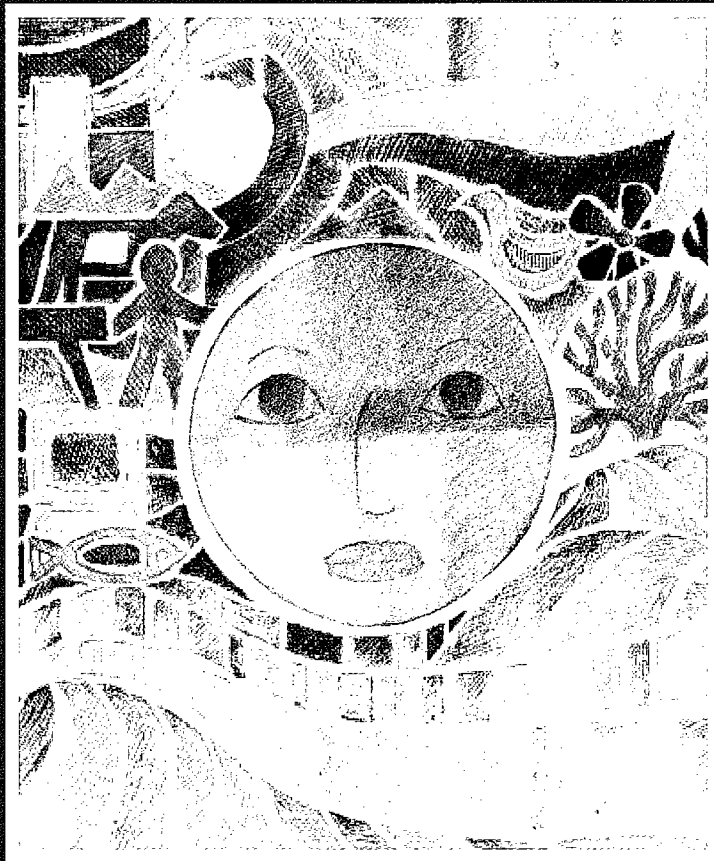


EMPLOYMENT AND SUSTAINABLE DEVELOPMENT:  
OPPORTUNITIES FOR CANADA



IISD

INTERNATIONAL INSTITUTE  
FOR SUSTAINABLE DEVELOPMENT  
INSTITUT INTERNATIONAL  
DU DÉVELOPPEMENT DURABLE

IIDD

Copyright © 1994 International Institute for Sustainable Development (IISD)

**Sections of this paper may be reproduced with acknowledgement to the International Institute for Sustainable Development.**

Canadian Cataloguing in Publication Data

Shea, Cynthia Pollock

Employment and sustainable development

Issued also in French under title: Perspectives d'emploi et de développement durable pour le Canada.

Includes bibliographical references.

ISBN I-895536-28-6

1. Manpower policy – Canada

2. Sustainable development – Canada

I. International Institute for Sustainable Development.

II. Title.

HD5728.S54 1994 331.11'0971 C94-920269-X

This book is printed on paper with recycled content.

Printed and bound in Canada.

Published and distributed by:

International Institute for Sustainable Development

161 Portage Avenue East - 6th Floor

Winnipeg, Manitoba, Canada

R3B 0Y4

Phone: (204) 958-7700

Fax: (204) 958-7710

Email: [reception@iisdpost.iisd.ca](mailto:reception@iisdpost.iisd.ca)

---

# EMPLOYMENT AND SUSTAINABLE DEVELOPMENT: OPPORTUNITIES FOR CANADA



Cynthia Pollock Shea

International Institute for Sustainable Development  
161 Portage Avenue East – 6th Floor  
Winnipeg, Manitoba R3B 0Y4

Phone: (204) 958-7700

Fax: (204) 958-7710

E-mail: [cpshea@iisdpost.iisd.ca](mailto:cpshea@iisdpost.iisd.ca)

Funded by the  
International Institute for Sustainable Development  
and  
Human Resources Development Canada  
in cooperation with  
Environment Canada

---



FOREWORD	iv	Tourism Industry Needs and Community Benefits	20
PREFACE	v		
EXECUTIVE SUMMARY	1	Renewing Forests and Forest Based Communities	20
The Challenge	1	Sustainable Management Practices	21
Sustainable Development	1	Adding Value to Wood Products	21
New Opportunities	3	Tapping Underutilized Species and Improving Marketing Efforts	23
Achieving Canada's Potential	3		
The Tools Available	4	Restoring Fisheries and Promoting Aquaculture	23
Next Steps	5	Adding Value to Fish Products	24
INTRODUCTION	7	Revitalizing Agriculture	26
Background on the Project	7	Community Shared Agriculture	27
New Relationships	7	Materials Management and Recycling	28
An Integrated and Cooperative Approach to Decision Making	8	The Edmonton Recycling Society	29
Multiplying Local Benefits	9	Untapped Potential	30
Financing	9	Environmental Technologies	31
Information	11	Training	32
POINTS OF AGREEMENT AMONG MEETING PARTICIPANTS	12	Designing Energy Efficient and People Friendly Cities	32
SUSTAINABLE EMPLOYMENT GENERATORS	13	NEW APPROACHES TO DEVELOPMENT	35
Infrastructure Improvements	13	Promoting Synergies Through Community Economic Development	35
Knowledge Access and Use	13	Ecotrust	35
Natural Resource Protection, Use, and Renewal	13	Regroupement pour la Relance Économique et Social du Sud-ouest de Montréal	36
Development, Commercialization, and Use of Environmental Technologies	13	Co-management of Resources	37
Service Industries	13	Making Learning Fun	37
HIGH PRIORITY SECTORS	15	CONCLUSION	39
Retrofitting Buildings	15	APPENDIX 1: Directory of Attendees at the IISD Employment and Sustainable Development Meeting	41
Financing	15		
Employment Implications	17	APPENDIX 2: Directory of Papers Submitted for the Employment and Sustainable Development Project	51
Training	17		
Tourism	17		
Eco-tourism	18		
Rural Tourism	19		

## FOREWORD

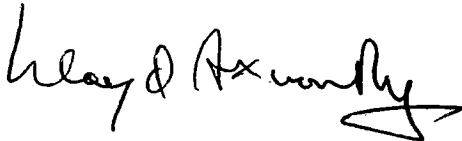
Providing Canadians with employment opportunities that are economically, environmentally, and socially sustainable is the key to our future prosperity. An improved understanding of the new economy now taking shape will enable us to educate and train today's workforce for tomorrow's jobs.

This government is committed to improving the economic and environmental performance of our natural resource and industrial sectors. Many technologies already exist to recycle our discards, use energy more efficiently, and reduce our use of materials. By combining the right mix of fiscal, regulatory, and human resources development policies we can encourage environmentally sound economic activities that will put people back to work in the private sector.

My ministry intends to work closely with other levels and departments of government to streamline our operations and effectively assist the priority sectors of a sustainable economy. The ideas generated at the Employment and Sustainable Development Meeting held in Winnipeg in June have helped us to identify and evaluate a range of new approaches. Convened by the International Institute for Sustainable Development and funded by Human Resources Development Canada, in cooperation with Environment Canada, the meeting drew out the best ideas from business, labour, First Nations, nongovernmental organizations and training institutes.

Reducing the energy use of our buildings, promoting aquaculture, and improving the environmental performance of the tourism industry are three of the meeting recommendations upon which we are now acting. Adding economic value to natural resources and working more closely with community economic development agencies and First Nations are areas we are currently exploring. Combining traditional knowledge and modern technologies offers promise across a range of natural resource sectors.

Applying a sustainability screen to future job creation and training programs will help to ensure that investments made today will continue to offer high returns well into the future.



Lloyd Axworthy

Minister of Human Resources Development

## PREFACE

Around the world, governments face budget deficits, unacceptably high unemployment, and a deteriorating natural environment. Saving money, putting people back to work, and restoring ecological integrity is a widely shared goal. Governments acting alone, however, will not achieve their desired objectives. Innovative, nimble companies, and communities with a strong and shared vision of the future, are now major players on the path to sustainability.

Fiscal policies that support economically and environmentally efficient businesses, regulations that guide instead of block private sector initiatives, and social policies that sympathetically encourage and promote self reliance are the types of political leadership needed in today's rapidly changing global economy. Improved government coordination and facilitation can unleash creativity and cut costs.

IISD emphasizes how sustainable development can directly contribute to social well being. Linking employment to environment and development concerns is essential. We must be prepared to move far beyond the arguments of an earlier decade about jobs versus the environment. The emphasis now must be on how maintaining good environmental conditions benefits the economy and the viability of both small-scale and large enterprises.

This project, undertaken at the request of Minister Axworthy and Human Resources Development Canada, identifies important pathways for maintaining and expanding employment opportunities. It provides a foundation for other IISD initiatives in Canada and internationally.



Arthur J. Hanson

President and CEO International Institute for Sustainable Development





## EXECUTIVE SUMMARY

### The Challenge

Providing sustainable livelihoods for Canada's and the world's workforce is a mounting challenge. Accelerating technological change, increasingly fluid international markets, and dramatic economic restructuring are influencing the ability of companies, communities, and individuals to remain viable in the marketplace.

The employment outlook for many Canadians has changed dramatically in recent years. The number of jobs available in agriculture, fisheries, forestry, mining, and manufacturing has declined steadily with the adoption of new technologies, changing market conditions, a tougher regulatory arena, and a degraded environment and depleted resource base.

A rapidly growing service sector has absorbed many of the displaced workers — often at a lower wage — but high levels of unemployment persist. The official unemployment rate in Canada hovers between 10 and 11 percent, while underemployment and the number of individuals who have decided to leave the workforce are both growing. Young people are finding it especially difficult to find employment, even after years of post-secondary education and training. And employers cannot always find the specific expertise and skills needed when they are ready to hire.

Fundamental shifts in the economy and accelerating technological change have left millions feeling anxious about the future and insecure about their role in it. The social and economic costs of chronic unemployment are high. In 1993, Canada spent \$40 billion on unemployment insurance and social assistance, while income tax revenues decreased. Exclusion from meaningful work breeds loss of self-esteem, discontent, and fear. This often leads to behaviour that is self-destructive and erodes the social fabric.

As societies around the globe grapple with unemployment, massive and rising deficits, and pervasive environmental decline, the need for new approaches is obvious. Traditional patterns

of economic growth are destroying the earth's life support systems and marginalizing a growing share of humanity. Rapid population growth and an industrial system designed to expand output are no longer compatible with an already diminished natural carrying capacity.

Because of these fundamental changes, full time permanent jobs are becoming a thing of the past.

People can no longer depend on one company to provide them with a job for life. This does not necessarily mean less overall employment, however. What it does call for is an ability to adapt, innovate, and be flexible. Individuals, businesses, and governments that are able to develop a new vision of the future, one that embraces and supports

constructive change will continue to prosper. Managing change effectively will strengthen Canada's competitiveness in international and domestic markets and will retain and create far more jobs than fighting to preserve the status quo.

### Sustainable Development

"Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs," declared the World Commission on Environment and Development in 1987.

This concept of sustainable development can help to guide our thinking as we undertake the restructuring required to achieve a more

*We want to promote, not hinder, the research, development, and implementation of clean and energy-efficient technologies; renewable resource use; the sustainable management of natural resources; and the protection of biological diversity.*

*The Liberal Party of  
Canada 1993 Election  
"Red Book"*

rewarding future. Sustainable development implies a process of change in which the use of resources, the direction of investments, the orientation of technological development, and the structure of organizations reflect both future and present needs. Based on the tenets of equity and sound stewardship, sustainable development implies wiser and more productive use of existing human, financial, and natural resources. The aim is to achieve qualitative improvements rather than quantitative expansion.

Environmental sustainability will arise from more efficient use of energy and materials, improved conservation and management of natural resources, and efforts to maintain the integrity of natural systems and cycles. Activities that are socially sustainable will be more people focused and responsive to human needs. Asking people what they need, rather than telling them what they can have, and improving the transparency and accountability of the the decision making process will lead to development strategies that are more widely supported and provide benefits to a greater number of people. Sustainable economic activities will generate an acceptable return on investment while simultaneously empowering people and protecting or restoring the environment.

Economic activities that impair the functioning of natural systems or that demoralize and exclude people are ultimately not sustainable. The collapse of the East Coast fishery, persistent pollution in the Great Lakes basin and First Nation communities bereft of hope and skills are symptomatic of development strategies gone wrong. Recognizing the causes of our current problems and resolving to redress them is the first major step toward creating positive change.

*“How to move from a least price to a least cost system is the industrial question of this and the coming century. It costs less to take care of the earth in real time and it takes more people to do it.”*

*Paul Hawken, author and businessman*

*Economic activities that impair the functioning of natural systems or that demoralize and exclude people are ultimately not sustainable.*

Focusing on options that simultaneously promote economic, environmental, and social gain will likely result in a net increase in total employment. Developing a new vision of the future — one that is spiritually and environmentally restorative — will lead to many new research, design, manufacturing, marketing, and recycling jobs. “How to move from a least price to a least cost system is the industrial question of this and the coming century. It costs

less to take care of the earth in real time and it takes more people to do it. The technologies required to reduce throughput and restore natural systems have largely been invented. Now we need to put people back to work using them,” said author and businessman Paul Hawken at the Employment and Sustainable Development Meeting convened by the International Institute for Sustainable Development (IISD) and funded by Human Resources Development Canada in cooperation with Environment Canada. Economic activities that protect and restore the

environment and empower and include the broadest range of individuals can lay the groundwork for stable, long-term development and employment creation.

Engaging the creative talents of individuals in a manner that is consistent with their social and spiritual values may at first sound idealistic in the context of current society. But the failure to do so is evident in today’s widespread malaise. Nobody wakes up in the morning intent on destroying the earth or harming other people. Yet this is the unintentional outcome of many of our daily activities.

Fundamental restructuring is required so the effects of our activities become restorative, protecting ecological integrity, economic viability, and social bonds.

## New Opportunities

Potentially significant employment opportunities, consistent with more sustainable patterns of development, exist in many economic sectors. Redesigned and improved infrastructure, knowledge-based services, environmental technologies, improved management and use of natural resources, and tourism are all rich areas for private sector investment, supportive government policies, and expanded training.

Some of the most promising employment opportunities identified by participants at the Employment and Sustainable Development Meeting convened by IISD include:

- Upgrading the efficiency of energy use in buildings, products, and transportation systems;
- Adopting and implementing sustainable forestry, fisheries, soil, and watershed management practices;
- Expanded delivery and use of information technologies;
- Sustainable tourism activities centred around areas of environmental, cultural, and historic significance;
- Recycling and remanufacturing of solid and hazardous waste into marketable products;
- Accelerated and expanded development of marine and freshwater aquaculture;
- Adding value to fish, agricultural, and forest products;
- Developing, manufacturing, and marketing products, services, and technologies that reduce environmental burdens; and
- Designing energy-efficient and people-friendly cities.

## Achieving Canada's Potential

Although the federal government must put the necessary policy framework in place, it cannot possibly control and deliver all the technical expertise, training, networking, and financing required to achieve a sustainable future. A new

*Although the federal government must put the necessary policy framework in place, it cannot possibly control and deliver all the technical expertise, training, networking, and financing required to achieve a sustainable future. A new set of relationships is needed to act on the best ideas from government agencies, the private sector, and community organizations.*

set of relationships is needed to act on the best ideas from government agencies, the private sector, and community organizations. Effective alliances can come closest to satisfying all parties if there is mutual understanding and agreement on the desired objective and the means to achieve it.

Specific local and market needs tend to be best addressed by the active involvement of all parties directly affected. Top down management approaches in both government and business create dependency and discourage, rather than foster, individual initiative. Marshalling the best and most innovative thinking on a subject and providing a framework supportive of dynamic groups and individuals is the formula that has been applied in many of the successful sustainable employment creation activities outlined in this paper. When people are involved in a project from the outset, they develop a sense of ownership, acquire new skills, and are empowered to make decisions for themselves. Achieving consensus early on also streamlines implementation and minimizes later conflicts.

In today's rapidly changing economy, small companies, individual entrepreneurs, and local communities are becoming ever more important sources of innovation and employment. During the eighties, firms with fewer than 100 employees created 2.3 million jobs — 86 percent of all net job creation in Canada. Emerging communications technologies enable individuals and small firms to access information, develop networks and alliances, and market their products and services in entirely new ways. Self-employment assistance programs and business development centres that provide entrepreneurial

support are encouraging government responses to these new trends.

Many government programs and crown corporations, however, still rely on a “bigger is better” mentality. Multibillion dollar job creation and infrastructure programs retain an irresistible allure even though they provide less employment gain and economic growth per dollar spent than many smaller, more sustainable private sector activities. Although large programs and projects are unquestionably easier for governments to administer, they muscle out the smaller, more innovative and forward looking initiatives that are starving for lack of credit and government support. Many large-scale projects also contribute to instability in the employment market. When the project is finished and the demand for labour ceases, local economies can be devastated.

Smaller scale initiatives are less risky, tie up less capital, provide greater flexibility in changing circumstances and, because of multiplier and spin-off effects, create more economic activity and employment.

*“The technologies required to reduce throughput and restore natural systems have largely been invented. Now we need to put people back to work using them.”*

*Paul Hawken, author and businessman*

Energy conservation, for example, provides up to four times more direct jobs per dollar invested than do large generating projects. Spending those wages and salaries results in four times the number of indirect jobs as well. Lower energy bills also result in

higher disposable incomes for consumers, leading to even more economic activity.

### The Tools Available

Many of the innovative technologies, products, services and designs needed in a new, more competitive Canadian economy have already been developed and are ready for introduction or wider adoption in the marketplace. Putting

supportive policies, institutions, financing mechanisms, and education and training vehicles into place will accelerate their use and the achievement of sustainable development. Protecting the environment and adopting the most up to date and resource efficient technologies currently available is no longer an extraordinary cost of doing business. It is simply the cost of staying in business.

