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RE: CIMA+ report "Centre de traitement des boues de fosses septiques", Final Report, 26 May 2010

Ottawa Riverkeeper and the Friends of the Gatineau River would like to submit comments regarding the CIMA+ report and the MRC's plan to treat septage regionally.

We recognize the importance and the urgent need to address the septage that our communities are generating. As our elected officials, your decision on this issue is incredibly important and will impact our regions' most important asset: the Gatineau River.

We hope that the number one priority for this project is to safeguard the health of all residents and visitors to the MRC by creating a wastewater and septage treatment solution that will meet all upcoming standards, and guarantee the health of the Gatineau River for future generations.

Please do not hesitate to contact us if you have any questions.

Yours truly,

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EXECUTIVE SUMMARY

The final report from CIMA+ does not provide enough information and detail for the municipalities in the MRC des Collines-de-l'Outaouais to make a responsible decision regarding the future of septage waste in the MRC. The consultants have not provided an extensive overview of all the possibilities available to us, nor have they given justifiable and defensible reasons for eliminating some alternatives.

Ottawa Riverkeeper and Friends of the Gatineau River have identified 12 questions or criteria that should be used to compare alternatives that would give our elected officials the necessary information to make a responsible decision regarding what is the best solution to treat our regional septage. Clearly there are still many questions to answer and costs to determine. It is obvious that more time is required to find a feasible solution that protects our precious water resources.

The technology that is recommended by CIMA+ will not solve all of our problems, yet it will pollute our river at unacceptable (and likely illegal) levels and will likely cause odour problems for nearby residents.

Ottawa Riverkeeper and the Friends of the Gatineau River make the following recommendations:

Recommendation #1 – The MRC set up a regional septic collection and monitoring program as the first step towards a better solution to managing septage in each municipality within the MRC.

Recommendation #2 – While the regional collection and monitoring system is being developed and implemented and alternative technologies are being researched and evaluated, septage haulers should continue to use the established wastewater treatment facilities in Gatineau and Ottawa to treat septage from our region.

Recommendation #3

CIMA+ should provide detailed information, including costs for the alternative solutions identified. All alternatives should be systematically ranked by scoring each alternative based on several criteria (costs, land required, impact on the river, etc.) that are given weights according to their importance. Technologies other than conventional lagoons should be explored.

Recommendation #4

Consider a phased approach to finding a solution that our region will be proud of that will meet future needs and regulatory demands. Land requirements are important to consider for each alternative. Given the current information and analysis deficit that we have identified in the CIMA+ Phase 1 report, it would be irresponsible to move ahead with site identification at this time. Site selection should be based on objective criteria that are determined by the technology that is ultimately selected.

Recommendation #5

Any engineering firm hired by the MRC should have strict conditions to design a system that will meet new national effluent standards at all times, including the winter months.

CONTEXT

The municipalities within the MRC des Collines-de-l'Outaouais must make an important decision regarding the management of septic tank sludge in the region. The majority of the population is serviced by private septic systems that must be pumped out every several years, depending on use. Currently the majority of the septage that is pumped out is hauled in trucks to be treated at the Gatineau sewage treatment facility (for a fee). Unfortunately, the Gatineau facility is at capacity and can no longer accept septage from surrounding communities. The city is planning to upgrade their facility, however this could take 5 years or more to approve plans and financing and complete construction.

In addition to generating septage waste, some of the municipalities in the MRC des Collines-de-l'Outaouais collect domestic wastewater from homes and businesses that they treat in local wastewater treatment facilities. These wastewater facilities release poorly treated effluent into the Gatineau River and its tributaries several times throughout the year.

It is important to understand that septage is much different than domestic sewage that is collected in homes and businesses on a daily basis. Septage can be up to 80 times as concentrated as typical domestic wastewater. Therefore, the process required for treating septage is different and the effluent from septage treatment process can be very polluting, putting water quality of the receiving water body at risk. Table A-1 outlines the typical constituents found in septage and how they put human health and aquatic health at risk.

