

PAPER FOR TREES – A CARBON ZERO PROJECT

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ABSTRACT

Marty Hoffart is a Tauranga based zero waste educator and cleaner production consultant for Waste Watchers Ltd. He is co-founder of the award winning EERST Trust. The flagship project called Paper4trees sees environmental trust EERST working with schools to swap native trees for recycled paper and cardboard. This hugely successful initiative which began in 2000 and motivates schools to recycle their paper and cardboard by rewarding them with native trees.

There are currently over 800 schools taking part in the program and it is one of New Zealand's most extensive waste minimisation programmes specifically designed to minimise school waste. Discover the challenges of embarking on this massive project and learn about results obtained to date.

With a nation wide team of experienced waste minimisation educators that work with thousands of students and teachers, EERST has first-hand knowledge of how best to work with students and teachers and deal with principals, educational red tape and school caretakers who were once passionate about their incinerators and waste skips but now love their recycling bins.

1. INTRODUCTION

Tauranga based EERST Trust is an award winning community-based organization involved in zero waste initiatives. The flagship project for EERST is the paper4trees programme.

So, you want to minimise waste in your community. You've figured out school-based programmes are essential because today's environmentally savvy children are tomorrow's environmentally responsible adults. Now, you need to know the best, most efficient way to get that reduce-reuse-recycle message into classrooms and young minds.

In 1993, Bruce Trask, now Chairman of EERST (Environmental Education for Resource Sustainability Trust), Director of Zero Waste Education and Director of Waste Watchers Ltd began working in schools as a waste minimisation educator with Tauranga City Council. Several years later in 1999 EERST was formed around the same time the zero waste movement began sweeping through New Zealand. The paper4trees programme was created a year later in 2000 with some financial assistance from the Zero Waste New Zealand Trust and Environment Bay of Plenty's Environmental Enhancement Fund.

Today school waste minimisation education programmes are many and varied, but in the early 1990's school programmes were breaking new ground to preach the waste reduction message. One of the reasons Paper4trees has experienced tremendous growth and success throughout the country is because of its partnership with specialist educators from Zero Waste Education. While other programmes available look at several aspects of the school environment, the Paper4trees programme has a specific focus to reduce the amount of solid waste going to landfills. With about 75% of school waste consisting of paper and cardboard, targeting this part of the waste stream sees the greatest result in waste diversion.

1.1 Getting started by getting into schools

First of all, trying to get zero waste education programmes or waste minimisation projects into schools is not easy. It is well recognised that getting into classrooms is a valuable way to target children and families. So any school project or programme must compete with all others on offer such as:

- Music Groups
- Dance Groups
- Story Tellers
- Arts Groups
- Bands
- Science and Technology Road Shows
- Sporting Programmes
- Bibles in Schools
- Drug and Alcohol Programmes
- Civil Defence
- Cycle safety
- Emergency services – police, fire service

Schools are busy places and teachers are working at full capacity and generally struggle to keep up with increasing demands. The last thing most teachers want to deal with is squeezing another visitor, programme or project into their already challenging schedule. If teachers perceive a new programme as extra work, many will want no part of it. Each year, teachers seem to have more assessments to complete, new curriculum to learn and more requirements lumped into extremely busy days. Trying to organise a school-wide project can create a scheduling nightmare for a teacher.

High Schools require more resources mainly consisting of time and finances. They are normally present more challenges to zero waste projects as they have more students, more teachers, more support staff, more cleaners and more red tape. Many have around two thousand students and hundreds of teachers and support staff. To complicate things further, they could have a team of caretakers and several cleaners, which means organising a great deal of people to use a new system effectively. They may even have contract cleaners. One particular high school that joined Paper4trees had four separate companies each with a team of cleaning contractors working after school each day.

Schools also plan a year in advance, so any scheduled visits or major operational changes may need to be booked the previous year to avoid school camps, other scheduled activities such as cross country, school productions, exchanges, and so on. It is also very difficult to get information to and from teachers. Contacting a teacher by phone is virtually impossible and even email messages may not get answered promptly, especially if they don't know who you are and what you want.

It is important to provide a detailed outline of the programme and to give teachers information pamphlets, project plans or worksheets well in advance. It is also essential to explain how programme meets the curriculum objectives. For example - where it fits into the school curriculum, long-term planning and goals. Principals and teachers will accept a programme more readily if they can plan to integrate it into the work they are already doing or want to do.

