



**CANADA-WIDE STRATEGY FOR THE MANAGEMENT OF MUNICIPAL
WASTEWATER EFFLUENT AND ENVIRONMENT CANADA'S PROPOSED
REGULATORY FRAMEWORK FOR WASTEWATER**

IMPACTS FOR FIRST NATIONS COMMUNITIES

A REPORT FROM

THE ASSEMBLY OF FIRST NATIONS • ASSEMBLÉE DES PREMIÈRES NATIONS

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EXECUTIVE SUMMARY

At the present time wastewater management in Canada is subject to a variety of policies, by-laws and legislation at the federal, provincial/territorial and municipal levels. This often creates confusion and complex situations for regulators, system owners and including First Nations operators. The Canadian Council of Ministers of the Environment (CCME) has developed a Canada-wide strategy to address issues related to governance, wastewater facilities performance, effluent quality and quantity, and infrastructure needs in a way that provides consistency and clarity to the wastewater sector across Canada. The overall objective of the strategy is to harmonize these various regulations, policies, improve the protection of environment and human health.

The strategy is addressing municipal wastewater effluent from wastewater facilities including combined sewer overflows, the Model Sewer use by-law and sanitary sewer overflows. It does not cover biosolids, discharges from; separate storm water facilities, septic tank systems, pharmaceuticals, personal care products, air emissions or effluent reuse. The Canadian Council of the Ministers of the Environment (CCME) recognizes that improved wastewater management will increase the generation of biosolids. The impact on costs for biosolids management, storage, conditioning and disposal requires quantification. However, this will be addressed in due course.

The goals of the strategy support:

- A. Improved wastewater treatment designed to increase human health and environmental protection;
- B. Clarity in wastewater treatment requirements; and,
- C. Ensuring that funding for improved treatment is managed in an equitable and sustainable manner.

The Assembly of First Nations considers these to be worthwhile goals. However, the strategy has not enabled First Nations to adequately respond in a knowledgeable and informed manner due to lack of resources and sufficient time. There are many issues and practical jurisdictional matters which still remain unresolved. First Nations require resources and sufficient time to study the process and prepare a dialogue. There is a need for a joint participation of Chiefs and Councils, federal, provincial, territorial and municipal governments to work together at the same table and discuss issues of mutual concern.

Over the last three to four years Environment Canada has been involved in the development of the strategy working with the Canadian Council of the Ministers of Environment. Over the same time period Environment Canada has been providing general information to stakeholders and interested parties on its intention to develop regulations under the Fisheries Act. It was during this period when the Canadian Council of the Ministers of Environment through Environment Canada were urged to invite First Nations to be consulted.

However, the Canada-Wide strategy represents a major departure for the management of wastewater for First Nations communities without their involvement. Currently, Indian and

Northern Affairs Canada (INAC) and Environment Canada attempt to address First Nations wastewater quality through policies, guidelines and funding agreements and a draft protocol for Wastewater.

For the future, the strategy calls for a "one window approach" so that operators and facility owners will end up dealing with only one regulatory agency, namely Environment Canada. Unique to First Nations is the question of the legality of the CCME strategy, including which Act (i.e., *Indian Act*, *Fisheries Act*, others) takes precedence if conflicts between various federal and provincial regulations and/or legislation arise. This leads to questions about who (First Nations, INAC, Environment Canada, Health Canada, provincial governments, others) will be responsible for overseeing and administering the proposed regulations, and who will be responsible for assuring compliance and that environmental risk assessment processes are consistent with provincial policies. With respect to the latter, it is not clear whether First Nations communities will be considered the "owners" for the purposes of the proposed regulations. The question of ownership of wastewater treatment systems is one that is recognized as needing resolution by First Nations individually and collectively, as well as by other government agencies such as the Office of the Auditor General of Canada.

Furthermore, before contemplating any proposed regulations, uncertainty about the capacity and ability of existing First Nations wastewater systems to comply must be resolved. Information published by INAC suggests that the majority of First Nations wastewater systems need repairs or pose potential health and safety concerns. Without undertaking initial wastewater characterization, or wastewater composition, monitoring and appropriate action, First Nations communities are in danger of being "left behind".

New costs will be incurred as a result of the implementation of the strategy for such things as initial wastewater characterizations, monitoring and undertaking of Environmental Risk Assessments studies, increased monitoring, data management and reporting, collection, storage and transportation of samples to laboratories and last, but not least, costs to build First Nations capacity and upgrade wastewater systems to assure compliance. The issue of costs is a particular concern given that current operations and maintenance (O&M) funding provided by INAC is insufficient, covering as little as half of actual costs, and not the 80 percent claimed by INAC.

Costs also refer to human resources development costs, which will likely be incurred in order to assure First Nations wastewater systems have appropriately trained personnel and suitable management and governance in place to comply with the proposed regulations. Funding principles for Capital financing wastewater works and services are identified in the Canada-wide strategy, and include full cost accounting, self-funding, and own-source revenues, but do not include operational and monitoring, reporting cost to be incurred by all including First Nations. However, for some First Nations, the ability to pay for wastewater services may be unrealistic, because these services may be *unaffordable* in certain small communities, communities with declining economic growth, or disadvantaged communities. Remote First Nations communities, including those in the "arctic", may be particularly affected.

Currently, wastewater systems in First Nations communities are funded as part of INAC's Capital Facilities and Maintenance Program. Wastewater systems are only one of many projects competing for capital funding, and this may be one reason that explains why the federal government has never provided enough funding to ensure that on-reserve systems are comparable to off-reserve facilities. The costs of the proposed regulations will simply add to the burden. Who will pay the new costs is a critical issue.

The Assembly of First Nations wants to assure quality of life for all First Nations communities. In this spirit, the Assembly expects the federal government will take time and allocate appropriate resources to undertake a consultation process that properly fulfills its duty to consult prior to moving forward with the proposed regulations. Full engagement or consultations of First Nations, collectively and individually, will be needed for successful transition toward implementation of the CCME strategy, including agreement about roles, responsibilities and accountabilities.

1. INTRODUCTION

Over the last four years, Environment Canada has been working with provincial and territorial governments to develop a national strategy for the management of wastewater effluents under the auspices of the Canadian Council of Ministers of the Environment (CCME). Over this same time period, Environment Canada has also been providing general information to stakeholders and interested parties about its intention to develop wastewater regulations under the *Fisheries Act*.

These two efforts culminated in the release of two documents in the Fall of 2007: (i) CCME's *Draft Canada-wide Strategy for the Management of Municipal Wastewater Effluent*, and (ii) Environment Canada's *Proposed Regulatory Framework for Wastewater*, which outlines Environment Canada's proposed implementation of the CCME Strategy. Environment Canada has requested comments on the Canada-wide Strategy and Environment Canada's Proposed Regulatory Framework by January 31, 2008.

