

***Canadian Water and Wastewater Association
Association canadienne des eaux potables et usées***

Protecting Municipal Wastewater Streams

(When Do We Start Working Together?)

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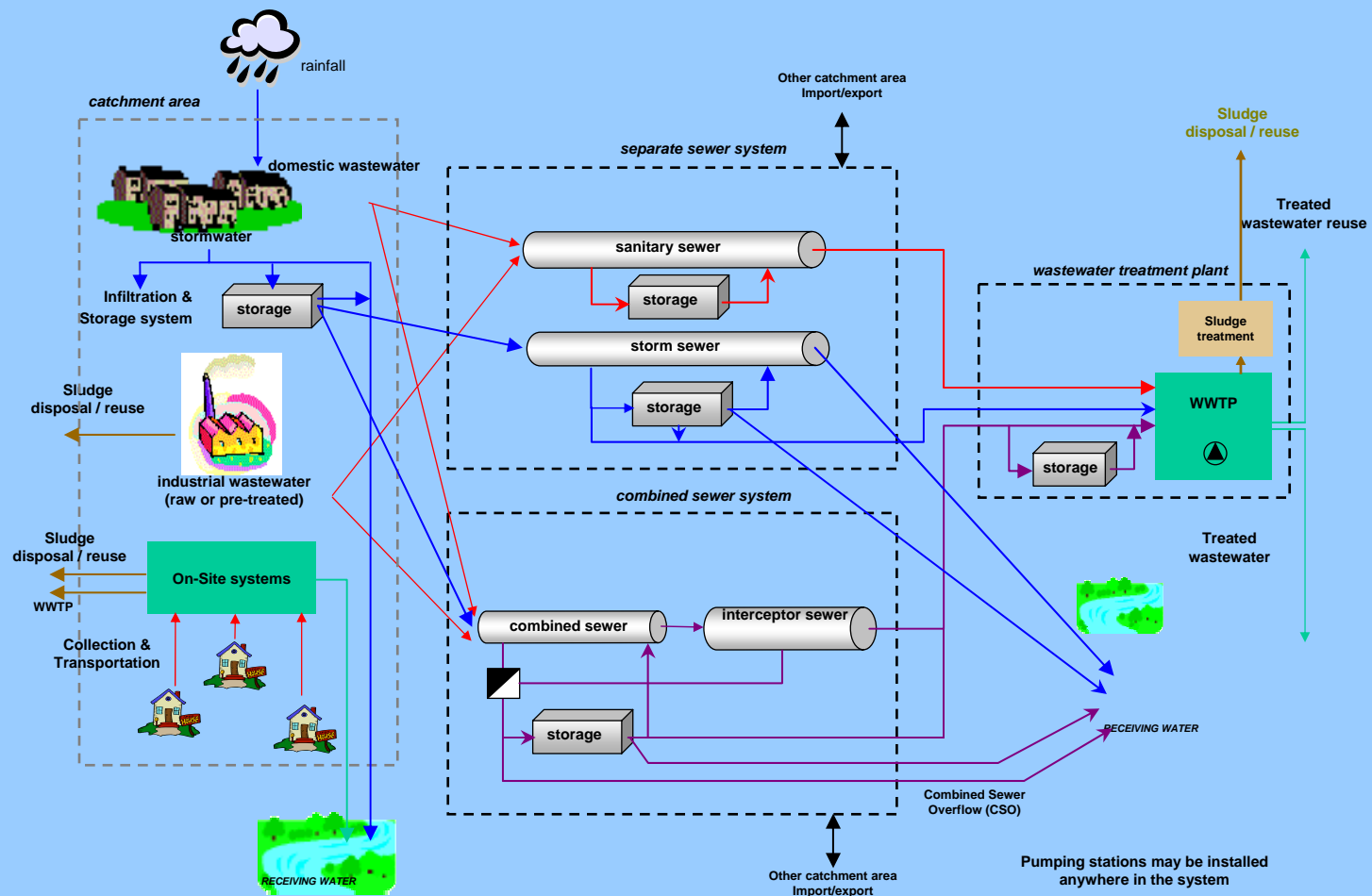
What and Why Wastewater?

- **Wastewater:** water that is being discarded after use or which has been collected but not used – in both cases they often contain substances of environmental concern - pollutants.
- **Sources:** stormwater, septage, sanitary and other discharges to sewers.
- There are **Products** (biosolids and treated wastewater) and **By-products** (emissions, sludges and effluents) of wastewater systems.

