

## ENVIRONMENTAL & RURAL STEWARDSHIP REMUNERATION FOR AGRICULTURE IN MANITOBA

A Recommended Framework for introducing a province-wide  
Social and Ecological Goods and Services incentive program

17 November 2008

## ENVIRONMENTAL & RURAL STEWARDSHIP REMUNERATION FOR AGRICULTURE IN MANITOBA

This document is provided to the Government of Manitoba as a recommended roadmap for establishing a province-wide social and ecological goods and services payment program for the agricultural sector in Manitoba.

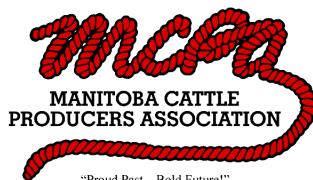
The proposal presented herein is based on the growing international policy consensus that domestic farm policies need to be adjusted to better reflect the multifunctional role of agriculture as not only an economic activity but also as a larger environmental and social activity. This world-wide re-interpretation of agriculture has resulted in the re-instrumentation of domestic agri-environmental and rural development policies internationally, with a decisive turn towards the use of financial incentives to reward agricultural producers for their on-going provision of ecological and social good and services to the remainder of society.

The recommended approach is the creation of a *Manitoba Environmental and Rural Stewardship Program* – a unified provincial policy instrument capable of delivering modular, staged, and ‘trade-green’ remuneration for the multiple public good functions of agriculture which have historically been subject to market failure. Shaped in the context of the experiences and lessons learned from various pilot projects in Canada and the many ecological/social goods and services programs already existing thought the world, the proposed program seeks to optimize the aggregate supply of agricultural commodities, ecological goods and services, and social benefits produced by rural Manitoba.

It is MCPA’s view that sufficient information and data are available today to begin the staged transition from the original ALUS pilot project to the adoption of a province-wide stewardship payment program that works for all of agriculture in Manitoba.

This policy proposal is intended for primary discussion with:

Manitoba Agriculture, Food and Rural Initiatives  
Manitoba Water Stewardship  
Manitoba Conservation  
Manitoba Science, Technology, Energy and Mines



Manitoba Cattle Producers Association  
#222 - 530 Century Street  
Winnipeg, Manitoba R3H 0Y4  
Tel. (204) 772-4542 Fax (204) 774-3264 [www.mcpa.net](http://www.mcpa.net)

# CONTENTS

<b>1. Introduction .....</b>	<b>1</b>
<i>Moving ecological goods and services from pilot stage to provincial program</i>	
International Context of Agri-Environmental Payments	
Canadian and Manitoba EG&S Research and Pilot Projects	
Land Use Transition and Program Urgency	
<b>2. Multifunctionality in Agriculture &amp; the Optimization of Social Benefits .....</b>	<b>6</b>
<i>Re-interpreting the basis for agri-environmental &amp; rural development policy in Manitoba</i>	
The Concept of Multifunctionality	
Ecological Goods and Services (EG&S)	
Social Goods and Services (SG&S)	
<b>3. Policy Goal, Policy Problem and Policy Action .....</b>	<b>12</b>
<i>The need for producer remuneration for EG&amp;S / SG&amp;S in Manitoba</i>	
Policy Goal: Optimization of the Multifunctional Benefits of Agriculture	
(a) Balance between On-Farm Commodity and EG&S Production	
(b) Balance between Use vs. Non-use	
Policy Problem: Market Failure in the Supply of Public Goods from Agriculture	
Policy Action: Environmental and Rural Stewardship Incentive Program (ERSP)	
<b>4. Environmental &amp; Rural Stewardship Incentives: Objective &amp; Principles .....</b>	<b>18</b>
<i>Incorporating key principles and lessons from policy trials and international experiences</i>	
Relevant Observations from International Experiences & Domestic Policy Trials	
Program Objective and Core Principles	
<b>5. Program Delivery I: Modular Implementation of Payment Schedule .....</b>	<b>25</b>
<i>Categorization of ERSP components for incremental implementation and adaptation</i>	
Incremental Implementation and Adaptation of ERSP via Available Data	
Program Modules and Components	
Initial Coverage for Program Startup: Climate and Atmospheric Stabilization	
Program Priorities and Research Agenda	

<b>6. Program Delivery II: Valuation of Goods &amp; Services for Payment .....</b>	<b>31</b>
<i>Methodology for calculating payments for environmental and rural goods and services</i>	
Establishing an EG&S Index Value	
Pro-Ration of Index Value to Agricultural Activity	
Initial ERSP Remuneration Estimate for Climate and Atmospheric Stabilization Module	
Note on SG&S Value Calculation Methods	
<b>7. Program Delivery III: Producer Eligibility and Program Verification .....</b>	<b>35</b>
<i>Third party assessment and verification of on-farm EG&amp;S / SG&amp;S deliverables</i>	
Third Party Certification Process	
Program Eligibility Baselines	
Determining Eligibility in Instances of Leased Land	
Delivery of Program Payments	
Summary of Program Steps under ERSP	
Summary of key deliverables for the parties to the ESR program	
<b>Appendix .....</b>	<b>40</b>
<i>Initial ERSP Remuneration Estimates for All Modules and Components</i>	
<b>Reference and Supporting Documents .....</b>	<b>42</b>

# 1. Introduction

## *Moving Ecological Goods and Services from Pilot Stage to Provincial Program*

---

Manitoba is ready today to take the next step in establishing a province-wide ecological goods and services incentive program in the agricultural sector. The largest remaining questions are what the initial program should look like and how best to implement it.

### *International Context of Agri-Environmental Payments*

As indicated later on in this proposal, governments around the world are moving rapidly to re-tool their approaches to domestic farm policy in light of two important trends and goals: the re-assessment of the far-reaching role that agricultural and rural activity plays in the lives of citizens and the need for governments to find ways of financially supporting that role with policy measures that do not end up distorting international trade.

The general policy answer has been for governments to turn to agri-environmental and rural social incentives to farm operators in exchange for the bundle of ecological goods and services (EG&S) and social benefits that are co-generated by agricultural activity. Such payments for public goods and services have the advantage that they are 'de-coupled' from the on-farm production of primary agricultural commodities and therefore do not constitute trade-distorting farm support measures.

Today, almost all of the countries within the European Union have implemented cross-sectoral agri-environmental and rural social incentive programs that deliver remuneration for the on-going provision of both ecological and social good and services by European farmers (Government of Quebec, 2005; Government of Canada, 2006). This mosaic of national agri-environmental incentive programs has moved far beyond the pilot project stage, and each of these active programs is in general compliance with the requirement under the EU's Common Agricultural Policy (CAP) for the removal of trade-distorting farm support mechanisms within the EU.

To the immediate south of us, the United States has also moved past the pilot stage in the adoption of agri-environmental and rural social payments under both the 2002 and 2008 Farm Bills. In particular, the 2002 US Farm Bill took a bold step in agri-environmental policy with a decision to shift much of its policy emphasis away from its earlier Conservation Reserve Program (CRP) to its newer Conservation Security Program (CSP). Having learned important lessons from its experience with the CRP, the US has chosen to adopt a more European-like agri-environmental payment program that rewards US farmers for *on-going, measurable, and performance-based* ecological goods and services (EG&S) they produce for the rest of society rather than the amount and type of land set-aside as conservation areas. Whereas the earlier CRP is designed to retire cropland from production, the newer CSP

involves the purchase of EG&S produced by farm operations that meet *measurable* and *performance-based* environmental standards. The CSP is a highly popular program among US farmers with a 90% satisfaction rate among participants (Government of Quebec, 2005; Rae and Beale, March 2008).

As a point of comparison, the US and the EU today spend between US\$5-6 billion on their respective agri-environmental programs, working out to an expenditure of roughly US\$16 per capita in the US and an average US\$12 per capita in the EU. By contrast, Canada spends approximately US\$200 million or US\$6 per capita in agri-environmental policy support (Wilfrid Legg, "Agricultural and Agri-Environmental Policy Impacts on Land Use" OECD, Oct. 2007).

Central to this broad international shift in agri-environmental policy is the re-discovery of a crucial principle by governments and their publics: that agricultural producers supply (or can be induced to supply) as a *co-product* of their occupancy of the land positive externalities (i.e., ecological goods and services) that benefit society. The key point is that rather than being in competition with each other, agricultural production and ecological sustainability are (or can be) complementary to one another.

#### *Canadian and Manitoba EG&S Research and Pilot Projects*

While Canada as a whole has to some degree lagged behind the rest of the world in re-tooling its domestic farm policy, Manitoba in contrast has demonstrated some noteworthy leadership and innovation in the area of agri-environmental policy. In particular, the creation of the Alternative Land Use Services (ALUS) research project in the R.M. of Blanshard has put Manitoba in a leadership role when it comes to investigating agri-environmental incentives. This willingness to be one of the first provinces to accept the underlying principle of EG&S related agri-environmental incentives to farmers has given Manitoba important jurisdictional advantages in establishing future program delivery competence.

"The problem has been that farmers and other landowners have never been properly rewarded for the services they provide through proper land use. For too long we have worried about the environmental impact of land use without providing a real benefit to those people who make the commitment to use land in a sustainable way."

Hon. George Webster  
Minister of Environment, Energy & Forestry  
Province of Prince Edward Island  
April 24, 2008

Beyond Manitoba's initial ALUS pilot, Canada has also seen the establishment of a number of ALUS and ALUS-related research projects into the potential for delivery of ecological goods and services incentives in other parts of the country. The Government of Canada currently has in operation *eight* ecological goods and services (EG&S) related pilot projects. Seven of these research projects are delivered through the Government of Canada's Watershed Evaluation of Beneficial Management Practices (WEBs) research focus under the Greencover Canada program and includes the joint

Agriculture and AgriFood Canada / Ducks Unlimited Canada research project at South Tobacco Creek near Miami, MB. These programs seek to scientifically quantify EG&S related outputs from the adoption of BMPs. The eighth EG&S project is a federally-funded pilot project at the Eastern Canada Soil and Water Conservation Centre investigating the role that Environmental Farm Plans can play in ensuring the delivery of on-farm EG&S. This particular project is scheduled to wind-up in March 2009.

