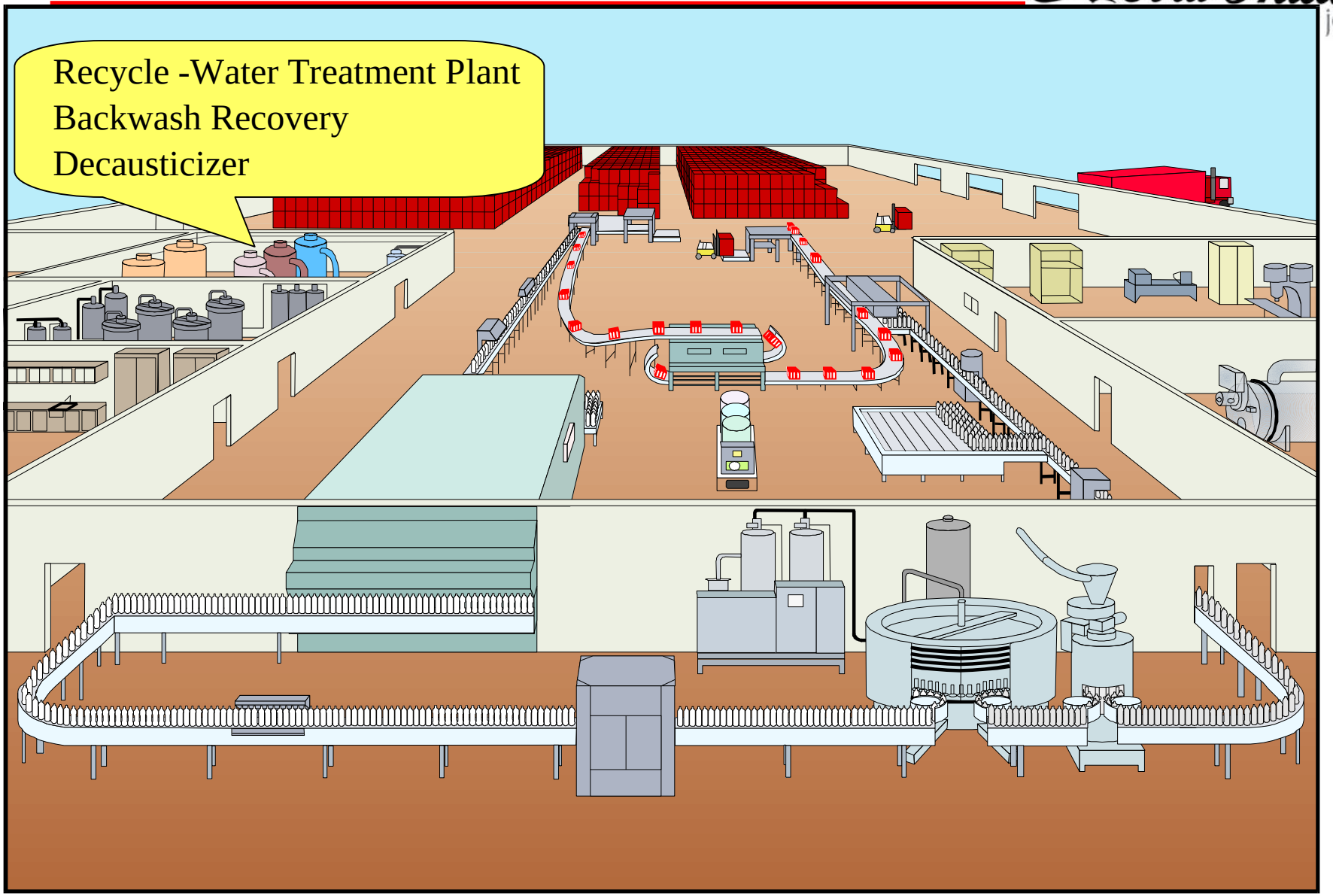


Last phase of CIP now re used (approx 30%) for first phase of next cycle

