

# The Daily Gleaner

*Green Matters for the Daily Gleaner*

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## ***Sustainable Schools in New Brunswick***

The Gaia Project, a Fredericton-based charity providing sustainable engineering education programs to students, has been piloting a new sustainability program developed at several New Brunswick high schools. The Gaia Project's goal has always been to make its programs as hands on and as real world as possible. With this in mind, Gaia has been able to provide students with the equipment and training to be able to produce sustainability plans for their schools.

Over the coming years, the schools will focus on energy, transportation, waste and water use. This begins by finding out where they stand today – the baseline. The current situation is surprising. Energy use at most of these schools is on the rise - approaching a 15% increase over the past two years at many schools. More surprising is that most of these schools use virtually the same amount of energy in July or August as they do in September – and remember, there is no one in the school in those summer months.

So the students set out, equipment in hand, to find out where all that money (usually \$250k to \$500k per school) and energy goes. They take temperature readings, use thermal imaging cameras, data-logging power meters, measure light intensity levels, survey students and teachers, count light bulbs, and even the frequency at which people use bathrooms. And the solutions that have been presented so far have been incredible. Here are just a few.

Students found that light intensity levels in some classrooms that have been repainted white are five times higher than the recommended levels. That is wasted energy and inappropriate working conditions. Other students have shown that vending machines full of water bottles (and next to a water fountain) actually cost schools more in energy than they return in revenue to the school – something no one has ever thought to consider before.

Teachers often have their windows open when it is -20°C outside because they don't have local control over the temperature in their rooms. Even simple solutions like closing curtains at night would be enough to save thousands of dollars per school per year.

Waterless urinals at a school (becoming increasingly common) to replace existing ones that flush every 15 minutes, 24 hours a day and 365 days a year, could save roughly 1,000,000L of water a year (a reduction of 75%), with capital costs paid back in under four years.

However, one of the barriers that exist in schools to effectively implement these sustainability plans is the way the budget process works. Right now, schools don't see their energy bills. It is paid for at the district level. A reduction in energy costs at the district level actually results in those savings being removed from their budget the following year. There is no incentive for the users (the schools) and managers (the districts) to actually save energy, because there will be no financial gain to do so. We're hoping this will change.

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The Gaia Project is going to help find a solution for this problem by putting information about energy use into the hands of the schools. We intend to install some low-cost real-time utility monitors that we have developed in the schools we are working with (free of charge). Students will then have real-time, minute by minute, web-based information on how much electricity, natural gas, oil and water their school is using, and the ability to look through this information historically to compare performance.

This program gives students the chance to take part in something where they can actually have an impact. Hopefully, through what they learn here, they become ambassadors for sustainability in their homes and communities. That said, the skills they take home from the program are about much more than just the environment. The self-directed nature of the program encourages problem solving, critical thinking, teamwork, effective data management, financial analysis, and presentation skills.

This most satisfying and exciting part of the project is when students start making data-informed decisions. Every decision they make is justified by data that they have collected, with a consideration towards the economic, social and environmental costs and benefits. It's all part of what is referred to as 'Realistic Environmentalism', and we can grow it right here in New Brunswick, in our own schools and communities. And during a crucial time in our province when we are trying to save money and shrink our environmental footprint it is an exciting proposition indeed!

*Brian McCain is Executive Director of The Gaia Project, a New Brunswick based charity focusing on sustainable engineering education. If you'd like to support these efforts, please visit [www.thegaiaproject.ca](http://www.thegaiaproject.ca) or call 1-877-442-4136.*