



**National Water and Wastewater
Benchmarking Initiative**

Canadian National Water and Wastewater Benchmarking Initiative: Using Process to Drive Improvement

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Canada's Water Sector



- Water services are advanced, and almost all Canadians have access to clean water. (World Water Council ranked Canada 1st out of 147 countries on the Water Poverty Index (2002))
- Water, wastewater and storm water is a Municipal responsibility.
- Provincial government acts as Regulator. Little direct Federal Government involvement.
- Water sector professionals are highly trained, well paid and dedicated.
- Growing focus on efficiency and continuous improvement



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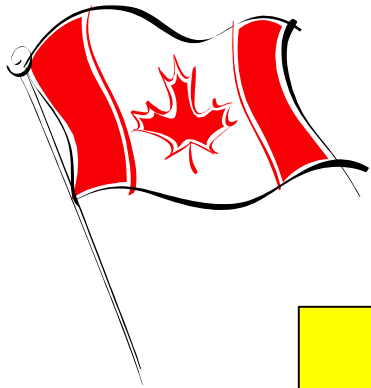
Canada's Water Sector



- Limited public support for private water and sanitation service provision
- Largely funded by customers through rates (limited government subsidization)
- High customer expectations: Water is an emotional issue in Canada, and universal access is a “right”.
- Ageing infrastructure: Many systems are approaching 100 years or more, with few plans for renewal.
- “Asset Management” philosophy becoming widely accepted, but not yet implemented .



Meet our Typical Water/Wastewater Utility Manager in Canada



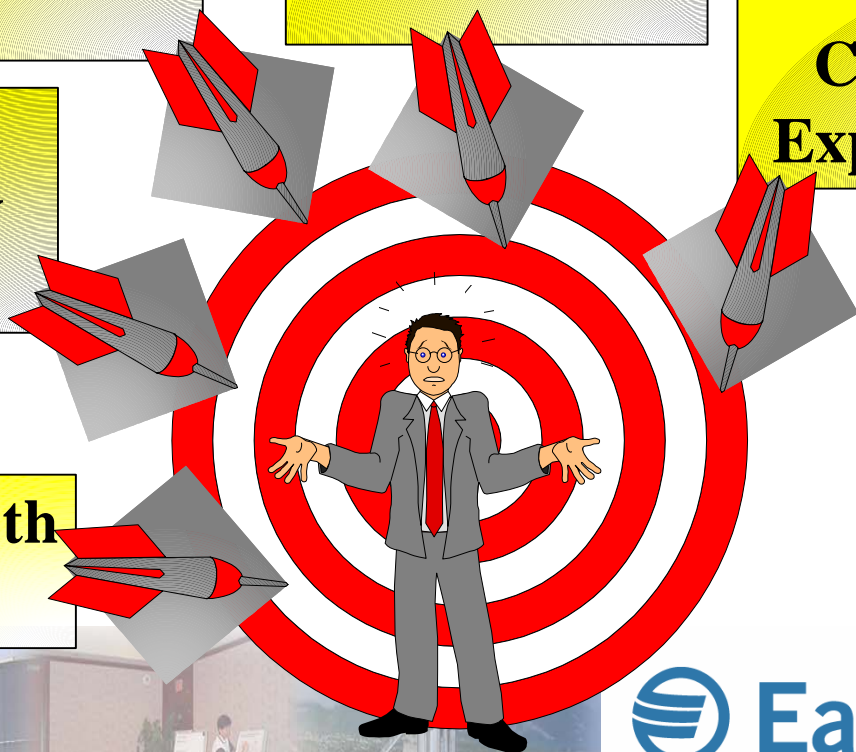
Financial Constraints

Aging Infrastructure

Rising Customer Expectations

Stringent Regulatory Standards

Do More with Less!



What is Benchmarking?

- Provides a comparison of performance against other utilities, norms or standards
- Provide and information base to make strategic decisions to improve your utility



- How well are we doing?
 - How well do we compare?
 - Are we getting value for money?
- AND**
- How can we improve?



Why Benchmarking and Performance Measurement?