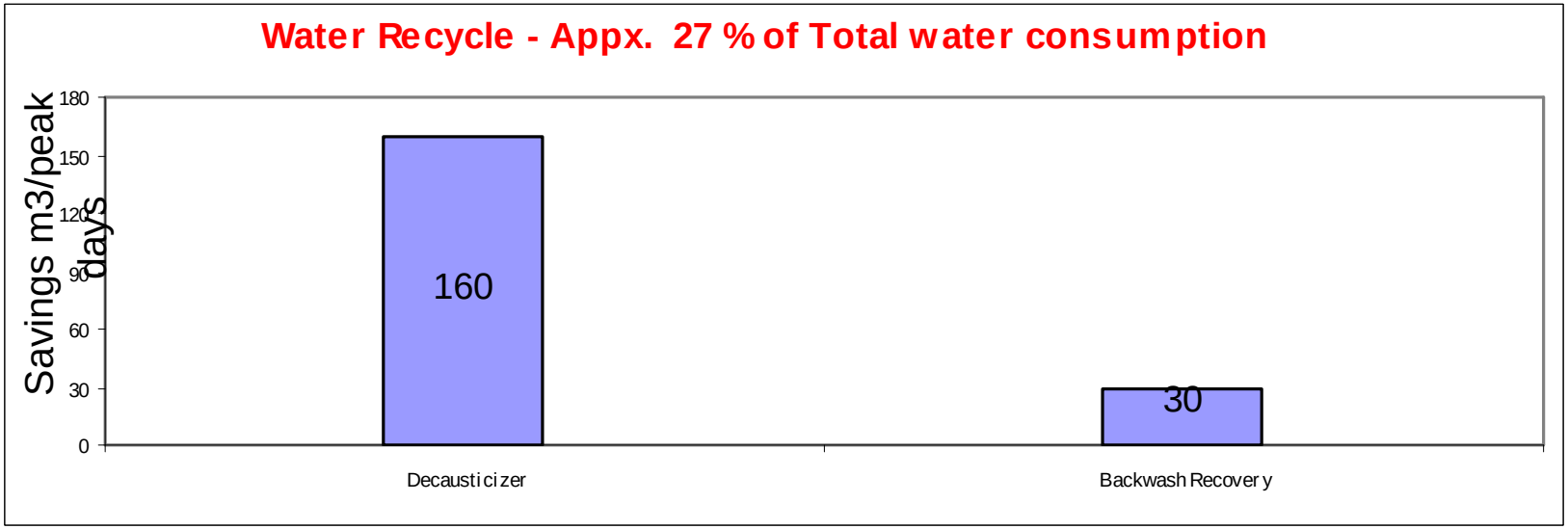
Use of ETP discharge water for gardening purposes about 50% of domestic water