Economic and fiscal policies that better reflect the full cost of extracting, processing, using, and disposing of natural resources would provide better information to guide investment decisions. Our current accounting systems do not place any value on natural resources until they are extracted, drilled, pumped, or cut. Healthy air, forests, fisheries, watersheds, and soils have no value in the marketplace. Revenues earned repairing damaged ecosystems, on the other hand, are tallied as gains on private balance sheets and national accounts. Current pricing systems often make protection more costly in the short-run. But designing environmental protection in at the beginning of an activity is less costly in the long-run.

Regulatory policies that specify desired performance levels, rather than focusing on the means to achieve them, would also be more supportive. If the goal is well articulated and the penalty for not achieving it is clear and enforced, the private sector is generally far better equipped and more efficient at finding solutions than government. Waste reduction and recycling targets, energy and water efficiency standards, emission control strategies, and community reinvestment policies are some of the areas that can and have benefitted from this approach. In Japan, Germany, and the United States, an increasing reliance on performance-based environmental regulations and more widespread use of market instruments are making a range of industry sectors more dynamic and competitive, not less. In Canada, too many policies, programs, regulations, and rules now create obstacles to sustainable development.

Government institutions that are more responsive to private sector and community

*The culture of government needs to change from control and delivery to facilitation and non-monetary support. Too many policies, programs, regulations and rules create obstacles to sustainable development.*

needs can facilitate — and accelerate — the adoption of more sustainable practices. Better coordination and information sharing among all levels and departments of government would alleviate many current roadblocks. Cooperation would support, rather than stymie, new initiatives. In this time of rapid change, coordinated, complementary, and streamlined government activities are essential to developing innovative and adaptive strategies

Education and training programs that raise awareness of the urgent need for and achievability of new approaches, and provide the means to develop new skills demanded in the marketplace, will help individuals obtain sustainable livelihoods. Fostering the capacity to identify, develop, and market innovative ideas, products and services will stimulate economic activity, while building a sustainable future.

Co-operative education and apprenticeship programs can provide opportunities for hands-on learning. Distance learning centres can disseminate new knowledge and skills to people outside urban centres, to those who prefer to learn at home, and to those whose schedules prohibit regular classroom attendance. Certification and training programs that are recognized across Canada would enhance the mobility of people and their skills.

Life-long learning and skills upgrading are increasingly important in many sectors of the economy. Computer science graduates, for example, are considered obsolete in five years if they don't keep up on the latest advances. With an ever larger share of the workforce dependent

*Better coordination and information sharing among all levels and departments of government would alleviate many current roadblocks and support, rather than stymie, new initiatives.*

on information processing or the application of high technologies, continuous learning is essential.

### Next Steps

While preparing for the future is more difficult in times of rapid change, there are many guideposts to help us find our bearings. Canada, along with much of the rest of the world, has committed to a rapid phase out of chlorofluorocarbons (CFCs), to reducing CO<sub>2</sub> emissions, to preserving biological diversity, to preventing or restricting many types of pollution, and to conserving and restoring the ecological integrity of forests and watersheds.

Developing the capacity to achieve these goals requires new policies, practices, technologies, relationships, and training programs. According to opinion polls, the majority of Canadians are already convinced that we need to move along a more sustainable path, but they are often not aware of what this means. New education and training programs are clearly needed. They should incorporate environmental and social awareness and empower individuals with the skills and knowledge necessary to engage in sustainable economic activities. The institutional underpinnings to guide and support these activities must also be strengthened.

The recently formed Federal Task Force on Economic Instruments and Disincentives to Sound Environmental Practices demonstrates an increased government commitment to addressing these issues. A survey of the best practices already under way across Canada and in other areas of the world could provide the practical framework to guide these efforts. A variety of existing business and community initiatives are leading the way. Participants at the Employment and Sustainable Development Meeting, and the authors of background papers submitted for the project, have provided many examples of new, cost effective paths toward a sustainable future. Still,

the means to share, learn from, and act on these findings and best practices are not yet well established.

A well-educated and highly-skilled workforce and government policies supportive of sustainable business and community activities are the tools needed to achieve a more sustainable future. The government can strengthen and expand its many current initiatives by:

- Making the creation of sustainable private and public sector jobs a top priority;
- Including a unit on sustainable development in all government funded training programs;
- Establishing a process to screen job creation programs, including current infrastructure projects, for sustainability;
- Allocating research and development spending to technologies that prevent pollution and conserve natural resources;
- Using procurement programs to boost the demand for environmentally and socially responsible products and services; and
- Documenting and disseminating information on economically, environmentally, and socially sustainable activities currently under way across Canada and internationally.

## INTRODUCTION

### Background on the Project

In late 1993, the Honourable Lloyd Axworthy, Minister of Human Resources Development Canada, asked the International Institute for Sustainable Development (IISD) to present a plan to help government revitalize the economy and put people back to work in a manner that is consistent with sustainable development. IISD developed an initial set of criteria for evaluating the economic, environmental, and social impact of proposed activities (see IISD framework paper) and canvassed the country to uncover initiatives already under way.

On June 23-25, 1994, innovative leaders from across Canada met in Winnipeg to identify the new employment opportunities that will result from efforts to achieve sustainable development. The 110 invited participants were drawn from business, government, labour, First Nations, nongovernmental organizations and training institutes. The list of attendees is included as Appendix 1. The meeting was convened by the International Institute for Sustainable Development (IISD) and funded by Human Resources Development Canada in cooperation with Environment Canada.

New models and opportunities for employment creation, outlined in 28 papers submitted for the project, are available on diskette from IISD and HRDC. A list of the papers and authors is attached as Appendix 2. This report draws heavily on the insights of meeting participants and those who contributed background papers.

Throughout the project, emphasis was placed on natural resource sectors, environmental and information technologies, tourism and other service industries, and new approaches to community economic development. Although it became apparent that few people have formally looked at the employment implications of sustainable development, the level of interest is high.

The 24 workshops held during the meeting focused on a variety of industry sectors and emerging employment opportunities. In assessing

these opportunities and the means available to achieve them, participants shared their experiences with innovative new partnerships, management strategies, and technologies. Discussions on how to implement more sustainable practices and revitalize specific sectors identified a range of processes, tools, and approaches needed to move forward. Many of these strategies are relevant across a range of economic sectors.

### New Relationships

Alleviating poverty, putting people back to work, and spurring environmentally and socially responsible economic activities were largely viewed as the domain of the private and community sectors. Strong government leadership and facilitation are considered essential elements of any successful strategy, but centralized control and delivery of programs, and lack of coordination among various levels of government, were considered major obstacles.

Building on existing strengths and resources, identifying current weaknesses and needs, and cultivating the alliances needed to formulate development strategies responsive to local conditions calls for the active involvement of a broad range of individuals. Establishing a new set of relationships to act on the best ideas from the public, private, and community sectors was widely perceived as a top priority.

Many of the most exciting advances occurring around Canada and elsewhere have emanated from dynamic groups and individuals working closely with all three sectors. The strategic placement of these alliances, shown as the midpoint in Figure 1, results in integrated approaches to problem solving, that rely on the knowledge, skills, commitment, experience, and financial resources of all parties involved.

The Edmonton Recycling Society, the Arctic Institute, the Saskatchewan Wheat Pool, Ecotrust, and RESO (Regroupement pour la Relance Économique et Social du Sud-ouest de Montréal) are among the organizations profiled

in this report. Each has fostered sustainable business and employment activities by building new alliances. A wide range of other organizations using this model are discussed in many of the papers submitted for the project. The federally-sponsored Community Futures Program is regarded as an existing program with the potential to cultivate, disseminate, and replicate some of the best practices already underway. A growing number of "virtual" alliances, made possible in part by rapidly evolving information technologies, is also making it easier for companies and organizations throughout the world to complement and support each others' activities.

### **An Integrated and Cooperative Approach to Decision Making**

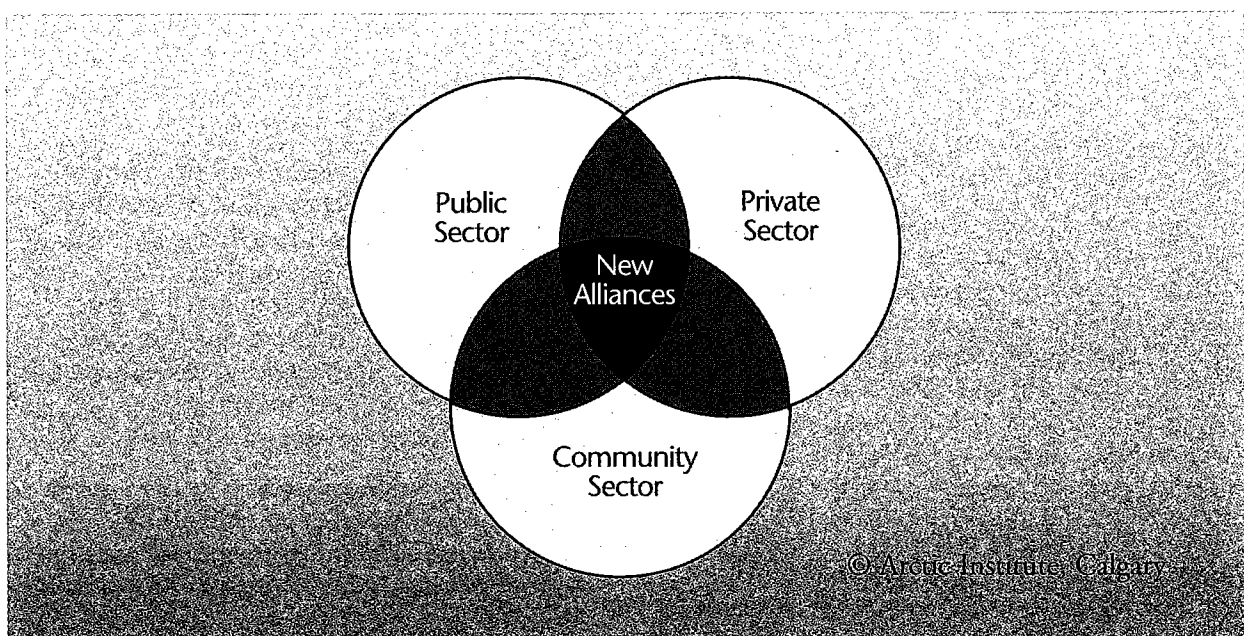
The need for integrated decision making in all sectors arose repeatedly at the meeting. Developing the environmentally and socially responsible goods and services increasingly demanded in international and domestic markets requires a depth and breadth of understanding and awareness not previously required of the private or public sector.

Better knowledge of ecosystem functions, pending regulations and policy shifts, new

market trends, and rapidly evolving technologies is needed to make wise decisions that will better withstand the test of time. Businesses and government bodies that fail to address these issues increasingly find themselves mired in crisis and conflict. Products, projects, and programs designed to minimize environmental impact and social upheaval will be less subject to costly litigation and liability suits and better positioned for future competitive advantage.

Developing elegant solutions to existing problems frequently entails an improved understanding of the service in demand. If the service desired is access to food, recreation, or a place of work, for example, many options are available, not just providing more cars and roads. Local drop-off depots for fresh produce from area farms, bicycle paths, and telecommuting through computer networks are only a few of the less resource intensive alternatives that might be considered. If the goal is higher disposable incomes for those in low income housing, privately financed energy and water efficiency retrofits might be a more elegant solution than raising social assistance payments. The examples are virtually endless, but the principle applies across the board. Applying innovative and interdisciplinary thinking to achieving a

*Figure 1: New Alliances*



© Arctic Institute, Calgary



particular goal will often result in less costly and less resource intensive solutions that are more socially acceptable. Many of these solutions will also result in additional local employment, new businesses, and a healthier environment.

### **Multiplying Local Benefits**

Adding economic value to raw materials, more efficiently using resources produced elsewhere, and substituting local products for imported ones allows communities to expand employment opportunities and reap the multiplier effects of recirculating funds. Many forestry, fishery, and agricultural commodities are shipped to distant markets with little or no local processing. Coastal regions that can figure out how to do to fish what the McCain brothers have done to potatoes would experience dramatic employment growth. The same approach applies to forest towns and agricultural centres.

Blessed with a wealth of natural resources, Canadians take them for granted. New niche markets for food, wood, paper, and fish products are growing around the world, but Canadian producers are generally not yet tapping them effectively. From quality furniture and window frames to wild rice pasta and organic preserves, the possibilities are enormous.

Oil, gas, and electricity bills are typically a large drain on small town and regional economies. Investing in energy efficient building retrofits, more fuel efficient vehicle fleets, alternative modes of transportation, and upgraded industrial processes can trim fuel bills and cash outflows, provide local construction and other jobs, and reduce pollution. Purchasing “imported” goods in bulk and concentrated forms is another money and waste saver, especially if local retailers rely on reusable containers.

Assessing opportunities for producing and marketing more goods locally is another strategy that can provide big payoffs and multiplier effects. Micro-breweries, “locally made boutiques” in national retail outlets, organic bakeries, one of a kind clothing items, and restaurant and hotel kitchens that feature local specialties are some of the intriguing examples of this approach.

### **Financing**

Among small, environmentally-oriented and knowledge-based firms, lack of access to financing is viewed as a major constraint. The Canadian Federation of Independent Business reports that small firms must pledge \$2.78 for every dollar borrowed, mostly in personal assets. Many of the nation’s banks have recently been called to task in parliamentary hearings because of their small business loan policies. Venture capital and start up financing are in short supply, but great demand. Corporate and government downsizing are forcing ever greater numbers of individuals to strike out on their own, but business-incubation financing is hard to come by.

Because of past environmental damage caused by various industry sectors, banks are starting to redline high-risk borrowers. They are wisely trying to limit future liabilities by requiring thorough site studies before borrowers can access funds to acquire land and property. Moving beyond defensive strategies to proactive policies is proving to be a more difficult hurdle.

Virtually all small businesses and communities, as well as economically depressed larger cities, are finding it difficult to access investment capital. Increasingly fluid financial markets chase the best returns around the globe, often draining savings and investment from communities and small firms. Participants at the Employment and Sustainable Development Meeting proposed expanded use of a wide variety of financing mechanisms to alleviate the existing credit crunch. These include:

- Revolving loan funds;
- Community trust funds;
- Credit unions that promote local economic development;
- Micro-enterprise loans;
- Community enterprise lending;
- Energy service companies that finance efficiency upgrades;
- Expanded eligibility for RRSP investments; and

- Tax breaks for companies that invest in smaller firms and provide the technical and financial mentorship to get them on their feet.

Credit unions in New Brunswick, Prince Edward Island, Quebec and British Columbia were cited as active players in stimulating local economic growth. Banks have not exhibited the same degree of commitment. The U.S. Community Reinvestment Act, which requires banks to meet the credit needs of local business and community ventures, was often mentioned as a viable model.

Trust funds, such as those established by First Nations in conjunction with land claim settlements, might be equally suited for community development in many areas throughout Canada. Such one-time transfers, or commitments to future financing, would allow communities to determine their own investment and employment creation priorities without having to fit into a prescribed government mold of activity. By leveraging private sources of capital and maintaining high repayment rates, these funds could provide the continuity and community accountability that government administered funds often lack.

Failing to actively involve community organizations in spending decisions is far more

expensive over the long-run. In McAdam, New Brunswick, for example, a town of 1,600 residents, government grants, industry relocation packages, and make-work development projects have cost over \$70 million. Yet the town still suffers from over 60 percent unemployment and two of its major industries are in receivership.

*"It is ironic that large grants and financial support are available for large risky ventures, yet modest funding is unavailable for high priority community projects that do not fit funding criteria."*

*John Flynn,  
McAdam, N.B.*

When money leaks out of a region to capture higher rates of return or satisfy spending priorities decided elsewhere, the economic vitality that recirculation of those funds can provide is lost. In Manitoba and Quebec, labour sponsored, RSP eligible funds are trying to redress the problem by actively seeking local investment opportunities that will keep jobs at home. Small towns in British Columbia that generate major revenues from stumpage fees are pushing for local reinvestment in more sustainable forest management practices and new, forest-based

businesses. The money is currently funneled into general provincial revenues.

Expanded use of credit unions, owned and run by their members, is another means of enhancing the economic well-being of a community. In Evangeline, Prince Edward Island, the credit union has proven a boon to the local economy and has helped to establish 17 additional co-operatives in businesses ranging from health care to handicrafts. In Quebec, the Mouvement des

South Shore Bank in Chicago is viewed as one of the leaders in community lending. It has successfully loaned over \$200 million to "high-risk" individuals for years; is actively involved in community revitalization, recycling, and energy efficiency programs; and is now partnering with Ecotrust, based in Portland, Oregon, to develop innovative financing mechanisms for small, environmentally restorative companies in depressed forest regions of the Pacific Northwest.

Shore Bank and Ecotrust have jointly purchased a bank, the Shore Trust Trading Company, that they expect to begin operating in 1995. A \$2 million revolving loan fund is planned expressly for the use of companies in Willapa Bay, Washington.

caisses Desjardins, or caisses populaires, are the preferred banking vehicle for two-thirds of the population, who are interested in supporting their communities as well as themselves.

### Information

Good decisions cannot be made without good information. Yet many current activities are now undertaken with only partial understanding of their implications. Economic theories assume full knowledge on the part of all players, but an awareness of the environmental and social effects of many of our actions are not yet well understood or widely disseminated.

Improving the quality of our information base and more widely distributing the findings can result in more sustainable decisions. Full cost accounting and life cycle product analysis are two of the tools advocated by environmental economists to better assess the environmental impact of economic activities. But large gaps in our knowledge and a present inability to quantify the value of healthy environmental and social systems or the costs of disrupting them makes it difficult to use such tools.