Regulation Changes

Currently the province has the authority to regulate sewage treatment in the Province of Quebec. All municipalities must monitor the impacts of the facilities (primarily impacts to surface water) and report to the province. However, that is about to change. Environment Canada has proposed the enactment of a Wastewater Systems Effluent Regulation to address the ongoing and serious problems caused by sewage pollution in Canadian waters. If passed, the new regulation would be enforced by Environment Canada. The proposed regulation sets new, more stringent national standards that must be met by wastewater treatment facilities as well as septage treatment facilities.

This is very important for the MRC decision-makers to understand. The new national standards will be enforced to bring all sewage treatment facilities up to secondary treatment. The deleterious substances specified under the proposed Regulations include biochemical oxygen demanding (BOD) matter, suspended solids (SS), total residual chlorine and un-ionized ammonia. The proposed effluent quality standards for these substances are as follows:

- average carbonaceous biochemical oxygen demand (CBOD) due to the quantity of BOD matter in the effluent of less than or equal to 25 mg/L;
- average concentration of suspended solids in the effluent of less than or equal to 25 mg/L;
- average concentration of total residual chlorine in the effluent of less than or equal to 0.02 mg/L; and
- maximum concentration of un-ionized ammonia in the effluent of less than 1.25 mg/L, expressed as nitrogen (N), at 15°C ± 1°C.

These numbers are important to note because conventional sewage treatment lagoons that are used extensively throughout rural Canada and Quebec typically do not meet these new standards. Cold climates are a challenge for treating wastewater in northern communities and in the winter conventional treatment lagoons are fairly ineffective at treating our wastes.

Consideration of the Gatineau River

The Gatineau River is a “gem” amongst rivers in southern Quebec. It is the main asset in our region in terms of jobs, tourism and creating valuable real estate. We have legal and moral responsibilities to protect the health of the Gatineau River, so that this and future generations will have the ability to swim, paddle and fish in the river without jeopardizing human health. We also have a legal responsibility to protect the native aquatic species that live in the river and form a critical part of our ecosystem that we depend on for life.

We cannot accept the century-old mantra that “dilution is the solution to pollution”. The Gatineau River is already the receiving water to a septage treatment facility in Kazabazua. There are also several wastewater treatment lagoons that discharge into the Gatineau River and/or its tributaries. There are numerous private septic systems that are failing and are ultimately contaminating local lakes and the Gatineau River. In addition to sewage, we have agricultural wastes impacting the river and leachate from landfills. The flow regime in the lower reaches of the Gatineau River is highly impacted from the operation of the hydro dams on the river.

Today our wastes contain a cocktail of chemicals, many of which cause cancer and bioaccumulate in the flesh of aquatic species and humans. Dilution does not render these chemicals harmless, they make their way into our food chain and significantly harm the aquatic environment. We must be as diligent as possible to reduce human health risks and preserve the health of our aquatic ecosystems.

Friends of the Gatineau river (FOG) / Amis de la rivière Gatineau (ARG) is a non-profit volunteer organization that is committed to the preservation of the Gatineau River watershed. FOG conducts water quality tests of the Gatineau River as a public service with support from the municipalities of La Pêche, Cantley and Chelsea and clubs and associations that use the river for recreational purposes.

Ottawa Riverkeeper / Sentinelle Outaouais is a citizen-based action group that brings people together to protect and promote the ecological health and diversity of the Ottawa River and its tributaries. In 2006, Ottawa Riverkeeper released a report that identified the cumulative effects of municipal wastewater as a major threat to the Ottawa River. More than 50% of the wastewater treatment facilities in the Ottawa River watershed provide only primary treatment. There are over 90 wastewater treatment facilities in the entire watershed, which spans Quebec and Ontario.

Given the impacts of sewage on the Ottawa River, Ottawa Riverkeeper faces numerous issues related to sewage discharge throughout the vast watershed and has considerable experience with sewage policy and law.

