



What's in it for me?

Exploring Natural Capital Incentives

Karen Wilkie, Policy Analyst

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Executive Summary

Environmental public policy plays an important role in protecting human health, quality of life, and natural ecosystems from adverse emissions, pollutants, and activities. To date, regulations have dominated environmental public policy and have been at least somewhat successful in achieving positive environmental outcomes. However, as issues and concerns evolve, regulations alone may not be the most effective or cost-efficient approach. As a result, attention is turning to alternatives such as incentive-based environmental policy instruments. These instruments are viewed favourably because they offer potential cost savings, increased effectiveness in addressing specific environmental issues, greater flexibility, and encourage innovation and continual improvement. Despite their potential, incentives remain an underutilized public policy tool in western Canada.

This report draws attention to the use of incentives to enhance investment in natural capital. More specifically, it examines the rationale for using incentives, explores the range of incentives available, and provides a set of public policy recommendations regarding the design, use, and implementation of incentives. The types of incentives examined include regulatory, economic and market-based, information-based, and voluntary.

Using local, national, and international examples, practical lessons and common themes of successful incentive initiatives are identified. In addition, three in-depth case studies are included: 1) *Transfer of Development Rights: A Tool for Agriculture and Natural Area Conservation*; 2) *Building Green in Western Canada: Incentive Programs for Commercial, Industrial, Institutional, and Residential Buildings*; and 3) *Clean Air Strategic Alliance Flaring Agreement: A Multi-Stakeholder Approach to Negotiated Environmental Agreements*. Based on these examples and case studies, common themes are identified that form the foundation of successful natural capital incentives. These themes should be considered guiding principles in the design and implementation of natural capital incentives:

Complementarity and straightforwardness. Incentives should work to complement, build on, and go beyond the current regulatory framework. Incentives need to be simple, understandable, and user friendly.

Flexibility and innovation. Incentives should allow for flexibility in how environmental goals and targets are achieved. Flexibility stimulates the design and implementation of innovative solutions and encourages continuous improvement.

Efficiency and effectiveness. Incentives should provide a least-cost option to achieve environmental objectives and should encourage faster and more proactive responses to environmental issues. Incentives must be effective at achieving goals and targets and should not produce negative or perverse effects on the environment or the economy.

Measurement, monitoring, and verification. Performance data can be used to demonstrate the efficiency and effectiveness of incentives. Third party verification adds credibility and reliability to measurement and monitoring, and should be incorporated into incentives.

Participation, collaboration, and cooperation. Incentives should integrate stakeholder participation. A participatory approach encourages cooperation among industry, governments, and non-government organizations in the design and implementation of incentives.

Communication, education, and promotion. The advantages of incentives need to be promoted to build stakeholder awareness and support.

Recognition and reward. Incentives should be designed to recognize and reward exemplary efforts to encourage continual improvement and to initiate stakeholder competitiveness.

In general, natural capital incentives remain an underutilized public policy tool that has vast potential to improve environmental performance and economic outcomes. To advance acceptance and implementation of incentives, the following recommendations are put forward:

Increase awareness through promotion, education, and outreach. The advantages of incentives need to be promoted to governments, industry, non-government organizations, and the general public. Education and outreach will help to raise awareness and can help to build support for incentive initiatives.

Measure and monitor existing incentive initiatives. The economic and environmental costs and benefits of existing initiatives need to be better understood.

Start small and build big. To overcome the lack of experience, pilot projects or small initiatives should be undertaken first.

Conduct further research and analysis. Further research needs to be undertaken to develop a framework to evaluate which incentives work well together and which ones do not.

Continue to learn from others. Research and analysis of incentive initiatives from other jurisdictions should continue. This provides valuable information that can highlight potential barriers, opportunities, and practical lessons for western Canada.

Overall, incentives have great potential to enhance investment in natural capital. Nevertheless, incentives are not “one-size-fits-all solutions” and must be evaluated on a case-by-case basis. Also, incentives are just one tool in the policy mix and should not be seen as the sole means to achieve environmental objectives. Keeping these points in mind, natural capital incentives are powerful tools and it is likely that the role of incentives will strengthen as environmental public policy continues to evolve.

1. Introduction

Environmental public policy in Canada gained momentum in the late 1960s when concern for specific issues began to arise. This movement continued and regulations were put in place in the 1970s and 1980s to address specific issues such as industrial emissions, the use of chemicals, transportation of toxic substances, waste disposal, and wastewater effluent. Often the regulations were piecemeal, and surfaced as public health and safety concerns were raised over a particular issue.

The regulatory approach is based on a system of rules and controls, monitoring and enforcement, and penalties for not complying with the legislated performance level. Regulations determine technologies to be used, set limits on the amounts of pollutants released (e.g., emissions from a smokestack), and stipulate the amount of resources that can be extracted (e.g., timber harvests).

Regulations tend to be “end-of-pipe” solutions that focus on the end of the process (e.g., pollution), rather than influencing greater systemic change in overall operations or behaviour. The regulatory approach is often called “command-and-control,” and is criticized for its rigidity, inefficiency, lack of innovation, and failure to use incentives to go beyond regulated performance levels.

It is important to note that, in some cases, command-and-control approaches are the most appropriate and effective instruments for achieving environmental objectives. They provide certainty and can reduce risk associated with specific activities and outcomes (e.g., human safety). However, in other cases there may be opportunities to move beyond the exclusive use of command-and-control approaches. Alternative policy options are gaining interest because of the potential cost savings, greater flexibility, and innovative approaches to address the complexity of environmental issues. A growing number of stakeholders are interested in alternative policy options that build upon, yet go beyond, the existing regulatory framework.

Incentive-based instruments are an option that is gaining attention. Recent Canada West Foundation research on natural capital, residential land use and the environment, and water and economic growth reveals that stakeholders from the business sector (natural resources, manufacturing, agriculture, forestry, etc.), government (federal, provincial, and municipal), and nonprofit interest groups feel strongly that there are limitations to what the current regulatory approach can achieve. These same stakeholders identified incentives as potential instruments to encourage more sustainable land and water use practices. Overall, the potential role of incentives for enhancing natural capital has been a dominant and recurring theme that has emerged from extensive consultation on various natural capital topics.

As greater attention is given to the role of alternative environmental policy options, the time is ripe to explore how incentive-based instruments and initiatives could improve upon the existing regulatory system and encourage greater investment in natural capital assets in urban, working, and wild landscapes throughout western Canada.

What's in it for me? is part of the *Natural Capital Incentives Initiative* and a component of the on-going *Natural Capital Project*. The *Natural Capital Incentives Initiative* explores the case for incentives, the range of options available, and aims to advance the debate surrounding the use of incentives to enhance investment, protection, and stewardship of western Canada's natural capital assets. Specifically, the report:

- examines the rationale for using incentives to encourage greater investment in natural capital;
- explores the range of natural capital incentives available;
- uses western Canadian and other examples as a basis for outlining practical lessons regarding the use of natural capital incentives; and
- provides a set of public policy recommendations regarding the design, use, and implementation of natural capital incentives.

In general, this report aims to provide a broad overview of natural capital incentives, to highlight their advantages and disadvantages, and to draw attention to their potential application in western Canada. This report is intended to provide accessible information to

The Natural Capital Project

Natural capital includes the land and water resources that anchor our quality of life and support economic activity such as agriculture, forestry, tourism and recreation. It also includes resources such as minerals, timber, and oil and gas as well as the living ecosystems—grasslands, wetlands, oceans, and forests—that produce extremely valuable ecological goods and services (e.g., water filtration and nutrient production in soils).

The Canada West Foundation's **Natural Capital Project** is designed to draw attention to the importance of natural capital and argues for greater recognition of natural capital in public policy discussions in western Canada. The project promotes the need to strike a better public policy balance between short-term economic growth and long-term investment in natural capital. Striking this balance is essential for the prosperity of the West. More information on the **Natural Capital Project** is available from the Canada West Foundation website (www.cwf.ca).

a broad audience, which includes policy-makers, the public, and other interested stakeholders. Overall, this report aims to increase awareness of natural capital incentives and to stimulate debate on their potential role in western Canada's environmental public policy.

The report provides an overview of natural capital incentives, discusses three case studies, and recommends ways for moving forward. The first section compiles existing information and provides a general overview of the types of natural capital incentives and the advantages and potential disadvantages of individual instruments. The second section illustrates how incentives can be implemented using three case studies. The case studies are used to draw attention to successful models of incentives initiatives. The third section outlines general recommendations for the design and implementation of natural capital incentives.

2. Overview of Natural Capital Incentives

2.1 Exploring Incentives

Natural capital incentives are not clearly defined. In fact, the meaning of incentives varies as groups and individuals define and classify them differently. The Canada West Foundation defines incentives as policy instruments designed to encourage greater investment in natural capital through motivation and reward rather than top-down government coercion. Similar to regulation, achieving environmental goals and targets is the end goal, but the means of achieving these goals are very different.

Since the 1990s, interest—both in North America and internationally—is turning to how incentives can be used to achieve higher levels of environmental performance. More recently, the role of incentives in achieving ecosystem protection and stewardship has been receiving significant attention.

In general, incentives are gaining support and are viewed as attractive alternatives or complements to regulatory approaches. It is argued that the current cost of regulatory compliance and enforcement is substantial and that the ability of governments to implement and enforce regulations has been hindered by reduced capacity. As a result, the ability of the regulatory system alone to address the growing complexity of environmental issues has been called into question.

Incentives are considered to be a favourable alternative for a number of reasons, which include: the potential cost savings, increased effectiveness in addressing the depth of environmental issues, greater flexibility that allows organizations to be innovative in how they achieve set targets and objectives, and increased adaptability that would enable faster and more proactive responses to changing issues, and would enable greater systemic change and encourage continual improvement. The rationale for the use of incentives is strong and will be explored and challenged in more detail throughout the report.

Natural capital incentives may be designed either to encourage desired levels of environmental performance or discourage unwanted environmental behaviour and practices. Positive incentives can include tax breaks, low interest loans, and recognition and reward programs. At the opposite end of the spectrum, fines or charges, fees and penalties, legal liabilities, and negative publicity all discourage undesirable practices. For example, if improving urban air quality is the goal, a positive incentive would be to offer discount prices on transit passes or free parking at transit stations. An example of a negative incentive would be to increase parking fees in downtown areas or charge vehicles a surcharge to enter the inner city.

Incentives can and have been used to address a number of environmental issues such as pollution prevention, industrial site clean-up, preservation of agricultural land, ecosystem protection and stewardship, consumer product waste management, municipal wastewater treatment, energy efficiency, air emissions, and alternative transportation. They have also been used to stimulate the development of new technology, support education and training programs, and increase investment in research and development. Natural capital incentives have been gaining ground in Europe and the United States, and there are many lessons to be learned from their experiences. Although Canada does have some experience with the use of incentives to achieve environmental objectives, it is limited in comparison to other countries.

The following discussion of incentives draws largely on information gathered and analyzed from the vast pool of existing literature on the subject, and uses examples from within Canada and other jurisdictions to illustrate the diversity of incentive-based instruments and initiatives.

2.2. Inventory of Incentives

Natural capital incentives are diverse and range from formal government programs to independent and voluntary industry-led initiatives. This diversity is an important point of emphasis because often incentives are considered synonymous with government subsidies. Government subsidies represent a specific type of incentive, but not the full range of options. This report uses a broad definition of incentives in order to capture and illustrate the range of instruments that have the potential to enhance natural capital in western Canada.