Intensified research can provide a better scientific understanding of ecosystem functions and the effects of current economic activities. Disseminating and acting on those findings is equally important.

Epidemiologists, for example, have already concluded that the immune system of every unborn child in the world will soon be adversely and irrevocably affected by the persistent toxins in our food, air, and water. Yet consumers are not

provided information on the heavy metal content in their batteries, shoes, and television sets, nor the chemical content of their lawn care and household products. Without this information, it is difficult to generate markets for environmentally superior substitutes or to garner support for programs that would return hazardous products to the manufacturer for safe treatment or disposal.

*Economic theories assume full knowledge on the part of all players, but an awareness of the environmental and social effects of many of our actions are not yet well understood or widely disseminated.*

An increased awareness and understanding of the effects of our current activities is needed in order to make wise policy, production, management, and purchasing decisions. Rapidly expanding electronic information networks are making it easier to more broadly disseminate information, but people must be trained in their use and have the educational background to evaluate the information provided. The information technologies transforming so much of our economic activity are largely inaccessible to the 30 percent of

Canadian high school students who drop out before receiving their diploma or the 38 percent of Canadians aged 16-69 who do not possess sufficient reading skills to deal with most everyday reading requirements.

Additional research, improved education and training programs, and expanded information collection and dissemination will provide a better knowledge base from which to make sound decisions. Training people to access, use, and act on this knowledge is crucial if we are to achieve more sustainable development. The employment opportunities associated with gathering and disseminating this information and training people how to access and use it are enormous.

## POINTS OF AGREEMENT AMONG MEETING PARTICIPANTS

1. There must be a fundamental change in the culture and functioning of government. The appropriate role of government policies, programs, and agencies is to provide leadership, facilitation, and partnerships, not control and delivery.
2. A new set of relationships is needed to act on the best ideas from public, private, and community organizations. Effective alliances can serve the needs of all parties, but they must be spearheaded by independent entities, who foster partnerships and promote synergies.
3. Achieving sustainable development requires management strategies tailored to specific needs, not a top-down approach.
4. Better use of existing funds, not more money, can finance needed investments. Accountability to those affected by spending decisions is crucial to ensure the most productive use of scarce financial resources.
5. Improving the capacity of individuals, companies, and communities to act on and realize opportunities is the appropriate role of training and social assistance programs.
6. Cooperative management of natural resources is the best approach to promoting long-term stewardship. Combining public policy goals, sound science, and local experience and knowledge results in the wisest and most responsive use of resources.
7. Holistic, interdisciplinary approaches to problem solving result in the most elegant and lowest cost solutions. Accomplishing multiple objectives simultaneously tends to lower costs, reduce environmental burdens, and meet the needs of the greatest number of people.
8. Decisions and development strategies that recognize and respect social and spiritual values will be widely accepted and endorsed. Ignoring these values will result in conflict.
9. Linear approaches to production and consumption violate every biological system we know. Protecting and restoring environmental integrity requires cyclical systems that eliminate waste.
10. Obtaining maximum value from human, financial, and natural resources will provide the greatest gains for the lowest overall cost. Taking abundance for granted will ultimately backfire.

## SUSTAINABLE EMPLOYMENT GENERATORS

Some of the sustainable activities identified by meeting participants as significant potential employment generators in Canada include:

### Infrastructure Improvements

- Comprehensive building retrofits to upgrade energy, water, waste, and indoor air quality systems and reduce total operating costs;
- Development and use of transportation systems that encourage walking, bicycles, public transit, trains, and delivery and transit vehicles powered by solar, biomass, hydrogen, and electric sources;
- Greatly expanded use of renewable energy and cogeneration technologies to provide electricity;
- Expanded tree planting and green space development in urban areas; and
- Sewage and wastewater treatment systems that incorporate and mimic biological processes and return nutrients to the land.

### Knowledge Access and Use

- Broadening, extending, and enriching the information highway in locations across Canada and internationally;
- Computer literacy training for millions;
- Distance learning centres using interactive data bases and information and video networks to teach skills tailored to local communities and specific individuals;
- Expanded mapping of existing land uses delineating areas of ecological, cultural, and economic significance;
- Improved inventories of the ocean and forest floor, wetlands, and other environments to better inform resource management decisions and provide a benchmark against which to measure change; and
- Passing on and incorporating traditional knowledge.

### Natural Resource Protection, Use, and Renewal

- More sustainable management and harvesting of forestry, agriculture, and fishery resources;
- Adding value to commodities — agricultural, forestry, fishery, and mineral;
- Increased reliance on aquaculture to satisfy a growing demand for fish and seafood products;
- Assessing the economic potential of underutilized species; and
- Ecosystem protection, management, and restoration.

### Development, Commercialization, and Use of Environmental Technologies

- To reduce the consumption of energy and materials;
- To collect, sort, and process recyclable materials so they are used again in products of value;
- To clean up, reduce, and eliminate waste streams;
- To restore degraded environments;
- To reduce the use of toxic substances, such as organochlorines and heavy metals; and
- To comply with international environmental agreements and national commitments to reduce ozone depletion, slow climate change, and protect biological diversity.

### Service Industries

- Provision of quality child and elder care;
- Development of sustainable tourism activities based on sites of environmental, cultural, and historical interest and significance;
- Lawn and garden care that incorporates ecological principles and biological controls;

- Increased reliance on conflict avoidance and mediation to resolve resource-based disputes;
- Health maintenance and disease prevention;
- Improved marketing of environmentally and socially responsible goods, services, and technologies; and
- Environmental research, assessment, monitoring, and management services.

## HIGH PRIORITY SECTORS

### Retrofitting Buildings

Improving the efficiency of energy and water use and reducing waste output in all types of buildings is one of the largest potential employment generators in the entire economy — capable of providing at least 100,000 new jobs — according to Glenn McKnight at the Energy Conservation Society of Ontario. What's more, the jobs can be created virtually overnight, reduce the need for expensive and capital intensive generating capacity, and provide tremendous environmental benefits.

The employment would be mostly self-financing, but could be kick-started by improved training programs, proactive fiscal and infrastructure policies, and innovative financing mechanisms.

Canadians are the largest per capita consumers of energy in the world. While cold winters and great distances contribute to this distinction, old buildings, outdated technologies and regulations, and a lack of awareness of the benefits provided by energy efficiency play at least as great a role.

Low energy prices, fueled in part by subsidies and the failure to capture environmental costs, currently serve to discourage investments in efficiency. Subsidies to the domestic fossil fuel industry, for example, are now estimated at \$4 billion annually. A look at the federal budget shows that for every \$1 spent on energy efficiency, about \$100 is spent to promote fossil fuels. Billing practices that reduce per unit rates for large consumers are also a disincentive. In addition, many government owned utilities have been kept well insulated from the competitive pressures now transforming electricity markets in the United States and elsewhere.

Referred to as demand-side management, investments that trim energy consumption create up to four times as many jobs per dollar spent as investments in large-scale electricity generating

facilities. Most consumers are not really interested in buying kilowatt hours of electricity or therms of natural gas. They want to heat their homes, offices, factories and schools, have enough light to read and work by, reliable motors to run equipment, and warm water for washing.

Recent technological advances in building designs, insulation, heating and cooling equipment, windows, electronic controls, lighting, motors, and appliances can substantially

trim energy use while providing comparable or improved service at a lower cost. Getting consumers to invest in such improvements, however, requires site audits that pinpoint potential savings, flexible ways to finance these improvements, and better access to information.

#### *Financing*

A rapidly growing new industry, led by energy service companies (ESCOs) and innovative designers and engineers, is taking the hassle out of saving energy. ESCOs perform on-site evaluations of

energy and water use, recommend a range of improvements, and finance the entire retrofit. Their payment comes primarily from customer savings on utility bills. Begun in large schools, hospitals, factories, and office buildings, the practice is spreading to smaller facilities and is starting to be introduced in homes.

Rose Technology Group Limited is Canada's largest and fastest growing energy service company. With offices in eight cities, spread across five provinces, its aggregate energy and environmental savings are starting to add up. During 1993, RTG's projects for clients saved \$8.4 million in energy and operating costs, created 2,000 person years of direct and indirect employment, and reduced electrical demand by 66 million kilowatt-hours, natural gas use by 430 million cubic feet, and fuel oil consumption by 3 million litres.

*Improving the efficiency of energy and water use and reducing waste output in all types of buildings is one of the largest potential employment generators in the entire economy.*

The energy services market is far more highly developed in the United States, where both electric utilities and third party energy service companies are involved in financing efficiency improvements. There, the generation and transmission of electricity have been opened up to competition and the economic and environmental advantages of saving energy are transforming the utility industry. New regulatory policies that enable utilities to profit from reduced electricity sales have pushed utility spending on efficiency from \$900 million in 1989 to \$2.3 billion in 1992. The utilities, their customers, and the environment all benefit.

Energy experts who participated in the Employment and Sustainable Development Meeting repeatedly stressed lack of capital as an obstacle to performing energy efficient building

retrofits in Canada. Suggestions to improve the situation included:

- Public utility regulatory board changes that would allow utilities higher returns on efficiency investments;
- Allowing pension and RRSP funds to invest in energy service companies;
- Utility financing of energy service companies;
- Improved access to loans and credits at traditional banks and credit unions;
- Government or utility financed revolving loan funds;
- Marketable and tradeable permits for energy consumption and carbon dioxide emissions; and

In Ontario, the Ministry of Environment and Energy and jobs Ontario recently launched two initiatives to promote the greening of homes and industries. With an investment of \$41.8 million over the next three years, the program is intended to stimulate demand for environmental goods and services, trigger private sector spending and investment in green retrofits, and create 12,000 jobs. Both programs are expansions of existing pilot projects.

The Home Green Ups program, funded at \$26.4 million, will promote household energy and water conservation and waste reduction in an estimated 250,000 homes in 23 Ontario communities. Pilot projects in seven Ontario communities have already resulted in 4,000 home audits. The suggested and installed improvements have reduced water consumption by 25 percent, energy consumption by 15 percent, and waste generation by 15 percent. They stimulated some \$5 million in municipal and private investment and created 150 new jobs. The audits often include on-the-spot installations of energy and water efficient products. Auditors also provide referrals to approved local contractors and equipment suppliers. And Canada Trust has established an Enviroloan program to finance recommended upgrades.

The Green Industrial Analyses and Retrofits program, funded at \$15.5 million, is a cost-sharing approach expected to assist an estimated 90 companies conduct 200 green retrofits. In step one of the process, the Ministry will provide up to 75 percent of the cost of a green industrial analysis prepared by a consulting engineer. The audited company is then encouraged to make the investments required to achieve the identified savings. For retrofit programs with a payback of longer than 1.5 years, the Ministry will cover up to 30 percent of the cost with a maximum contribution of \$300,000.

A pilot project involving nine industrial companies identified a total of \$8.6 million in potential annual savings. The cost of the recommended conservation and waste reduction projects totalled \$21 million with an average payback of 2.5 years.



- efforts to increase awareness of the economic and environmental benefits of energy efficiency among building owners, investors, regulators and government agencies.

### *Employment Implications*

Significant employment opportunities exist in evaluating building performance, advising building owners on cost-effective upgrades, manufacturing, marketing and selling energy efficient products, and installing improved technologies.

With an estimated 30 percent of the construction industry out of work in the first quarter of 1994 and 75 percent of construction spending going to renovations, there is a great opportunity to upgrade our building stock and put people back to work. Comprehensive building upgrades, using off-the-shelf technologies, can often cost-effectively reduce energy use by about 30 percent. In larger buildings, over 30 years old, energy use can be cut in half.

In British Columbia, newly developed Building Environmental Performance Assessment Criteria (BEPAC) are being used to evaluate the environmental performance of new and existing office buildings. Building performance is assessed relative to ozone layer protection, environmental impacts of energy use, indoor environmental quality, resource conservation, site use and transportation. The assessments are a management, strategic planning, design, communication, and public education tool. Investments expected to result from the assessments will generate demand for environmental products and services and provide new jobs.

At the federal level, a plan to upgrade and retrofit 50,000 government owned buildings could generate thousands of jobs and \$1 billion worth of business for the construction industry. The Federal Buildings Initiative will be privately financed at no cost to the taxpayer. In an Ottawa pilot project, energy efficiency investments in four buildings cost \$1.7 million and will reduce energy costs by \$400,000 annually. After years of encountering institutional roadblocks, there are

now 81 projects underway and the total is expected to reach 100 by the end of 1994.

### *Training*

Improved and expanded training is required for youth, the unemployed, and upper age tradespeople in order to perform the thousands of building audits and efficiency upgrades needed across the country. Developing nationally recognized training standards and certification programs is essential, agreed participants at the Employment and Sustainable Development Meeting. Integrated training across a variety of disciplines must be coupled with on-line access to information on the latest building technologies, codes, and practices.

Much of the renovation and construction work done in Canada is currently performed by individuals who get their training on the job. Lack of formal educational centres, electronic and distance learning options, and established apprenticeship programs hinder entry to the building professions and make adoption of the latest design and retrofit techniques haphazard at best.

Glenn McKnight of the Energy Conservation Society of Ontario recommends the establishment of self-directed learning centres, staffed by teams of knowledgeable tradespeople, to fill the gap. Based on a coaching, rather than instructor, approach, the centres could provide trainees with basic education in the building trades and guide them to on-line sources of the latest information in their area of interest.

Fax-back services, frequently updated training manuals available on diskette, electronic bulletin boards, and computer networks could provide trainees and working tradespeople with timely updates on building codes, new technologies, and sources of environmentally superior building materials. Cable television channels, CD ROMs, video conferencing, and on-site visits could be used to demonstrate the latest advances.

### *Tourism*

Canada is the seventh most popular tourism destination in the world. The sector generated \$25.4 billion in sales in 1992 and was the country's fourth largest earner of foreign

currency. A half million people are directly employed in tourism and many more benefit from local spending by tourists. Many visitors are attracted by Canada's scenic beauty, abundant wildlife, and wide open spaces. Historic sites, First Nation and a variety of other cultural traditions, and indigenous industry are all drawing cards that can be more profitably developed.

A fascination with Native culture and the desire to relive the "Wild West" is a strong motivator for German and Swiss visitors. Urban residents from densely populated Asian, European, and North American cities come to get away from the crowds, congestion, built up spaces, and hectic pace of their daily lives. They come seeking nature-based tourism, musical and multi-cultural events, and quality recreation and leisure activities. They also appreciate the low crime rates and active street life in many of Canada's larger cities.

Healthy ecosystems and rich biological diversity are a primary attraction throughout Canada. In 1991, Canadian and U.S. tourists spent \$9 billion on fish- and wildlife-related activities. Tourists from the six major overseas markets come largely to visit national, provincial and regional parks and historic sites and to participate in sports and outdoor activities. Adopting more environmentally responsible tourism industry practices will help to maintain biodiversity, assist in raising the environmental awareness of tourists, and open up new markets that can create employment and new businesses — and improve regional economies.

#### *Eco-tourism*

Eco-tourism, with a significantly reduced impact on the environment, is a rapidly growing niche in the industry. The U.S. market alone is estimated at \$43 million and rising. Opportunities exist in both the consumptive sector — hunting and fishing — and the nonconsumptive sector — nature observation

and adventure tourism. Some eco-tourists seek only the sense of well-being achieved by looking out the lodge window, enjoying a scenic boat ride, or taking photographs to show friends back home. Others come to participate in "soft adventures" like day hikes, van-supported bicycle tours, and sailing. The remainder come looking for "hard adventures" such as whitewater canoeing, ocean kayaking, and expedition style backpacking and mountain climbing.

Observing, photographing, and studying wildlife, and simply "participating in nature" are increasingly popular activities, but care must be taken so that raising the number of people in an

area does not damage existing wildlife populations or habitats. People who come to see whales, polar bears, caribou, bighorn sheep, and a variety of bird species, are often interested in learning more about the animal in question and how to protect it. Knowledgeable guides, scientific information tailored to tourists, and sensitivity to client expectations can all increase the multiplier effects in this sector. Tourism services can enhance environmental awareness by practicing what they preach. The use of composting toilets, solar water heaters, and organically produced local food demonstrate protection strategies in action. Governments can support eco-tourism by

completing national parks systems and protected area networks across Canada.

Ensuring that eco-tourism operations are conducted in a responsible manner is an issue of growing concern. Since this industry is based on an area's natural resources, the protection and enhancement of the environment is of paramount importance. Pollution, competing land uses, and unrestricted development may all reduce the sector's long-term potential. Participants at the Employment and Sustainable Development Meeting stressed the need for certification and training programs to ensure that operators maintain the highest standards. Guidelines, codes of practice, and indicators for

*Adopting more environmentally responsible tourism industry practices will help to maintain biodiversity, assist in raising the environmental awareness of tourists, and open up new markets that can create employment and new businesses.*

measuring the impacts and successes of tourism ventures are sorely needed to encourage sustainable practices. Significant care must be taken, however, so that small operators are supported, rather than overwhelmed by these restrictions.

Eco-tourists are generally a well-informed, elite group who demand a high level of service in terms of convenient travel arrangements, top notch equipment and food, and knowledgeable guides and group leaders. In Newfoundland and Labrador, where eco-tourism is seen as a significant economic and employment opportunity, the Economic Recovery Commission has identified current weaknesses partly in “lack of adequate infrastructure — accommodations, marinas, trails, interpretive services, for example — and partly in the business skills and quality of personal service offered by individuals and companies who are trying to penetrate the worldwide adventure tourism market.” These same weaknesses need to be addressed in many other new tourism niches.