- “You cannot improve what you do not measure”
- It is the starting point for all performance improvement programs
- It allows you to make valid comparisons
- It is the scoreboard where all strategies are ultimately evaluated



The Challenge in 1997:

- There are no common industry wide performance metrics.
- Public expectations for quality and service are increasing, but willingness to pay is actually decreasing.
- Fear of privatization.
- Understanding that improvement is possible and necessary, but where to begin?



Canadian Wastewater Utility Pilot Scale Benchmarking: 1998

- Start very simply, and test only key high level metrics;
- Resist the temptation to drill into too much detail;
- Stay focused on the high level for now;
- Prove the methodology, before jumping to performance-based conclusions.



Early Key Success Factors

- Very high level of cooperation amongst founding partners (4 municipalities, consultant, and NRC);
- Open sharing of information and ideas;
- Willingness to experiment, and pilot new ideas. Change on the fly if necessary;
- Patience: Prepared to make investment of time and energy.



Key Early Project Milestones

- 1998: Pilot scale involving 4 major Canadian municipalities;
- 2001: Major expansion to include 35 Canadian cities in water, wastewater and stormwater benchmarking;
- 2003: Awarded American Public Works Association (APWA) Management Innovation Award;

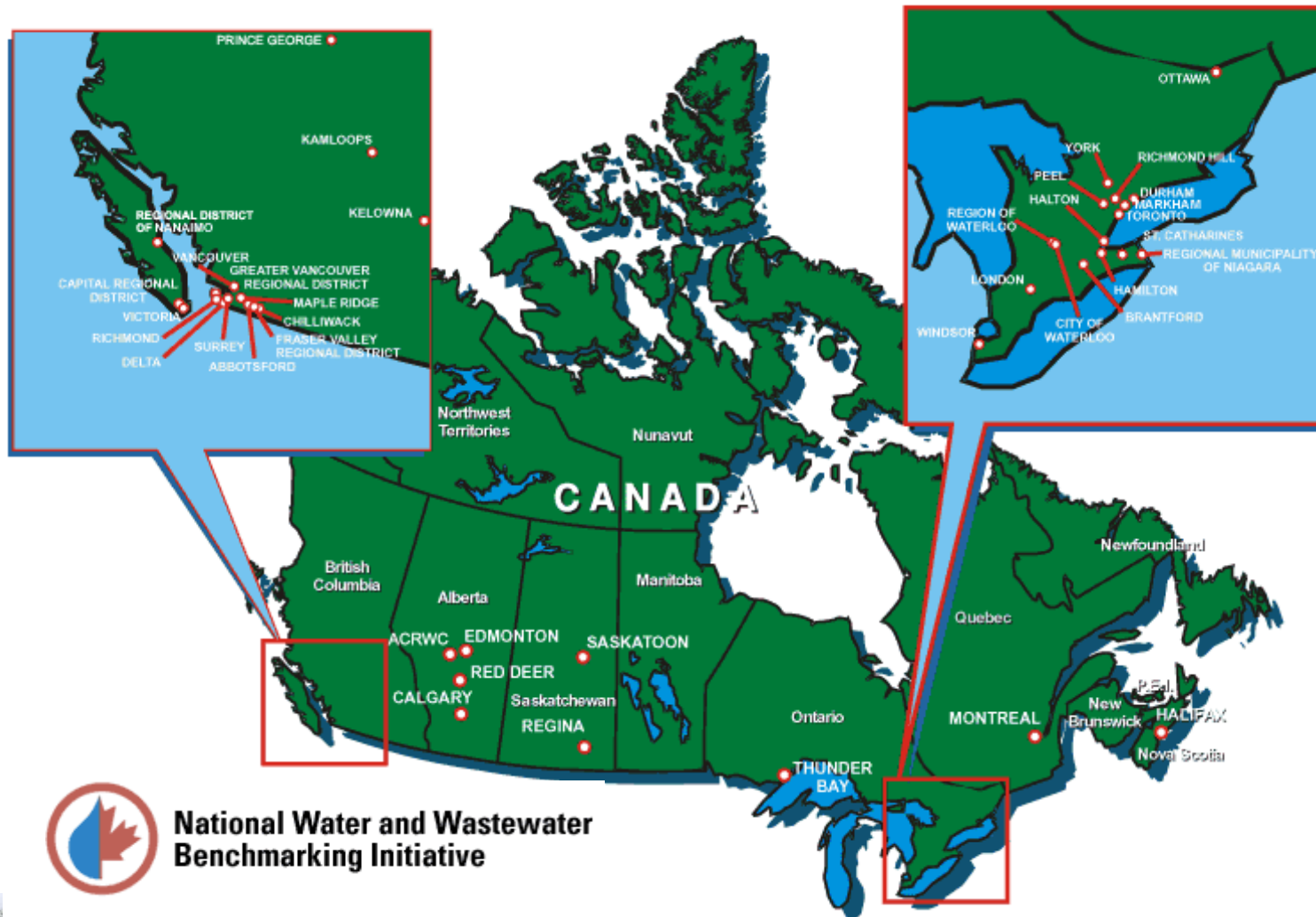


Key Recent Project Milestones

- 2005: Commencement of process benchmarking (in asset management);
- 2005: NWWBI Methodology piloted in South Africa;
- 2006: NWWBI Methodology piloted in Malaysia ;
- 2006: NWWBI Methodology adopted in South Africa (SALGA);
- 2006: Commencement of International Comparator Benchmarking.



Canadian Benchmarking Initiative



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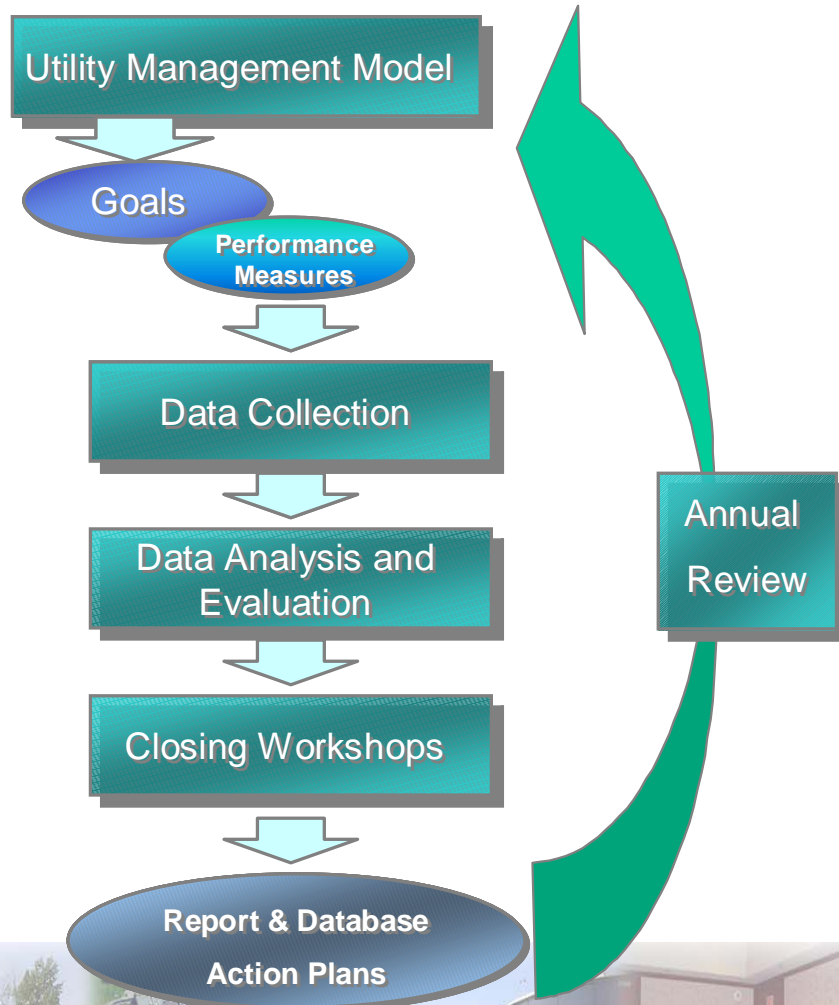
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Our Benchmarking Challenges

- “Coast to coast” spans 5 times zones
- Climate range: Mediterranean to Sub Arctic.
- Temperate rainforest (1,219 mm annual precipitation) to arid (336 mm).
- Utility Service populations range from 35,000 to 3 Million people.
- Mostly urban and suburban regions