On a positive note, these days most teachers feel that taking part in a waste minimisation education programmes are worthwhile and most students enjoy projects with an environmental focus. Having a specialist teacher or visitor with up to date information and an interesting topic give zero waste facilitators a head start. In the past couple of years, more high schools have begun to open their doors to environmental programmes as well.

1.2 Community Based Social Marketing and Schools

EERST has taken a few tips from the experts like Dr. Mackenzie-Mohr - an environmental psychologist who specialises in designing programmes to promote sustainable behaviour. He is a professor of social psychology at St. Thomas University in Canada. In his years as a university professor, Dr Mackenzie-Mohr has conducted research for years - much of it is available at www.CBSM.com. His findings can be very useful to those of us who want to help people change their behaviour and adopt more sustainable practices.

A successful school programme should be designed with that in mind. CBSM is an alternative to conventional marketing techniques and draws heavily on research in social psychology. The concept's popularity stems from a growing understanding that conventional social marketing, with a reliance on media advertising, is limited in its ability to change behaviour. Dr. Mackenzie-Mohr concludes that creating awareness about sustainability does not lead directly to behaviour change. Finding out why people do not engage in sustainable behaviour patterns, and identifying the barriers that stop them from, is a key to CBSM.

2. BACKGROUND

2.1 Paper4trees

In 2000, EERST trust developed a concept called "Paper4trees". It became apparent, after visiting hundreds of schools involved with the Zero Waste Education programme, that many schools needed basic help to recycle paper and cardboard. Waste audits were conducted at several schools and results were immediately clear. More than 75% of school waste was made up of paper and cardboard. Couriers arrive almost daily at schools bringing cardboard boxes filled with books and an assortment of other school materials. Most newspapers around the country now have schools linked into education programmes, which brings weekly bundles of the local newspaper into the school. Teachers copy resources from the Internet or their school resource room, which means the school photocopier is churning out ream after ream of paper at a rate that seems to increase every year. Having a textbook for each subject is no longer the norm. These days, students are given photocopied sheets of paper for much of their work.

EERST started looking at how recycling rates could be increased in schools and applied for a grant in 2000 to purchase thousands of plastic 30 litre bins. The idea was to get one standard green bin into every classroom, library, administration area, staff room and all offices. Plastic bins were chosen over cardboard boxes because they last longer and are easier to identify by students and staff. Cardboard boxes are not robust enough to withstand the classroom environment and trials during an initial pilot project resulted in cardboard boxes getting recycled (cleaners and children recycled the container and the contents) which quickly ended the recycling program. With some initial funding EERST was able to confirm the programme in about 40 schools in Tauranga and the Western Bay of Plenty. The next step involved meeting with local recycling operators to gain support for the collection of paper and cardboard. Once the schools had dedicated paper recycling bins and a reliable collection service in place, EERST launched the paper4trees programme one school at a time.

Paper4trees facilitators began by talking with the school principals and teachers during their morning interval. It is likely the best time of day to meet with the teaching staff for about 10 minutes to explain the project at their school. The lunch break is much more interrupted as teachers are usually either catching up on work, supervising sports teams or off the school grounds. As an incentive, EERST promised to donate one native tree for every three woolsacks or approximately 2.0 cubic meters of paper and cardboard sorted for recycling.

The next step involved finding thousands of native trees to give to the schools each year for planting. Members of the trust met with solid wood furniture manufacturer Design Mobil (www.designmobil.com). The company has a corporate policy to plant a native tree for each wooden bedroom set they sell. The company has been a major sponsor for the program for the past several years. Design Mobil also won the 2007 Sustainable Business of the year, awarded by the Sustainable Business Network (www.sustainable.org.nz)

Number	Council or Area	Project Partner
1	Far North	Far North DC, Clean Stream and Waste Works
2	Whangarei	Paper Reclaim
3	Auckland	EERST
4	Hamilton	EERST
5	Tauranga	Bayfair Shopping Mall / Tauranga City Council
6	Western BOP	Bayfair Shopping Mall
7	Whakatane	Fonterra
8	Opotiki	EERST
9	Gisborne	Transpacific AllBrite Ltd
10	Wairoa	Hawke's Bay Regional Council
11	Napier	Transpacific AllBrite Ltd
12	Hastings	Transpacific AllBrite Ltd
13	Central Hawkes Bay	Hawkes Bay Regional Council
14	Taranua	Cairns Bins and Taranua DC
15	Palmerston North	Palmerston North DC
16	Manawatu	Manawatu DC
17	Horowhenua	EERST
18	Rangitikei	Rangitikei DC
19	Ruapehu	Ruapehu DC
20	Waitomo	EERST
21	Taupo	EERST
22	Otorohanga	EERST
23	Wellington	EERST
24	Selwyn	Selwyn DC
25	Ashburton	EERST
26	Timaru	Timaru DC
27	Nelson	EERST
28	Tasman	EERST
29	Grey	EERST
30	Buller	EERST
31	Westland	EERST
32	Queenstown Lakes	EERST