About 65 % of steam condensed in system is taken back to boiler

Water Conservation - Recycle



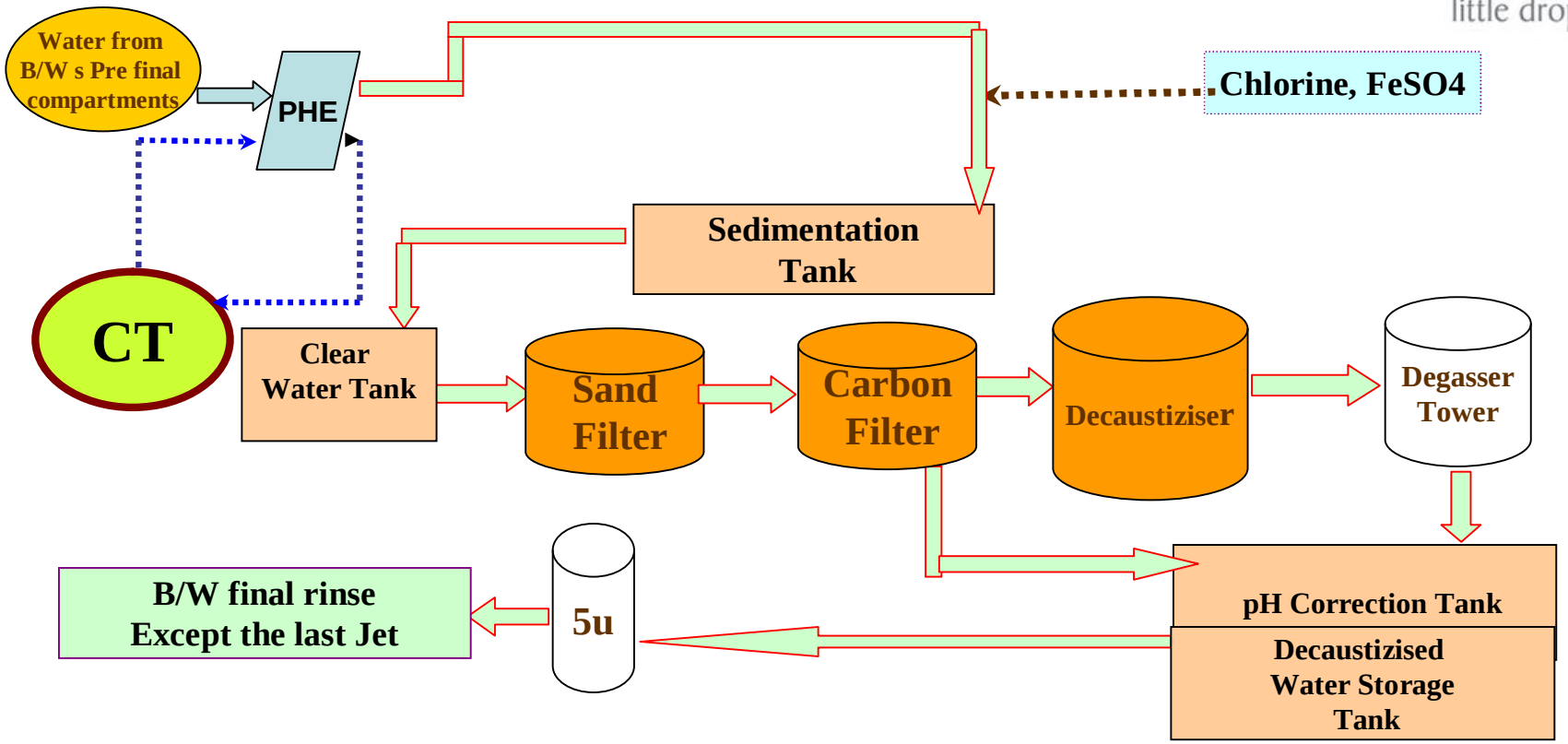
Water Conservation By Re-Cycling



Decausticizer – Recover, treat and reuse of water bottle washer final rinse, approx 65% reduction in water usage.

Taking backwash and rinse water from the filter washing application to Backwash recovery tank approx 85% saving