After the two documents were released, Environment Canada began a series of presentations with Aboriginal peoples and other interested parties. The purpose of the presentations was to give participants the opportunity to ask questions and provide comments about the federal government proposals. Environment Canada has stated that input provided by participants during the presentations will be considered in finalizing the CCME Canada-wide Strategy and also to finalize the proposed regulations, which are anticipated to be published in the *Canada Gazette* Part I in December 2008.

The purpose of this document is to provide a report on the impacts on First Nations of both the *Draft Canada-wide Strategy for the Management of Municipal Wastewater Effluent* and the *Proposed Regulatory Framework for Wastewater*. This document is intended as an information document and is further intended to highlight critical issues affecting First Nations communities.

The remainder of this section presents an overview of the Environment Canada's proposed regulatory framework for wastewater as it relates to implementing the CCME strategy..

Subsequent sections of this document discuss issues related to:

- a. Development of wastewater effluent regulations and administrative mechanisms under the authority of the ***Fisheries Act***,
- b. Development of additional risk management actions for wastewater systems under federal government operations, or federal land or aboriginal land and,
- c. Development of risk management actions for sources of pollutants in wastewater.

Also discussed are the following issues:

- Raise issues identified through review of the CCME and Environment Canada documents and during the Environment Canada presentations;
- Describe anticipated impacts for First Nations that are likely to result if the proposals are implemented; and,
- Outline next steps that are necessary to move forward.

Readers should know that the views contained in this document are considered the starting point for further discussions among the Assembly of First Nations, individual First Nations, Aboriginal peoples and the federal government, as part of a nation-wide consultation prior to finalizing and implementing any proposals.

Our ancestors were very knowledgeable.
They had ways and means of protecting Mother Earth.

Terrace B.C. Participant

2. ENVIRONMENT CANADA'S RISK MANAGEMENT STRATEGY FOR WASTEWATER

Vision

Environment Canada's risk management strategy for wastewater effluent was presented to stakeholders during information sessions held in the fall of 2002. Environment Canada proposed a long term strategy for wastewater effluents in 2003, and outlined the vision to ensure that release of wastewater effluents does not pose unacceptable risks to ecosystems health, human health and fisheries resources. The Assembly of First Nations share with this vision, but requested that First Nations should be included so that the outcomes could benefit all. The vision's outcomes include; implementation of preventative and control actions for toxic substances and other pollutants from industrial, commercial and institutional (ICI) sources; water conservation measures supported by water meters; sustainable approach to financing; and working with other levels of governments and stakeholders. Most First Nations urge Environment Canada to provide an opportunity for First Nations to share ideas and determine how to participate.

Toxic Substances Management Policy:

Canadian Environmental Protection Act, (CEPA-toxic) 1999

The policy describes the approach to deal with "CEPA-toxic" substances that includes an open and transparent process with many opportunities for public input, hopefully including First Nations. Some First Nations would welcome this opportunity because

they would realize that Environment Canada is not picking on the small guy only, so to speak.

It is paramount that site-specific environmental risk assessment studies proceed first to gather data and identify sources of emissions and the receiving environment.

Science and Research

There is an opportunity for Canada to evaluate and validate emerging wastewater treatment technologies appropriate for small communities.

First Nations would welcome the opportunity to undertake research on Aboriginal Traditional Knowledge and study relationship between western sciences and traditional science, for training of plant operators for licensing etc. Most First Nations would like to be consulted for an initiative to consider the establishment of a National Science and Research Coordination Group as full members or forming their own.

A Wastewater Research Entity is need for Canada.

Economic Implications

An accurate capital and operational/maintenance costs for First Nations wastewater systems are presently unknown. Other unknown related costs include; operational costs to meet the strategy such as costs to conduct Environmental Risk management studies, monitoring and reporting etc; However, there is an opportunity for INAC to capture some of these costs during the proposed national Engineering Assessment. The Terms of Reference for National Engineering Assessment for First Nations Water and Wastewater Facilities should ensure that Consultants will address this issue. However, environmental benefits due to this strategy may be difficult to quantify.

It is recommended that Environment Canada's Regulatory Framework be flexible enough to accommodate First Nations' economic realities.

3. OVERVIEW OF ENVIRONMENT CANADA'S PROPOSED REGULATORY FRAMEWORK

A. Wastewater Effluent Regulations Under The Fisheries Act

According to the Canadian Council of Ministers of the Environment (CCME), municipal wastewater effluent is one of the largest sources of pollution, by volume, discharged to surface waters in Canada. Reducing the discharge of pollutants in wastewater effluent requires a number of interventions ranging from source control to end-of-pipe measures. At the present time, however, wastewater management is subject to a variety of policies, by-laws and legislation at the federal, provincial/territorial and municipal levels. This often creates confusion and complex situations for regulators, system owners and operators.

To provide clarity, CCME is proposing a Canada-wide Strategy to harmonize wastewater regulatory requirements across Canada. It is expected that the CCME Strategy's approach will be implemented through actions by Environment Canada's Proposed Regulatory Framework for Wastewater with agreed-to processes with provincial and territorial governments.. Provincial and territorial governments are expected to amend applicable policies and legislation.

The Strategy is an important step forward for improving the water environment in First Nations and Canadian communities in general. The goals of the Strategy support:

- Improved wastewater treatment designed to increase human health and environmental protection;
- Clarity in wastewater treatment requirements; and,
- Ensuring that funding for improved treatment is managed in an equitable and sustainable manner.

The Assembly of First Nations considers these to be worthwhile goals.

Application

Some First Nations discussed the merit of expanding the application to include discharges to municipal sewers, which carry nutrients such as phosphorous and nitrates, pharmaceutical, personal care products plus many other liquid products from industrial, commercial and institutional (ICI) sources. Most of these substances are untreatable at sewage treatment plant. Why should First Nations be held responsible for discharging deleterious substances which are beyond the ability and the capability of their treatment systems?

Environment Canada should charge the polluter.

Deleterious Substances and Effluent Discharge levels

Total Chlorine Residual in the Effluent:

Most First Nations will need accurate equipment to measure Total Chlorine Residual,(TRC) to the level of 0.02 mg/L, Carbonaceous Biochemical Oxygen Demand (CBOD₅); and Total Suspended Solids (TSS). The cost for sampling storage, custody and transport need to be quantified. Other factors include geographical location and isolation in relation to the closest laboratory. Training of plant operators becomes more and more important in order to ensure quality/assurance/control.

Backwash wastewater from Water Treatment plants and disinfection of water mains may contain Total Chlorine Residual above 0.02 mg/L in concentration. The Assembly of First Nations would like this addressed in the strategy.

Acutely Toxic Effluent:

The strategy exempts very small and small systems from undertaking “**Acutely Toxic**” tests.