Both the Government of Canada and the Province of Quebec have also completed significant analytical studies into the general concept of remuneration for ecological goods and services in agriculture (Government of Quebec, 2005; Government of Canada, 2006). A landmark three-day National Symposium on EG&S in Agriculture was held in Winnipeg in 2006 at which the need to re-tool agri-environmental policy in Canada was discussed and evaluated.

Alberta has moved to establish a virtual Institute for Agriculture, Forestry, and the Environment to explore how that province can best benefit from what they believe is a growing public demand for ecological goods and services. The stated intention is to help 'brand' Alberta as "an environmental leader and innovator" in terms of agriculture. PEI has gone even further in being the first province in Canada to launch a province-wide agri-environmental incentive program based partly – but not exclusively – on the ALUS model.

Outside of government, both the agricultural and conservationist communities have made significant investments in research projects to move the concept of agri-environmental incentives forward. Once again, the collaboration between Ducks Unlimited and the Government of Canada on the South Tobacco Creek research project and the collaboration of the Delta Waterfowl Foundation, Little Saskatchewan River Conservation District, Keystone Agriculture Producers, and Rural Municipality of Blanshard on the Blanshard ALUS pilot project need to be mentioned. But also of note are Belcher, Edwards, and Gray's agricultural case studies of the Upper Assiniboine River basin, Grand River watershed, and Mill River watershed and the publication by Ducks Unlimited and the Nature Conservancy of Canada of Dr. Nancy Olewiler's general study of the economic value of natural capital in these areas.

Finally, the Manitoba Cattle Producers Association, with the collaboration of Drs. Ominski, Kebreab, and Wittenberg of the University of Manitoba, Dr. Kulshreshtha of the University of Saskatchewan, the Manitoba Rural Adaptation Council, and Canadian Beef Cattle Research Council of the Canadian Cattlemen's Association, have initiated a \$500,000+ research project into the multifunctional value of Manitoba forages and the scientific quantification of carbon lifecycles on Prairie cow-calf operations.

Given existing and widespread international experience in the tangible delivery of agri-environmental payments, and given Manitoba's existing jurisdictional advantages in agri-environmental policy within Canada, the time certainly appears to be right to establish a province-wide EG&S incentive program for the agricultural sector in Manitoba. With a range of research and pilot projects in Canada drawing to a close, the necessary foundational

research has for the most part been completed. What remains is merging Canadian experiential data with the experience of international working models into a coherent agri-environmental incentive program. The remainder of this document outlines such a recommended framework for the phasing-in a province-wide EG&S-based incentive program that can form the core program for agri-environmental and rural community development policy in Manitoba.

### *Land Use Transition and Program Urgency*

The necessity for taking prompt action in establishing a province-wide EG&S-based incentive program in agriculture is becoming more and more apparent in Manitoba. Powerful economic and social forces are right now directing agricultural producers towards increasingly intensive agricultural land use decisions that threaten the long-run ecological integrity of Manitoba's natural capital and the aggregate supply of ecological goods and services.

It is evident to those working in agriculture that global grain shortages, changing patterns of trade, government-led biofuel policies, and sluggish prices for ruminant livestock are all sending strong combined price signals to Manitoba farmers to transition their lands out of perennial green cover and into more profitable annual field crop production. As is clear in a number of agricultural media reports, the trends are already evident on the landscape with many ruminant producers considering exiting their industries, liquidating herds, and switching land over to annual crop.

From an agri-environmental policy perspective, this is an extremely worrisome trend as the potential environmental reproductions of this transition are extremely serious. An over-emphasis of intensive field and/or row crop production in the aggregate agricultural land use mix will create far more difficulties for the province with respect to nutrient control for Lake Winnipeg and other bodies of water, for soil conservation, for loss of waterfowl habitats, and for meeting Manitoba's Kyoto targets.

Conservation and environmental groups have long been concerned with the rapid rate at which both Manitoba and Canada are losing ecologically essential wetlands, perennial green cover, forests, and other sources of natural capital. Ducks Unlimited Canada, for instance, reports that up to 70% of Canada's wetlands have already been lost in settled areas and the pressure to further drain wetlands for annual crop production is only growing stronger given current market signals.

As with most conservation organizations, Manitoba cattle producers firmly believe that wetlands and perennial green cover are far more beneficial to the environment and the public in the long-run when these lands *are kept intact to begin with* rather than drained and then restored at a later date.

While it is the case that much land on the Canadian Prairies has often cycled between annual and perennial use during the 20<sup>th</sup> Century, it is also becoming more evident that each time a 'drainage → exhaustive cultivation → restoration' transition cycle occurs on the landscape, a portion of the total long-run ecological benefit of wetlands and perennial green cover, particularly with respect to genetic diversity and *species-at-risk*, is often lost in the process. In particular, once highly ecologically valuable rangelands are put under the plow and natural cycles are disrupted, it can never be *completely* returned back to its *original state*.

Worse still, the current trend in terms of land transition poses a serious climate change threat. Wetlands (which cover only 6% of the Earth's land surface) are vital carbon sinks which contain an estimated 771 gigatonnes (771 billion tonnes) of greenhouse gases (See *ScienceDaily*, July 21, 2008). When drained as part of the global trend to land use transition, drained wetlands actually release greenhouse gases into the atmosphere, turning what was once a carbon sink into a carbon emitter, thus increasing the total amount of GHG emissions in Manitoba.

Because repeated short and long-run transition cycles depreciate the stock of natural capital, policy instruments like agri-environmental payments are highly desirable for their ability to provide counter-signals to agricultural producers that will help stabilize transitions in agricultural land use. And given the speed and force with which current price signals are promoting land use transition among Manitoba cattle producers, there is a real urgency in taking policy action to adopt agri-environmental incentives *before it is too late*.

The cattle business, when properly managed using sustainable farm practices, is one of the few economic activities in the country whose production activity actually *encourages* rather than discourages biodiversity, the protection of species-at-risk, and GHG mitigation on the landscape. The longer that financial counter-signals to land use transition are absent in Manitoba, the faster that wetlands and perennial cover are going disappear, with the consequential loss in natural capital and the ecological benefits that from that natural capital.

Time is of the essence.

## 2. Multifunctionality in Agriculture & the Optimization of Social Benefits

### *Re-Interpreting Agri-Environmental & Rural Development Policy in Manitoba*

---

Once viewed strictly through the lens of food and resource production, governments and their citizens around the world are rediscovering and consequently reinterpreting the essential role that rural populations, and agricultural producers in particular, play in protecting the ecological integrity of the environment in addition to their role in adding economic and social value to local, national, and global communities.

#### *The Concept of Multifunctionality*

Agriculture has seen dramatic changes in the 60 years since the beginning of the first 'green revolution' in agricultural production between 1945 and 1955. The development of high yielding varieties (HYVs) in wheat, corn, and rice through conventional (i.e., non-biotechnological) scientific breeding, plus the introduction of widespread use in synthetic nitrogen fertilizer and chemical-based pesticides and herbicides, has led to the massive transformation in the way agriculture is practiced. The undeniable trend in farm production has been to move away from the historical model of extensive, smaller scale agricultural production by a large number of small-scale mixed farms towards increasingly specialized and concentrated farm operations capable of keeping food production at pace with global population growth.

The result of these developments has been to accelerate the decline in the percentage of farmers producing food for an ever growing and hungry urban population. May 23, 2007 marked the first time in human history where the earth's urban population actually surpassed its rural population (Dr. Ron Wimberley & Dr. Gregory Fulkerson, North Carolina State University Department of Sociology; Dr. Libby Morris, University of Georgia Institute of Higher Education). Canada, of course, long since passed that mark and now has 80% of its population dependent on the output of the rural population.

By the time of the 1992 UN Conference on the Environment and Development in Rio de Janeiro (the Rio Summit), the full impact of this rapid (i.e., within one to two generations) transformation in agriculture became increasingly apparent, forcing analysts and decision-makers around the world to start re-assessing and re-interpreting what agriculture meant from a public policy perspective.

As noted in the Government of Canada's policy review into the origins of the concept of ecological goods and services payments, Losch (2002) points to four key trends that have changed the way agriculture is now interpreted by policy makers.

First, the movement in *certain* industries towards more exhausting and highly mechanized forms of agricultural commodity production has brought to light the previously overlooked or understated positive connection between sustainable agricultural activity and the land that farmers work. The ecological impacts of overuse and dependence on synthetic chemical inputs, increased farm size, and larger on-farm economies of scale have all demonstrated how well-managed, non-invasive approaches to agricultural production are to the land and what is ecologically lost in pursuing over-industrialized forms of production.

Second, the growing concern over global warming beginning in the 1980s has shifted increased attention onto the way in which all aspects of humanity relate to earth's natural resources, thus putting the agricultural use of land under increased scrutiny by government officials and the public in general.

Third, as the world's population continues to explode at an exponential rate, and as the production gains from the earlier 'green revolution' are maxed out, increasing concern has been raised over the future availability of food (global and domestic food security), the safety of food products (biosecurity), and the conflicts these trends will have on natural processes and natural capital.

Finally, compounding these issues is the desire of the governments of most nations around the world to use liberalized international trade as a means to better allocate resources in agricultural production by reducing the trade barriers that the world's wealthier countries have erected in agricultural commodities. The attempt has been made, and continues to be made, through the Doha Round at the WTO to find a way to reduce distortions in international trade while at the same time to provide smaller scale farmers with necessary income stabilization to keep small scale, family-oriented agriculture a viable business in the countries of the developed world.