Four main categories of incentives are discussed in this report: 1) regulatory; 2) economic and market-based; 3) information-based; and 4) voluntary initiatives. Some of these may not spring to mind when thinking about incentives, but each category has the potential to contribute to natural capital investment. Figure 1 illustrates the relationship between the four types of natural capital incentives and government coercion. This figure highlights an important point—the role of government differs depending on the type of natural capital incentive.

Figure 1: Natural Capital Incentives and Government Coercion



Natural capital incentives can also differ based on the underlying drivers (e.g., company reputation, economic savings, or a desire to innovate), means of implementation (e.g., tax tools or eco-labels), and desired outcomes (e.g., wetland conservation or waste reduction). The four main categories of natural capital incentives will be explored further to identify what they are, how they work, their advantages and disadvantages, and the potential opportunities they present.

2.3 Regulatory Incentives

Regulatory incentives are measures that encourage regulated individuals, industries, and organizations to go beyond compliance by reducing the regulatory burden and risk for those that demonstrate high levels of environmental performance and investment in natural capital. This approach recognizes that reward and recognition are important elements of encouraging performance above and beyond compliance levels.

Regulatory incentives can use both positive and negative means to encourage performance beyond basic compliance. Positive measures include streamlined permitting and/or reporting requirements, reduced number of inspections, technical assistance on designs and applications, and prioritized applications that allow exemplary performers to “jump the queue” for review and approval. Box 1 illustrates an example of positive regulatory incentives.

Negative measures, or the probability of negative measures, can also be used to encourage performance beyond basic compliance levels. For example, the prospect of new regulations can offer incentives to affected industries and organizations to comply voluntarily with higher-level targets or objectives in order to maintain regulatory certainty and to avoid additional regulation. This type of incentive is explored further in an in-depth review of the Clean Air Strategic Alliance (CASA) flaring project (see page 28).

Regulatory incentives have the potential to motivate change because they directly affect the bottom line. The costs of obtaining licenses and permits and meeting compliance requirements are hefty, and the time and staff resources required are increasingly burdensome for some organizations. Regulatory incentives offer companies the ability to choose between maintaining the status quo or increasing performance above and beyond compliance in order to achieve the benefits of recognition and regulatory relief.

In terms of drawbacks, the commitment of government and the resources required to administer regulatory incentives could limit their potential. Although regulatory incentives do not necessarily require statutory change, institutional change (attitudes and operations) will be required. This is not to say that change will not happen, but it may be a lengthy process. Additionally, to gain buy-in and support for these initiatives, stakeholder participation and consultation will likely be necessary components. Stakeholder participation will strengthen the process, but will require additional resources from government.

In general, regulatory incentives are motivating factors for stakeholders to achieve higher levels of performance. However, these incentives should focus on adding flexibility and certainty to the existing regulatory framework and should avoid the removal or relaxation of existing regulations. Based on the US experiences, the relaxation of regulations is often controversial, tends to lack public (thus political) support, and can be costly to implement. Hence, the key component of regulatory incentives is to add flexibility to the existing regulatory structure, and reward those who have made the efforts to go above and beyond compliance and invest in natural capital.

Box 1: Regulatory Incentive: Performance Track Program

In June 2000, the United States Environmental Protection Agency (EPA) launched the National Environmental Performance Track Program, which is designed to recognize and reward the top environmental performers—those who go beyond compliance and achieve environmental performance and management that provides greater benefit to people, communities, and the environment.

The Performance Track Program is a voluntary program that provides regulatory incentives as a form of reward for qualifying facilities. The EPA uses a set of evaluation criteria to accept or to remove facilities from the program. These include: implementation of an environmental management system; demonstration of environmental achievements; engagement of the public; completion of environmental performance reports; and a record of sustained compliance with regulations. Currently, there are 328 facilities in the program, each with a membership granted for a period of three years.

Once a facility is awarded membership, it is eligible for a number of the Performance Track incentives, exclusive to members. These include:

- low priority for routine EPA inspections;
- reduced reporting frequency for member facilities—e.g., semi-annual reports can be submitted annually; and
- flexible permits—e.g., provide provisions that enable advance modifications without requiring additional permits.

The incentives offered under the Performance Track Program are two-fold: 1) reward those facilities that have exceptional levels of environmental performance and management; and 2) encourage those that have par or sub-par performance levels to achieve higher standards, qualify for membership in the program, and capitalize on the exclusive member benefits.

The EPA believes that this program will continue to grow and be successful because the incentives, such as public recognition and regulatory relief, ultimately affect the bottom line. This program promotes the idea that a high level of environmental performance is good for the environment and for business.

More information is available from the EPA website at: <http://www.epa.gov/performancetrack/index.htm>.

2.4 Economic and Market-Based Incentives

Economic incentives are measures that operate through market processes or other financial instruments to motivate desired types of decision-making and behaviour (Stratos 2003). Although they are largely grounded in the regulatory system, economic incentives offer an alternative, complementary approach that aims to achieve a desired level of environmental protection at least cost to society (Harlan 2000).

The use of economic incentives to achieve environmental objectives was largely unheard of twenty years ago (James 1997). Since then, their use has increased steadily and they have been applied in the areas of pollution control, natural resource management (water, minerals, agricultural land, forestry, and fisheries), natural areas management (parks and protected areas), and, more recently, natural ecosystems and biodiversity protection (species, habitat, and ecosystem services). Economic incentives have been applied broadly in Europe and are increasing in the United States. The Organization for Economic Co-operation and Development (OECD) noted that Canada has utilized economic instruments, but our experience is limited and lags behind most other OECD countries.

Economic incentives are diverse and can include both positive financial instruments (e.g., rewards) to encourage desired behaviours and negative financial instruments (e.g., costs) to discourage unwanted behaviour. For example, a company may continue to release X amount of emissions, but pay a price to do so. Or the company could reduce their emissions to a specified level and receive tax credits as rewards for their improvements.

Box 2: Examples of Environmental Levies and Fees in British Columbia and Alberta

A new program launched in British Columbia provides an example of an environmental levy. In this case, levies have been introduced and will be applied to the purchase of new pneumatic tires and lead-acid batteries to help cover the costs associated with recycling and waste management. A three dollar levy will be placed on each new tire and a five dollar levy will be applied to the purchase of lead-acid batteries over two kilograms. The revenue generated will be used to finance the province's Sustainable Environment Fund that supports programs aimed to safely collect, dispose, and recycle these products. Tire programs are also in place in Alberta and Saskatchewan.

More information is available at the Government of British Columbia's website (www.rev.gov.bc.ca)

In 2004, Alberta implemented Canada's first provincial electronic recycling program that targets products such as televisions, VCRs, stereos, and computers. The goal of this program is to reduce the amount of electronic waste ending up in landfills. Electronics contain hazardous materials such as lead and mercury that can contaminate soils and groundwater resources. Electronic equipment will be collected, recycled, and used in the production of new products. The recycling program is coupled with an environmental fee that has been added to the purchase of new electronics beginning February 2005. This non-refundable fee will be used to fund the collection, transportation, processing, and operational costs associated with the program.

More information is available at the Government of Alberta's website (www3.gov.ab.ca/env/waste/wastenot/dao.html).

These examples illustrate how charge systems could be viewed as just another tax or fee placed on the consumer. The consumer has little input into the design of products or the materials they contain. By only targeting the consumer, there is no incentive for the producer to modify their products and lessen environmental effects. However, there are policy options that aim to expand the environmental responsibility of producers to include the waste management of products after they are no longer useful. This is called extended producer responsibility and is explored further in the Deposit-Refund Systems section on page 8.

In discussions of natural capital incentives, economic instruments tend to dominate. There are a wide variety of instruments in place that aim to achieve a diverse set of desired environmental objectives. Although economic incentives are well documented in the literature, a standardized classification has yet to be developed. For this report, four categories will be used to describe the main types of economic incentives: 1) charge systems; 2) deposit-refund systems; 3) market creation; and 4) positive financial instruments (including subsidies).

Charge Systems

Charge systems are based on the polluter pays principle or the user pays principle. This type of economic instrument includes the use of charges, fees, taxes, or environmental levies that can be applied to pollution, products, ecosystem degradation, entrance to parks and protected areas, road access, agricultural lease land, consumption of products (e.g., gas tax), and waste disposal. Taxes, charges, and fees are the most prevalent form of economic incentives that are currently being applied (USEPA 2004).

The main advantage of charge systems is that explicit costs are directly attached to activities that negatively affect natural capital. The producers and/or the users of specific products or activities are required to pay a fee for each unit of pollution or negative effect. This enables external environmental costs to be covered by individuals and companies rather than society as a whole. Charge systems are negative economic incentives that help ensure that hidden environment costs are covered and are not passed on to others. Two examples are outlined in Box 2.

Charge systems have been successful in some cases. However, in other cases there are concerns that environmental fees may not be high enough to motivate change. For example, Ontario implemented a Tax on Fuel Conservation on the purchase of new cars. This initiative applies a tax based on the fuel efficiency rating of the car and rebates are available for those who purchase fuel-efficient cars. However, the average tax rate that is applied is approximately \$75 and the rebate is only \$100 per new car purchase. This is a step in the right direction, but when you consider the total cost of a new vehicle, both the tax and the rebate are relatively minor and may not influence purchase decisions.

Charge systems have achieved notable success in reducing the amount of unwanted products from entering landfills. As well, this approach is recognized for assigning responsibility to the producer or the user for environmental costs that were previously unaccounted for. However, there are concerns that this approach does not guarantee that environmental objectives will be achieved. Inability to meet environmental objectives could result from relatively low charges that do not motivate change or the acceptance of additional costs by individuals or organizations. Additionally, there are concerns over fairness and competitiveness—some individuals, organizations, or companies may be in a better position to cover additional costs. Small- and medium-sized organizations may not have the financial ability to cover new fees or taxes and still remain competitive. Plus, the revenue generated by charge systems needs to be thought through. It is likely more politically acceptable for these revenues to fund related environmental initiatives than it is for the money to go into general government revenue.

Deposit-Refund Systems

Deposit-refund systems involve the collection of a monetary deposit at the time of sale, which is given back once the product has been used and returned for recycling and/or safe disposal. The core goal of deposit-refund systems is waste management—to keep recyclable material from entering landfills or to ensure proper disposal of specific products. In many countries, deposit-refund systems were first applied to beverage containers with the hopes that this would reduce litter (USEPA 2004). These programs have expanded to include products such as lead-acid batteries, pesticide containers, tires, automobile bodies (see Box 3), and used oil.

Extended producer responsibility (EPR) goes beyond deposit-refund systems. EPR requires producers to be either financially or physically responsible for their products after they are no longer useful. This extends responsibility to include the entire life cycle of the product. This means that the producer must take back their products and physically manage the recycling and reuse of parts and final disposal. Alternatively, producers can have a third party organization collect, recycle and dispose of the end products, at the producers' expense (Hanisch 2000). EPR represents a fundamental shift in waste management (from consumers and society to the producer who made the product) and provides an incentive for producers to integrate environmental considerations throughout the life cycle of products—from design and production to use and disposal. For example, under EPR producers have an incentive to reduce materials and increase the recyclable content of the products they manufacture. By doing so, they can make upstream changes that will reduce the costs of recycling and disposal at the end life of the product. EPR and take-back legislation have become successful waste management policies in Europe and some Asian countries (Hanisch 2000); however, the concept has been slow to catch on in North America. EPR can be combined with deposit-refund systems to provide an incentive for consumers properly to dispose of products after use.

