

A child's drawing of a scene. On the left is a large green tree with a brown trunk. In the center is a white wall with a small blue cloud. To the right is a house with a yellow roof and a red body, and an orange door. In the foreground, a person with brown hair, wearing a yellow shirt and pink pants, stands on a grey ground. The sky is blue with a large white cloud at the top.

Through the Green Glass

Climate Change
Tools for
Education
Leaders

Going for Green
Leadership Series
Volume 3



Through the Green Glass:
Climate Change Tools for Education Leaders

Going for Green Leadership Series
Volume 3

Columbia Institute
Centre for Civic Governance, 2008

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Edited by the Columbia Institute

Design and layout by Nadene Rehnby and
Pete Tuepah www.handsonpublications.com

Cover illustration by Maya Crooks, Grade 1

Many thanks to the students of Tyee Elementary
in Vancouver for creating artwork about
schools and the environment for this book –
and to their teachers for guiding the effort.

ISBN 978-0-9784309-3-1



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> CONTENTS

FOREWORD by Charley Beresford	5
INTRODUCTION by Severn Cullis-Suzuki	7
PART 1 WHAT YOU NEED TO KNOW: A CLIMATE CHANGE PRIMER	17
by Dr. John Fyfe	
PART 2 BUILDING IT IN AND DRIVING IT HOME: GREEN OPERATIONS	25
2.1 Destination Conservation: Building it in	26
by Darla Simpson	
2.2 Driving it Home: School-Based Transportation Emission Reductions	36
by Rebecca Freedman	
2.3 Energy Upgrade Program: School District No. 61, Victoria	42
by Glenn Brenan	
PART 3 DISTRICT GREEN-UP	49
3.1 West Vancouver Ramps Up.....	50
by Patrick Robertson	
3.2 Richmond: Enough for All, Forever.....	56
by Wendy Lim and Eric Thorleifson	
PART 4 A BRIGHTER SHADE OF GREEN: NEW B.C. CURRICULUM	63
4.1 Environmental Learning and Experience: A New Provincial Curriculum Framework.....	64
by Patrick Robertson	
4.2 Ministry of Education Curriculum Development.....	72
by Paul Lukaszek	

PART 5	SUSTAINABILITY FROM THE GROUND UP:	
	Green School Buildings, Green School Yards	79
	5.1 LEED – Leadership in Energy and Environmental Design.....	80
	by Ian Theaker	
	5.2 Green School Design: Royal Oak Middle School in Saanich, B.C.	85
	by Ladislav Holovsky and Peter Westhaver	
	5.3 Smart School Grounds Design	94
	by Dolores Altin	
PART 6	SCHOOLED FOR SUSTAINABILITY – BY DESIGN	101
	6.1 Smart (Growth) Schools	102
	by Cheeying Ho	
	6.2 The Active School Commute: Why it Matters	113
	by Arthur Orsini	
	6.3 Teaching Communities by Teaching Kids	120
	by Ken Martin	
PART 7	ECO-ED CLASSROOM TAKEOVER.....	125
	7.1 Sustainable High Schools Project	126
	by Emily Menzies	
	7.2 The SEEDS Foundation: Society, Environment, and Energy Development Studies	133
	by Carol Batycky	
	7.3 Sustainable Schools in Vancouver.....	140
	by Kevin Millsip	
	7.4 GreenLearning: Energy and Climate Change Education	145
	by Johan Stroman	

Foreword

Through the Green Glass is about using a sustainability lens in public education. It is no longer a question that climate change is the biggest global challenge of our time. Current evidence shows that drastic action must be taken immediately in order to avoid potentially disastrous consequences.

As a 12-year school board veteran, I have a sense of the dedication that all of us involved in education bring to our work, and because of that dedication I feel a particular weight around the climate change issue. Educators have a crucial role to play not only in teaching the science of climate change but to influence the attitudes and behaviours of young people: a crucial task if we are to move towards a sustainable society.