Annual Benchmarking Cycle



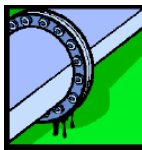
- Conventional methodology
- Annual cycle
- Great care taken to ensure each task is completed thoroughly
- Key milestone checkpoints



Benchmarking Module Structure

WATER

- Water treatment
 - Filtered
 - Unfiltered
- Water distribution
 - Transmission
 - Distribution



WASTEWATER

- Wastewater collection
 - Trunk
 - Collection
- Wastewater treatment
 - Primary
 - Secondary



STORMWATER & DRAINAGE

- Stormwater Drainage
- Stormwater Retention & Treatment

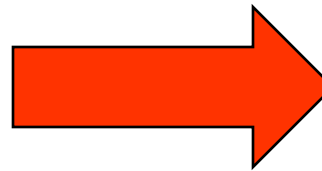


Utility Management Model

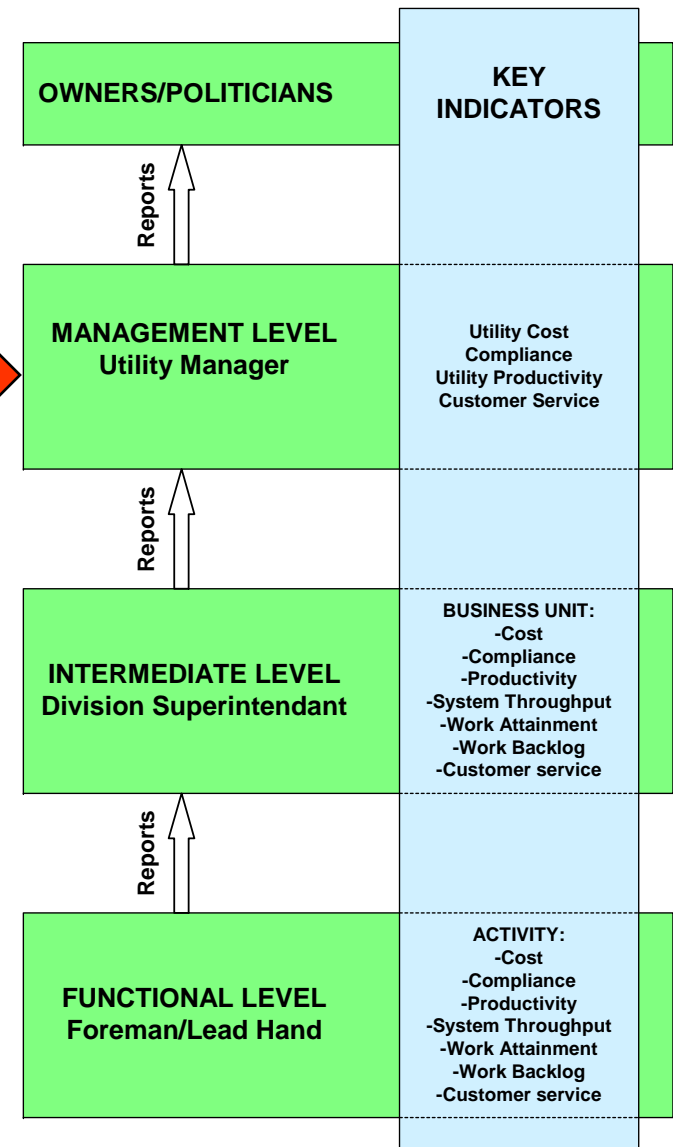
- Critical Utility Reporting Levels: Most utilities have 4 including “Owners”



National Water and Wastewater Benchmarking Initiative



- We focus on the “Managers Level”
- This allows us to drill into lower levels for Process Benchmarking



Canadian Water/ Wastewater Utility “Goals”

1. Reliable and sustainable infrastructure
2. Provide sufficient capacity
3. Meet service requirements at sustainable cost
4. Protect public health and safety
5. Provide a safe and productive workplace
6. Have satisfied and informed customers
7. Protect the environment and minimize environmental impacts



Good Performance Measures:

- Focus on a result: The result of the PM should provide you with information
- Must measure attainment of one or more of the utility goals
- Must be practical and data must be obtainable
- Accuracy must be tested over time
- Scalable to utilities of different sizes and/or local conditions
- Resistant to misrepresentation (cheating!)



