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Case Studies in Adjustment to Environmental Change

June, 1996

Case Studies in Adjustment to Environmental Change: A Background Report to the Task Force on Adjusting to Environmental Change

June 1996

This document was prepared for discussion purposes for CLMPC's Task Force on Adjusting to Environmental Change. It does not necessarily represent the views of the CLMPC Board of Directors or the members of the Task Force on Adjusting to Environmental Change.

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The Canadian Labour Market and Productivity Centre (CLMPC) is an independent national labour-business organization whose mission is to contribute to economic growth and the betterment of society by improving business-labour relations in Canada and by providing joint advice on public policy, particularly related to labour market and productivity issues.

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Introduction

Background

This document is a companion to *Greening Productivity: The Final Report of the CLMPC Task Force on Adjusting to Environmental Change* and provides detailed descriptions of the cases referred to in that document. This compilation of case study research is intended to be of use to practitioners of environmental change by providing examples of good practices that have occurred at the workplace and sector levels. One of the important elements of responding to environmental change is the diversity of experience and options which is captured in the different case studies.

The environment is more and more important for both business and labour. Environmental issues are now an enduring concern across Canadian society. Moreover, environmental issues have achieved an increasingly global focus. Domestic and international customers are now more aware of environmental impacts and demanding more environmentally responsible production and products. Governments continue to change their approaches to environmental regulation as well as pushing initiatives for pollution prevention. The commonality between business and labour is that the environment has increasingly become part of a competitive armoury among firms in different countries. Good environmental practice —at many times going beyond mere compliance with regulations — has emerged as important determinant of the long term employment and investment prospects of many operations. Such trends are likely to continue.

Project Background and Methodology

The CLMPC project on Adjusting to Environmental Change examines ways in which business and labour have responded to environmental pressures and documents the policies and practices of greening productivity at both the workplace and sectoral levels. Funding of the project has been provided by Human Resources Development Canada (HRDC) who originally requested CLMPC to undertake the research. The project has been guided by a joint business-labour Task Force who have been involved at each step of the process, including selection of case studies, input on sector profiles and environmental pressures and reviewing the final report.

From the inception of the project it was clear that very little research on adjustment to environmental change at the workplace and sector levels had been done. One of the first tasks was to develop an acceptable methodology. After extensive consultation with business and labour groups the Task Force approved a case study methodology to obtain information on practices and responses to environmental pressures at the workplace and sectoral levels. The case study evidence would be supplemented by evidence on sector profiles and the environmental pressures they face. A further dimension to increase the available information was to provide examples of international practice and models of adjustment to environmental concerns.

It was also clear that certain sectors faced heavier environmental responsibilities than other sectors. After an initial development phase of the project, in which 23 business and labour organizations were consulted, the forestry and forest products, chemical and mining sectors were selected because they are generally recognized as being sectors where environmental costs and responsibilities were above average. Public opinion surveys also rank these industries as the three most likely to affect the environment.¹

In selecting the cases presented in detail here it was necessary to specify appropriate criteria. The most important criterion was that both business and labour would be active participants in the case study, though the degree of involvement may vary among the differing cases. Cases should have significant economic and job impacts and there should be accessible data available on the specific nature of the responses. Furthermore, the cases chosen should provide a rich diversity of themes and issues relating to environmental change including enterprise issues, community issues and sectoral issues. The cases should, where possible, reflect both large and smaller enterprises and be located in different regions of Canada.

For each of the sectors a sectoral response has been identified — in fact, in forestry and forest products two such responses have been studied. In addition, workplace examples of adjustment in these sectors are described in detail in this document. A summary description of the sector and workplace cases is shown in Table 1.

The primary data for the study is therefore practical experience. One of the uses of this report is the documentation of many of these practical steps for practitioners in the area of greening productivity. It should be stressed that, although the report highlights sectors with heavy environmental responsibilities, the conclusions it draws can be applicable to other sectors. This is especially true as the range of environmental concerns expands and as expressions of these concerns emanate from a greater diversity of sources.

The CLMPC researcher and writer of this report is Chris Parsley. Some of the case work was also done in conjunction with Bert Pereboom.

Finally, the complete set of recommendations from the Task Force that are contained in the final report *Greening Productivity* have been included at the end of this document. For a more detailed discussion of these recommendations the reader is directed to section V of *Greening Productivity*.

¹ Angus Reid Report July/August 1995.

**TABLE 1
THE CASE STUDIES IN SUMMARY**

Case	Location	Type	Sector	Salient Features
National Forest Strategy and Forest Accord	National	Sectoral	Forestry	Government led process with multi-stakeholders, to develop a strategy for a sustainable forest ecosystem.
B.C. Forest Renewal Plan	B.C.	Sectoral	Forestry	Government multi-stakeholder process to develop a long term plan for the sector.
InterFor & IWA	B.C.	Workplace	Wood	Joint process to seek alternatives to layoffs in environmentally threatened location.
Howe Sound Pulp and Paper & CEP	Port Mellon, B.C.	Workplace	Pulp & Paper	Sweeping modernization of plant; investment in new environmental equipment.
Whitehorse Mining Initiative	National	Sectoral	Mining	Government facilitated multi-stakeholder process to establish principles for the long term sustainability of the sector.
Brunswick Smelting & USWA	Bathurst, N.B.	Workplace	Mining	Joint initiatives to change work practices to improve environmental performance.
Quintette Operating Corporation	Tumbler Ridge, B.C.	Workplace	Mining	Joint Health, Safety and Environment committee; single industry community; improved communication and environmental awareness.
Highland Valley Copper & USWA	Logan Lake, B.C.	Workplace	Mining	Union-management initiative to reduce, reuse and recycle mining supplies and provide work opportunities for workers with limited injuries.
Responsible Care	National	Sectoral	Chemicals	Voluntary initiatives among companies to agree on codes of practices for chemical research, manufacture and handling.
Bayer Rubber & CEP	Sarnia, Ontario	Workplace	Chemicals	Environmental initiatives amid cost pressures through agreements with unions.
Uniroyal Chemical & USWA	Elmira, Ontario	Workplace	Chemicals	Crisis and shutdown of production following discovery of pollution of waste water and subsequent development of new environmental responsibility.

Case Studies

National Forest Strategy and the Forest Accord

Background

The forestry and forest products industry is one of the most important sectors in the Canadian economy, accounting for approximately 13 percent of all manufacturing shipments. The sector is a major exporter and is the largest net contributor to the Canadian balance of trade. Forest related activities are economically important to many communities and regions across Canada. Indeed, over 350 communities throughout Canada are dependent on the forest and in some provinces, most notably British Columbia, it is the biggest single contributor to the economy.

At the heart of the forestry sector is the resource itself of which 64 percent are softwood forests — in British Columbia the corresponding figure is even higher at 83 percent. Canada is the world's third largest producer of softwood lumber. An important feature of the sector is the high degree of public ownership of the resource. On behalf of the public, provincial governments manage 71 percent of the forests and the federal government is steward of 23 percent. The remaining 6 percent is the property of some 425,000 private individuals. Consequently, decisions concerning how many trees to harvest and the method of harvesting are taken by governments. However, like public policy, generally these decisions are affected by pressures from the various interested parties. Increasingly the importance of the environment has been a consideration in harvesting decisions.

The performance of the forestry and forest products sector is sensitive to factors affecting prices of its products. Particularly important in this regard is the general level of activity in the economy of its main export market, the U.S., as well as fluctuations in the exchange rate. The reliance on exports highlights the significant relationship between environment and trade since environmental pressures and consumer demand for certain product characteristics in other countries can have a direct impact on Canadian forestry exports. Furthermore, since product prices are set internationally, costs incurred by Canadian firms in meeting environmental requirements cannot readily be passed through to prices and will consequently affect profitability.

Impacts from trade and environmental pressures can readily translate to effects on employment in the forestry sector. Reductions in the annual allowable cuts (AAC) for example are quickly felt in the logging industry and the dependent communities. In this sense the forest sector is important not just for the persons employed directly in the industry (243,000 in 1994) but also for the number of other businesses and employees who depend on the sector. The number of jobs directly and indirectly dependent on the forest sector is close to 800,000.

Environmental Pressures

The Brundtland report in 1987 (formally known as the report of the UN Commission on Environment and Development), which called for sustainable development as a means of preventing continuing damage to the environment, helped bring many environmental concerns to the forefront.² Sustainable development was defined as economic development that would meet the needs of present generations without compromising the ability of future generations to meet their needs. This definition went to the heart of sustainability concerns in the forestry industry world-wide.

Following the Brundtland report pressures from international customers on forest management in Canada have been growing and are having a major impact on producers in the whole forestry and forest products sector, particularly on market access for its producers. Concern has been expressed over harvesting practices; consumers in Europe, for instance, have boycotted products that have been made from clear cut fibre. The disturbance to eco-systems and wildlife habitats, together with soil erosion on hillsides and general over cutting are typical concerns that have been expressed about harvesting practices. Recently new codes of practice for forest management have been introduced in both B.C. and Ontario and substantial effort has been put into both improving forest management and publicizing this in consuming countries such as Germany, where the environmental movement is strong. At the core of these concerns and responses is the question of sustainable forest management, which cannot be solved on a piecemeal basis.

Response

A number of government led reviews to assess the state of Canada's forest and attempts to develop a strategy for the sector have been undertaken throughout the century. By 1990 it was recognized that domestic and international attitudes to forestry had changed significantly and new directions for forest management were required. The Canadian Council of Forest Ministers began a process to seek the views of a wide, diverse set of Canadians that included regional meetings, a national workshop and commentaries through letters, phone and fax. Included in these consultations were representatives from labour unions, forest companies, naturalists, wildlife groups, aboriginal people, foresters, private forest landowners, academics and federal and provincial governments.

The result of this extensive consultation process was the signing of the Canada Forest Accord in 1992 and publication of a new National Forest Strategy, (NFS) entitled *Sustainable Forests*. The Accord is a statement of principles, goals and visions by the stakeholders on the future of the forest and contains a commitment to action. The National Forest Strategy is intended as a guide to the actions of all parties with an interest in the forest, to work through specific actions towards the goal of sustainable

² *Our Common Future* The Final Report of the United Nations Commission on Environment and Development 1987

development in forestry over the five years up to 1997. Important to this goal was the inclusion of both timber and non-timber values in the strategy.

The NFS recognizes the diversity of forest eco-systems. In order to guarantee this diversity for future generations, the strategy outlined nine strategic directions and objectives which were agreed to by all the participants.

- ***Forest Stewardship: the forest environment.*** The objectives are to improve the ability to manage forest eco-systems and to ensure that forest management activities maintain diversity in forests.
- ***Forest Stewardship: forest management practices.*** The objectives are to improve the ability to plan for a full range of forest activities; to review and refine harvesting practices; to ensure prompt renewal of forests; to reduce fire losses and damage; to reduce losses from insects, disease and competing vegetation; and to encourage forest stewardship and use of best forestry practices.
- ***Public Participation.*** The objectives are to ensure views of the public are reflected in forest management; to improve public access to comprehensible information; and to heighten public awareness and knowledge of forests.
- ***Economic Opportunities.*** The objectives include diversification of forest based industries and increasing the value derived from the forest; improving the quantity, quality and continuity of supply of forest resources; increasing use of Canadian goods world-wide; ensuring that processes used are environmentally acceptable; and improving the viability and stability of forest-based communities.
- ***Forest Research.*** The objective is to ensure that the knowledge and technology necessary to achieve sustainable forest management and improved competitiveness is developed and applied.
- ***The Workforce.*** The objective is to ensure that the workforce is able to contribute to sustainable forest management and enhanced economic opportunities.
- ***Aboriginal People.*** The objectives are to increase the participation of aboriginals in forest land management; to ensure aboriginal treaty rights are respected; and to increase forest related benefits to aboriginals.
- ***Private Forests.*** The objective is to increase the environmental, economic, social and cultural benefits derived from private forests.
- ***Our Forest: the global view.*** The objectives are to maintain the contribution forests make to the health of the planet; to encourage

international co-operation to maintain the health of forests world-wide;
and to assist other nations to manage forests sustainably.

The NFS presents some 96 commitments to different actions over a five year period. The workforce and forest management practices commitments are examined in some detail here.

Developing sustainable forest practices is not only good for the long term health of the forest. It is also an economic imperative with respect to international market access. With customers being more aware of the environmental issues in forestry, it is important to maintain confidence in Canada's forest sector to manage forests sustainably. Sustainability of a forest includes the ability to sustain various uses of the forest and to maintain a balance of values and rights to encourage sound stewardship, optimal resource supply and provide opportunities for economic activities. To this end there are no less than 18 commitments relating to forest management practices. For instance governments are committed under the NFS to reviewing and (where necessary) revising land use and planning processes to account for sustainable forest production, the integration of management for a range of forest values and the evaluation of various land use options. Government will also review the quantity of resources harvested and replaced on crown lands. Public and private forest management agencies are committed to broadening the scope of their forest inventories to include information on a wide range of forest values. The governments are committed to include a review by 1995 of timber harvesting practices and silviculture systems, taking into account the requirements of forest sustainability. Members of the forest community are committed to developing a system of working models of sustainable forests in different regions throughout Canada. A further commitment is that professional and technical forestry associations will adopt Canadian codes of ethics, practices and professional conduct that are consistent with sustainable forestry.

In terms of the workforce the demands for sustainable forestry will require a greater range of skills from different disciplines for forestry workers. Continuing education is recognized as essential to maintaining an appropriately skilled workforce. The NFS recognizes that this is a shared responsibility between employers, workers and governments. To help achieve a skilled and adaptable workforce the strategy commits to completion of a forecast of employment and training needs in forestry by governments, labour and business. It also commits to a review and, where necessary, revisions by various education institutions of programs and courses to ensure they meet the needs for sustainable forest management. A further engagement is to an assessment of a certification system for silviculture and forest workers in order to increase their mobility and improve safety. Business, labour and governments also agreed to develop and establish training and development strategies and programs to address the needs of workers in sustainable forestry.

The NFS is a comprehensive strategy for the forest. One of the challenges that the NFS faces and tries to address is to translate these areas of priority into specific actions. The 96 commitments to different actions and the progress towards the goals of the NFS are to

be monitored by a National Forestry Strategy coalition composed of representatives from the signatories to the NFS. Independent evaluations of the progress made by the strategy will be undertaken at the mid and end points of the 5 year plan.

Results

The mid-point evaluation was completed in September 1994. It reported progress in several areas and highlighted areas where improvement is crucial.