COMMENTS and RECOMMENDATIONS

Septage collection and inspection

While looking to find solutions and efficiencies to treat our waste regionally, it would be imprudent to ignore the situation we have in the region with failing septic systems. The first stage of septage treatment is collection. At this step there are opportunities to significantly reduce hauling and treatment costs and identify the failing systems that are not adequately protecting groundwater and surface water. Throughout North America (we need not look farther than Chelsea to provide examples) septic trucks have been redesigned to pump septic tanks and provide on-site dewatering. This significantly reduces hauling costs since a large portion of the weight and volume of septage is liquid. A program like this would be most effective and efficient if coordinated regionally within the MRC and this would meet the approval of the provincial government who is recommending regional solutions for managing sewage.

A regional septage collection, inspection and monitoring program would have the following advantages:

1. Failing septic systems would be identified and fixed, thereby protecting our valuable water resources from pollution
2. The MRC would be able to collect data that would tell us how often systems need to be pumped out (why pump every 2 years if you don't need to!) and we would get a better estimate of how much septage our region is presently generating
3. Simple on-site dewatering of pumped septage can ultimately save on transportation costs and significantly reduce processing volumes.

Recommendation #1 – The MRC set up a regional septic collection and monitoring program as the first step towards a better solution to managing septage in each municipality within the MRC.

Lack of information and detailed analysis on all alternatives

CIMA+ engineering was hired to provide the MRC with a detailed look at alternatives for managing septage in the region. The intent was to provide adequate information and cost estimates for a suite of potential alternatives, allowing the people and the decision-makers within the MRC to make an educated decision regarding the best solution to meet our needs.

Unfortunately this has not been the case; CIMA+'s report lacks referenced and detailed information to support their conclusions (there are *only 3* references in the entire report, where is the information coming from?). The report does not provide enough information and data to allow elected officials to make a decision that will impact our community and our river for the next 50 years. Ottawa Riverkeeper and Friends of the Gatineau River have identified 12 questions or criteria that should be used to compare alternatives that would give our elected officials the necessary information to make a responsible decision regarding what is the best solution to treat our regional septage (Table A-2). Clearly there are still many questions to answer and costs to determine. It is obvious that more analysis and more time is required to find the best solution.

Septage Treatment Alternatives

Fundamentally, the MRC must decide whether they will pursue a septage treatment solution that is integrated and regional, or whether it makes better sense to build smaller treatment facilities located throughout the region. For example, it is our understanding that the municipality of Quyon has sourced a wastewater treatment facility that would treat the town's wastewater *and* their septage. This new treatment facility would be a great improvement on their current technology that is failing them and releasing very poorly treated effluent into the Ottawa River. The municipality of La Pêche could also consider a system that would treat their wastewater effluent as well as septage. The lagoon that currently treats La Pêche's wastewater will not meet the new federal standards and will require a significant upgrade in the near future.

CIMA+ states that existing technologies to treat septage are still in development and are not viable for small volumes of sludge. This is simply not true. We only have to look to our neighbours for several examples of small-scale septage treatment projects that have been operating for several years and are yielding excellent results. One such project in the town of Eganville (very similar climate and regional population as the MRC des Collines-de-l'Outaouais) has received several awards for exemplary biosolids management that is cost-effective, environmentally safe and publically acceptable. In the past decade the province of Ontario made it illegal to spread untreated septage on fields and has invested in many small pilot projects to test technologies and solutions to managing septage in small rural communities. There are successful examples throughout rural Quebec to explore, a task we all thought CIMA+ was being paid to carry out.

Our organizations do not support the recommended solution provided by CIMA+. The recommendation to treat septage regionally is worth exploring. However, the technology recommended to treat the effluent after the septage is dewatered is a very old technology that will not treat effluent to a level where it is acceptable in today's standards.