Additionally, performance bonds can be used as a type of deposit-refund system. In this case, a company involved in the extraction of a natural resource (e.g., oil and gas) pays a fee to government as part of the approval process for operations. This fee is held as a bond and is returned if the company meets specific performance objectives, such as land reclamation. This provides two levels of economic incentives to the company: 1) performance must comply with specified targets in order to get their money back; and 2) a

Box 3: Automobile Deposit-Refund Systems

Deposit-refund systems for automobile bodies have been developed in Norway, Sweden, and Greece (USEPA 2004). These programs require a mandatory deposit on new cars, which is used to finance refund payments to owners who return old cars to authorized scrap dealers. In Sweden, the deposit-refund system was initiated in 1975 to provide an incentive to dispose properly of end-of-life vehicles. In 1992, the program introduced a differential deposit-refund based on the age of the car in order to encourage the scrapping of older cars with less environmental controls. Although this program had a high rate of return, it did not provide an incentive for change further upstream—how cars are designed, the materials used, recyclable and reusable content—and end of life remained the responsibility of the consumer and society in general.

In 1997, Sweden introduced an Ordinance on Producer Responsibility, which transfers the responsibility for recycling, reuse, and disposal of end-of-life products to the producer. Sweden's move toward extended producer responsibility has been implemented for a number of products, including vehicles.

More information is available from the Swedish Environmental Protection Agency (<http://www.internat.naturvardsverket.se/index.php3?main=/documents/issues/prodresp/prodresp.htm>).

company could jeopardize future operations if they do not meet the requirements of the bond. This type of deposit-refund system has been utilized in countries such as China, Indonesia and the Philippines and there could also be opportunities to implement similar programs in western Canada. For example, if a company has a less than perfect track record, a performance bond could be required prior to permits and licenses being issued. This could be a powerful tool, especially when used in combination with regulatory incentives.

Deposit-refund systems are a type of economic incentive that does not have to rely on governments to implement and administer the program. The private sector can set up and implement independent programs, although some sort of government support will likely be needed. These initiatives have been successful for some products, but the administrative costs tend to be high and thus further expansion of deposit-refund systems may be limited. Expansion may also be limited by the inability of this incentive to achieve environmental objectives. Traditional deposit-refund systems continue to place responsibility on the consumer, municipalities and the general taxpayer. But this approach does not necessarily reduce consumption or the amount of waste produced. There are opportunities to expand EPR, for a variety of products, in western Canada and these opportunities need to be looked at further.

Market Creation

Markets created to achieve environmental objectives are often considered to be the most cost-effective instrument. The two most utilized market measures are the creation of tradable permits and the establishment of tradable resource rights. Tradable permits have focused on pollution control and are based on two different frameworks: 1) cap and trade; and 2) credit, uncapped system. Tradable pollution permits have targeted air emissions, water quality (e.g., nutrient trading), and fuel efficiency.

Cap and trade market systems set a regulatory cap on the total maximum amount and/or quality of a pollutant that can be released. In this system, government sets the cap and then an individual company or organization is granted a pollution permit equal to the pollution cap. The organization or company then has the choice either to upgrade technology and facilities to meet the cap level or they can purchase additional credits (permits) from the market—whichever is the most cost-efficient. Under this system, the least cost polluters will likely achieve the greatest improvements since they can reduce pollution at a relatively lower

Box 4: US Acid Rain Program and Long Island Sound Nutrient Credit Trading Program

In 1990, amendments were made to the United States Clean Air Act that called for electricity utility generators to achieve a 50% reduction in both sulphur dioxide and nitrogen oxides from their 1980 levels. This amendment, commonly known as the United States Acid Rain Program, aimed to achieve the sulphur dioxide reductions entirely by marketable emissions trading permits. This cap and trade approach set an emissions limit, distributed allowances or permits to individual generators in the amount equal to this limit, and implemented a system where individual generators can trade permits with other parties or can bank them for use in future years.

This program has become a model for the design of other cap and trade systems and is recognized at the international level for its environmental and economic success in reducing emissions. More information is available at USEPA website (<http://www.epa.gov/airmarkets/index.html>).

In 2001, the states of Connecticut and New York, along with the federal Environmental Protection Agency, initiated the Long Island Sound Nitrogen Credit Trading Program to address water quality concerns in the Sound. This program is a cap and trade system that targets the nutrient loads of publicly owned wastewater treatment facilities within the watershed. A cap was set (based on total maximum daily loadings) and reduction targets for each facility were established.

A watershed-based market for permit trading was created to enable the buying and selling of nitrogen credits among different facilities. Market credits (one per pound of nitrogen) are granted based on the amount of nitrogen reduced below the target level. For example, if a facility reduces its nitrogen load by 200 pounds, but it was only required to lower it by 150 pounds, then 50 nitrogen credits would be unused. These credits could then be sold to other facilities in lieu of providing additional treatment and reductions. The cost savings are projected to be \$200 million less than the costs of a traditional command-and-control system to achieve the same targets (Kieser and Fang 2004).

This program was the first of its kind in the United States and serves as a model for water quality trading. More specifically, it illustrates the success of a flexible, cost-effective approach that can also meet water quality targets. More information is available on the State of Connecticut's website (<http://www.dep.state.ct.us/wtr/lis/nitrocntr/nitoinde.htm>).

cost. This system enables a company to sell unused pollution permits on the market to other companies that were unable to achieve cap levels through internal improvements—this is a key cost minimizing factor. There are several successful cap and trade models currently in place in North America (see Box 4).

Credit systems, on the other hand, do not operate with an established limit (cap) on the total amount or quality of pollution released. Therefore, this open-market system does not ensure that environmental objectives will be met. If new users enter the market or if existing users increase production, then pollution may actually increase.

In contrast, cap and trade systems aim to achieve a specific environmental target and provide certainty that this target will be met. This approach also provides a win-win scenario for both the buyers and the sellers. The creation of markets and tradable allowances enables innovative companies to reduce their pollution and then sell their tradable permits to another company. These companies can purchase additional pollution credits at a cheaper price than it would cost to upgrade technologies or facilities to reach compliance levels.

Tradable permits create a flexible, performance-based approach that encourages innovation and more cost-effective, win-win solutions. However, there are potential drawbacks, which could include high transaction costs and inactive markets (USEPA 2004). The administration costs associated with verifying pollution reductions, determining tradable allowances, and monitoring

the markets can quickly add up. Also, if a market becomes inactive, creating a thin market where no one is buying or selling, the market price may not reflect the true cost of abatement. And thus, the seller may not recapture the true cost of the pollution permit (credit) that they are selling. Essentially, an inactive market could remove the incentive to participate in the trading system.

Tradable resource rights are the other form of market creation that can be utilized to achieve environmental objectives. In this case, a market is created in which the rights to use water or land can, in whole or in part, be bought and sold. Tradable resource rights have had greatest application in water rights and allocations trading (e.g., the Murray-Darling Basin in Australia, and the South Saskatchewan River Basin in Alberta). Also, the transfer or trade of development rights has been used widely throughout the United States to protect lands of high agricultural value, cultural heritage, and historic or ecological importance. Development rights are bought and sold on a market—rights are sold from lands to be protected and bought by lands to be developed. Development rights can only be used in specific areas, designated for residential, commercial, industrial, or recreation development. The advantages and disadvantages of tradable rights will be explored in an in-depth look at transfer of development rights (TDR) using examples from the United States (see page 20). TDR is highlighted because of the growing interest in applying these tools in western Canada, particularly in Alberta.

Tradable resource rights and tradable pollution permits differ in terms of goals and objectives. However, there are also similarities—both markets create opportunities for win-win solutions where both the buyers and the sellers have opportunities to benefit. For example, in the case of tradable water allocations, a water user has the incentive to use less water because they could then sell the unused portion of their water allocation to another user who requires additional water to meet their needs. This provides benefits to the seller—a source of additional income—and to the buyer—a new source of water that may otherwise be unavailable or that would be costly to achieve by implementing their own efficiency upgrades.

However, for tradable permits or tradable rights to work, markets must be established. Currently, in western Canada tradable resource markets are in their infancy and greater efforts need to be placed on learning from other jurisdictions and evaluating how markets for tradable permits or tradable resource rights can achieve environmental objectives. Issues related to fairness and equity must also be kept in mind. An open market system may limit the ability of certain individuals and organizations to purchase additional resource rights because they do not have the up front capital to be active in the market.

Positive Financial Instruments

Positive financial instruments are widely used by local, provincial, national and international governments to enhance investments in natural capital. Positive financial instruments are found in a variety of forms, which include tax incentives, grants and subsidies, and low-interest loans to encourage greater investment in natural capital. These instruments have been used to stimulate development of new technologies, transform market demands, minimize pollution, conserve land and water capital assets (e.g., agriculture, ecologically-sensitive land, biodiversity, and soil quality), cleanup contaminated sites, and improve management of waste and wastewater.

Environmental tax instruments provide incentives to encourage higher levels of environmental performance with a financial benefit as a reward. The two main types of tax instruments utilized are tax differentiation and tax breaks or relief.

Tax differentiation determines tax rates based on the level of negative environmental effect produced. For example, if a good or service (either through production or consumption) causes environmental damage, it is taxed at a higher level. On the flip side, if a product or service has no net negative effect, it is taxed at a lower rate.

Box 5: Payments for Ecological Goods and Services in the Agricultural Sector

The National Farm Stewardship program provides financial assistance to farmers who implement beneficial management practices. This program aims to reduce adverse environmental effects caused by agricultural activity and offers financial incentives to help offset the costs of implementing the required management practices. To qualify for the grant, farms must have an Environmental Farm Plan in place and must implement management practices approved by Agriculture and Agri-Food Canada. The goal of this initiative is to enhance natural capital on agricultural landscapes and to encourage greater stewardship and environmental practices.

Keystone Agricultural Producers, the largest group of farmers in Manitoba, in partnership with Delta Waterfowl Foundation has developed a program called Alternate Land Use Services (ALUS). This program provides financial incentives and technical assistance to farmers to encourage investment in long-term conservation strategies for environmentally sensitive farmland. ALUS was designed and developed by the farming community to provide a voluntary, financial incentive to farmers in exchange for the environmental benefits they produce. These benefits are called ecological goods and services. Currently, markets do not recognize the true value of ecological goods and services despite the array of public benefits they provide. Some examples include clean air and water, soil conservation, and biodiversity protection (habitat, wildlife, and fish species). Pilot projects have been proposed in Prince Edward Island, Ontario (Norfolk County), Saskatchewan and Alberta. A pilot project in the Rural Municipality of Blanshard in Manitoba is moving ahead and will likely be implemented in 2005 (Keystone Agricultural Producers et al. 2004).

More information is available at: <http://www.kap.mb.ca/alus.htm>.

Tax differentiation has been applied to a diversity of products. For example, throughout the European Union, differential taxes have been used on vehicle fuels to provide an incentive to shift demand and phase out the use of leaded gasoline. In this case, diesel and unleaded fuels are taxed at lower rates than leaded fuel. The European Environment Agency reported that, in 1998, leaded fuel costs were, on average, 4 to 17% higher than unleaded and 58% higher than diesel fuel prices.

There is a move to expand this type of tax instrument and apply it to land conservation measures. This involves determining tax rates based on the conservation of ecological goods and services. King and Jefferson Counties in Washington State are using the property tax system to encourage conservation on private land. A Public Benefit Rating System has established a scoring system to assign points to specific natural capital assets that offer a public benefit. These points are used to determine how much property tax is owed.

Using this system, the higher benefit score a landowner accrues, the lower the amount of property tax they will have to pay. This differential tax system provides an incentive to maintain ecologically significant assets such as wetlands, wildlife habitat, riparian buffers, windbreaks, and permanent cover. This financial incentive encourages greater conservation on private land and reduces the pressure to sell or develop land to receive a financial benefit.

