Evaluating Impacts and Current Legislation on Aggregate Extraction in Simcoe County

Background

The Teedon pit (site 42), located in Tiny, Ontario, is home to an **aggregate washing** facility, operated by Dufferin Aggregates. Since 2009, over a million litres of water have been taken from the **Alliston aquifer** for aggregate washing. The aquifer is situated in the Simcoe uplands of Ontario and has long been a source of **pristine** and **plentiful** groundwater. Residents who receive their well water from the aquifer have noticed a decrease in their water quality since aggregate washing began and hypothesize that this is due to the wash water leaking into the underlying groundwater flow system, contaminating water supply. A 2015 investigation done by the **Ontario Ministry of the Environment** dismissed claims that aggregate extraction was the root cause of diminished water quality. This allowed for a renewal of Dufferin Aggregate's **10-year** permit to take water in 2021.

Figure 1. A satellite photo of the area of concern (Teedon Pit, 40 Darby Rd, Tiny, ON)

Purpose

The purpose of this project is to assess the environmental implications of aggregate extraction for a valuable aquifer located in Alliston, Ontario (a small town in Tiny Township), then evaluate Ontario's regulatory framework and effectiveness in protecting water resources. The final report will include recommendations for best management practices based on case studies and successful policy implementation.

Research Questions

1. What are the environmental impacts of aggregate extraction, particularly on groundwater quality?
2. How effective are current policies in regulating aggregate washing and protecting groundwater?
3. What management strategies can be implemented to mitigate negative impacts on water resources?

Methods

Literature Review:
- Analysis of peer-reviewed studies, government reports, and case studies.
- Investigation of aggregate extraction policies and water protection laws.

Interviews:
- In-depth discussions with local stakeholders and experts

Comparative Case Studies:
- Examining similar issues (Melancthon Mega Quarry)

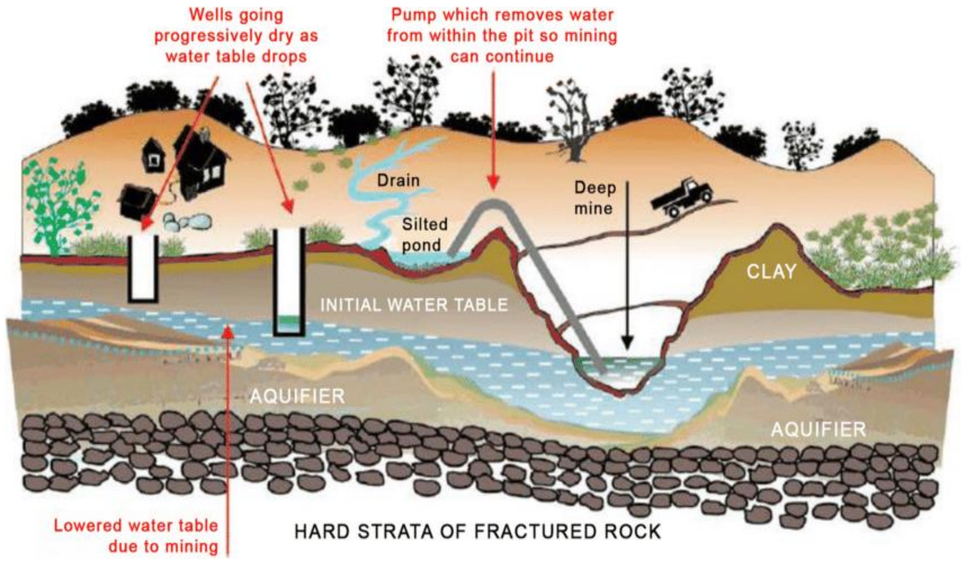

Figure 2: An image showing one possible negative impact due to mining below the water table (Xavier et al. 2013).

Key Findings

1. **Aggregate Extraction Impacts**:
   - Negative Environmental & Aquifer Effects– past case studies and peer-reviewed literature linking negative aquifer and surface water effects due to aggregate extraction (both direct and indirect).
   - Adverse Human Health Effects – possible via particulate contamination.
2. **Current Aggregate Extraction Policies & Groundwater Protection**:
   - Section 2.2.1 - Water Resources under the Provincial Policy Statement
   - Environmental Protection Act: Section 14.(1)
3. **Management Strategies**:
   - According to the Government of Ontario, there are currently 20 constraints (various Acts & regulations) placed on aggregate extraction in the province, though there is also currently an increasing demand for aggregate resources.
   - Concerned stakeholders can make inquires, raise concerns, and request reviews and testing with the Ministry of the Environment.

Implications and Next Steps

Key findings suggest that conducting aggregate extraction in the area may negatively affect the water quality of Simcoe's Alliston aquifer, and harm human and environmental health. Possible future steps :

- Conducting further research on the area's current ground and surface water quality.
- Compiling a comprehensive report combining the results of this project with field data results.
- Presenting results and concerns in a comprehensive report to stakeholders and Ministry of the Environment, Ministry of Natural Resources, and/or the Ministry of Health.

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