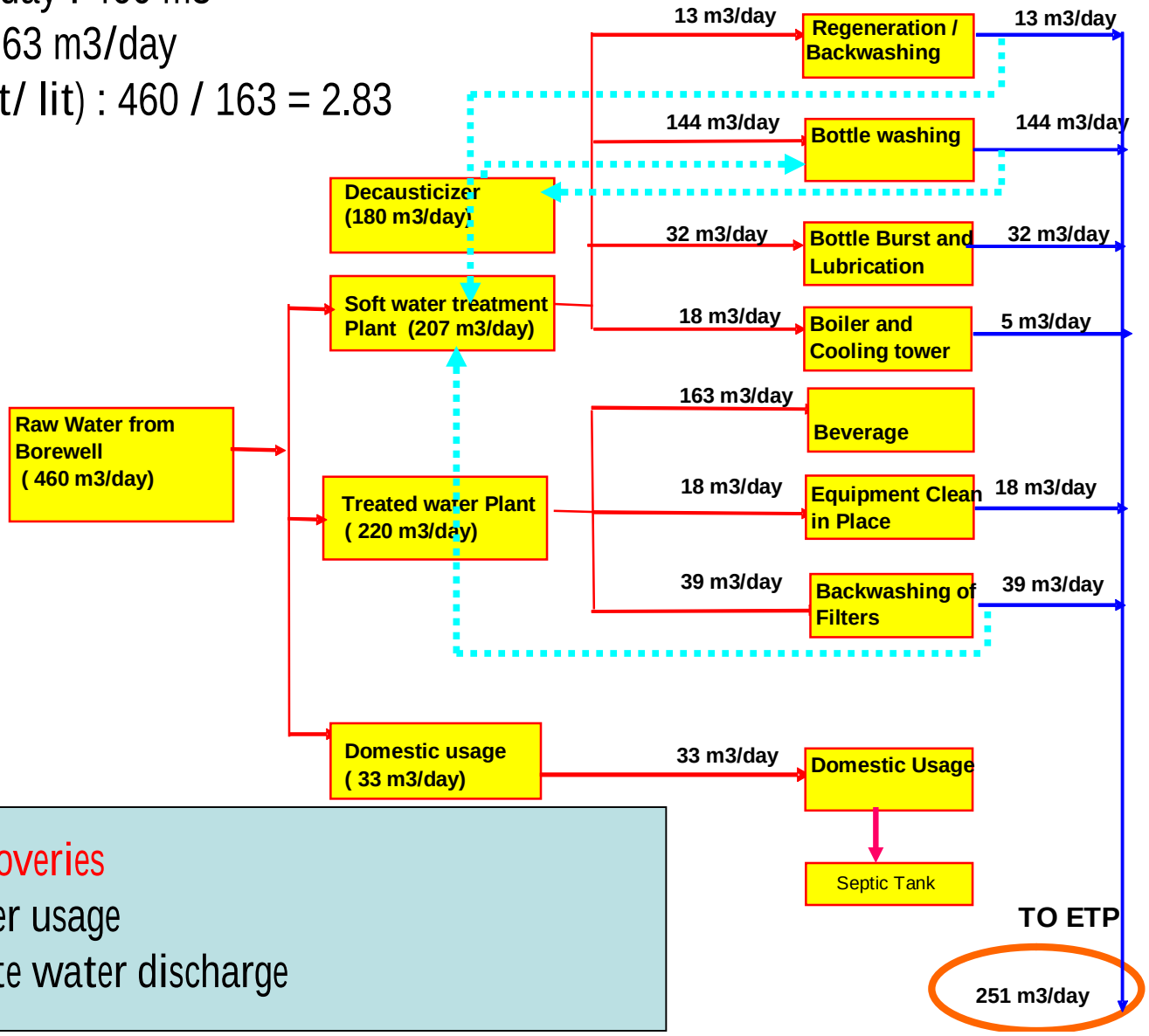
Decausticiser - Process Map



- Recover water from prefinal compartment of Bottle washer
- Pump to the sedimentation tank and filter the clear water through Sand and carbon filters & pass through ion exchange resin column for removal of caustic.
- Use back in bottle washer prefinal stage after chlorination
- Average recovery of water through this system is 160 KL/Day

Water Usage in the Manufacturing operation – (With Water recovery schemes)

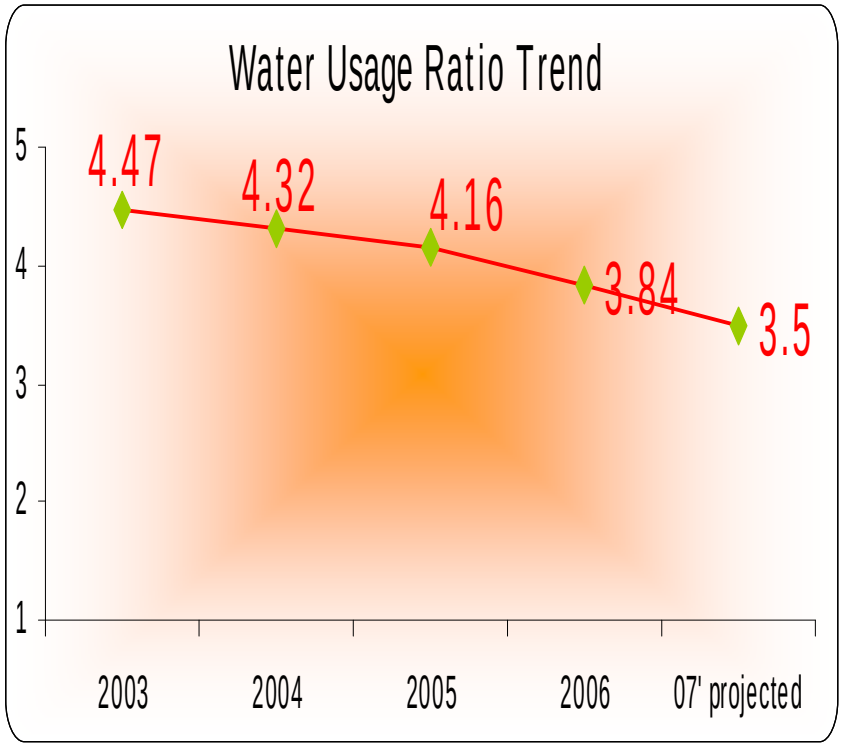
Raw water used peak day : 460 m3
Beverage generated : 163 m3/day
Water usage Ratio (lit/ lit) : 460 / 163 = 2.83