This book is aimed at giving those involved in public education – school board trustees, principals, superintendents, teachers, etc. – the tools and resources necessary to begin this sustainability quest. It is heartening to realize there is a whole arsenal of such tools and resources already in existence, being employed and continually improved by a host of knowledgeable and passionate experts. While these stories reflect British Columbia, the ideas and information are widely applicable.



THANKS to the students of Tye Elementary for creating artwork about schools and the environment for this book, and to their teachers for guiding the effort. ILLUSTRATION BY EVERAN MICHALCHYSHYN, GRADE 4

Through the Green Glass is based on a conference held in January 2008 that brought together over 20 of these experts to speak on a variety of education-related sustainability issues. The goal was to consider key aspects of the education system – from curricula to school design to operations. It begins with an inspiring introduction from Severn Cullis-Suzuki, ecologist, environmental champion, and a role model for young and old alike. The next section provides an understanding of climate change science, explained by Nobel Prize winner Dr. John Fyfe. The following pages detail the many aspects of developing a sustainable school: greening operations, school district planning for sustainability, environmental education programs, designing walkable school neighbourhoods and building low-emissions schools.

It is beyond doubt that climate change is going to have a dramatic effect on the lives of our children and grandchildren. As educators, we have an imperative at this moment in time to work together and take action, before we lose our window of opportunity.

— Charley Beresford
Executive Director, Columbia Institute

INTRODUCTION

Educators: Connectors, Visionaries, Sustainability Revolutionaries

As a 12-year-old, SEVERN CULLIS-SUZUKI's speech to the Earth Summit in Rio de Janeiro established her as an electrifying speaker. Now living on the Queen Charlotte Islands, Severn speaks eloquently about our relationship to the natural world. Her keynote address to the Through the Green Glass Climate Change Symposium outlined the pivotal role educators can play in the sustainability revolution.

I come from a tribe of very strong educators. My family is full of teachers and professors and my grandfather was a proud principal and superintendent in Howe Sound. I went to school in Kitsilano in Vancouver. I believe very strongly in public education!

Schools are the first place in our society that should emerge as sustainable examples.

Schools are for the future. Schools are about teaching the next generation. Today, by necessity, we need to become sustainable. Learning this attitude and means of doing it in school will set future adults up for the practical reality of living with smaller footprints.

Because of this, schools and institutions of learning should be places of innovation in sustainability. The example that springs to my mind is Cochrane High School in Alberta. Two science teachers there got inspired and started a sustainable development project. They got the kids on board and raised enough money to install a wind turbine and solar

panels at the school. The computer system is behind a display case in the lobby and you can see how much energy the turbine and solar panels are producing for the school, as well as how much energy the school is actually using. It's an amazing learning tool that the kids are so proud of. I met kids from Cochrane High School at a youth conference; they were teaching other students about the project and how others could do it in their own schools. This success story is a perfect example of how kids are not afraid of tackling big issues. Youth in schools can be real leaders in our society.

To teach and learn sustainability, we need connection, revolution, and vision.

> CONNECTION

The kids that are in school today will face challenges the world has never seen before. While we might not know what the specifics of global challenges (such as climate change) are going to be, we can certainly help set the stage for understanding the causes and effects of environmental issues and why becoming sustainable matters. One of the most important things we can do, personally and in teaching others, is make the connections between ourselves and the ecological world.

To start, I want to talk about this word, the "*environment*." What's the first thing that comes to your mind when you think of this word? When most people think of "the environment," they might think of the Amazon rainforest or of endangered whales in the ocean somewhere. Maybe they might think of hippies chaining themselves to the trees, recycling, or they might think of the Kyoto Protocol. The environment means something *out there*, something that we don't really have to deal with in everyday life at school, in the city, that doesn't really concern us daily. We don't think of our environment as our schools, dorm rooms, as our kitchens, as our own community, our homes. We don't think of it as our education system. We don't think of it as our economic interactions. We don't think of it as the plastic wrapped produce that came from far away, or the garbage that we put on the curb. We don't think of our environment as what we breathe and eat and what we throw away.

