EMPLOYMENT AND SUSTAINABLE DEVELOPMENT: OPPORTUNITIES FOR CANADA
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EMPLOYMENT AND SUSTAINABLE DEVELOPMENT: OPPORTUNITIES FOR CANADA

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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, communities, 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
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 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.

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."

Paul Hawken, author and businessman

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

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 set of relationships is needed to act on the best ideas from government agencies, the private sector, and community organizations.

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. 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.

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 CO₂ 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
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 specialities 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
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- 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.

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

"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.

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.

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.
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 jobsOntario 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.
Employment and Sustainable Development: Opportunities for Canada

- 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 environmentaly 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 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
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
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 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
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...
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
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.
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

“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 Cooperative 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;
• 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, seaboats, 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...
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.

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 Oilers 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.

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 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
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 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.)
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.

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.

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.
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.
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.)
Employment and Sustainable Development: Opportunities for Canada

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.

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,
Employment and Sustainable Development: Opportunities for Canada

An 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.

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

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<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
<th>Address</th>
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<tbody>
<tr>
<td>Mr. Jeremy Byatt</td>
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### 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**

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

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

Wayne Roberts  
Coalition for a Green Economic Recovery  
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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  
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**West End Community Ventures: An Urban Community Organization on the Path to Sustainability**

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**The Employment Opportunities of Sustainable Rural Tourism**

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A Brighter Future: Energy Efficiency and Jobs in Manitoba
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Sustainable Prairie Communities: Developing a New Agenda
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Transporting Ourselves to Sustainable Economic Growth
Sue Zielinski
Transportation Options
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Sustainability, Growth, and Employment: Toward an Ecologically Stable, Economically Secure, and Socially Satisfying Future
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Community Economic Development: Lessons from the Trenches: Directions for the Future
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Green Enterprises: Energy Retrofitting
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Uses of Conflict Resolution in Dealing with Resource-Based Disputes
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Aquaculture: A Model for Sustainable Economic Development in Canada
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Shawn Connors
Fisheries and Oceans Canada
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Building our Community: An Experiential Case for Project Based CED
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The Edmonton Recycling Society: An Experiment in Employment and Sustainable Development

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

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IISD Working Paper: Framework for Employment and Sustainable Development

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'LEAP'ing Into Sustainable Social and Environmental Development: Australia’s Landcare and Environmental Action Program

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

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

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