In terms of progress made on forest management practices commitments, a network of 10 model forests involving 250 organizations has been established to provide a testing ground for new ecologically and economically sound forest management practices. Substantial progress has been made by a number of professional associations in developing codes of ethics on forest management practices. On the other hand, although some progress was evident on developing forest inventories on a wide range of forest values, the review panel believe this was a crucial element of the NFS and more effort was needed in this direction. Progress on the review of timber harvesting practices and silviculture systems is characterized by the interim evaluation as uneven among governments — 7 provinces and territories had completed or were in the process of a review. A similar review had been completed by the Canadian Pulp and Paper Association.

In terms of the workforce commitments the review panel reported that governments, business and labour have engaged in plans to address the changing needs of the workforce as new technologies impact on forest sector jobs, though formal establishment of training and development strategies and programs was not reported by the committee. An assessment has been made of the feasibility of developing a certification system for silviculture and forestry workers to increase the skills and mobility of the sector's workforce. Substantial progress was reported on the review and revision of education courses by educational institutions to meet the needs of sustainable forest management.

In other areas of the NFS substantial progress was also reported. Most provinces now require forest companies to state prior to harvesting how their activities will affect soil, wildlife and climate on crown lands. Professional forest and industry associations have developed new codes of practice and have signed an international set of principles for the sustainable development of forests. Increased financial resources have been used by government and industry to develop environmentally sound forestry technologies. However, the mid-point evaluation pointed to the need for more work in some key areas such as completing an ecological evaluation of forest lands; completing a representative network of protected areas; and developing a system of national indicators on sustainability of forest management.

Significance

The importance of the NFS is that it is a comprehensive strategy that responds to changing international and domestic attitudes relating to environmental issues in the forest. It recognizes the importance of environmental attitudes and issues as a long term

issue that can dramatically affect the performance of forest industries and change the nature of forest management.

Although the NFS is overseen by government the strategy has been developed through an extensive consultation process that involved all parties with an interest — economic, ecological or social — in the forest. This multi-stakeholder process thus allowed for a strategy to be developed by those it will affect. It can be suited to recognize the particular characteristics of different forest systems.

The multi-stakeholder process also promotes dialogue and trust between often competing interests. The strategy thus represents a significant departure from the often adversarial relations that have occurred around resource issues in the sector. The challenge for the NFS is to translate the consensus on priorities and commitments into specific actions that will lead to sustainable forests. Interim results, however, indicate that substantial progress has been made in several areas while more effort needs to be directed to other areas.

B.C. Forest Renewal Plan

Background

The forestry sector is the single biggest contributor to the British Columbia economy. Direct employment in the forestry industry accounts for 15 percent of all jobs in the province, and the contribution of the forestry industry to provincial GDP was over \$14 billion in 1993. In addition, the sector accounted for more than 60 percent of all exports — B.C. is the world's largest exporter of softwood lumber. Many communities in B.C. are almost totally dependent on the forest and the factors that influence the health of the industry.

By the early 1990s, the B.C. forestry industry was showing some signs of strain based on its previous activities. The past rates of harvesting trees and replanting them indicated the need for better management of the forest and improved practices of harvesting in the future in order to restore public confidence in the sector. At the same time the improvements in new technologies seen throughout the 1980s had significantly reduced the number of jobs per cubic metre of timber harvested. Further application of these technologies would exacerbate the adverse effect on employment of declining future harvests. In addition, there were increased domestic and international environmental pressures for sustainable forestry, particularly from consumers in Europe. The drive to preserve key unique tracts of forest, particularly with old growth forests, also played a part in forcing a new approach to forestry management in B.C.

Beginning in 1992, the B.C. government has undertaken a number of important initiatives on land use and forestry management in response to these challenges. These processes include:

- *CORE (Commission on Resources and the Environment)*

The CORE process was established to determine how land was to be allocated to different uses throughout the province, including the acreage available for use by the forestry sector. The work of CORE is now complete — all its reports have been submitted and the land use plans have been adopted.

- *Protected Areas Strategy*

The goal of the Protected Areas Strategy is to double the percent of the land base set aside for parks and protected wilderness areas. Planning based on local plans are affecting both the land base available for forestry and also the procedures for getting access to some parts of the forest.

- *Timber Supply Review (TSR)*

This is an ongoing process under the chief forester of B.C. which examines the 70 timber supply reviews and all the factors that affect them, including environmental

factors, intensity of use, and areas set aside for regrowth. The information gathered has already begun to affect new laws and policies.

- *Forest Practices Code*

With information from the Timber Supply Review in B.C., the provincial government introduced a new code of practices in May 1994. The new Forest Code will enforce improved harvesting practices that are more environmentally sound and will affect both the acreage that can be cut, since some acreage will be protected, and the practices for harvesting. The size of block cuts will be limited and where alternatives are available, clear cutting will be prohibited. There are regulations to protect community watersheds. The code not only aims to improve the environmental practices throughout the province but also seeks to provide a common standard for the whole forestry industry. At the same time it is recognized that some of these practices are likely to lower the per acre yield in harvesting.

- *Forest Land Reserve Act*

Passed in June 1994, this legislation seeks to protect the commercial forest land from encroachments from other land uses. Crown land and private managed forest lands are included in the reserves. The guarantee of commercial forest land was a major concern voiced through the CORE consultations.

These different approaches did not achieve the co-ordinated and comprehensive strategy necessary to make a smooth transition into forestry management for the 21st century. In response to increasing public and stakeholder pressure to develop a comprehensive approach, the government facilitated the establishment in early 1993 of the Forest Sector Strategy Committee (FSSC). This is a multipartite advisory body made up of labour, industry, environment, community, government and aboriginal groups charged with the task of developing a long term strategy for the forest sector. An initial product of the work on the long term forest sector strategy, which the FSSC has been working on since April of 1993, was the Forest Renewal Plan (FRP).

The Forest Renewal Plan (FRP)

The FRP is an incremental attempt to deal with the crisis in the forest and is designed to guarantee jobs and income, maintain resource potential, and address environmental issues and existing adjustment problems resulting from declines in harvesting and employment. To administer the FRP a new Crown corporation, Forest Renewal B.C. (FRBC), was established in 1994 with an 18 member Board of directors composed of representatives from forestry companies, unions, environmentalists, First Nations communities and government.

An important feature of the FRP was the creation, under the Forest Renewal Act, of a special fund to be raised by increased stumpage fees. It is important to note that the legislation specifically dedicated these incremental stumpage fees for use in the forest and

related activities and were not part of general government revenues. It is expected that \$560 million will be raised annually, of which \$400 million will be dedicated to Forest Renewal BC for reinvestment in the forests and the related communities. The remaining \$160 million will be used to offset the declines in corporate taxes (since stumpage fees are tax-deductible) and to pay the costs of implementing other forest management initiatives such the Forest Practices Code. The size of the fund is dependent on the price of lumber since the fees are tied to lumber prices. As a consequence the actual amount can fluctuate from year to year but it is intended that amounts of incremental stumpage collected in strong market years will be banked to maintain funding during weaker periods.

Spending programs of the fund will be controlled by the Board of Forest Renewal BC and five committees of the board have been struck to focus on five strategic objectives. Each of the five committees is chaired by a member of the FRBC Board and includes members appointed upon recommendation by the public, board members, stakeholders and government. The five committees and their activities are described below. The summary data on expenditures and employment creation are shown in Table 1.

1. Land and Resources Committee

Fully half of the investment by Forest Renewal BC will be put to enhancing the productivity of forest lands and to increasing the value and volume of timber available for harvesting. Four programs are planned in order to achieve these ends.

- *The Enhanced Forestry Program* will spend \$26.5 million on spacing, pruning, brushing and fertilizing young stands and preparing sites for replanting. Support of surveys to collect information and evaluate site conditions will be provided. It will also attempt to increase the area of provincial forests by incorporating marginal agricultural land into forest production. A number of proposals under this program have been submitted, many of which are partnership proposals between licensees and aboriginal, industry and labour as well as others. It is anticipated that this program will create 560 person-years of employment in the next fiscal year.
- *The Resource Inventory Program* will allocate \$11.2 million for improving information and eco-system data in order to enable better forest resource planning and decision making, including the incorporation of non-timber resource values. The creation of data banks, maps, analytical tools and training materials will create 194 person-years of employment in 1995/96. By April 1995 FRBC had received 21 inventory proposals valued at \$11.3 million.
- *The Woodlot Expansion Program* will double the number of woodlot licenses in the province to 1,000 resulting in an extra 500,000 cubic metres of timber. The principal objective of the program will be to improve the productivity and sustained yield of small areas of private forest land.

Extension services, such as training and technical assistance for small operators, will also be provided. The program is expected to spend \$6.8 million in the 1995/96 fiscal year and create 118 person-years of employment.

- *The Land and Resources Research Program* will undertake research into areas that will significantly improve the productivity of forestry activities. Areas such as the development of growth and yield data and tree improvement research are underway. In addition, research will focus on the management of hardwood stock; new silviculture systems for different locations in B.C.; and the creation of information sharing systems via the Internet. A large number of proposals have been received whose value far exceeds the \$16.1 million allocated for 1995/96 under this program. It is estimated that 283 person years of employment will be created in the following year.

2. *Environment Committee*

Fifteen percent of the expenditures under the FRP will be devoted to improving and maintaining the diversity of the environment. Many of these activities will involve repair of environmental damage and protection of both fisheries and wildlife. This will be accomplished by three planned programs.

- *The Watershed Restoration Program* was first announced and begun in 1994. The program is designed to help facilitate the transition to the new practices and standards in the Forest Practices Code and to restore whole watersheds. Specific activities include the assessment of watersheds; road deactivation (partial or complete); upgrading of roads; rehabilitation of slopes, riparian zones and streams; and restoration of fish and wildlife habitat. Planned funding for 1995/96 is \$70 million and employment creation is expected to be 856 person-years.
- *The Resource Inventory Program* has the same aims as under the land and resources committee — to aid and improve forest resource planning. The environment component of the program includes creating inventories of all biological components of the forest lands. Once again, data banks, maps, analytical tools and training materials will result from the work. Funding for 1995/96 is \$13.8 million and employment creation is expected to be 240 person-years.
- *The Environment Research Program* will conduct research into biodiversity and alternatives to clearcutting. Extension services and information sharing will also be an important component of the program. Funding for 1995/96 is \$5.3 million and employment creation is expected to be 93 person-years.

3. Value-Added Committee

Currently 500 facilities are involved in the manufacture of value-added wood products in B.C. By manufacturing products rather than exporting cut lumber, a greater number of higher quality jobs can be retained in the province. Such value-added products include furniture, window and door frames, moldings, roofing struts, medium density fibreboard (MDF), panelling and plywood. The value added wood sector faces a number of challenges, particularly in terms of appropriate wood supply, access to capital, marketing, R&D and training. The FRP will assist value added companies in getting access to lumber supplies and help with the provision of training and technology transfer. A computerized Wood Fibre Network has been established at a start-up cost of \$300,000 which will improve access between buyers and sellers of wood via computer links. A remanufacturing supply initiative to raise the supply of wood for independent secondary manufacturers of forest products is planned. Overall \$10 million is allocated for the 1995/96 year under this committee.

4. Workforce Committee

Many of the reinvestments under the FRP will lead to new types of opportunities in the forestry sector, e.g. silviculture, restoration and parks. The new Forest Practices Code will mean a different mix of skills will be required by tomorrow's forestry workers. Job training, especially high value skills training in value added and forest renewal, will be an integral part of the development of forest workers in the future. The major challenge workforce programs will face will be to facilitate the transition between job losses in the forestry sector and employment opportunities created in forest related areas, such as environmental upgrading. In particular, the workforce program will need to target work opportunities that expand and enhance the work year for the existing workforce and to link work opportunities with those workers laid off in other parts of the forest sector. Workforce programs will be undertaken in close conjunction with workers, industry, educators, communities and aboriginals to identify training needs and opportunities and provide efficient training delivery. The question of geographical location as an impediment to training could be alleviated by the adoption of distance education to permit training and education at workplaces. In addition aboriginals will be provided with full access to forest worker training. Currently the Western Wood Products Forum is developing training programs to ensure adherence with the new Forest Practices Code at a cost of \$480,000. Overall the Workplace committee intends to spend \$16 million in 1995/96.

5. Communities Committee

The activities of FRBC are designed to strengthen the forest industry, its workers and the communities that rely on the resource. In addition to those activities already mentioned, FRBC will assist communities to develop plans and support community development, taking account of local needs. FRBC aims to increase the economic diversification within the forest sector and reduce a community's dependence on one type of activity. Aboriginals will be provided with full access to community development programs and investment.

In addition to these five strategic committees the FRBC has created six regional offices and advisory groups. The regional delineation corresponds to that used by the B.C. Ministry of Forests. An important element of the FRP — and one that is specifically required under the B.C. Forest Renewal Act — will be that expenditures will be allocated on a regionally equitable basis. This is to ensure that expenditure in a region will be in proportion to its contribution to revenue while at the same time meeting FRBC strategic objectives outlined above.

Results

Forest Renewal BC is too new to evaluate fully at this stage. Only general indications of outcomes and the manner in which they address the problems of the forestry sector can be indicated.

The mere fact that both labour leaders and CEOs of large forest companies agreed to the FRP indicates that some of their concerns were met. This is particularly pertinent since forestry has been a sector where, traditionally, conflict rather than consensus has occurred both in relations between business and labour and industry and environmentalists.

On the business side forest companies currently face a number of long term pressures. Some of these are addressed by other B.C. initiatives that can impact on the forest sector. The CORE process dealing with questions of land use affects the acreage available for wood harvesting and thus the wood supply within the province. The Forest Practices Code was a response to demands by customers, particular in Europe, over logging practices and the use of old growth forests which has affected the market share of B.C. forest company products. Within the framework of these other processes, the FRP sought to develop a long term strategy for the forest sector which will improve the productivity of the forest resource and ensure sustainability. Although the CEOs of the forest companies agreed to the FRP, this does not mean that forest companies support the raising of stumpage fees. Rather, faced with the prospect of increased stumpage fees, some business objectives, such as improving the quality of the resource, could be achieved through discussion over the use of the revenue generated by higher fees. In this sense the key feature of the FRP — the use of internally generated funds to be used specifically for improving the forestry resource — was critical for assuring business agreement on the FRP process. The alternative was to face a rise in stumpage without any discussion by business of its use. Thus, the higher stumpage fees, while viewed with some suspicion by business leaders, did nevertheless present business with the opportunity to ensure a voice in the process.

Labour unions were primarily concerned about the long term employment security of their members. While some of this depended upon the health of the forest sector itself, the projected long term declines in employment within forestry needed to be addressed. Alternative sources of employment needed to be explored and linked to displaced workers in the sector, in order to improve adjustment mechanisms and to facilitate the required transitions. At the same time, training for forestry workers remaining in the

sector was an objective to ensure high skill jobs in the forest sector, and such concerns were clearly addressed under the FRP.