With all four of these trends coming together in the last 10 years, the practice of agriculture has been reassessed in terms of its impact beyond straight-forward commodity production. The growing international policy consensus has been to reinterpret agriculture as a multifunctional activity capable of providing a bundle or package of economic, environmental, and social goods and services to the rest of society that must be considered in its entirety. In developing public policy individually and exclusively to just one or two of the many components that make up the multifunctional bundle called agriculture, public policymakers run the risk of creating unexpected or undesired trade-offs between the various components. (Studies cited by the Government of Canada are Velasco Arranz, 2002 and Barthélemy and Nieddu, 2002). The growing consensus is to re-interpret agricultural holistically with the goal of *maximizing the total social benefit derived from agriculture* rather than creating individual policies and separate signals that actually serve to undermine the aggregate benefit of agriculture.

The multiple functions of agriculture are usually summarized into three general categories covering the economic, environmental, and social functions performed by agriculture. Within each of these broad functions, agriculture producers produce (or can be incentivized to produce) various individual goods and services which are of benefit to society as a whole.

### **A Snapshot of the Multifunctionality of Agricultural Production**

<b>Economic Function of Agriculture</b>	<b>Environmental Function of Agriculture</b>	<b>Social Function of Agriculture</b>
<p style="text-align: center;"><b>Primary Agricultural Commodity Production</b></p> <ul style="list-style-type: none"> <li>• Food Production</li> <li>• Feed Production</li> <li>• Fibre Production</li> <li>• Fuel Production</li> </ul>	<p style="text-align: center;"><b>Ecological Goods and Services Production</b></p> <ul style="list-style-type: none"> <li>• Carbon Sequestration</li> <li>• Air Quality</li> <li>• Water Quality &amp; Filtration</li> <li>• Water Storage, Recharge &amp; Flow Mgmt</li> <li>• Biodiversity</li> <li>• Biosecurity</li> <li>• Soil Conservation, Nutrient Cycling, Erosion Control</li> </ul>	<p style="text-align: center;"><b>Social Goods and Services Production</b></p> <ul style="list-style-type: none"> <li>• Domestic Food Security and Safety</li> <li>• Preservation of Experiential Farm Knowledge Base</li> <li>• Derivative Positive Human Health Effects via EG&amp;S</li> <li>• Land Occupancy &amp; Mgmt</li> <li>• Rural Employment</li> <li>• Rural Cultural Heritage</li> <li>• Light Recreation Reserves</li> <li>• Community Aesthetics (i.e. attractive visual landscapes)</li> <li>• Animal Health &amp; Welfare</li> </ul>
<p><b>Private Goods</b></p> <p><b>Tradable Commodities</b></p> <p><b>Financial Returns from Market Mechanisms</b></p>	<p><b>Public Goods &amp; Services</b></p> <p><b>Non-Tradable Commodities</b></p> <p><b>Financial Returns from Public Sources and Mechanisms</b></p>	

#### *Ecological Goods and Services in Agriculture (EG&S)*

Generally speaking in the context of the multifunctionality of agriculture, the concept of ecological goods and services (EG&S) represents the supply of products/outputs (benefits) from natural capital such as soils, water, biota, etc. that have value to society. Natural capital yields ecological goods and services either independently over time or with the application of labour power and are as much of a vital input into the health of the human economy as is any traditional form of manufactured capital.

The primary goal of all agricultural producers is of course to manage the landscape they occupy for the purpose of producing food. In the process, however, the land that farmers such as cattle producers occupy also produces *positive externalities* – EG&S – based to a large extent on the adoption and utilization of their management strategies around their natural capital. EG&S are thus the *co-product* of positive stewardship of the agricultural land occupied by farmers, making these farmers the stewards of these ecosystems as well. EG&S, and the natural capital that supplies, it is therefore dependent on the type of agricultural activity on the land and is especially dependent on the existence of forms of agriculture such as cattle production that conserve natural capital while simultaneously producing food.

EG&S outputs from healthy rural landscapes, and the natural capital and labour power inputs which they come from, can be itemized and classified in a multitude of ways. But in general, on-farm EG&S outputs are usually presented to involve:

- the natural capital itself (the ecosystem and its natural resources)
- providing natural systems that balance climate and atmospheric conditions
- providing an ecologically sustainable quantity of good quality water
- maintaining animal and plant biodiversity through supply of habitat
- protecting the future productivity of arable land through the maintenance of healthy soils and prevention of soil erosion
- mitigating damage due to natural disasters.

An important element in understanding the concept of EG&S is understanding the complex interconnection that each individual ecological good or service has with other types of EG&S. Because of the interdependence of ecological goods and services on each other, an individual EG&S is not found 'alone' but always as part of a bundle or package of EG&S. One can visualize each individual EG&S output as built on top of, or stacked on top of, another EG&S.

For example, supplying 'animal & plant biodiversity' on the landscape is dependent on the amount of good-quality water available to support biota – which is itself an EG&S. Another example: the EG&S of protecting healthy soils through environmentally appropriate nutrient cycling is necessary to produce the plant life needed to provide yet a different EG&S: the sequestration of carbon and climate control. This EG&S product (climatic stabilization) is in turn an input into yet another EG&S: maintaining biodiversity. It is in that sense that each individual EG&S supports or stacks up on top of each other.

"Agricultural producers are vital to waterfowl conservation because they own and manage virtually all of the waterfowl habitat in Prairie Canada. They are important partners in conservation as the stewards of natural capital that provides benefits to waterfowl, other wildlife and society as a whole. Their role as providers of ecological goods and services needs to be recognized by governments, consumers, and interest groups like ourselves."

Cynthia Edwards  
National Manager  
Industry & Government Relations  
Ducks Unlimited Canada

Thus, it is important to recognize that such interdependent stacking of EG&S outputs creates a type of “ecological magnifier” that enhances the overall ecological value of the total package of benefits provided by a source of natural capital, making the total sum of the EG&S provided greater than its parts.

What this means in practice is that while some agricultural activities do end up withdrawing EG&S and depreciating the stock of natural capital by its level of intrusiveness in a given ecosystem, other forms of *agricultural activity can also build natural capital and enhance naturally occurring EG&S depending on agricultural technique.*

For instance, while certain annual field or row crop production methods which are heavily dependent on chemical use, annual tilling, and/or intensive water use will lead to a significant withdraw in the amount of EG&S produced on the land relative to a ‘non-use’ state, active and well-managed farming such as cattle production that works *with the land* in a sustainable and holistic manner can (within natural limits) actually *add* to the EG&S output relative to non-use. Well-managed ruminant activity within ecological limits on a perennial landscape helps minimize on-field plant decay, promotes nutrient cycling, and provides better quality of water through on-farm nutrient monitoring activity that would otherwise be absent from the land when in non-use.

Further to the important issue of water stewardship and nutrient control, it is increasingly evident from soil research that on-farm management activities such as establishing and maintaining riparian areas as part of a perennial-based farming system have significant benefits in *promoting the interception of phosphorus* and holding back the flow of nutrient into Manitoba waterways.

Generalizing the point, by using farm production and management techniques based on concepts such as biomimicry (i.e., the use of natural systems and processes to develop and adopt human activities that resolve issues around other human impacts), a farmer can use specific agricultural activities and perennial-based farming systems to induce more EG&S output than in a non-use state given today’s conditions. For the Prairies, cattle and other ruminants help replace natural systems lost generations ago from the drastic depopulation of indigenous bison herds.

Since it is not the case that agriculture always forces a significant withdrawal of EG&S in the production of agricultural commodities, it is far more useful to examine EG&S output in the context of the *type* and the level of *intrusiveness* of individual farm management practices rather than flatly assume that a standardized ‘unit of agriculture’ necessitates a unit reduction in EG&S. This point is captured well in Prince Edward Island’s commitment that lands should not be taken entirely out of agricultural production when promoting EG&S output through its provincial ALUS program. The goal is to improve EG&S output by changing the agricultural activity, not prohibiting it.

### *Social Goods and Services in Agriculture (SG&S)*

EG&S is only one general function, however, in the overall multifunctional value of agriculture. Rural Manitoba is also the source of a wide range of important social and cultural contributions to Canadian society, and an equally important function of agricultural producers is the supply of these social benefits. Without some of these essential contributions, there really wouldn't be a Manitoba or Canada.

Although understanding, quantifying, and valuing this social function is not as far along in its research and development as the environmental function is, the Government of Canada's review of agricultural multifunctionality (Government of Canada, 2006) does outline a growing number of research papers into the study of various components of agriculture's social function.

The most critical social component is probably agriculture's function in ensuring both *domestic and global food security and safety* (Laurent, 2001; Blanchemanche et al., 2000; Government of Switzerland, 2000; Arfini and Donati, 2002). This function represents the derivative social component arising from actual on-farm commodity production. European countries in particular, having had the experiences in the last century of mass agricultural disruption and consequent food shortages from two world wars, have developed a strong appreciation that food is not something that will always and automatically be on the store shelves in an advanced economy.

Developed nations with sophisticated and industrialized agricultural sectors can become as prone to going hungry as any less developed nation in a situation of disrupted trade or either natural or non-natural disaster. It is therefore in the interest of any nation to ensure that there is as much of a domestic food-producing agricultural base as possible to offset potential damage caused to the domestic food supply. Having a solid number of *diverse* farm operations on the rural landscape all operating within *a range of agricultural industries* (and thus not becoming overly dependent on the import of cheap food supplies or specific commodities) is an important security function of domestic agriculture.

A critical aspect of maintaining domestic food security this is the further social function of agriculture in the *preservation of the experiential knowledge base* when it comes to the practice of farming. Having active farmers on the rural landscape is an important component in ensuring the passing down of important whole-farm production and management skills to subsequent generations that may otherwise be lost. Viewed this way, Canada's farm families are in many ways similar to a vocational network of 'home-based trade schools' for Canada's future green-collar agricultural workers, making farms part of Canada's overall human capital development strategy. Just as provincial and federal governments typically assist trade apprenticeship and mentorship education programs financially in other vocations,

consideration needs to be given to supporting the on-farm training of future agricultural producers.