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Example PM: Definition Detail

Total Operations &
Maintenance Cost /
km Length of
Distribution system

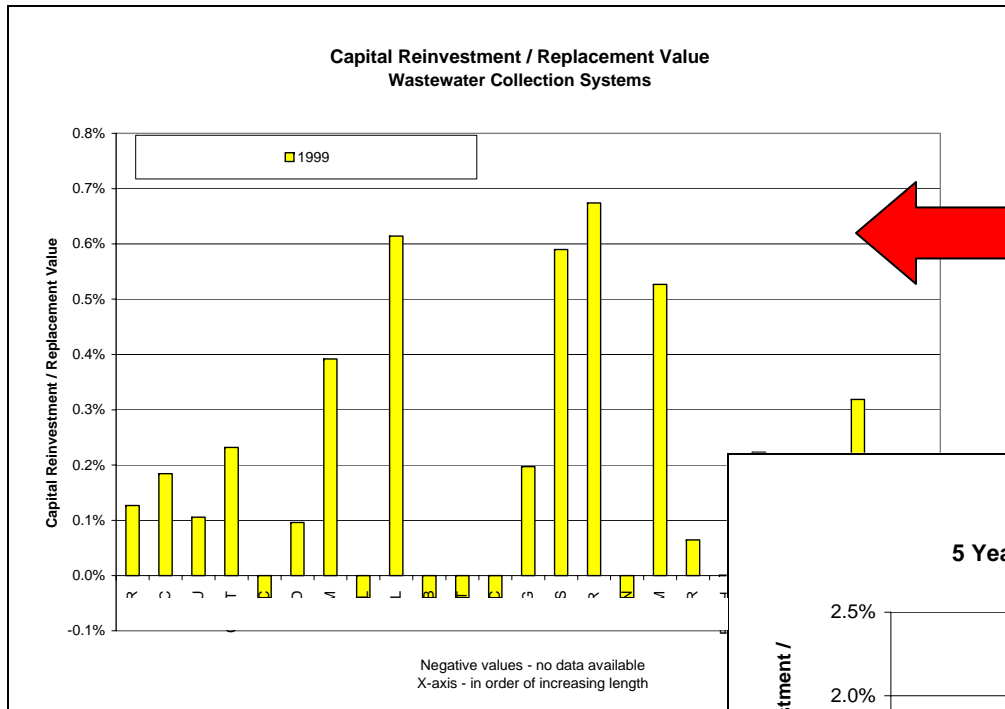
- **Sum of the actual O&M costs** incurred in the operation of the distribution/transmission/ integrated system (excludes capital costs, indirect costs, transfers to reserves and debt/interest charges). Includes O&M costs for both linear (pipes, meters etc) and non-linear (pump stations, reservoirs etc) infrastructure. Revenues are only included where they are recoveries for work done by water distribution staff that is extraneous to the utility (for example, lab tests for other utilities).

- **Total length of mains** in the distribution system (i.e. excluding length of service connections). For the distribution system length include all connecting pipes between pump stations, rechlorination facilities and storage facilities if these are located within the distribution system. For the transmission system length include all connecting pipes between pump stations, rechlorination facilities and storage facilities when located between the source and the treatment plant or between the treatment plant and the distribution system.

