

aqua



Make Every Drop Count


a Water Management
Program targeted to deliver
improved Operational Efficiency

BCFPA, Oct. 22, 2009

Eddie Elsesser

JohnsonDiversey





"Fresh water is a bounded, finite, but infinitely renewable and vulnerable resource, essential to sustain life, development and the environment."

Together, we have the chance to make the difference!

Why are companies focusing on Water ?

- ✓ A healthy environment is vital to today's business.
- ✓ Water is the major resource in food processing and therefore represents a major risk to the business.
- ✓ Sustainable water management practices not only benefit the environment but make good business sense.
- ✓ New metrics are required for management to make decisions that are proactive and viewed holistically
- ✓ Focusing on the link between EPI (Environmental Performance Improvement) and reduction on TCO will identify new gains which can impact sustainability of the Food and Beverage Industry

TCO reduction is vital and can be impacted through Water Efficiency measures but **MUST** be viewed holistically within a business strategy





A Systematic 3 Step Approach



STEP 1

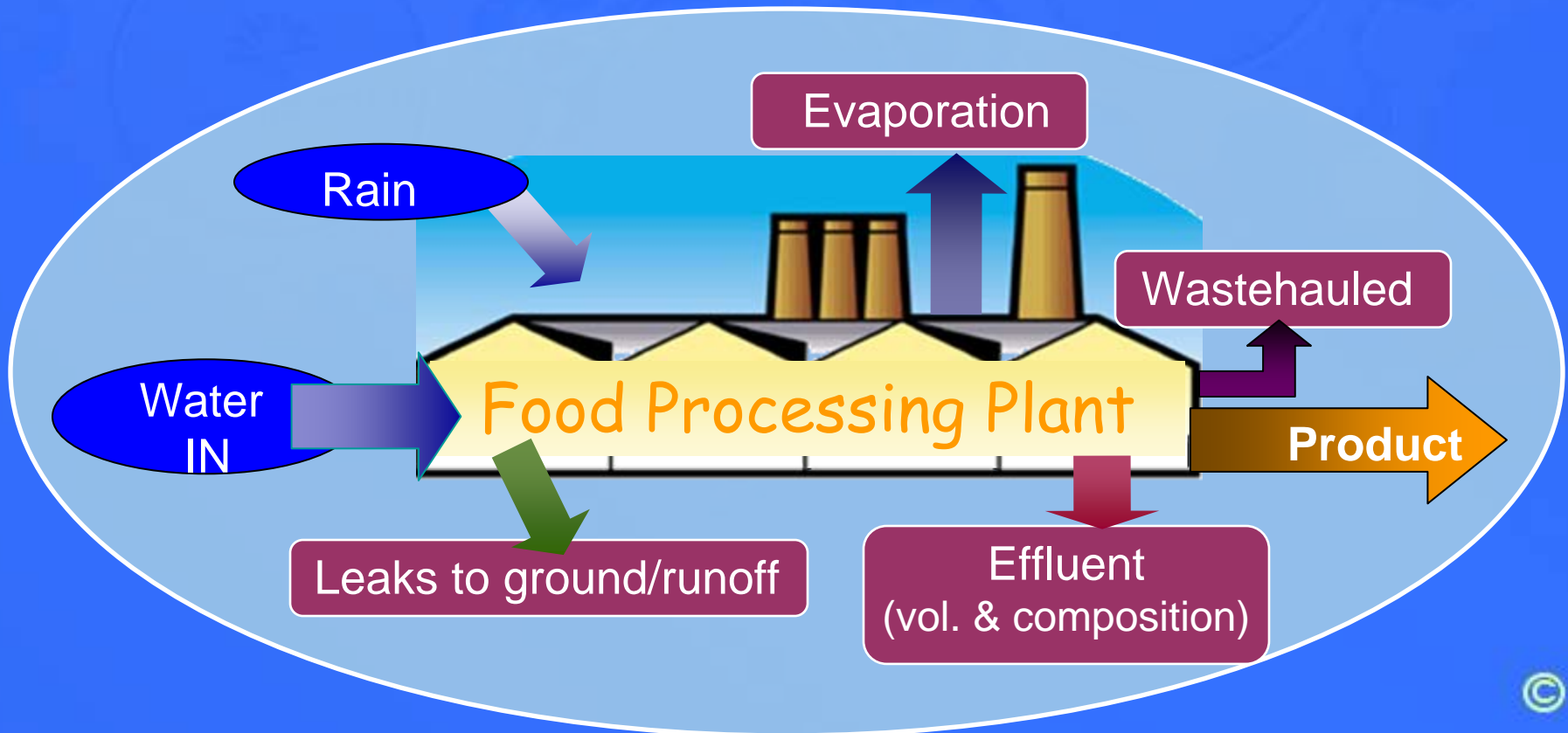
SCAN

What has happened so far?

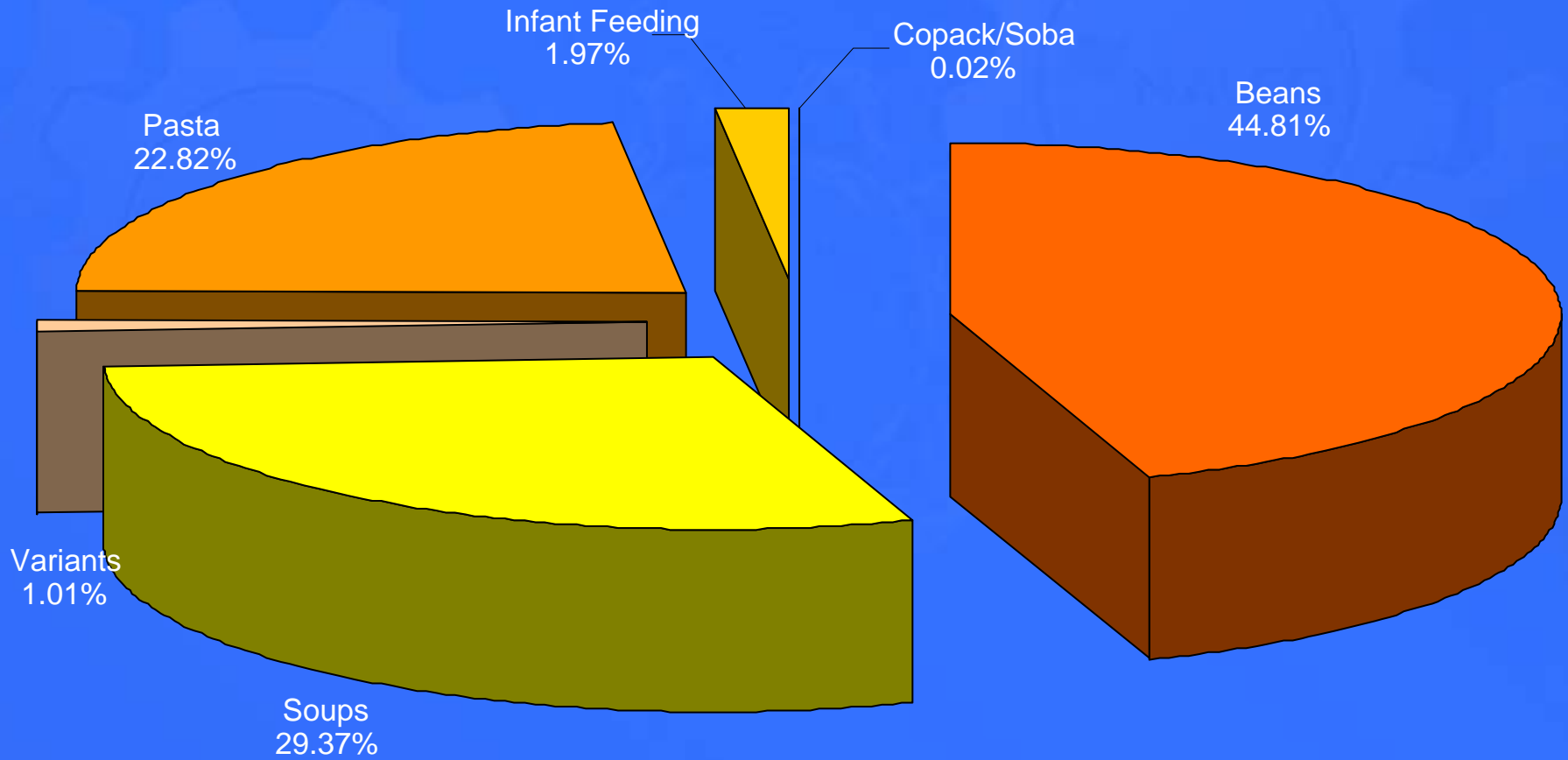
- ✓ Holistic overview - in /out mass balance
- ✓ Map historical water use, effluent loading & cost trend analysis over a 12 month period.
- ✓ Identify potential magnitude of the opportunity from industry benchmark of the metrics
- ✓ Provide the elements for environmental performance reporting (water footprint, effluent loading- volume and composition)
- ✓ Identify seasonal trends
- ✓ Identify variability in water usage related to production volumes (WEI Water Efficiency Index) and effluent loading
- ✓ Identify water value streams (cost impact of primary streams)

What is the environmental footprint of the plant?