Wastewater Systems

- Wastewater systems are complex and full of options and variations.
- They include in their range:
 - Simple stand-alone systems (rural septic tanks),
 - “Decentralized” systems (communal small systems),
 - Large central systems.
- They are all linked

Schematic of a Wastewater System - IWA



What Regulatory Agencies are Involved?

- **Municipal:** by-laws, public health, codes, utilities, etc.
- **Provincial/Territorial:** environmental impact assessment, environmental protection, municipal affairs and financing, health, natural resources, and utility review boards, etc.
- **Federal agencies:** environmental assessment, environmental protection, fisheries and coastguard, infrastructure, etc.

Within the agencies there are often multiple programs.

Is there a Common Purpose?

- Nominally, YES – protection of public and environmental health and safety.
- Practically, NO – each agency, each level of government is working within its own “silo”, driven by its own imperatives, and generally not considering impacts outside their silo.
- *This extends to sub-programs with individual agencies.*

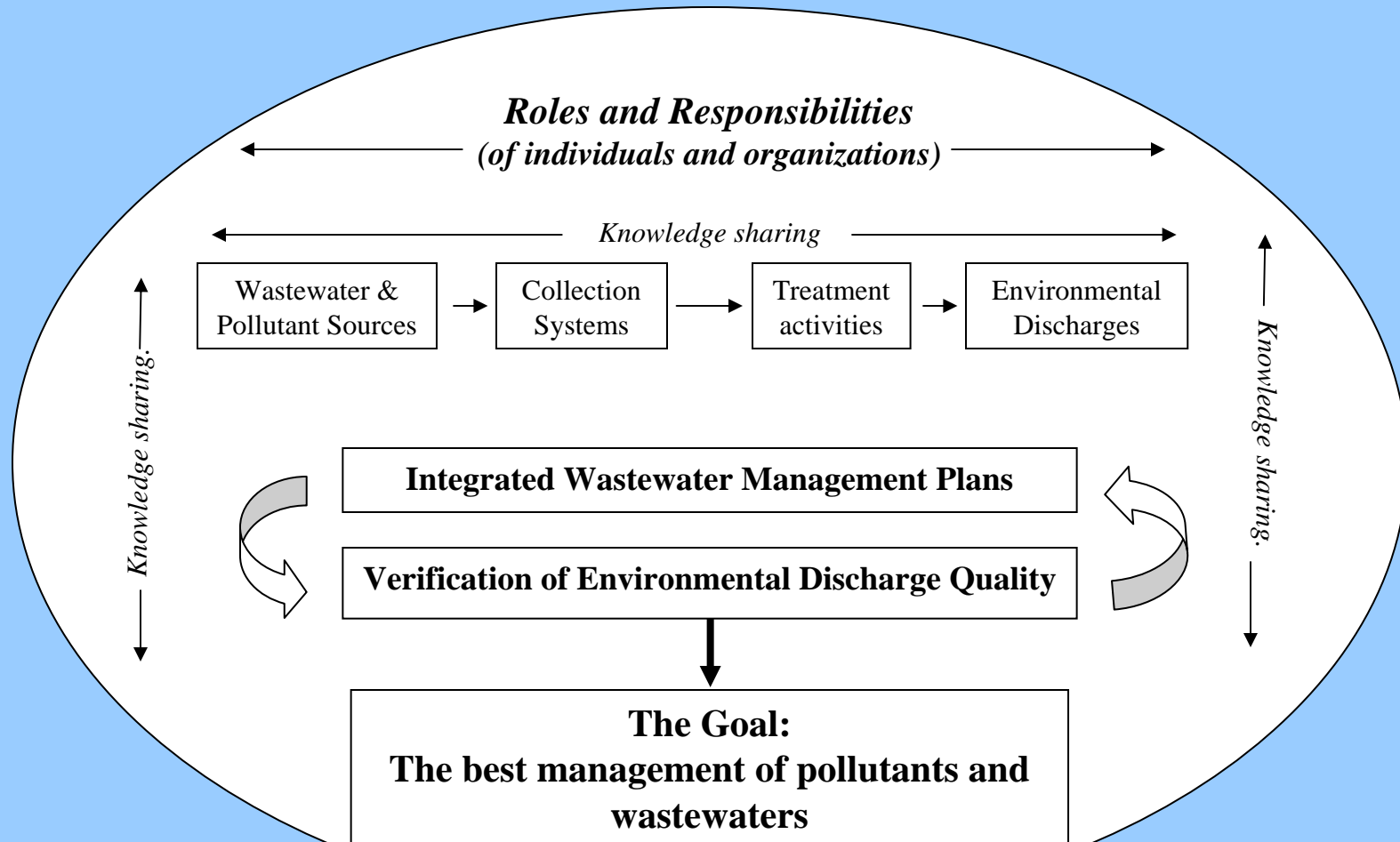
Is there a Solution?