Since most First Nations communities are located in areas with sensitive receiving environment, and in addition they may be self-contained with Industry, Commerce and Institutions (ICI) within their boundary, and the ever increasing population, they may soon find themselves operating in the medium range. In such cases they may be required to undertake “**Acutely Toxic**” tests. If that is the case the strategy should take into account ability and capacity of Wastewater Treatment plants; the capacity, knowledge transfer and ability of First Nations plant operators to undertake this responsibility.

The strategy should consider flow rates only rather than population in determining sizes. For First Nations ICI population equivalent calculation is important in determining total population size and flow rates. Also consider flow rates less than 10.0 m³/day if they are discharging into a dry ditch or sensitive receiving environment.

Generally, the Acute Lethality Test has always been difficult to undertake at local levels. The strategy should be flexible to recommend funding for this test as well.

Ammonia as a deleterious substance:

The strategy is indicating that secondary treatment for removal of CBOD₅, TSS may be used. It is noted that 85% of influent CBOD₅ and TSS will be removed. But most First Nations utilize lagoons for wastewater treatment which are not very efficient in removing CBOD₅, TSS, phosphorus, nitrogen and other pollutants to the National Performance Standards. Lagoons and secondary wastewater treatment plants will require upgrading to reduce CBOD₅, TSS, TRC to 0.02 mg/L, phosphorous and ammonia to non-toxic levels.

From presentations at the Assembly of First Nations meeting with Water Technicians it was demonstrated from literature that modified lagoons with polishing sand filters can perform quite well.

The Assembly of First Nations request ***Environment Canada prepare a Wastewater Treatment guidance manuals for training plant operators and government officials tasked to administer the Proposed regulation under the Fisheries Act.*** This would indeed promote consistency.

Phosphorus and nitrogen as a deleterious substance:

High concentrations of nutrients cause eutrophication and algae blooms the decay of which would cause depletion of dissolved oxygen. Therefore these substances should be added as deleterious substances.

Some First Nations would like to see sampling **of influent wastewater, perhaps once per year** for characterization and composition of wastewater analysis at each plant

Effluent Monitoring

The categorization of Wastewater systems should be based on total flow rate, rather than a combination of population and flow rate. If population is used then use the population equivalent for the allowance of Industry, Commerce and Institutions, etc.

Receiving Environment Monitoring

It is understood that receiving environment monitoring involves conducting studies of the potential effects of effluent on fish populations, on fish tissue and on benthic invertebrate community. **Why not potential effect on human beings as well?** The diet of most First Nations may include fish, it would be prudent to study the potential effect on them too.

The scope of the studies would include data on the sensitivity, size, composition and volume of the receiving environment

These studies may require a certain level of expertise and training. Guidance manual may help too as First Nations may not be adequately resourced.

Reporting

To be effective reports must contain useful reliable data based on science and accurate measurements by accurate equipment. The purpose of the reports must clearly define and there must be follow up.

Timelines to Achieve Effluent Discharge Levels

The timelines to achieve wastewater effluent discharge levels vary. It is appreciated that the condition and status of each wastewater system is taken into account. However, it is difficult to make a rational judgement without site-specific concrete site data. New plants are not constructed every year. Rather the majority of work is to upgrade existing facilities and bring them to standards. It may be prudent to undertake a site-specific assessment based on site data, design, operation and influent characterization and effluent quality, and then prioritize systems in terms of a performance /conditional report. From this rationale a schedule for implementation can be developed.. The level of risk calculations should consider including, potential Biosolids management and disposal problems plus phosphorus.

It is proposed that effluent discharge levels be established for arctic wastewater systems by 2013, and that site-specific effluent requirements (EDOs) for wastewater systems on aboriginal lands be established by 2015.

Compliance with the regulations is planned to be phased in based on risk, as follows:

- By 2020 for existing wastewater facilities determined to be High Risk;

- By 2030 for existing wastewater facilities determined to be Medium Risk; and,
- By 2040 for existing wastewater facilities determined to be Low Risk.

B. SITE SPECIFIC EFFLUENT DISCHARGE REQUIREMENTS FOR WASTEWATER SYSTEMS UNDER FEDERAL GOVERNMENT OPERATION, OR ON FEDERAL OR ON ABORIGINAL LAND

First Nations Perspective

At present, there are no regulations governing wastewater management in First Nation communities. Instead, Indian and Northern Affairs Canada is involved in delivery of on-reserve wastewater systems, and these services rely on policies and guidelines, not regulations. The regulatory framework proposed by Environment Canada represents a major departure from current practice. While the goals of the Strategy are highly desirable and some First Nations communities are self-governing, full engagement of First Nations, collectively and individually, will be needed for successful transition toward implementation of the proposed framework, including agreement about roles, responsibilities and accountabilities.

Sufficient resources will be needed for successful implementation, including local administrative/management expertise, capital funding, operations and maintenance funding, and appropriate human resources. Ongoing dialogue will be needed, especially with Indian and Northern Affairs Canada regarding funding policies, and capacity building at First Nations community levels, to ensure all parties are aware of the implications that result from the proposed requirements.

The timelines to achieve effluent discharge will be dependent on a risk assessment considering such factors as the receiving water environment, the volume of discharge and the composition of the effluent. The maximum time allowable is still under discussion but ranges from 20 to 30 years as noted above. In some cases it may be possible with relatively small capital to upgrade facilities to meet the requirements. In other instances, significant capital expansion may be needed either for process or capacity requirements of existing facilities. Funding availability will therefore be critical to determining the timelines and should be linked to the compliance requirements. Additionally, there is a need to give First Nations with differing capacities adequate time to meet the challenges of these requirements.

First Nations Initial Reaction

First Nations attended presentations about the federal government proposals at the invitation of Environment Canada. The presentations provided an opportunity to ask questions and raise issues. In this section, First Nations reactions to the proposals, as articulated during the presentations, are presented so that there can be some understanding about issues and concerns among Canada's Aboriginal peoples. Comments heard during the presentations are grouped under the following topics:

- Environment Canada's Presentation Process
- Roles and Responsibilities
- Proposed National Performance Standards
- Ability to Comply
- Application and Timing of Requirements
- Costs
- Socio-Economic Impacts
- Holistic Wastewater Management

Environment Canada's Presentation Process

A common theme that emerged at the presentations was the lack of prior participation in the development of either the proposed CCME Strategy or the proposed Environment Canada regulatory framework.

Waiting until proposals are fully formed deprives the Assembly of First Nations from fully participating in a timely and meaningful way. Furthermore, the Assembly of First Nations believes that by not inviting First Nations to participate early, the federal government lost a valuable opportunity to make use of traditional knowledge during the proposal development process.

The Assembly of First Nations takes this opportunity to remind readers about the findings of the Office of the Auditor General of Canada in its 2006 Status Report. That report identified the characteristics of processes leading to successful legislation for First Nations, namely, that First Nations can overcome roadblocks through early negotiations that addressed First Nations needs while at the same time meeting the stated policy objectives of the federal government.