### *Rural Tourism*

As small towns and rural areas assess their strengths and opportunities for the future, many are turning to tourism as a tool to promote economic development and employment creation. Identifying the specific niche for a particular community and developing the markets and infrastructure required are essential components of any successful tourism strategy. Although tourism by itself is unlikely to sustain many communities, it will contribute to economic diversification and provide jobs where they are most critically needed.

Gaining the support of a large cross-section of the community is important to the viability of any new operation. Most communities will gladly showcase their cultural richness, sites of natural beauty, and other accomplishments and traditions in which they take pride, but do not want visitors or development that will change the character of the region. Bed and breakfasts, museums, cultural events and concerts, and

nature excursions are likely to be warmly endorsed, whereas large theme parks and environmentally damaging activities are likely to be roundly criticized.

“The major challenge is to develop the managerial capacity within the community as opposed to importing skills and knowledge,” wrote Walter Jamieson in “The Employment Opportunities of Sustainable Rural Tourism.” If the revenue is to remain in the community, “the focus for tours and outfitting must be on locally operated and guided trips. This helps to ensure that local guides and foods are used, as well as provide a level of control on where and how tourists travel in a region.”

To address the serious lack of training and education opportunities in tourism planning and management, The Rural and Small Town Research Studies Programme at Mount Allison University in New Brunswick, the Center for Livable Communities at the University of Calgary, and WESTARC at Brandon University recently formed The Canadian Community Development and Applied Research Consortium and identified rural tourism as their major area of cooperative research and development activity. Training and education will be provided in many forms including formal in-class instruction, distance education, self-paced computer based learning packages, and publications and manuals geared to community participants.

Rural tourism support centres are another initiative endorsed by Jamieson. Equipped to provide market research, analysis, and

promotion, the centres could also provide clerical, communications, and networking assistance.

Cooperation among neighbouring communities can capture tourism benefits for the entire region.

The support centres could also house or be active participants in tourism information clearinghouses. Toll-free telephone lines and electronic

bulletin boards could provide tourism updates to travelers around the world. Accommodations certified as environmentally friendly, lists of available cottages and campgrounds, schedules of

*Cooperation among neighbouring communities can capture tourism benefits for the entire region.*

region-wide cultural events and festivals, and information on working holidays could all be included. Participating on farms, in fishing villages, in biological restoration activities, and in "Living on the Land" with aboriginal families might all be attractive. In Kenora, the Treaty 3 Cultural Tourism Association recently set up a toll-free telephone line to provide visitor information on where to find powwows, native music and dancing, and native arts and crafts.

### *Tourism Industry Needs and Community Benefits*

By successfully promoting rural and environmental tourism, communities can:

- Increase the resources available to protect, conserve, and restore natural and cultural heritage;
- Maintain and revive local traditions and performance arts;
- Develop and support local handicrafts;
- Develop and restore historic sites;
- Celebrate indigenous skills and industries, such as fishing, logging, mining, and trapping; and
- Increase community visibility leading to other economic development activities.

Improving the quality of the tourism experience is often the key to both higher revenues and increased employment. Providing quality service starts with marketing and reservations systems and extends throughout the entire operation. Training that focuses on customer satisfaction could include foreign language and cultural sensitivity lessons, and information on local history, ecology, businesses, services and sites of interest. From kitchen and cleaning staff to grounds maintenance and business centers, improved quality and environmental performance can attract more customers, cut costs, and lead to

*Improving the quality of the tourism experience is often the key to both higher revenues and increased employment.*

both more and higher paying jobs in what has traditionally been considered a low-skill sector.

A recently announced Human Resources Development Canada training program designed to improve tourism services anticipates the creation of 9,500 new jobs and improved skills for 33,500 people already employed by the industry. If low-wage and currently low-skill workers see opportunities for advancement, they could greatly strengthen this already growing industry and launch or contribute to the expansion of complementary

local businesses. Musical groups, artisans, outfitters, environmental protection organizations, and a range of food and equipment suppliers could all benefit. Widely recognized as the current leader in environmental performance, the Canadian Pacific Hotels and Resorts chain has released a *Green Partnership Guide* that could be useful in these training programs. Its advice to hotel staff and suppliers is applicable to many tourism operators across the country.

### **Renewing Forests And Forest Based Communities**

Canada ranks third in the world in forested land, after the (former) USSR and Brazil. About 10 percent of the world's productive forest and one-third of its boreal forest are located here. Forest products, including pulp and paper, are the country's largest export, earning some \$25 billion annually, and placing Canada first in the world in the export of wood products. The industry directly and indirectly employs approximately 900,000 people, or 6 percent of the country's labour force. Some 350 communities are almost totally dependent on logging or pulp and paper, as are some 7,000 businesses.

As is often the case when blessed with abundance, "For decades, our forests have been taken for granted: there has been too much cut and too little put back into the land," wrote

*"For decades, our forests have been taken for granted: there has been too much cut and too little put back into the land."*

*B.C. Premier Mike Harcourt*

B.C. Premier Mike Harcourt in the province's recently released Forest Renewal Plan. In 1988, the Canadian Auditor General's report said "Significant shortages of wood are now reported at the local level in every province. Restocking of productive forest lands has not kept pace with the harvest and this threatens future forest productivity." Regeneration and replanting rates have traditionally failed to keep pace with harvesting.

This is in marked contrast to Sweden, where after many decades of excessive harvesting, forested area is growing in absolute terms. Sweden's annual forest growth of 100 million cubic metres now exceeds the annual harvest of 70 million cubic metres.

#### *Sustainable Management Practices*

In British Columbia, where 94,000 people are directly employed in forestry and the livelihoods of another 140,000 people depend on the sector, the province recently launched a \$2 billion, five-year program that includes retraining forest workers for conservation-related jobs. Nearly half the money from higher stumpage fees will go towards improved reforestation and tending of forests, increasing the lands available for planting new trees, and silviculture research and development. Additional investments will be made in rehabilitating rivers, streams, watersheds and hillsides; protecting and restocking fish, wildlife and other resources; and research on environmentally sound forest practices.

Given current activities, the B.C. forest harvest is expected to decline 15 to 30 percent over the next 50 years. Even with these investments, harvest levels are not expected to return to present levels for over 100 years.

More intensive forest and ecosystem management, including selective harvesting to thin young stands, has the potential to create many new jobs. Manual planting, thinning, clearing and brush control offer opportunities for traditional forest workers and First Nation citizens, who are now more actively entering the forest workforce. In Alberta, where forest herbicides have been banned, people now cost-effectively control unwanted growth and better protect wildlife habitat. In New Brunswick, some loggers have returned to horse drawn harvesting equipment.

Behind any new forestry program there needs to be a better understanding of how the forest functions and how various species and ecosystems interact. Improved inventory and data collection efforts are potential sources of new employment, both directly and in terms of the future spin-offs that will result from the intensified research effort.

The federally supported Model Forests Program, at 10 sites in eight provinces, is demonstrating and applying ecologically-oriented forestry practices in a wide range of forest environments. Focusing on related employment opportunities would be a logical expansion of the program.

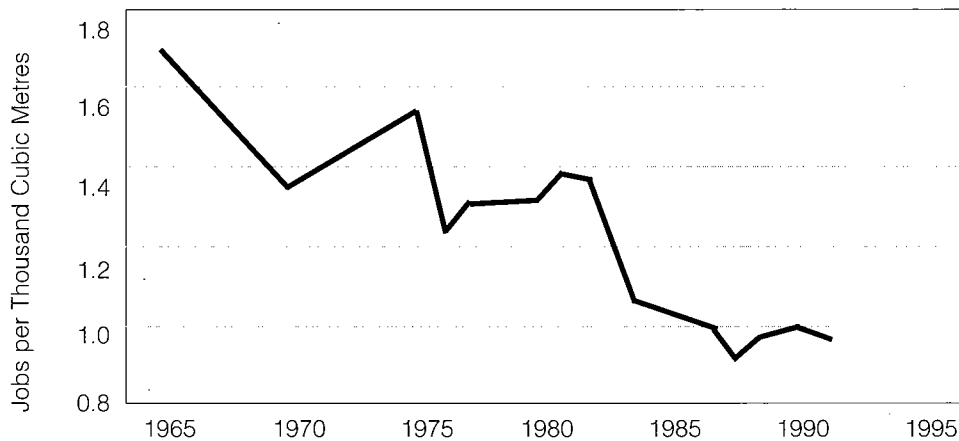
*Exporting wood with little or no processing essentially exports Canadian jobs.*

#### *Adding Value to Wood Products*

Exporting wood with little or no processing essentially exports Canadian jobs. With most of

The Meadow Lake Tribal Council in Saskatchewan is implementing a 220 year plan to maximize the biodiversity and value of its forests. Self-imposed requirements regarding the forest's age structure; moose, deer, and caribou habitat; water yield; distribution of benefits to the community; and net present economic value are intended to provide a healthy community, economy, and environment well into the future.

Historical Trend in Employment per Volume Harvested



Source: British Columbia's Forest Renewal Plan

Canada's wood harvest going to sawmills and pulp plants, many employment generating opportunities are missed. B.C.'s Forest Renewal Plan is attempting to bring those jobs back home by assisting value-added companies to start up and expand and by funding research and development in wood manufacturing technologies and products.

At Canfor, one of B.C.'s largest forestry companies, a variety of new products are now coming onto the market. They include wood composite panels for automobiles, customer-specified hemlock for window frames in Japan, wood paneling, wood fibre mixed with grass seed that is sprayed onto hillsides and sloping shorelines to reduce erosion, and fibre mulch for lawns.

Further down the processing ladder, wood can be made into a wide variety of items including furniture and cabinets, pianos, window frames, stringed musical instruments, crafts, log cabins, and totem poles. In the United States, logging 1 million board feet of timber yields about 3 jobs. Milling it into lumber generates 20 jobs. And crafting it into furniture creates 80 jobs.

Adding value to the resource starts in the forest with careful harvesting, proper sorting of high-value species, and graders who designate which trees are suitable for high-value use. Surprisingly, there are only two research and development centres in Western Canada that seek out higher-value uses for wood products. In Quebec, which has a greater number of smaller wood products

In Revelstoke, B.C., the Community Forest Corporation was formed in 1993 to purchase and manage a tree farm license. The community-owned company, established with the approval of residents, was financed by the city and the local sawmill. Sawmill owners were being squeezed out of a supply of wood because outsiders owned the licenses. Tying communities more closely to wood supplies and processing facilities could help to improve accountability, management practices, and interest in value-added processing.

companies, higher-value items, such as wood lawn and garden furniture, are more common.

Charles Loewen, of Loewen Windows in Steinbach, Manitoba — a company with a strong presence in the European market — deplores the lack of a traditional woodcraft processing industry in Canada. Based in one of the world's leading forestry countries, he must go to Germany and Holland for expertise. Training and apprenticeship programs are sorely needed.

#### *Tapping Underutilized Species and Improving Marketing Efforts*

Making greater use of underutilized species, and strengthening domestic and international marketing efforts are additional ways of providing more forestry jobs. Underutilized species such as poplar are starting to be sought by strand board and pulp plants across Canada. In Washington state, alder trees, an undervalued regrowth species, are now being used to make furniture and paneling. In Sweden, an attempt to add value to underutilized species led to the creation of IKEA, the internationally successful, assemble-it-yourself furniture chain. The time has come to reassess the potential market value of a wide range of tree species and other forest products.

Lack of coordinated domestic and international marketing efforts is also a barrier to forestry companies. In Nova Scotia, where 54 percent of forested land is privately owned by small operators, export and marketing assistance is especially needed. No structure currently exists that is comparable to far east trading companies, but providing such a one stop, knowledgeable brokerage facility for all wood and paper products could significantly boost export sales.

In the pulp and paper industry, making paper in Canada instead of exporting pulp would provide more jobs. The growing international demand for recycled paper products could also be a big employment creator. As the recent loss of several large paper contracts has demonstrated, failing to monitor and respond to market and regulatory

trends in countries around the world can cost money and jobs. Staying ahead of the markets, on the other hand, can cement purchasing contracts and result in expanded business opportunities.

More efficient processing of forestry products and diversifying the use of forests could also lead to employment in other sectors. Wood residues are increasingly used to provide power at sawmills and pulping operations. Home and commercial heating and electricity generation at other sites could more effectively use the wastes that remain. Encouraging eco-tourism and back country camping could also provide new employment opportunities in forestry communities. Intensified research may identify new food, medical, and pharmaceutical uses for forest resources.

#### **Restoring Fisheries And Promoting Aquaculture**

The abrupt and dramatic decline of the East Coast fishery was brought about by many factors. Technologies, strategies and policies to maximize the volume of the catch neglected the need for a holistic approach to the resource base. Sound management strategies, efficient use of the catch, and efforts to add value to fish products were often ignored.

Similar tragedies are being played out around the world with the majority of the world's 17 major fisheries in serious decline. Four are classified as commercially depleted and the others are either fully exploited or over exploited. Wild fisheries catches peaked at around 100 million tonnes and have begun to decline, according to the UN Food and Agriculture Organization.

The West Coast salmon fishery is one area under stress. Forestry operations that clear cut too close to the water's edge, hydroelectric developments, fishing in streams where the salmon spawn, and intense competition between US and Canadian boats are jeopardizing the viability of the resource base.

*In Nova Scotia, where 54 percent of forested land is privately owned by small operators, export and marketing assistance is especially needed.*

Global demand for fish and seafood products continues to rise, however, with 20 percent growth expected during the nineties. Canada is one of a number of countries trying to provide this increased supply through aquaculture. The United States, Norway, Thailand, and Denmark are also major players in this new market and have done a better job of providing strategic support for their industries.

Recent growth in Canada has been impressive. From a \$7 million industry in 1984, Canada's aquaculture sector has grown to \$550 million today and is expected to reach \$1.2 billion by the turn of the century. This would result in 7,000 new jobs in direct production and services in some of Canada's most depressed regions, calculates Dan Stechey, Director of the Aquaculture Division at the Department of Fisheries and Oceans. Coastal and rural communities, where economic development opportunities are limited, would benefit most. In Tofino, B.C., 25 percent of the total workforce is already employed in aquaculture. In Charlotte County, New Brunswick, some 1,500 permanent, year-round jobs have been created.

Salmon farming currently represents 85 percent of total aquaculture value with trout, oysters, mussels, arctic char, and clams making up the remainder. Farmed salmon now outpaces captured salmon in total market value, while representing only 28 percent of the total tonnage. In the case of trout, char, oysters and mussels at least 85 percent of the total value and tonnage are from farmed stock. Moreover, in 1991, some 75 percent of total production and 20 percent of supplies and services were marketed outside Canada, bringing more than \$245 million into the economy.

Another 10 species are considered viable candidates for commercial production, with cod, sturgeon, sablefish, scallops, and geoduck clams showing great potential.

Canada's many competitive advantages as an aquaculture producer include extensive marine

and freshwater habitat, managerial experience and expertise, and a solid scientific infrastructure. Coupled with on-going technological innovation and proximity to US and Pacific Rim markets, the industry has tremendous growth potential. A Federal Aquaculture Development Strategy, coordinated by the Department of Fisheries and Oceans, with input from producers, suppliers, trainers and educators, First Nations and provincial, territorial, and federal government agencies, has identified the essential elements for successful industry development.

The major constraints are administrative. Regulatory reform and coordinated, supportive policies are considered essential if the industry is to move successfully beyond this pivotal juncture. Access to production sites and to safe and effective disease suppressants, along with improved industry-government partnerships are urgently required. Additional factors viewed as critical to success are enhanced marketing efforts; industry coordination and cooperation; access to investment and operating capital; training, education and skills development; and enhanced public awareness.

By proactively identifying sites suitable for aquaculture activities, government bodies can stimulate industry growth and significantly reduce the delays associated with the current approval process.

#### *Adding Value to Fish Products*

Processors of both farmed and harvested fish face the challenge of delivering higher value products to the market place. "We must change the mind set of our industry from a volume driven

*From a \$7 million industry in 1984, Canada's aquaculture sector has grown to \$550 million today and is expected to reach \$1.2 billion by the turn of the century.*

*"We never obtained the type of employment possible from our natural resources or the type of price possible from quality products."*

*Bernadette Dwyer, Fogo Island Co-operative Society in Newfoundland*



industry to a value driven industry” says Bernadette Dwyer of the Fogo Island Co-operative Society in Newfoundland.

Prior to the 1992 moratorium imposed on fishing northern cod, processing the fresh and frozen blocks of cod sold to the United States frequently wasted 60 percent of the total fish. The unused portions were either dumped back into the ocean or ground up in a fish meal plant. “We never obtained the type of employment possible from our natural resources or the type of price possible from quality products,” wrote Dwyer in a paper submitted for this project.

With 30,000 ground fishery jobs on hold in the Atlantic region and the expectation that at least half of those will not exist when fish stocks recover, a variety of new approaches are waiting to be explored. These include:

- Building the capacity to research, process, and market new fish products;
- Developing new, marine-based products for food and biomedical uses;
- Using information technologies to monitor and replenish natural stocks;
- Restoring and enhancing fish and wildlife habitat;
- Cleaning up rivers, estuaries, and entire watersheds;
- Assessing the market potential and developing new uses for underutilized species;

*“We should do to fish what the McCain brothers have done to the potato.”*

*Vernon Thomas, University of Guelph*

- Developing new treatment technologies and products made from fish and seafood wastes;
- Training fishers to utilize their vessels and docking facilities for tourism purposes;
- Location and retrieval of ghost nets;
- Identifying new business opportunities in a diversified fishery; and
- Exporting new methods, technologies and expertise to other distressed fishery regions.