Detailed definitions
are vital to ensure
valid comparisons

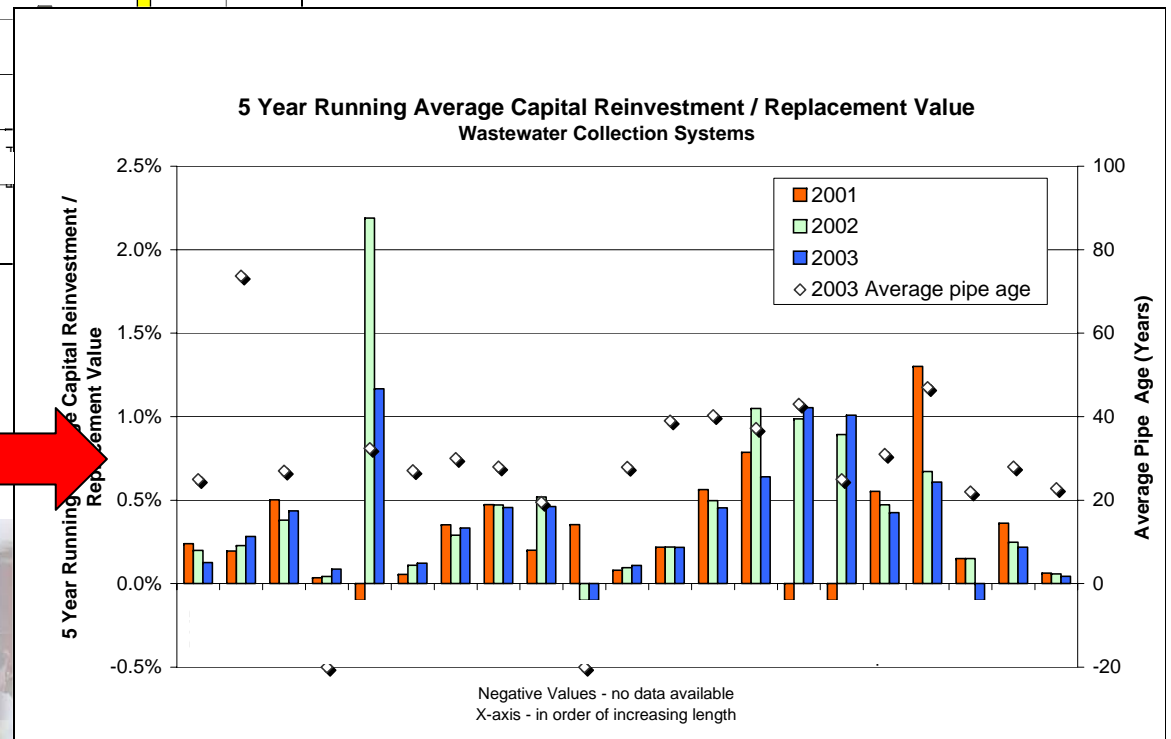


Data Quality Improves with Repetition

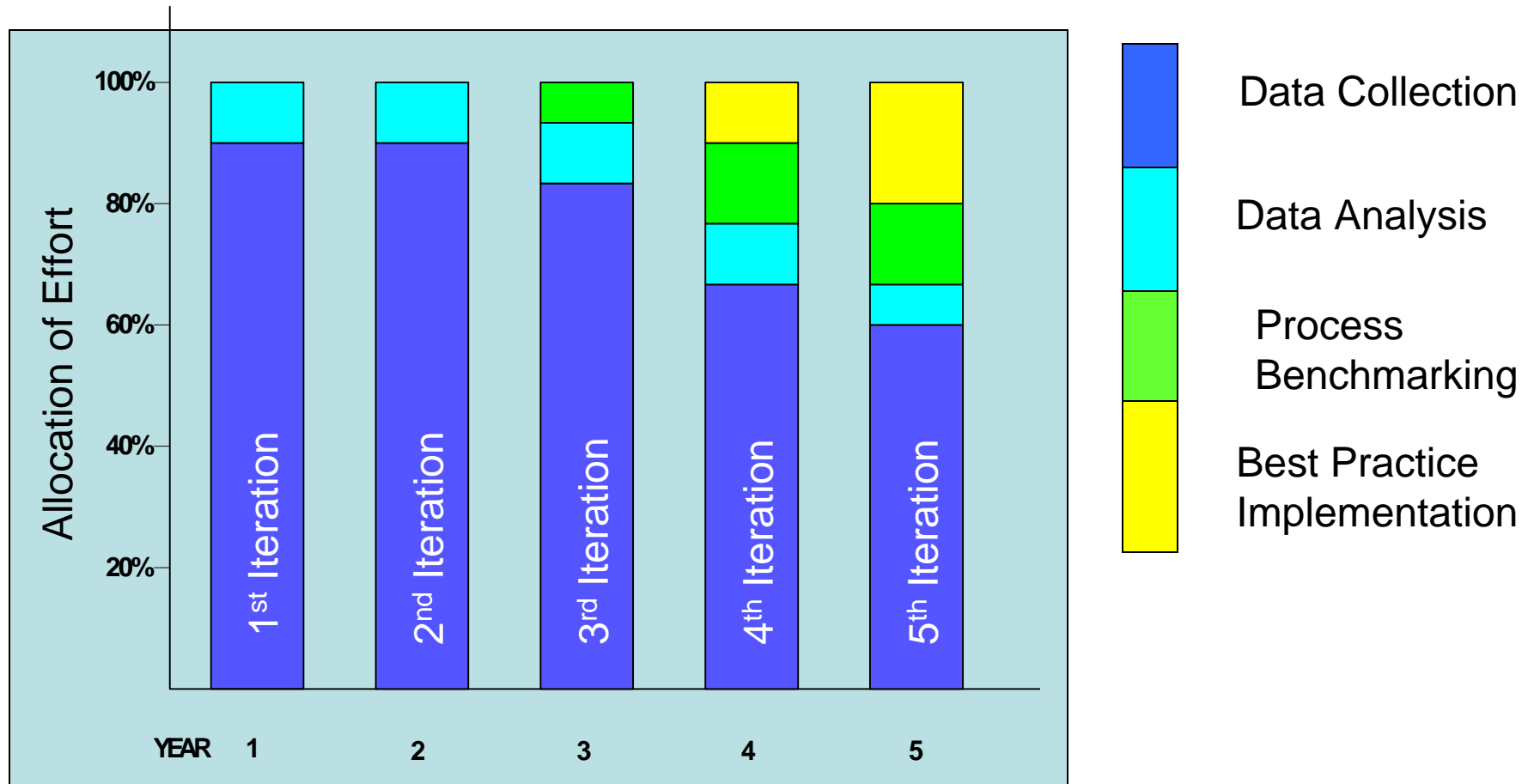


1999: Data is vague,
and incomplete

2003: Data is clear,
and accurate

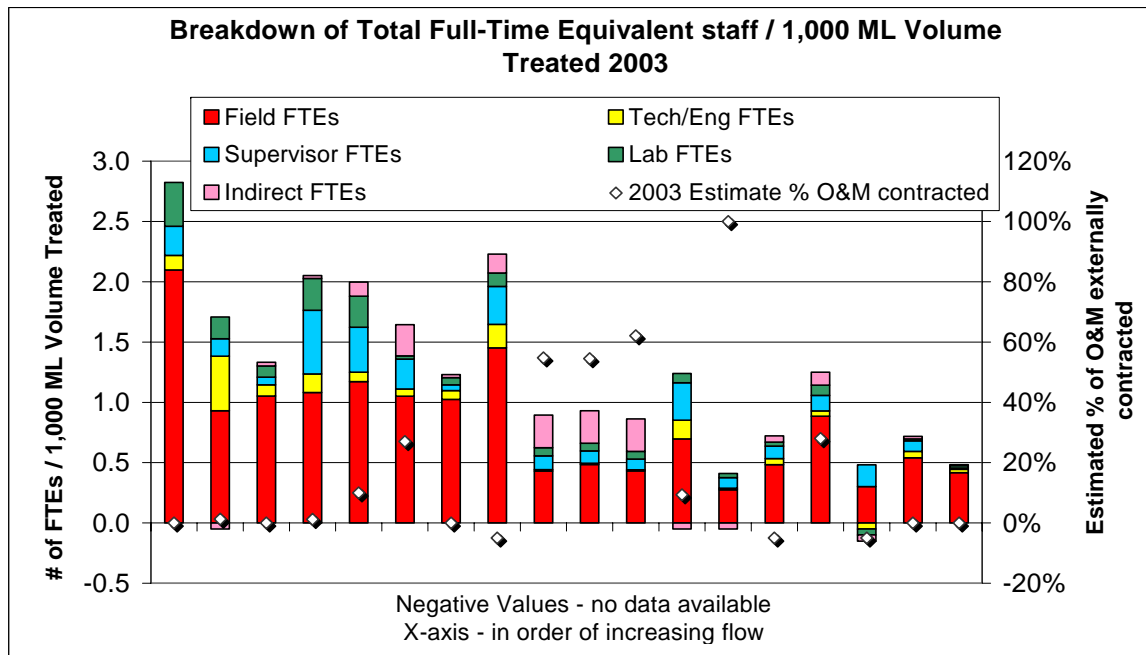


Results and Payback Takes Time

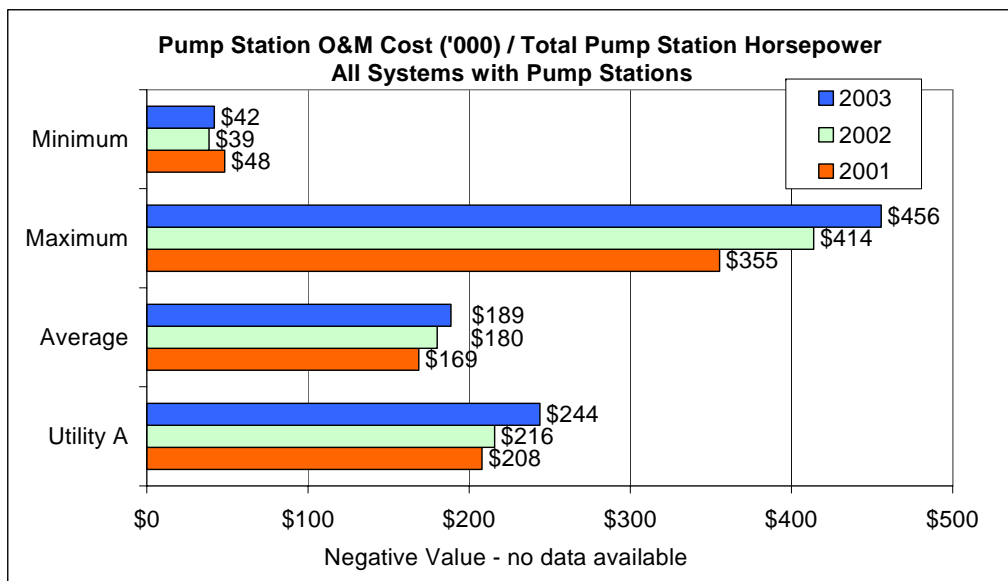


Example Output Chart: “Target Group” Graph

- Shows detail regarding the entire group
- Useful for making quick multi-agency comparisons



Example Output Chart: Min, Max, Average Graph



- Useful for examining one agency's result in more detail
- Multi-year trend line is of key importance