The government's objective was to resolve the often bitter conflicting interests of the various players — business, labour, environmentalists and others; to restore public confidence in the sector, and to secure access to international markets for the sector's products. It sought to do this in a way that would not force the government to be the final arbitrator in such issues. Such a role has traditionally been seen by one party as exhibiting bias and has also often been supported by the provision of various programs for the sector. Instead of running this risk (since both labour and environmentalists, who had differing views over the use of the resource, were perceived as supporters of the provincial government), the government sought to devise a means by which the parties could resolve their concerns without the provision of government programs. This implied a facilitating role for government, but with the added "stick" of legislative authority.

One important concrete result was that Greenpeace withdrew its international boycott of B.C. forest products in 1995. This would suggest that the government, through its sectoral strategy and changes in legislated practices, has addressed some of the concerns of environmentalists and has reduced the degree of public pressure over the environment.

Investment in the sector reached between \$1.5 to 2.0 billion dollars in 1994 and 1995. The value added sector of the forest products industry is growing steadily. In terms of jobs the industry has rebounded since 1991 with job growth of 6,000 in forestry and logging, and 8,000 more jobs in wood products. The cyclical upturn in the sector generally has been important but the restructuring initiatives seem to have played a part as well. Interestingly, in the paper and allied industries — which have experienced more than a doubling of prices — employment was unchanged between 1991 and 1994. Generally, though, the FRP is a plan designed to have an effect in the long run and thus the full impacts of the changes in the forestry sector will not be evident for some time.

Significance

There is no doubt that the FRP is an innovative sectoral strategy that attempts to address a range of issues in the forestry industry on a long term basis. The environmental concerns are an integral part of the process of forest renewal. Indeed, the long term sustainability of the resource is impossible without consideration of the environment. Demonstration of a commitment to environmental and forest management concerns also has a marketing aspect since European buyers have been convinced to again stock Canadian forest products. Sales to Europe are rebounding following a decline caused by concern over such issues as logging practices.

Long term focus

The FRP addresses the long term problems facing the industry. Indeed, the short term economic forecast for forestry and forest products appears to be bright. The processes identified above lay the groundwork for considering planning and decision making on important determinants of long run supply and demand. To accomplish this the FRP

established mechanisms that provide for continuing dialogue and discussion rather than "a one-off solution". Adjustments to environmental change in the long run can therefore be incorporated in the activities of the sectoral strategies.

Full discussion among all affected parties

The process had a wide inclusion of discussants: business, labour, environmentalists, community groups and aboriginals. As a result the FRP that was developed achieved great breadth and was able to deal with complex inter-linked issues related to forestry. This does not mean that all parties support every element of the plan, e.g. higher stumpage fees. Rather, the elements that some parties may not fully endorse are balanced by those elements that directly address those parties' specific concerns. Indeed it is remarkable that such a multipartite body in the resource sector was able to reach consensus on what have been contentious issues, given the history of public debate around the use and distribution of resources in this sector.

New role of government

The plan also provides an interesting model of the role of government in adjustment to environmental concerns. The government role has been one of a broker in bringing a wide range of interested groups together to discuss and, more importantly, to resolve critical issues. This is a departure from the traditional role of providing assistance programs to the industry. By contrast, the key to achieving a successful brokerage role and facilitating consensus was the power of the government as a legislator. It is this use of legislation as a motivation for joint discussion and negotiation that suggests that government does not necessarily have to be the assistant of the last resort. The brokerage role for government would seem to use government revenue in a more efficient manner to deal with environmental and adjustment issues in a sector. It is thus an interesting model of how governments can move decision-making on resource issues away from central government agencies and into consensus bodies composed of the various interests.

Innovative adjustment responses tailored to sectoral structure

The Forest Renewal Plan was a plan developed by interested parties which attempts to seek an internal solution to the long run problems — environmental and economic — in the forestry sector. Funds generated from within the sector, by legislation, are to be devoted solely to improving the future prospects of that same sector. The FRP is therefore a solution that takes into account the particular structure of the sector.

Training an important area in adjustment

The importance of adequately and appropriately trained human resources in the sector is recognized, since funds are devoted to fostering employment opportunities and training. Training will continue to be a key area of adjustment responses to environmental concerns as the forestry sector adopts new technologies and practices.

BC FOREST RENEWAL EXPENDITURES BY REGION

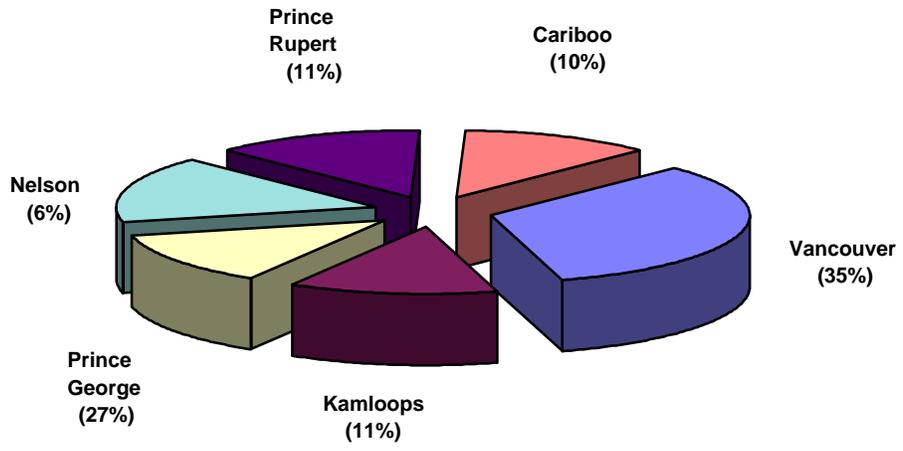


Table 1
**B.C. Forest Renewal Plan Expenditures and Employment
 Creation by Program**

Committee/Program	Expenditure 1994-95 (\$m)	Expenditure Planned 1994-95 (\$m)	Percent of total expenditure	Employment Creation (p.y.)
Land and Resources	18.6	121.0	50.0	
Enhanced Forestry Program		26.5		560
Resource Inventory Program		11.2		194
Woodlot Expansion Program		6.8		118
Land & Resources Research Program		16.1		283
Environment	9.7	90.0	15.0	
Watershed Restoration Program		70.0		856
Resource Inventory Program		13.8		240
Environment Research Program		5.3		93
Value-Added	4.3	10.0	7.5	
Workforce	4.7	16.0	20.0	
Communities	0.02	13.0	7.5	

International Forest Products Ltd. and IWA Local 1-3567

Background

International Forest Products (InterFor) is a producer of manufactured wood products that has grown primarily through acquisitions over the last 20 years to become one of the largest forest product companies in B.C. Its sales of \$800 million go principally to Japan. U.S. InterFor is also the second largest timber holder on the coast of B.C.

Total employment at InterFor, including its logging operations, is 3,800 workers; seven of the eight manufacturing plants are organized by the International Woodworkers of America (IWA) Local 1-3567. These manufacturing plants are all located in the lower mainland around Vancouver.

An important element in the case study of InterFor and IWA Local 1-3567 is that in 1993 a participative management approach was developed between the IWA Local 1-3567 and InterFor concerning workplace reorganization in some mills. Such an arrangement was in contrast to the more traditional and adversarial relationship that has existed generally in the forestry and forests products sector. Local union officials worked with senior management of InterFor to put in place workplace changes while ensuring that profitability was not affected and that employment security was achieved. The union recognized that security of employment meant security within InterFor and could include transfers to different job sites. The inclusion of employment security in the discussion was sufficient inducement for the IWA to participate in this joint process around work reorganization. In retrospect the arrangement was to prove a worthwhile investment of time and effort.

Environmental Pressures

The crucial element for InterFor as far as environmental pressures was concerned was timber supply. Although it was a large timber holder in B.C., the quality of that timber supply is considerably inferior to other large timber holders since much of it is located where access and cutting is more difficult and costly. InterFor manages its 3.2 million cubic metres of timber among a large number of logging operations — 42 — compared to other timber companies in the province. The result has been that InterFor has been forced to buy up to one third of its fibre supply for some mills from the open market where prices are considerably higher than the imputed costs of timber licences.

InterFor, like other forest product companies, faces reductions in the Annual Allowable Cut (AAC) as determined by the Chief Forester of B.C. and in response to Government land use decisions and the Forest Practices Code. A decrease in AAC of 477,000 cubic metres is scheduled to begin in 1996 with a further 125,000 cubic metre reduction to begin in 1997. Together with the timber quality problems, these reductions in AAC were likely to force InterFor to seek further timber from the open market. In an effort to address this problem InterFor acquired the coastal sawmill and timber operations from Weldwood. A principal value of the acquisition lay in the significant timber rights of

1,000,000 cubic metres that it possessed. However, in acquiring the Weldwood mills, it was evident that the company would have to restructure its operations both at the newly acquired mills and at other InterFor mills in order for the company to maintain and improve its economic health.

Response

The initial response by InterFor was to establish some objectives for its restructuring plans. These were to place the activities of the mills on a sustainable development footing; to anticipate the types of demands for value added and kiln dried lumber; to increase value-added log merchandising; and to improve and modernize the necessary mills. Inevitably it was recognized that there was going to be some employment loss, but the company was committed to minimizing this.

Four mills were to be affected by this restructuring: two cedar mills (the former Weldwood Flavelle mill at Port Moody; the McDonald Cedar mill at Fort Langley) and two clear lumber (whitewood) mills (Bay Lumber at Maple Ridge and the McKenzie mill in Surrey). All these mills were organized by IWA Local 1-3567. The union local accepted the need to restructure the various operations and was involved in the discussions around the restructuring to the extent that information was shared between the company and the union. No formal negotiations between the company and the IWA occurred at the time.

In July 1995 InterFor announced a plan for the four mills. Flavelle was to be scaled down, McDonald Cedar was to get a \$17 million small logs mill as was Bay Lumber, and McKenzie would become a value added mill. Overall employment losses were estimated to be just under 200 jobs.

This plan was generally not acceptable to the union mainly because of the high losses in jobs. In addition, under the transfer of timber agreement with the provincial government, clause 16 stated that the company must continue to employ the Weldwood employees at the Weldwood site i.e the Flavelle mill. The company believed it could transfer these employees to other sites if necessary but the government insisted that the timber transfer agreement did not specify this and that legally the company was bound by the provisions of the agreement they had signed.

For their part, the company was aware — even before the issue of clause 16 arose — that it could not unilaterally impose an unpopular plan without significant damage to the company both economically and politically. The senior management of the company was cognizant that this restructuring was probably the first of several affecting coastal mills and would therefore be subject to much public scrutiny and discussion. This sensitivity was heightened by the high priority the provincial government had attached to forestry and forest product issues through such initiatives as the Forest Renewal Plan. The representatives of the company therefore recognized the importance of ensuring the union was involved and in agreement with any plan that was proposed. Furthermore, the precedent of full discussions with the union on the question of work reorganization had been established 3 years previously.

Against this background the IWA local and InterFor entered into a series of negotiations that lasted for several months as they sought to determine innovative ways of minimizing the extent of layoffs without increasing the cost of restructuring to the company. It is important to note that within both camps there were divisions as to the appropriate course of action to pursue. Within InterFor senior management, there were those who argued for a more traditional approach with expedient actions. Within the IWA local, reactions were different among workers in the various mills where the impacts of the restructuring plan were likely to be different.

One of the first things that the two parties had to agree upon was numbers of jobs and people that currently existed in the four mills. The number of jobs specified in the mill can be different from the number of people actually employed (including those on workers compensation or short term disability) in mills. The discrepancies were often significant — as many as 50 or 60 in some mills. Resolving the numbers issue was critical before any discussion could proceed on how many workers would be displaced or transferred. An agreement was anticipated by November 1995 but the process was such an intensive one that an announcement of a new plan was not made until January 1996. The new plan not only changed the configuration of the mills, it also addressed a number of other practices such as casual work, overtime, contracting out and pensions. The specific elements were:

- Flavelle mill was to be reduced from 290 jobs to 193 but would get the \$15 million small log mill;
- McDonald Cedar mill was to be kept the same in terms of production and employment;
- Bay Lumber mill was to be closed and 199 jobs lost;
- McKenzie mill would be revitalized but the number of jobs would be reduced from 163 to 79;
- a second and third shift was to be added in some mills with the effect that overtime was dramatically decreased but employment opportunities became available for displaced workers from other mills;
- a pension bridging plan was worked out for employees aged 60 years and over to encourage early retirement; and
- a voluntary severance package was to be offered to workers in mills where jobs were lost.

In addition to these changes the plan also created 87 new jobs through a variety of different measures:

- 30 jobs were to be devoted to enhanced silviculture and were to be financed by Forest Renewal B.C. which supports such activities;

- 17 jobs were created through relief for training in fibre recovery for the workforce;
- 15 new apprenticeships were announced;
- contracting out maintenance was to cease, creating 14 job for trades people;
- casual jobs were converted into full time jobs, creating employment for another 5 people; and
- the number of leaves of absence was increased by 5.

Results

The results of this process was that the number of actual layoffs was considerably less than under the first plan. Out of an affected workforce of 652 workers, in the final result there would be only 39 layoffs. Through innovative ways this second plan not only reduced the job loss significantly but also created some jobs. Furthermore, this was achieved without raising the cost of restructuring to the company. Some of the cost of creating the additional 87 jobs would be financed by Forest Renewal B.C. but it is precisely this type of activity that the provincial agency was established to promote.

A longer term result is that greater trust and respect by the partners can be expected when the plan is complete. This is particularly evident among the actual people who undertook the negotiations. There is clear acknowledgment of the types of pressures the other side is under and respect for attempts to deal with these problems jointly. This building of trust is important because such adjustments will not be the last, either for InterFor or in the forest products sector generally.

Significance

The chief significance of this case is that it represents a break with the traditional process of restructuring and reorganizing operations in resource based industries. The case demonstrates clearly the benefits of proper consultation between business and labour and the value of a joint approach. A more confrontational position would likely have resulted in greater job losses, little employment creation and costly disputes.

The case shows the long term value of an investment in a joint approach to problems. The pre-existence of an arrangement between InterFor and the IWA on workplace reorganization laid much of the groundwork and established a principle that joint approaches can be useful in addressing employment and restructuring problems.

The case is also significant in that, in terms of the actors in the process, it is clear that pursuing a joint approach requires a great deal of tenacity and conviction in the face of internal pressures to the contrary. It is no mean feat to be able to satisfy fellow management and unionists and reach an agreement with the other party in the negotiation.

The presence of representatives who come from senior levels of management and the union was critical in achieving this result.

Finally, the case illustrates the ability of joint approaches to fashion innovative adjustment measures that are tailored to fit particular circumstances.