A further component in the social function of agriculture is farming's importance in maintaining *a viable, dynamic social fabric in rural areas* and *preserving and transmitting unique rural cultural heritage* (OECD, 1998, 2001; FAO/Netherlands, 1999; Gouin, 2000; Laurent, 2001; Blanchemarche et al., 2000; Aumand, 2001; Arfini and Donati, 2002). This function affords value to the cultural diversity, historical experiences, and national-provincial heritage aspects of agriculture. By maintaining farming on the rural landscape, our country provides a lifeline for an increasingly urbanized society to its agrarian roots.

Additional social value is derived from agriculture in a wide number of other components of the social function including the role of farms as on-site research centres in food production (academic and industry R&D), maintaining rural aesthetics and attractive visual landscapes, recreational and agri-tourism opportunities, and animal health and welfare monitoring among others.

### 3. Policy Goal, Policy Problem and Policy Action

*The need for producer remuneration for EG&S / SG&S in Manitoba*

---

*Policy Goal: Optimization of the Multifunctional Benefits of Agriculture*

Given the reinterpretation of agriculture as a multifunctional activity, agricultural policy among developed nations has understandably shifted in the past two decades. Whereas public policy among industrialized nations once focused almost exclusively on the first function of food and resource production and gave farmers a straightforward mission statement of “feed the nation and the world” and a production calculation measured strictly in “productivity per acre” (often referred to in the literature as the 'productivist model' of agriculture), today's desirable public policy focuses instead on optimizing the total package of benefits that farm operations can potentially yield in terms of *all three functions* of marketable commodities, ecological goods and services, and rural social goods and services.

*Or, to put in the language of economics, the revised goal of macro-agricultural policy for the 21<sup>st</sup> Century has become to develop a full set of agri-commodity, agri-environmental and rural development policy instruments resulting in an optimal aggregate policy outcome that maximizes the total social benefit derived from the multiple functions of commodity, EG&S, and SG&S production.*

In practice, the policy goal of optimizing the multifunctional benefits of agricultural activity means developing policies that strike the right balance between (a) commodity and EG&S production and (b) use and non-use of arable and forageable land.

*(a) Balance between On-Farm Commodity and EG&S Production*

In the multifunctional model, the practice of always seeking the maximum economies of scale in commodity production is sub-optimal. Governmental macro-policies and market signals that encourage farmers to make on-farm decisions to convert their entire landscape to ever increasingly intensified forms of farming are economically inefficient in the long-term since they force a trade-off between short-term productivity gains in commodity production over the long-term public supply in EG&S. Further, these production decisions which are induced by public policies and market signals also run the risk of medium and long-term degradation of on-farm natural capital, thus impairing the farm's long-term commodity production – a case of immediate production activity cannibalizing on its own capital base.

**Optimality:** the situation where a set of resources and outputs have been allocated in such a way that no single output can be improved or increased without also having to reduce a different output to achieve that gain.

**Sub-optimal:** the situation where a movement from one allocation to another could increase the output of one product without reducing the output of another.

As pointed out in the introduction of this document, the current trend in Western Canada away from perennial green cover toward more intensified use of the land through annual field and row crops is a good example of this type of sub-optimality. The current land use transition has been induced by the combination of market signals and government policy rooted in the 'productivist' model. This transition threatens a substantial loss in public ecological goods and services (loss in wetlands, biodiversity, soil, hydrological flow patterns, etc.) by bringing large tracts of what are highly forageable but marginally arable land under the plow.

Under the former productivist policy model, this would certainly be the correct course of action: 'maximize commodity productivity per acre and feed the world.' However, under the newer multifunctionality model, this is not necessarily the case. Whereas intensive field cropping, row cropping, and intensive livestock operations can all provide a solid agricultural commodity base and some of the SG&S expected from agriculture, these forms of production also reduce EG&S production on the land. Recall that there are important transaction costs in the form of the degradation in the potential natural capital stock every time land use goes through one of its land use transition cycles: one does not always get back the genetic diversity lost in putting land under the plow by returning the land back to perennial cover or wetland at a later date.

"Extensive beef production in ranch country is an agricultural system that promotes animal welfare, landscape conservation and wildlife preservation."

Bob Sopuck  
Delta Waterfowl

This is something that cattle producers in particular intuitively grasp because of their close connection with the land they occupy. Western Canadian cattle production is one of those forms of multifunctional and extensive (i.e., non-intensive) agriculture long rooted in holistic farm management techniques, concepts of biomimicry, and a tradition of 'working *with* the land' instead of a high-impact 'working of the land'. Short of society returning to a hunter-gatherer form of existence, the practice of raising ruminants on the Canadian Prairie is probably the least invasive and disruptive of all forms of human interaction with the provincial environment. Not only do cattle operations generally worry about conserving their natural capital, in many cases cattle producers go beyond conservation to further build capacity in natural capital through their on-farm labour power thus improving the integrity of ecosystems. By supporting a thriving cattle industry in Manitoba, public policy is supporting the goal of optimizing the multifunctional benefits of agriculture in the province.

This is of course not an argument to place one form of farm production ahead of all others. Far from it – the goal of optimizing multifunctionality is a matter of seeking a balance among a variety of types of agriculture to maximize the aggregate amount of EG&S within a diversified agricultural sector. It would be as equally foolhardy to turn every square inch of agricultural land into perennial green cover and every farmer into a ruminant producer as it would be to turn every square inch over to annual cropland and every farmer into an intensive grain, oilseed, or other operation. The policy challenge is to find the best method to

strike the right balance between various types of on-farm commodity production in order to maximize aggregate EG&S production – to find the correct mix of agricultural commodities that will supply the most ecological and social benefits.

*(b) Balance between Use vs. Non-use*

Examining the issue of balance between agricultural function from the other direction, one also sees the equal importance of maintaining diverse agricultural activity on the landscape. If, in an effort to strictly maximize total ecological goods and services, the province were to adopt in its policy approach the same exclusive ‘productivist’ mindset with respect to the environmental function as with commodity production, the logical result would be a decline in the commodity and SG&S output as farmers are driven off the land.

In the past, such ‘productivist’ thinking applied to EG&S supply has resulted in the sub-optimal situation in which large areas of available agricultural land have been closed off to *any* agricultural use. In an effort to try to offset losses in EG&S from intensive cropland, pressure has mounted to increase the amount of ‘ecological reserves’ entirely closed off to any type of farm practice (and sometimes any human interaction) no matter how light, non-intensive, or well-managed the practice is. Public policy under productivist thinking can become quickly trapped between the conflicting extremes of maximizing commodity production on some lands and maximizing EG&S production on other lands. Probably more than anything else, it is this realization that has driven policy makers in the United States to rethink its older Conservation Reserve Program (CRP) and move towards the newer Conservation Security Program under the 2002 Farm Bill.

The fact is that if the current amount of cattle land in Canada were turned over to strictly non-agricultural use, there would be a significant loss in food production to a hungry world: by grazing ruminants on lands not suited for crop production in Canada, Canada’s total land area available to produce food is roughly doubled. Thus, while land which is left completely idle may provide EG&S, that practice comes at significant cost in terms of available food production and SG&S production. Non-intensive livestock operations such as ruminant production in Western Canada have the decided advantage of providing a solid mix of commodity, EG&S and SG&S production, which is again the goal of public policy under the multifunctionality model. The right balance has to be struck between land use and non-use to ensure that that Manitoba farmers stay on the rural landscape to provide not only the agricultural products our province has traditionally produced but also continues to provide the many environmental and social goods and services we enjoy from the land.

*Policy Problem: Market Failure in the Supply of Public Goods and Services from Agriculture*

In establishing the goal of optimizing the multifunctional output from agricultural activity, the problem of market failure in the supply of public EG&S and SG&S becomes quickly

apparent. Market failure involves the inability of market mechanisms to reflect in whole or in part the social and/or environmental costs and benefits from a particular good or service (often referred to as externalities). As a result, normal market mechanisms do not achieve the most efficient allocation of resources or an optimal outcome.

Unlike the various agricultural commodities that farmers produce on their farm operations, most of the various ecological and social goods and services that are generated by farmers and the natural capital they are the stewards of constitute public goods: they are goods and services whose benefits accrue to all or a large portion of society (including the farmer itself) rather than exclusively to a specific individual (as is the case with private goods). *Because these public benefits are so diffuse throughout society, a producer has no handy method of individually negotiating the supply of these EG&S benefits and is effectively providing them to society for free.*

Yet, throughout agro-Manitoba and agro-Canada, the vast majority of environmental management and the supply of rural benefits are *performed by farmers and landowners at their own cost*. As stewards of the land, these farmers pick up the tab to make sure that society as a whole gains from their capital and labour power in supplying EG&S and SG&S.

Beyond the obvious ethical question of fairness that this situation raises, without adequate financial compensation for delivering EG&S and SG&S, farmers are forced to view these beneficial outputs not as rewarding co-products of their farm operations but as operational requirements and a cost to their commodity operations. Farmers are directed by the economics of the situation to *minimize* rather than maximize the investments that go into producing enhanced EG&S and SG&S. That Manitoba farmers continue to co-produce some EG&S and SG&S on their farm operations despite the lack of remuneration is a consequence of their need to invest a minimum amount in natural capital in order to strictly maintain the sustainability of their immediate farm operation.

The result is the absence of any price signal to communicate to the farmer what the public value is of the EG&S / SG&S that he or she is co-producing. Further, because everyone is benefiting, no single individual is typically willing to step forward and pay the farmer for the full value of the EG&S / SG&S to society or the full cost to the farmer of supplying the correct amount needed. The absence of a normal market mechanism leads to an underinvestment in natural capital and social capital, the overuse of natural resources, and ultimately *the under supply of the appropriate amount of EG&S and SG&S*. The policy goal of achieving an optimal mix of multifunctional outputs from the farm is missed.