Roles and Responsibilities

One of the first issues raised during the presentations was the legality of the proposed regulations, including which Act (i.e., *Indian Act*, *Fisheries Act*, others) takes precedence if conflicts between various regulations and/or legislation arise. This leads to questions about who (First Nations, Indian and Northern Affairs Canada, Environment Canada, Health Canada, provincial governments, others) will be responsible for overseeing and administering the proposed regulations, and who will be responsible for assuring compliance. This latter issue manifests itself in a number of ways as a result of the current manner in which wastewater works and services are planned, approved, built, funded, managed, and operated on First Nations lands. For example, questions were raised about the:

- Ownership of wastewater facilities, including identification of the responsible authority, particularly in cases where a multi-jurisdictional arrangement exists (i.e., wastewater systems are shared between First Nations and municipalities).

- Responsibility for approving designs, especially in cases where the system discharges to a provincial water body.
- Enforcement of the regulations, considering that existing First Nations by-laws may be weak and fines may be low.

Not all First Nations enjoy reserve status, and participants at the presentations questioned how these First Nations would be affected by the proposals.

Proposed National Performance Standards

Many participants in the Environment Canada presentations noted the absence of phosphorus from the list of proposed National Performance Standards. Some participants went further, suggesting that more compounds should be added to the list. In this way, First Nations can take a proactive approach to wastewater management in the event that upgrades are needed to comply with the proposed regulations. Appropriate funding from INAC would be needed to assure compliance.

Another question that many participants raised during the presentations was about the nature of the proposed standards, specifically, whether the standards were to be considered maximum or average levels. Different interpretations were provided by Environment Canada representatives. The nature of the proposed standards has implications for sampling and for compliance, and needs to be clarified.

Questions were also raised about the process(es) that will be used to establish initial characterizations and site-specific Effluent Discharge Objectives (EDOs). Participants at the presentations questioned whether adjoining jurisdictions (municipalities or provinces) would be subjected to more stringent requirements, if so dictated by First Nations site-specific EDOs or other factors. And conversely, whether First Nations would be subjected to more stringent provincial requirements, as, for example, in the case of Ontario's *Lake Simcoe Protection Act*, which is expected to impose stringent limits on phosphorus loadings from wastewater treatment facilities discharging to Lake Simcoe.

Ability to Comply

There is uncertainty about the ability of existing First Nations wastewater systems to comply with the proposed regulations:

- Some may already be in compliance.
- Some are under-designed and over-capacity right now.
- Some have good information about their systems; others do not.

Participants at the Environment Canada presentations identified the lack of up-to-date information from Indian and Northern Affairs Canada about actual effluent volumes and current performance as a barrier to understanding how well individual First Nations systems would fare under the proposed regulatory regime.

The most recent assessment of First Nations wastewater systems was published in 2003 and only in summary form. According to that assessment, a relatively high percentage of the systems were able to meet Canada's 1976 *"Guidelines for Effluent Quality and Wastewater Treatment at Federal Establishments"*. The remaining systems failed to meet the criteria of one or more effluent limits, including 20 mg/L of Biological Oxygen Demand (BOD) and 25 mg/L of Total Suspended Solids (TSS)¹.

Although Indian and Northern Affairs Canada has stated that there is a need to develop a database containing information about First Nations wastewater systems and that another assessment is proceeding, no further information about these two initiatives has been forthcoming. As a result, participants at the Environment Canada presentations were unable to state whether or not First Nations facilities are capable of meeting the proposed requirements.

A second issue influencing the ability to meet the proposed regulations is the adequacy of current facility capacity. Clearly, even treatment systems specifically designed to meet the new effluent requirements will also depend upon well-trained operating staff and on adequately funded local administration/management, and appropriate operations and maintenance programs including monitoring and reporting. Given the 2003 assessment information, it would appear that many First Nations communities may not have the capacity – technical, human resource, or financial – to do the kind of testing required.

Application and Timing of Requirements

While the timing set out by Environment Canada for compliance with the proposed regulations may appear to be generous, many First Nations communities rely on wastewater systems that would be classified as small (between 500 and 2,500 cubic metres per day of flow and between 1,000 and 5,000 population served) or very small (up to 500 cubic metres per day of flow and up to 1,000 population served). Concerns were raised by participants at the presentations about First Nations wastewater systems being "left behind", suggesting that perhaps the proposed timelines are too long.

Timing issues were also raised in the context of penalties for non-compliance. The proposed regulatory framework sets out key requirements and associated timelines for most actions, but is silent about when fines would be levied for non-compliance. In the case of First Nations, this issue is further exacerbated due to uncertainty about who owns and has authority over the wastewater systems.

The approach that will be taken for wastewater systems located in the arctic is unclear. One reason is because the definition of "arctic" has not been determined; one suggestion put forward by Environment Canada is the use of degree days of freezing to de-

¹ Readers should know that INAC did not conduct any physical sampling of wastewater as part of the assessment. These findings were based on information in a sampling database at INAC, about which no other information is given in the assessment report.

lineate "arctic". What was agreed among participants at the Environment Canada presentations was that arctic conditions are unique and have greater challenges. This suggests that extra time is needed to agree on a definition and to research issues about wastewater treatment and its impact in the Arctic.

In terms of applying the proposed regulations, questions were also raised about the meaning of "end of pipe", especially in the context of systems that rely on wetland treatment.

Costs

A main concern of many participants at the Environment Canada presentations was the expected additional costs that will be incurred by First Nations in order to comply with the proposed regulations. New costs will be incurred for many aspects of the proposed regulations, including the initial characterizations and establishment of EDOs, increased monitoring, data management and reporting, and last, but certainly not least, costs to upgrade wastewater systems to assure compliance. This issue is a particular concern given that current operations and maintenance (O&M) funding provided by Indian and Northern Affairs Canada is insufficient, covering as little as half of actual costs, and not the 80 percent claimed by INAC.

Costs also refer to human resources costs, which will likely be incurred in order to assure that First Nations wastewater systems have appropriately trained personnel and suitable management and governance in place to comply with the new regulations.

Who will pay the costs of compliance is an issue.

At the same time, the CCME Strategy states that implementation costs will be reviewed so that there is an understanding of the costs Canadian municipalities may face, and that implementation of the Strategy will be phased to suit appropriate financial planning.

Socio-Economic Impacts

According to federal government processes, Environment Canada is required to undertake an estimate of the economic impact of the regulations. Participants at the Environment Canada presentations suggested that, in addition to estimating economic impacts, there is a need to assess the impact the regulations may have on future economic development within First Nations communities. Participants expressed two concerns related to economic development, namely (1) that the cost to comply may prove to be a dis-incentive to attracting new businesses to locate on-reserve, and (2) existing on-reserve businesses (i.e., activities that discharge a high seasonal load to the wastewater system such as fish processing) would be penalized.