Howe Sound Pulp and Paper and CEP Local 1119

Background

Howe Sound Pulp and Paper (HSPP) is a joint venture between Canadian Forest Products (CANFOR), a pulp producer, and the Japanese newsprint giant Oji. The HSPP mill is located at Port Mellon, just north of Vancouver, where a pulp mill has existed since 1908.

Throughout the 1980s, the mill experienced difficult economic times. Modernization plans announced in October 1981 were put on hold because of poor markets for pulp. Losses continued through to 1987 despite the fact the company went public in 1983 in order to raise more capital. Throughout the 1980s the environment became a source of rising public concern, and the environmental performance of the mill in particular came under increasing scrutiny. Previous decades of uncontrolled disposal had severely threatened both the air and water quality around Port Mellon. The age of the mill, especially its old recovery boilers, meant that breakdowns were frequent and waste products often escaped into the atmosphere for prolonged periods. According to the B.C. Ministry of the Environment records, in 1986 the mill was emitting up to three times the permitted limit of particulate matter into the air and hydrogen sulphide was being pumped out up to 70 percent in excess of the standard. In fact, the company had not met air pollution standards since 1978. In December 1988 high dioxin and furan levels were found in the water of Howe Sound and led to an imposed fishing ban on crab and shellfish. Although some improvements in discharges had been made throughout the 1970s and 1980s there was no real treatment of the effluent. Not surprisingly, a campaign by local environmentalists with support from Social Credit MLA's and a former environment minister added to the pressure on the company.

Faced with mounting environmental pressure, profitable operations in economic downturns, aging equipment, a dependence on a single product, and insufficient capital to undertake the necessary modernization, the future of Canfor and its 550 workers at Port Mellon was at best uncertain.

The Response

One timely factor that was to help Canfor was the appreciation of the Japanese yen in the late 1980s which encouraged Japanese companies to look abroad to acquire facilities to expand their operations. Canfor had previously had a relationship with Oji. In 1986 Oji approached Canfor with a proposal for a greenfield newsprint site. In 1988 a joint venture was signed between the two companies and HSPP came into being.

The agreement represented one of the largest foreign investment deals in the province of British Columbia in recent years. Canfor contributed the assets of the mill at Port Mellon and its Westcoast Cellulose Industries subsidiary. Oji invested \$307.5 million in cash and would provide world class technology for newsprint production. A \$1.3 billion capital modernization and expansion program was agreed upon; of this, \$116 million was earmarked to addressing the environmental problems.

Canfor was thus able to secure the necessary capital for modernization and environmental improvement. It also was able to achieve the diversification it was seeking into the newsprint market and be provided with a secure market through Oji. (Typically the newsprint market is harder to penetrate than markets for pulp since there are a few large producers and few large buyers). Oji had acquired an operation that could provide the quality newsprint that they sought. Japanese standards for newsprint are very high³. The year round deep water port facilities and the custom-made vessels at Port Mellon has also been an advantage.

The modernization plan took two years to accomplish and had a number of components.

- A thermo-mechanical pulp (TMP) and newsprint operation was introduced and included a paper machine imported from Finland. Adding the newsprint division cost approximately \$400 m.
- State of the art kraft pulp equipment replaced the existing operation at a cost of \$200 m.
- A wood-residue electrical co-generation system designed to produce 70 percent of the mill's electricity requirements was installed at a cost of \$150 m.
- Environmental improvements totalled \$116 m and the modern pollution control equipment included:
 - * replacement of the three old recovery boilers by a single low odour machine which would reduce smoke particles by 80 percent and hydrogen sulphide by 70 percent;
 - * introduction of a two stage oxygen delignification technology to eliminate the dioxins and unwanted chlorinated organic compounds and when combined with six washing stages, the level of chlorine use was greatly reduced; and
 - * an advanced biological treatment system — the UNOX — was incorporated as a secondary treatment facility⁴.

³ Japanese newsprint presses produce approximately 120,000 copies per hour in a run compared to 50,000 copies per hour in North America. In North America the best standard is one break per 100 rolls, whereas Japanese standards are one break per 1000 rolls of newsprint or even one break per 3000 rolls.

⁴ The UNOX process is a high-rate oxygen activated sludge system which uses bacteria to break down organic compounds in the effluent from the mill.

As well as the introduction of new equipment and environmental measures, the nature of the work changed significantly. The adjustment to new job tasks inevitably required substantial investments in retraining and upgrading of skills, particularly computer skills. An \$11.5 million training program (excluding the wage cost) was undertaken including training on a process simulator. Some 45 papermakers were sent for training at a high speed newsprint mill owned by Oji in Japan. Somewhat paradoxically, the fact that the workers at the Port Mellon facility had little or no experience in newsprint production was viewed favourably by Oji, since the training would not require unlearning previous techniques and habits.

Training was decentralized, done by each department but with input from the union and workers. In general the union became more involved as the process developed and certain practices have been eliminated as a result of this workplace change. The management side has been reorganized in order to improve productivity. This was achieved through a team approach with union and employee involvement. Explicitly, the approach has been one of mutual gains bargaining, though the thorny issue of flexibility between trades remains to be fully resolved. Since this issue can have implications for other unionized mills, discussions at the level of the regional union office and the company have been sought to arrive at a resolution.

Some of the process of change has been stressful for certain elements of the workforce, particularly older workers. Fifty percent of workers had 10 or more years of seniority. Early retirement packages for older workers (55 and over) were offered.

Results

On a daily basis HSPP currently produces 1,000 tonnes of market kraft pulp (compared to 650 tonnes of pulp before the modernization) and 600 tonnes of newsprint. Fully 75 percent of its newsprint goes to the Japanese market through its partnership with Oji. Twelve percent of the newsprint goes to the U.S. and the rest to South East Asia. HSPP currently employs 650 workers. Although refurbishment of the mill has guaranteed a high value added market and secured long term production at the plant, very little job creation — approximately 100 jobs — in mill operations has occurred. However, the approximately 550 jobs that would have been lost are now secure.

As a result of the refurbishment and workplace changes, productivity is higher. According to figures from the Canadian Pulp and Paper Association, the HSPP paper machine is second in efficiency among 100 Canadian machines in operation.

In 1991 HSPP became one of the world's few producers of totally chlorine free (TCF) bleached kraft market pulp. This product represented only 8 percent of its total pulp production in 1994, and markets for this product have continued to slump in 1995. In September of 1993 HSPP also received an ISO 9001 certification for pulp quality.

In terms of its environmental performance, the facility has a much improved record. The new pollution control equipment has reduced all discharges, chlorinated organics, oxygen consuming material, sulphur gases and solid particles by approximately 50 percent

compared to 1989 levels. Dioxins and furans have been virtually eliminated and fishing of shellfish and crab reveals that shrimp, prawn and crab muscle tissue have much lower levels of dioxin. Despite this improvement some crab still have dioxins over the guideline specified by Health Canada. The company is, however, optimistic that the closure of the fisheries will be removed in the near future. In addition, the local union has been involved in the various environmental committees at the work site and has helped to improve the environmental safety and performance in the facility.

Significance

The case of HSPP is significant because it demonstrates how environmental concerns are intertwined with general economic concerns and how both can threaten the long term survival of a facility. In the case of the Port Mellon facility, both environmental and economic pressures arose from the vintage of the technology and equipment. Addressing these concerns would have to be done simultaneously and would require large amounts of capital. Indeed, the environmental concerns were addressed in the context of a sweeping modernization that sought to place the facility on a sounder economic footing.

A second reason that the HSPP case is of interest is the degree to which responses to environmental and economic pressures are intertwined with changes in workplace practices. The scale of the change at HSPP was such that it was inevitable that various workplace practices would be altered. Significant efforts were addressed to both training and reorganization at the facility. Older workers, as might be expected, found it more difficult to assimilate the changes and special packages were needed to help these workers adjust.

There are certain features that make the Howe Sound case special. First, an external solution was sought to the pressures the plant faced and a large degree of foreign capital was necessary for the success of the project. Although this approach has been tried in other B.C. mills (e.g. Cariboo Pulp & Paper Company in Quesnel, B.C.) such sources of foreign capital may not always be readily available. Second, the plant also added a newsprint division and expanded capacity and has achieved this without, it would appear, any significant shortages in fibre supply to the facility. (HSPP obtains most of its fibre supply from the lower mainland of B.C.). However, given the critical fibre supply problems which have plagued B.C. pulp producers in recent times, expansion of facilities is not a solution that may be available to all.

Overall, the joint venture has not only secured some threatened jobs, but also improved environmental quality, increased productivity and resulted in major investments in training.

The Whitehorse Mining Initiative (WMI)

Background

The mining industry is an important one for Canada and — as a major exporter — the industry enjoys a leading position internationally in many minerals such as zinc, uranium, lead, platinum, copper, gold, silver and nickel. However, the Canadian mining industry faces a number of economic and environmental challenges which could threaten its long term position.

Some of the challenges facing the Canadian mining industry are beyond its direct control. Metal and mineral prices, which determine the short run health of the industry and explain its highly cyclical nature, are set in world markets. The increased global competition caused by the export of surplus production from the countries of Eastern Europe and the former Soviet Union, as well as a greater desire by some mineral rich countries, especially in South America, to aggressively attract mining investment dollars, will have a long term impact on the world industry. Both of these factors will lead to a greater emphasis on controlling costs in existing mining companies.

Within Canada a number of economic, environmental and land questions have been raised which affect a variety of groups. With the exception of diamond reserves and the recent Voisey's Bay discoveries of nickel, mineral reserves in Canada are becoming more difficult to find and mine economically. Ore deposits are more deeply buried and in some cases are not of the traditional high quality. Currently reserves are being mined faster than they are being replaced through exploration, and mine closures currently outnumber mine openings. Consequently, the mining industry is concerned that attempts are made to encourage investment in Canadian mining by addressing concerns over financing, taxation and the general business climate.

The mining industry is also facing questions about land use and in particular the lack of progress in settling land claims by Native groups. Such delays create uncertainty and can hinder access to mining sites. Native groups have been calling for a greater say in land use questions and have demanded a greater share of the jobs and the wealth generated by resources.

Environmental Pressures

There are also environmental pressures on the mining industry. With a growing awareness of environmental issues there is pressure to minimize the environmental impact of mining and mining sites. The activity of mining, such as removal of surface material, tailing ponds and waste materials, creates a great deal of land disturbance and can destroy wildlife habitat. Rehabilitating mine sites, though necessary and required, is expensive and adds to costs. Energy use and conservation is also another area of concern as are the concerns over water quality, toxic wastes and air quality from mining activities. The process of environmental regulation, as opposed to the content of the regulations themselves, is a further concern for the industry. In particular, the complex, lengthy and

uncertain process of environmental impact assessments requires the industry to expend significant time and money even before a mine project is approved. Workers and unions in mining are also concerned about the effects of work on health and safety.

The human resource implications of all these challenges are significant. Between 1980 and 1991 employment in the industry fell from 445,000 to 330,000. However, the full impact on economic disruption is partially obscured if one considers only the numbers of people affected, as mining is such an important industry for many remote single industry communities in Canada. Closure of a mine can mean the demise of entire communities. Labour unions such as the United Steelworkers of America (USWA) are concerned about the long term employment implications as well as the health of the communities upon which they depend.

Response

Faced with these types of pressures it was clear that a number of different groups had an important stake in the mining industry and its activities. In order to resolve many of the issues facing the industry it was also evident that a different process would have to be created that could develop a strategy for the industry to improve its long term economic position.

As a result the Mining Association of Canada, on behalf of the mining industry, proposed a multi-stakeholder process to the various ministers of mining in September 1992. It was agreed by the ministers to co-sponsor the process which became known as the Whitehorse Mining Initiative (WMI). Representatives of five groups, with a key interest in mining, were invited to participate in the WMI: the mining industry, federal and provincial governments, labour unions, Native peoples and environmental groups.

Discussions to develop a long term strategy to address the issues facing the industry began in February 1993. A three tiered structure was established. At the apex was a Leadership Council which was to provide direction and accountability. This leadership council was composed of all the mine ministers in Canada and top officials from mining companies, native organizations, labour unions and environmental organizations. In addition to this council a working group was established to handle logistics and planning. The third tier was composed of four issue groups who were to define and address the key issues. These issue groups were respectively environment; finance and taxation; land access; and workplace, workforce and community. Each issue group produced a set of principles and objectives and together made over 150 recommendations.

The four reports from the Issue Groups were then used to draw up the Leadership Accord which establishes principles and goals to be pursued. Equally important was a statement of intention to follow-up action and monitoring of implementation of the Accord. The Accord was signed and adopted in September 1994 and is intended to address all the major challenges that were felt to be facing the industry. The Accord thus represented an overall plan to renew the Canadian mining sector.

Within its strategic vision for the mining industry the Accord recognizes the importance of the following key steps:

- preservation of healthy and diverse eco-systems in Canada;
- the sharing of opportunities with Native peoples;
- improvement of the investment climate for mining investors;
- the streamlining and harmonization of tax and regulatory regimes, especially environmental processes;
- the participation of natives in all aspects of mining;
- adoption of sound environmental practices;
- establishment of an ecologically based system of protected land areas;
- provision of safe and healthy working environment for mining workers;
- respect for Native treaty rights;
- settlement of Native land claims;
- guarantee of full participation of stakeholders in public interest questions;
and
- creation of a climate for innovative and effective responses to change.

Many of these steps represent significant progress in areas of principle. Rather than provide details of all these principles, attention is confined here to environment, land use and human resource issues.

In terms of protecting the environment, concern over mining activities was addressed in three areas: minimizing the environmental impacts of exploration; ensuring that environmental protection and economic viability are achieved for sites in operation; and proper rehabilitation of inactive mines. The Accord recognizes the need for more prudent exploration; better mining design, and comprehensive risk management systems, in addressing these problems. The Accord also explicitly recognizes the usefulness of environmental impact assessments. However, it affirms that these assessment processes can be improved through a more integrated approach including both land use planning and government policies. Furthermore, the assessment process could be improved through a more formal and representative structure, and if the ecologically important scope of the assessments is defined in the early stages of the assessments.

As to the much discussed issue of land use, the major criticism was that such land access decisions have not provided enough certainty to all the stakeholders in the WMI process. Often there is no regional land use plan to refer to. Improving the policy on land use and land access is critical for the mining industry. The Accord calls for a more accessible

process for all stakeholders, and for collaborative mechanisms to be established outside the land access process to address difficult issues that could complicate the process of granting permits.

The principles on land use and environmental protection and assessments embodied in the Accord have many implications for human resources. The Accord also addresses specific human resource concerns such as how to attract and retain a skilled and adaptable workforce that can take advantage of the modern mining technology. It is recognized that the success of the mining industry depends in large part on the availability of such a workforce. The Accord calls for improved access to training for both workers in the industry and those currently outside mining, improved mobility of workers employed in the industry, and the enhanced equity of employment opportunities for groups which have traditionally been under-represented in mining. The importance of proper health and safety standards is also recognized. Standards should give priority to ensuring protection for workers in cases of uncertainty or disagreement and furthermore, the regulatory framework should be developed in consultation with business and labour.