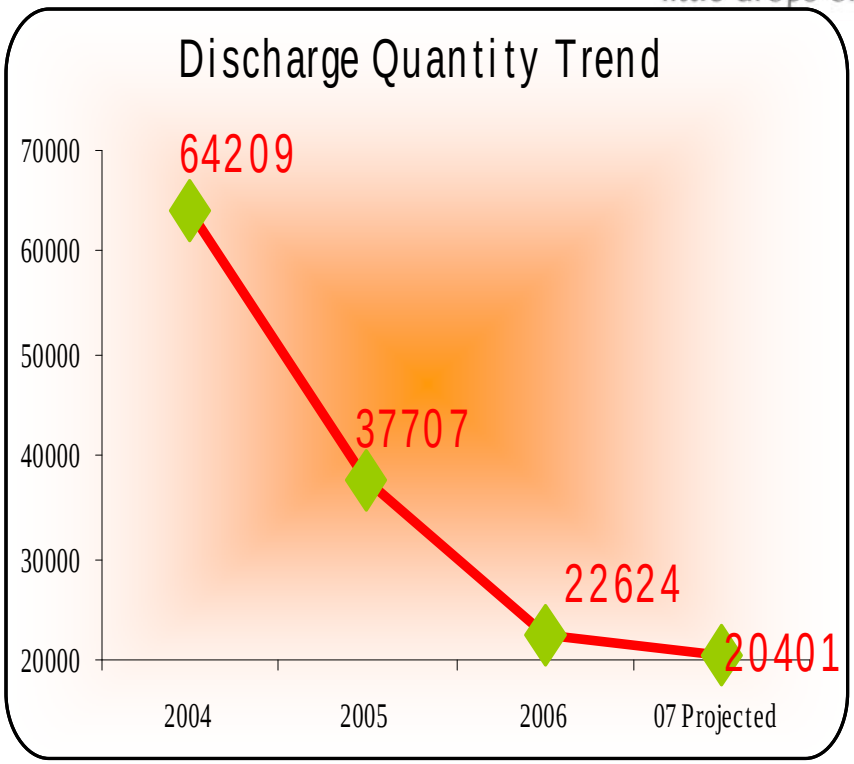


With installation of recoveries

- 32% reduction in water usage
- 65% reduction in waste water discharge

Minimise Water Usage Ratio & Waste Water Discharge

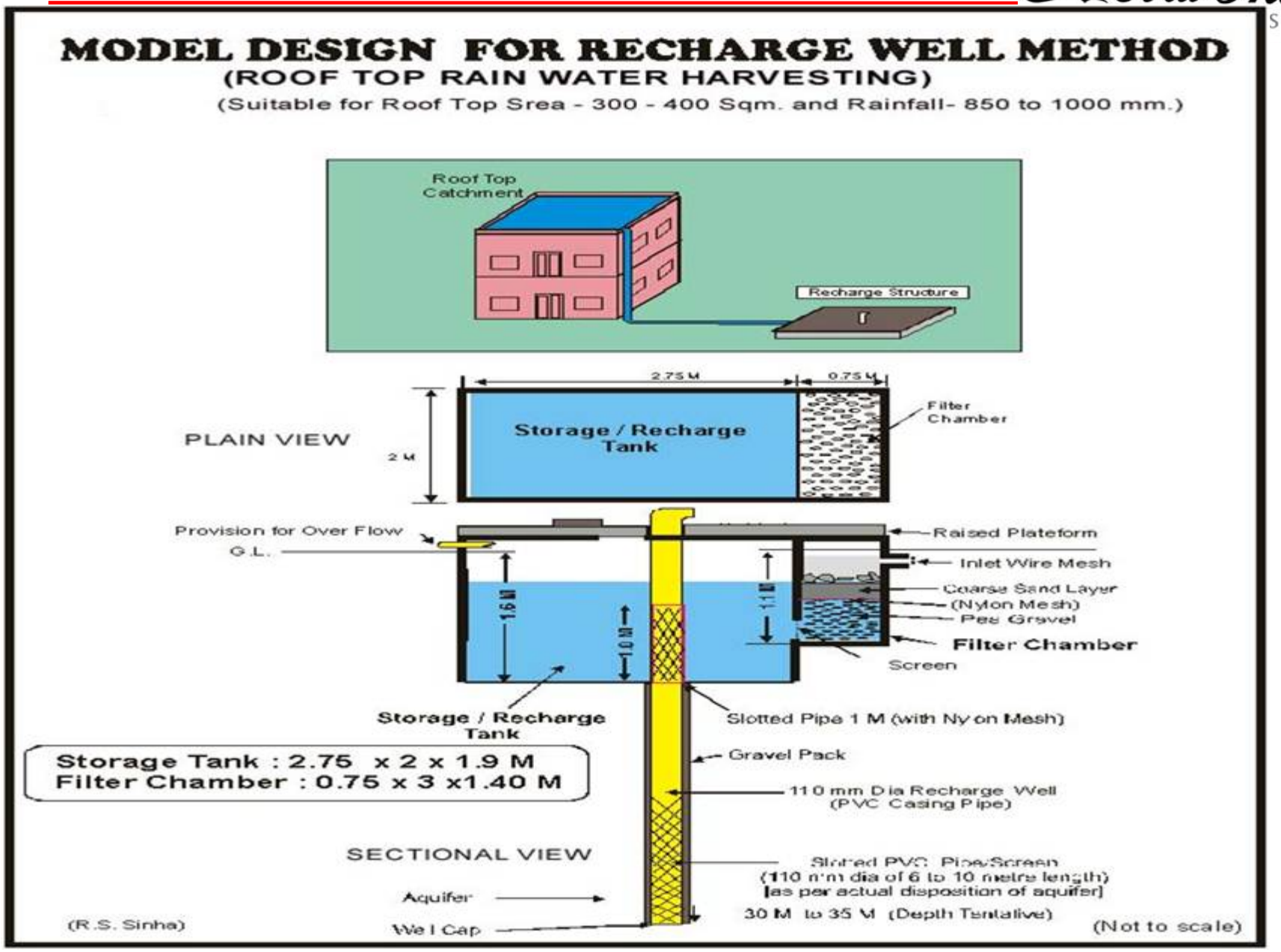




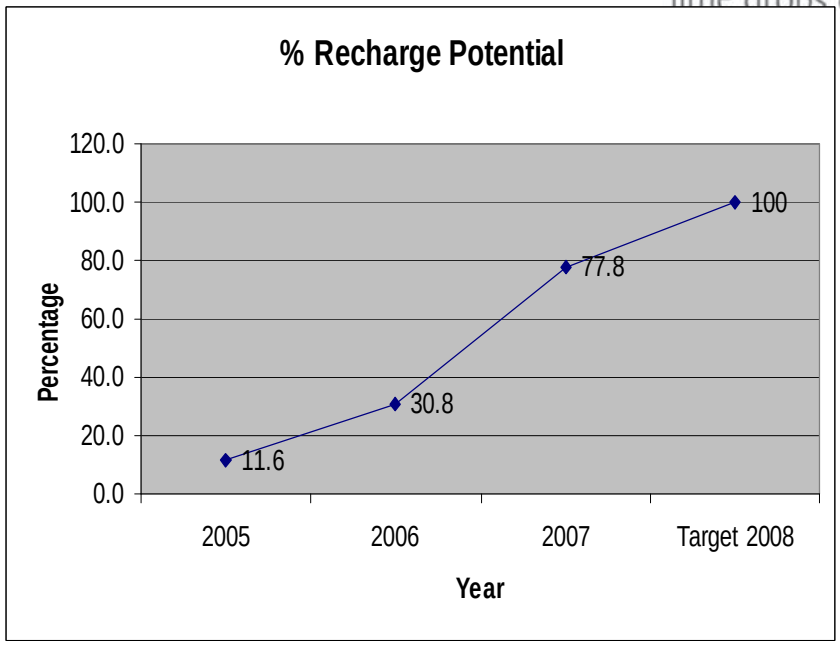
From 2003 to 2007 there has been a reduction of 23% in WUR

Reduction in Waste Water Discharge by 68% in last four years

RWH Design


MODEL DESIGN FOR RECHARGE WELL METHOD
(ROOF TOP RAIN WATER HARVESTING)
(Suitable for Roof Top Srea - 300 - 400 Sqm. and Rainfall- 850 to 1000 mm.)
Roof Top Catchment
Recharge Structure
PLAIN VIEW
2.75 M
0.75 M
2 M
Storage / Recharge Tank
Filter Chamber
Provision for Over Flow
G.L.
Raised Plateform
Inlet Wire Mesh
Coarse Sand Layer
(Nylon Mesh)
Pea Gravel
Filter Chamber
Screen
1.6 M
1.0 M
1.1 M
Storage / Recharge Tank
Slotted Pipe 1 M (with Nylon Mesh)
Gravel Pack
110 mm Dia Recharge Well
(PVC Casing Pipe)
Storage Tank : 2.75 x 2 x 1.9 M
Filter Chamber : 0.75 x 3 x1.40 M
SECTIONAL VIEW
Slotted PVC Pipe/Screen
(110 mm dia of 6 to 10 metre length)
(as per actual disposition of aquifer)
Aquifer
Well Cap
30 M to 35 M (Depth Tentative)
(R.S. Sinha)
(Not to scale)

Recharge -Roof Top Harvesting Within Plant



- The Plant has implemented large scale rain water harvesting system
  - Total No of Projects: 18
  - Total Roof Area Covered: 43189 m^2
  - Created Recharge potential: 32808 m^3 which is 77% of the water drawn by the plant
  - Invested approx Rs 7 million in water conservation during last 4 years

Water conservation Projects at Krishi Vigyan Kendra & Indian Institute of Vegetable Reaserch – Community

Water Initiatives at Kallipur – Agriculture institute

- Drip Irrigation- Pilot project for training and awareness among farmers and students.
- Beneficiaries 2007- approx 2500 people
- Rain Water Harvesting projects completed at Indian Institute of Vegetable Research Institute Jakhini, Varanasi.
- Covers 9550 sq meter roof top area having 7900 cubic meter recharge capacity.