- Nominally, YES – but it will take time and effort.

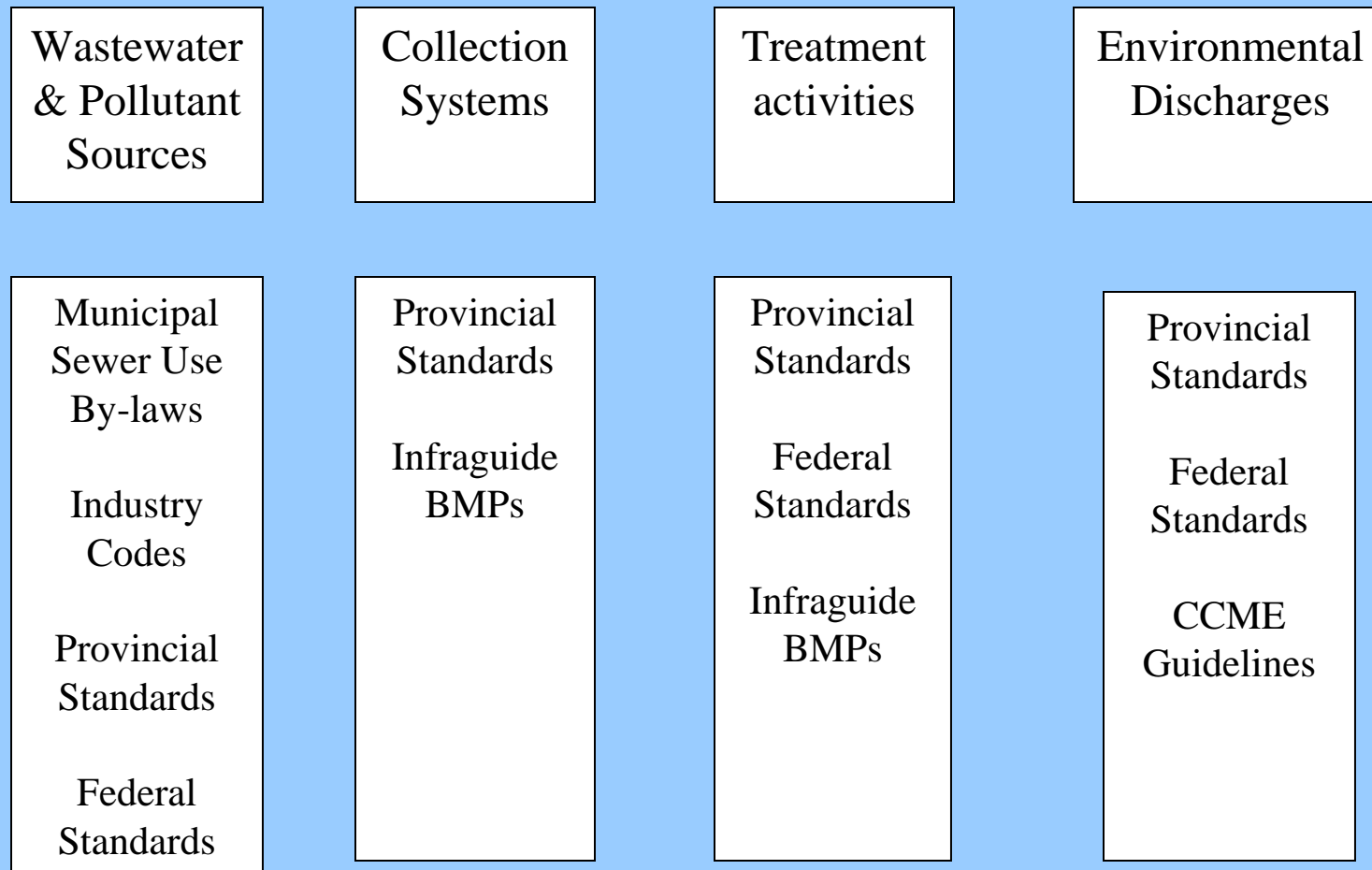
What is needed?