Results

The WMI is still a relatively new process that sets goals and principles but does not provide a set of prescribed actions in the Accord. Thus, measurement of specific results is difficult and premature. However, the monitoring of the implementation of these principles is continuing and two progress reports on the WMI have been released by the federal government. These reports contain details of initiatives from all the stakeholders: federal and provincial governments, labour, business, Natives and environmentalists. The contents of these progress reports suggest that groups are actively promoting the Accord and its principles among their constituents.

One outcome that has occurred has been the establishment of a sectoral council in the mining sector. The genesis of this council was the release of an extensive human resource report on the mining industry in the summer of 1993. One of its main recommendations was the formation of a mining sector council to deal with human resource issues. The sector council was announced jointly by the Mining Association of Canada, the federal government and the United Steelworkers of America in 1994. The WMI discussion and the principles have also served as input into the mandate of the sector council which has recently been named as the Mining Industry Training and Adjustment Council.

MITAC is a joint labour-business council and is similar to other councils in the steel and electronics sectors. Its goal is to help the development of skills needed to enhance worker health and safety, productivity, mobility and adjustment. Revitalization of the apprenticeship program, particularly upgrading and streamlining the system, will be one area of focus, e.g. the number of trades in apprenticeship, national standards, adequate funding etc. Developing and upgrading the skill and knowledge of production employees is another important area of focus, particularly in terms of the number and limited range

of individual classifications and hierarchical rigidities. When fully operational it is planned that MITAC will also address the issue of Native participation in the industry.

Significance

The most significant point about the WMI is that it even existed. This was an historic exercise for a sector that had been characterized by adversarial bargaining relationships and competing interests lobbying for the attention of policy makers. The fact that a consensus set of principles could be formulated and agreed to by often competing interests, is a big step towards a co-ordinated approach to dealing with challenges such as environmental concerns in the mining industry.

The WMI is also an important step in that it is an explicit agreement that recognizes the value of integrating a set of values — economic, environmental and social — into a cohesive strategy for the mining industry. By integrating environmental concerns with economic ones, the importance of the environment in business planning and in the very process of greening productivity is being actively promoted.

A final significance of the process of the WMI is the role it suggests for government. In the process of the WMI the government played the role of supporter and facilitator rather than a more traditional role of leader, arbitrator and provider of program funds.

Brunswick Smelting and USWA Local 7085

Background

The smelting operation at Belledune in Northern New Brunswick was established in 1966 as a lead zinc process and was converted to a lead blast furnace in 1972. The smelting operation is operated by Brunswick Mining and Smelting Corporation (BMSC) which is part of the Noranda group of companies. Principal products from the smelter are lead (100,000 tons in 1995), silver and various custom made lead alloys. The operation also has an acid plant on the site that produces the by-product sulphuric acid which is sold to a BMSC fertilizer plant next door. The markets for the products of the smelting operation are located in Eastern Canada and the North-eastern U. S. and principally are for use in battery production. The operation is located on the coast and has a deep water port as well as rail and truck links to its markets. In 1994 the smelting operation made a profit of \$7.8 million on \$94.1 million of sales compared to a loss of \$12.4 million in 1993. The principal causes for the turnaround were higher world prices for lead and productivity improvements.

Employment at the smelting operation is currently 475 workers of whom approximately 400 are organized by the United Steelworkers of America (USWA) Local 7085. Many of the workers have been at the operation since its inception, and the average length of service is close to 20 years. In addition, many workers are likely to retire in the next ten years and the age structure of the workforce (currently at an average age of 46 years) will shift significantly. Workers currently work a 42 hour week of 3 days of twelve hour shifts and 3 days off. Most employees live in the surrounding rural area outside of Belledune (population of 1,000). The nearest centre of population is Bathurst, some 40 kilometres to the south.

Environmental Pressures

Lead is probably the oldest industrial toxin and as such the environmental pressures facing the smelting operation are significant. A number of actions were taken during the 1970s and 1980s to address the environmental concerns. However, with the increasing awareness of environmental issues both within the industry and amongst the public, environmental concerns continue to occupy the attention of the smelting operation.

The principal concern at the plant has been the health of the working environment for workers in the operation. Exposure to dusts of lead and other heavy metals as well as noise and vibration levels involved in the smelting process have been continual concerns throughout the history of the operation and are major concerns for the union and its members. The known effects of lead exposure are: effects on the nervous system causing sleep disturbances; mood changes and memory problems; gastrointestinal effects; impairment of kidneys, and effects on the reproductive system.

Such concerns relate not just to current exposure levels but also to the effects of exposures in the past when environmental practices were looser. Baghouses to collect

and recycle dusts from operations were installed in 1972 and 1978 whereas previously these dusts had circulated in the air where workers operated. Approximately 50 to 100 tons per day is recycled by these baghouses. It is the practice at the smelter to relocate workers to areas of lower exposure if their blood lead levels exceed a certain amount (which in 1978 was set at 75 ug/dl — micrograms per decilitre of air). Exposure levels are greatest in the furnace house and the sinter operations and lowest in material handling. At the same time, as more has become known about lead poisoning, workers at the plant have become increasingly aware and concerned at the risks they face from exposure to toxic substances. Related to this has been the additional concern of the union that perceives that significant improvements are needed in the enforcement of regulations by provincial authorities.

A number of health studies have been completed at the plant over the years, especially in the 1980s. In 1989 a health study by a team from McGill University concluded that while the organizational basis and existing testing procedures of the occupational health service (OHS) were good, the focus of the service tended to be more geared towards a general practice than occupational health. As a result certain protocols and examinations were often absent, making it difficult to derive firm conclusions on the precise state of workers' health as a result of lead exposure. The study recommended using exposure times rather than a worker's age as the criterion for scheduling examinations.

Other environmental concerns facing a smelting operation relate to the state of emissions and the quality of air and water. Belledune is no exception in this regard, but emissions of sulphur dioxide (SO₂) to the air are greatly reduced at the Belledune operation by the capture and conversion of sulphur gases to sulphuric acid. Being a coastal location, the state of water quality is subject to the federal Fisheries Act. Before 1980 a significant area of the waters around the port were closed for lobster fishing. A water treatment plant and holding ponds were installed in 1980 at a cost of \$5 million in an attempt to develop a closed loop system for water. However, the water for the recycling back into the smelting process is contaminated with heavy metals and is unable to be treated effectively by the water treatment plant. Currently, lobster fishing is not permitted in the waters inside the port. To improve air emissions, scrubbers were installed in the 1980s.

Additional environmental pressure faces the operation from international moves to ban or restrict the uses of lead. Sweden and the Nordic countries have been particularly active in this area. Such moves could threaten the markets for lead and lead alloys and result in uncertainty for an operation like Brunswick smelting. At the same time, the demand for batteries in such applications as the electric car is likely to mean that, in the absence of a suitable alternative to lead batteries, the markets for lead are likely to remain buoyant. Nevertheless, international concerns by the public over the effects of lead, particularly in landfill sites, is leading the push to ensure greater recycling of batteries and other materials containing lead. The smelter at Belledune has the capability to separate and reprocess lead from a variety of sources such as cathode ray tubes, lead flashing, wheels weights, contaminated soil and waste from shooting ranges.

Responses

Business-labour relations have been an important part of the response to many of these environmental concerns. The catalyst for this was, paradoxically, a deterioration of relations as witnessed by a long strike in 1990. Tensions between the union and management had surfaced on several occasions in the preceding two years through a number of sit-down and walk-out protests by the union. The introduction in 1990 of a new management team with a desire to institute significant changes at the plant also concerned the union. Throughout the strike the union campaign served to increase awareness of its members vis-à-vis the environmental and health problems of lead smelting. The strike was eventually settled after 10 months through binding arbitration. Though this resolved a number of issues, the most important problem expressed by the arbitrator was the lack of mutual trust between the union and management. The principal cause of this mistrust was a lack of communication between the two sides and the arbitrator emphatically called for the establishment of sound communications in order to develop good labour relations.

In retrospect, the strike was a turning point. The comments of the arbitrator for better communication between business and labour did not go unheeded. One mechanism through which better union-management relations could be built was the joint health and safety committee, which had been established back in 1972. After the strike this joint committee became an important source of changes in working practices which had a significant impact on the environmental performance of the company and the exposure level for workers. A code of practice was established and built into the collective agreement which included:

- a prohibition of smoking anywhere on the site;
- a policy that confined eating and drinking to non-production areas;
- washing of work clothes on site;
- greater monitoring of respirator wear in the plant; and
- a lowering of the relocation level of exposure to 50 ug/dl.

In 1991 further changes were made that included modifications and expansion of the change house facilities so that showering after work was raised to 100 percent; improved respirator storage and cleaning; the blood lead level for denying overtime was set at 40 ug/dl and proportioning bins which combine the material for feeding to the sinter plant were lined and enclosed to reduce the level of exposure to dusts. Further improvements in practices and equipment have been achieved through the joint health and safety committee in succeeding years. Many of these changes have been low tech solutions to environmental issues, but they nevertheless have had a significant impact. In addition, attempts were made to clean up the site particularly where waste material was stored (referred to as the Back 40). Conveyors for some material were also covered to prevent dusts from affecting air quality on site.

Some technological change has been introduced and computerization of some operations has been achieved, together with remote cameras to monitor different parts of the smelting and sintering processes.

To improve the use of water and the compliance of the company with discharge requirements the closed loop system was made more effective. The system recycles water for process equipment and to supply the needs for emission control technologies. It was designed as a contained circuit but with an allowance of overflow to the water treatment plant when the volume was excessive. Such water (unlike the recycled water for cooling purposes) is heavily contaminated and presents problems for treatment. Critical to the success of reducing overflows and managing the contaminated water was the involvement of employees and the provision of environmental awareness training. Employees now segregate water streams, monitor the recycled water volume and manage the system to prevent overflows. The Noranda environment report recognizes the critical importance of involving employees in addressing the water overflow problem.

Apart from the water overflow problem, environmental awareness training is also provided by the company in order to improve the environmental performance of the operation. In the company's words, "the training strives to make each employee a spokesperson for the environmental record of the operation."

In order to address some of the concerns regarding lead in batteries and other products, the company is moving towards product stewardship. The smelter is able to take a large number of articles with lead in them and feed them through the sintering and smelting processes. Re-import of wastes is possible with 30 day notice under federal regulations. Furthermore, moves to battery recycling are planned and a battery recycling operation has been purchased and will be located on the site of the fertilizer plant.

The fertilizer plant will close in May 1996 as it is an uneconomic operation. The company will be able to sell the sulphuric acid on the open market where it is likely to get a better price. The company and the union have negotiated a deal to provide some options for the 60 affected workers (who work an 8 month schedule throughout the year). Approximately 25 jobs will be available to employees from the fertilizer plant at the battery plant. Those employees not able to locate jobs at the battery plant will be given priority for new jobs at the smelter. These workers would be guaranteed six months work per year at the smelter.

The company has also instituted a telephone complaints system that allows concerns from the public to be addressed expeditiously.

Results

These various responses have achieved significant success, though some challenges and concerns remain for the future. Business-labour relations have much improved at the smelter; this has been the cornerstone upon which new practices have been introduced to improve environmental performance.

Blood lead levels among workers at the plant have been reduced. In 1988, 186 workers had blood lead levels greater than 40 ug/dl. By 1992 this number had fallen to 18 workers and to 5 by 1995. At the same time production of lead had risen from 60,000 tonnes in 1988 to 100,000 by 1995. According to some of the health studies, an important factor in this regard was not only the better practices but also the progressive lowering of exposure levels requiring relocation to lower exposure areas.

According to Noranda's environmental report, the involvement of employees in making effective the closed loop water system in 1994 reduced by 75 percent the company's non-compliance with water discharge requirements. The report also asserts that under the new system of managing overflows, none have been experienced since 1993.

While the union acknowledges the improvements that have been made since 1990 its members remain very concerned about the health of the older workers who have worked in the operation for several years in conditions where exposure levels were much higher. Such a concern points to the long term nature of environmental problems that confront all operations of a similar vintage. Health problems may only appear several years after exposure to toxic substances. The legacy of past environmental problems remains, despite improved current performance. In particular, the union would like to see a system developed that would incorporate a limit (in terms of years) on the time that workers are exposed to toxic substances over their working life.

Significance

The case is important for a number of reasons. First, it demonstrates that improvements in work practices can lead to better environmental performance. Not all improvements in environmental performance have to involve wrenching technological change. The fact that the catalyst for these changes in work practices was a 10 month strike highlights the need for effective communication between the two sides on issues, but particularly the environment and health issues.

Second, the importance of employees in developing and applying these practices in ways in which they could be effective is an important lesson for companies wishing to encourage a culture of change and greater responsibility. Involving employees may require some costs in terms of environmental training but it can also reap great benefits, as the reduced non-compliance in water overflows demonstrates.

Third, the case vividly demonstrates the long term nature of many environmental problems. Environmental issues require a long term approach and need to be constantly addressed. In the case of workers' health, the legacy of environmental exposures in less controlled working conditions is a source of concern for the union and must be addressed, principally because of the health of older workers but also to maintain and build the trust between union and management which is essential for effective joint approaches to the environment.

Quintette Operating Corporation and USWA Local 9113

Background

Quintette Operating Corporation operates one of two coal sites in Tumbler Ridge in north eastern B.C. The mines and the town, along with a rail link to Prince Rupert, were established in 1982. The Quintette mine was granted a 20 year license to mine and process coal from an area south of the town. Originally the mine was principally owned and operated by Denison Mines, but, following a financial restructuring in 1992, it has been under the ownership of the Quintette Operating Corporation, which is managed by Teck Corporation. Quintette supplies metallurgical coal exclusively to a group of Japanese steelmakers at contractually agreed prices. The current contract expires in March 1998. Production at the mine has remained steady at approximately 4 million tonnes per year. The processing plant is located in the middle of the Murray Valley; raw coal is transported from one pit some 14 kilometres away by conveyor belt.

The town of Tumbler Ridge did not exist before 1982, and therefore indigenous activity such as agriculture or ranching was never established in the area. The population of the town is currently 3,800, some 1,000 fewer than in 1992. The livelihood of the town is totally dependent on the two coal mines, both of which supply Japanese steelmakers. Economic development plans have been made to diversify the economic base of the community, but some frustration has been felt by local authorities with respect to various regulations and provincial land use plans in this regard.