For decades rural communities have been building lagoons as a low cost and simple alternative to treating sewage. However, we now know that lagoons *can* work well under optimal conditions or they can be essentially ineffective at waste treatment when managed poorly or when exposed to cold conditions. It seems that CIMA has recommended this "old" technology because it is simple and easy to operate and will get quick approvals and funding. It is a model that CIMA+ knows well. Ottawa Riverkeeper and the Friends of the Gatineau River believe there are other criteria to consider that are more important.

If the MRC prefers the regional lagoon, we recommend it be improved to include a final stage of effluent treatment (wetland or greenhouse filtration) to further treat the highly polluted effluent before it is released to the Gatineau River. Alternatively, it is possible to provide further treatment that allows the effluent to infiltrate and evaporate; an appealing solution that does not require any effluent to be released into the river. At the very least, the MRC standard should be that all effluent produced at the treatment facility must meet new national standards.

If the MRC would like a regional solution, there are opportunities to explore that would establish the Outaouais as a leader in waste management. One large regional facility could treat regional septage as well as regional garbage. There are opportunities to turn our wastes into energy, yet this would require regional participation.

Clearly there are still many questions to answer and costs to determine. **It is obvious that more time is required to find an appropriate solution.** We will not have a treatment facility constructed and operational before the city of Gatineau stops accepting septage from our region. The cities of Ottawa and Gatineau are currently our best short-term solution for managing and treating our septage. In the long term this may not be the most cost effective solution, but right now we do not know how this option compares to other alternatives.

In summary, as our organizations see this problem, there are five potential treatment alternatives to consider:

#1 – Negotiate a continuation of the status quo until the city of Gatineau will no longer will accept septage, then haul septage to Ottawa's wastewater treatment facility. When the city of Gatineau has upgraded their treatment facility, we can once again consider hauling septage to Gatineau.

Pros: low capital costs, large treatment facilities provide better treatment than we can expect to provide regionally, no effluent being released into the Gatineau River
Cons: reliance on someone else to treat our wastes, higher transportation costs

#2 – Regional de-watering and aerated lagoon as recommended by CIMA+

Pros: ability to treat waste regionally and be self-sufficient

Cons: poor effluent quality, potential legal liability, local odours, pollution in the Gatineau River, jeopardizing our right to swim and fish in the river, does not solve regional problem with failing septics, does not address poor effluent quality from individual municipal wastewater treatment lagoons. Concerns with UV technology as it requires constant attention. We lose control over what happens to our sludge or biosolids – out of site, out of mind.

#3 – Improve CIMA+ recommendation (hybrid lagoon/wetland)

Several variations could be made to the recommended lagoon option recommended by CIMA+. After the septage is dewatered and the effluent is released to a lagoon additional treatment can be provided by a wetland or a greenhouse to improve winter treatment capabilities. A variation of this to explore is releasing the treated effluent onto the land, not in the river.

Pros: Effluent quality is greatly improved and the effluent with proper operation could meet new federal standards

Cons: Requires a trained operator and a large parcel of land

#4 – Construct several de-centralized facilities that treat wastewater *and* septage and produce usable biosolids.

Pros: several municipalities (La Peche, Quyon, Chelsea) have wastewater treatment facilities that will require upgrades to meet new federal regulations, ability to utilize biosolids locally as fertilizer or energy, reduced transportation costs

#5 – Build a large regional facility that can treat all streams of municipal waste (garbage, septage, wastewater, biosolids)

Pros: Can generate energy and turn our waste into a resource, solves many waste management issues in the region, protects groundwater and surface water, creates more jobs, presents the MRC des Collines-de-l’Outaouais as a leader in sustainable waste management

Cons: Technology is new, pollution is typically atmospheric

Recommendation #2 – While the regional collection and monitoring system is being developed and implemented and alternative technologies are being researched and evaluated, septage haulers should continue to use the established wastewater treatment facilities in Gatineau and Ottawa to treat septage from our region.

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each alternative based on several criteria (costs, land required, impact on the river, etc.) that are given weights according to their importance. Technologies other than conventional lagoons should be explored.