But in fact, the definition of one's "environment" is simply our surroundings. It's everything around us. We are all human animals, acutely dependent and affected by air (which we share), water and food (which comes from around the world), and we are all deeply connected to each



GLOBAL CONNECTIONS: We are all human animals, acutely dependent and affected by air (which we share), water and food (which comes from around the world), and we are all deeply connected to each other and to a global environment from which everything we have is derived.

other and to a global environment from which everything we have is derived.

I make this point because the more I learn about indigenous ecology (learning about traditional ways of looking at natural resources and biology) the more I realize that our very *concept* of "environment" or "ecology" or even "nature," is in fact the biggest difference between our Western/scientific view and indigenous views of the world. In the West, there has been a very distinct externalizing of the natural world, as "the environment," whereas in indigenous societies, there is no separation of humans from the environment. In many languages there is no word for "environment" or "nature."

This might not seem very important, but I think it is this separation that is really fundamental to our ecological problem. The idea of being separate from our environment inherently teaches us that the environment is an external thing, and it lets us get out of our connection and responsibility to everything and everyone around us. This separation has allowed us to ignore the realities of cause and effect of our actions on a finite planet. In a sustainable society, the basic elements of our connections and dependence on the biological, ecological world need to be re-taught and emphasized. Working the elements of our "environment" into the things in life we are currently taught are important (like

jobs, economics, politics, culture, food) is an essential practice that will inherently shift what makes logical sense in mainstream culture.

Kids can learn this automatically. Like everyone, I am a product of my childhood education. When I was very little I learned about the natural world both inside and outside the classroom. I learned to love nature. In urban Toronto, one of my strongest memories of Grade 2 was when one of my teachers collected a monarch butterfly caterpillar and brought it into the classroom for us to feed with milkweed and watch it metamorphose into a chrysalis and then a butterfly. That was an incredible experience I have never forgotten. The next year, back in B.C., I spent most of my time as a kid down at the tidepools of Kitsilano. My Grade 3 class did an excursion to the beach at low tide to look at all the organisms and ecosystems. I know that time on that beach is why I eventually found myself studying eelgrass for my master's degree.

I also learned that ecology was relevant to my belly! I think that for my sister and me, our first "environmental" education was about food: we learned pretty early on that eating local was the way to go; we'd catch smelt and flounders right off the seawall on Kits beach that we'd eat for breakfast. And my grandparents, who live upstairs at our house in Vancouver, have always kept a garden and we grew up gardening with Granddad, and eating the salad, vegetables, and fruit that he grew for our family.

I also learned that healthy ecosystems were essential to cultural wellbeing. My parents and grandparents took my sister and me camping and fishing around B.C. and we spent a lot of time in First Nations communities on the coast, with the Heiltsuk of Bella Bella, the Kwakwaka'wakw of Alert Bay, and especially on Haida Gwaii, the Queen Charlotte Islands. After high school I spent time with a Haida woman, Diane Brown, who took me out on the reefs and ocean, and taught me that when the tide is out the table is set – she showed me how to spear sea urchins, find rock scallops, how to catch halibut, cod, and spring salmon, and to give thanks for the food we caught. I learned about nature, the bounty of the resources around us, how it sustains us.

And finally, by simply spending time in small towns in B.C., I learned that ecological health was connected to the economic and social health of small communities in our province. At the same time as having these great experiences in nature, I was also seeing a lot of destruction. Besides the clearcuts and landslides and the struggling fish runs, I could see that in small B.C. communities unemployment was a big problem as the fishing and forestry industries declined. I've watched my friends in

small communities leave their hometowns for jobs in the cities, because there's no future in resource extraction.

These experiences taught me the relevance of the problems in our so-called "environment." The "environment" was about food, it was about the jobs of my friends' parents. Issues of environment to me are about understanding how the world works and understanding justice in our society.

In a sustainable education system, the elements of the interconnections between ourselves and the natural world need to be taught. When these connections are made, the case for sustainability becomes crystal clear and the solutions are clearer too. The 20th century was a time of fragmentation – the isolation of parts of the whole. Now we have to put the world back together again. Interconnections have to be the form and content of an education system that actually understands sustainability.