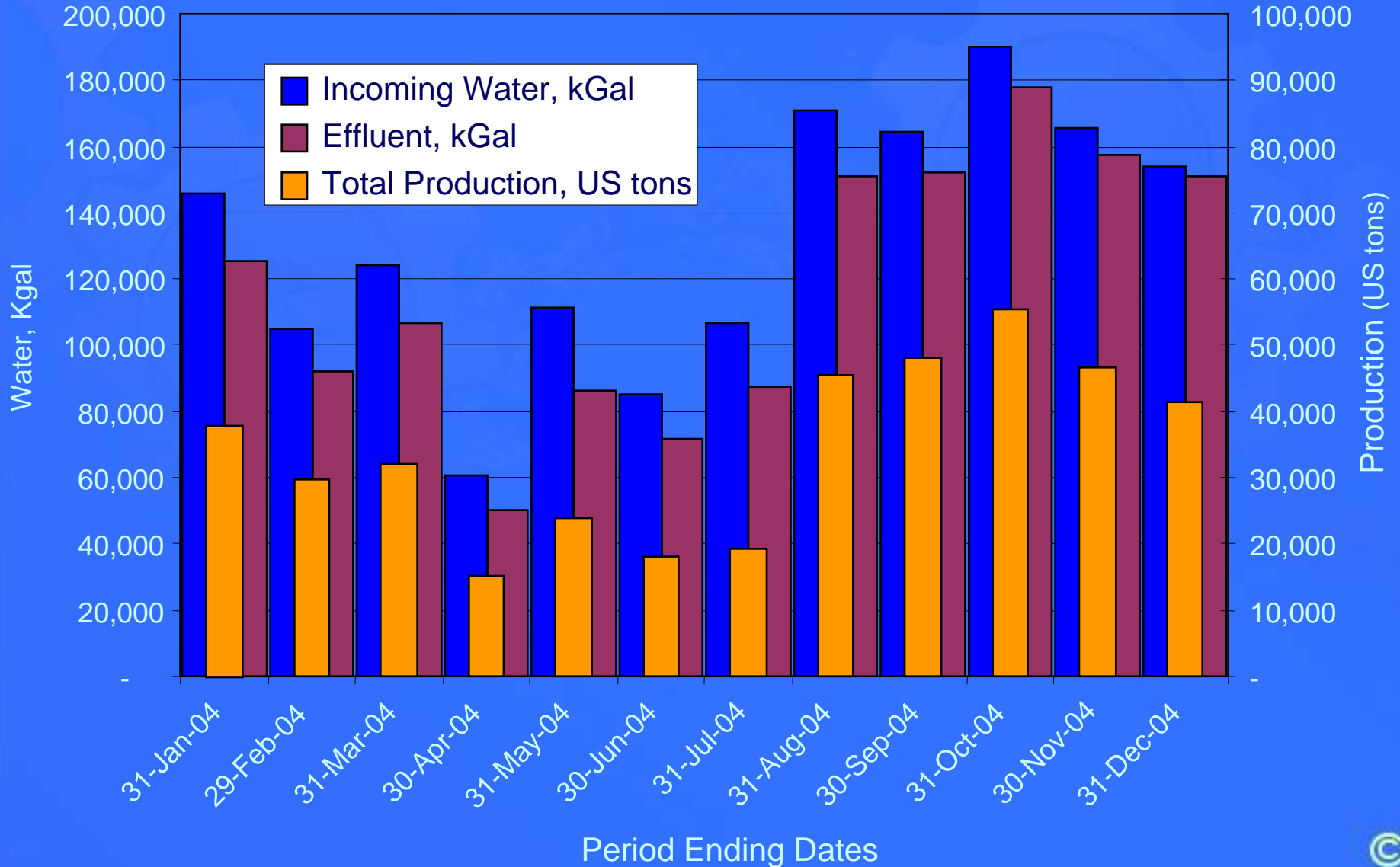
- holistic overview
- in/out mass balance
- impact on the community