Holistic Wastewater Management

First Nations communities are not the only ones discharging wastewater to the receiving environment. Municipalities are another source of wastewater. Additionally, there are numerous industries, in particular resource industries, such as mining and pulp and paper, which discharge significant quantities to Canada's rivers, lakes and oceans. A concern among participants at the presentations was how the discharges from these and other diverse sources would be integrated for the common good of the environment. One reason for the concern is that these other sources, municipalities and industries, are already regulated, and this prior experience with wastewater regulation puts them at an advantage over First Nations communities. Furthermore, participants were concerned about the ability of First Nations communities to influence the wastewater management practices of municipalities and industries for the betterment of the environment.

4. ISSUES AND CHALLENGES

In this section, the Assembly of First Nations presents an assessment of the impacts that will likely be incurred by First Nations communities as a result of CCME's Canada-wide Strategy for management of municipal wastewater effluents and Environment Canada's proposed regulatory framework for wastewater.

Specifically, this section addresses Assembly of First Nations concerns and assessment of potential impacts to First Nations communities of the federal government proposals related to the following topics:

- First Nations Wastewater System Limitations
- Governance and Intergovernmental Cooperation
- Funding
- Deleterious Substances and Discharge Levels
- Monitoring and Reporting
- Timelines to Achieve Compliance
- Requirements for Arctic Wastewater Systems
- Site-Specific Effluent Discharge Requirements

First Nations Wastewater System Limitations

In order to provide a realistic assessment of potential impacts, the Assembly had hoped to present information about individual First Nations communities and wastewater systems. However, this has not been possible because there is no publicly available up-to-date information from Indian and Northern Affairs Canada about First Nations wastewater systems. The absence of data is a major barrier to understanding how well individual First Nations wastewater systems would fare under the proposed regulatory regime.

Instead, an attempt has been made to characterize First Nations wastewater systems, based on aggregated information available from Indian and Northern Affairs Canada and the Ontario First Nations Technical Services Corporation.

In 2005, the Ontario First Nations Technical Services Corporation commissioned a local labour market survey of the First Nations water and wastewater industry in Ontario. The report for the survey was published in 2006, and includes details about wastewater systems in the surveyed communities. The survey involved visiting over 110 individual First Nations communities. The communities that were visited were home to more than 65,000 people, representing about 80% of the on-reserve population in Ontario².

Figure 1 shows the distribution of different types of wastewater treatment serving Ontario First Nations communities.

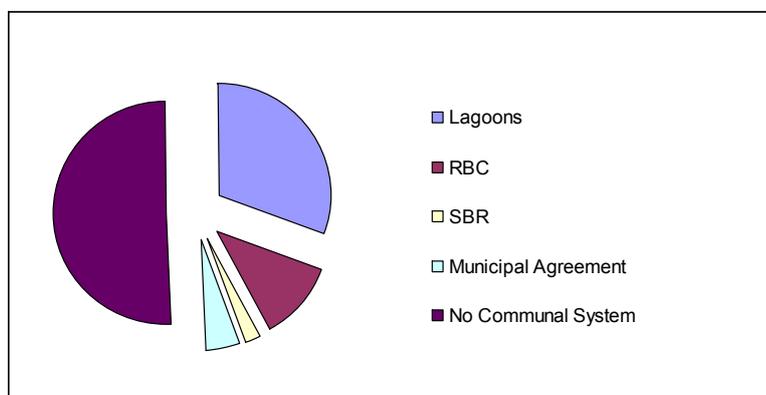


Figure 1. Distribution of wastewater treatment type at Ontario First Nations communities.

The survey results showed that for Ontario:

- 30% of First Nation communities rely on lagoons for wastewater treatment. Lagoons serving Ontario's First Nations communities are typically classified as Class I wastewater treatment facilities.
- 15% rely on rotating biological contactors (RBCs) or sequencing batch reactors (SBRs), and which are classified as Class II wastewater treatment facilities.
- 5% have agreements with local municipalities, whereby the municipality provides wastewater treatment to the First Nation community.
- 50% have no communal wastewater system. The communities with no communal wastewater system comprised approximately 16,000 people, a full 20% of Ontario's on-reserve registered Indian population.

In 2004, Indian and Northern Affairs Canada conducted an assessment of water and wastewater systems in First Nations communities. INAC assessed 462 wastewater systems (which INAC defined as serving five or more homes) using existing information about effluent quality and comparing that effluent quality to Canada's *Guidelines for Effluent Quality and Wastewa-*

² According to INAC's 2004 Basic Departmental Data, the on-reserve registered Indian population in Ontario was 80,539 in 2003.

ter Treatment at Federal Establishments. INAC's study has only been published in summary form; no information about individual wastewater treatment plants has been made available.

According to the INAC assessment:

- Lagoons were the most common method of treatment.
- 87% of wastewater facilities were classified as Class I.
- 78% of First Nations wastewater systems were able to meet Canada's 1976 "*Guidelines for Effluent Quality and Wastewater Treatment at Federal Establishments*". Conversely, 22% failed to meet the criteria of one or more effluent limits, including 20 mg/L for biological oxygen demand (BOD) and 25 mg/L for total suspended solids (TSS)³.
- Approximately 10% of operators met industry certification requirements.
- 60% of First Nations wastewater systems needed some repairs or posed potential health and safety concerns.

The INAC report went on to highlight deficiencies, which included inappropriate treatment technology and lack of adequate equipment, lack of regular maintenance, poor record keeping and the absence of O&M manuals; lack of certified operators and inadequacies in operator training programs; and recurring operational problems with automatic control systems, lack of backup equipment and power supply, and the absence of replacement parts/supplies, among others.

Thus, based on the information presented above, on-reserve wastewater treatment for First Nations communities can be characterized as typically being a lagoon that may meet the proposed regulations for CBOD and TSS, but which is probably in need of repair or upgrade, and is likely not operated by a certified operator. The assessment of potential impacts presented below is based upon this characterization.

Governance and Intergovernmental Cooperation

As described earlier, one of the first issues for the Assembly of First Nations is the legality of the proposed regulations, in terms of which Act (i.e., *Indian Act*, *Fisheries Act*, others) takes precedence if conflicts between various regulations and/or legislation arise. The Assembly does not rule out the need to undertake an independent legal review of the federal government proposals.

The Strategy calls for "a one-window approach to governance" so that operators and facility owners need deal with only a single regulatory agency. Clarification is needed about how the "one-window approach" will be administered, managed and operationalized for First Nations. Currently, INAC and Environment Canada, attempt to address First Nations wastewater quality through policies, guidelines, and funding arrangements:

³ Readers should know that INAC did not conduct any physical sampling of wastewater as part of the assessment. These findings were based on information in a sampling database at INAC, about which no other information is given in the assessment report.