> REVOLUTION

It is finally common understanding that we are living at a time of immense ecological change that no humans before us have lived through. The reality that the Earth is finite is beginning to hit us. There are so many changes occurring that you could say we are living through a time of *revolution*. The word revolution means "a turn around." This may be a change in social or political institutions over a relatively short period of time or a major change in culture or economy. Some revolutions are led by the majority of the populace of a nation, others by a small band of revolutionaries. So a revolution is a big, fast change.

Just as we are experiencing an incredible technical revolution in access to information and to the world, we are also experiencing a negative revolution in terms of *diversity*. The obvious one is a decline in biodiversity: in March 2005 the Millennium Ecosystem Assessment came out, a United Nations report by 1,360 scientists and experts worldwide. The objective of the report was to assess the consequences of ecosystem change for human well-being. One of the findings was that the current extinction rate is up to 1,000 times higher than the fossil record. You might have noticed this yourself in the disappearances of frogs, insects, and other creatures that you used to see when you were a kid. The world is changing very quickly in terms of biodiversity. I've

definitely noticed it myself. The fishing in the places where I used to go as a kid is very different.

There is also a deep connection between biodiversity and cultural diversity: worldwide there is a general revolution in traditional practices and a decline in languages. In studying ethnoecology I am learning that the ethnosphere – the web of human stories and cultures and knowledge about the planet – is shrinking, as the global population urbanizes and moves completely into a globalized money economy. As ecosystems are degraded, more people urbanize, become less self-sufficient, and leave their traditional farming and plant cultivation practices. Apparently 75 per cent of genetic diversity of agricultural crops has been lost since the beginning of the 20th century.¹ This is coupled with a loss of agricultural knowledge on how to harvest that diversity: it's more efficient to mechanize or have people on a production line, so people lose their knowledge of how to farm and produce their own food.

Even our economic diversity is decreasing. You've probably noticed if you go on a trip somewhere, even overseas, that you can probably find a McDonald's or a supermarket with the food you eat at home.

So, who cares that diversity is decreasing? Well, besides making the world a boring place, when we study evolution or genetics, we know that *diversity* is the necessary factor for dealing with unforeseeable challenges to our survival. If you have one huge field of one kind of tomato you are at risk for being wiped out by a single tomato disease or bug. If you have one huge single type of economy in the world and the United States goes into depression, everyone connected will be affected. With more variety and diversity you have more chances of survival. This revolution in diversity is putting future generations at great risk.

This is all especially relevant to the issue of climate change. In the 21st century, we are also undergoing a revolution in climate. Climate change is the challenge of our generation. It will be the context for the rest of our lives. This revolution will affect all aspects of life. Because of this, it will pose issues of security. In 2004, the Pentagon prepared a report that stated climate change has the potential to pose a greater risk to homeland security than terrorism, because it will cause mass migration of environmental refugees and destabilize societies as they will compete over dwindling resources.

Climate change is one of the strongest examples of an *intergenerational crime*: a massive problem created by older generations that their young people will have to deal with. On this issue, those in your schools today have the most at stake.

It is so good to see the huge shift in awareness about climate change that is happening today; in the last two years awareness has been raised to the mainstream. It is essential that this issue be understood widely and it is encouraging to see educators at all levels gathering to discuss it and strategize.

> VISION

Here we are asking everyone – youth and adults – to become more aware that the world is changing, that there are massive global concerns, massive ecosystem revolutions, extinctions, climate change; the 21st century is a pretty intense time to be a young human being. It can be utterly overwhelming. It can be totally depressing. There are a lot of overwhelming global challenges created by previous generations and there is a lot of information out there. Not only do these problems exist, but kids know about them, through the media and Internet. I can remember times as a child, listening to the news, listening to adults talk about the state of the world, and being completely overwhelmed. And I didn't even have the Internet! Kids do take on these issues. How do you deal with kids who are completely overwhelmed by this? Fear and anger without a positive outlet are not good for anyone, let alone youth.