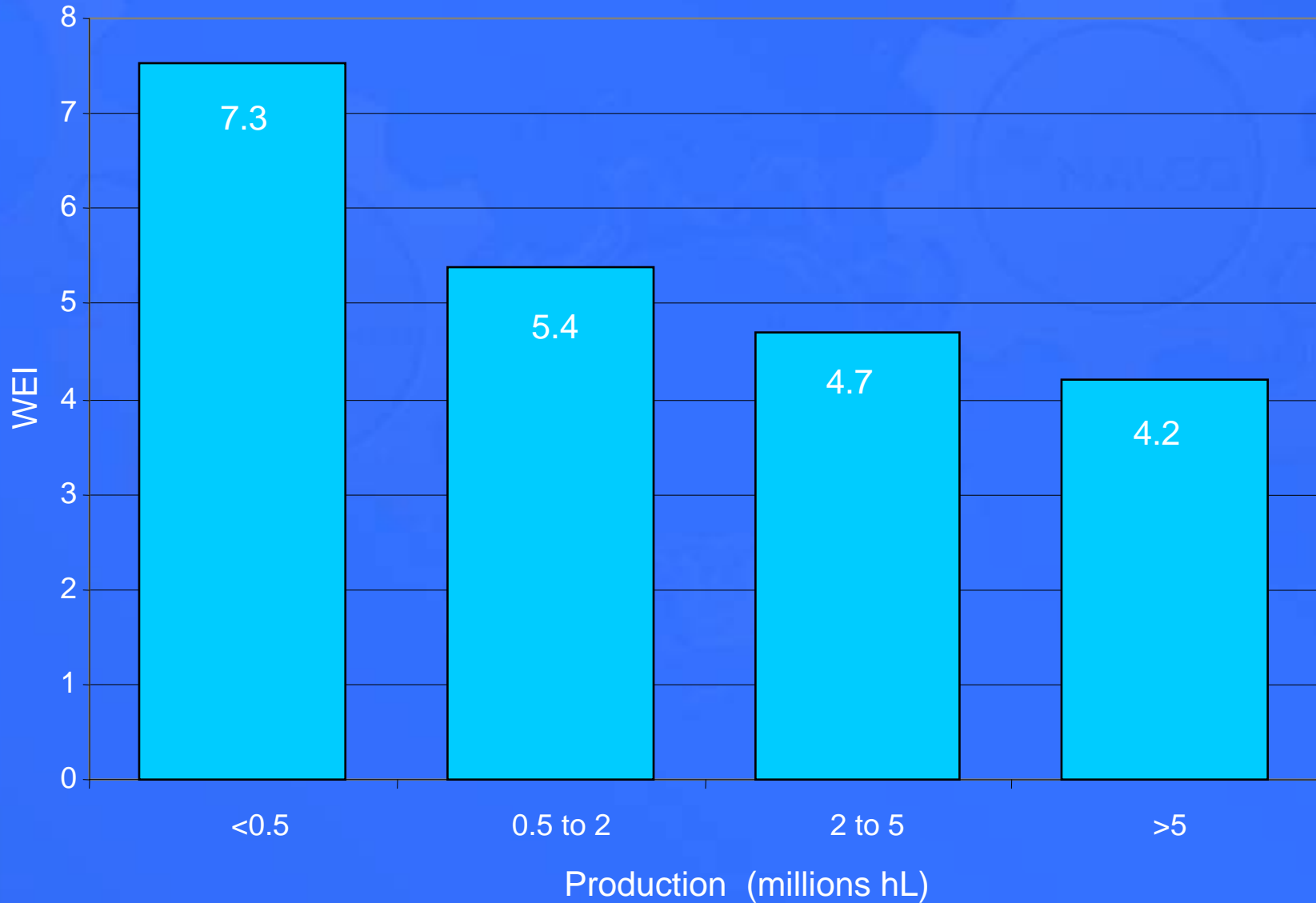
Annual Production Breakdown



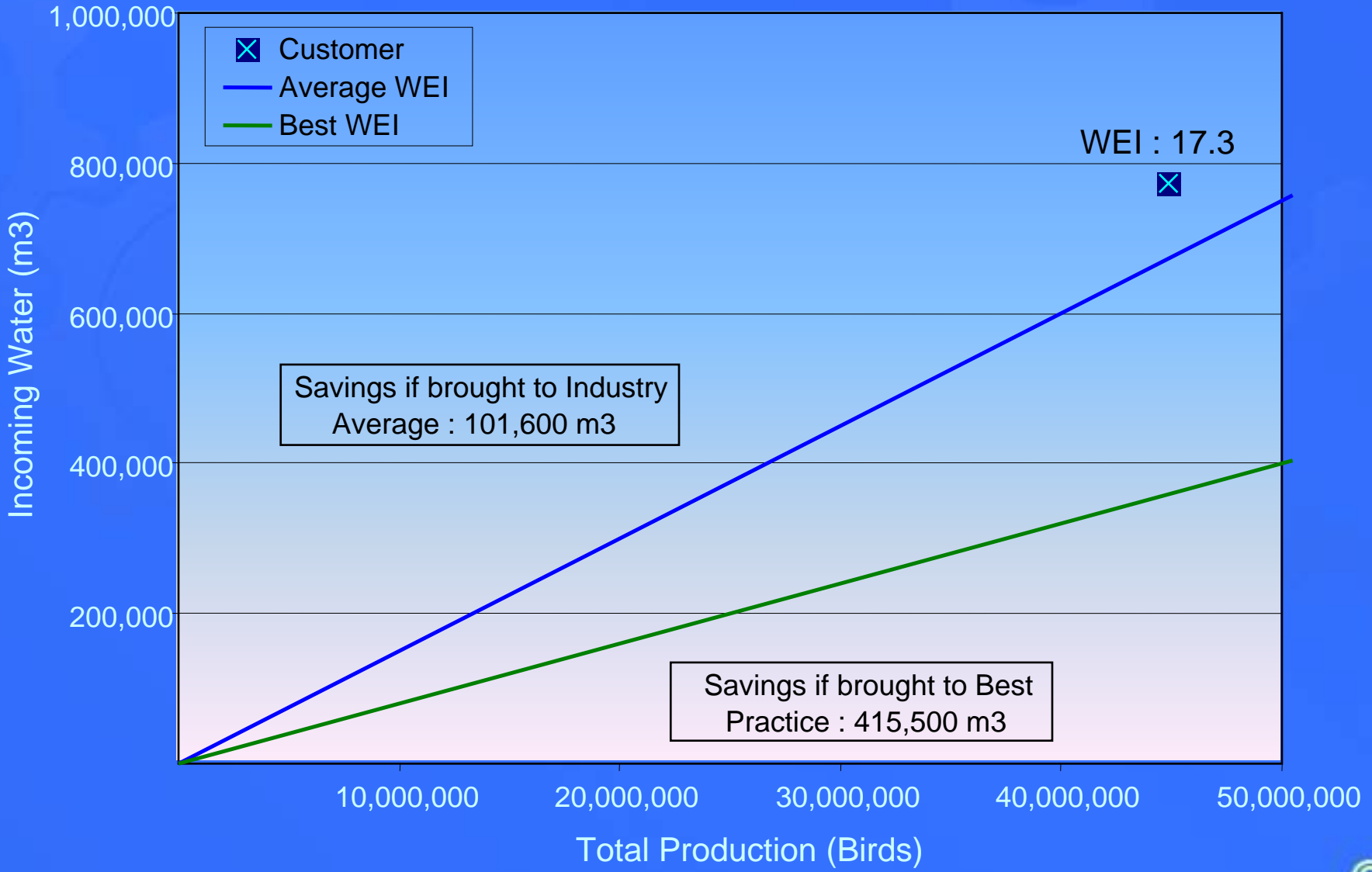
Water Variability vs. Production



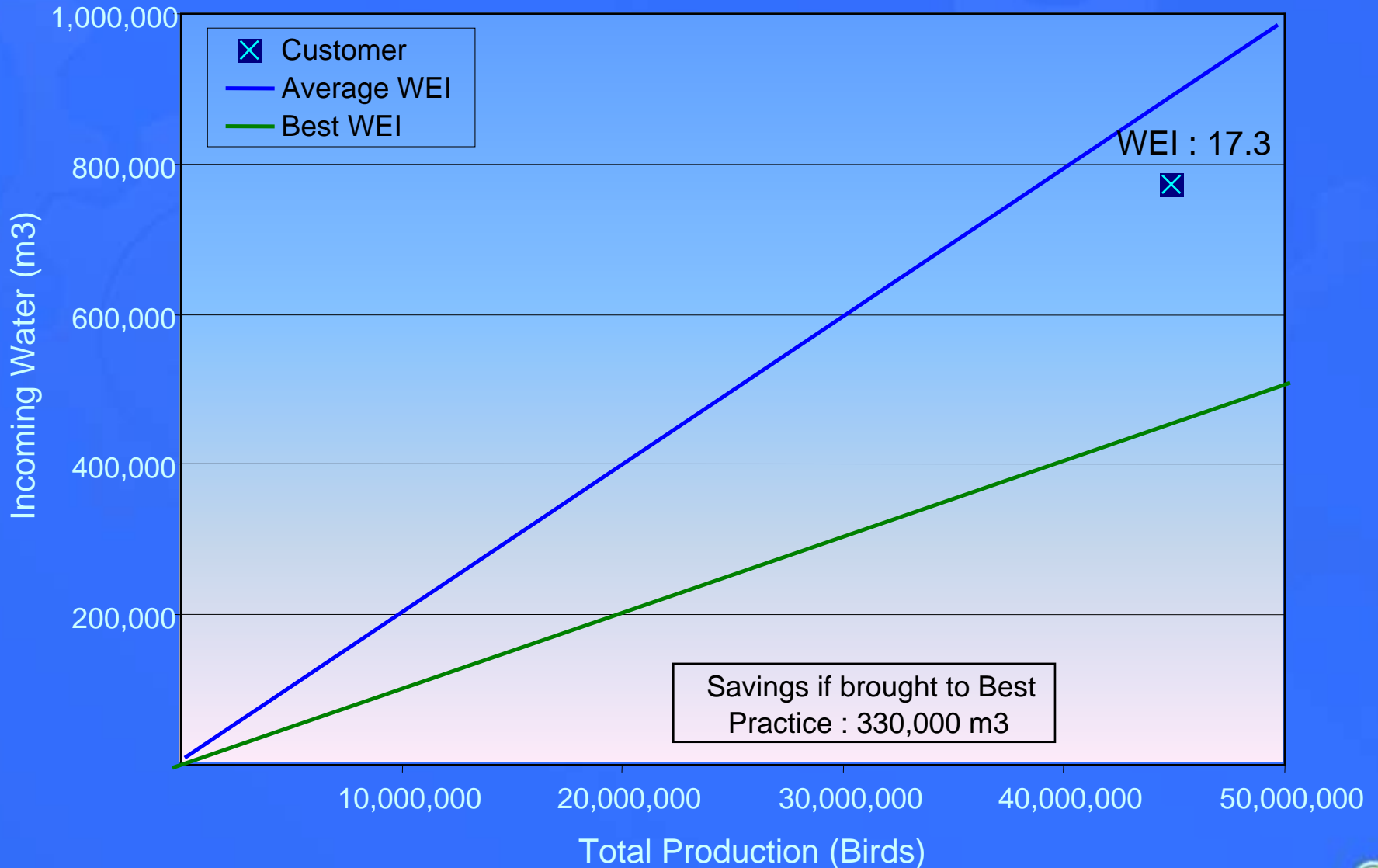
WEI vs. Beer tonnage



Incoming Water Poultry Model (European)

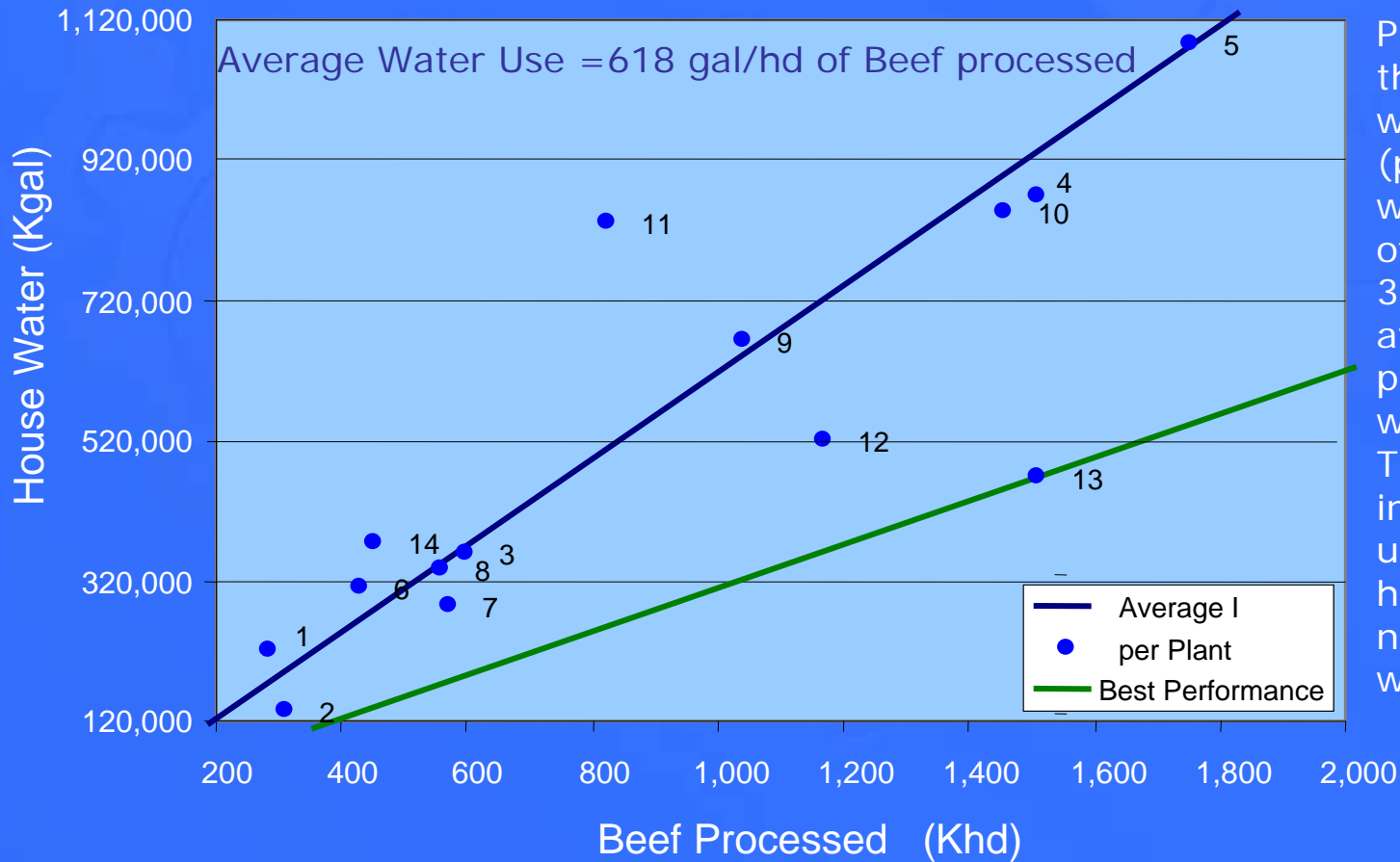


Incoming Water Poultry Model (North American)