Summary and Way Forward

- Reduction in Water Usage in last 4 years by 23%.
- Reduction in Waste Water Discharge quantity by 68% in last 4 years.
- Total Investment in Recovery Schemes is approx- 30 Lacs.
- Total Investment on Rain Water Harvesting Projects is approx 70 lacs.

Future Action Plans:

- Water Usage Target for 2008 is 3.3 lower by 6% than current year

  - TTP Installation for Recycling of waste water.
  - Reduction in water usage in cleaning and sanitation of equipments by modifying the process.
  - Total Investment envisaged for the above is Rs 25 lacs.

- Rain water harvesting:

  - To create recharge potential of 10k m^3 to achieve Zero Water Balance.
  - To take part in creating awareness in the community with Institutes and Agricultural Colleges.
  - Total Investment planned is Rs 50 lacs

Key Achievements…….

- ISO 9001:2000 certified plant by LRQA
- ISO 14001:2004 certified plant by DNV
- HACCP certified plant by DNV
- Awarded as “Best Employer” by UP State Govt. for employing “Physically Challenged” personnel.
- Golden Peacock Environmental Management Special Commendation Award 2006

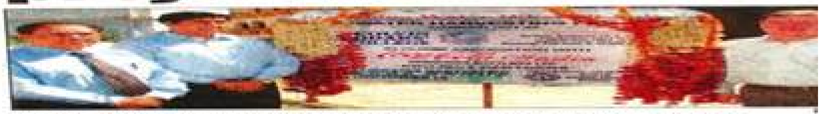
Efforts get Recognized

Mrs. Vidhya Stokes, Minister of Power and Environment, Himanchal Pradesh presenting Golden Peacock Environment Management Special Commendation 2006 at Palampur– June 06

H.E Shri T V Rajeshwar, Governor, felicitating Mr. Ashutosh Bhardwaj, AOD, Hindustan Coca-Cola Beverages Pvt. Ltd. Varanasi as Best Organisation of Uttar Pradesh-2006

We shall continue with our endeavors….

5 rain-harvesting projects launched



Dedication ceremony of rainwater harvesting projects, in Lucknow on Thursday

HT Correspondent
Lucknow, February 23

Coca-Cola will be chiller

वाराणसी

बरसाती पानी का संरक्षण कर रहा कोका कोला

अमर उजाला

कोकाकोला के 8 रेन वाटर हार्वेस्टिंग प्रोजेक्ट जून तक

दैनिक जागरण

Coca-Cola unveils water recharging schemes for 2007

HT Correspondent
Varanasi, March 19

Vice President of Hindustan Coca-Cola, Richard L Miller talking to reporters in Varanasi on Monday.

आज

कृषि उत्पादनमें वृद्धिके लिए प्रौद्योगिकी, उन्नत बीजोंका प्रयोग जरूरी

हिन्दुस्तान कोका-कोलाकी ओरसे रेन वाटर हार्वेस्टिंग परियोजनाका शुभारम्भ

आज

हिन्दुस्तान कोकाकोलाकी ओरसे इस वर्ष आठ नयी रेन वाटर हार्वेस्टिंग परियोजनायें शुरू होंगी

Coca-Cola Experience

- Implement Rainwater Harvesting projects in communities
- Spread the message of rainwater harvesting
- Voice our support for rainwater harvesting –Create Networks of like minded stakeholders

Win-Win For All

One of the largest Developmental NGO, Corpus nearly Rs 100 crores
Focus : Sustainable Development

Partnership : Water Conservation in select areas, Film on Env Conservation

Rotary International – Chennai Chapter
Focus: Humanitarian Services ,Education

Partnership : Drinking Water, In & Around Chennai, in 100 schools

One of largest international NGO, part of UNO
Focus: Water and Sanitation

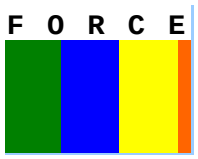
Partnership: In water sector, for India and Nepal, LOI exchanged

…… other partners in community projects

Indian Army

One of the most respected and credible international NGO
Focus : Sustainable Development

Partnership : Water Conservation, 3 states. Tsunami rehabilitation



An upcoming NGO, headed by an alumnii of IIM, Bangalore
Focus: on water conservation projects and spreading awareness

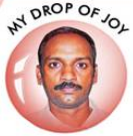
Partnership : RWH in RWAs, schools in Delhi

Apex Industry Association
Focus: Public-Private partnerships through community development projects

Partnership: Improved rural livelihood project in Tirunellveli, Tamil Nadu and Dungarpur, Rajasthan. Non formal education projects with NGO, PRAYAS