Tax breaks also offer opportunities to encourage greater investment in natural capital. In this case, tax relief is granted to an individual or organization for meeting specific performance criteria, implementing energy or water efficiency technology, for the conservation of natural capital assets, or for ecological donations. For example, in Switzerland individuals can deduct energy-saving improvements from their taxable income.

In Canada, amendments to the Income Tax Act represented a major step forward in using the tax system to encourage conservation. In 1994, a National Task Force on Economic Instruments and Disincentives to Sound Environmental Practices recommended

Box 6: Green Mortgages in the Netherlands

The Netherlands established a Green Financing Scheme, which provides lower interest loans (favourable mortgages) for homeowners living in a certified sustainable building with significantly better environmental performance. The interest rate offers approximately a 1 to 2% lower rate than a regular mortgage (DHV Accommodation and Real Estate 2003). Investments in green funds are utilized to support lower interest mortgages and other environmental initiatives in the Netherlands. Green funds offered by financial institutions provide investors with an opportunity to put their money into funds that will invest in environmental projects. These investments have reduced interest rates by 1% to 2% on average (Bellegem et al. 2002). However, the interest and dividends earned from the green fund are exempt from income tax, offering an incentive for investors to put money into this type of fund. Essentially, this provides a positive financial incentive to both the investor and the borrower.

amendments to the existing Act that would provide tax incentives to promote biodiversity and conservation on private land (Rubec 1999). Between 1995 and 1997, the Income Tax Act was amended to exempt from capital gains all donations of ecologically sensitive land made in perpetuity to government, charities (e.g., Nature Conservancy of Canada) or municipalities.

Direct payments in the form of grants (subsidies) also provide incentives to encourage greater investment in natural capital. In general, a subsidy is a monetary grant given by government in support of an activity that is thought to provide public benefit. Box 5 on the previous page provides two examples of grants available to agricultural producers to enhance investment in natural capital assets.

Low-interest loans are similar to regular loans except that a lower interest rate is applied to funds borrowed to finance environmental projects or enhancement initiatives. These types of loans have been used for facility upgrades, implementation of new technologies, encouraging a shift in production in agricultural and industry sectors, and motivating consumers to purchase a more environmental product or service (see Box 6).

Positive financial instruments have been used extensively and have encouraged changes in behaviour and practices to achieve environmental objectives. However, they require further thought prior to implementation. Governments should conduct cost/benefit analysis to ensure that the money being spent is the best and most cost-efficient way to achieve the desired goal. Additionally, direct payments require budgetary and timeline considerations, which should take into account the length of time a grant is offered (1, 5 or 10 years) and the funds available to cover expenditures (general revenue or a related environmental tax).

Proposed grants and subsidies also need to be examined to make sure that they do not have a perverse effect on the environment and/or the economy. Subsidies that negatively affect the environment are counterproductive and are often the byproducts of programs directed toward non-environmental projects (e.g., industry development or transportation). It is estimated that governments worldwide spend more than \$700 billion (USD) a year in subsidizing environmentally unsound practices (UNEP 1999). For example in Canada, GST credits (worth approximately \$55 million) are available for farmers to purchase pesticides and fertilizers, but funds are not available to assist farmers who use organic practices (Smith 2004). The environmental effects of pesticide and fertilizer use are well documented, as are the benefits of organic farming practices. Although a topic in and of itself, the potential for subsidies to have a perverse effect on the environment or the economy are important considerations to keep in mind.

In general, economic incentives provide a more cost-effective and efficient approach to enhance investment in natural capital. It is estimated that, in the United States, economic instruments could reduce the costs of compliance by one-quarter of the \$200 billion

(USD) that is spent annually (Anderson 1999). This approach also stimulates innovation, allows for adaptive choice, internalizes external costs, and can lead to continual, ongoing improvement in environmental performance.

Although economic incentives have a lot of potential, there are further considerations that need to be thought through. First, public and political support is required to establish and implement a broad range of economic incentives. Specific instruments, such as charge systems, may be viewed negatively and considered “just another government tax.” And second, the time required to develop and implement economic instruments could be lengthy. For example, establishing markets to buy and sell resource rights or pollution permits would not be a simple process. Canada has limited experience with economic incentives and there are likely a number of barriers that will need to be addressed. However, these barriers are not insurmountable, as the experiences of other jurisdictions suggest.

2.5 Information-based Incentives

The collection and public distribution of information is a powerful tool. Information on the environmental effects of products and services, and the environmental performance of business and other organizations, has proven to be an incentive for enhancement. Business and organization incentives include reputation management, which can improve relations with employees, local communities, and governments. Information can illustrate compliance or establish an environmental track record that can ease approval processes for expansion or new operations and could help to secure financing from investors and banks. Information can also create market advantages, illustrate leadership, and act as a catalyst for industry competitiveness. The two main types of information-based instruments utilized for the collection and distribution of environmental information are: 1) reporting; and 2) labeling and certification.

Environmental Reporting

Annual financial reports, compliance reports to government, and reports to stakeholders and investors are examples of measures used by businesses and other organizations to disclose information. Some types of information reporting are required (e.g., regulation-specific reporting) while others such as broader environmental performance reports remain voluntary.

Environmental reporting is becoming more common, and is used to communicate the environmental effects of an organization’s actions. Environmental information can be disseminated in a variety of formats—combined with social and economic reports (triple bottom line or sustainable development), with social information (corporate social responsibility), or it can be delivered in a stand-alone document (environmental reporting). For example, the VanCity Credit Union publishes an annual Accountability Report to document their economic, social, and environmental performance. Canadian Pacific Railway produces an annual Corporate Social Responsibility report that provides information on environment, health and safety performance, and employee and community relations.

This variety of reporting styles highlights one of the problems with this instrument. Currently, there is a lack of standards on how information should be reported. However, there is a growing momentum toward using a more standardized approach. In 2004, Suncor Energy Inc. reported its Sustainability Report in accordance with guidelines prepared by the Global Reporting Initiative—an international initiative that aims to standardize reporting measures used to disclose social, economic, and environmental information (see Box 7). Suncor was rewarded for their commitment to sustainability reporting and won the “Best Sustainability Report” award from the Coalition for Environmentally Responsible Economies and the Association of Chartered Certified Accountants.

In order for environmental reporting to become an even stronger motivating factor for businesses and organizations to enhance

Box 7: Global Reporting Initiative

Global Reporting Initiative (GRI) was created in 1997 as an independent international organization that aims to develop globally applicable Sustainability Reporting Guidelines driven by a multi-stakeholder process. These Guidelines provide a standardized approach using specific indicators to report on economic, social and environmental performance. The Guidelines recommend that five core components be included in a report: 1) vision and strategy; 2) profile; 3) governance structure and management systems; 4) GRI content index; and 5) performance indicators. A list of required and suggested performance indicators, which includes both qualitative and quantitative measures, is included for the economic, social, and environmental dimensions of sustainability.

Globally, each year more companies are using the GRI reporting guidelines, which enables comparison between different companies. And this is likely to increase. In May 2005, the Ethical Funds Company (Canada's most comprehensive set of socially responsible mutual funds) started a letter writing campaign to encourage the use of GRI. The letters target companies listed on the Toronto Stock Exchange who do not currently report using the GRI Guidelines. The intention is to increase standardized, non-financial reporting so investors can learn more about a company, compare companies, and make informed investment choices.

More information is available on the Global Reporting Initiative website (www.globalreporting.org).

investment in natural capital, a fundamental reform of how information is reported and disseminated needs to take place. Inconsistencies in format, reporting periods, measurement units, and technical calculations should be replaced by a standardized approach. Also, third party verification of environmental reporting should be implemented (e.g., by way of an environmental or sustainability audit). This could enhance the credibility and reliability of information being reported. And there is a need to translate the technical information and data into understandable information that can be used by a broader, public audience. Governments can have a role to play in improving environmental reporting mechanisms. They can work with stakeholders to shape the type of information that should be reported and work to increase public awareness and draw attention to the importance of business environmental performance and sustainability reporting. Overall, environmental reporting has come a long way since its origins and has become an effective instrument in enhancing an organization's reputation, and thus, its bottom line.

Labeling

Labels provide information to consumers on the environmental attributes of products or practices. Environmental or eco-labels were created as a means to standardize environmental claims and provide consumers with credible and reliable information to compare similar products. Environmental labels initially were applied to products only, but have expanded and now include services (e.g., dry cleaning), businesses (e.g., tourism operators and hotels), business management and practices (e.g., ISO 14001), and building performance (e.g., EnerGuide for Homes).

In 1988, the Environmental Choice Program (ECP) was created in Canada and, at the time, it was only the second nation-wide eco-label initiative in the world. ECP is voluntary and provides an independent, third party evaluation and certification for green products. Qualifying products receive an EcoLogo, which is placed on the product or packaging and can be used in promotion and marketing materials. Participation in ECP remains relatively low when compared to the success of eco-labels in other countries; however, there are other certification programs, applied in Canada, that have been successful (see Box 8).

Businesses and other organizations are pursuing environmental labels because they provide a market advantage—e.g., they enable

Box 8: Forest Stewardship Council Certification

The Forest Stewardship Council (FSC) is an international, multi-stakeholder organization created in 1993 to address the need for worldwide sustainable forestry practices. FSC has developed principles, criteria, and standards to address economic, social, and environmental concerns related to forestry practices. These standards are used globally to advance progress toward sustainable forest management and have been adopted in Canada.

Certification is voluntary and is granted to a company that can prove its operations and business practices meet a high environmental standard, recognize Indigenous Peoples and treaty rights, and have a record of social responsibility. Once a company is certified, they can use a label on any of their forest products ranging from lumber to maple syrup.

The Forest Products Association of Canada requires that their members be certified by one of three internationally recognized standards that are in use in Canada—FSC, Canadian Standards Association, and Sustainable Forestry Initiative. This membership requirement has greatly increased certification and Canada has the largest area of certified forest in the world.

More information about the Forest Stewardship Council of Canada is available at <http://www.fsccanada.org/>.

companies to charge higher prices, capitalize on a niche market, and expand or retain their market share. Labels also provide a means to reward environmental stewardship and can enhance an organization's reputation. Other underlying drivers include supply chain demand and the globalization of the marketplace. For example, Home Depot Canada announced in 2001 that they would only buy and sell wood products that are certified and meet the Forest Stewardship Council's (FSC) sustainability standards. And Britain's largest retailer of lumber has refused to sell Canadian wood if it is not FSC certified. Thus, the market incentive for environmental labels expands beyond Canada's borders.

Although eco-labels have had some success, greater consumer awareness is needed. Recognition and consumer demand for eco-labeled products are critical to advance these programs. Without greater awareness, the full potential of eco-labels as an effective natural capital incentive will not be maximized. The same can be said for all types of information-based incentives. A foundation of awareness and understanding must be created in order for reporting and labeling to be effective.

2.6 Voluntary Approaches

Voluntary participation is integral to a number of natural capital incentives highlighted in this report—e.g., land donation, conservation of ecological goods and services on agricultural land, and environmental reporting. Voluntary participation means that individuals, organizations, and businesses can choose to participate. Often, the motivating factors are the positive outcomes produced by voluntary initiatives (e.g., improved reputation and enhanced bottom line). These motivators provide incentives to support and encourage participation in voluntary approaches.

This section goes beyond the discussion of individual instruments and looks more broadly at three types of voluntary approaches to enhance natural capital. Based on the OECD (2003) classification, the three main types of voluntary approaches that are gaining momentum in Canada and world-wide are: 1) public voluntary programs; 2) non-government initiatives; and 3) formal negotiated environmental agreements between government and industry. The three approaches can be distinguished based on the role of government. For example, non-government initiatives are not reliant on government participation while negotiated environmental agreements involve both government and industry participation.