Beef Processing

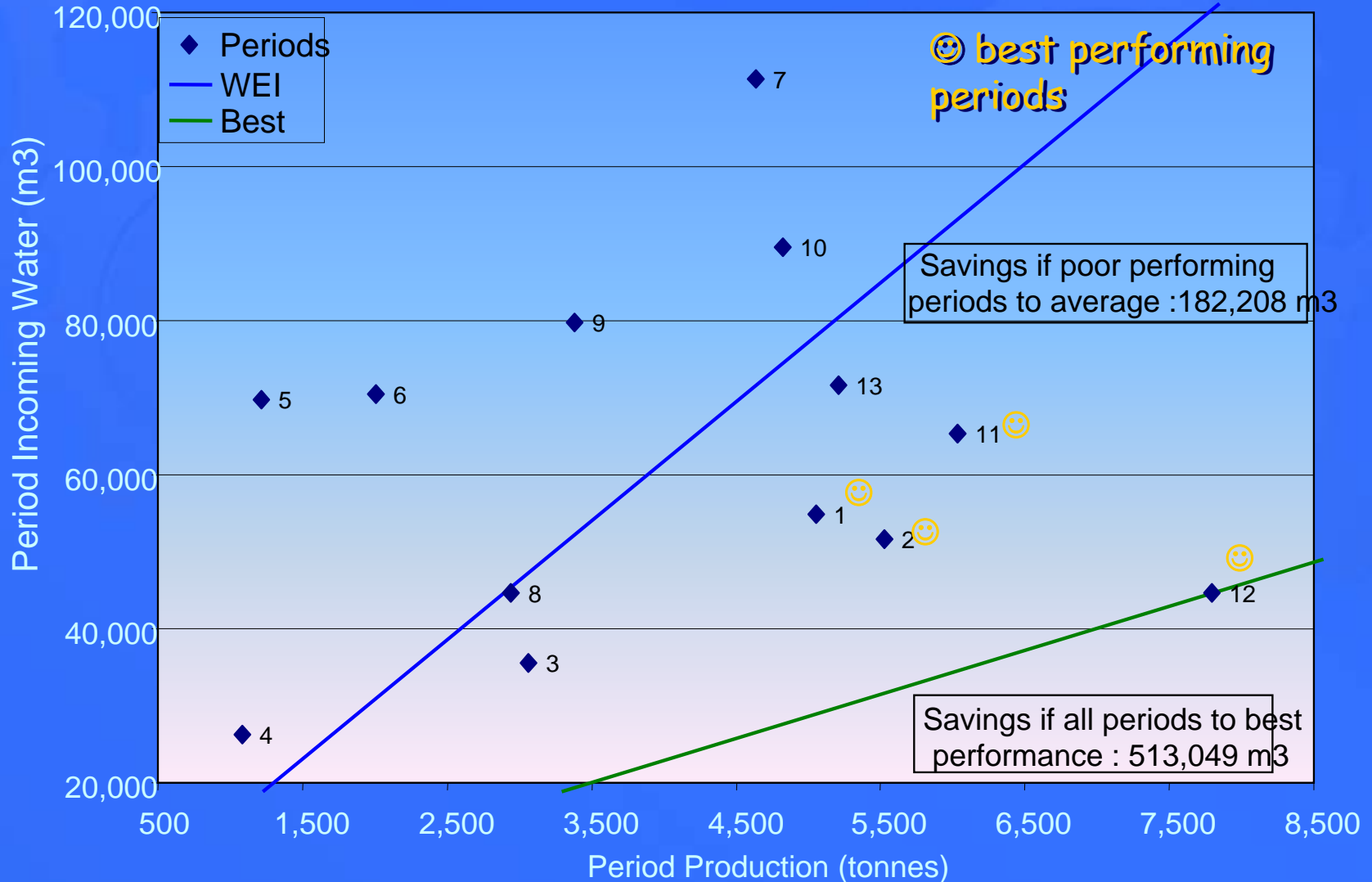
House Water Use (production days only)



Plant 13 exhibited the best performance with respect to (production day) water used per head of beef processed 310. The Corporate average (over the 14 plants studied here) was 618. These values do not include total water used on site since house water used on non production days was not included.