- A national vision and plan.
- Political commitments and direction.
- Cross- and intra-jurisdictional collaboration and adjustment.
- Co-operation with [small] industry, commercial and institutional operators and entrepreneurs.

The Montréal Charter for Wastewater Management



Regulatory Involvement



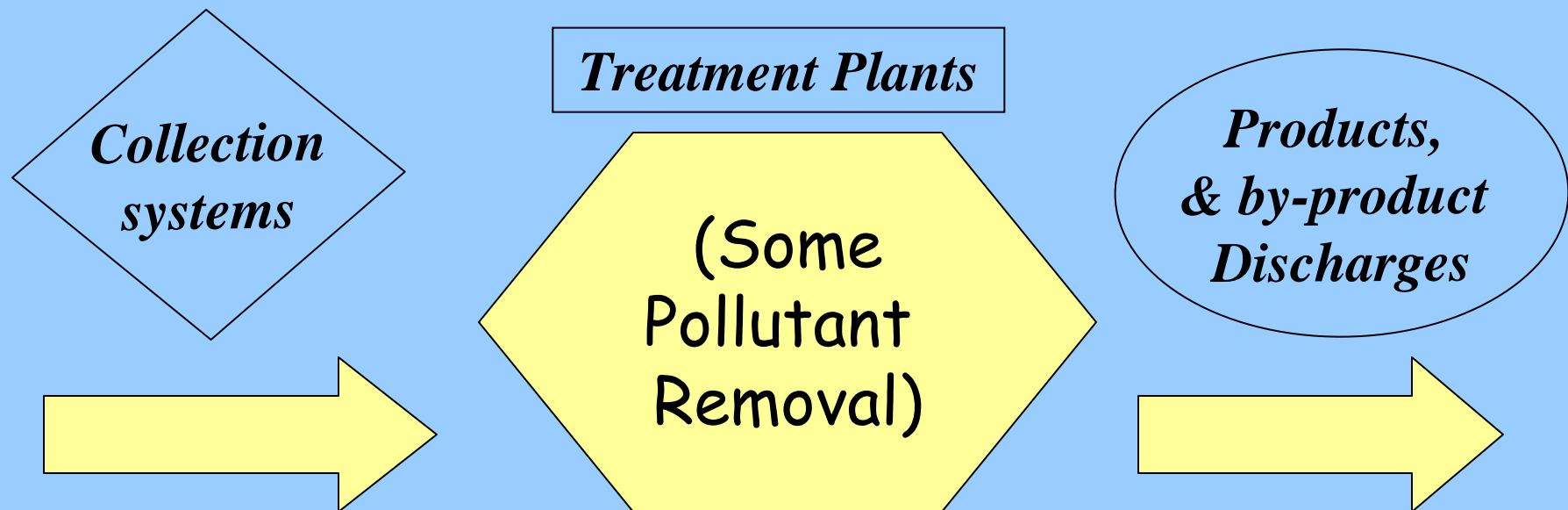
The Questions and Challenges

- Is this a reasonable assessment and description of the wastewater management system in Canada?
- Are all the pieces of the policy and legislative jig-saw identified?
- Can we assemble a coherent framework and a common set of goals?