- INAC – provides technical services to First Nations such as capital planning, feasibility studies, procurement, engineering, advice and approvals.
- Environment Canada – provides advice and technical expertise to INAC on assessments under the *Canadian Environmental Assessment Act*, and on requirements related to the *Canadian Environmental Protection Act, 1999*, and the *Fisheries Act*.

Adding to the complexity of the issue of a “one-window approach” is the fact that, for the rest of Canada, wastewater treatment is a provincial responsibility, and municipalities must comply with provincial regulatory and other requirements. These may be more stringent than the requirements proposed by the CCME or Environment Canada.

Another critical governance issue relates to the roles that Environment Canada, INAC and First Nations communities will play in future. It appears that Environment Canada will be responsible for the enforcement of the regulations. Any penalties that may be assessed by Environment Canada due to non-compliance with the regulations will be applied to the “owners” of the wastewater facilities. However, it is not clear whether First Nations communities will be considered the “owners” for the purposes of the regulations. The question of ownership of wastewater treatment systems is one that is recognized as needing resolution by First Nations individually and collectively, as well as by other government agencies such as the Office of the Auditor General of Canada.

INAC, as noted above, has responsibilities both with respect to the design guidelines for facilities as well as capital and O&M funding. The ability to meet the proposed regulations may rest on the adequacy and availability of funding as well as any issues associated with facility design. Hence, either INAC should be directly included in compliance discussions or should provide a funding model that enables First Nations communities to meet the regulatory requirements on their own.

Environment Canada envisions a harmonized regulatory framework reflecting both interdepartmental (e.g. Environment Canada, INAC) and intergovernmental (e.g. First Nations, federal, provincial, territorial and governments). To be effective, the Assembly of First Nations believes it is necessary to resolve:

- The role of “formal agreements” in respect of First Nations compliance with regulatory requirements.
- Impact of compliance, enforcement and penalty elements of the *Fisheries Act* on First Nations.
- Competing jurisdictional issues, including a process for deciding conflicts among jurisdictions.

Costs and Funding

According to the proposed Strategy, “*successful implementation requires that funding be managed in an equitable and sustainable manner.*”

Wastewater systems in First Nations communities are funded as part of INAC's Capital Facilities and Maintenance Program. Wastewater infrastructure projects are one of potentially many projects competing for capital funding. It is unclear what the cost-sharing arrangements will be to ensure proper construction and on-going operation and maintenance of wastewater infrastructure that will be required to comply with the federal regulations.

Specific issues related to the costs likely to be incurred as a result of the proposed regulations include:

- The need for appropriate administration/management at the local level.
- The need for adequate funding of construction costs in order to repair/upgrade existing wastewater systems and to install new, technologically-appropriate systems.
- Assuring operation and maintenance funding that accurately reflects true costs. This issue relates to the adequacy of INAC's policy (which is to provide funding to cover 80 percent of estimated O&M costs) and the basis for O&M cost estimates, which may or may not encompass the full cost of providing wastewater works and services.

The issue of costs is an important concern for First Nations. This is because funding to First Nations has not kept pace with growth, as shown in Figure 2.

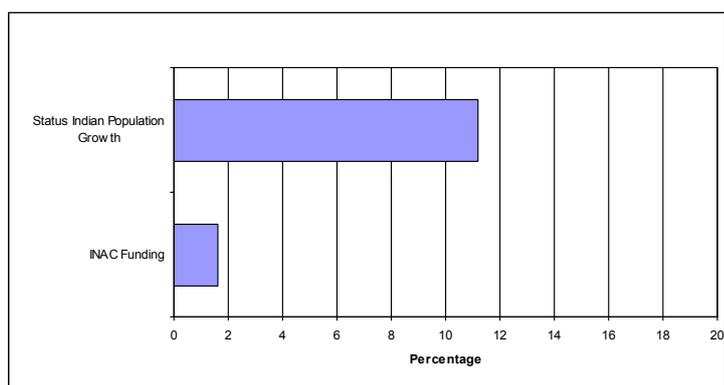


Figure 2. Comparison of population growth and funding - 1999-2004.

For the period 1999 to 2004, Indian and Northern Affairs Canada's funding to First Nations increased by only 1.6 percent, excluding inflation, while Canada's Status Indian population, according to the Department, increased by 11.2 percent.

Communities cannot fulfil their obligations without sufficient funding. A main reason for concern is because the federal government has never provided enough funding to ensure that on-reserve systems are comparable to off-reserve facilities.

According to the *Expert Panel on Safe Drinking Water for First Nations*, there now exists a substantial funding gap between what has been spent and what should have been spent. And according to the Office of the Auditor General, this situation is exacerbated by economic conditions that can limit First Nations access to financing for wastewater facilities, which can create a built-in and ongoing shortfall. The Assembly of First Nations concurs with the sentiment expressed by the Expert Panel that the federal government must accept that "comparable" means "comparable in quality, not in cost", and so must provide realistic funding for wastewater systems.

The inadequacy of current funding levels is also manifested by the inability of First Nations communities to attract and retain certified operators. According to INAC's own assessment, only forty-one percent of operators meet industry certification requirements. No reasons for

this are given, but one explanation may be the inability to offer sufficient compensation to qualified individuals. The costs of training further compound this issue.

In terms of capital, the historical lack of adequate funding is made worse by the fact that wastewater systems are sometimes built using inappropriate treatment technologies. Given that INAC is responsible for design guidelines and approvals, the installation of inappropriate treatment processes indicates a strong need for the federal government to review INAC's current design requirements and approvals process. Further compounding concerns about capital funding is the fact that, according to the Expert Panel, cost estimates produced by INAC, and used to determine funding levels to First Nations, are not based on detailed engineering analyses, and do not always account for potential increases in construction costs. Improvement in the federal government's processes for determining wastewater treatment technologies and associated costs is strongly recommended.

In addition to capital funding, the Assembly of First Nations urges a review of federal government policies related to operations and maintenance funding. Currently, First Nations are expected to make up the difference in O&M costs between actual costs and the 80 percent provided by INAC through user fees or other sources. However, INAC determines what the O&M costs will be, and these are not based on actual costs but on a formula developed by INAC. The Assembly of First Nations is not convinced that the O&M cost estimates determined by INAC accurately reflect actual requirements.

Funding principles identified in the Strategy as being suitable for financing wastewater works and services include full cost accounting, self-funding, and own-source revenues. However, for some First Nations, the ability to pay for wastewater services may be unrealistic, because these services may be *unaffordable* in certain small communities, communities with declining economic growth, or disadvantaged communities. Remote First Nations communities may be particularly affected.