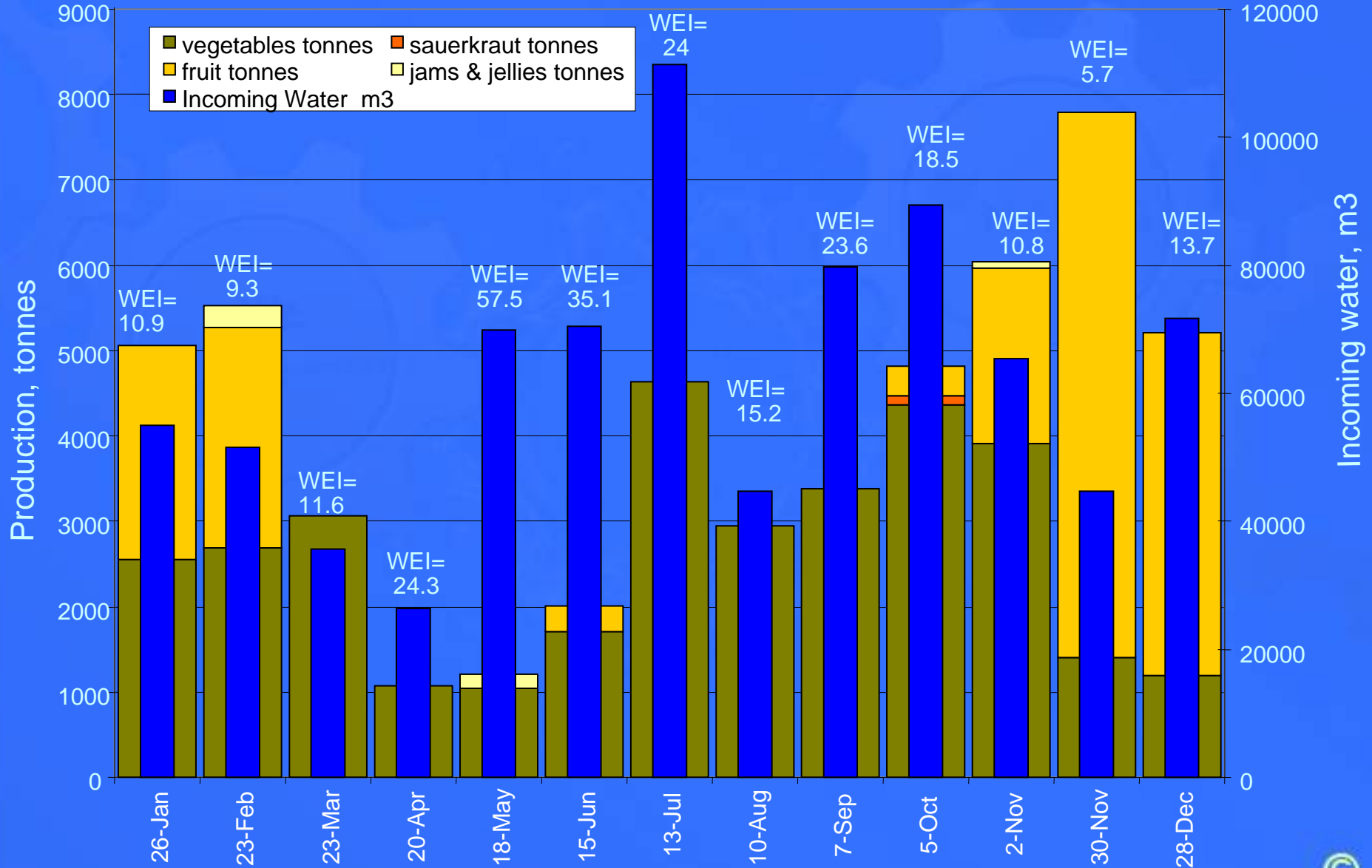
Incoming Water vs. Production

WEI = 15.45 m³ water used per ton drained product



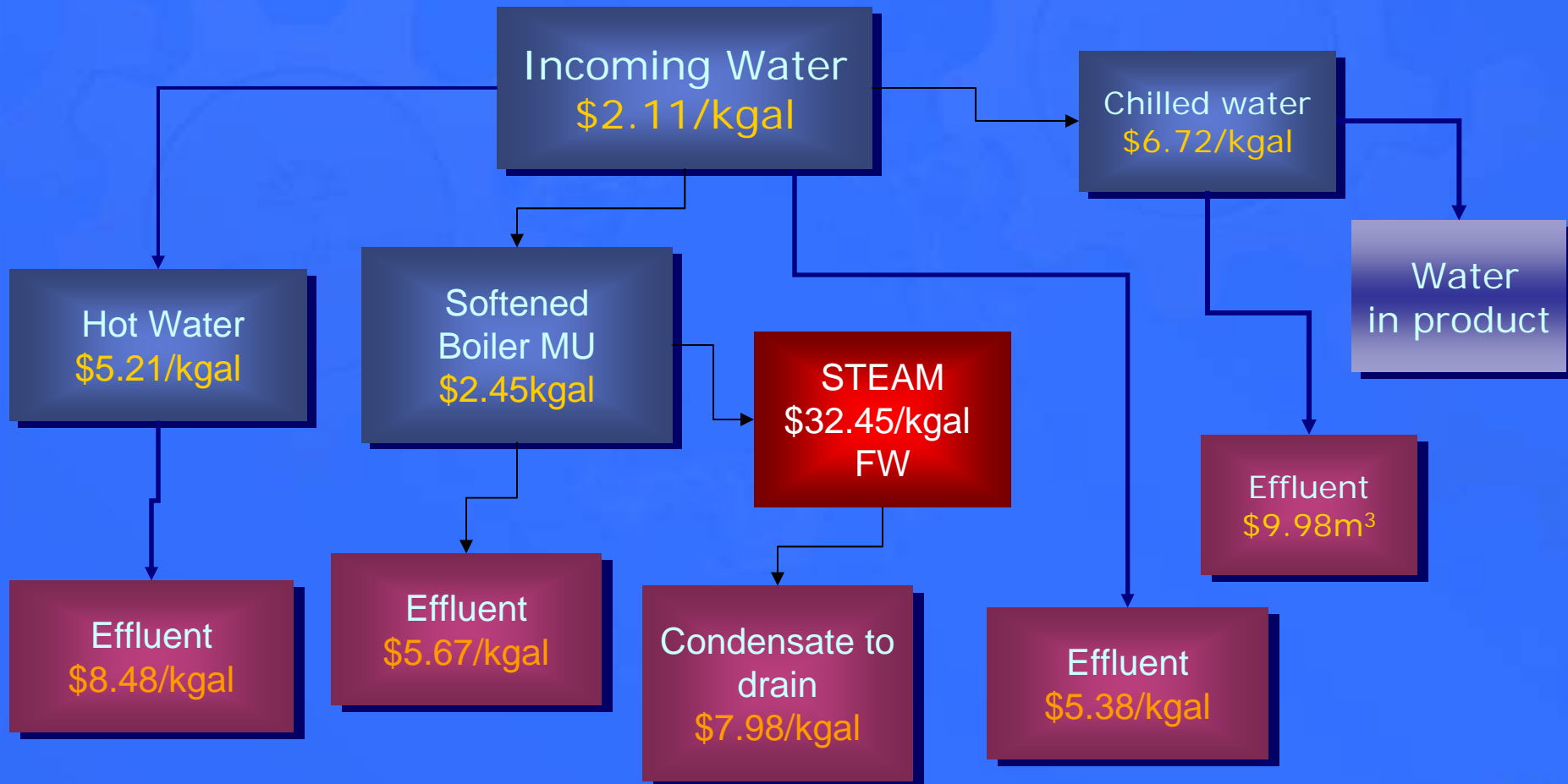
Water Use vs Production

aqua-SCAN



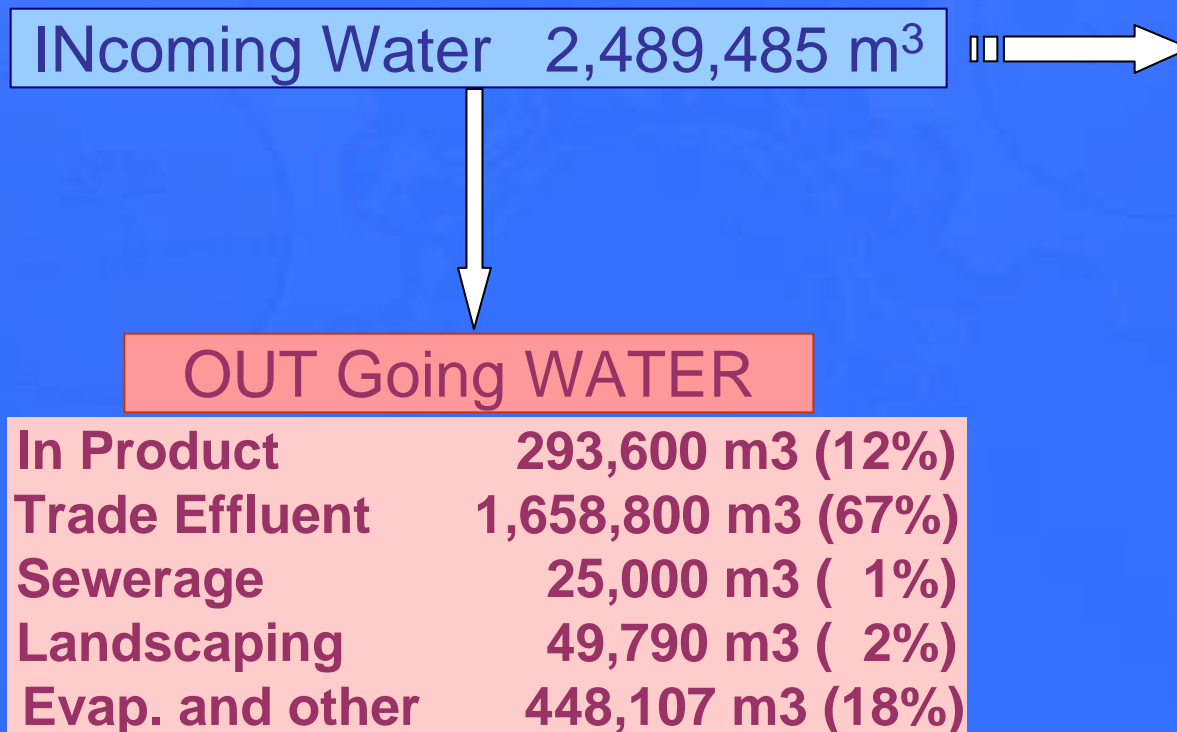
Water Cost Breakdown –Identifying the Value Streams

Water picks up cost as it travels through a facility. Value (cost) streams, identified in Aquacheck, are an important measure for impact analysis.