Cattle producers in Manitoba, like all farmers, are deeply interested in maintaining and enhancing the natural resources they are the stewards of. As Manitobans, they too want to see the optimum mix and amount of multifunctional benefits arise from their agricultural activity. But as long as cattle producers and other farmers have to continually weigh the provision of *non-remunerated* ecological goods and services against remunerated

commodities, they will logically choose management practices and production activities that return the best value on their commodities and simply hope that there is some money leftover to invest in the supply of other public benefits. This type of process cannot deliver the full or appropriate mix of commodity outputs, EG&S, and SG&S necessary for society.

At the other end of the policy spectrum, the attempt to use a *purely* 'disciplinary' approach as a way to fill the gap created by market failure is equally problematic. While such attempts to compel producers into an involuntary increase in the supply of EG&S through strategies such as enhanced standard/threshold regulations, cross-compliance, and production controls can usually be counted on by government to induce some increase in public goods, none of these methods resolve the issue of producers having to find the means to handle the compliance costs created in supplying the additional level of mandated EG&S or SG&S. These costs erode general farm profitability and market competitiveness and will, at a certain point, turn profit into an on-farm loss, forcing the abandonment of the farm operation. The disciplinary approach further entails enforcement costs on the part of the government, so while this approach may be useful for establishing fundamental baselines and ensuring that farmers are not 'paid to not pollute', it also has implicit limits on its ability to compel the appropriate mix of beneficial farm outputs.

**The conclusion for most developed nations around the world has been that in order to keep the supply of public EG&S and SG&S flowing from agricultural activity, and to restrain damaging repetitive land use transition cycles, public programs are needed that will provide adequate remuneration to agricultural producers for these public benefits. Put differently, government needs to step in and function as the social purchaser of public EG&S and SG&S on behalf of the general public.**

The detail of the policy problem then comes down to the question of *how to provide financial incentives* to Manitoba farmers that will signal the correct supply and optimal mix of agricultural commodities, EG&S, and SG&S.

*Policy Action: Environmental and Rural Stewardship Incentive Program (ERSP)*

The remainder of this document outlines the Manitoba Cattle Producers Association proposal for the Government of Manitoba to establishment a new Environmental and Rural Stewardship Incentive Program for agricultural producers. The broad objective of the program would be to act as a *cornerstone program* in the province's effort to re-tool its agri-environmental and rural development policies to ensure the optimum delivery of the multifunctional benefits from agriculture in the province. The program adopts the incentive rather than disciplinary approach by ensuring that cattle producers and other agricultural producers are paid a fair and adequate price for the environmental and socially-related public goods and services that they have long provided to Manitobans.

MCPA believes that there is a real appetite among all Manitobans for a program of this kind. Cattle producers believe that adequate and fair remuneration by government for the many public benefits that agricultural activity has for Manitoba represents not a cost but a positive investment by Manitobans in our province's natural capital and social fabric. Cattle producers believe that the public will accept a proposal that would have everyone share the financial investment in environmental stewardship and provide the needed price signals to Manitoba's farmers when they make their land use decisions.

MCPA's reason for optimism in this regard is the commitment made by all four of Manitoba's major political parties in the last provincial election to undertake an approach along these lines. The current government's election pledge to "create a new province-wide Farmers Eco-Fund to support producers who implement practices such as wetland preservation" is of particular note, as it forms a general commitment by the current provincial cabinet to extending ecological goods and services incentives across Manitoba.

Time is of the essence in regards to launching a province-wide Environmental and Rural Stewardship Incentive Program for two reasons. The first, as indicated earlier in this document, is the need to forestall a coming mass transition in agricultural land use that will see precious natural capital in the form of perennial green cover and wetlands wiped off the rural landscape. Manitoba agricultural producers plan well ahead in their land use and production decisions, so signals and incentives need to be communicated to producers *today* if farmers are to make land use and production decisions that do not erode the future supply of ecological goods and services in the province.

Second, an Environmental and Rural Stewardship Incentive Program for Manitoba is urgent given the provincial government's commitment under its *Beyond Kyoto* strategy to achieve substantial gains in greenhouse gas mitigation in the agricultural sector. Manitoba has set a high bar for climate change policy with the *Climate Change and Emissions Reduction Act* of 2008 and immediate action will be needed to enhance the incentives for carbon sequestration if the province is to achieve its climate change objectives. While provincial commitments to help find farmer-friendly ways to lower on-farm energy use and emissions are useful, the reality is that the time it will take to bring these new technologies, practices, and strategies onto Manitoba farms will be considerable. Achieving Manitoba's climate change objectives in agriculture will likely have to come from the carbon sequestration and offset side of the equation, not from on-farm emission cuts.

For their part, Manitoba cattle producers are more than ready to take up the challenge of adapting their farm operations to the new goal of optimizing the social benefits of agricultural activity. The cattle industry as a whole in Canada is already re-examining itself in light of the multifunctionality model of agriculture and is beginning to see itself as more than just a rural network of commodity operations.

Changes in the thinking of the cattle industry are leading producers away from an exclusive 'productivist' line of thinking that focuses strictly on commodity productivity per acre. Canadian cattle producers of the 21st century no longer see themselves 'only' as cattle producers supplying a superior beef product to the world; they want to be seen for what they have always been: multifunctional suppliers of vital ecological and social goods and services to the rest of society. As an industry, cattle producers today see farm production as a matter of 'profitability per acre', so the time is right for public policy to use that approach and turn sustainable on-farm land management into a profit centre in Manitoba.

## 4. Environmental & Rural Stewardship Incentives: Objective & Principles

*Incorporating key principles and lessons from policy trials and international experiences*

---

### *Relevant Observations from International Experiences & Domestic Policy Trials*

A wide range of policy reviews and analyses have already been conducted on the various models that governments around the world have adopted to provide remuneration for ecological and social goods and services in agriculture (see detailed bibliographies contained in Government of Quebec, 2005; Government of Canada, 2006; Rae & Beale, March 2008). Additionally, as indicated in the introduction to this document, numerous pilot projects and policy trials have been conducted in the process of establishing these programs and various research projects are in progress in Canada to do the same.

Consequently, this proposal does not intend to provide a comprehensive literature review of all of these international programs, but rather to highlight a number of key findings that the Manitoba Cattle Producers Association has found in reviewing the multitude of programs and pilot projects available. These observations are raised as they require close attention in devising an Environmental and Rural Stewardship Incentive program in Manitoba.

- **Observation 1: The desirability for a remuneration program in which government functions as a *public aggregator* (the collective agent for the general public) when purchasing ecological and social goods and services from agricultural producers that cannot be made marketable in the private sector due to intractable market failure.**

This approach contrasts (but is not mutually exclusive) with a *market-based instrument* (MBI) policy approach in which governments (such as Australia) have attempted to induce a private sector exchange (private demand - private supply) among specific public goods or services. MBI's usually, but not exclusively, take the form of forcing the creation of a *private market* for a *public good* by mandating that the public or other group in society purchase a quantity of a public good under law (i.e., mandated demand).

MBIs certainly have impressive advantages with respect to goods and services that are relatively easy to quantify and assign value. An example would be the cap-and-trade carbon emissions/sequestration approach that many governments are considering with respect to greenhouse gases. This MBI in the form of mandated demand and the development of a 'climate exchange' is practical largely because of the use of carbon as a measurement unit. Cap-and-trade also conceivably works because of the ability of the private sector to step in to provide the necessary brokerage and coordinating services.

As elegant as they are as a policy approach, MBIs do not work for *all* public goods and for *all* situations: they are only effective in the specific circumstances that have been *created* by

government for the particular instrument to work. Unfortunately, there are many ecological and goods and services that do not readily lend themselves to be packaged and made individually tradable in the form of credits, offsets, tradable rights, etc. For instance, with respect to on-farm biodiversity or soil management, an urbanite does not emit an easily quantified negative unit (they way they do with carbon equivalents) that can then be used as the basis for determining the price of a matching offset measure. If these types of goods and services were in fact easily made marketable in the private sector, the dynamics of the market would likely have long since filled that gap and there would not be the case of market failure diagnosed in section 3 of this document.

Moreover, because of the effort, time, and often money required for governments to create the specific conditions to make MBIs work, it is simply impractical for governments to attempt to pursue an MBI for *every single* ecological good or service that deserves remuneration and an incentive under the multifunctionality model. It has been far more administratively simpler for governments to use MBIs for those goods and services that are easier to quantify, value, and create a mandated private demand.

As a result, the majority preference around the world has been for governments to adopt a hybrid policy approach where governments both pursue some MBIs for specific EG&S (e.g., private sector carbon trading) while also taking on the role of public aggregator and purchaser of public goods and services in areas of intractable market failure or deep social concern. Examples of the latter are the direct payment programs to producers used in the various nations of the European Union and support programs in the US such as the Conservation Security Program. This hybrid approach allows government to take action immediately on EG&S remuneration without foreclosing on the idea that at some future point it may be possible to turn certain EG&S over to the private sector once they become more amenable to the MBI approach.

- **Observation 2: The desirability for a remuneration program that does not assume all agricultural activity is equally harmful to the environment and instead provides for tiered or pro-rated support based on activity.**

One of the implicit assumptions in earlier first-generation (i.e., non-EG&S) agri-environmental programs was a tendency to view all agricultural activity and agricultural land use as equally disruptive of natural capital and the environment. That implicit assumption is found for instance in the Conservation Reserve Program (CRP) in the US, whose contracts prohibit just about any agricultural use of the land set aside under the program. Unfortunately, some of that similar thinking has carried over into EG&S proposals: this was an equally present assumption during the ALUS research project in the R.M. of Blanshard, which treats the conversion of cropland into grazing land as having only 1/3rd the ecological value as land with no agricultural use (\$5/acre vs. \$15/acre) and 1/5th in the case of 'ecologically sensitive' lands (\$5/acre vs. \$25/acre).