“We should do to fish what the McCain brothers have done to the potato,” said one participant at the Employment and Sustainable Development Meeting. Doing so requires a better understanding of the resource base, healthier watersheds and coastal fisheries, more appropriate harvesting technologies, more efficient and

value-added processing of the catch, and improved marketing of fish products.

Existing food inspection regulations that virtually prohibit combining fish and meat into a final food product are one of the obstacles to higher value processing. Gumbos, paellas, and other high value specialty products are not yet a viable option for secondary processors. Regulations based on outdated food type categories and those that discourage the construction of small, secondary processing facilities are additional barriers.

On Lake Diefenbaker in Saskatchewan, AgPro Grain Inc., a wholly-owned subsidiary of the Saskatchewan Wheat Pool, has launched one of Canada’s largest trout farms. Now in its third year of operations, AgPro expects sales of over \$1 million in 1994. Eastern Canadian wholesalers are the only current market outlet, but as production expands the company plans to enter Japanese and other overseas markets. Pleased with its successes to date, AgPro is now diversifying and has begun raising Atlantic salmon and Arctic char.

Concerted efforts to explore the potential of underutilized species, of currently wasted fish parts, and of untapped niche markets could uncover additional economic and employment opportunities. Oysters, for example, a key indicator of estuary health, are also cholesterol-free. Marketing them as a “green” product whose consumption benefits fishing communities and consumer health could turn them into a more sought after hors d’oeuvre.

Intensified research into new market opportunities at home, abroad, and among ethnic communities who rely heavily on fish protein in their diets could provide big payoffs. Sauces, soups, and prepared meals may be a few of the opportunities available. Biomedical, pharmaceutical, and cosmetic markets are other promising outlets for marine-based products.

Canadian expertise in seabed mapping, equipment development, and harvesting technologies could also be exported to greater advantage. Physical equipment sales, as well as consulting services, have the potential to be far more lucrative than they are at present.

The knowledge that will be developed in restoring damaged

watersheds, seabeds, and fish populations may prove to be the most marketable product of all. Depleted and degraded inland, coastal and deep sea fisheries around the world virtually guarantee a market for restorative strategies, technologies, and management practices. In solving our own fishery problems, Canada has an opportunity to become a world leader in restoration expertise.

### Revitalizing Agriculture

Canadian agriculture is a \$50 billion a year business that directly or indirectly employs 14 percent of the country’s workforce. The industry comprises some 293,000 farms which provide employment for 450,000 people in primary agriculture, plus an additional 1.5 million in related farm supply, processing, distribution and retail businesses. Accustomed to seasonal work and holding multiple jobs, farmers may be more prepared than many Canadians to adapt to increasingly flexible patterns of work.

Agricultural subsidies and farm policies designed to boost the industry have led to more energy and chemical intensive production, resulting in eroding and degraded soils and contributing to surface and ground water contamination and depletion. Every year, 300 million

*The knowledge that will be developed in restoring damaged watersheds, seabeds, and fish populations may prove to be the most marketable product of all. Depleted and degraded inland, coastal and deep sea fisheries around the world virtually guarantee a market for restorative strategies, technologies, and management practices.*

At the Saskatchewan Wheat Pool, crop diversification and value-added processing have a long history. Beginning with the acquisition of the Western Producer newspaper during the depression, the Pool is now involved in a variety of complementary business ventures. Part ownership in Robin’s Donuts and a range of bakery and delicatessen services provide markets for wheat and livestock products. Bioriginal Food and Sciences Corporation is an outlet for health food and organically produced grains and vegetables.

A trout farming operation and active involvement in a biotechnology park are positioning Saskatchewan as a centre of new research and development activities. Pound-Maker Agventures Ltd. is an integrated feedlot and ethanol operation partially owned by the Pool. It purchases grain and straw to make ethanol fuels and feeds the leftover mash to cattle. Revenues coupled with reduced transportation and grain handling costs exceed the subsidies received by \$1.3 million annually.

### *Community Shared Agriculture*

Community Shared Agriculture (CSA) is a means of establishing retail markets for farmers that has been practiced in Japan and Western Europe since 1965. The principle behind CSA is that a farmer is prepaid for vegetables and other farm products delivered throughout the summer. Share payments are collected in the spring when the producer requires substantial financing to plant and raise the season's crop.

There are currently over 200 community shared farms in existence across North America. Thirty have been created on the Canadian Prairies since 1992.

One reason for the popularity of CSA is that a growing share of urban consumers are questioning the safety of the food they eat and are seeking out foods grown organically or with low-input methods. Many of these consumers are also interested in preserving family farms, would like the opportunity to take their children to a working farm, and are willing to volunteer a few hours during the summer to help out with growing, harvesting, or delivering vegetables and other farm products.

Local production dramatically cuts down on energy consumption by eliminating long distance transportation. Most CSA farms also attempt to reduce packaging waste by delivering farm produce in blue recycling boxes or by requiring sharer families to pick up their weekly allotment of vegetables with their own bags. Low-input or organic growing methods substantially trim or eliminate pesticide use. And by relying on plant wastes, livestock manure, and sweet clover or legumes to build up soil nutrients, many CSA farmers reduce or eliminate the need for chemical fertilizers.

The Central American Agricultural Group in Landmark, Manitoba, consists of five refugees who were farmers in Central America. After their first successful year, the group began growing vegetables for about 250 families. The farmers, who had previously relied on social assistance in Winnipeg, are working towards self-sufficiency. Local farmers encouraged the establishment of this new venture by offering land and housing at reasonable prices. Local churches, community groups, and the federal and provincial governments have seen the obvious benefits and been very supportive.

Most CSA farms are family run and are formed by expanding a market garden or by diversifying an existing farming operation. Many provide a wide range of locally grown food products from their own and neighbouring farms, such as fresh herbs, poultry, beef, pork, honey and small fruits. Other value-added products such as organically grown flour or freshly baked bread, jams and jellies, herb vinegars, apple cider, and dried herbs and spices can be marketed through a CSA farm. Classes in vegetable canning and/or freezing, baking, and herb drying at urban churches and neighbourhood associations have the potential to provide another income source for the CSA farm.

A higher, less government-dependent wage has been achieved at established CSA farms in Canada and the United States. City steering committees work jointly with the farmer to develop an operating budget, based on share numbers and prices. "In discussion with CSA farms that have gone through this budgeting process, frequently a wage in the range of \$20,000 to \$30,000 for a 100 to 150 full-share membership for 14 to 16 weeks of deliveries is common," wrote Irwin Allerdings of the Prairie Farm Rehabilitation Administration in a paper prepared for this project.

tonnes of topsoil are lost to erosion on the Prairies. Organic matter is being destroyed 10 times faster than it is being produced. The cost of cultivating marginal lands, relying on monocultures, and excessive tillage and irrigation are well over \$1 billion annually. And nobody is directly paying the tab.

In an industry where markets are skewed by international subsidies amounting to \$300 billion annually, it is sometimes difficult to pursue rational policies. But as any business person or biologist will attest, consuming and degrading physical capital is suicidal over the long-term. Better resource management and environmental planning, new pest control and tillage practices, and use of information technologies to monitor and rapidly adapt to international market trends are becoming the staples of successful farming operations.

*Domestically growing and processing some of the fruits, vegetables and other food products that we currently import is one way to revitalize the agricultural sector and expand employment.*

Restoring environmental integrity, economic prosperity, and improved employment prospects to agricultural regions requires a range of actions on many different fronts. Some of the activities required are:

- Assessing the potential of underutilized species;
- Evaluating the opportunities presented by new niche markets;
- Strategies to add value to farm commodities;
- Efforts to substitute imports with locally grown products;
- Adopting new farming practices that protect soil and water resources and restore wildlife habitat;
- Reinvigorating farm communities with new businesses and recreational, cultural, and educational opportunities;
- Removing transportation subsidies and other disincentives to local processing of agricultural products;

- Providing a robust telecommunications infrastructure to monitor and respond to changing prices, markets, and trade agreements; and
- Research on new food, fuel, and industrial markets for agricultural products.

Domestically growing and processing some of the fruits, vegetables and other food products that we currently import is one way to revitalize the agricultural sector and expand employment. On the prairies, the fresh table market for vegetables and small fruits is estimated at approximately \$150 million annually, according to Doug Waterer, vegetable crop specialist at the University of Saskatchewan in Saskatoon. At least 85 percent of this produce comes to the consumer from distant locations such as California and Florida, even though Saskatchewan farmers can grow 21

of the more commonly consumed vegetables in relative abundance. The same potential exists across Canada. Increased consumption of fruits and vegetables and a growing demand for fresh produce and organic products may simultaneously boost domestic sales and reduce the costs and environmental burdens of long distance transportation.

Linking domestic consumption with local, environmentally-sound agricultural production can provide higher income to the farmer, reduce government subsidies, expand diversification opportunities, and assist in developing stronger ties between city people and the rural community.

### **Materials Management And Recycling**

Canadians generate roughly twice as much garbage per person as residents of France, Germany or Italy. Cheap and available energy and landfill space have made a materials intensive economy affordable. Growing awareness of the environmental costs of extracting, transporting, processing, packaging, distributing, consuming, and disposing of a wide

### *The Edmonton Recycling Society*

By selling only the cleanest and highest quality materials, the Edmonton Recycling Society (ERS) has helped to develop markets for the materials collected. The strategy has led to new and increased investment to process the glass, metals, paper, and plastic recovered. More than a dozen industries based in Edmonton and the surrounding region are currently manufacturing products using recycled commodities as raw materials.

Launched in 1988, the non-profit organization collects recyclables from 67,000 households in the northern half of the city. Initially, 85 percent of the recyclables collected were sold to customers in India, Taiwan, Korea, Japan, and Europe. Today, 85 percent of the materials are sold in Western Canada and nothing is sold offshore. Local jobs have been created de-inking newspapers and magazines; manufacturing ring-binders, fabrics, and "lumber" from discarded plastics; and designing and manufacturing new collection vehicles.

So much value is added to the discards that Cornelius Guenter, the Society's director, estimates "that the sales value of the materials manufactured from the recycled refuse is approximately seven to ten times that of the sales revenues for recyclables obtained by the Society. This being the case, the economic impact of the ERS operation on Western Canada is approximately \$4.5 million annually, over and above its own operation."

At the Edmonton Recycling Society, a commitment has also been made to hire employees who are either physically or mentally disadvantaged or have poor work records. One quarter of the Society's 70 employees are severely employment disadvantaged and would otherwise be on social assistance. The average length of employment is 27 months. Currently in its sixth year of operation, the Society has provided training in life skills and employment to more than 500 persons.

A major management consulting firm was hired to provide guidance and assistance in the preparation of a comprehensive set of customized personnel policies. Wages range from \$6 to \$16 per hour, full benefits and protective clothing are provided at no cost to the employee, and unused sick leave is refunded to employees in cash. "This very popular practice has prevented misuse of sick-leave, reduced overtime costs, and provided more than half of the employees with a well-earned bonus," says Guenter.

Training, counselling, employee representation on the board of directors, and special processing equipment designed and built in-house all reflect a strong commitment to employees. Incentives and rewards for productivity and quality workmanship are also abundant, but are not based on competitive criteria. A monthly in-house barbecue includes the drawing of names for gift certificates to dine at above-average restaurants and free tickets to all Oiler and Eskimo games. Other rewards frequently follow a period of unusually heavy tonnage such as those following holidays.

"But ERS is no charity case, propped up by taxpayer's dollars. It has returned more than half a million dollars to the City out of operating surpluses between 1989 and 1993 — nearly half of that amount out of last year's surplus alone. In the past two years it has also voluntarily reduced its contract fee by 12 percent," wrote Guenter in a paper prepared for this project. Housed in an old street car barn on the northeast edge of downtown, the Society pays the city \$120,000 in annual rent for a building that had stood vacant for five years at an annual cost of \$65,000 for heating and maintenance.

Customer service and education are additional ERS priorities. Each complaint receives a personal response within 24 hours. An on-going educational program, delivered by a local, well-known husband and wife entertainment team, presents to 10,000-15,000 students each year. The local cable company regularly airs a series of ERS-produced programs that deal with the blue box, what happens to the contents after they leave the household, and how recycling contributes to the quality of life in the community. The result: sustained participation levels above 90 percent and strong public support for the program.

range of products and materials have recently spurred interest in reduction, reuse, and recycling initiatives. Redesign, the strategy best able to reduce waste, is just beginning to be seriously contemplated by public and private interests.

Reuse and recycling programs are more labor intensive and resource conserving than traditional production and disposal practices. Their cost varies greatly, depending on the program in question, and whether the costs of avoided disposal and pollution are included in the calculations. The relatively low-skilled labour required to perform most collection and sorting functions also provides an opportunity to integrate employment challenged individuals into the work place, often replacing dependence on social assistance with earned wages.

*The relatively low-skilled labour required to perform most collection and sorting functions provides an opportunity to integrate employment challenged individuals into the work place, often replacing dependence on social assistance with earned wages.*

Rapid growth in residential curbside recycling programs has dramatically increased the collection of secondary materials over the past several years. Processing capacity has not expanded as quickly in many areas, leading to market gluts and depressed prices for materials collected.

### *Untapped Potential*

Although the processing and remanufacture of recyclable materials has increased over the last five years, enormous potential remains untapped. Much of the recycling effort to date has focused on the packaging used for consumer products. Industrial wastes, construction and demolition debris, containers used for retail distribution, and furniture, appliances, and cars all constitute rich sources of currently unused materials.

Waste exchanges, that rely on computer bulletin boards, can help to match waste producers with customers who can use the discarded materials. Building codes that require the use of a

*Over the longer term, waste management strategies are likely to shift from recycling discards to reducing the quantity of materials discarded.*

minimum percentage of recycled materials spur markets for new products and keep a significant share of the waste stream out of increasingly scarce landfills. Legislated recycling targets for various products, such as those being introduced in Germany for cars and computers, create new jobs in design and disassembly.

Food wastes from homes, restaurants, and food processing plants can feed pigs and, if composted, restore nutrients to the soil. New jobs in composting and landscaping could result.

Government and private sector procurement programs can spur the demand for products made from recycled materials. Provincial governments in Ontario and British Columbia are starting to actively seek out recycled paints, paper, and office supplies, but the potential for

creating jobs and markets, while reducing waste streams, remains enormous.

Energy and materials savings, reduced air and water pollution, and expanded local employment — for individuals with a wide range of skills and training — would all result from intensified recycling efforts. Success on the triple bottom line — economic, environmental, and social — is what sustainable development is all about.

Over the longer term, waste management strategies are likely to shift from recycling discards to reducing the quantity of materials discarded. Placing the financial responsibility for waste reduction and recycling on consumer product manufacturers, packaging suppliers, and retailers has made Germany the first country in the OECD to experience a decline in per capita waste generation. A wide variety of more hazardous items, such as batteries, used oil, appliances, and automobiles, are increasingly being returned to German manufacturers for proper treatment and disposal.

Producers have little incentive to reduce packaging or take back discards when the public sector pays for recycling and disposal costs. In

Canada, packaging protocols; initial efforts to take back paints, used oil, and other hazardous discards; EcoLogo certification for some recycled products; and a growing interest in procurement policies for recycled products are just starting to have an impact on recycling markets. Expanding and strengthening these initiatives has the potential to increase jobs, stimulate new businesses, and create international marketing opportunities. The federal government alone purchases over \$9 billion a year of consumer, commercial, and industrial goods. Its procurement policies could significantly boost the demand for green products, especially if these policies are also adopted by recipients of government funding.

### **Environmental Technologies**

The environmental industry sector is composed of a broad range of primarily small companies that clean up past environmental damage, collect and treat a variety of waste products, monitor environmental performance, and market technologies that reduce emissions. With \$10 billion in annual revenues and 70,000 employees, the industry is already large and is expected to continue growing at double digit rates.

New regulations and clean up efforts, at home and abroad, are fueling this expansion. The international market is expected to surpass \$600 billion by the year 2000. A shortage of technical specialists, lack of management skills, and heavy reliance on technologies developed elsewhere threaten to curtail the success of Canadian companies.

Rapid technological and regulatory changes demand great flexibility in this sector. Recently formed industry associations are assisting member companies to track these changes and

more effectively coordinate their efforts, especially in export markets. Three environmental technology advancement centres, jointly sponsored by Environment Canada and Industry Canada, are also gearing up to assist the industry. Monitoring regulations, reducing commercialization costs, improving dialogue with industrial customers, and increasing access to capital are the mandates of these centres. They will provide technical services, regulatory assistance, financial advice, and general business counselling.

Still a relatively new and evolving field, the environmental technologies sector will clearly benefit from an increased emphasis on environmental protection in all areas of the economy. The research and monitoring side of the industry will likely grow in importance. Developing and marketing remediation, pollution control and abatement technologies is another area poised for rapid growth, particularly as markets expand in developing countries and the economies of central and eastern Europe.

Solid and hazardous waste management, remediation of contaminated sites, improved water and sewage treatment technologies, and effective emission controls are now active and growing markets in industrial countries. In Canada, spending on waste management and water treatment now accounts for 75 percent of the market. Many developing countries lag considerably and are just beginning to develop their own environmental protection strategies.

Global competition for these markets is fierce, with Japan, Germany, and the United States in the lead. Starting from a strong base, Japan has developed a 100 year blueprint to become the world leader in all aspects of environmental business. In Canada, on the other hand, only 15 - 20 percent of companies in the

*Producers have little incentive to reduce packaging or take back discards when the public sector pays for recycling and disposal costs.*

*Still a relatively new and evolving field, the environmental technologies sector will clearly benefit from an increased emphasis on environmental protection in all areas of the economy.*

environmental sector either export or are export ready. The trade deficit in environmental equipment is estimated at \$900 million annually.

Over the longer term, the nature of the environmental technology industry is likely to change dramatically. As preventing pollution and relying on products and services that produce less waste and consume less energy assume greater importance in the marketplace, environmental expertise will be employed at the front end of the product and process design phase, instead of cleaning up the back end.