Box 9: Innovation Partnerships Between Industry and First Nations

EnCana Corporation, one of Canada's leading oil and gas companies, is committed to a Corporate Responsibility Policy that requires organization-wide business to be conducted ethically, legally, and in a manner that is fiscally, environmentally, and socially responsible, while delivering sustainable value and strong financial performance.

As part of their commitment to Corporate Responsibility, EnCana recognizes that effective stakeholder and Aboriginal engagement is critical to operating successfully and that it contributes to a positive corporate reputation, which ultimately affects the bottom line. EnCana's principles for guiding engagement are based on three major themes: building trust; dialogue and consultation; and collaboration.

EnCana uses partnerships as one of the tools available to build trust and transform stakeholder and Aboriginal consultation and dialogue into joint action. Although partnerships are not always applicable, they can help to facilitate the social licence to operate, go beyond what each partner could achieve alone, and promote the flow of information and technology cooperation.

For example, an innovative partnership between EnCana contractor Ensign Drilling and the Fort Nelson First Nation gives the First Nation a 50% interest in an \$8 million operation, and has created 20 direct jobs and 50 indirect jobs in the northern community. This agreement means the Fort Nelson First Nation is the first Aboriginal community in British Columbia to own and operate an oil and gas drilling rig. EnCana has also entered into similar partnerships with eight additional First Nations outside of British Columbia. These joint ventures bring opportunities, jobs, training, and expanded business expertise to the First Nations.

This example illustrates the value of effective Aboriginal involvement and engaging the local community. This voluntary initiative highlights the benefits—for both industry and local communities—that can be achieved through innovative partnerships.

Public voluntary programs often come in the form of challenge programs and are initiated by government, and then individuals and businesses are encouraged to participate. Challenge programs are common in North America and include the 33/50 and Green Lights programs in the United States. In Canada, two of the better-known challenge programs are the One-Tonne Challenge and the Voluntary Challenge Registry (VCR). The One-Tonne Challenge was initiated by the Government of Canada to challenge individual Canadians to reduce their current greenhouse gas emissions by one tonne. The VCR, created in 1997, encourages industry, business, and government to make commitments, and to develop and implement voluntary action plans for reducing their greenhouse gas emissions. VCR started as a government funded project, but has evolved into a private-public partnership for which the majority of funding now comes from the private sector. However, the intention of the program remains the same—to provide a national registry that records and documents voluntary action to reduce greenhouse gas emissions and to encourage information sharing and participation by all economic sectors.

Non-government initiatives are voluntary approaches developed and implemented by groups other than government. These can include programs created by nonprofit interest groups such as the habitat conservation programs initiated by Ducks Unlimited Canada. Also, industry associations can initiate voluntary measures (e.g., codes of conduct). For example, the Forest Products Association of Canada (as described in Box 8) requires its members to achieve sustainability certification from the Canadian Standards Association, FSC, or Sustainable Forestry Initiative. Non-government initiatives also include voluntary actions taken by individual businesses and organizations. For example, businesses or organizations can adopt and integrate environmental management systems (e.g., ISO 14001), corporate social responsibility policies, and pursue proactive stakeholder participation and local community partnerships (see Box 9). Individual businesses and organizations are motivated by different factors. For example, some businesses may recognize that it is a good thing to do while others are motivated by the underlying economic incentives that ultimately affect the bottom line.

Negotiated environmental agreements, also called environmental performance agreements, are voluntary “contracts” signed between government and industry (individual or sector-wide). These agreements outline goals, targets, and timelines to enhance environmental performance above and beyond current requirements. Voluntary environmental agreements are often initiated by growing concerns over a specific environmental issue and the prospect of a top-down solution developed by government. This prospect acts as the main motivating force in encouraging industry to participate in voluntary agreements. More specifically, incentives to participate include the opportunity for industry to influence the public policy process, establish regulatory certainty, and to encourage greater flexibility in how targets are achieved.

Negotiated environmental agreements can be developed between industry and each order of government. At the federal level, since 2001, Environment Canada has entered into four environmental performance agreements and there are several others currently being negotiated. Environment Canada has developed the *Policy Framework for Environmental Performance Agreements*, which provides the principles and design criteria to negotiate and develop such agreements.

Negotiated environmental agreements are not limited to the federal government. Agreements have tremendous potential at the provincial level since the provinces are ultimately responsible for managing and protecting natural resources within their jurisdictions. But there is also opportunity for environmental agreements at the municipal level to address localized environmental issues. Japan provides a model for local-level agreements since they have established over 30,000 environmental agreements between individual industries and local municipalities (Prakash 2002).

Overall, voluntary approaches offer multiple benefits. These include benefits derived from: faster implementation of environmental improvements that foster innovation; selection of cost-effective means to achieve goals; and operational flexibility in how goals and targets will be achieved. In addition, voluntary approaches can increase competitiveness, legitimacy, establish due diligence, and enhance the reputation of the participating businesses and organizations.

Reputation management is a key motivating factor for industry. Enhanced reputation can improve relations with employees, business stakeholders, local communities, government, and consumers. Essentially it can enhance the efficiency of operations and thus the bottom line. Also, governments can benefit from voluntary approaches because they can reduce the current costs associated with compliance and enforcement.

Although voluntary approaches offer many advantages, they are sometimes viewed with skepticism and critics have voiced concerns over relying on volunteerism to achieve environmental objectives. For example, concerns have been raised over so-called “free-riders,” which are companies or organizations that reap the reputation benefits, but do not actually improve their performance. For example, an industry association develops a voluntary initiative or code of conduct for its members to follow. If participation is voluntary, there may be individual companies that chose not to participate. But under the umbrella of the industry association, these companies can gain the same reputation and recognition advantages as other companies that made an effort to improve performance. To avoid such situations, industry associations such as the Chemical Producers Association of Canada have made participation in environmental initiatives (e.g., Responsible Care) a requirement of association membership. In addition, voluntary initiatives not accompanied by a regulatory backstop are at greater risk for “free-riders.” Without the prospect of regulation, some individual businesses and organizations may not be motivated to change their behaviour and practices.

Concerns have also been raised over self-regulation. Self-regulation can lack monitoring, evaluation and verification of improvements. Without evaluation, voluntary approaches may lack credibility and the proof needed to illustrate the environmental and economic benefits.

Table 1: Overview of Natural Capital Incentives

Category	Description	Pros and Cons	Instruments	Examples
Regulatory	Reduce regulatory burden and risk for individuals, industries, or organizations that demonstrate high-levels of environmental performance, beyond compliance	Pros—dds flexibility, reduce compliance costs, and recognition and reward Cons—can lack public support, high administrative costs	Streamlined permitting and/or reporting requirements, reduced inspections, technical assistance, faster approvals (positive) Prospect of additional regulations (negative)	Performance Track Program, USEPA Flaring—Clean Air Strategic Alliance
Economic and Market-Based	Low-cost measures that operate through market processes or use other financial instruments to motivate desired levels of performance or behaviour	Pros—cost-effective, efficient, internalize environmental costs, flexibility, stimulate innovation, and encourage continual improvement Cons—no guarantee that environmental objectives will be met, lack of experience, lack of knowledge and awareness, lengthy implementation, and may require additional administration resources	Charge systems—fees, taxes, and levies Deposit-refund systems Market creation—tradable permits, tradable resource rights Positive financial instruments—tax relief, grants, low interest loans	Tire and battery environmental levy, BC Automobile deposit-refund system, Sweden Long Island Sound nutrient trading program, US Transfer of development rights, US Payments for ecological goods and services in the agricultural sector, MB
Information	Collection and dissemination of information on the environmental effects of products and services and the environmental performance of industry, governments, and non-government organizations	Pros—industry can improve reputation and stakeholder relations, prove due diligence, capitalize on market advantages, illustrate leadership Cons—non-standardized and verified information lacks credibility, comparability, and reliability	Environmental reporting Labeling and certification	Suncor Energy Inc., Sustainability Report Forest Stewardship Council
Voluntary	Measures to improve environmental performance, practices and natural capital investment that are dependent on voluntary participation. These measures go above and beyond regulatory requirements, but need not be initiated by governments	Pros—stimulate industry competitiveness, illustrate leadership, enhance reputation and relations with stakeholders, and more cost-effective and efficient Cons—no guarantee that environmental objectives will be met, free-riders, and can lack public buy-in and support	Public voluntary programs—government initiated Non-government initiatives—industry associations, individual businesses Negotiated environmental agreements—between industry and government	One-Tonne Challenge Aboriginal consultation and partnerships, Encana Corporation Flaring reductions—Clean Air Strategic Alliance

To overcome these concerns and enhance voluntary approaches, clear targets and objectives need to be established, and monitoring, measurement, and reporting should become requirements. Also, incorporating a third party evaluation and verification of the reported results can enhance credibility. And more specifically, negotiated environmental agreements must include transparency and multi-stakeholder participation to strengthen and build public support.

Voluntary approaches have the potential to go beyond existing regulatory requirements and enhance environmental performance and investment in natural capital. Voluntary approaches are both innovative and effective means of achieving environmental objectives. However, they may not always be the best or most appropriate policy tool and should be evaluated on a case-by-case basis.

Overall, this review highlights the diversity of incentive-based instruments that could enhance natural capital in western Canada. Some individual tools have been tried and tested while others require further investigation and evaluation. Table 1 on the previous page provides a summary of the natural capital incentives discussed in this section.

3. Natural Capital Incentive Case Studies

3.1. In-depth Incentive Investigation

Natural capital incentives are evolving. This evolution has seen incentives go from a focus on waste management and end-of-pipe pollution control to broader ecosystem management and stewardship. This evolution symbolizes a move to apply proactive incentives that encourage better environmental performance and practices “further up the chain.”

The application of incentives is also changing. Incentive initiatives are becoming more complex and are moving from one type of incentive to address a specific issue (e.g., charge system) to a more elaborate mixture of incentive options used to address one or multiple environmental concerns. On an international scale, Canada may lag behind other countries in terms of utilizing incentive policy measures, but there are also a number of successful “made in Canada” models. Regardless of where the incentive originates, there are important lessons to be learned from existing initiatives.

This section takes a more in-depth look at three natural capital case studies: 1) the transfer of development rights; 2) green building incentive initiatives; and 3) the Clean Air Strategic Alliance (CASA) process used to reduce flaring in Alberta. These examples have been selected for their diversity, success, and the growing interest, both nationally and internationally, to examine and learn from these examples.

The in-depth review of these initiatives is used to identify common success factors that can be used to advance the design and implementation of natural capital incentives in general, to illustrate practical examples of incentive programs that are sought after or that have been implemented in western Canada, and to draw attention to the diversity of incentives and their potential to enhance natural capital.

3.2 Transfer of Development Rights: A Tool for Agriculture and Natural Area Conservation

Incentives – Economic (market creation – tradable resource rights) and Regulatory (changes to density regulations)

Issue

The rural landscape in western Canada is changing. The loss and fragmentation of agricultural land is increasing as cities and towns continue their outward growth to support new subdivision and development. This change is particularly evident on the urban-rural fringe. But the demand for new homes in picturesque rural areas is also increasing as a result of “amenity-seekers” moving to remote areas for the aesthetics and recreational access. Often the land being converted to development is of high agricultural and ecological value.