Yet, there is a growing recognition of the falseness of this sort of assumption: different agricultural practices have clearly different ecological footprints. In the case of grazing lands in particular, well-managed and sustainable grazing by ruminants on arable land is no longer viewed by many as having the level of impacts on the provision of EG&S that were believed only a few years ago. The assumptions that were in play at the beginning of the ALUS pilot project with respect to ruminant grazing are in need of adjustment and it is this realization that is also prompting the shift towards the newer Conservation Security Program (CSP) in the US. The USDA even attempted recently in 2008 to permit some limited agricultural land use on lands covered by its older CRP.

Any province-wide remuneration program from ecological goods and services therefore has to be sufficiently structured to allow for a good deal of differentiation in the supply of EG&S based on different types of agricultural land use, adoption of beneficial management practices, and other agri-environmental measures.

- **Observation 3: Remuneration programs that require taking agricultural land *entirely* out of production, 'lock-in' prescribed land uses for long periods of time, or place too great a list of restrictions are less 'policy stable' than programs which build in producer-initiated management flexibility.**

Another important observation flowing from the US experience with the CRP but also evident in the French and Belgian types of Agri-Environmental Measures (AEM) contracts in Europe is that the more restrictive an agri-environmental program is, the more unstable long-term producer commitment can become.

While the CRP formed an excellent first-generation agri-environmental program in the 1990s, many producers found towards the end of their contract period that the loss in production and land management flexibility impaired their ability to adjust on-farm during major feed shortages or other emergencies.

More flexible programs like the new CSP, the Environmental Stewardship Program in the UK, and the Swiss suite of agri-environmental programs, allow for a greater degree of tiered enrollment and variation in the program, allowing more room for on-farm adjustments as circumstances warrant. This means that a producer who needs to can take the micro-policy decision to adjust their supply of EG&S and reduce the amount of public payment they receive in order to increase commodity supply – *or vice versa*. This gives more empowerment to the individual producer to best manage the supply of his or her multiple commodity, ecological, and social products in response to both market *and government* price signals. Governments are therefore able to use EG&S price signals to encourage increased EG&S production in competition with market demand for commodities, allowing the micro-management to be in the hands of the producer. Such flexible and tiered remuneration programs improve the relationship of trust in the vast majority of agricultural producers as

the stewards of the land, instead of taking a hardline approach that tends to imply that all producers cannot be relied on to manage the flow of EG&S themselves.

- **Observation 4: Remuneration programs need to cover both existing beneficial practices as well as the adoption of new beneficial practices or enhancements to existing practices to prevent land use transition to more intensive forms of agriculture.**

Perhaps the most crucial reason for the adoption of a new province-wide Environmental and Rural Stewardship Program in Manitoba rather than proceeding with a straightforward and unmodified 'extension' of the Blanshard ALUS pilot project is the need to close a significant policy gap resulting from the under-valuing of the ecological benefits from *existing* lands.

One of the experiences of Blanshard ALUS pilot project has been to demonstrate the interest of field and crop farmers keeping their marginal crop land away from crop farming in order to produce more EG&S for a payment. However, since the launch of the Blanshard ALUS project, commodity markets have changed substantially, and have revealed a major policy weakness in using ALUS *alone* to achieve an optimal multifunctional outcome.

ALUS works extremely well in increasing EG&S in the context of low crop prices, but does not have what is needed to keep the majority of existing grazing areas from going under the till. The ALUS incentive structure provides an attractive one-way incentive to taking marginal cropland offline for purpose of increased EG&S production, but pays nothing to prevent the owner of high EG&S-producing grazing lands to keep those lands under perennial cover in the face of escalating prices for crops. Thus, when crop prices are relatively high, the ALUS system may help keep some marginal land reverting to crop, but the market continues to send signals to cattle and other ruminant producers to rip up their perennial cover. *The end result is a net loss in EG&S through the net loss of perennial cover.*

Specifically, the difficulty arises from ALUS providing payments only to producers who *convert* their land to higher EG&S output and not to those producers *who are already producing high levels of EG&S* on their perennial lands. During low crop prices, this poses no major difficulties for encouraging the aggregate supply of EG&S. During high crop prices, however, the policy risks amplifying land use transition and seriously jeopardizes the total supply of EG&S throughout the province.

This is the situation Manitoba is in today in its land use transition from perennial cover to intensive crop production on marginal arable land.

The answer then is to ensure that a future province-wide EG&S remuneration program compensates not only the act of upgrading lower-output EG&S land to higher-output EG&S land (e.g., adopting new BMPs or changing agricultural activity) but also compensates producers for *EG&S already being produced* without having to make any significant changes. The key is to focus incentives on the actual measurable output of EG&S from a parcel of land

and not on the act of upgrading. This has been the most important decision and innovation under the US Conservation Security Program.

- **Observation 5: Since scientific research is still on-going in the area of assessing the quantifiable outputs of many individual EG&S / SG&S, it is desirable to phase-in remuneration payments based on sound scientific research that forms the basis for an economic valuation of EG&S and SG&S from agriculture.**

Another fact that is apparent in reviewing existing remuneration programs and policy trials is the 'arbitrariness' of many of the incentives provided to producers.

As first-generation programs, it is apparent that many governments initially instituted their multifunctional agri-environmental and rural development programs not on the basis of clear, peer-reviewed scientific research which had quantified the amount of EG&S and SG&S output from their agricultural sectors, but as a means of de-linking previous farm support payments from commodity production to meet trade agreements.

This original motivation for EG&S/SG&S remuneration has made these programs suspect in the eyes of many nations, particularly developing nations, that there is no 'real' basis for these payments other than a clever way for governments to offer protection to domestic agricultural producers. Skeptics can therefore understandably demand that these programs be terminated since they are just a means of transferring wealth from the urban population to the rural population in developed countries.

In fact, while there are definite gaps in the scientific basis for EG&S/SG&S remuneration, it is not the case that no scientific research has been conducted into the basis for incentives. Far from it, as indicated in the introduction section of this document, many research projects are underway in Canada alone on quantifying and valuing EG&S. Research into SG&S, however, is substantially far behind in this regard.

Because most EG&S/SG&S remuneration programs are funded through the general tax base of a jurisdiction, it is essential that the proposed ERSP program has the buy-in and confidence of not only policymakers but also of the urban public. That confidence can only be assured if the scientific research is available *before* undertaking an incentive program. Taxpayers deserve to know what they are getting for their tax dollar before it is spent by their purchasing agent (i.e., government).

Yet, if government were to wait until all necessary scientific information is available for a comprehensive program, there probably would never be a program. As the adage goes, you have to start somewhere. ALUS was such a first start and cannot be expected to be perfect in everyway.

The challenge therefore is to create a *second-generation* EG&S/SG&S remuneration program that builds on the experiences of first-generation programs, pilots, and research projects. The best method to secure public buy-in and confidence in the program would be to phase-in remuneration for each individual EG&S/SG&S once each one has acquired a reasonably sound scientific basis for the payment. For many individual EG&S, that sound scientific basis is already there, and there is no reason to hold back any longer on moving forward with these components because the 'entire package' may not be completely ready yet.

### *Program Objective and Core Principles*

**Based on the foregoing analysis, the central objective of the ERSP program proposed by the Manitoba Cattle Producers Association is to have the Province of Manitoba function as a public aggregator and purchaser of beneficial ecological and social goods and services produced by Manitoba farmers on behalf of the citizens of Manitoba.**

By remunerating agricultural producers for public benefits, the Province will thereby create a *transactionable demand* for EG&S and SG&S that Manitoba farmers can then choose to supply as part of their farm operation. This will create the price signals necessary to have agricultural producers adjust their whole-farm production decisions toward an optimal mix of commodities, EG&S and SG&S from agricultural activity.

In implementing the proposed ERSP program, a number of core principles will have to be followed:

- 1. The ERSP will provide financial incentives to producers to provide the maximum multi-functional benefit from agricultural land in Manitoba. Thus, the ERSP must not encourage the withdrawal of land from agricultural use but rather maximize the production of EG&S within agricultural activity.**

Rationale: It will be essential that the program does not end up driving producers off the land by privileging non-use over use. The purpose of the program is to supply the optimum mix of multifunctional benefits: to conserve both nature and the productivity of future generations.

- 2. The ERSP must be a voluntary enrollment program that respects the property rights of the landowner to choose the right mix of on-farm production methods and outputs.**

Rationale: As an incentive and not regulatory program, it is essential that the program gives producers the flexibility they need to determine what form of economic production they engage in. Producers must have the ability within a reasonable timeframe and under certain terms to shift production in order to respond to market and social price signals and best operate their farm.

- 3. The Province of Manitoba will function as the public aggregator and purchaser of ecological and social goods and services from farm operations in cases of clear market failure and inability to implement market-based instruments in a timely manner.**

Rationale: Because of the public nature of the goods and services provided, government is the most appropriate body to serve as the agent for the demand for on-farm EG&S and rural SG&S.

- 4. Assessment, certification, compliance reporting, and other on-farm monitoring will be provided confidentially by a third-party administrator.**

Rationale: Based on the experiences with the Farm Stewardship Association of Manitoba, CCIA, and other registration-type agencies, farmer confidence and uptake on the program will best occur when producers have confidence in the security of their personal production information.

- 5. Remuneration under the ERSP must be provided based on the outcomes and results of farm activity and not be limited to the adoption of new or enhanced management practices to the exclusion of existing practices.**

Rationale: The program should reward producers for the actual positive externalities that a farm provides society and not be a function of when a producer decided to adopt certain beneficial management practices.

- 6. Payments under the ERSP must be tied to scientifically demonstrated environmental and social outputs that provide on-going benefit to the general public and not for one-time investments.**

Rationale: The dollar amounts provided under the program are to come from a payment schedule determined using sound econometric models that employ quantifiable from a scientific estimate of the goods and services provided by a given type of natural capital, production method, beneficial management practice, etc.