### *Training*

Environmental science, engineering, management, conservation, and restoration training are especially suited to youth, the segment of the population most interested in and concerned about the environment. National Youth Training for Environmental Industries (broadly defined) and a Green Youth Corps are promising delivery vehicles. Australia's Landcare and Environmental Action Program for unemployed youth, described in the paper submitted by Alan Law and Trish Williamson, is an approach that might work well in Canada. Many environmental restoration programs hold the potential of providing employment for disadvantaged members of our society.

An "environmental finishing school" for the unemployed would allow individuals from all sectors to upgrade their skills while simultaneously learning new approaches to work that could be put to use effectively in new positions. The concept is universally applicable and has been adopted by Energy Pathways in Ottawa to retrain the technically skilled.

More effectively communicating the changing needs of the environmental technologies sector to educators and trainers is considered a high priority among those studying the human resources side of the industry. Hydrogeologists,

toxicologists, legislative experts, and senior scientists are currently in short supply.

Environmental literacy training, and refresher courses, for a broad range of educators could help introduce all students to the career possibilities associated with environmental protection and restoration. Beyond technical skills, there is a great need for people trained in complex problem solving and constructive creativity. Using a more holistic, interdisciplinary approach to arrive at elegant solutions calls for individuals who can link and facilitate the talents and skills of many people.

### **Designing Energy Efficient and People Friendly Cities**

Selecting architecturally significant buildings in urban settings as demonstration sites for new building designs and technologies could result in a range of positive spin-off effects. Businesses and individuals could be attracted to the downtown core to both live and work. Densification efforts reduce the cost and environmental burdens associated with expanded infrastructure development and commuting, and

provide business for downtown merchants and service providers. Increased activity on city streets tends to reduce crime rates. And by planting trees; converting parking lots to playgrounds, parks and community gardens; and building roof gardens and terraces, the neighbourhood becomes more appealing both to residents and shoppers.

With amenities closer to home, people become less reliant on space-consuming, air-polluting, and energy-guzzling automobiles.

People are able to walk or bike to perform local errands, thereby improving their health and developing social contacts with neighbours and merchants. Living cities provide more employment and provide it closer to home. (See Sue Zielinski's paper on "Transporting Ourselves to Sustainable Economic Growth" for further development of this theme.)

*More effectively communicating the changing needs of the environmental technologies sector to educators and trainers is a high priority among those studying the human resources side of the industry.*



This approach has revitalized many European centres, is bringing new life to cities such as Toronto and Vancouver, and is poised to take off in urban centres around North America. New housing developments are also starting to return to these old values. Currently under construction, “Montgomery Village” near Orangeville, Ontario, and the “Village of Morrison” in Oakville both feature high density neighbourhoods, houses set close to the street, back lanes for parking, and a grid street pattern. What makes the properties so appealing is in-home offices; fibre-optic cable connections to interactive data, video and voice networks; corner stores and small offices; and high enough density to support public transportation.

Wooded parks and walking trails situated along local creeks, and natural drainage patterns incorporating wetlands and gardens, will make these high density neighbourhoods greener than

some sprawling suburbs nearby. The “dead worm pattern” of development, typified by large houses and big garages on wide crescents and cul de sacs, forces residents to rely on their cars. Many people are starting to opt for telecommuting and strolling to the local store, rather than spending time and money to sit in traffic.

Building codes, engineering standards, and zoning regulations are proving to be major obstacles to redesigning buildings and

neighbourhoods. On-street parking and corner stores, for example, are currently prohibited in many areas zoned for residential use. Sewage treatment requirements may prove excessive if water use and drainage is curtailed with low-flow fixtures, expanded green space, and integrated wetlands. Building codes that focus on specifications instead of performance often thwart the adoption of new, more resource efficient technologies.

*What makes the properties so appealing is in-home offices; fibre-optic cable connections to interactive data, video, and voice networks; corner stores and small offices; and high enough density to support public transportation.*

*Wooded parks and walking trails situated along local creeks, and natural drainage patterns incorporating wetlands and gardens, will make these high density neighbourhoods greener than some sprawling suburbs nearby.*



## NEW APPROACHES TO DEVELOPMENT

### **Promoting Synergies Through Community Economic Development**

Tailoring economic development policies to local needs and adopting the role of facilitator and partner might lead governments to work more closely with community economic development agencies. The role of community economic development is to increase linkages among local activities and to decrease leakages. The strategy is to accomplish multiple objectives, include and empower the greatest number of people, and strengthen economic competitiveness.

Organizing alliances to mobilize people, finances, and technical expertise are the tools.

Community economic development strategies recognize the need to strengthen entire systems,

not just component parts. They promote cooperation and mutually beneficial relationships among public, private, and community interests. With a focus on development that empowers marginalized communities and individuals, successful community development efforts incorporate a multi-functional approach. They provide or facilitate equity investment; lending accompanied by technical assistance to borrowers; human resource development; and research, planning, advisory, and advocacy services, wrote Mike Lewis in a paper prepared for this project. Investments in revenue generating assets is another means of providing increased financial stability and employment generation capability in economically challenged communities.

### *Ecotrust*

Ecotrust has married the concepts of economic development and environmental restoration in Willapa Bay, in southwestern Washington state. Now in the third year of its 1,000 year plan (the life span of the oldest living species in the watershed), Ecotrust is working to strengthen local entrepreneurs who will benefit the environment, the economy, and the community.

Willapa is the cleanest large estuary left in the United States. The regional economy has traditionally been based on forestry. The companies Ecotrust has chosen to assist in renewing the local economy and environment both use and restore the traditional resource base.

One company is revitalizing the sturgeon population and creating a viable fish and caviar industry with a species that feeds on the primary food competitor of oysters and clams. Two firms have been established to make paneling and furniture out of alder wood, a regrowth species that had formerly been considered an unwanted weed. A green industrial park is being planned, but will not be started until all species on the 700 acre site have been inventoried. Success will be measured in both profits and the ability to retain the local beaver family. All businesses in the Ecotrust program donate 1 percent of their profits to environmental monitoring of the region, said Alana Probst, Director of Economic Development at Ecotrust, in a presentation made at the Employment and Sustainable Development Meeting.

Little is wasted and nothing is taken for granted at Willapa. The shrimp and crab shells that had long gone to local landfills are now being processed to extract their chitin. Clairol uses chitin in its hair sprays, violin and guitar manufacturers use it in instrument strings, and the medical community is using it on the lesions of AIDS patients and in dissolvable sutures. Any excess chitin is mixed with sawmill waste and returned to the soil as compost.

*Regroupement pour la Relance Économique et Social du Sud-ouest de Montréal*

RESO (Regroupement pour la Relance Économique et Social du Sud-ouest de Montréal) has a mandate for the economic and social renewal of southwest Montreal, an area that has suffered continuous industrial decline over the last 20 years. In some neighbourhoods, 50 percent of the population is on social assistance and unemployment reaches 35 percent.

Organized in 1989, RESO is a membership based organization focused on renewal of the five poor neighbourhoods in the southwest. Its board structure consists of four representatives elected by the community movement, two elected by the trade unions in the area, one from big business and one from small business, also elected by their constituencies.

RESO provides both employability services and services to businesses. The organization is also involved in issues related to land use, development of infrastructure, and promotion of the area. It experiments with innovative approaches to reaching those hardest to reach, such as chronically unemployed youth. Formetal, a successful training business in the metallurgical field has come out of this effort.

Over the last two years, RESO has trained (directly or through controlled brokerage) over 1500 poor people. Training investments are continuously becoming more effectively linked to the local labour market, in large part because of the unique relationship RESO has fostered with businesses in the southwest.

RESO has provided technical assistance to over 200 businesses in the last two years. Outreach efforts rely in part on an early warning system, whereby trade unions that see potential problems in succession (a business owner retiring with no buyer), financial difficulties, etc., notify RESO, which then sits down with management and others to problem solve around product development, marketing, financial restructuring, etc.

The intelligence RESO gains from involvement with so many large and small businesses has provided it with a detailed understanding of the local labour market and its emerging roles and job training needs. This has a direct impact on the ability of RESO to tailor its training investments to real demands. Competency based curricula, directly derived from profiling of business/labour market needs, are now being developed and delivered. Through this integrated approach, RESO is building effective bridges between the needs of the poor and the needs of the business community.

There is evidence that the partnership RESO represents is having other dramatic impacts. The largest manufacturer in southwest Montreal, for example, whose President is on the RESO board, now sees community economic development as a vital component of his business plan. He is systematically beginning to link the company's \$70 million annual procurement budget for supplies to southwest Montreal businesses. This has already led to a Spanish supplier opening a business in Montreal in order to keep the \$5-\$6 million annual supply contract it has enjoyed for several years. The result is another 30-40 jobs for neighbourhood people.

For the first time in over 20 years, southwest Montreal has halted the decline in its manufacturing base. RESO is now planning to add direct business ownership to its strategy. By building an economic base for itself, RESO will reduce its vulnerability to government funding and vest the community of southwest Montreal as an owner in the local economy.

(Source: Mike Lewis, "Community Economic Development: Lessons from the Trenches: Directions for the Future." Prepared for the IISD Employment and Sustainable Development Meeting. The paper contains numerous case studies of best practices, recommendations for disseminating and replicating the lessons learned, plus contact names and numbers for further information.)

Putting the Canadian economy back on a firm footing for the future requires a multitude of diverse efforts and strategies. Combining the economic and social focus of community economic development initiatives with the goal of protecting and restoring environmental systems would result in a potent force for achieving a sustainable future.

By elevating the role of people and the environment, community economic development agencies can devise development strategies tailored to the strengths and needs of specific regions. Their traditional emphasis has been on building locally accountable organizations committed to alleviating poverty and increasing social equity. As their mandate expands to restoring ecological health and developing local businesses, these organizations can play a significant role in promoting economic development and expanding employment opportunities. Accelerating the dissemination and replication of existing best practices could provide guidance, and ultimately jobs, to communities across the country.

### Co-management of Resources

Sound resource management requires the involvement of many people. Individuals, communities, and First Nations whose livelihoods and future well-being depend on a healthy resource base, and whose stewardship can protect and perpetuate the resource, need to be more actively involved in decisions regarding conservation, use, harvesting, extraction, and restoration.

Sophisticated land use and sea bed mapping, and models to determine carrying capacity, are becoming increasingly important resource management tools. Their use can lead to wiser decisions and flag unsustainable practices. These new mapping, information, and management systems will be most effective when accompanied by the collective wisdom, traditional knowledge, and values of local people.

By combining modern technology and traditional wisdom, decisions can be made which

best satisfy all parties, both now and in the future. The Arctic Institute, housed at the University of Calgary, is a strong proponent and facilitator of this approach. Working with First Nations and other communities, large resource-based companies, and governments at all levels, the Institute fosters multi-cultural mediation, knowledge transfer, and capacity building.

Increased oil and gas extraction and timber harvesting in northern Alberta and British Columbia, for example, are starting to take place in a way that recognizes the traditional land uses of First Nations. By overlaying maps of forest and fuel reserves with those depicting residences, sites of cultural and spiritual significance, and the habitat of birds, fish, plants, and wildlife, development can proceed in a manner that is acceptable to all interests.

This approach is timely and relevant in virtually all areas of the country. Coastal and inland fisheries, remote forests and those near urban areas, and watersheds affected by agricultural and urban uses can all be better managed by understanding traditional and desired uses and the effects these uses have on the resource base. Intensified efforts to conserve biological diversity will also rely on cooperative management agreements that protect contiguous habitat.

*By combining modern technology and traditional wisdom, decisions can be made which best satisfy all parties, both now and in the future.*

First Nations have always recognized their responsibility to steward resources for the Seventh Generation to come. As aboriginal governments regain control over their territories through land claims, traditional knowledge and new technologies can be combined into a strategy for sustainable resource harvesting and restoration of the environment. Renewed

hunting, gathering, and trapping can be coupled with the development of tourism and other joint venture industries to provide sustainable employment and income generating activities.

### Making Learning Fun

According to Ed Lowans of the Coalition for a Green Economic Recovery in Ontario, school children served by Toronto's Board of Education will soon have access to a cutting-edge,

integrated learning environment. Students will learn about advanced technologies using fully operational scale models, supported by an interactive electronic network connected to information sources and demonstration facilities. The Ontario Science Centre solar aquatics and composting demonstrations and the CN Tower Windows on Global Change exhibit will both be part of the network. After learning about these technologies, students will visit full scale systems in action. Trips are planned to the Science Centre, the Bring Back the Don Marsh Regeneration Site, the CN Tower, the Boyne River Ecology Centre, and the new Body Shop headquarters.

At the Boyne River Ecology Centre, outside of Shelburne, Ontario, an autonomous building relies on site-generated hydro and solar electricity, and solar and biomass heating. An indoor “living machine”, or biological regeneration system, turns human waste into pristine water and doubles as a fully integrated biology demonstration. Sheathed in glass for solar gain and to facilitate observation of the natural environment, the building demonstrates and is used to teach environmental responsibility. It is, unfortunately, impossible to access by bicycle or public transit.

The new Body Shop Canada headquarters and manufacturing plant, in a renovated warehouse in Toronto, is also equipped with a biological regeneration system to treat human waste and a similar system is being installed to treat production waste. Common spaces and an on-

site, subsidized daycare called “Business of the Future” are situated along the building’s sunlit exterior and the offices are located on the interior.

Recycled paints, carpets, and toilets; maple furniture made from sustainably managed and harvested forests; linoleum flooring made from 100 percent natural fibres and non-toxic solvents; and community gardens allotted to staff all demonstrate the Body Shop’s cost-effective commitment to environmental and social responsibility. Guided tours of the building and its many innovative features are conducted by company staff in an effort to demonstrate and transfer appropriate technology.

Both the Body Shop headquarters and the Boyne River Ecology Centre demonstrate what can be achieved with a fully integrated, or holistic, design process. Building and retrofitting similar public and private structures in major centres throughout Canada would:

- Stimulate markets for green products and recycled building materials;
- Raise public awareness;
- Demonstrate new design concepts;
- Provide initial hands-on and longer term training for those in the building trades; and
- Verify the economic and environmental savings achievable from improved building designs and technologies.

## CONCLUSION

Putting Canada's economy on a more sustainable path will entail major changes in the way governments, businesses, individuals, and communities approach economic activity. Relying on governments to provide all the answers and deliver the funds is not a workable, or affordable, approach. Pouring money into short-term, make-work projects fosters a spirit of dependency that perpetuates problems and drains resources away from more productive activities.

Providing the policies and framework supportive of private sector, community, and individual initiatives can unleash the creative, new ideas needed to adapt to rapidly changing economic, environmental, and social circumstances. Doing so requires improved coordination among federal and provincial government activities, an increased government willingness to act as a facilitator and partner, and concrete steps to achieve the many changes to which Canada has publicly committed.

*Providing the policies and framework supportive of private sector, community, and individual initiatives can unleash the creative, new ideas needed to adapt to rapidly changing economic, environmental, and social circumstances.*

By signing international environmental and trade agreements, Canada has pledged to open up markets, to use energy and raw materials more efficiently, and to reduce social inequities at home and around the world. The federal government cannot possibly control and deliver all the technical expertise, financing, training, and networking required to accomplish these objectives, nor should it try. Enabling businesses and individuals to tap new markets and develop new technologies, products, and services is essential. A sustainable economy will be more stable and provide a greater number of jobs.

By providing leadership, cultivating existing strengths, and fostering self-reliance, governments can guide and stimulate private

sector activities. Establishing firm policy goals and the deadlines to meet them can provide the roadmap while leaving it to others to decide on the route. As the examples provided in this report, and the papers submitted for this project, clearly illustrate, Canada is rich with innovative ideas. Empowering people to act on these ideas requires a more supportive policy framework and fewer institutional barriers.

Canadians are fed up with rising taxes, declining services, and a perceived inability to move forward. The way money is spent is a far greater problem than the amount available. Protecting old industries, entrenched bureaucracies, and crown corporations that have grown comfortable and complacent at public expense prevents the fundamental restructuring needed to respond to new conditions.

We need to open up electricity markets to independent power generators and efficiency investments. We need to provide communities the financial and institutional means to manage

their resources in a manner that enhances long-term productivity and responds to new markets. And we need to empower individuals to help themselves. Doing so will reduce the financial burden on all of us — and revitalize the economy. Change is never easy, but it can be fun if people feel challenged, supported, encouraged, and rewarded.

Tailoring government policies, expenditures, and training programs to fostering sustainable development will open up a range of new opportunities. By reducing energy and materials use, restoring degraded environments, and adding value to products and services, Canada can cut costs, enhance future potential, and provide more sustainable livelihoods.