The Basic Wastewater Situation

**Pollutants in
storm, sanitary &
ICI discharges**

**Pollutant residuals
in biosolids,
sludges, effluents
and air emissions.**

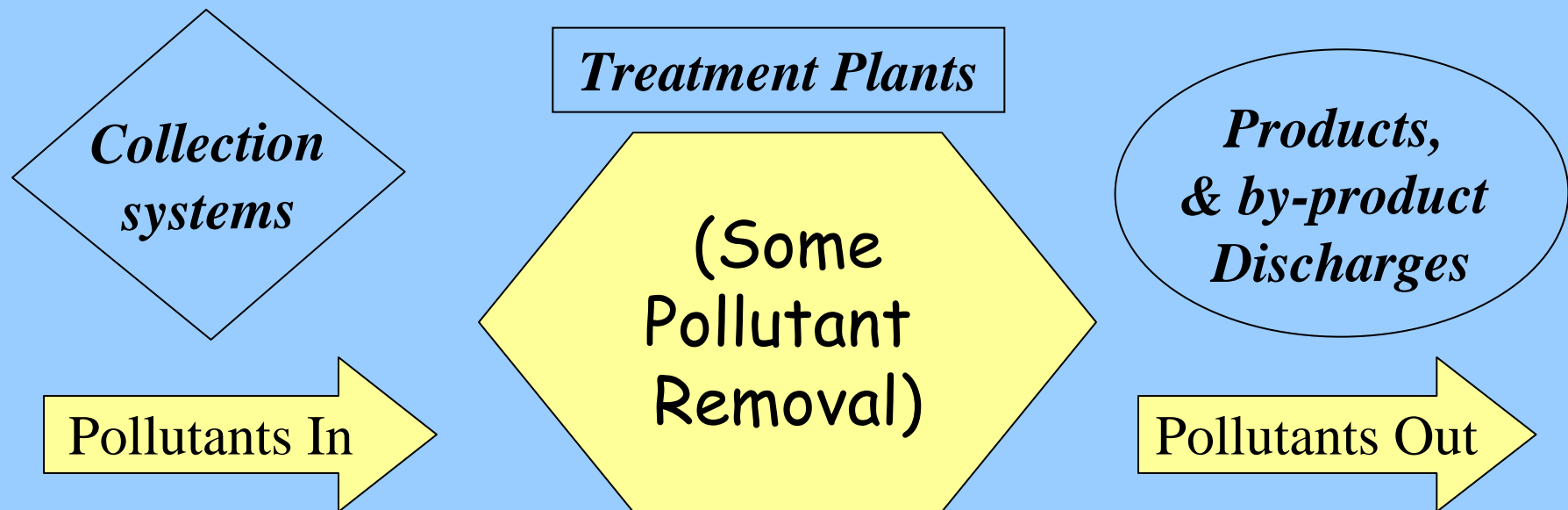


Provincial/Federal Levels of Effort

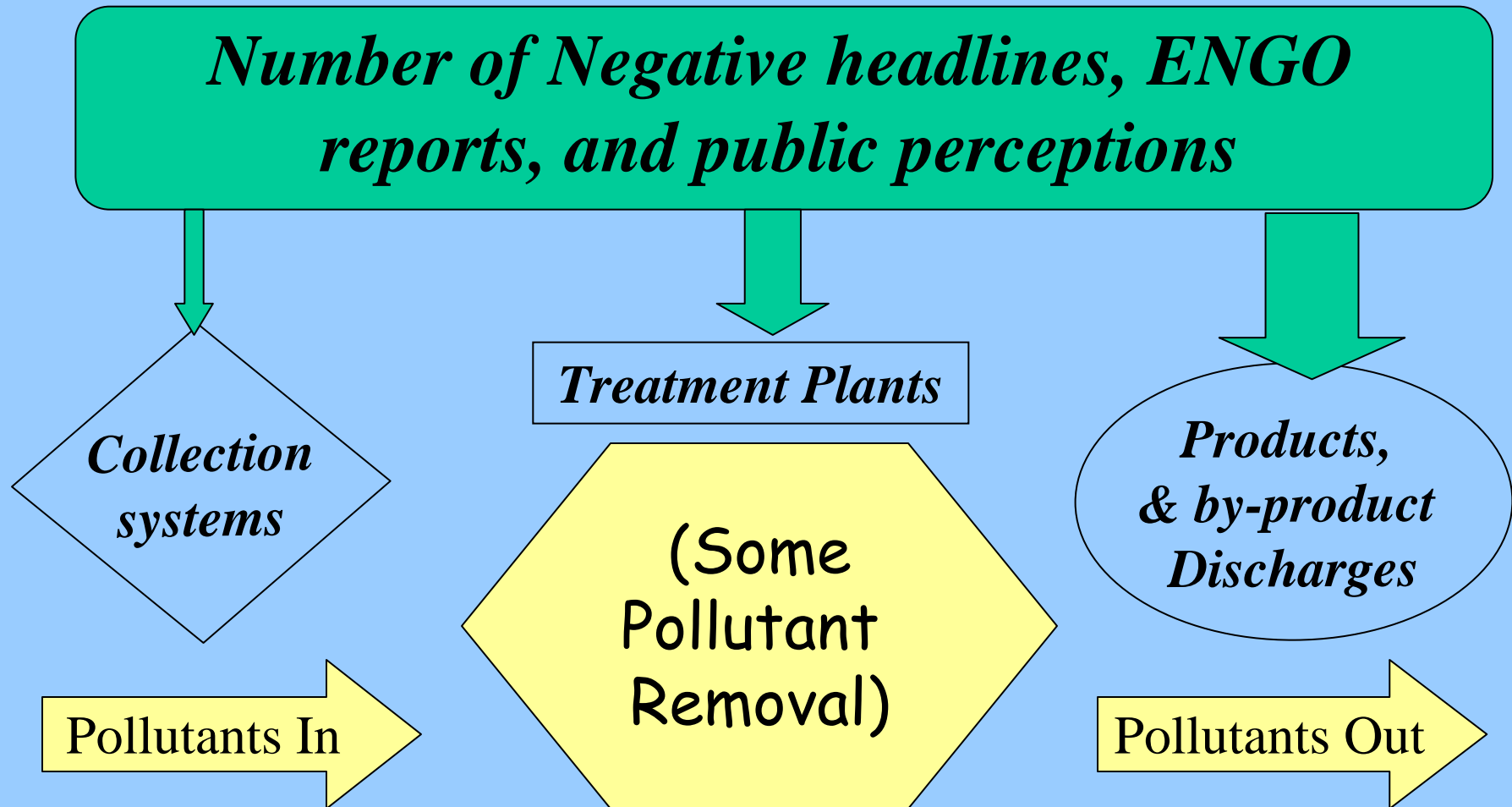
**Minimal standards,
program efforts and
capability.**