Deleterious Substances and Discharge Levels

The proposed discharge limits represent a "secondary" level of wastewater treatment that typically involves both physico-chemical and biological processes and removes approximately 85% of pollutants such as BOD and TSS. The limits include CBOD₅ – 25 mg/L, TSS – 25 mg/L and total residual chlorine – 0.02 mg/L. In addition the proposed discharge limits require a non-toxic effluent for facilities greater than 2,500 m³/d, or for those discharging less than 2,500 m³/d that have an industrial component.

First Nations wastewater facilities are typically lagoons, and some of them are located in northern cold climatic areas. The ability of these facilities to meet the desired effluent requirements is in some question, especially with respect to ammonia during winter months. For example, Ontario Ministry of Environment Design Guidelines indicate that continuous and seasonal retention lagoons without phosphorous removal are capable of effluents with CBOD₅ of 25 mg/L and TSS of 30 mg/L. If this is the case, then many wastewater facilities may not have been designed with these effluent requirements in mind and may need upgrad-

ing. The requirement for very low chlorine residual may also need some additional process modifications such as dechlorination or a change to ultraviolet irradiation for disinfection. For larger facilities, the non-toxic requirement implies reduction of effluent ammonia levels. This may again require consideration of a change or upgrade of current wastewater treatment technology. Lagoon systems are not very effective at ammonia removal especially during winter, and other treatment units such as rotating biological contactors (RBCs) may have very limited ammonia removal capacity unless they are specifically designed for the purpose.

Beyond the question of the appropriateness of the treatment technologies currently in use is the issue of the adequacy of current facility capacity. Clearly, even treatment systems specifically designed to meet the proposed effluent limits may not currently have adequate hydraulic or process capacity.

Finally, the ability to meet new effluent requirements also depends on:

- Site specific environmental assessment expertise;
- The state of present facilities;
- Local administrative/management capability; and,
- Maintenance and operational capacity.

If any of these key elements is lacking then the ability to meet effluent limits is imperilled. In summary, any assessment of future compliance with the proposed effluent regulations will require knowledge of all three factors noted above.

At this point, the Assembly of First Nations takes the opportunity to question why the proposed regulatory framework addresses only the wastewater aspect of the larger environment. By so doing, important linkages to drinking water sources, downstream users, and overall watershed impacts may be missed. Additionally, the framework contemplates only the effluent component of the wastewater system. Given the prevalence of lagoons as the method of wastewater treatment for First Nations communities, solids management is also an important factor.

Monitoring and Reporting

Monitoring the quality of wastewater effluent and the quality of the receiving environment represent new requirements to which First Nations have not previously been subject. In order to carry out these requirements, there is a need to assure First Nations communities have, or have timely access to, sufficient and appropriate resources (dollars and people) to effectively carry out the monitoring requirements.

Some of the key issues surrounding the monitoring requirements include the availability of, and/or access to, on-reserve sampling and testing equipment and facilities, and appropriately trained laboratory technicians to collect samples and conduct tests. As a result, there is a need to have a decision-making framework to determine when and where to build laboratory facilities and retain qualified laboratory staff on-reserve. The federal government has indi-

cated that laboratories conducting sample analysis must be accredited, which may further compound the challenge for First Nations to comply with the regulations

The Assembly of First Nations is aware of the logistical considerations surrounding the new monitoring requirements, including the need to maintain sample integrity, for communities that plan to transport samples to off-reserve laboratories. .

With specific reference to the proposed requirement to monitor the receiving environment, the Assembly of First Nations believes there is a need for the federal government to assist individual First Nations communities to develop an understanding of:

- Mixing models and the impact of land use activities;
- Site-specific environmental risk assessment models; and,
- The relationship between, and impacts among, ambient surface water quality, river flow and provincial policies.

Federal government assistance will also be needed to build on-reserve capabilities to conduct receiving monitoring studies and interpret results, and/or provide access to appropriate off-reserve resources. It is assumed that the federal government will also facilitate integration of receiving environment monitoring data related to individual First Nations wastewater systems into a larger (i.e., watershed) context.

Responsibility for accepting/approving receiving environment monitoring studies and maintaining records must be clarified, as must the use and ownership of the data.

Reporting and recording the monitoring results, including overflows and bypasses where these occur, also represent new requirements to which First Nations have not been previously subject. These activities have resource implications if First Nations communities are expected to comply with the regulations. In order to better determine how First Nations will be affected, clarification is needed about:

- How the data will be used.
- The format and audience for the reports.
- Responsibility for distribution, storage and ownership of reports.

The extent and scope of data collection, record-keeping, storage, analysis and reporting need to be determined in principle, for First Nations collectively, and in practice, for First Nations individually. Funding needs to take these requirements into account.

Timelines to Achieve Compliance

The timelines to achieve effluent discharge are proposed to be dependent on the outcome of a risk assessment, considering such factors are the receiving water environment, the volume of discharge and the composition of the effluent. The maximum time allowable is still under discussion but ranges from 20 to 30 years.

The time to meet the effluent limits will depend on a number of factors such as site specific environmental assessment; the nature and capacity of present treatment technology and the funding availability. In some cases it may be possible with relatively small capital to upgrade facilities to meet the requirements, for example, where a community is using chlorine for disinfection, dechlorination at a modest cost may address the effluent residual requirement. In other instances, significant capital expansion may be needed either for process or capacity requirements of existing facilities.

The timeline to meet new discharge requirements will also depend on the status of available operating resources. In order for First Nations communities to comply with all regulatory requirements, there is also a need to attract and retain appropriately qualified administrators, managers, and operators in sufficient numbers. If additional training or new maintenance or testing infrastructure is needed to manage more complex treatment systems, then the implementation timing must account for these factors. Forcing compliance in the absence of adequate administrative, management and operations support would severely disadvantage First Nations communities.

As well, there is a need to establish when the clock starts for those First Nations wastewater systems with deficiencies. It is the preference of the Assembly of First Nations that these facilities be given time and adequate resources to resolve deficiencies before compliance is imposed. This will require the federal government to assure that funding to these facilities is provided in a timely manner.

Arctic Wastewater Systems

The first order of business for arctic wastewater systems is to determine a mutually acceptable definition of "arctic".

Latitude in implementation timing for facilities located within the arctic has been proposed. Although the framework has deferred the requirements until 2013, monitoring and reporting for arctic wastewater systems would apply immediately. The ability and capacity of these communities to respond to these requirements will need to be assessed.

Rather than rush implementation of the proposed regulatory requirements for "arctic" wastewater systems, the Assembly of First Nations urges the federal government to spend the time necessary to fully understand wastewater treatment in the arctic and the impact of wastewater discharges on the arctic environment.