APPENDIX 1

Directory of Attendees at the IISD Employment and  
Sustainable Development Meeting

June 23-25, 1994

Winnipeg, Manitoba

Mr. Reg Alcock, MP  
House of Commons  
124 Confederation Building  
Ottawa ON K1A 0A6  
Phone: (613) 995-7517  
Fax: (613) 943-1466

Professor Bob Allen  
Sir Sandford Fleming College  
P. O. Box 8000  
Albert Street S.  
Lindsay ON K9V 5E6  
Phone: (705) 324-9144  
Fax: (705) 878-9312

Mr. Greg Allen  
Allen & Associates  
400 Mt. Pleasant Road  
Toronto ON M4C 2L3  
Phone: (416) 488-4425  
Fax: (416) 488-7608

Mr. Erwin Allerdings  
Prairie Farm Rehabilitation Administration  
603-1800 Hamilton Street  
Regina SK S4P 4L2  
Phone: (306) 780-5070  
Fax: (306) 780-8229

Ms. Carol Amaratunga  
Electronic Cottage  
9 Boutillier's Grove  
Dartmouth NS B2X 2V9  
Phone: (902) 435-7242  
Fax: (902) 435-7242

Ms. Nedra Andersen  
Anderson Management Services Inc.  
6-1313 Border Street  
P. O. Box 394 Station L  
Winnipeg MB R3H 0Z6  
Phone: (204) 694-2007  
Fax: (204) 633-0551

Mr. Michael Anderson  
Manitoba Keewatinowi Okimakanak Inc.  
23 Station Road  
Thompson MB R8N 0N6  
Phone: (204) 786-1050  
Fax: (204) 778-7655

Ms. Joan Andrew  
Ministry of Education and Training  
900 Bay Street  
3rd Floor  
Toronto ON M7A 1L2  
Phone: (416) 325-2989  
Fax: (416) 325-2995

Ms. Jeanne Andrews  
Environment Canada  
Place Vincent Massey, 7th Floor  
351 St. Joseph Blvd.  
Hull QC K1A 0H3  
Phone: (819) 953-7659  
Fax: (819) 997-3822

Mr. Bob Annis  
Westarc Group  
247-18th Street  
Brandon MB R7A 5A6  
Phone: (204) 729-3440  
Fax: (204) 729-9090

Mr. Paul Antle  
SCC Environmental  
137 Lemarchant Road  
St. Johns NF A1C 2H3  
Phone: (709) 726-0506  
Fax: (709) 726-7905

Mr. Bill Armstrong  
Energy Pathways  
251 Laurier Avenue W.  
Suite 500  
Ottawa ON K1P 5J6  
Phone: (613) 235-7976  
Fax: (613) 235-2190

Mr. Amand Arsenaault  
Council of Cooperatives of Prince Edward Island  
37 Mill Road  
Wellington PEI C0B 2H0  
Phone: (902) 854-3131  
Fax: (902) 854-3211

Mr. P. Asp  
P. J. Asp Management Services  
Dease Lake BC V0C 1L0  
Phone: (604) 771-3857  
Fax: (604) 771-5453

Mr. Stephan Barg  
International Institute for  
Sustainable Development  
6th Floor, 161 Portage Avenue E.  
Winnipeg MB R3B 0Y4  
Phone: (204) 958-7703  
Fax: (204) 958-7710

Mr. William Barto  
Government of Manitoba  
305-155 Carlton Street  
Winnipeg MB R3C 3H8  
Phone: (204) 945-3957  
Fax: (204) 945-0090

Mr. Maurizio Bevilacqua, MP  
House of Commons  
544-N Centre Block  
Ottawa ON K1A 0A6  
Phone: (613) 996-4971  
Fax: (613) 996-4973

Mr. Dave Boldt  
Western Economic Diversification  
P. O. Box 777  
Room 712-240 Graham Avenue  
Winnipeg MB R3C 2L4  
Phone: (204) 983-2911  
Fax: (204) 983-4694

Mr. Paul Bonnet  
Saskatchewan Wheat Pool  
2625 Victoria Avenue  
Regina SK S4T 7T9  
Phone: (306) 569-4733  
Fax: (306) 569-4885

Mr. Mark Boreskie  
Manitoba Rural Development  
607-800 Portage Avenue  
Winnipeg MB R3G 0N4  
Phone: (204) 945-2604  
Fax: (204) 945-1994

Mr. Paul Born  
Community Opportunities Development  
Association  
35-37 Dickson Street  
Cambridge ON N1R 7A6  
Phone: (519) 623-9380  
Fax: (519) 740-8540

Dr. Simon Brascoupe  
Apikan Indigenous Network  
154 Aylmer Avenue  
Ottawa ON K1S 2Y4  
Phone: (613) 730-7059  
Fax: (613) 730-5621

Ms. Barbara Bruce  
Canadian Council for Aboriginal Business  
300-240 Graham Avenue  
Winnipeg MB R3C 4C5  
Phone: (204) 947-6436  
Fax: (204) 956-0995

Mr. Rob Bruce-Barron  
Canzeal Ltd.  
854 Palmerston  
Winnipeg MB R3G 1J5  
Phone: (204) 772-2548  
Fax: (204) 772-2158

Mr. Jeremy Byatt  
Friends of the Earth Canada  
Suite 701, 251 Laurier Avenue W.  
Ottawa ON K1P 5J6  
Phone: (613) 230-3352  
Fax: (613) 232-4354

Ms. Stephanie Cairn  
Pembina Institute for Appropriate Development  
P. O. Box 7558  
Drayton Valley AB T0E 0M0  
Phone: (403) 452-6272  
Fax: (403) 452-6464

Mr. Isidore Campbell  
Meadow Lake Tribal Council  
Box 1360  
Flying Dust Reserve, Hwy 55  
Meadow Lake SK S0M 1V0  
Phone: (306) 236-5654  
Fax: (306) 236-6301

Mr. Pat Carson  
Loblaw Companies, Ltd.  
22 St. Clair Ave. E., 9th Floor  
Toronto ON M4T 2S5  
Phone: (416) 922-8500 ext. 5422  
Fax: (416) 960-6998

Mr. Tony Cassils  
Consultant  
211 Wurtemberg Street  
Suite 2101  
Ottawa ON K1N 8R4  
Phone: (613) 789-1090  
Fax: (613) 789-1090

Ms. Marianne Cerilli  
NDP Environment Critic  
549 Regent Avenue West  
Winnipeg MB R2C 1R9  
Phone: (204) 222-0074  
Fax: (204) 945-0535

Ms. Dian Cohen  
c/o Aurora Business Personnel Services Inc.  
46 Wellington St. East  
Aurora ON L4G 1L9  
Phone: (905) 841-0942  
Fax: (905) 841-6417

Mr. Gerry Couture  
City of Winnipeg  
395 Main Street  
Winnipeg MB R3B 3E1  
Phone: (204) 986-4183  
Fax: (204) 986-6907

Mr. Jay Cowan  
Envirofit Consulting Inc.  
100 Osborne St. South  
Suite 303  
Winnipeg MB R3L 1Y5  
Phone: (204) 452-5746  
Fax: (204) 477-5298

Mr. Harry Davis  
University of Victoria  
MS6500, P.O. Box 1700  
Victoria BC V8W 2Y2  
Phone: (604) 721-6500  
Fax: (604) 721-6497

Mr. Ken Donnelly  
Human Resources Development Canada  
140 Promenade du Portage  
Phase IV, 5th Floor  
Hull QC K1A 0J9  
Phone: (819) 994-6701  
Fax: (819) 953-5941

Mr. Kevin Doyle  
KMH Inc.  
10 Heather Dr., Leaside  
Toronto ON M4G 3G3  
Phone: (416) 214-0880  
Fax: (416) 214-0882

Mr. Dennis Dunn  
Federal Business Development Bank  
43 Church Street  
P. O. Box 1193  
St. Catherines ON L2R 7A7  
Phone: (905) 685-4808  
Fax: (905) 641-3171

Ms. Bernadette Dwyer  
Fogo Island Cooperative  
P. O. Box 70  
25 Waterfront  
Seldom NF A0G 3Z0  
Phone: (709) 627-3452  
Fax: (709) 627-3495

Mr. Paul Earl  
United Grain Growers  
28th fl., 201 Portage Avenue  
Winnipeg MB R3V 1L5  
Phone: (204) 944-5659  
Fax: (204) 944-5415

Mr. Lorne Eckersley  
Creston Valley Sustainable Communities Project  
P. O. Box 1339  
238-10th Avenue North  
Creston BC V0B 1G0  
Phone: (604) 428-2994  
Fax: (604) 428-9164

Mr. John Ellis  
Hudson Bay Mining and Smelting Co., Ltd.  
1906-201 Portage Avenue  
Winnipeg MB R3B 3K6  
Phone: (204) 949-4261  
Fax: (204) 942-8177

Ms. Celia Fairclough  
Ministry of Education and Training  
9th Floor, 595 Bay Street  
P. O. Box 153  
Toronto ON M5G 2C2  
Phone: (416) 314-5167  
Fax: (416) 314-5169

Ms. Lorraine Farkas  
Human Resources Development Canada  
21st Floor, 112 Kent Street  
Tower B, Place de Ville  
Ottawa ON K1A 0J9  
Phone: (613) 957-1276  
Fax: (613) 957-1523

Mr. Jeff Fielding  
City of Winnipeg  
395 Main Street  
Winnipeg MB R3B 3E1  
Phone: (204) 986-3750  
Fax: (204) 986-6907

Mr. John Flynn  
South West Valley Development Corporation  
P. O. Box 8  
Harvey Station NB E0H 1H0  
Phone: (506) 366-3022  
Fax: (506) 366-3444

Mr. Herb Gabora  
SPAR Aerospace  
Suite 900, 5090 Explorer Drive  
Mississauga ON L4W 4X6  
Phone: (905) 629-7727  
Fax: (905) 629-3431

Mr. Cornelius Guenter  
Edmonton Recycling Society  
11631-80th Street  
Edmonton AB T5B 2N3  
Phone: (403) 471-0071  
Fax: (403) 479-7700

Dr. Arthur Hanson  
International Institute for  
Sustainable Development  
6th Floor, 161 Portage Avenue E.  
Winnipeg MB R3B 0Y4  
Phone: (204) 958-7700  
Fax: (204) 958-7710

Mr. Ron Harper  
Industry Canada  
235 Queen Street  
Ottawa ON K1A 0H5  
Phone: (613) 954-3086  
Fax: (613) 954-3419

Mr. Paul Hawken  
Author and Entrepreneur  
20 South 40  
Sausalito CA 94965  
Phone: (415) 332-5124  
Fax: (415) 332-7933

Ms. Kate Humpage  
Human Resources Development Canada  
21st Floor, 112 Kent Street  
Tower B, Place de Ville  
Ottawa ON K1A 0J9  
Phone: (613) 957-0693  
Fax: (613) 957-1523

Mr. Colin Isaacs  
Contemporary Information Analysis Ltd.  
Suite 201, 61 Mutual Street  
Toronto ON M5B 2A9  
Phone: (416) 726-8015  
Fax: (416) 863-6230

Dr. Walter Jamieson  
University of Calgary  
Room 1019C Earth Science Bldg.  
2500 University Drive, N.W.  
Calgary AB T2N 1N4  
Phone: (403) 220-8669  
Fax: (403) 284-4608

Mr. Rob Kerr  
International Institute for  
Sustainable Development  
6th Floor, 161 Portage Avenue E.  
Winnipeg MB R3B 0Y4  
Phone: (204) 958-7704  
Fax: (204) 958-7710

Ms. Karen Kraft Sloan, MP  
House of Commons  
Room 466  
Confederation Bldg.  
Ottawa ON K1A 0A6  
Phone: (613) 996-7752  
Fax: (613) 992-8351

Ms. Diane Kunec  
MARR Consulting & Communications  
249 Bell Avenue  
Winnipeg MB R3L 0J2  
Phone: (204) 475-6939  
Fax: (204) 474-1888

Ms. Dayna Lalchun  
MANBICO Biological Ltd.  
Box 17, Grp 242, RR 2  
Winnipeg MB R3C 2E6  
Phone: (204) 697-0863  
Fax: (204) 697-0887

Ms. Donna Larsen  
KPMG Management Consulting  
800-200 Graham Avenue  
Winnipeg MB R3C 4M1  
Phone: (204) 944-1014  
Fax: (204) 943-4913

Mr. Nils Larsson  
CANMET, EMR  
7th Floor, 580 Booth St.  
Ottawa ON K1A 0E4  
Phone: (613) 769-1242  
Fax: (613) 996-9416

Dr. Alan Law  
Coopers & Lybrand  
2500 Oxford Tower  
10235-101 Street  
Edmonton AB T5J 3N5  
Phone: (403) 421-3239  
Fax: (403) 421-3052

Mr. Mike Lewis  
Centre for Community Enterprise  
Site 142, C-14  
Port Alberni BC V9Y 7L5  
Phone: (604) 723-1139  
Fax: (604) 723-3730

Mr. Charles Loewen  
Loewen Windows  
77 Loewen Blvd.  
Steinbach MB R0A 2A0  
Phone: (204) 326-6446  
Fax: (204) 326-5347

Mr. Ron Loucks  
Edmonds Environmental Services  
24 Clayton Park Drive  
Halifax NS B3M 1L3  
Phone: (902) 443-1113  
Fax: (902) 443-1113

Ms. Marjorie Loveys  
Prime Minister's Office  
323 West Block  
Ottawa ON K1A 0A6  
Phone: (613) 957-5566  
Fax: (613) 957-5514

Mr. Ed Lowans  
Coalition for a Green Economic Recovery  
R.R. 8  
Orangeville ON L9W 3T5  
Phone: (519) 940-0964  
Fax: (519) 940-0964

Ms. Linda MacDonald  
St. Mary's University  
Suite 801, 1800 Argyle Street  
Halifax NS B3J 3N8  
Phone: (902) 420-5639  
Fax: (902) 420-5284

Ms. Barbara Mackay  
InterGroup Consultants Ltd.  
604-283 Portage Avenue  
Winnipeg MB R3B 2B5  
Phone: (204) 942-0654  
Fax: (204) 943-3922

Mr. Jack MacLeod  
IISD Senior Fellow  
Bow Valley Square II  
2500, 205-5th Avenue S.W.  
Calgary AB T2P 2V7  
Phone: (403) 261-3698  
Fax: (403) 265-9357

Dr. Teresa MacNeil  
President's Office  
St. Francis Xavier University  
P.O. Box 5000  
Antigonish NS B2G 2W5  
Phone: (902) 867-5271  
Fax: (902) 867-2177

Mr. Ed Mallett  
Ontario Centre for Environmental Technology  
Advancement  
2395 Speakman Drive  
Mississauga ON L5K 1B3  
Phone: (905) 822-4111 ext 346  
Fax: (905) 823-1446

Ms. Sandra Mark  
West End Community Ventures  
804 Grenon Avenue  
Ottawa ON K2B 6G2  
Phone: (613) 596-6262  
Fax: (613) 596-6266

Ms. Ruth Marr  
Marr Consulting & Communications Ltd.  
249 Bell Avenue  
Winnipeg MB R3L 0J2  
Phone: (204) 475-6939  
Fax: (204) 474-1888

Mr. Dick Martin  
Canadian Labour Congress  
2841 Riverside Drive  
Ottawa ON K1V 8X7  
Phone: (613) 521-3400  
Fax: (613) 521-4655

Mr. Pat Martin  
Carpenters Union Local  
635 Sargent Avenue  
Winnipeg MB R3E 3G6  
Phone: (204) 774-1609  
Fax: (204) 786-6811

Ms. Elizabeth May  
Sierra Club of Canada  
Suite 620, 1 Nicholas Street  
Ottawa ON K1N 7B7  
Phone: (613) 241-4611  
Fax: (613) 241-2292

Mr. Dan McCarthy  
Liberal Caucus Research Bureau  
Room 320, 180 Wellington  
Ottawa ON K1A 0A6  
Phone: (613) 943-8715  
Fax: (613) 996-2551

Ms. Norma McCormick  
Corporate Health Works  
738 Osborne Street  
Winnipeg MB R3L 2C2  
Phone: (204) 452-9137  
Fax: (204) 475-5149

Father Des McGrath  
Fisherman, Food & Allied Workers' Union  
P. O. Box 10  
2 Steers Cone  
St. John's NF A1C 5H5  
Phone: (709) 576-7276  
Fax: (709) 576-1962

Mr. Glenn McKnight  
Energy Conservation Society of Ontario  
595 Wentworth Street E.  
Oshawa ON L1H 3V8  
Phone: (905) 725-3704  
Fax: (905) 725-5980

Mr. Sheldon McLeod  
Canadian Council of Ministers  
of the Environment  
400-326 Broadway  
Winnipeg MB R3C 0S5  
Phone: (204) 948-2133  
Fax: (204) 948-2125

Mr. Joel McNulty  
Monsanto Canada Inc.  
55 Murray Park Road  
Winnipeg MB R3J 3W2  
Phone: (204) 985-1034  
Fax: (204) 885-5000

Ms. Colleen Mercer-Clarke  
The Nova Scotia Centre for Environmentally  
Sustainable Economic Development  
P. O. Box 1000  
1334 Barrington Street  
Halifax NS B3J 2X4  
Phone: (902) 420-7936  
Fax: (902) 429-4866

Mr. Peter Moonen  
Canfor  
2900-1055 Dunsmuir St.,  
P. O. Box 49420 Bentall Postal Stn.  
Vancouver BC V7X 1B5  
Phone: (604) 661-5256  
Fax: (604) 661-5219

Mr. Michael Murphy  
Stentor Telecom Policy Inc.  
Suite 1800, 45 O'Connor St.  
Ottawa ON K1P 1A4  
Phone: (613) 567-7321  
Fax: (613) 567-7001

Ms. Marie Murphy-Foran  
Boreal Edge Eco-Ventures  
25 Denison Road  
Elliot Lake ON P5A 1L8  
Phone: (705) 848-4283  
Fax: (705) 461-7248

Mr. David Neave  
Wildlife Habitat Canada  
7 Hinton Avenue  
Ottawa ON K1Y 4P1  
Phone: (613) 722-2090  
Fax: (613) 722-3318

Mr. George Nemeth  
Nemco Resources Ltd.  
471 Madison Street  
Winnipeg MB R3J 1J2  
Phone: (204) 888-7901  
Fax: (204) 837-9914

Mr. Rolf Oswald  
Linnet Graphics  
600-191 Broadway  
Winnipeg MB R3C 3T8  
Phone: (204) 957-7566  
Fax: (204) 957-6208