In 2001, almost half of Canada’s urban land area was located on what was once quality agricultural land (Hofmann et al. 2005). Between 1971 and 2001, urbanization consumed approximately 15,200 square kilometers of land, which represents a 96% increase over this time period (Hofmann et al. 2005). Although the conversion of high quality agricultural land to urban development is often associated with British Columbia and Ontario, the loss of Class I land (the highest quality) is also a concern across the

Table 2: Comparison of Three TDR Programs in the United States

Program Features	Montgomery County, Maryland	Pinelands Region, New Jersey	Thurston County, Washington
Purpose	To protect agricultural land and rural open spaces	To protect the natural capital of the region	To protect the natural capital of the region
Conservation Achievements	2003 - conserved 43,195 acres * greatest conservation of agricultural land in the US	2000 - conserved 20,000 acres of land on 160 properties * third highest in the county	2000 - no land has been conserved
Government Involvement	Organized and administered at county level Bi-county agency involved in planning and enforcement	Municipal, County, Regional, State, Federal Top-down process, started at the federal and state level	County, Municipal (3)
Information and Community Outreach	Public meetings Question and answer booklet Effort to educate landowners and general public	High level of public awareness but little public input Extensive outreach efforts Training for developers and real estate agents	Information kit sent to landowners in sending areas Public meetings Limited educational efforts and community outreach (overall)
Public Support	Overall support	Mixed public response	Lack of public buy-in
Participation	Mandatory - restrictive zoning - sending areas are downzoned, which reduces development potential; program is considered mandatory because it is the only way for landowners to recover land values	Mandatory (restrictive zoning)	Mandatory (restrictive zoning)
Incentives	Landowner - financial compensation for downzoning Developer - receiving areas have high development demand and the purchase of rights can be used to build at a higher density; the County capital improvement program ensures supporting infrastructure will be put into receiving areas Community - participation in community development plans Government - conserve land without having to purchase it	Landowner - financial compensation for downzoning Developer - transfer of development credits (rights) can be used to increase density in receiving areas Government - conserve land without having to purchase it	Landowner - financial compensation for downzoning Developer - can build at higher or lower densities in some receiving areas However, there are not enough incentives to get people to participate Government - conserve land without having to purchase it
Problems	Change in market forces - more profitable for developers to build homes at lower density rather than at higher densities It is a challenge to find additional receiving areas - lack of infrastructure and/or public support	Complex and confusing program Recent decrease in TDR price Some receiving areas lack adequate infrastructure	Little public education and awareness has resulted in a lack of public buy-in and support Difficult and confusing process Lack of demand for higher density development

prairies. Both Alberta and Manitoba have lost Class I land to urban development—6% and 3% respectively—while Saskatchewan has retained most of its Class I land, losing approximately only 1%. This may not sound significant until it is considered that the total amount of Class I land available in each province is only 1.2% of Alberta, 1.5% of Saskatchewan, and 0.25% of Manitoba (Hofmann 2001). Agriculture is an important economic activity across western Canada and the loss of high quality land is a concern in each province.

Agricultural landowners, especially in areas with development demand, have few options when it comes to protecting their land. The landowner can sell the property to a developer, which all but ensures subdivision and development on the land. Alternatively, they can place a conservation easement on their land to ensure there will be no development, but will likely lower the resale value of their land. Transfer of development rights (TDR) emerged in the 1960s in the United States as an innovative land management tool that could provide an alternative, incentive-based, option for landowners.

Incentive Initiative

In general terms, TDR is a way to encourage the reduction or elimination of development in areas that a community wants to save, and to increase development in areas that a community wants to grow. TDR programs allow landowners to transfer the right to develop one parcel of land to a different parcel of land (American Farmland Trust 2001). This approach separates the development rights from the land, allows them to be traded between designated sending and receiving areas, and a private market is set up for the buying and selling of development rights. The sending area is designated around the land to be protected and the receiving areas are designated based on their suitability for development. For example, an area of land that is under-developed and has supporting infrastructure in place could be designated as a receiving area. Once these areas are established, development rights can be bought and sold between landowners and developers. The rights are used as credits for a developer to increase density in the receiving area. And once the rights have been transferred from a parcel of land, it must be placed under a conservation easement, which permanently limits future subdivision and development.

The adoption of TDR has grown rapidly in the United States. In 1981, TDR programs were enacted in 12 jurisdictions and in 2000, 50 jurisdictions reported having established programs (American Farmland Trust 2001). Despite the growing numbers, the area of land protected by each program varies greatly and success has been limited to a few TDR programs. To determine the necessary factors for success, three TDR programs are compared (see Table 2). These include Montgomery County in Maryland, Pinelands Region in New Jersey, and Thurston County in Washington.

Lessons Learned

Based on the experience in the United States, overall themes that contribute to the success of a TDR program can be identified. The main themes include:

Public buy-in and support. Community participation and support is essential. TDR requires “grass roots” public support for agriculture and open space conservation. Also, public support is required for increasing density in receiving areas.

Simplicity and communication. Programs that are easy to use, are understandable (not just technical), and are communicated and promoted to residents, are more likely to gain public support and participation.

Political support. The program also needs the support of government. Regulatory changes are required and additional administrative resources are needed to develop a TDR program.

Government cooperation. Programs are often multi-jurisdictional and can involve many orders of government from local to federal. Cooperation is required between different jurisdictions within the same order of government and between different orders of government.

Planning and zoning changes. The creation of sending and receiving zones and the associated zoning changes (downzoning in sending areas and upzoning in receiving areas) requires regulatory amendments. Most TDR programs have amended municipal or county development plans to allow for TDR programs and to implement restrictive zoning.

High development pressure and demand in sending and receiving areas. There must be a market for development rights.

Concern over the loss of agricultural land. This is the main driver of TDR programs and without concern there may be little interest in pursuing options for land conservation.

Positive incentives for buyers and sellers. Landowners and developers need a reason to participate.

Opportunities

TDR programs have potential application in Alberta, Saskatchewan, and Manitoba in areas experiencing rapid development and loss of agricultural land and natural areas. In particular, TDR is promoted as a land management tool for the Edmonton to Calgary corridor and the Calgary to Canmore corridor. These are some of the fastest growing areas in Canada and concerns over the loss of agricultural land are mounting. TDR is less likely to be used in British Columbia because of the Agricultural Land Reserve (ALR)—a provincial regulatory approach to agricultural land conservation. However, TDR may be applicable in areas outside of the ALR.

For these programs to be developed and implemented in western Canada, they require further consideration and may require modifications in order to align with Canadian public policy. These considerations should include:

Development credits or rights? In the United States property rights are protected constitutionally. In Canada there is no constitutional right to develop. Can these programs work without development rights?

Easements. Are easements used to protect land from future development once the development rights have been sold? The use of an easement is common in TDR programs in the United States. Further thought is required to determine if and how easements would be used in conjunction with TDR programs in Canada. This is an important consideration because changes may be required to current legislation governing the use of conservation easements. For example, in Alberta conservation easements can protect agricultural land only in some circumstances. There are specific qualifications for the land to qualify for conservation easements. It may be necessary to expand these qualifications or to establish agricultural easements in addition to existing conservation easements.

Political interest in implementing and supporting a TDR program. Are governments prepared to develop and implement alternative land management policies?

Community support. TDR programs have been successful in areas where “room is running out.” Do we have the same sense of urgency in western Canada?

Order of government. What orders of government will be involved in a TDR program? Municipal or provincial or both? How will multiple jurisdictions cooperate in areas that lack a regional approach to development planning?

Development pressure. Is there sufficient development pressure to create a market for these programs?

Legal authority to implement a program. No Canadian jurisdictions have legislation that states municipalities can implement these programs. There is no assurance that there will not be legal opposition.

TDR programs in the United States provide important models to learn from, but their application in western Canada will require some tweaking. Canada has little experience with tradable resource rights and it would likely be a challenge to design and implement TDR programs in Canada. At this point, broad-scale or province-wide initiatives are unlikely. However, TDR programs that are designed and implemented in localized “hot spots”—where the community is demanding greater conservation of agricultural areas—have potential. Once a Canadian pilot project is established, it is more likely to gain acceptance and support, and provide the foundation for TDR programs to be developed in western Canada.

3.3 Building Green in Western Canada:

Incentive Programs for Commercial, Industrial, Institutional, and Residential Buildings

Incentives – Voluntary, Information (labeling), and Economic (market-driven)

Issue

Buildings can have a tremendous effect on the environment, economy, and human health throughout their entire life cycle—design, construction, operation, maintenance, renovation, and removal. Buildings use large amounts of energy, water, and materials and they produce vast amounts of waste, air and water pollution. The Canadian Green Building Council reports that commercial and residential buildings account for 38% of Canada’s total secondary energy use, produce 30% of total greenhouse gas emissions, and use 40% (three billion tonnes annually) of raw materials (CaGBC 2005). Buildings also create their own indoor environments, which can directly affect human health and productivity. Additionally, where the building is placed on the landscape can have an effect on the urban natural environment—buildings can, for example, add to the urban heat island, create stormwater runoff, and eliminate habitat areas. As more information on the environmental effects of traditional building practices becomes available, the concept of green buildings is gaining momentum.

Green building refers to a series of practices and use of materials, construction processes, and finished products that have less environmental and human health effects compared to buildings designed and constructed using traditional methods. Green buildings provide a number of environmental benefits such as enhanced protection of ecosystems and biodiversity, improved air and water quality, reduced solid waste, and conservation of natural resources. Economic benefits include reduced operating costs, enhanced asset value and profits, improved employee productivity and satisfaction, and optimized life-cycle performance of the building. In addition, health, safety, and community benefits include improved indoor air, thermal and acoustic environments, enhanced occupant comfort and health, minimized strain on local infrastructure, and enhanced community quality of life.

The environmental effects of buildings are associated with developments of all size—from a single-family house to a large office tower. The effects may vary depending on the size of the building, but that does not mean that residential development should be ignored. There is much that can be done in the design and construction of a single-family home. And when it is considered that the tremendous growth in residential development, and the cumulative effect of homes added together, the need to integrate green features into the housing industry becomes apparent. Between 1991 and 2001, each western province recorded growth in new residential development. Two provinces, British Columbia and Alberta, experienced greater rates of

Table 3: Comparison of Two Green Building Rating Systems

Program Features	LEED Canada	Built Green Alberta
Program Launch	2002	2003 – Calgary Region Home Builders Association and Southern Alberta Institute of Technology (SAIT)
Organization	Canadian Green Building Council	Built Green Society
Goal	Market transformation Promote buildings that are environmentally responsible, profitable and healthy places to live, work, and play Accelerate the adoption of green building practice, policies, standards and tools into mainstream building industry Stimulate green competition Establish a recognizable brand	Market transformation Encourage home builders to use technologies, products, and practices that will enhance the performance and durability of the dwelling Recognize leadership Stimulate green competition
Target	National – new or extensively renovated commercial, industrial, public, institutional or multi-unit residential building	Alberta – Calgary, Edmonton, Grande Prairie, Lethbridge, and Red Deer (currently) New home construction
Participation	Voluntary	Voluntary
Incentives	Developer/building owner – recognition and reward, industry leadership, marketing advantage, gain market competitiveness, enhance asset value, increase profits, optimize life cycle economic performance, reduce liability risk, reduce vacancy rates and increase retention of occupants Occupants – improve productivity, reduce employee absenteeism and turnover, and enhance employee morale, cost-savings, and more comfortable work or living environments	Builder – shows environmental leadership and innovation, capitalize on market demand for green housing, get a jump start on a residential development trend, cost savings, and marketing advantage Home buyer – lower energy costs, reduced water consumption, improved indoor quality, longer durability, less maintenance, and higher resale value
Rating System	Flexible, performance-based rating system Six categories of performance criteria – sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality and design excellence; buildings receive points for different green features and are added together to determine the certification level	Flexible, performance-based rating system Built Green Alberta uses a checklist that provides a menu of green options to the builder and each option is assigned a score. There are eight categories and a minimum point score must be achieved within each. The points from each category are added together to give a cumulative total that is used to determine an overall achievement level.
Certification	Four green certification levels – from highest to lowest – platinum, gold, silver, and certified	There are three levels of built green achievement – from highest to lowest – gold, silver, and bronze. The energy efficiency category follows the EnerGuide for Houses program of Natural Resources Canada and must receive a rating of 72 (for Bronze) or higher.
Third Party Verified	Yes – independent, third party audit	Yes – 5% of all homes registered under Built Green Alberta are randomly inspected by a third party to verify that the green options are implemented. Energy efficiency rating, in all homes, is verified by an EnerGuide energy advisor; once a home receives the final EnerGuide rating an official Built Green seal is sent to the home owner.
Training	LEED workshops and accreditation for professionals in the industry; workshops include technical training, training for contractors, builders, and other professionals involved in the development industry	Training is included in the builder membership fee. The training program leads to Built Green certification for builders. Training seminars will make sure that best practices are being used and are current with new technologies. This process allows for a standardized approach to green building and encourages continual improvement.
Achievements	640 member organizations in Canada membership has been increasing 13% a month since January 2005 Western Canada member breakdown by province: 214 in BC, 112 in AB, 14 in SK, 31 in MB Number of registered buildings (as of March 2005): 148 in Canada; 63 in BC; 28 in AB; 2 in SK; and 8 in MB Number of certified projects (as of March 2005): 11 in Canada; 6 in BC; 4 in AB; and 1 in MB	167 Built Green Society members Over 692 Built Green registered homes in Alberta First Built Green program implemented in Canada