- 7. The ERSP needs to be a modular program that is flexible enough to keep up with scientific developments and research.**

Rationale: The program needs to be designed to allow for on-the-fly changes to the payment schedule reflecting more accurate assessments of the value of EG&S / SG&S as they become available. Academic institutions, industry associations, conservation groups, and other organizations are all currently involved in research that will refine EG&S estimates. MCPA itself has invested substantially in studies with the University of Manitoba into nutrient management around solid cattle manure as well as the multifunctional value of the prairie cow-calf operation. MCPA is also involved with the federal and provincial governments through AAFC's Brandon Research Centre and is a member of the Manitoba

Zero-Till Research Association. Delta Waterfowl and other groups continue to investigate EG&S delivery through the Blanshard ALUS project and Ducks Unlimited Canada is involved in assessing EG&S on a watershed basis with the Government of Canada through its WEBS program at South Tobacco Creek and other sites across Canada. A remuneration program should therefore be able to grow 'organically' as available science allows.

8. **The ERSP must include some coverage for producers leasing agricultural Crown lands to reflect the on-going value of the labour component of environmental and rural stewardship and not only the value of the natural capital.**

Rationale: ERSP should not go to a type of absentee landowner who is not actively monitoring or working the land but to a person whose use decisions are actually providing public benefit.

## 5. Program Delivery I: Modular Implementation of Payment Schedule

*Categorization of ERSP components for incremental implementation and adaptation*

---

### *Incremental Implementation and Adaptation of ERSP via Available Scientific Data*

Based on its review of the multifunctionality model of agriculture, an analysis of the policy problem of achieving optimality in multifunctional agricultural activity, and its review of existing remuneration programs in agriculture, **the Manitoba Cattle Producers Association recommends that the Province of Manitoba adopt an incremental implementation of a modular Environmental and Rural Stewardship incentive program.**

The concept will be to develop a “Schedule of Ecological and Social Goods and Services” that itemizes individual EG&S and SG&S outputs and groups them into various modules and components that can be phased-in as (1) research into the quantification and valuation of individual EG&S/SG&S is completed, and (2) public funds become available for the administration of the program.

The purpose of the incremental implementation is to ensure that sufficient public confidence has been established via scientific research to justify each of the modules and components before it is implemented and that sufficient funds are available to make the each of the modules and components sustainable over the long-term. Further, the modularity of the program will allow for reassessment of the program in manageable amounts as scientific and economic research refines the quantification and valuation of individual components and modules.

### *Program Modules and Components*

A proposed “Schedule of Ecological and Social Goods and Services” itemizing and briefly explaining the categories of EG&S/SG&S for future remuneration is as follows:

#### Pillar I – Ecological Goods and Services from Agricultural Activity

##### 1. Climate and Atmospheric Stabilization Module

- Carbon Sequestration Component  
This component covers measurement and compensation for the amount of carbon sequestered on farm land based available natural capital and the level and type of agricultural use.
- GHG Mitigation and Climate Regulation Component  
This component covers measurement and compensation for general on-farm ecosystem functions and benefits around regulation of stratospheric ozone for UV protection, DMS production affecting cloud formation, etc.

- Air Quality / Air Pollution (SO<sub>2</sub>) Reduction Component  
This component covers measurement and compensation for regulation and mitigation of sulfur dioxide and other airborne pollutants through supply of natural capital.

## 2. Water Resource Module

- Water Filtration Component (Water Quality)  
This component covers measurement and compensation for removal of waterborne pollutants or excess nutrients, etc. by virtue of the supply of natural capital and on-farm water quality management work.
- Water Supply, Retention and Recharge Component (Water Quantity)  
This component covers measurement and compensation for the benefits from work in maintaining reservoirs, watersheds, aquifers, etc. to ensure an ecologically adequate supply of water.
- Hydrological Flow Stabilization Component  
This component covers measurement and compensation for benefits arising from maintaining the natural supply of water for available use by agriculture, industry, transportation as well as any benefits further accruing from additional flood control measures through maintenance of on-farm natural capital.

## 3. Soil Resource Conservation Module

- Erosion Control & Soil Sediment Retention Component  
This component covers measurement and compensation for benefits from prevention of soil loss by wind, runoff, and other processes, plus the regulation efforts around storage of silt in lakes, wetlands, and drainage.
- Soil Formation, Fertility, and Nutrient Cycling Component  
This component covers measurement and compensation for benefits accruing from the accumulation of organic material and the internal cycling and processing of nutrients, including processes such as nitrogen fixation and N and P nutrient regulation.
- Water Treatment, Detoxification, and Mobile Nutrient Recovery Component  
This component covers measurement and compensation for benefits from recovery of mobile nutrients and removal or breakdown of excess or xenic nutrients and compounds, leading to pollution control and water detoxification.

#### 4. Biodiversity and Biosecurity Module

- **Wildlife Habitat & Endangered Species Component**  
This component covers measurement and compensation for providing habitat for resident and transient animal populations such as wintering grounds, migratory sites, and locally harvested species areas. Also includes refuges for endangered species.
- **Pollination Component**  
This component covers measurement and compensation for providing necessary natural capital for provisioning of pollinators for the reproduction of plant populations.
- **Invasive Species and Biological Control Component**  
This component covers measurement and compensation for providing control over the spread of invasive floral and faunal species, regulation of pest populations, and regulation of and control of prey species.
- **Plant, Animal & Human Disease Control Component**  
This component covers measurement and compensation for benefits arising from on-farm monitoring, regulation, and control of disease both within and outside (e.g., elm disease, pine beetle) of the human-destined food chain as well as general on-farm animal welfare practices.
- **Synthetic Chemical Reduction Component**  
This component covers measurement and compensation for benefits arising from measures taken to reduce or replace synthetic chemicals on the landscape.
- **Genetic Resource Conservation and Provision Component**  
This component covers measurement and compensation for benefits arising from agricultural activity that preserves key naturescapes that can potentially used as a source of bioproducts such as medicines, products for material sciences, genes for plant pathogen and crop pest resistance, and unique ornamental species.

#### Pillar II – Social Goods and Services from Agricultural Activity

##### 5. Aesthetic Heritage Module

- **Physical Landscape and Scenery Component**  
This component covers measurement and compensation for social value arising from the attractiveness of specific agricultural activities on the landscapes.
- **Physical Recreational Activities Component**  
This component covers measurement and compensation for social value gained from maintenance and provision of natural capital for outdoor

recreational activity including fishing, bird watching, eco-tourism, swimming, etc.

#### 6. Cultural Heritage and Diversity Module

- **Preservation and Transmission of Cultural Heritage Component**  
This component covers measurement and compensation for social value of conserving the rural way of life and rural forms of social interaction as part of a goal to achieve cultural diversity within society.
- **Maintenance of Historical Sites and Experiences Component**  
This component covers measurement and compensation for benefits arising from conserving specific historical sites or experiences as closely to their original condition for social education purposes.

#### 7. Domestic Food Security Module

- **Quantitative Food Safety Component**  
This component covers compensation for helping to ensure a sufficient amount of domestic agricultural activity to protect the scale of the domestic food supply.
- **Qualitative Food Safety Component**  
This component covers compensation for helping to ensure a diverse mix of agricultural activity on the landscape to protect the scope of the domestic food supply.

#### 8. Knowledge Management Module

- **Experiential Knowledge Systems Component**  
This component covers measurement and compensation for socio-economic value of preserving and transmitting on to future generations whole-farm production and business management knowledge that is not available academically or is available experiential-only.
- **Research and Development Component**  
This component covers measurement and compensation for socio-economic benefits from making on-farm natural capital and agricultural activity available to researchers and public institutions for research and development opportunities.

#### 9. Land Occupancy and Rural Asset Management Module

- **Rural Employment Component**  
This component covers measurement and compensation for public socio-economic benefits from making rural communities economically viable.

- Fire Protection and Suppression Component  
This component covers measurement and compensation for public benefits deriving from on-farm fire protection and suppression services as part of a larger disaster or emergency measures strategy.

*Initial Coverage for Program Startup: Climate and Atmospheric Stabilization*

Based on the MCPA's review of the available scientific and economic research quantifying and valuating the EG&S/SG&S output from natural capital and human activity in the agricultural sector, the Manitoba Cattle Producers Association is of the opinion that there is sufficient data and information available for the Province of Manitoba to proceed with remunerating Manitoba farmers for EG&S under the *Climate and Atmospheric Stabilization Module* and the *Water Resource Module*, and for SG&S under the *Aesthetic Heritage Module*.

Based on a review of the Province of Manitoba's current fiscal capacity and a review of the Government of Manitoba's state environmental and social priorities, **the MCPA recommends that of the three modules above, the *Climate and Atmospheric Stabilization Module* and the *Water Resource Module* be the first two modules introduced under the ERSP program in the next fiscal year (2009-10).**

*Program Priorities and Research Agenda*

Based on its review of the cattle industries needs and priorities, **the Manitoba Cattle Producers Association recommends that priority be given by the province to scientific and economic research projects that will close the last remaining gaps in the following modules:**

1. *Climate and Atmospheric Stabilization Module*  
Carbon Sequestration in Annual Crop Production  
Air Quality / Air Pollution (SO<sub>2</sub>) Reduction Component
2. *Water Resource Module*  
Water Supply, Retention and Recharge Component
3. *Soil Resource Conservation Module*  
Soil Formation, Fertility, and Nutrient Cycling Component; and  
Water Treatment, Detoxification, and Mobile Nutrient Recovery Component

**The Manitoba Cattle Producers Association also recommends that once research gaps have closed in these three modules, priority be given by the province to research projects in the following modules:**

4. *Biodiversity and Biosecurity Module*
5. *Domestic Food Security Module*
6. *Knowledge Management Module*

## 6. Program Delivery II: Valuation of Goods & Services for Payment

*Methodology for calculating payments for environmental and rural goods and services*

---

### *Establishing an EG&S Index Value*

Based on its review of existing remuneration programs in agriculture and the core principles outlined in Section 4 of this document, the Manitoba Cattle Producers Association recommends that the Province of Manitoba adopt the approach of using a *Non-Use Index Value* as a base figure calculating tiered payments under the ERSP program.