To answer the global crises, we need to have *vision*. Kids today need to face the reality: indeed, there is an ecological crisis. But this is not only a massive challenge we have been saddled with, this is also our *opportunity*. Society doesn't change unless it has to, and now we're at that point: we *have to* change. This is a chance to create and make amazing, positive changes in the world. In his Nobel Peace Prize acceptance speech, Al Gore spoke of the twin elements that comprise the word "crisis" in the Kanji alphabet. He said, "In the Kanji characters used in both Chinese and Japanese, 'crisis' is written with two symbols, the first meaning 'danger,' the second 'opportunity.' By facing and removing the danger of the climate crisis, we have the opportunity to gain the moral authority and vision to vastly increase our own capacity to solve other crises that have been too long ignored."

I think what saved me, as a kid, from getting completely depressed was *a vision* and the belief that I could do something about problems. That if I was angry about something, I was essential to the solutions. That I was part of an incredible movement of people around the planet that was exciting and powerful. That there was a heck of a lot I could do.

ENVIRONMENTAL HEROES: For a child growing up in an era when the world is just waking up to climate change, there is a lot of doom and gloom. Translating that to a kid's point of view, that means there is a lot of evil in the world. The antidote is the opportunity to work with a league of heroes. And this vision is happening.

ILLUSTRATION BY BYRON KONTOU, GRADE 6



As it turns out, pushing for a more sustainable way of living has been the most exciting, motivating feature of my life. Because of this ecological challenge, I have met incredible people, inspiring individuals

who are at once regular people and amazing leaders actually changing the world. That faith I learned as a child is definitely the reason that I'm up here on this podium today. I know that I am changing the world; I was taught that as a kid.

For a child growing up in an era when the world is just waking up to climate change, there is a lot of doom and gloom. Translating that to a kid's point of view, that means there is a lot of evil in the world. The antidote is the opportunity to work with a league of heroes. And this vision is happening: there is a whole new way of thinking and talking about our sustainability challenge as exciting. We need to use such language and visions not only to motivate transition for kids, but also for ourselves! We have to find the connections between ourselves and the revolutions, and we have to believe in the reality that we are the solution. In this moment, every person matters. It will take everyone in every sector to take sustainability on as his/her cause. We are lucky to be alive in this time of great change.

All over this country and all over this planet there is evidence of this vision. People are recognizing that they have to take advantage of this

opportunity and stand up and affect change. I think of an eight-year-old I heard who gave an amazing speech to a crowd at a sustainability conference, rattling off two dozen things that she and her classmates were doing for the planet. I think of Mr. Raoul, my Grade 9 ecology teacher and also Stephanie Bennett, the science teacher at Cochrane High who initiated the Sustainable Development Project. I think of Alice Waters and the principal of Martin Luther King Jr. Middle School in Berkeley, who established the Edible Schoolyard and kitchen classroom.² They cleared an acre of asphalt to build an abundant garden that students tend to, harvesting and preparing the food for the school in home economics. I think of the young people in North America that have come out of our education systems to form a series of education programs of their own, known as the Campus Climate Challenge.³ I think of Jessica Lax and the Otesha Project, Karen Kun and Waterlution, George Roter of Engineers Without Borders, and Ben Peterson of Journalists for Human Rights.

It is *individuals'* involvement in their communities, stepping up, and believing this vision that pushes forward the progress of human consciousness. This is a time for *creating* the revolutions that we *want!*

If you are someone who shapes education, your power is vast. You are the one who can have the vision; you are the one who can spread it throughout your institution. You can advocate for outlets for your vision. You can find ways to make your school sustainable. You can support the teachers – there are so many out there already doing this work. You can seek out the role models. You can start campaigns for reducing emissions, reducing ecological footprints of classrooms, whole schools, or your own office. You can challenge the members of your institutions to stand up for the futures of the children in their schools.

By picking up this book, you have already decided to be part of the antidote. There are some amazing experts in these pages. Some of the ideas you will learn will be about creating connections. Some will be about how you can make positive revolutions happen in your institutions. All of them will call on your vision to move us a step closer to a sustainable society of which we can be proud.

> NOTES

¹ State of the World, 2005, www.worldwatch.org, p. 62.

² www.edibleschoolyard.org.

³ www.climatechallenge.org.