3. METHODOLOGY

3.1 How does it work?

Award-winning EERST Trust rewards schools with native trees and shrubs as a way of saying thank you for caring about the environment. The Paper4trees project complements any school waste minimisation education programme by encouraging and enabling schools to recycle paper and cardboard. This is accomplished by giving the schools access to free professional project management, bins as support and assistance.

3.2 Who is the project for?

According to the New Zealand Ministry of Education (2007), New Zealand has more than 2500 state schools, state integrated schools and private schools. EERST would like to see every school doing 'their bit' for the environment by minimising waste and planting trees. Private companies and local authorities can also become project partners. They can sponsor schools and offset their carbon emissions through tree planting and improve sustainable transportation initiatives.

3.3 Zero waste and climate change

Paper4trees can be the first step toward zero waste for many schools since paper and cardboard account for about 75% of the total waste generated. The Paper4trees programme aims to keep this resource out of landfills and incinerators, by giving schools support, assistance and incentive to recycle it. Dumping paper and cardboard into a landfill creates gasses, (methane) which are 21 times worse than vehicle emissions.

3.4 Sustainable transportation policy

Being carbon-neutral is a challenge for individuals, corporate bodies and local government. Where possible, reducing carbon emissions by purchasing fuel-efficient and low emission vehicles is a good start. The only way to offset the remainder of the emissions is by investing in an activity that increases carbon absorption or sequestration. With Paper4trees, it is possible for an organization to work toward being carbon neutral. Calculating the exact amount of carbon absorbed by different tree species in different locations is highly scientific and technical. EERST Trust recognised this and would rather do something to offset carbon, rather than enter into a technical debate and do nothing. We have based our calculation on information available and used by other organizations such as the SBN. This average figure used is calculated based on a petrol engine vehicle travelling 15,000km per year, with a fuel economy of 10 litres / 100 km. It also takes into consideration that native New Zealand bush soaks up 125 tons carbon per hectare and restoration planting at 2,500 stems per hectare. The figure of 23 trees per vehicle per year also builds in a 10% mortality rate as a safety net for successful plantings. (www.greenfleet.org.nz)

3.5 Why plant trees?

Tree planting is recognised internationally as a practical short-term solution to offsetting carbon dioxide (CO₂) emissions. EERST encourages the corporate sector, NGO's and government departments to engage in sustainable transport options by only driving the most fuel-efficient vehicles when other more sustainable options such as car sharing, mass transport, walking or bicycles are not available or practical. By sponsoring the planting of native trees participating sponsors are helping to reduce greenhouse gases, control erosion and support biodiversity. With over 70% of the worlds forests already gone, we need to plant more trees to combat climate change.

3.6 School sponsorship

Sponsoring a school or schools through the Paper4trees programme is a great way to get involved in working toward zero waste and reducing climate change. By sponsoring schools, project partners are doing something positive and practical within their community.

They are helping to reduce waste, green their communities and offset carbon emissions. Schools are always looking for partnerships for projects that they otherwise could not participate in.

3.7 How does it work?

A sponsored school receives a recycling bin for every classroom, library, staff room, office and so on. Schools receive posters to colour, recording sheets, and certificate and, at the end of each year, a gift of trees. The schools earn a native tree or plant for every 2.0 cu meter bin or container (approximately 200kg or three woolsacks) of paper and cardboard recycled. EERST manages the entire programme meeting with school staff to explain the concept, deliver bins, and to order and deliver the plants. Schools select their rewards from an extensive list of native New Zealand plants, which may go into school grounds or become part of a community restoration or planting project. Plants are eco-sourced from various nurseries around the country to minimise transport and ensure survival of local varieties.

3.8 Track record

The programme started in 2000 and participating schools recycled 71 tonne of paper and cardboard and were rewarded with 450 trees. By 2006, more than 2000 trees were given to schools and about 420 tonnes - the equivalent of 2100 skips - of paper and cardboard were recycled and there were over 7300 trees earned and planted by schools in 2007. Given the amount of schools now involved, it looks like 2008/2009 will see those figures much higher since the program is now in over 800 schools. It is projected that schools will plant well over 10,000 trees.