Site-Specific Effluent Discharge Requirements

The site-specific provisions in the proposed regulatory framework are intended to bring First Nations on par with municipalities regulated by the provinces. The proposed regulations sets out a number of steps, namely:

- The development of a list of substances of potential concern
- An initial effluent characterization program

- Development of specific effluent objectives aligned with other jurisdictions
- Monitoring of effluents and reporting

Even before First Nations can begin development of site-specific effluent discharge requirements, information about individual systems is urgently needed. For example, there is a need to determine, among others, the extent of chlorine use for disinfection in First Nations wastewater systems, the extent to which First Nations' wastewater facilities are subject to wet weather influences resulting in overflows, and the extent of First Nations wastewater systems that would be classified as medium, large, or very large, or very small or small wastewater systems that have industrial inputs. Unfortunately, there is no up-to-date information from Indian and Northern Affairs Canada about actual effluent volumes and current performance of individual First Nations systems. As noted earlier, INAC has stated that there is a need to develop a database containing information about First Nations wastewater systems and that another assessment is proceeding, but no further information has been forthcoming.

There is a need to clarify exactly who will be responsible, and accountable, for the initial characterization of the effluent. If individual First Nations communities are required to conduct the initial characterizations, then there will be a need to provide sufficient and appropriate resources (funding and human resources) to conduct the characterizations, including analysis, interpretation of results, and reporting. Details of reporting, including approval/acceptance of characterization results, audience for the reports, data ownership, storage and maintenance, must also be determined. The Assembly of First Nations supports making the reports publicly available, in order to reinforce transparency. It is also necessary to know the range of actions that may result, based on approved/accepted characterization results, as well as the consequences of non-compliance.

In terms of controlling pollutants, sewer use by-laws are promoted within the Canada-wide strategy as a means of preventing pollutants from entering wastewater systems at source. However, most First Nations do not pass sewer-use by-laws to control pollution at source, and it is unclear whether all First Nations have the legal authority to enact them.

An issue that particularly concerns the Assembly of First Nations is the apparent inequitable treatment of on-reserve versus off-reserve wastewater systems. Specifically, the Assembly questions why the federal government intends to codify in the regulations site-specific effluent objectives for First Nations, but does not plan to do so for off-reserve wastewater systems (regulations would not include site-specific effluent requirements for wastewater systems under provincial or territorial jurisdiction). The Assembly believes that this proposal indicates that the federal government does not properly recognize the jurisdiction of First Nations over wastewater management.

5. RECOMMENDATIONS

According to Environment Canada, the federal government intends to negotiate with provincial and territorial governments on the CCME Strategy with a view to finalizing the proposed regulatory framework for wastewater. Environment Canada expects wastewater effluent regulations under the *Fisheries Act* to be published in the *Canada Gazette*, Part I, as early as December of 2008.

The Assembly of First Nations supports the goals of improved wastewater treatment, clarity in wastewater treatment requirements, and, equitable and sustainable funding of wastewater facilities. At the same time, the Assembly of First Nations expects First Nations jurisdiction over water management, which includes wastewater, to be recognized. The Assembly of First Nations believe that the proposals put forward by the federal government can represent an interim regulatory regime until First Nations exercise their jurisdiction over wastewater management by enacting their own regulations based on customary law or through self-government.

The Assembly of First Nations believes it is incumbent on the federal government to clearly define all roles and responsibilities related to the CCME Strategy and Environment Canada's regulatory framework and to provide adequate and sustainable resources to First Nations to assure sufficient and appropriate wastewater facilities, including their operation and management, so that First Nations communities can benefit from systems that are comparable to those available off-reserve.

The Assembly of First Nations has provided this document outlining issues and impacts for First Nations so that the federal government can understand and appreciate the extent of the challenge that will be imposed as a result of the CCME Strategy and Environment Canada's proposed regulations.

The Assembly of First Nations wants to assure quality of life for all First Nations communities. In this spirit, the Assembly of First Nations expects the federal government will undertake a consultation process that properly fulfills its duty to consult prior to moving forward with the new regulatory framework.

6. REFERENCES

- Assembly of First Nations (2006). Briefing Note to the National Chief – Expert Panel Report on Safe Drinking Water for First Nations. BN-HS-06-239. Available on-line at: <<http://www.afn.ca/cmslib/general/BN-analysis.pdf>>
- Assembly of First Nations (2006). Expert Panel Report on Safe Drinking Water for First Nations – Position Paper. <<http://www.afn.ca/cmslib/general/water-panel-report.pdf>>
- Canadian Council of Ministers of the Environment (2007). Canada-wide Strategy for the Management of Municipal Wastewater Effluent, Draft. Ottawa, Canada. September, 2007. <<http://www.ccme.ca/>>
- Environment Canada (1976). Guidelines for Effluent Quality and Wastewater Treatment at Federal Establishments. Regulations, Codes and Protocols Report EPS-1-EC-76-1. Federal Activities Environmental Branch, Environmental Conservation Directorate, Ottawa, Canada. April, 1976.
- Environment Canada (2007). Proposed Regulatory Framework for Wastewater. Consultation Document. Ottawa, Canada. October, 2007. <<http://www.ec.gc.ca/>>
- Indian and Northern Affairs Canada (2003). National Assessment of Water and Wastewater Systems in First Nations Communities – Summary Report. Available on-line at: <http://www.ainc-inac.gc.ca/ps/hsg/cih/ci/ic/wq/wawa/index_e.html>
- Indian and Northern Affairs Canada (2005). Basic Departmental Data – 2004. First Nations and Northern Statistics Section, Corporate Information Management Directorate, Information Management Branch, Department of Indian Affairs and Northern Development, Ottawa, Canada.
- MacViro Consultants Inc., First Nations Engineering Services Limited, and XCG Consultants Ltd. (2006). Local Labour Market Survey for the First Nations Water and Wastewater Industry in Ontario (Final Report). Prepared for Ontario First Nations Technical Services Corporation, Toronto, Canada.
- Office of the Auditor General of Canada (2006). 2006 Status Report. Chapter 5 – Management of Programs for First Nations. Available on-line at: <<http://www.oag-bvg.gc.ca/domino/reports.nsf/html/20060505ce.html>>
- Ontario Ministry of the Environment (2006). Regulation Proposal Notice. *Regulation under the Ontario Water Resources Act for the Protection of Lake Simcoe*. EBR Registry Number: 010-2246, posted December 6, 2006. Available on-line at: <<http://www.ebr.gov.on.ca/ERS-WEB-External/displaynoticecontent.do?noticeId=MTAyMjlx&statusId=MTUyODI2&language=en>>

Ontario Ministry of the Environment (1994). Determination of Treatment Requirements for Municipal and Private Sewage Treatment Works Discharging to Surface Waters. PROCEDURE F-5-1 (formerly referenced by 08-01). Program Development Branch, Toronto, Canada.

Swain, H., S. Louttit and S. Hrudey (2006). Report of the Expert Panel on Safe Drinking Water for First Nations – Volume I. Published under the authority of the Minister of Indian Affairs and Northern Development and Federal Interlocutor for Métis and Non-Status Indians, Ottawa, November, 2006.