Mr. Nabil Oudeh  
Centre for Conflict Resolution International Ltd.  
Suite 210, 428 Portage Avenue  
Winnipeg MB R3C 0E2  
Phone: (204) 943-7588  
Fax: (204) 943-7592

Mr. Jean Perras  
Learning for a Sustainable Future  
Suite 303, 45 Rideau Street  
Ottawa ON K1N 5W8  
Phone: (613) 562-2238  
Fax: (613) 562-2244

Ms. Joy Playford  
Federal Business Development Bank  
Suite 1200, 155 Carlton Street  
Winnipeg MB R3C 3H8  
Phone: (204) 983-6455  
Fax: (204) 983-8522

Ms. Cynthia Pollock Shea  
International Institute for  
Sustainable Development  
6th Floor, 161 Portage Avenue E.  
Winnipeg MB R3B 0Y4  
Phone: (204) 958-7706  
Fax: (204) 958-7710

Ms. Alana Probst  
Ecotrust  
Suite 470, 1200 Northwest Front Avenue  
Portland OR 97209  
Phone: (503) 227-6225  
Fax: (503) 222-1517

Ms. Joyce Rabesca  
Rabesca's Resources Ltd.  
P. O. Box 98  
Rae-Edzo NWT X0E 0Y0  
Phone: (403) 371-3144  
Fax: (403) 371-3155

Mr. Ron Raffai  
Federated Co-operatives Ltd.  
1615 King Edward Street  
Winnipeg MB R3C 2W6  
Phone: (204) 633-8950  
Fax: (204) 694-3471

Ms. Lynn Raskin-Levine  
KPMG Management Consulting  
800-200 Graham Avenue  
Winnipeg MB R3C 4M1  
Phone: (204) 944-1014  
Fax: (204) 943-4913

Mr. Robert Redhead  
Laidlaw Inc.  
3221 North Service Road  
Burlington ON L7R 3Y8  
Phone: (905) 336-1800 ext 207  
Fax: (905) 336-0670

Ms. Karen Rees  
Marr Consulting & Communication  
249 Bell Ave.,  
Winnipeg MB R3L 0J2  
Phone: (204) 475-6939  
Fax: (204) 474-1888

Mr. Frank Reimer  
Keystone Grain Ltd.  
Box 1236  
129 Manitoba Road  
Winkler MB R6W 4B3  
Phone: (204) 325-2239  
Fax: (204) 325-2240

Mr. Wayne Roberts  
50 Wineva Avenue  
Toronto ON M4E 2T2  
Phone: (416) 699-6070  
Fax: (416) 694-3202

Mr. Mike Robinson  
University of Calgary  
2500 University Drive, N.W.  
MLT 11th Floor  
Calgary AB T2N 1N4  
Phone: (403) 220-7515  
Fax: (403) 282-4609

Dr. Eva Rosinger  
OECD, Environment Directorate  
Chateau de la Muette  
2, rue André Pascal  
75775 Paris Cedex 16 France  
Phone: 331 4524-9311  
Fax: 331 4524-7876

Mr. Lee Roth  
Canada Employment Centre  
Morden MB R0G 1J0  
Phone: (204) 822-2254  
Fax: (204) 8226333

Dr. Mike Roy  
Westviking College  
P. O. Box 822  
Corner Brook NF A2H 6H6  
Phone: (709) 637-8584  
Fax: (709) 634-2126

Mr. David Saxby  
Marishell Products Ltd.  
Suite 206-1807 Maritime News  
Granville Island  
Vancouver BC V6M 3W7  
Phone: (604) 685-5499  
Fax: (604) 685-8249

Ms. Shirley Seward  
Canadian Labour Market and Productivity Centre  
6th Floor - 66 Slater Street  
Ottawa ON K1P 5H1  
Phone: (613) 234-0505  
Fax: (613) 234-2482

Ms. Susan Sherk  
Economic Recovery Commission  
Third Floor, Beothuck Building  
20 Crosbie Place  
St. John's NF A1B 3Y8  
Phone: (709) 738-0199  
Fax: (709) 738-2469

Ms. Romy Shovelton  
Wikima Consulting  
23 Leamington Road Villas  
London England W11 1HS  
Phone: 44 71 229-7320  
Fax: 44 71 229-7320



Mr. Robert Silver  
Western Glove Works Ltd.  
555 Logan Avenue  
Winnipeg MB R3A 0S4  
Phone: (204) 788-4249  
Fax: (204) 772-6929

Mr. Geoff Snider  
Solar Solutions  
329 Cumberland Avenue  
Winnipeg MB R3B 1T2  
Phone: (204) 339-1767  
Fax: (204) 339-1034

Mr. John Spence  
Strategic Planning for Applied Research  
and Knowledge  
Suite 800-4710 Kingsway  
Burnaby BC V5H 4M2  
Phone: (604) 436-3574  
Fax: (604) 438-6564

Mr. Ron Staple  
Repap  
P. O. Box 1590  
The Pas MB R9A 1L4  
Phone: (204) 623-7411  
Fax: (204) 623-5995

Mr. Daniel Stechey  
Dept. of Fisheries & Oceans  
200 Kent Street  
Station 1160  
Ottawa ON K1A 0E6  
Phone: (613) 993-2091  
Fax: (613) 990-9574

Mr. Bob Stewart  
Terrestrial, Aquatic & Environmental Managers  
Box 2290  
Meadow Lake SK S0M 1V0  
Phone: (306) 236-5654  
Fax: (306) 236-6301

Dr. Vernon Thomas  
University of Guelph/Dept. of Zoology  
Guelph ON N1G 2W1  
Phone: (519) 824-4120 ext 2738  
Fax: (519) 767-1656

Ms. Linda Thomas  
Canadian Council for Aboriginal Business  
300-240 Graham Avenue  
Winnipeg MB R3C 4C5  
Phone: (204) 947-6436  
Fax: (204) 947-0995

Mr. Allan Torbitt  
Assembly of Manitoba Chiefs  
500-286 Smith Street  
Winnipeg MB R3C 1K4  
Phone: (204) 956-0610  
Fax: (204) 956-2109

Mr. Grant Trump  
Canadian Council for Human Resources in the  
Environment Industry  
700-4th Ave. S.W.  
Suite 700  
Calgary AB T2P 3J4  
Phone: (403) 233-0748  
Fax: (403) 269-9544

Mr. Michael Van Wallegghem  
Waste Systems Management  
501-D Weston Street  
Winnipeg MB R3E 3H4  
Phone: (204) 788-4969  
Fax: (204) 775-9381

Mr. Glen Vanderhaeghe  
AgPro Grain  
1504-201 Portage Avenue  
Winnipeg MB R3B 3K6  
Phone: (204) 942-2470  
Fax: (204) 949-0936

Mr. Gord Vidal  
Lloyd Axworthy's Regional Office  
855-240 Graham Avenue  
Winnipeg MB R3C 0J7  
Phone: (204) 983-7096  
Fax: (204) 983-6074

Ms. Allison Webb  
National Roundtable on the  
Environment and the Economy  
1 Nicholas St. Suite 1500  
Ottawa ON K1N 7B7  
Phone: (613) 992-7189  
Fax: (613) 992 7385

Ms. Gaile Whelan Enns  
Whelan Enns & Associates  
411-63 Albert Street  
Winnipeg MB R3B 1G3  
Phone: (204) 944-9593  
Fax: (204) 943-5711

Dr. John Wiebe  
Globe Foundation of Canada  
504-999 Canada Place  
Vancouver BC V6C 3E1  
Phone: (604) 684-5986  
Fax: (604) 666-8123

Mr. Irvin Wilson  
Peguis First Nation  
Box 219  
Hodgson MB R0C 1N0  
Phone: (204) 645-2359  
Fax: (204) 645-2360

Ms. Wanda Wuttunee  
University of Manitoba  
Rm 532, Fletcher Argue Bldg  
Winnipeg MB R3T 5V5  
Phone: (204) 474-6405  
Fax: (204) 261-0333

Mr. Ian Yolles  
The Body Shop  
33 Kern Road  
Don Mills ON N3B 1S9  
Phone: (416) 441-3202  
Fax: (416) 441-0712

Mr. Tim Yusishen  
Solar Solutions  
29 Pearce Avenue  
Winnipeg MB R2V 2K3  
Phone: (204) 339-1767  
Fax: (204) 339-1034

Ms. Sue Zielinski  
Transportation Options  
35 Manning Avenue  
Toronto ON M6J 2K3  
Phone: (416) 392-1556  
Fax: (416) 392-0071

APPENDIX 2

Directory of Papers Submitted for the  
Employment and Sustainable Development Project

*Linking the Solitudes of Wildlife Habitat,  
Landscapes and Economic Development to Create  
Sustainable Employment Opportunities*

John Girt  
John Girt & Associates  
1 St. Malo  
Aylmer QC J9J 1J6  
Phone: (819) 595-2432  
Fax: (819) 595-8424

David Neave  
Executive Director  
Wildlife Habitat Canada  
7 Hinton Avenue  
Ottawa ON K1Y 4P1  
Phone: (613) 722-2090  
Fax: (613) 722-3318

*Youth Enterprise and Sustainable Development*

David Newing  
Canadian Youth Business Trust  
3rd floor, 215 Cooper St.  
Ottawa ON K2P 0G2  
Phone: (613) 231-6474  
Fax: (613) 231-6497

*Eco-Efficient Buildings*

Ed Lowans  
Coalition for a Green Economic Recovery  
R.R. 8  
Orangeville ON L9W 3T5  
Phone: (519) 940-0964  
Fax: (519) 940-0964

*Sustainable Cultural Development: Sustainable  
Development in the Past and Future of Aboriginal  
Employment in Canada*

Simon Brascoupe  
Apikan Indigenous Network  
154 Aylmer Avenue  
Ottawa ON K1S 2Y4  
Phone: (613) 730-7059  
Fax: (613) 730-5621

*Win-Win-Win: Good Jobs, Strong Communities,  
Healthy Environment*

Wayne Roberts  
Coalition for a Green Economic Recovery  
50 Wineva Avenue  
Toronto ON M4E 2T2  
Phone: (416) 699-6070  
Fax: (416) 594-3202

*Employment and Sustainable Development in  
Forestry: The Ecosystem-Based Determinant —  
Increased Complexity in Forecasting Employment  
Trends*

Doug Patterson/Robert Nixon  
Eco-Forestry Institute  
Box 5885, Station B  
Victoria BC V8R 6S8  
Phone: (604) 598-2363  
Fax: (604) 598-2363

*West End Community Ventures: An Urban  
Community Organization on the Path to  
Sustainability*

Sandra Mark  
Executive Director  
West End Community Ventures  
804 Grenon Avenue  
Ottawa ON K2B 6G2  
Phone: (613) 596-6262  
Fax: (613) 596-6266

*The Employment Opportunities of Sustainable  
Rural Tourism*

Walter Jamieson  
Director  
The Centre for Livable Communities  
Room 1019C Earth Science Building  
Faculty of Environmental Design  
University of Calgary  
2500 University Drive NW  
Calgary AB T2N 1N4  
Phone: (403) 220-8669  
Fax: (403) 284-4608

*A Brighter Future: Energy Efficiency and Jobs in Manitoba*

Pat Martin/Heather Frayne  
Carpenters Union Local  
625 Sargent Avenue  
Winnipeg MB R3E 3G6  
Phone: (204) 774-1609  
Fax: (204) 786-6811

*Sustainable Prairie Communities: Developing a New Agenda*

Bob Annis  
Westarc Group Inc.  
Brandon University  
247-18th Street  
Brandon MB R7A 5A6  
Phone: (204) 729-3440  
Fax: (204) 729-9090

*Transporting Ourselves to Sustainable Economic Growth*

Sue Zielinski  
Transportation Options  
35 Manning Avenue  
Toronto ON M6J 2K3  
Phone: (416) 362-4765  
Fax: (416) 392-0071

*Sustainability, Growth, and Employment: Toward an Ecologically Stable, Economically Secure, and Socially Satisfying Future*

Bill Rees  
Center for Community Development  
School of Planning  
University of British Columbia  
6333 Memorial Road  
Vancouver BC V6T 1Z2  
Phone: (604) 822-2937  
Fax: (604) 822-3787

*Community Economic Development: Lessons from the Trenches: Directions for the Future*

Mike Lewis  
Centre for Community Enterprise  
Site 142, C-14  
Port Alberni BC V9Y 7L5  
Phone: (604) 723-1139  
Fax: (604) 723-3730

*Green Enterprises: Energy Retrofitting*

Glenn McKnight  
Energy Conservation Society of Ontario  
595 Wentworth St. E., Unit 51  
Oshawa ON L1H 3V8  
Phone: (905) 725-3704  
Fax: (905) 725-5980

*Uses of Conflict Resolution in Dealing with Resource-Based Disputes*

Kevin Doyle  
KMH Inc.  
2nd Floor, 70 The Esplanade  
Toronto ON M5E 1R2  
Phone: (416) 488-0638  
Fax: (416) 488-2664

*Aquaculture: A Model for Sustainable Economic Development in Canada*

Robert H. Cook/Daniel Stechey/  
Shawn Connors  
Fisheries and Oceans Canada  
200 Kent Street  
Ottawa ON K1A 0E6  
Phone: (613) 993-2091  
Fax: (613) 990-9574

*Building our Community: An Experiential Case for Project Based CED*

Paul Born  
Executive Director  
Community Opportunities Development  
Association  
35-37 Dickson Street  
Cambridge ON N1R 7A6  
Phone: (519) 623-9380  
Fax: (519) 740-8540

*Prairie Aquaculture at AgPro*

John Bielka  
AgPro Grain Inc.  
Box 44  
Birsay SK S0L 0G0  
Phone: (306) 652-5611  
Fax: (306) 653-0312

*The Edmonton Recycling Society: An Experiment in Employment and Sustainable Development*

Cornelius Guenter  
Executive Director  
Edmonton Recycling Society  
11631-80th Street  
Edmonton AB T5B 2N3  
Phone: (403) 471-0071  
Fax: (403) 479-7700

*Human Resource Development in the Canadian Environment Industry*

Robert Redhead  
Director of Corporate Government Relations  
Laidlaw Inc.  
3221 North Service Road  
Burlington ON L7R 3Y8  
Phone: (905) 336-1800 ext. 207  
Fax: (905) 336-0670

Grant Trump/Patricia Miller  
Canadian Council for Human Resources in the Environment Industry  
Ste. 700-4th Ave. S.W.  
Calgary AB T2P 3J4  
Phone: (403) 233-0748  
Fax: (403) 269-9544

*Applying Sustainable Development Criteria to and Employment Opportunities for Community Shared Agriculture*

Erwin Allerdings  
Prairie Farm Rehabilitation Administration  
603-1800 Hamilton St.  
Regina SK S4P 4L2  
Phone: (306) 780-5070  
Fax: (306) 780-8229

*IISD Working Paper: Framework for Employment and Sustainable Development*

Stephan Barg/Cynthia Pollock Shea/  
Peter Hardi  
International Institute for Sustainable Development  
161 Portage Avenue E., 6th Floor  
Winnipeg MB R3B 0Y4  
Phone: (204) 958-7700  
Fax: (204) 958-7710

*'LEAP'ing Into Sustainable Social and Environmental Development? Australia's Landcare and Environmental Action Program*

Alan Law/Trish Williamson  
Coopers & Lybrand  
2500 Oxford Tower  
10235-101 Street  
Edmonton AB T5J 3N2  
Phone: (403) 421-3239  
Fax: (403) 421-3052

*Moving Toward Sustainability: Three Demonstrations of Ideas and Methods that Create Jobs*

Bruce Hyer/Margaret Wanlin  
Boreal Ecosystems Associates Ltd.  
R.R. 14 Dog Lake Road  
Thunder Bay ON P7B 5E5  
Phone: (807) 767-2022  
Fax: (807) 768-8149

*Green Development Corporations: A Proposed Framework for an Economically Attractive and Environmentally Sustainable Form of Urban Development*

Nils Larsson/Mike Riley  
C-2000 Program Manager  
Energy Efficiency Division  
CANMET, EMR  
7th Floor, 580 Booth Street  
Ottawa ON K1A 0E4  
Phone: (613) 769-1242  
Fax: (613) 996-9416

*New Opportunities for Growth*

Economic Recovery Commission  
Newfoundland and Labrador  
20 Crosbie Place, 3rd Floor  
Beothuck Building  
St. John's NF A1B 3Y8  
Phone: (709) 738-0199  
Fax: (709) 738-2469

*jobsOntario Training Promotes Jobs and Futures*

Joan Andrew  
Assistant Deputy Minister  
Open Learning and Training  
Ministry of Education and Training  
9th Floor, 595 Bay St.  
Box No. 153  
Toronto ON M5G 2C2  
Phone: (416) 325-2989  
Fax: (416) 325-2995

*Newfoundland Inshore: Fishery Industry Renewal  
& Sustainable Livelihoods*

Bernadette Dwyer  
Fogo Island Cooperative  
P.O. Box 70  
Seldom NF A0G 3Z0  
Phone: (709) 627-3452  
Fax: (709) 627-3495

These papers are available on diskette from IISD and HRDC  
for a \$3 shipping and handling fee.  
See back cover for ordering information.

*Ce document est également  
disponible en français*

Additional Copies are Available from:

Human Resources  
Development Canada  
Partnerships and Sectoral Relations  
112 Kent Street, 21st Floor  
Ottawa, ON K1A 0J9  
Phone: (613) 957-9016  
Fax: (613) 957-2698

International Institute for  
Sustainable Development  
161 Porage Ave East, 6th Floor  
Winnipeg, MB R3B 0Y4  
Phone: (204) 958-7700  
Fax: (204) 958-7710  
E-mail: [reception@iisdpost.iisd.ca](mailto:reception@iisdpost.iisd.ca)