The workforce at the Quintette operation is 1,020 of whom 830 are organized by the United Steelworkers of America (USWA) Local 9113. The peak of employment was approximately 1,600 workers in 1987. Average age of the workforce is approximately 40 years, which is lower than average for the mining industry. The average length of service of the existing workforce is 8.5 years. As to labour relations, the last strike was a two week stoppage in 1989, and some wild cat activity occurred in the late 1980s. A formal structure for a union-management committee had been established but the committee did not meet on any regular basis. The last two rounds of negotiation have been concluded without stoppages and the most recent collective agreement extended the term of agreement to four years from the previously normal term of three years.

Environmental Pressures

The principal global environmental concern with coal lies not in mining but the burning of thermal coal in power generation and the resulting greenhouse gases. Environmental pressures in coal mining are more local. One of the more serious local environmental pressures in mining, namely, acid mine drainage, is absent at the Quintette site since the ore mined at the site is not a sulphide one.

Nevertheless, the mine and processing plant raise some environmental concerns. Land reclamation is an important activity since the mining and processing of coal create much waste rock which has to be reclaimed. In 1990 the company experienced a dump failure

when a dump site collapsed because of geo-technical factors, blocked the Murray river which runs by the site and prevented boating access to the provincial park up-stream. Environmental damage could have been considerable, but the timing was fortuitous since fish were not spawning and a rare high intensity storm shortly after the failure washed much of the silt away. Nevertheless, the dump failure was a disappointment to many at the mine who live in the area and use the Murray River for recreation. Subsequently the company has learned much from the experience, particularly the geo-technical causes of the failure. The company has received provincial government awards for its land reclamation record over the years, the most recent being in 1994.

The quality of air and water is subject to provincial regulations. The principal operational concerns relating to water quality are the presence of nitrates used in blasting and suspended solids from mining activity. A long standing concern has been the number of spills on the site and the proper response to them. Leaks of oil and fuel at fueling stations were not regularly reported and resulted in leaks into the ground. The large size of some of these spills was also a concern for workers at the fueling stations and pits. In 1990 a provincial regulation was passed requiring all spills over 100 litres to be reported to the provincial government. The number of reportable spills in the early 1990s averaged one and a half per day.

The practice of storing certain waste supplies such as empty drums and materials at several locations on the site made collection and tracking of these materials difficult and more costly than necessary.

Finally, in certain parts of the processing operation the quality of air, in particular the presence of coal dusts, and the effect on workers' health has been a concern. The two critical areas in processing are the arrival of coal at the processing plant as it is transferred from the conveyor belt, and the drying of the processed coal.

In sum, while some important environmental problems were absent, there are a number of important local environmental concerns at Quintette, particularly in relation to spills on site. Prior to 1991 some frustration was felt within management wishing to deal with environmental concerns because of the extensive hierarchy of supervision and control that prevailed at the different locations throughout the site.

Response

To each of these concerns management formulated procedures which were to be followed by employees. In particular, procedures had been developed on:

- spill response;
- spill prevention, dealing with repairs to leaks in tanks, lines and hoses;
- potable water emergency response;
- special waste handling relating to lead acid or optima batteries, lubricating grease, waste oil, oil filters, and waste glycol;

- disposal of empty drums; and
- contractor requirements for working at the Quintette site.

These procedures, while recognized as valuable still needed to be implemented. In particular, the protocol for reportable spills needed to be communicated to the large workforce. Implementation of these procedures was helped by the good business-labour relations and the recognized value of the environment department and its procedures for dealing with environmental concerns. In addition, implementing decisions became more streamlined with less hierarchy to penetrate following the transfer of the operation from Denison to Teck in 1991/92. The transfer led to a rationalization of the management structure, and a large number of management and supervisory staff were laid off. One other factor that proved important in communicating environmental procedures and protocols was the establishment of the joint health safety and environment (JHSE) committee.

At the end of the 1980s the USWA had been developing a national policy on the environment and had begun to apply this policy down through the district and local levels. Local leaders' attention was thus aware of the need to address environmental matters. As a result in 1992 at collective bargaining the union proposed that the mandate of the existing health and safety committee be expanded to include environment. This represented a move that went beyond the legal requirement since the Mining Code of B.C. requires a joint committee dealing with health and safety only. On the management side the communications value of the joint committee was recognized and support for such a process by the mine manager was a key influence in bringing the idea to fruition.

One of the first concerns of the joint JHSE committee was the meaning of the all encompassing term "environment", and discussions sought to focus on its precise definition. It was subsequently agreed that "environment" was to include all aspects of the environment within the confines of the mining and processing sites.

One of the important aspects of the joint JHSE committee has been the communicating of environmental consequences and increasing the environmental awareness of the nearly one thousand workers intimately involved in production. A good example of this is provided in relation to the responses to spills and leakages into the ground and the need to report these promptly. The committee was instrumental in communicating the protocol for reporting spills over 100 litres to the workforce and in raising awareness throughout the site of this and, by extension, the importance of good environmental practice generally.

Another function of the joint JHSE committee is that at its monthly meetings it reviews new products, such as soaps and cleaners, for their environmental impact before agreeing to buy them. In the words of one committee member "we have enough environmental concerns on-site. We don't need to import any more". A further task undertaken as a result of the work of the committee are regular audits of the site by committee representatives for health and safety issues. These regular audits highlight problem areas

which can be rectified according to existing procedures or brought before the committee for recommendation to management.

Training is provided in environmental procedures and in general awareness of environmental responsibilities. This training has been provided internally since 1993 by the environment coordinator. Training is first given to supervisors and foremen, who then have the responsibility to train the workers under them. In addition, orientation training for new employees, which has an environmental component, is undertaken by a management and a labour representative.

Results

By both management and union accounts, the joint JHSE committee has been a success. One indicator is the improvement in the number of reportable spills. These now average one every two weeks as opposed to one and a half spills per day. In addition, parts are replaced sooner, leaks on tanks, hoses and lines are fixed promptly and such items as drums or other waste material are disposed according to developed procedures rather than being stored at several different sites as had been the previous practice. Awareness of the potential environmental impacts is much greater at the working level as a result of the procedures and training that has been provided. Providing employees with a greater responsibility for the environment has led to better practices and improved environmental performance.

The procedures put in place by management have also proved successful in dealing with unforeseen situations that arise. In 1995 globules of grease were found in the drinking water. The problem was found to be excessive lubrication of the water pumps on the water trucks and was corrected according to the procedures previously laid down. The situation was dealt with in such an expeditious manner that it is now largely forgotten even by those closely involved in the situation.

A further important result is that the joint process has served as a means of improving both communication and trust between union and management. The joint health, safety and environment committee has provided a regular forum for a discussion of specific concerns. It is worth noting that the health and safety record at the mine has improved substantially, particularly in the incidence of injuries. The 1995 injury frequency was 21 percent lower than in 1992 and 40 percent below the 1990 level. Strategically, a committee such as this represents an important investment for improving dialogue, particularly as the Quintette operation could face some tough negotiations in the coming years depending on how contracts for their coal are structured.

The joint approach has been used in other areas as well. A joint Employee and Family Committee was established in 1987. This provides support for referral and assessment for workers and their families who are experiencing problems outside the workplace. The process is arms-length and the company is not privy to information relating to workers' problems. The joint approach has encouraged dialogue since the union-management committee has been revived. Progress here has been slow mainly because the work of the committee is less focused. A critical union issue of contracting out has also been

addressed in the climate of improved communication and trust. In 1992 contracts by non-union operations totalled \$14 million. This figure has been reduced by 70 percent by 1995, mainly through the installation of a rebuild shop on-site and the employment of hourly staff in local 9113.

Significance

The significance of this case is that union and management have gone beyond the legal requirements in creating the joint JHSE committee to deal with workplace practices in relation to the environment. This was achieved by expanding an existing structure — the joint health and safety committee — thus minimizing the administrative burden of addressing a new set of issues.

The case also demonstrates that jointly developed changes in working practices and procedures can make an important contribution in communication of procedures to improve the environment. Large capital investment in the latest technology are not, in all cases, the required response.

Finally, the case demonstrates that joint approaches are most successful when they are focused on specific issues. In addition, they can lay the groundwork for discussions and information sharing in other areas.

Highland Valley Copper and USWA Local 7619

Background

The Highland Valley Copper mine is a vast open pit mining operation in the southern British Columbia interior — so large, in fact, that it is one of the few human-engineering feats visible from the moon. In just about the centre of this massive operation stands the 6,000 square foot building housing the “Modified Work Centre”, in its own way a monument to human creativity and joint problem solving. The Centre, the product of a joint initiative between Highland Valley Copper and Local 7619 of the United Steelworkers of America, resolves a number of issues that had developed at the operation. Today the modified work centre provides employment in a range of activities that focus on the three R's of environmental strategy: Reduce, Reuse and Recycle: for workers whose injuries or illness prevents them from working their regular jobs.

Highland Valley Copper is a partnership of four mining companies, with Cominco Ltd. holding 50%, Rio Algom 33.6%, Teck 13.9% and Highmont 2.5%. The company operates two large open pit mines, extracting more than 90 million tonnes of ore per year. It operates a mill and concentrator at the Highland Valley site which converted 43.5 million tonnes of ore into nearly 400 thousand tonnes of copper concentrate and 3 thousand tonnes of molybdenum concentrate. Though the workforce has been shrinking by about three percent per year over the last four years, the operation currently employs 1100 people, including 858 production and maintenance workers and 64 office and technical workers represented by the United Steelworkers of America.

The first link in the chain of events that led to the establishment of the Modified Work Centre was a wildcat strike conducted by the Union in the late 1980s. The reasons for the work stoppage are less important than a \$250,000 court judgment against the union for damages suffered by the company as a result of the job action. This prompted the union to become creative in its search for ways to pay the debt. It was known that the company spent large amounts on safety equipment that was discarded once it became too dirty to use, and the union proposed that the savings generated by cleaning up and recycling some of this equipment could be used to fairly pay off the debt to the company. The only problem was that somebody would be needed to undertake the work.

At the same time, the company continued to deal with workers whose injuries kept them away from work and on Worker's Compensation or other wage indemnity programs. In the past, these injured workers stayed home until they were able to assume their regular duties, even if the injuries were not so extensive as to keep them from certain kinds of lighter duty work. But the longer workers are kept on WCB claims, the higher are the company premiums. Furthermore, such arrangements tend to deprive an injured worker from an opportunity to contribute and feel useful, as well as denying them the social interaction that is one of the benefits of holding a regular job.

The Response: The Modified Work Centre

Both the union and the company began to see an opportunity to devise a program that could meet several objectives of the parties. After the settlement of a collective agreement in 1991, union and management agreed to establish a Modified Work Committee to discuss the details of setting up a centre where injured workers could do light duty tasks. The purpose of the Centre was to provide an opportunity for on-site rehabilitation while engaging in an environmentally beneficial program of recycling and reuse of mining supplies.

The Modified Work Centre was established in 1991 in a garage that was moved on site. At any point in time, between two and eighteen people work at the Modified Work Centre, out of an operation that employs over a thousand people. The work varies, but much of it involves cleaning and refurbishing mining supplies that in the past would simply have been thrown away. Safety locks, boots, raingear, gloves, safety glasses, bolts, filters, valves, pipe couplings, and a host of other recyclable materials are collected in yellow bins at locations throughout the operation and brought to the work centre. Work stations have been outfitted with special equipment and adjustable chairs and benches that allow workers to stay within the limits imposed by their injuries. Workers in the centre clean and sterilize these items as required, and after repackaging, sell them to the operations warehouse for credits against the cost of running the centre.

Whenever practicable, the refurbished items are painted yellow to indicate to all workers that the materials have been recycled at the Modified Work Centre. By highlighting the work of the centre, workers throughout the operation are more aware of materials that could be recycled and reused, and that the work of the Centre is helping to control the costs of the operation. The yellow paint also reminds users to provide feedback to workers in the Centre if any of the refurbished products fail to meet the needs of the application. To date the recycled materials have met or exceeded the quality specifications provided by the original manufacturer.

The scope of the work conducted by the Modified Work Centre and eligibility for participation in the program has been negotiated between the company and the union, with some care taken to avoid diverting work from trades people and others employed in regular operations. For example, in refurbishing some equipment the parties are sensitive to people in the Work Centre doing the work of mechanics.

The Modified Work Program has expanded its operations — nearby is a small building where workers can assemble wooden pallets and crates. The program has expanded to some tasks outside the Work Centre itself, to include light duty tasks with the worker's regular crew, or in other departments. Workers assigned modified work receive wages at the same rate as the job held before their injury or illness.

The concept of a modified work program has attracted the attention of other large companies (outside of mining) who are examining ways of reducing the costs of waste and injuries.

Results

For the Company and the Union, the Modified Work Programs have provided and will continue to provide a number of important benefits:

- Supplies refurbished at the Centre produced a \$140,000 credit from the company warehouse in 1993 and well over \$200,000 in 1994.
- 180 workers or 17% of the workforce were accommodated through the program in 1993 for a total of 32,000 hours. Fully 75 percent of those helped were there as the result of a non-industrial injury or an illness.
- The company's weekly indemnity fund generated an \$82,000 surplus in 1993 through reduce use.
- Days lost due to compensable injury were reduced by 25 percent in 1993.
- The program has generated a far greater appreciation for the reduction of waste and the re-use of mining supplies throughout the operation.
- The program has allowed workers to maintain links with the workplace rather than staying at home. Such links allow the worker to make a useful contribution to the tasks of the mining operation and provides access to the important social interaction of a work site.

Significance

The significance of this case is that there are innovative ways to address and link environmental issues to other concerns. The precise response was jointly agreed at the workplace level using the available physical and human resources. Such a response allowed for solutions to be tailored to the particular circumstances and with a minimum impact on financial resources.

Overall, the modified work program has served to meet a variety of objectives and has demonstrated the benefits of a willingness of labour and management to work together toward mutual interests. In the meantime, a very large mining operation is fostering a culture of environmental awareness, reducing waste, and generating jobs for those who would otherwise be forced to stay home.

The Responsible Care Initiative

Background

The chemical industry is the third largest manufacturing industry in Canada by value of shipments, and has been one of the fastest growing sectors of the Canadian economy over the last two decades. The industry is highly capital intensive. Manufacturing plants in Canada (which are concentrated mainly in Ontario) tend to be highly mechanized, with up-to-date technology. The corollary is that the industry employs relatively few workers and accounts for only 5.4 percent of manufacturing employment.

An important characteristic of the chemical industry is that the majority of firms are large, foreign owned multi-nationals, mostly US-based and the industry is highly integrated on a continental basis. This is reflected in the significant volume of trade between Canada and the US, particularly between parent companies and their affiliates located across North America⁵.

The chemical industry competes on the basis of price, quality and service. For sectors involved in the production of consumer products such as soaps and detergents, pharmaceuticals or toilet preparations, product development and marketing are very important. The cost of raw materials, capital costs and fiscal climate are all important determinants in investment decisions. This reflects the degree of competition between plants within highly integrated companies for investment dollars.