growth while Saskatchewan and Manitoba recorded lower, but impressive numbers nonetheless. The number of new dwellings constructed between 1991 and 2001 were: 339,000 in British Columbia; 217,000 in Alberta; 30,000 in Saskatchewan; and 39,000 in Manitoba (Statistics Canada 2002).

Incentives Initiative

In Canada, there are a number of initiatives and incentive programs that aim to reduce the environmental effects of traditional building practices. Most of these initiatives target a specific issue and energy efficiency in particular. A list of green building incentive initiatives in western Canada has been put together and can be downloaded from the Canada West Foundation website (www.cwf.ca).

Two green building initiatives are highlighted in this report because they promote the whole-building process—from design to final product—and offer a number of incentives to builders, developers, owners, and renters. Both LEED (Leadership in Energy and Environmental Design) Canada and Built Green Alberta are emerging as the dominant rating systems utilized in western Canada to evaluate and certify buildings based on green design features.

The Canadian Green Building Council (CaGBC), founded in 2002, is a nonprofit organization comprised of public and private building industry leaders. CaGBC expanded and modified the LEED rating system that was developed by the United States Green Building Council. This rating system is designed to rate commercial, public, and institutional buildings, and multi-family residential developments.

In 2003, the Calgary Region Home Builders Association developed Built Green Alberta. This industry-led initiative targets new residential development—multi-family and single family dwellings. Built Green Alberta is modeled after Built Green Colorado—a very successful green building program that targets new residential development. Built Green Alberta adopted Built Green Colorado's building rating system. Although Built Green Alberta and LEED Canada have different targets, the programs have similar features that add to their momentum and growing success (see Table 3).

Lessons Learned

There are key features in both LEED Canada and Built Green Alberta that are attracting attention and are considered part of their growing success. These include:

User-friendly rating system that is easy to understand and implement. This is key to gain the buy-in of the development industry and to encourage participation. Cumbersome programs have failed because they are too difficult to implement.

Training programs. Workshops and training seminars can outline the costs and benefits of green building, provide information on the latest technologies, and provide a breakdown of the technical requirements. Training programs should go beyond just developers and builders to include contractors because they are the individuals who actually construct the buildings.

Flexibility. Each development project is different and thus flexibility in how a developer or builder achieves certification and the level of certification is important. Also, flexibility is necessary in order for the rating systems to have application in different jurisdictions with potentially diverse regulatory requirements (e.g., building codes).

Credibility and reliability. Third party verification and standardized certification is a key success factor. Creating a recognizable and trustworthy label will help to gain consumer trust and support.

Education, marketing, and communication. Consumers (potential buyers and renters) need to be made aware of the benefits of green buildings in general and need to be educated about the green building initiatives in their community. The results of cost-benefit analyses are becoming available in the United States. These findings should be used to promote the fact that the benefits of building green outweigh the additional up front costs. For example, a review of the construction costs for 33 commercial and institutional buildings determined that building green cost an additional 2% on average, which works out to about \$3 to \$5 extra per square foot (Kats 2003). This is in comparison to the costs of building the same development using conventional practices. This review also found that green buildings will yield cost savings over the life-cycle of the building—up to \$50 or \$75 a square foot or 10 times the amount of the initial investment (Kats 2003).

Opportunities

There are a number of opportunities to broaden green building practices in western Canada and to expand into new places where green building is limited or non-existent. In particular, there are opportunities to integrate LEED buildings as the standard for public owned buildings across western Canada. For example, the City of Calgary has created a Sustainable Building Policy that recommends all new municipally owned buildings should be built to meet the LEED silver certification. By doing so, the City of Calgary can help to build momentum for green buildings in the community. There are opportunities for other municipalities, large and small, to make similar commitments. Also, there are opportunities for the provincial health and educational institutions, and the private sector to adopt and commit to green building practices for new development and renovation projects.

Built Green Alberta is the only green building program that specifically targets the environmental conditions of new residential development, including single-family houses. There are opportunities for home builders associations from other provinces and regions to learn from the Alberta case. And within Alberta, the housing industry is booming and there is an opportunity to expand and increase the number of Built Green certified builders and the number of certified homes throughout the province.

To facilitate further expansion, concerns and barriers to non-traditional building practices need to be identified and addressed. Based on the experiences of existing green building programs, the main barriers that have limited implementation include: general lack of experience; unfamiliarity with the costs and benefits; higher up front capital costs; a lack of consumer demand; and lengthy permit and local government approval process. Buildings that differ from the “status quo” may take longer to be approved by the local authority. This can result from a lack of knowledge and familiarity with the technology, and incompatibility with the building code. LEED Canada and Built Green Alberta are designed to allow for flexibility and adjustment to the requirements of different jurisdictions. This flexibility will be key to advancing adoption and implementation of green building programs.

Additionally, to address the potential barriers and to expand the implementation of certified green buildings in western Canada, interested stakeholders (governments, development industry, and nonprofit organizations) should work together to:

Create a central source for green building information (e.g., website) that contains general information, provides statistical information on the costs and benefits of existing buildings, and provides a list of technologies, contractors and suppliers.

Integrate financial and regulatory incentive programs that can be used to offset capital costs and to reduce the regulatory burden of “different designs.” This can be done in collaboration with municipal, provincial, and federal governments. There are a number

of positive financial incentives currently available for improving the environmental performance of buildings (e.g., Commercial Building Incentive Program), which should be aligned, coordinated, and promoted with certification programs.

Develop pilot projects and showcase buildings. Pilot or demonstration projects can showcase what a green building can look and feel like, and identify the costs and benefits in a local context. This will be key to overcome the “it won’t work here” sentiments that can be associated with new and innovative ideas. Green tours designed for the community and development industry would be beneficial and could help to address concerns with unfamiliar technology and development practices. For example, Alberta EcoTrust, a nonprofit environmental interest group, is constructing an Ecohome to demonstrate that sustainable housing options are both affordable and achievable. This pilot project is a collaborative initiative between the development industry, governments, academia, and community and environmental groups. The Ecohome is striving to go beyond Built Green Alberta gold level certification and should be completed by August 2005.

Increase awareness and the promotion of green building programs and benefits. These efforts should target suppliers, contractors, builders, developers, consumers and real estate agents. Real estate agents and leasing companies need to be educated on the benefits of green buildings so they can use this information in promotional and marketing material. They often have direct contact with buyers and renters, and they need to be informed about the technology and the building certification.

Encourage an industry champion and government commitment to green buildings. For example, in July 2004, the City of Vancouver adopted LEED Gold as its standard for all new city buildings. Vancouver is the first municipality in North America to commit to this ambitious certification level. The LEED standard is being used for the 2010 Olympic Games and also for the redevelopment of Southeast False Creek. This commitment will help develop market demand and showcase the costs and benefits of green buildings.

3.4 Clean Air Strategic Alliance Flaring Agreement:

A Multi-Stakeholder Approach to Negotiated Environmental Agreements

Incentives – Voluntary (prospect of regulation) and regulatory (regulatory backstop)

Issue

In the production and processing of oil and gas, flaring (controlled burning) and venting (release) are used to dispose of produced natural gas that is either technically or economically unfeasible to process. Both flaring and venting produce greenhouse gases and contribute to poor air quality.

In recent years, environmental and community considerations have played a larger role in the way industry approaches the development of natural resources. Concerns were raised about flaring and venting from the perspective of the potential health risks to humans and animals, the impact on the environment, as well as the inefficient use of a valuable resource.

Media coverage of the issue had an impact on the reputation, operations, and community support for the industry and Alberta’s Energy and Utilities Board (EUB) said that the “status quo was no longer working” and the situation needed to be resolved.

The prospect of a mandated top-down solution to the issue prompted the Canadian Association of Petroleum Producers (CAPP) to initiate a voluntary, multi-stakeholder process through the Clean Air Strategic Alliance (CASA), which would take a leadership role in resolving the issue.

Incentives Initiative

CASA was established as a nonprofit organization in 1994 based on a recommendation from the 1990 report Clean Air Strategy for Alberta. It brings together diverse stakeholders from government, industry, and non-government organizations (e.g., health and environmental groups) to address air quality issues in Alberta. CASA emphasizes shared responsibility among stakeholders and consensus-based decision-making in conducting strategic air quality planning.

As an independent organization with an established process that supports multi-stakeholder participation and transparency, and provides for broad public support, CASA was seen as a “good vehicle” to advance and resolve the issue. For CAPP, the CASA model could provide regulatory certainty and a collaborative process for the development of public policy.

In 1997, CASA set up a Flaring Project Team to identify concerns and opportunities, set priorities, secure resources, develop action plans, and evaluate results. The diverse group of stakeholders on the team included:

- municipal, provincial and federal governments;
- regulators;
- oil and gas, forestry, and agricultural industries;
- environmental groups such as the Pembina Institute and Prairie Acid Rain Coalition; and
- health organizations such as the Alberta Lung Association.

The project team met regularly and the stakeholders were responsible for taking information back to their broader group to keep them informed and develop buy-in for the recommendations under development. In 1998, the group established a new management framework to reduce flaring in Alberta. The process is fairly formal and uses a consensus-driven decision-making model that ensures all team members, and indirectly their stakeholder groups, support the actions and recommendations that are developed.

In June 1998, the Flaring Project Team released a report that provided both short-and long-term recommendations to reduce solution gas flaring in Alberta. The team targeted solution gas first because it covered most of the flaring in the province. The report established a new management framework that set voluntary reduction targets, as well as flare performance standards, and revised the approval process and emergency flare reporting. The reduction targets, set from a 1996 baseline, called for:

- 15% provincial reduction by the end of 2000 (firm)*
- 25% provincial reduction by the end of 2001 (firm)*
- 40 to 50% provincial reduction by 2003 (target)
- 60 to 70% provincial reduction by 2006 (target)

*If targets are not achieved, maximum flare sizes will be regulated by government (regulatory backstop).

The final report was adopted by the EUB as *Guide 60-Upstream Petroleum Industry Flaring Guide*, a regulatory framework for gas flaring in Alberta. Monitoring and reporting indicated that industry outperformed reduction targets and by 2003 flaring had been reduced by 70% from 1996 levels.