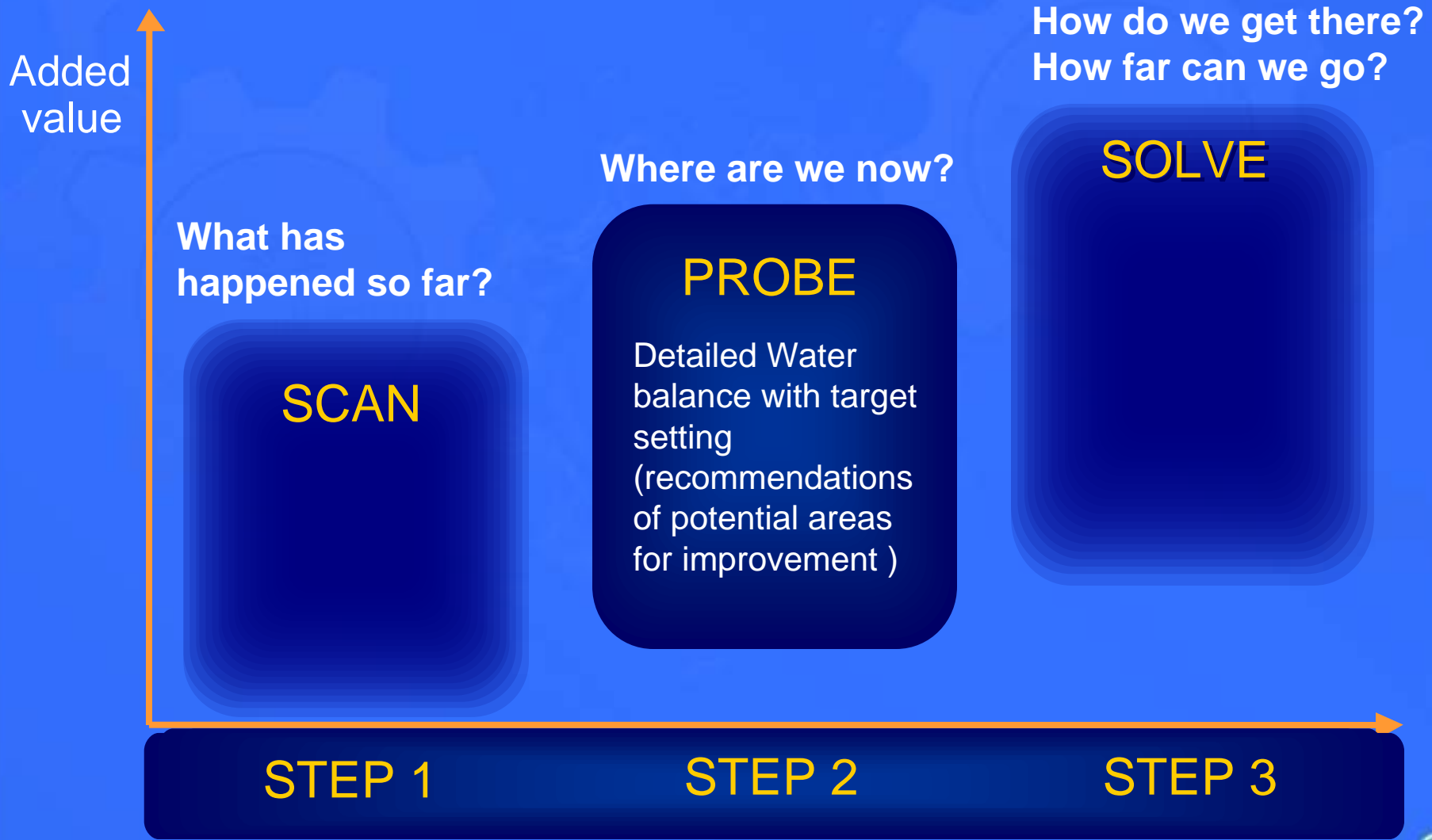
aqua-SCAN Ladder

mass balance based on historical data analysis





A Systematic 3 Step Approach



STEP 2

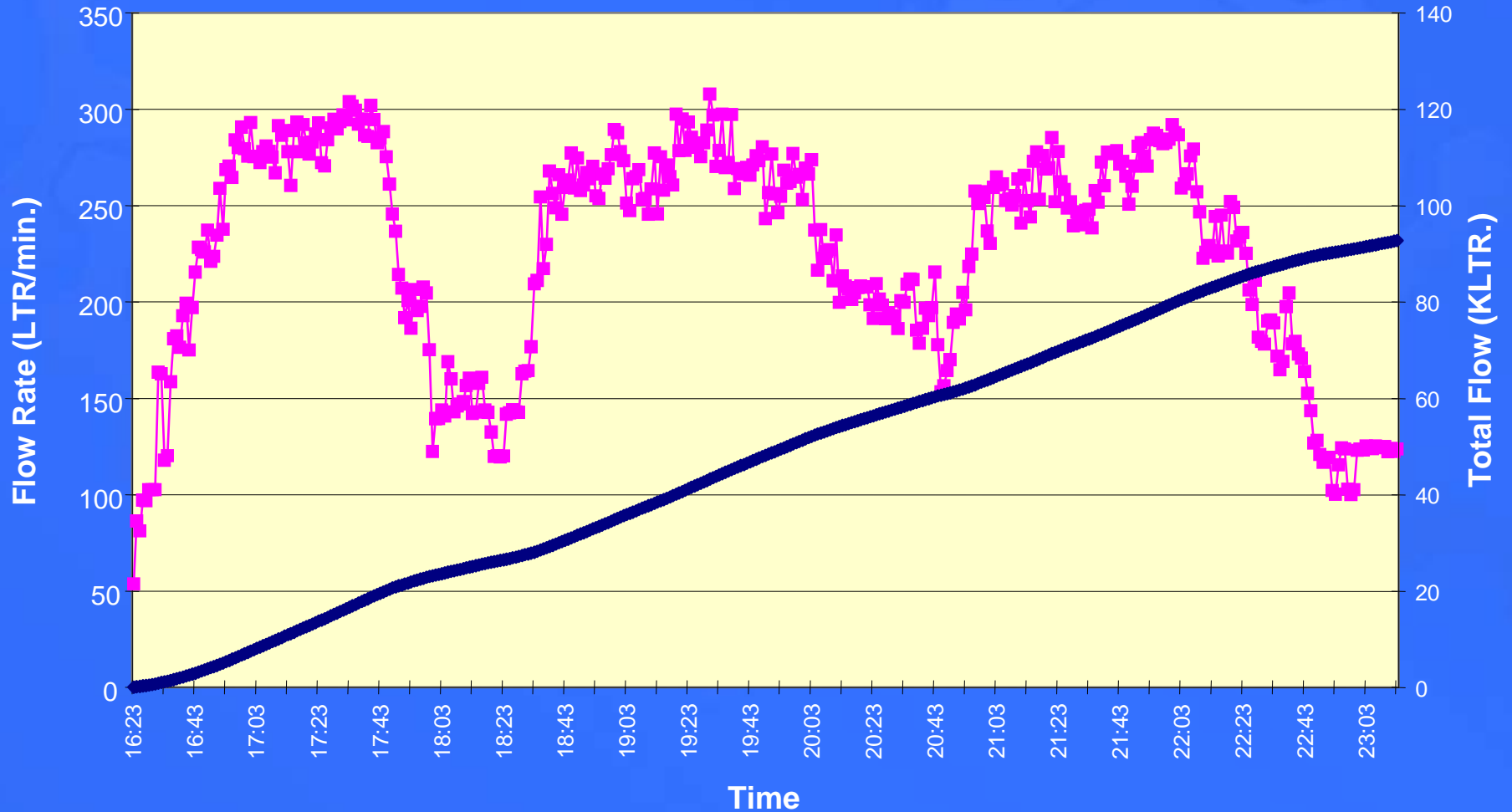
PROBE

Where are we now? How far can we go?

- ✓ The systematic audit (where it works, what it does, how it changes (contaminants picked up), how much it takes and what it costs for each water user)
- ✓ Identify water mass balance down to individual users
- ✓ Define facility map of water flow - the ladder including cost impact for each user
- ✓ Identify water quality (grade) discharge from each user
- ✓ Highlight best practice needs
- ✓ Provide information for regulatory approvals/accreditation
- ✓ Recommend targeted, responsible solutions for Water use Efficiency Improvement

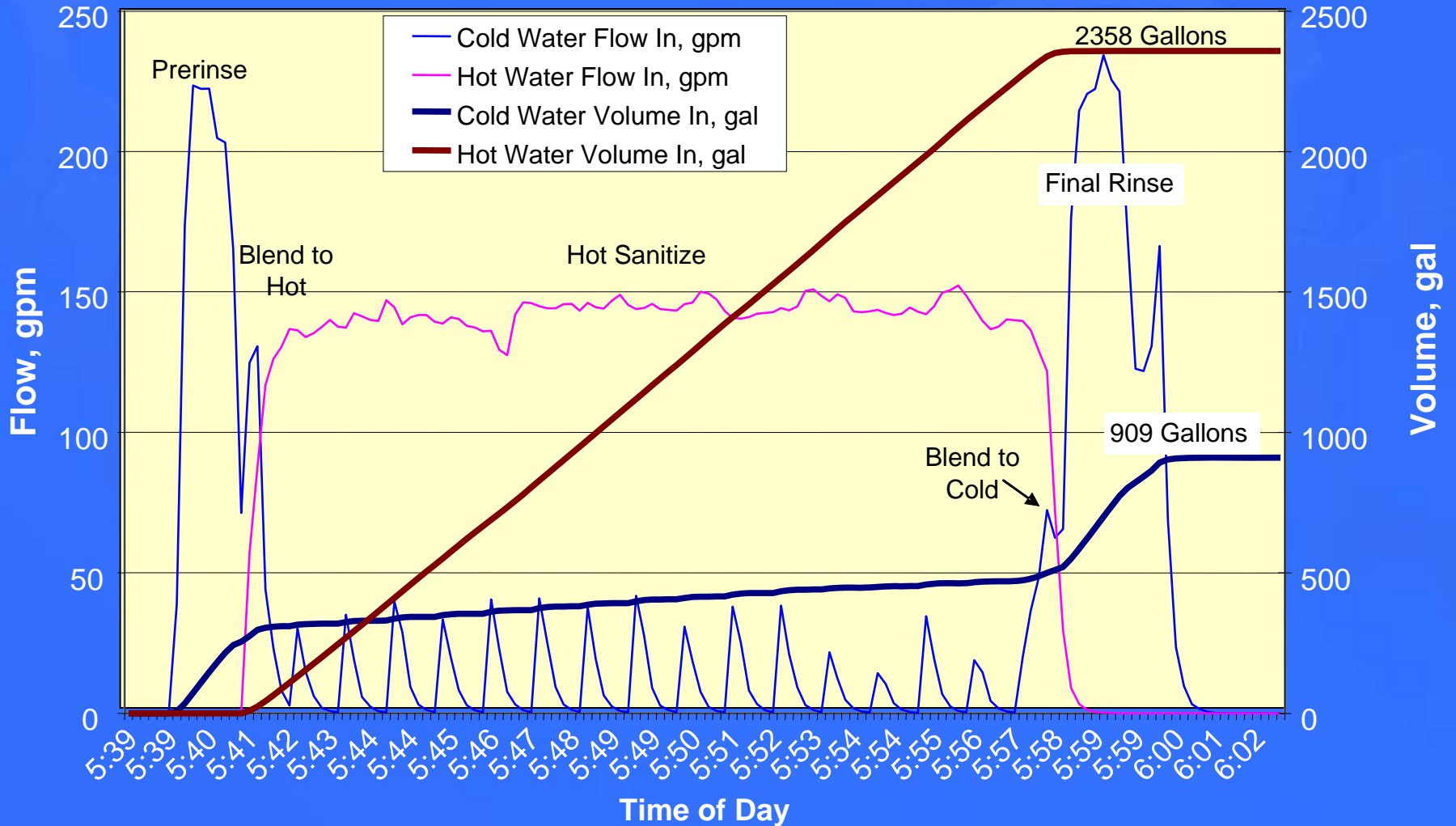
**"If you don't measure it,
you can't manage it."**