Environmental Pressures

Because the industry uses many substances which have caused concern for health, the industry has been subject to an intense level of public scrutiny and has been affected by numerous public policy measures. The public perception of chemicals as harmful substances has been probably one of the biggest challenges the industry has faced over the years.

Public concerns have been voiced about air and water quality, particularly as a result of accidents and spills as well as toxic waste. Unions have raised concerns about the health and safety of workplaces and the effects of certain chemicals on workers. Many public interest and environmental groups were concerned about the risks posed by new chemical products. The Canadian Environmental Protection Act has therefore set out a process of risk assessment and has constructed a list of substances for reduction or elimination. Other initiatives have sought to develop more consultative methods of designating toxic substances.

⁵ Overall, Canada is a net importer of chemicals with imports making up 40.6 percent of the domestic market. The US is the source of about 77 percent of imports and is the destination of 82 percent of Canadian chemical exports. Canada's dependence on imports from the US is due, in part, to the fact that the Canadian market has been too small to support production of a large variety of chemicals.

The response by the chemical industry up until the mid 1980s was to adopt a hands off approach to environmental management. The industry was, by its own admission, invisible — generally remote from final consumers and the public, acting as guardians of specialized knowledge concerning chemical substances and their effects. The types of products produced were dictated by the market and available technologies, not public opinion. In the workplace the approach was a hierarchical one.

However, throughout the 1980s public mistrust of chemical operations grew. This was partly the result of a number of environmental accidents, the most prominent of which was the explosion in Bhopal, India in 1984. This acted as a catalyst in changing the attitudes of both chemical companies and customers, and galvanized the chemical industry to respond to the fears of the public and reduce the impacts of the industry's activities on the environment.

Response

The Responsible Care Program of the Canadian Chemical Producers' Association (CCPA) was developed which committed chemical producers to a wide ranging set of principles regarding chemical products and chemical processes. The commitment was made to undertake every practical caution to minimize the adverse effect on human health and the environment during all the phases of chemical operations from development to disposal of the chemicals. Membership in the CCPA is contingent upon acceptance of the Responsible Care principles.

To make this policy effective a code of practices was developed by the CCPA through a National Advisory Panel. The panel is composed of industry, community, academic and environmental representatives. The role of the panel is to provide input to the development of performance measurements and to conduct public verification of the Responsible Care initiative. The codes cover a large range of activities.

- *Research and development code.* This involves the identification of potential health and environmental hazards of new chemicals, their end uses, and how to deal with hazards and abuses of new products.
- *Community awareness and emergency response (CAER) code.* This code requires firms to solicit concerns from and provide information to the local community in order to raise community awareness across a broad range of issues as part of a community right to know policy. Development and testing a co-operative plan for dealing with emergencies is also required under the code.
- *Manufacturing codes.* These provide for risk evaluation and control of manufacturing along with awareness of, and attempts to minimize, wastes and emissions. Proper documentation of procedures is also required, and the recognition of training needs are included. The code commits companies to design production processes to achieve minimum risks.

- *Transportation code.* This commits to an assessment of carriers, modes of transport, routes and the types of procedures followed with the aim of minimizing the risk of accidents.
- *Distribution code.* This code provides for an assessment of customers, suppliers, distributors and contractors of chemical products to ensure that the risk of environmental impact from use of chemicals is minimized. Essentially this is a recognition of the concept of product stewardship by the chemical industry.
- *Hazardous wastes code.* The code includes the reduction, reuse and recycling of wastes, an assessment of contractors and a knowledge of historical practices.

To ensure commitment to Responsible Care codes, the initiative produces three reports. Employee safety is monitored as part of a safety health and accident reporting experience (SHARE) initiative, the results of which are publicly available. Reductions in emissions are monitored by yearly public reports. A transport incidents report is also produced.

As part of Responsible Care, the CEOs of the participating chemical companies certify in writing their compliance with the codes and are verified against that commitment. Approximately 69 companies were full participants in the program by the end of 1995. Once a company has attested to the belief that it is in compliance with the codes, it is verified by a team of public representatives and industry experts. The team undertakes a 3 day review of the company's operations and practices and interviews employees, neighbouring residents, contractors and customers. The report on this review is publicly available.

While approval by company leaders is a critical initiation of the Responsible Care program, one of the challenges facing the implementation of the codes is the ability to drive changes down to the local level. Education, training and effective communication are important in helping to achieve the application of the Responsible Care codes at the working level.

For workers the impacts of Responsible Care are related to health and safety in manufacturing plants, and include implications for training resulting from the manufacturing and transportation codes of the Responsible Care Program.

The Responsible Care initiative has undertaken a number of joint initiatives with other organizations to ensure improved safety of chemical production and handling. A training program has been developed in co-operation with the Canadian Association of Fire Chiefs for the first responders to an emergency. The CCPA is also a member of the Major Industrial Accidents Council of Canada, a broad based initiative of various industries, governments, and emergency responders that seeks to better prepare communities to handle accidents involving hazardous substances.

Results

One of the regular means of tracking the performance of Responsible Care is the Reducing Emissions report which is published annually by the CCPA. Emissions reporting is a condition of being a CCPA member. The report covers toxic substances, smog contributors, ozone depletants, water emissions and greenhouse gases. The annual reports also contain five year reduction projections based on the most recent data. The 1994 Reducing Emissions report shows that among CCPA reporting companies total emissions from facilities were 50 percent less than in 1992, despite higher production by the companies. The report indicated that emissions had declined significantly for known and possible carcinogens, VOC and NOx, CFCs and heavy metals into water. However, greenhouse gas emissions had risen by five percent between 1992 and 1994.

Responsible Care has proven to be applicable in other countries. The initiative has been adopted as a model in the chemical industry in some 39 countries around the world. In North America approximately 90 percent of industrial capacity is covered by the program.

Significance

The Responsible Care Program is an example of a voluntary initiative in the management of the environment and health and safety. The catalyst for this shift in cultural style by the chemical industry was the growing adverse public perception of chemicals and the chemical industry following a series of environmental accidents. Responsible Care uses peer pressure at the CEO level and external reporting and accountability to ensure actions are undertaken by companies to improve environmental performance. The self regulating aspect of the program encourages solutions to environmental problems that can be tailored to fit specific situations.

The initiative was originally conceived by industry and developed through a consultative process that included unions as well as a number of other interested parties. The initiative does represent a break with traditional management styles in the industry in relation to the environment.

The initiative still faces some challenges. The signatories to the Responsible Care codes include many, but not all, chemical companies. The latter are not members of the CCPA since adopting Responsible Care is a condition of CCPA membership. The challenge for the CCPA is to encourage other chemical companies to adopt the codes of practice under Responsible Care. The principal means to achieve this is through peer pressure rather than any specific penalties for non-compliance. An additional challenge is to increase the application of the codes at a working level in companies already signatory to the initiative.

Bayer Rubber Inc. and CEP Local 914

Background

The Bayer Rubber (formerly Polysar) plant at Sarnia in south western Ontario is just one of several chemical producers that make up the large “Chemical Valley” at the edge of the city. The plant annually produces 200,000 tonnes of four types of synthetic rubber of which 75 percent goes to the auto sector for the production of tires, inner tubes, hoses and bands.⁶ Fully 80 percent of production is exported, with the United States accounting for the lion’s share. The plant currently employs 1,300 people, both salaried and wage employees, who have an average age of 43. The Sarnia plant is organized by the Communications, Energy and Paperworkers Union (CEP) Local 914 and is one of Bayer’s five rubber facilities throughout North America.

The Bayer Rubber plant at Sarnia, like other chemical plants, is facing increased competitive pressure. This pressure arises through both external competition from other rubber companies and also from within the Bayer group of plants who compete among each other for investment dollars. Environmental costs are one element of this cost pressure that is pushing productivity improvements and technological change.

One result of these different pressures has been the steady decline in employment at the Sarnia facility over the last ten years. Between 1985 and 1995 the number of employees at Bayer fell from 2000 to 1300. The long term continuing decline has occurred despite the fact that the industry has been through a complete economic cycle in this period. The facility has not hired any new personnel since 1987. Some of this decline in employment has been accomplished through attrition, which averages approximately 9 people per quarter, (though this rate has fallen in recent times) but much has been the result of periodic adjustments in the size of the workforce.

The most recent of these adjustments occurred in November 1994. An adjustment package was negotiated with the CEP local that sought to encourage voluntary severance among differing age groups. The union was assured that no layoffs would occur but a number of different options were developed to encourage workers to leave voluntarily. Older workers, aged 55 and over were given early retirement options whereby they would be entitled to a fully purchased pension at 55 plus an additional \$10,000 lump sum. Other workers were provided with 2 weeks of pay per year of service up to a maximum of 86 weeks. Equally important, workers were given 60 days to exercise their option to accept the package. In the end 212 workers opted for voluntary severance or early retirement.

A further part of the adjustment was the reorganization of maintenance which included the decentralization of some personnel. The company sought to combine two trade groups — instrument engineers and electrical engineers — and cease fabricating some spare parts. The effect of these changes would have meant the loss of a further 85 jobs.

⁶ The four products of the plant are butadiene rubber; nitrile butadiene rubber, butyl rubber and halogenated butyl rubber.

After negotiation with the union a two year temporary agreement (i.e. outside of the collective agreement) was reached in January 1995 whereby the company agreed not to lay-off the 85 employees and the union agreed to some flexibility on union practices regarding trades and job classification. The two groups of trades workers were to be amalgamated and training was provided to workers in the areas in which they were deficient. The company developed a four year apprenticeship program for a control systems technician including one day per week during work time at on-site classes taught by instructors from nearby Lambton College. These education costs, including the wage costs are considerable but the company believes that it will provide for a better adapted and more productive workforce.

It is against this background of cost pressures and periodic adjustment that the importance of environmental issues should be viewed.

Environmental Pressures

The environmental pressures the Sarnia plant faces are mainly related to water quality. This includes reducing the use of toxic substances in production, improved treatment of water that is to be discharged into the St. Clair River and practices in monitoring, preventing and controlling spills into the river. The company is a member of the Responsible Care program of the Canadian Chemical Producers Association and has signed off on the codes of the program to reduce emissions and provide better management of chemical substances. Among such substances the company has used is a carcinogen, benzene. Bayer has been phasing out the use of benzene and replacing it with cyclo hexane.

Part of the problems the plant faces with respect to water emissions results from the older design of the plant which originated in Sarnia as part of the war effort in 1942. Most notable in this is that there are five major water emission points at the facility, as opposed to one central emission point in more modern facilities. In addition the facility, like many in the Sarnia area of similar vintage, is built close to the river, making it difficult to procure sufficient space to treat water in one location before discharge. Such a system would allow the facility to reap some economies of scale in treatment operations.

Through the early 1980s water spills into the St. Clair River were a problem for the facility, with between 20 to 45 water spills annually throughout this time. This heightened concern among the farmers and residents in the surrounding communities, for whom water quality is vitally important.

One example of the intersection of environmental and cost pressures is to be found in the area of energy costs and the nitrogen oxide (NOx) emissions that are generated in the production of steam and power. This is also a general concern among other chemical companies, and in 1993 a joint venture between the Sarnia plants of Dow, Nova and Bayer was agreed to. As is described in the next section the major impact on workers was felt at the Bayer plant.

Responses

The response to each of these types of environmental pressures has been different. Issues surrounding water quality have required capital expenditures, training and environmental awareness. Where a labour impact has been evident, as in the co-generation venture, the manner in which adjustment is handled is an important ingredient of how successfully the transition is made.

To address the problems of water quality and use, the company spent up to \$40 million between 1991 and 1994 on environmental measures and equipment. This included \$10 million on a sludge treatment facility, a further \$10 million on developing closed loop cooling together with a containment unit for the use of benzene, \$4 million on closed loop cooling for the isobutylene extraction unit and \$2 million on an outfall analyzer at 4 of the 5 outfalls on the site. The rest of the expenditure was due to a number of minor but environmentally benign improvements and new equipment. In addition a joint business-labour environment committee was established in 1990 to address the question of environmental performance at the site. The committee has been very active in improving the environmental performance of the facility. Originally the committee met on a monthly basis reflecting the priority of its work, but now its meetings are quarterly. However, the management and union co-chairs of the committee continue to meet on a weekly basis to discuss environmental concerns. Environmental awareness training was provided to workers to encourage better practices in the workplace in relation to the environment. A further impetus to greater responsibility for the environment was provided by the Ontario Ministry of Environment which decided in the late 1980s to charge employees for environmental accidents, rather than employers or the company. This has carried the environment issues directly to the place of operations. Two employees have been charged at the Sarnia site — in one case the employee was acquitted, in the other the case did not proceed to trial.

The company has improved its community role through a Community Advisory Panel composed of community, native, environmental and company representatives. The panel provides for an exchange of information and discussion of environmental questions including air and water monitoring, notification of accidents and spills, and remedial measures for affected parts of the St. Clair river system. Advice has also been provided by company personnel on water treatment in local municipalities. This has led to a better appreciation by company representatives of local concerns, particularly with water quality, and a greater degree of trust and comfort among local residents and farmers.

The joint venture between Dow, Bayer and Nova of 1993 was an attempt to reduce energy costs and NO_x emissions through the production of steam by co-generation. Energy would be produced mainly by Dow but also to a lesser extent by Bayer, and Nova would be the principal customer. Because of the vintage of the equipment at Bayer, the major labour impact of the co-generation deal was felt at this facility where three old boilers were closed down. In May 1993, the union was made aware of the impact of this joint venture on the 14 workers in the steam and power plant at Bayer. The company and the union then negotiated a package to avoid layoffs through shifting workers to other positions at the plant. The key issue was the pay classification, or rate code. Initially

workers shifted to other positions would be paid at their previous rate code for nine months and then the rate code would be lowered at intervals of six months until the pre-existing rate code for the position would be reached. Positions were open to the 14 workers which would otherwise have normally be closed to these workers. Finally, workers were offered a \$2,000 bonus if they remained at the steam and power plant until it was closed. This was designed to discourage workers at the steam and power plant from transferring to other positions that might become available while the steam plant was still operating.

Results

The Canadian chemical industry is increasingly being integrated into a North American context. One result is that investment decisions by the parent company are based on different parameters. At the same time greater integration has intensified competition and the pressure to keep costs contained, of which environmental issues are a significant portion. Part of the result of these pressures has in many cases been a stagnation of employment growth coupled with periodic adjustments within several companies. Jobs which used to be transferred from one generation to the next have disappeared and this can adversely effect morale within workplaces. One way to limit the damage of periodic adjustments may be to seek alternative means of transition to smaller employment levels rather than layoffs. Some chemical companies have closed whole divisions and the result on survivors' morale has been devastating. The examples of adjustments to the environmental and other pressures at Bayer demonstrate a willingness to negotiate change rather than unilaterally impose it. Although the workforce has declined by 700 people over 10 years, such reductions have been achieved by voluntary severance. Many of the packages have bought time for adjustment such as the 85 jobs in the maintenance department. While morale problems may still exist at the Bayer facility, the question is whether the approach at Bayer has a limiting effect on morale lost compared to other chemical companies.