In 2000, the group was renamed the Flaring and Venting Project Team. It evaluated the performance of the 1998 management

framework and continues to advocate continual improvement in flaring and venting. The team is also involved in research to advance flaring reduction, address issues, and improve performance.

Lessons Learned

CASA is recognized domestically and internationally as the model for a collaborative multi-stakeholder participation. In June 2005, the Flaring and Venting Project Team won a Canadian Council of Ministers of the Environment Pollution Prevention Award for its work addressing the potential and apparent health and environmental effects of flaring.

There are a number of factors that contributed to the success of this approach that could serve as the foundation for other collaborative and multi-stakeholder processes working toward negotiated voluntary agreements. The key success factors include:

Prospect of regulation. The prospect of new regulation must be present throughout the process. It is one of the main drivers underlying this approach. The CASA process provides an alternative opportunity for industry and other stakeholders to influence the public policy process and work toward mutually acceptable outcomes.

Stakeholder support and commitment. Industry, government, and non-government organizations need to support participation in a collaborative process and see the need for a workable solution. This approach requires the commitment of time and resources, but the payoff is worth the investment. Also, government and industry need to commit to the final recommendations at the beginning of the process.

Diverse stakeholder representation and participation. Diversity and inclusion of interested stakeholder groups is critical. Groups need to be included up front and their participation must be meaningful. A collaborative forum builds trust between stakeholders, allows for different sides to integrate and build greater understanding for other points of view. The process enables opposing groups to agree to disagree and move toward mutual solutions. This can help alleviate future conflicts and tension between groups. Also, stakeholder buy-in throughout the process will assist in developing strong support for the end result and implementation of recommendations.

Shared responsibility and consensus-based decision-making. In order to maintain meaningful participation, all stakeholders must be considered equal, including government. The consensus-based approach to decision-making is a notable success factor. Stakeholders respect the consensus approach because it requires groups to work together to achieve agreement throughout the process. Ultimately, this approach creates long-lasting solutions.

Transparent Process. The issues, information, actions and recommendations must be available to the public. This will help to gain support and reduce skepticism over “closed door negotiations.” All reports, recommendations, and project meeting minutes are publicly available from the CASA website, and flaring data, updates, and *Guide 60* are available from the Alberta Energy and Utilities Board website.

Regulatory Backstop. The process is voluntary and the recommendations put forth by the Flaring Team included voluntary reductions to reach targets. However, establishing a regulatory backstop—if targets are not reached, regulations will be set—adds “teeth” to the voluntary agreement and certainty that action will be taken.

The CASA process and the Flaring Project Team were successful in establishing targets and recommendations, which have been adopted by the Alberta government as policy.

However, there are a few considerations that could detract from this process that should be kept in mind. First, it is a lengthy process and requires stakeholders to take time away from work and home to participate. All stakeholders require the full support of their organizations, especially at the senior level.

Second, there is the potential for stakeholder fatigue. There are more and more opportunities for groups to be involved in discussions, consultations, and policy negotiations, and it is possible that a saturation point could be reached.

Third, lack of knowledge or understanding of how a collaborative process works and its potential success could limit participation or support for this process.

Fourth, there is the potential for communication breakdown and the lack of support by the broader stakeholder group. Stakeholders involved on project teams are responsible for the communication of the issues, opportunities, and potential recommendations back to their broader interest group. During this back and forth, it is possible for information to be miscommunicated, which could affect the success of the final recommendations.

And fifth, government, industry, and non-government organizations' support for a collaborative process may be lacking in other jurisdictions.

Opportunities

The CASA process and the Flaring Project Team provide a successful model for others. The key factors in its success could serve as a foundation for other collaborative, multi-stakeholder processes embarking on voluntary environmental agreements. The application of this model is not limited to air quality issues or greenhouse gas emissions. Rather, the CASA model could be applied broadly to other natural capital issues and agreements. One of the biggest challenges and also one of the greatest opportunities is to increase awareness, build trust, and establish support for a similar process in other jurisdictions and to explore opportunities to apply this process to other environmental issues within Alberta.

4. Observations and Recommendations

Natural capital incentives are diverse and have the potential to enhance environmental performance and practices above and beyond current regulatory requirements. Incentives can employ both positive and negative measures to achieve long-term environmental goals and targets. Incentives are often associated with government subsidies but they need not involve government or the spending of tax dollars. Regardless of the diversity and the range of measures available, there are common themes that form the foundation of successful natural capital incentives. These common themes became apparent in the review of incentives and in-depth analysis of the three case studies. The following themes should be kept in mind and used as guiding principles when designing and implementing natural capital incentives:

Complementarity and straightforwardness. Incentives should work to complement and build on, yet go beyond, the current regulatory framework. Incentives need to be simple, understandable, and user friendly. Complicated and confusing initiatives will deter participation and lack support.

Flexibility and innovation. Incentives should allow for flexibility in how environmental goals and targets are achieved. This will enable stakeholders to choose the most cost-efficient and effective means to achieve set goals. Flexibility stimulates the design and implementation of innovative solutions and encourages continuous improvement.

Efficiency and effectiveness. These are key elements and are often identified as the main advantages of using incentives as alternative policy options. Incentives should provide a least-cost option to achieve environmental objectives and should encourage faster and more proactive responses to environmental issues. Incentives must be effective at achieving goals and targets, and must not produce negative or perverse effects on the environment or the economy.

Measurement, monitoring, and verification. Incentives should include measurement and monitoring. This information is key to proving the efficiency and effectiveness of incentives, and can be used to modify initiatives and to improve results. Performance data provide important information to stakeholders (government, non-government organizations, the public, and other businesses) that goals and targets are achieved. Third party verification would add credibility and reliability to measurement and monitoring, and should be considered in the design of incentives.

Participation, collaboration, and cooperation. Incentives should integrate stakeholder participation to identify options and gather support for the use of incentives. A participatory approach will require industry, governments, and non-government organizations to cooperate and collaborate on the design and implementation of natural capital incentives. This approach will help to gain buy-in, and thus participation and support for the use of incentives.

Communication, education, and promotion. To build stakeholder awareness and support, the advantages, including the costs and benefits, and successful examples need to be promoted. The target audience should include businesses and industry, governments (municipal, provincial, and federal), non-government organizations (e.g., environmental groups), and the general public.

Recognition and reward. Industry, governments, non-government organizations, communities, and individuals can demonstrate leadership in enhancing natural capital. Incentives should be designed to recognize and reward exemplary efforts to encourage continual improvement.

Overall, the design of the incentive instrument is key. It will influence how effective the instrument is in achieving environmental targets and goals and will also influence the level of support the instrument gains. For example, if an instrument is very flexible and easy to implement, it may not be effective in addressing complex environmental issues. And on the flip side, a more rigid instrument that is difficult to understand and implement may not be utilized, and thus may be unable to achieve set targets. Therefore, the importance of design considerations cannot be understated.

5. Moving Forward

Natural capital incentives have the potential to improve environmental performance as well as economic outcomes. The general lack of experience with, and awareness of, some incentive policy options creates barriers that limit broader application in western Canada. To overcome these barriers and advance incentives as credible policy options, the following recommendations are put forth:

Increase awareness through promotion and education. The potential merit of incentives needs to be promoted to governments, industry, non-government organizations, and the general public. Education and outreach will help raise awareness of alternative policy options and build support for incentive initiatives. These education efforts are not the sole responsibility of government. In

fact, there are opportunities for all stakeholders to be involved in the promotion of natural capital incentives.

Monitor and measure existing incentives initiatives. The economic and environmental costs and benefits of existing incentive programs need to be better understood. This information will help alleviate concerns and promote the idea that incentives can work in western Canada. There are a number of incentive initiatives in place and these should be pulled together to illustrate the diversity and benefits of incentives. In many ways, incentives are not new concepts and greater effort should be placed on promoting past and current experiences. Industry associations, governments, or environmental nonprofit organizations could work individually or collaboratively to promote and create a means to provide accessible and understandable information (e.g., a website).

Start small and build big. To overcome the lack of experience, pilot projects or small initiatives should be undertaken first. Small initiatives could involve the implementation of one or two incentive instruments to test how they will work, the costs and benefits, and to make necessary changes to enhance the initiative. By starting small, incentives can gain credibility and eliminate skepticism and concerns. An individual group, government, or industry can implement a pilot project. Or a collaborative partnership (e.g., Alberta Ecotrust Ecohome) could be struck to initiate, develop, and promote a pilot project.

Conduct further research and analysis of the policy mix. Incentives are used in combination with the regulatory system, and as this report illustrated, different types of incentives can be used together to achieve an environmental objective. Currently, incentives are combined using an ad hoc approach and there is no available evaluation framework to test which incentives work best together and which types do not. A framework (e.g., decision-tree) to assist in identifying the appropriate type of incentive or the most effective policy mix will be key. Opportunities to conduct further research could involve research groups, consulting organizations, academic institutions, governments, and nonprofit groups.

Continue to learn from others. Continued research and analysis of incentive initiatives in other jurisdictions can provide valuable information. This can include both domestic (from other provinces and municipalities) and international experiences. At the international level, the United States and the European Union have greater experience with the use of natural capital incentives and provide models and lessons to learn from. These lessons can highlight potential problems that may arise and barriers that need to be addressed. Although the public policy context may differ, there is still much to gain from evaluating the experiences of others.

6. Conclusion


Command-and-control regulations continue to dominate natural capital public policy. This approach has been effective and there are notable successes. But as the complexity of environmental issues continues to increase, the current regulatory system alone may not be the most efficient or the most effective means to achieve greater investment in natural capital. Many stakeholders with a vested interest in natural capital are looking to alternatives that have the potential to overcome the rigidity, inefficiency and lack of flexibility and innovation embedded in the current regulatory approach.

Incentives are one such alternative. Natural capital incentives are diverse and can be used to address a wide variety of environmental issues—from pollution control and prevention to ecosystem protection and stewardship. There are four main types of natural capital incentives: 1) regulatory; 2) economic and market-based; 3) information-based; and 4) voluntary. These types can be used separately or in combination to achieve environmental objectives. Natural capital incentives offer many advantages to government, industry, and non-government organizations, communities, and the general public.

However, incentives are not a one-size-fits-all solution. Incentives require case-by-case evaluation to determine their appropriateness in achieving a particular environmental objective. Goals, targets, and timelines must be set first and the means of implementation (e.g., incentives) must be determined second. Ideally, this process of evaluating and determining policy options should involve stakeholder participation and collaboration.

Further consideration must be given to how incentives can be applied in western Canada. This is a broad region comprised of many cultures, economies, ecosystems, and public policy contexts. What works in one area may not be directly transferable to another.

Nevertheless, there are opportunities to build on the current regulatory framework and integrate incentive-based instruments into environmental public policy. However, natural capital incentives must be viewed as part of the public policy mix and should not be considered in isolation or as the sole means to achieve environmental objectives. Natural capital incentives should be used in *combination* with other public policy tools to achieve an efficient, effective, and flexible approach to encourage greater investment in natural capital.

Incentives have tremendous potential to enhance natural capital in western Canada. They offer many advantages, provide opportunities to go above and beyond current regulations, and are gaining the support of interested stakeholders. Incentives are likely to attract greater attention and gain momentum as public policy continues to evolve and alternative policy options are implemented. Natural capital incentives may only be “one tool in the policy toolbox,” but they are a powerful one that can no longer be overlooked. 

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#900, 1202 Centre Street SE
Calgary, Alberta, Canada T2G 5A5
Telephone: 403.264.9535

www.cwf.ca