Flow Rate for High Pressure OPC



PROBE

3-Step Hot Sanitize



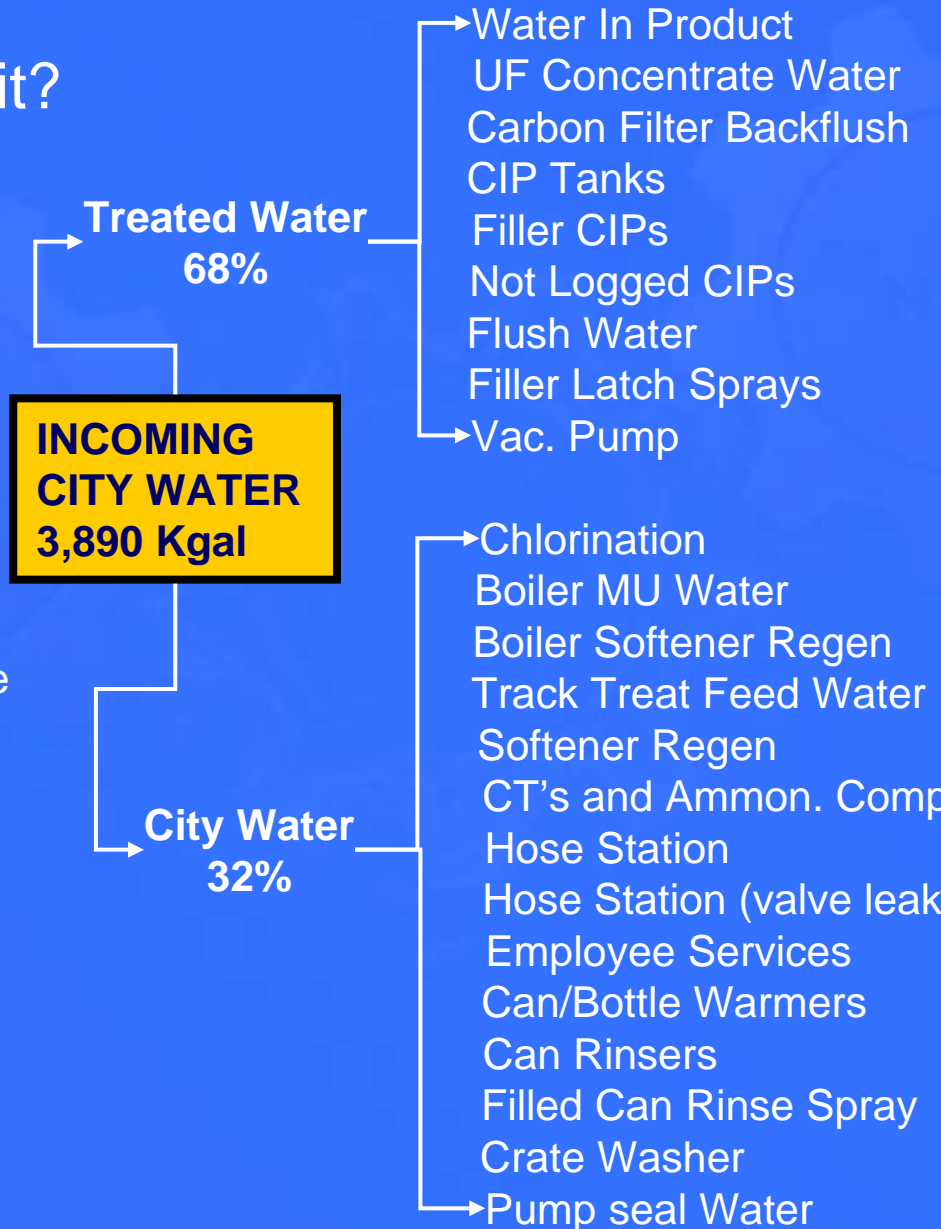
Beverage Plant Weekly Water Ladder

How do we do it?

Create a complete ladder identifying water usage. Cost impact and discharge quality grade for each user in the whole site.

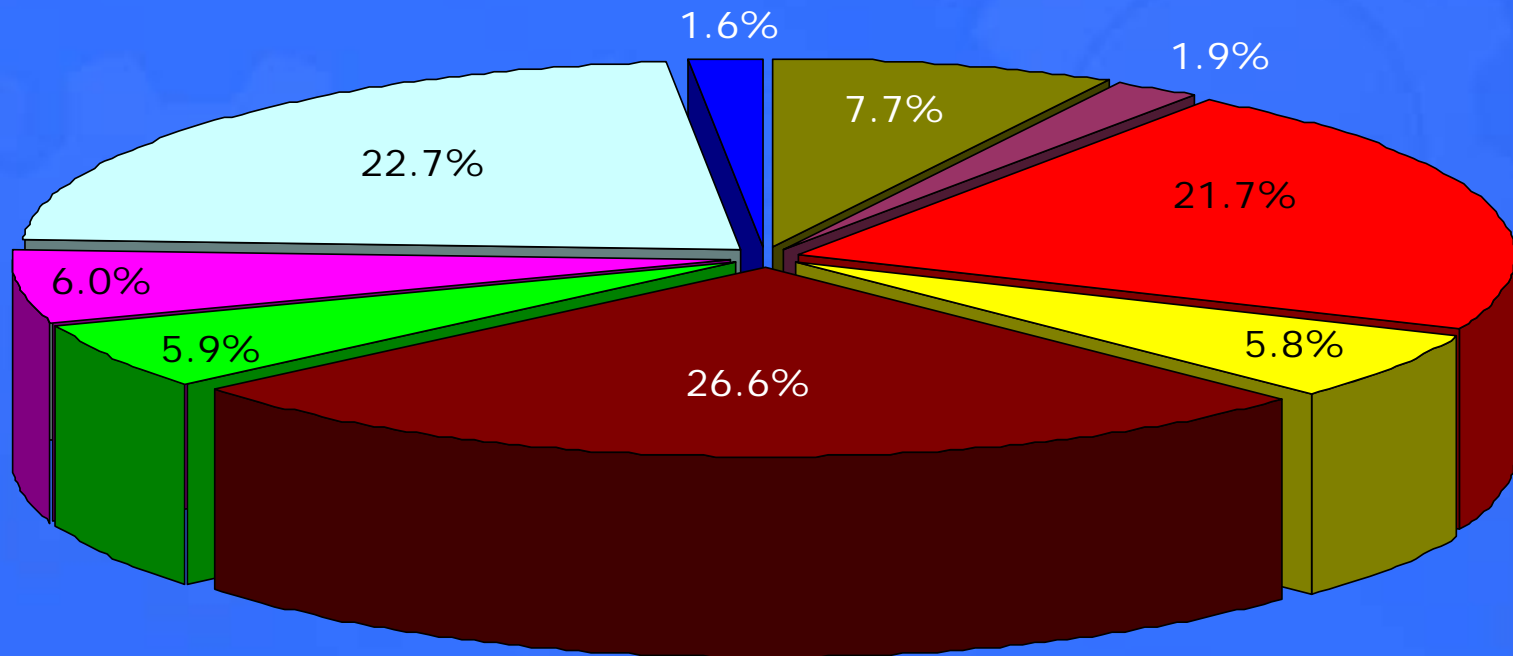
Identify individual water savings opportunities using non intrusive flow meters and knowledge of best practices

Analyze data and benchmark against known industry standards and Best practices.