**Focus of
provincial
standards.**

**Principal areas of
compliance and
enforcement.**



The Results



Current Issues & The Conclusion

- Pharmaceuticals and personal care products in environmental waters from wastewater effluents (*latest – PCB-like chemical residuals from [unnecessary] bactericide soaps*).
- Toxic/heavy metals in biosolids.

Conclusions – Municipalities are doing an inadequate job and should invest more in wastewater treatment plants.

The Municipal Situation

- Many municipalities are implementing source control programs, but....
- They have inadequate powers to do so,
- Their resources are limited,
- The historical infrastructure is not suitable,
- Some industry threaten re-location.

CWWA's Conclusions

- The focus is on the wrong end of the system – *what don't you understand about “it's not the end-of-the-pipe that is the problem!”*
- “Prevention of pollution” has not truly reached discharges into the sewer!
- “Fate analysis” of commercial, consumer and industrial products and chemicals has been and remains inadequate!

CWWA's 1998 Proposal to Environment Canada and CCME

Five new tools needed to assist municipalities:

- *A Directory of Contaminant Sources* - ✓
- A catalogue of contaminant detection devices and test protocols.
- Performance based pre-treatment device standards - ✓
- An assessment of contaminant removal capabilities of various treatment technologies and processes.
- A model sewer-use bylaw.

Institutional Needs

- Recognition by senior governments that municipalities are part of the solution and not just the problem!
- More power has to be assigned/devolved to municipal staff to act as the front line troops in controlling pollutants at source.
- At the minimum, sewer use by-laws have to be provincially set and enforced.

What more?

Senior level governments must:

- understand the fate of chemicals entering sewers, and either
 - Control the use of these in products and processes, or
 - Explain the risk-benefit situation, and
- be credible and reliable spokespersons.

What more? – Back to the Wild Idea!

POU / POE Drinking Water Treatment Devices

- 7 ANSI / NSF performance-based standards
- More than 100 “drinking water contaminants”
- Challenge waters 3 or 10 times the desired contaminant level,
- Test protocols replicating the unit’s operating conditions,
- Product water standard = the US EPA MAC,
- Certification and manufacturer markings, instructions and information.

More on the Wild Idea!

The dream:

- Provincial or federal standards on ICI sewer discharge MACs
- Performance-based standards for off-the-shelf pre-treatment devices (PDIs) suitable for SMEs and institutions,
- Provincial or federal standards for the installation and maintenance of (PDIs),
- Municipal inspection activities,
- Non-compliance a provincial or federal offence,
- Municipalities receive part of the fines.

A Specific Current Initiative

CSA TC B481 Pre-treatment devices for Fats, Oils and Greases.

- The second performance-based standard
 - challenge influent,
 - defined removal test protocol, and
 - effluent (product) water standard
- Considerable argument between device manufacturers and municipal regulators.

Needed: A Pre-treatment Partnership

- CWWA and CSA are exploring the possibility and are seeking:
 - Industrial and commercial partners
 - Senior level government partners
 - Other NGO partners
- A long list of potential devices to remove:
 - Metals
 - VOC and hydrocarbons
 - Solids