- Tends to grade against the "average", instead of a target.

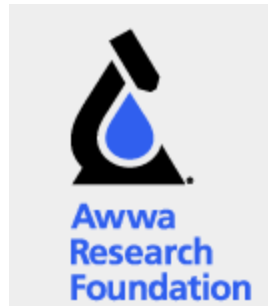


In All Cases:

- Benchmarking “results” are only a start;
- You need to look “behind the graph”;
- NWWBI graphs are not blinded, so you can clearly see which utility is leading;
- Only by discussing the results and getting more information can you begin to identify specific process changes.



Collaborate with other Agencies

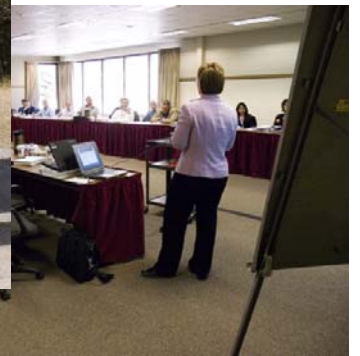


Annual Benchmarking Workshop

- Debrief results; affirm/modify methodology annually; set future project objectives;
- Critical peer to peer networking;
- Involve other Best Practice agencies;
- Not a conference: hard work, but fun;
- **CRITICAL FOR LONG TERM SUCCESS!**



2006 Workshop: Banff, Canada



Finally: Performance Improvement

- Performance Measure or Benchmarking mean nothing if you don't do something with the results.
- To improve, you have to change, and change is always hard.
- Strategy: Start with some quick wins to get buy in, then move to more ambitious improvement programs.



Benchmarking

*“Benchmarking is the practice of being humble enough to admit that someone else may be better at something, and wise enough to learn how to match and **EVEN SURPASS THEM AT IT”***



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Questions?

This presentation is available for downloading at:
www.nationalbenchmarking.ca