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Table A-1 Typical Constituents of Concern in Septage

Pollutant	Reason for concern
Suspended Solids (TSS)	Increases turbidity and sludge deposits. Sludge deposits may smother benthic organisms and fish eggs and may contribute to benthic enrichment, toxicity, and sediment oxygen demand. Excessive turbidity can harm aquatic life by blocking sunlight needed by plants and contributing to decreased dissolved oxygen in the water column. TSS may also affect water treatment plant performance by interfering with filtration and disinfection processes.
Pathogens	Bacteria, viruses, and parasites can cause communicable diseases and are considered public health hazards. “No swimming advisories” are posted when e.coli counts are high, signaling the presence of harmful pathogens in the water. These organisms are also transferred to food crops grown on land to which septage is applied. Organisms are transported away from the site by vectors such as insects, rodents and birds.
Biodegradable organics (BOD, TOC, COD)	Biological stabilization of organics in the water column can deplete dissolved oxygen in surface waters, creating anoxic or even anaerobic conditions harmful to aquatic life. Most fish kills are as a result of low dissolved oxygen in the water column. These conditions can also increase odours and increase metal leaching from soil and rock in contact with ground and surface waters.
Nitrogen (N)	Nitrogen is an aquatic plant nutrient that can contribute to eutrophication and loss of dissolved oxygen in surface waters. Excessive nitrate-nitrogen in drinking water can cause methemoglobinemia in infants and cause pregnancy complications. Livestock also can suffer health impacts from drinking water high in nitrogen. Ammonia-nitrogen in surface waters can be toxic to fish.
Phosphorus (P)	Phosphorus is an aquatic plant nutrient that can contribute to eutrophication of surface waters and reduction of dissolved oxygen.
Toxic Organic Compounds	Toxic organic compounds present in household chemicals and cleaning agents can interfere with certain biological processes in conventional and alternative treatment systems and can persist and bioaccumulate in the aquatic environment. They can cause damage to ecosystems and human health directly or through ingestion of contaminated aquatic organisms.
Heavy metals	Heavy metal contamination in septage may result from household chemicals that contain trace concentration of heavy metals, leaching of metals from household piping and joints, or contamination of septage in hauler trucks from a previous industrial waste load. Heavy metals (e.g. lead or mercury) in drinking water can cause human health problems. In the aquatic ecosystem, they also can be toxic to aquatic life and accumulate in fish that might be consumed by humans. Most fish

	consumption advisories are due to heavy metal contamination.
Endocrine Disrupting Chemicals (EDC)	Treated septage and wastewater effluent contains a cocktail of chemicals that have disturbing impacts. EDCs can disrupt growth processes, development and reproduction of aquatic species (e.g. deformities and embryo mortality in birds, fish and other aquatic animals). Inter-sex fish and amphibians have been found in the Ottawa and St. Lawrence Rivers.

Table A-2 Important information required to compare and choose between each viable alternative

1. Costs to haul septage to treatment facility (these costs will vary with each site identified, as well as the technology of the trucks used). Costs should include energy, impact on roads and traffic, greenhouse gas emissions and any required capital costs.
2. What are the capital costs required to build the required infrastructure?
3. Will the province and the federal government provide funding for the alternatives?
4. How much and what type of land is required for each alternative?
5. What are the annual operating, monitoring and maintenance costs?
6. Will trained operators be available?
7. Effluent quality – will it meet the new national standards? Will it threaten our water quality?
8. What is the potential impact on the Gatineau River?
9. Use of sludge: cost of transporting sludge to another facility, is the end use beneficial, does it create other health hazards (spreading on crop land), will it be used to make energy, will a reputable and trustworthy company manage our biosolids?
10. How many jobs will be created?
11. Will the alternative be a sustainable solution that will put our region “on the map” for fostering sustainability and respect for our environment?
12. Provincial approvals – how challenging will it be to get approvals from the province for each alternative?