Recycling the paper and cardboard does not only save the schools money. It is estimated that the 350 schools that joined the project prior to December in 2007, which made them eligible for trees obtained the following:

- recycled 945 tonnes of paper and cardboard,
- saved 2362 cubic metres of landfill space,
- saved 3210 barrels of oil,
- saved 38,461,536 litres of water,
- saved 38,000,000 kwh of electricity
- planted over 7300 trees
- made 317 vehicles carbon neutral

4. RESULTS

4.1 The Alberta study – Paper4trees going global

In September 2007, representatives from EERST Trust entered into an agreement with Carbon Zero Schools Foundation Canada (CZSFC) to jointly promote the paper4trees programme to selected Canadian schools. Waste minimization facilitators from both organisations randomly visited several schools in the province of Alberta, Canada. The objective was to collect some initial information to gain a better understanding of what Canadian schools were doing to reduce waste. A small town approximately 40 minutes from Edmonton was visited; several schools in the City of St. Albert as well as schools in central Calgary were included.

The results of the Alberta study indicate much more could be done in schools to reduce waste going to landfills. Many schools did not have a system for recycling paper and cardboard and the ones that did, were found to have the paper and cardboard mixed with residual waste. Some schools were using their cardboard recycling bin as a rubbish bin and some only sorted and recycled cardboard boxes. Results of the study indicate here is good evidence that school paper and cardboard recycling programmes are ad-hoc and would see better environmental outcomes from a programme similar to Paper4trees. There are likely some really good examples of schools that do a good job, but we were unable to find them during the study.

One thing that can be learned about the Canadian experience when comparing it to the New Zealand Paper4trees programme is a dedicated program targeting a specific sector of the waste stream can have tangible and measurable outcomes. The Paper4trees system is self-tracking since the number of trees awarded to each participating school relates specifically to the amount of paper and cardboard recycled. The weight of a 2.0 cubic meter skip can be averaged to obtain data relating to the annual tonnage of participating schools. With this information it is possible to track the volume and weight a paper and cardboard recovered within a specific school, district, town, city or region.

4.2 Success in New Zealand?

The growth of the program over the past several years appear to be due to a couple of factors. First of all, it is simple and practical and comes at no cost to the school, which makes it easy to participate. Over 95% of schools approached are keen to join the programme. Using trees, as a reward appears to be a good incentive to keep the schools focused on the program. There are financial savings available to many schools as well. Sending less to landfills means lower waste removal costs. Although there is a cost for recycling collection services, they are normally less than landfill fees and in many districts; councils even provide schools with free recycling collection services. For a large school, this can equate to thousands of dollars saved annually.

Another factor in the success of the programme appears to be annual visits to each participating school. Going back to each school involved in the program for an annual 'check-up' provides immediate feedback to the project team. Newsletter and other information is all sent electronically where possible as well. The annual visit is scheduled at the time of the trees are delivered to reduce the overall carbon footprint of the programme. New certificates, posters, labels and new bins can be given to replace the cracked, broken or missing ones. It's also a good time to meet with new teachers or a new principal to discuss the program. The schools can choose trees specific to their planting project.

It's probably helpful as well that Prime Minister Helen Clark has declared she would like to see New Zealand work toward becoming carbon neutral. According to the official tourism website (www.newzealand.com) the country also has branding of 100% Pure New Zealand which certainly seems to lend support for maintaining practical and measurable carbon reduction initiatives and zero waste.

5. CONCLUSION

With many schools now involved in some form of recycling, it's likely the paper4trees programme will find favour in many communities around the country. And with about 70% of the waste generated at schools being paper and cardboard, this part of the waste stream should be the first step in any school recycling program.

Schools need to have dedicated paper and cardboard recycling programs if they are going to begin to tackle the growing waste problem, reduce resource consumption and reduce the amount of waste going to landfills. Resource recovery means increased economic development and employment opportunities for most communities. Increasing the amount of trees planted and making a better connection with the natural environment is a positive step in doing something practical to combat climate change.

5.1 Acknowledgements

The author would like to acknowledge the assistance given by Zero Waste Education and the Paper4trees project manager, Bruce Trask. In addition assistance given by Carbon Zero Schools Foundation in Canada in providing information about their programmes has been appreciated.

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