Coca-Cola India
little drops of joy

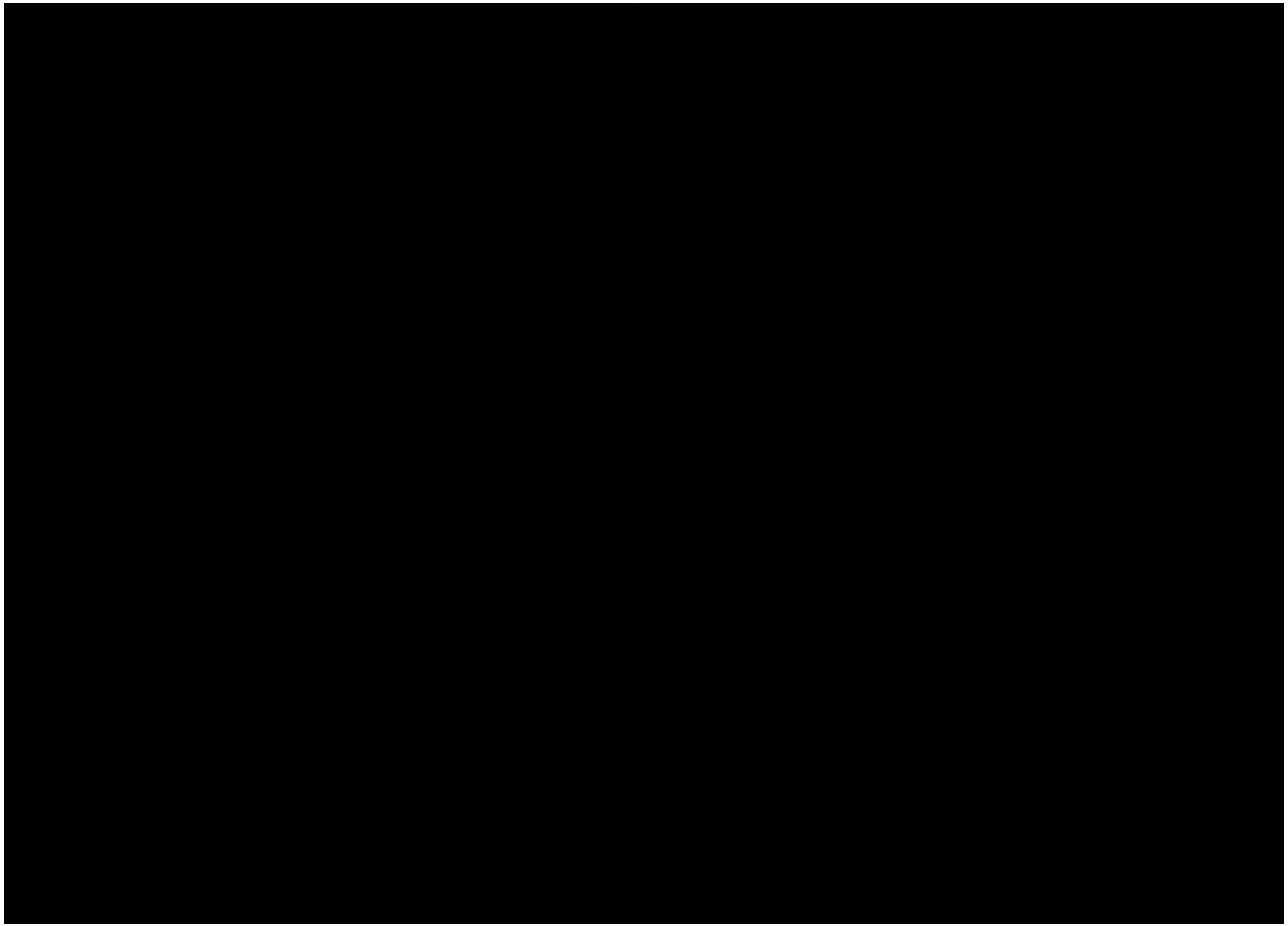
MY DROP OF JOY



Hi, I'm Suresh Varma. I can't hear or talk. But 80 of us from the Benares Deaf and Dumb School Association are working as bottle inspectors at Coca-Cola's bottling plant at Varanasi. Together we make sure that every Coca-Cola product that goes by us, delivers on quality. Hour after hour, day after day. This is my drop of joy.

Coca-Cola India
little drops of joy

To know more about how we spread joy,log on to www.coca-colaindia.com Coca-Cola India Pvt. Ltd.



Hindustan Coca-Cola Beverages Pvt Ltd, Varanasi

Coca-Cola India
little drops of joy

….and so we shall
continue to serve….