Some evidence suggests that this is indeed the case. Labour relations are generally good. The last strike (which lasted only a few days) was in 1976 and there has not been a prolonged strike since 1959. The union and management are discussing a number of changes that would move the company towards a less hierarchical structure. Certainly the union believes that the good business-labour relations should be built upon further to encourage greater participation by both management and labour on a joint process of adjustment and continuous improvement.

In terms of the environment, the record of the company has improved on a number of fronts. The company was able to achieve a 73 percent reduction in emissions of benzene from 1989 to 1994 and is on track to eliminate benzene in use at the Sarnia plant by 1997. At the same time expenditures on water treatment have improved the quality of the water discharged into the St. Clair river. The record on spills into the river has also improved through greater employee awareness, joint environmental committees and proper awareness training. There have been no spills into the river in the last two years, compared to 20 to 45 spills in the 1980s. The work of the joint management union

environment committee has been scaled back, reflecting the improved environmental performance generally. Finally, the co-generation joint venture has significantly reduced energy costs at Bayer and resulted in up to a 30 percent reduction in NOx emissions. The latter is an example of how a company can address environmental issues in an era of competitive pressure and reduced workforces, and minimize the impact of adjustment at the same time.

Significance

The case shows how environmental issues can be addressed in an atmosphere of continuing pressure on costs. Some of these solutions have been technological, some achieved through collective bargaining and better practices. Training has been an important part of adjustment in response to the general climate of change that is affecting the facility.

The case also shows that despite the pressures on costs, proper consideration of adjustment concerns of workers can be addressed. The various agreements and packages negotiated on adjustment have given workers both some time and some options. In essence, the benefits of greater productivity in one area such as the co-generation joint venture can provide the means for a more considered adjustment process and one that permits the impact to be more evenly distributed.

Uniroyal Chemical Ltd. and USWA Local 13691

Background

The small Ontario town of Elmira, population 7,500, is the original site of Naugatuck Chemicals which was established as part of the war effort to produce synthetic rubber. Today the site is the head office and manufacturing plant of Uniroyal Chemical Ltd. — an international supplier of chemicals and chemical products. The Elmira plant is organized by the United Steelworkers of America (USWA) Local 13691 and produces a large selection of specialty chemicals, particularly crop protection chemicals and antioxidants. It employs 250 people together with a further 45 at research facilities in nearby Guelph. The value of its shipments is approximately \$150 million per annum of which 40 percent is exported to a large number of different countries through the marketing and distribution system of the parent company. The impact of the facility on the local economy is estimated to be \$30 million per year.

Environmental Pressures

Like many other chemical producers, the company has faced a number of environmental issues through the years but its primary concern has related to water quality. The Canagagigue Creek runs through the middle of the Uniroyal property in Elmira and is part of the Grand River system. It was the discovery of traces of N-nitrosodimethylamine (NDMA) in pre-treated wastewater entering the Elmira municipal sewage treatment plant and in treated water leaving that plant that has had a large impact on the company and its workforce and is mainly focused on here. NDMA has been classified by the International Agency for Research on Cancer as probably carcinogenic in humans. The other issues that the company has faced relate to contamination of groundwater and the soil that had been placed in containment pits in the late Sixties. The company has spent \$12.5 million on site cleanup from 1990 to 1994, taking a number of steps to remediate all three concerns. This represents approximately half of investment expenditures over this period.

It was later determined the presence of NDMA was due to the occurrence of two substances in the wastewater — dimethylamine and sodium nitrite — which were combining to produce NDMA. Following the detection of NDMA, the company immediately stopped using dimethylamine and removed it from the process tanks. In late December 1989 the Ontario Ministry of Environment issued a direction restricting Uniroyal's access to the Elmira sewage treatment plant. A further Ministry order in February 1990 meant that Uniroyal was not permitted to discharge into the water sewage treatment plant until September 1990. The average discharge of water to the sewage treatment plant was 150,000 gallons per day up until the time of the order.

The effect of the orders on the company was the shutdown of two processes in the plant. The process which used dimethylamine was closed in December 1989 and in March of 1990 the process for producing paraphenylenediamine was closed to eliminate sodium nitrite from wastewater. Both processes involved the direct employment of

approximately 40 people each, but the impact in terms of employment was more widely felt. As a result of the various process shutdowns employment fell from 230 to 120 among the unionized employees and from 50 to 40 among the salaried staff. As a result the union membership voiced the need for some formal protection in the collective agreement with respect to reporting any environmental concerns to government and others outside the company.

To compound the difficulties at the plant, both union and the company were preparing for negotiations on a new collective agreement. Although the issue of protection from environmental adjustments was a concern, it was only one of a number of issues facing the negotiators. Negotiations became stalled, primarily over issues of money, and an eight month strike ensued which was finally settled in January 1991. During this time the plant was operated by salaried staff.

Response

The shutdown and the strike represented the nadir for both union and management. From a business point of view much of the equipment remained idle and the company had to solve the environmental concerns surrounding water quality. From the union's perspective the lower workforce and an uncertain future were clearly undesirable.

The response by the company was an attempt to make itself less vulnerable to the type of problems that had occurred with the NDMA episode. In this regard internal environmental guidelines were established: to reduce the use of water from 1.2 million gallons per day to 400,000 gallons per day and to reduce water discharges from 150,000 to 40,000 gallons per day. In order to achieve this, current production processes would need to be modified and new products would be sought out that did not require large amounts of water in production. In essence the crisis prompted the company to reinvent itself and ask some fundamental questions as to what it produced and how it produced it.

The following are some specific examples of changes that were made at the Elmira facility.

- Expansion of production of anti-oxidants for motor oils. The manufacture of these has lower water demands than other chemicals previously manufactured.
- Development of a new process for the production of the anti-oxidants that uses even less water than previous methods.
- A change in the practice of using water for cooling. Multiple uses of water for cooling were achieved rather than to use cooling water only once before discharging it into the river as had been the previous practice. This made more efficient use of water for cooling and also contributed significantly to lower water discharges.

- Changes in simple practices such as cleaning floors by sweeping them rather than hosing them down also reduced the consumption and discharge of water.

Non-environmental capital expenditures were in the region of \$4 million per year; many of these changes involved some use of new technology. Taken together with the changing practices at the facility, a strong commitment to training was fostered. Computerization of many parts of the operations and administration also made training necessary. The Chemical Operator Apprenticeship program was developed and instituted at the Elmira plant. This has proven successful and was formally recognized by the Ontario Ministry of Skills Development.

Despite the strike, or maybe because of it, the union and management met regularly to discuss environmental problems, mainly on an informal basis. The crisis on both the union and management side had served to raise the awareness of workers and management on production methods and the environment. Both parties understood the importance of communications to respond to the challenges posed by the shutdowns.

In addition to eliminating both dimethylamine and sodium nitrite from its production processes, the company also supplemented its water pre-treatment process to destroy any NDMA already existing in the wastewater. The advanced oxidation process was responsible for reducing the amount of NDMA from 30 parts per billion to below 0.2 parts per billion.

Other areas of contamination in the groundwater and the soil were also addressed. Advanced oxidation and granular activated carbon processes were used to treat groundwater that was pumped to the surface before being discharged into the Canagagigue Creek. The containment and treatment system was put in place in 1992. The town of Elmira was taken off groundwater and the company paid the cost of a pipeline from St. Jacobs to Elmira.

The contaminated soil had been housed in two large pits under government supervision in 1969-70. It was believed that these pits were leaking and in 1993 the soil was removed and transferred to an above ground storage facility and containment site on the Uniroyal property. In all some 30,000 cu. metres was excavated and stored at a cost of \$4.5 million.

In 1994 the company and the Ontario Ministry of Environment and Energy reached an agreement on a plan to prevent any contaminated groundwater from entering Canagagigue Creek using an extraction well containment system. In July 1994 five extraction wells and eight monitoring wells were installed.

Community Involvement

The whole process of removing NDMA as well as the extensive environmental cleanup was monitored by a public advisory committee composed of representatives from the local community, the Grand River Conservation Authority, regional and municipal

governments and included two representatives from local environmental groups. Contact with the local community is also an integral component of the Responsible Care program developed by the Canadian Chemical Producers Association. There are regular surveys of local residents on a wide range of environmental matters from noise and traffic congestion to safety concerns and odours. Information packages to inform residents of conditions at the Uniroyal facility (including emissions) are also regularly produced. The Responsible Care program also calls for an emergency response team which has been established to deal with potential catastrophes at the Elmira facility. A 25 man fire brigade is also available at the plant.

Regulation Process

The experience of dealing with the NDMA detection and cleanup raised some important concerns by the company with the government process of environmental regulation. In particular, no standards had been established for the presence of NDMA until the chemical was detected. Elmira was the first instance in which the Ministry of Environment had detected NDMA, which meant there were no comparable situations. Indeed the Ministry order of February 1990 did not set a standard for parts per billion that the company had to meet. The target of 0.5 parts per billion was only established through the appeal process under the environmental legislation in Ontario. In addition, the measuring techniques of the Ministry of Environment were regarded by the company as erratic and unreliable — an opinion also expressed by others outside the company.

Results

The results of the crisis in late 1989 and 1990 on the company and the union were that:

- the company reinvented itself both in terms of what it produced and in terms of how it produced it;
- the company became more competitive and profitable and continues to receive its share of investment dollars from the parent company;
- production volume has increased by 15 percent;
- employment at the facility has become more secure — no layoffs have occurred since the end of the strike in early 1991;
- employment has increased from just under 200 employees in the depth of the crisis to 250;
- equally importantly, the labour relations climate has improved dramatically and the 1992 collective agreement was negotiated ahead of time.

Some of the changes that were incorporated at Uniroyal have also been adopted in other companies. The chemical operator apprenticeship program developed by Uniroyal is now also the model for similar programs in other chemical companies.

Despite the increased production, air emissions were reduced by 22 percent in 1994 and water discharges were down to 20,000 gallons per day from 150,000 gallons in 1989. The workplace environment committee has greatly increased the awareness of such issues at the shop floor. The community advisory committee has also instilled greater communication and trust between local residents, municipalities and the company.

Significance

The case vividly demonstrates the impact that unanticipated changes can have on an operation. The discovery of trace elements of NDMA closed two production processes and led to employment losses. Despite the concerns that Uniroyal had at the time over the process of government regulation, however, the case also shows that at points of crisis both labour and management may seek their common interest in the survival of the facility. In particular the case shows how a company can turn a crisis situation into one that enables a renewal of both the company and its workforce. Both union and management have worked together to ensure that environmental performance is improved through a combination of improved workplace practices, training and capital investment.

Recommendations

Recommendation #1

We recommend that business and labour enhance existing processes to address environmental issues and impacts and devise effective solutions to environmental concerns. Sufficient information should be made available to the joint process for this purpose. The issues to be addressed include:

- i) the environmental risks and impacts of handling certain substances in the workplace;*
- ii) the environmental risks and consequences of certain workplace practices;*
- iii) more environmentally benign workplace practices that can be accomplished without large capital investments; and*
- iv) limitations on the exposure of workers to toxic substances over their working life.*

Recommendation #2

We recommend that the information placed before the joint business labour process should be as much as possible based upon sound scientific data. The joint process will attempt to minimize the risk of industrial activity given the best ability to do so through the proper use of the precautionary principle: where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost effective measures to prevent environmental degradation.

Recommendation #3

We recommend that, in addressing significant and discontinuous change that includes but also extends beyond environmental concerns, business and labour should extend joint workplace processes. The purpose would be to assess fully the implications of change and devise solutions that would remove the fear and uncertainty of change. Such discussions would respect the confidentiality and proprietary concerns of companies vis-à-vis their competitors and could include the following areas:

- i) significant changes in production technology;*
- ii) training needs and required skills; and*
- iii) job implications of changes.*

Recommendation #4

We recommend that business and labour devise workplace solutions to facilitate adjustment and ensure that the costs of change are distributed across different parties.

Recommendation #5

We recommend that government, with business and labour support and in consultation with other stakeholders should develop land use plans for resource sectors that are developed with a long term view based on sustainable development principles. Such plans should be clear and precise. They should provide for the sustainable development of the resource and include assessment of the social, economic and community impacts as well as environmental concerns. They need to provide certainty of access for both industrial and other users.

Recommendation #6

We recommend that business and labour establish adjustment measures which go beyond a single workplace. Such adjustment measures should be designed to facilitate the transition for workers between environmentally obsolete jobs and new opportunities created. Such adjustment packages could include the following options:

- i) education/training allowances;***
- ii) counselling; and***
- iii) mobility assistance.***

Recommendation #7

We recommend that business and labour expand and improve training programs within and across different workplaces. These programs can be used as a complement to public education but would address the following types of skill requirements:

- i) computer skills;***
- ii) environmental technology skills;***
- iii) environmental auditing and management skills; and***
- iv) environmental planning.***

Recommendation #8

We recommend that business and labour carry out assessments of the changes in skill requirements and trade classification necessary to meet expanding environmental concerns. Such assessment would include the tasks of front line workers and environmental management.

Recommendation #9

We recommend that business and labour examine existing access to training programs across different workplaces and develop delivery and design mechanisms that ensure there are no systemic barriers to access.

Recommendation #10

We recommend that business and labour jointly define information needs regarding economic and environmental trends in particular sectors and suggest ways to improve the collection, presentation and dissemination of information on these trends.

Recommendation #11

We recommend that existing sectoral organizations should provide leadership and actively encourage participation by all relevant companies and unions in sectoral approaches. The methods to achieve this would include peer pressure by existing members and the collection and dissemination of successful case responses to environment pressures.

Recommendation #12

We recommend that full consultative processes be adopted which provide information exchange and communication between community groups and business and labour regarding environmental issues at the community level.

Recommendation #13

We recommend that business, labour and government provide support and leadership for community economic plans and ensure that they are consistent with long term sustainable development in the sector on which the community depends.

Recommendation #14

We recommend that governments, with guidance from both business and labour, support the documentation and promotion of good practices that integrate economic and environmental concerns.

Recommendation #15

We recommend that governments seek to establish a regulatory framework that provides clarity, certainty and uniformity in the application of environmental regulations.

Recommendation #16

We recommend that governments, in consultation with business and labour, review and improve their processes related to environmental impact assessments for resource projects and approvals process for new chemicals without compromising safety or health standards.