	Kgal	\$	Grade
Water In Product	1,927	5,816	
UF Concentrate Water	501	3,109	2
Carbon Filter Backflush	15	94	3-1
CIP Tanks	36	228	4-1
Filler CIPs	56	353	4-2
Not Logged CIPs	14	87	
Flush Water	36	224	4
Filler Latch Sprays	26	163	2
Vac. Pump	43	272	2
Chlorination	20	42	-
Boiler MU Water	29	62	4
Boiler Softener Regen	0.7	4	3-1
Track Treat Feed Water	58	317	4
Softener Regen	1.3	7	3-1
CT's and Ammon. Comp.	259	1,153	2
Hose Station	16	132	
Hose Station (valve leak)	50	427	
Employee Services	39	212	5
Can/Bottle Warmers	59	318	4
Can Rinsers	217	1,166	2
Filled Can Rinse Spray	24	127	3
Crate Washer	8	44	
Pump seal Water	56	299	1-2

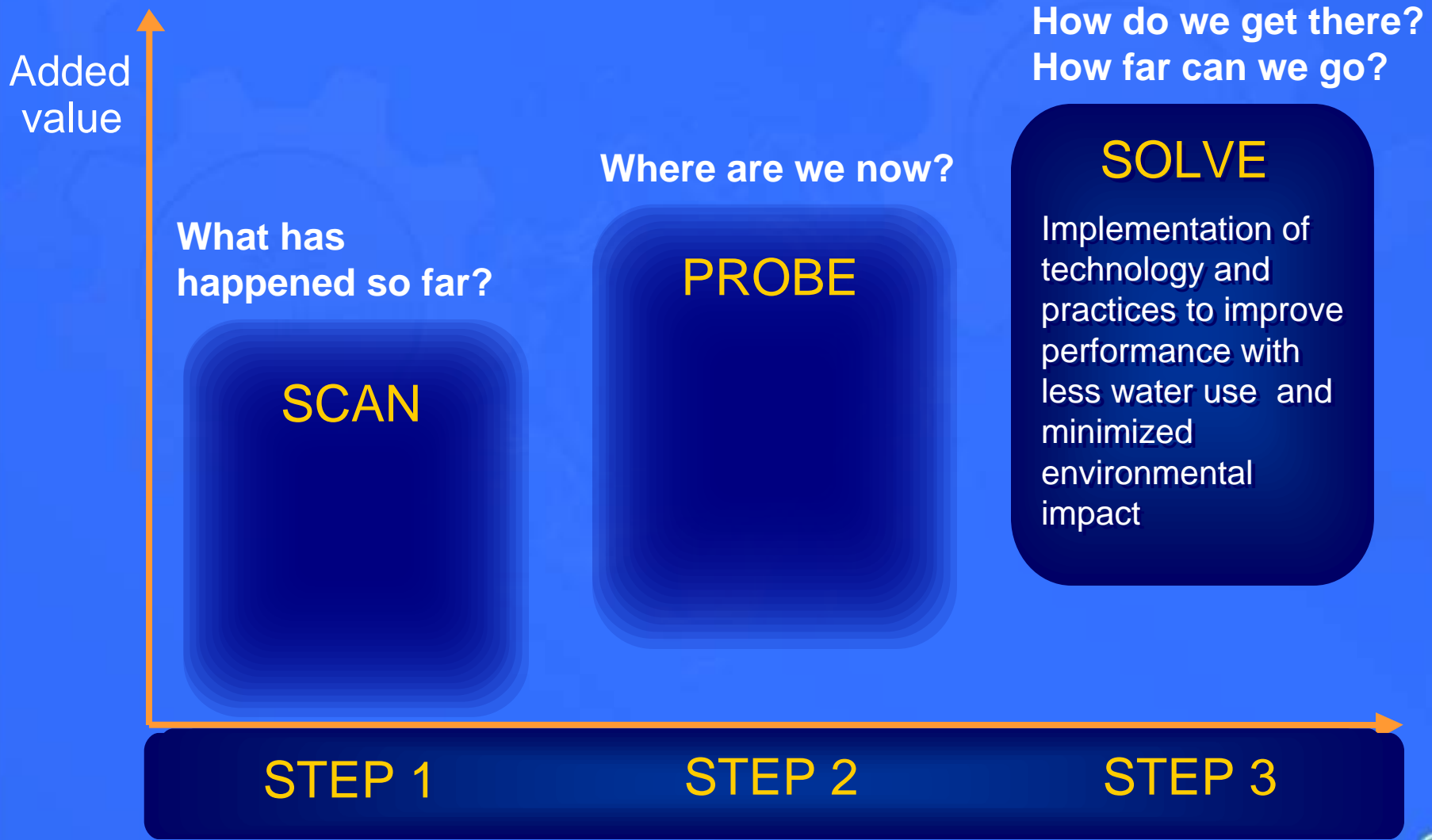
Water Use By Department



- LIVE BIRD INTAKE
- EXECUTION AND BLEEDING TUNNEL
- SCALDING AND PLUCKING HALL
- WAX IMMERSION
- EVISCKERATION
- OFFAL ROOM
- SPIN CHILLER ROOM
- SERVICES
- Other



A Systematic 3 Step Approach



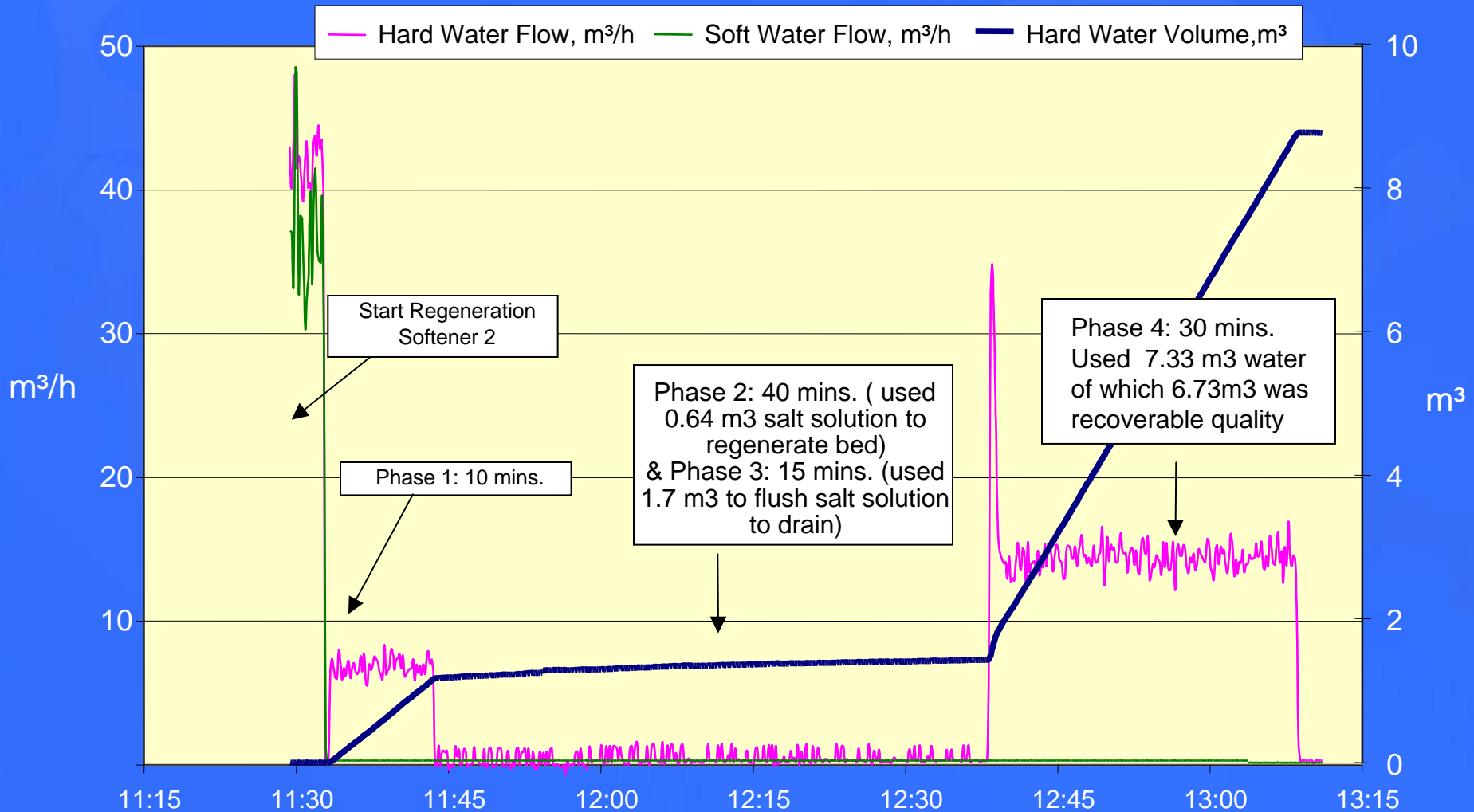
Step 3 Solve Implementation -making the difference

Develop a 2 year implementation plan based on the recommendations from PROBE

- realistic, detailed "point source" solutions
- Attacking at the root cause vs. end of pipe
- Identifying water reuse, recycle and waste management opportunities
- Supporting hygiene standards
- Maximizing water use efficiency
- Implementing environmental responsible solutions (based on water & waste minimization strategy)
- Targeting of global best practices that conform with measured need
- Identify metrics to verify impact of and to sustain improvements

SOLVE

Water Softener Regeneration



What have we learned over the last few years ?

- ❖ a structured approach is required
- ❖ metrics matter but you must understand the measures, and using metrics on an ongoing basis helps to sustain performance
- ❖ benchmarking helps to define the magnitude of the opportunity but must be used wisely
- ❖ impact (total site) analysis of projects is vital to ensure expected financial return
- ❖ no cookie cutter approach but specific 2-3 year plan based on measured need and fit with strategic business plan for the site
- ❖ understand the specific site and the production and water use demand variability over time
- ❖ experience counts, teamwork is essential

aqua



- ◆ a re-audit schedule to verify continuous improvement, to establish a new baseline, and to define new targets ...



Continuous improvement.

Water resource management
..is the responsible thing to do
... it makes good business sense to do it.

'Industry Taking Action ...
...making every drop count'

' Together we can
make the difference '