The approach taken here is to use current and future estimates of the EG&S produced on examples of unused natural capital to establish an *index value* for that type of natural capital in each program component and by ecosystem type. The actual value of the program payment would then be calculated based on a producer's individual farm relationship (positive or negative) with the natural capital on the farm. Producers who engage in activities that reduce the overall amount of EG&S output from the natural capital compared to non-use will result in a payment less than the index value. Producers who engage in activities that enhance the amount of EG&S output from the natural capital compared to non-use would result in a payment greater than the index value.

As a starting point, MCPA recommends that the initial Index Values for the ERSP be taken from the computation of EG&S values by environmental economist Dr. Nancy Olewiler, Director of the Public Policy Program at Simon Fraser University, as compiled in her paper *The Value of Natural Capital in Settled Areas of Canada* (2004) for the Nature Conservancy of Canada and Ducks Unlimited Canada. Dr. Olewiler's study presents a conservative estimate of the economic values of different types of natural capital from four geographically diverse locations in Canada, three of which are agricultural case studies.

The most relevant case study for Manitoba is the 21,000 km<sup>2</sup> Upper Assiniboine River Basin along the Saskatchewan-Manitoba border. The basin is hummocky in the southernmost portion of the area with an abundance of streams and tributaries. Approximately 70% of the soils in the region are considered highly productive soils. Over the past 100 years the area has undergone extensive land use transition affecting the hydrologic characteristics of the region. Water quality has been within the objectives set by the provinces, and water supplies have been adequate for consumption and production. Wind erosion has been a problem in the basin.

The following table (Table 8 of *The Value of Natural Capital in Settled Areas of Canada*) presents Dr. Olewiler's results in estimating the net benefits of converting a hectare of tilled cropland into permanent vegetative cover that does not deplete the natural capital of the land.

## Net Value of Conserving Natural Capital in the Upper Assiniboine River Basis (SK/MB)

From: Olewiler, N. (2004). *The Value of Natural Capital in Settled Areas of Canada*.

Benefits (costs) \$/hectare/year	High	Best Estimate	Low
Saved government payments	19.25	12.83	6.42
Saved crop insurance premiums	5.27	3.51	1.76
Improved water quality - decreased sediment	9.34	4.62	1.34
Water-based recreation	1.37	0.91	0.46
Reduced wind erosion	4.01	2.67	1.34
Reduction in GHG emissions	14.07	9.38	4.69
Carbon sequestration	29.40	19.60	9.80
Increased wildlife hunting	19.11	10.71	5.36
Increased wildlife viewing	6.45	4.16	2.08
<b>Gross benefits</b>	<b>108.25</b>	<b>68.39</b>	<b>33.23</b>
Program administration costs	(1.04)	(2.08)	(3.12)
Wildlife depredation compensation	(0.32)	(0.64)	(0.96)
<b>Net benefits</b>	<b>106.89</b>	<b>65.67</b>	<b>29.15</b>

Each of the above values represents the approximate economic value of the ecological goods and services provided by having unused perennial cover on the landscape.

### *Pro-Ration of Index Value to Agricultural Activity*

Based on index values calculated above, the actual EG&S benefit to society from land engaged in agricultural activity would then be determined by pro-rating the non-use index value proportional to *an estimate of the impact (positive or negative) of on-farm agricultural activity on the natural capital*.

This *estimate of on-farm agricultural impact* would be determined through on-farm surveys and assessments of:

- the type, scope and scale of on-farm agricultural production; and
- the presence of a various beneficial management practices (BMPs) that mitigate production impacts *or* add positive EG&S value to the farm operation.

Using the impact estimate of on-farm agricultural activity, the farm operation would be assigned to a program tier that would determine the proportional amount of EG&S remuneration to be paid out to producer:

Tier One: Non-intrusive Grazing Land with Value Enhancing Agricultural Activity

- Perennial-based farm operation verified to not only meet the requirements of Tier Two but also *exceeds in* the supply of EG&S relative to non-use by X% because of the presence of a relevant combination of enhanced perennial cover, beneficial management practices, agricultural methods, etc.
- Payment = 100% of the Index Value of on-farm Natural Capital  
+ X% enhanced value

Tier Two: Non-intrusive Grazing Land at *Approximate Net Equivalency to Non-Use Cover*

- Perennial-based farm operation verified to be very well-managed under an Environmental Farm Plan and utilizes a sufficient number of BMPs and other agri-environmental techniques to achieve EG&S output roughly equivalent to what would occur if land was in a non-use state (*Approximate Net Equivalency to Non-Use Cover*).
- Payment = 100% of the Index Value of on-farm Natural Capital

Tier Three: Non-intrusive Grazing Land with Partial BMPs OR  
Semi-intrusive Agricultural Activity with Full Compliment of BMPs

- Perennial-based farm operation verified to be well-managed under an Environmental Farm Plan that either (a) has little intrusion on the landscape but has less than the optimum number of BMPs to achieve *Approximate Net Equivalency to Non-Use Cover*, or (b) has some negative intrusion on the landscape but has a full compliment of BMPs and other measure to help offset the reduction in EG&S.
- Payment = 100% of the Index Value of on-farm Natural Capital  
- Y% (where Y% < *Approximate Net Equivalency to Non-Use Cover*)

Tier Four: Annual Cropland with Full BMPs

- Annual-based farm operation verified to be well-managed under an Environmental Farm Plan that possesses the full amount of BMPs and agri-environmental measures to mitigate reductions in EG&S.
- Payment = 100% of the Index Value of on-farm Natural Capital  
- Z% (where Z% < Y% < *Approximate Net Equivalency to Non-Use*)

Tier Five: Annual Cropland with Partial BMPs

- Annual-based farm operation verified to be well-managed under an Environmental Farm Plan that possesses some of the BMPs and agri-environmental measures needed to mitigate reductions in EG&S.
- Payment = 100% of the Index Value of on-farm Natural Capital  
- Z% (where Z% < Y% < *Approximate Net Equivalency to Non-Use*)

Unqualified Agricultural Land (i.e., not meeting baseline program standards) = \$0

For the cattle industry, a cornerstone to any future EG&S remuneration program must be the recognition that well-managed grazing land that is farmed non-invasively under an Environmental Farm Plan utilizing a sufficient number of BMPs and other agri-environmental techniques has at least roughly the same EG&S generating capacity as unused land. The Manitoba Cattle Producers Association believes that science-based research will find that the sustainable grazing of ruminant animals is not only not an impediment to the provision of EG&S, but that this farm practice enhances the ability of perennial grazing areas to deliver EG&S based on the principles of biomimicry.

With appropriate management, ruminant-occupied pastures and rangelands absorb carbon dioxide from the atmosphere and hold the carbon in plant material and below the surface in deep root systems. Research shows that prairie grasslands have very high reserves of carbon stored below ground and in some cases hold more carbon than trees. A soil that has been intensively cultivated and is restored to grassland accumulates carbon very quickly. Well-managed perennial cover also provides a multitude of other environmental services including filtering and storing water, holding carbon, and providing wildlife habitat and recreational opportunities.

*Initial ERSP Remuneration Estimate for Climate and Atmospheric Stabilization Module*

Based on estimated EG&S Index Values for Prairie perennial cover derived from Table 8 of the Olewiler study, the initial budget for ERSP remuneration of **Climate and Atmospheric Stabilization Module** on Manitoba *pasture land* is approximately **\$59 million**. Similarly, the estimated ERSP remuneration for the **Water Resource Module** on all Manitoba pasture land is approximately **\$67 million**.

	\$/ha/year	\$/acre/year	5,056,992 acres Prov. Pasture	75% Uptake YR1
<i>Climate and Atmospheric Stabilization Module</i>				
Carbon Sequestration Component	\$19.60	\$7.93	\$40,111,180.63	\$30,083,385.47
GHG Regulation & Mitigation Component	\$9.38	\$3.80	\$19,196,065.01	\$14,397,048.76
Air Quality / Air Pollutant (SO <sub>2</sub> ) Component				
<b>Total</b>	<b>\$28.98</b>	<b>\$11.73</b>	<b>\$59,307,245.64</b>	<b>\$44,480,434.23</b>

	\$/ha/year	\$/acre/year	5,056,992 acres Prov. Pasture	75% Uptake YR1
<i>Water Resource Module</i>				
Water Filtration Component	\$28.12	\$11.38	\$57,547,265.27	\$43,160,448.95
Water Supply/Retention/Recharge Component				
Hydrological Flow Stabilization Component	\$4.80	\$1.94	\$9,823,146.28	\$7,367,359.71
Water Disturbance & Disaster Mitigation				
<b>Total</b>	<b>\$32.92</b>	<b>\$13.32</b>	<b>\$67,370,411.54</b>	<b>\$50,527,808.66</b>

The calculation of total Climate and Atmospheric Stabilization EG&S and Water Resource EG&S for all of Manitoba agricultural land would be dependent on the amount of pro-ration of EG&S due to levels of agricultural intensity.

An initial ERSP remuneration estimates for all modules and components for which information is available from Olewiler (2004) is attached to this document as Appendix.

*Note on SG&S Value Calculation Methods*

For SG&S modules and components which depend on the stock of natural capital, such as the Aesthetic Heritage Module, a calculation of SG&S could be made using an equivalent index and pro-ration methodology or formula as with EG&S. However, for the various other modules and components that are not tied to the supply of natural capital, additional methodologies will need to be provided.

At this point, MCPA does not have a recommended methodology for SG&S payment calculations.

## 7. Program Delivery III: Producer Eligibility and Program Verification

*Third party assessment and verification of on-farm EG&S / SG&S deliverables*

---

### *Third Party Certification Process*

A crucial aspect of the proposed ERSP program will obviously be the on-farm assessment, monitoring, and evaluation for program compliance: how will the program ensure that what was promised to be delivered is actually delivered?

Based on experiences gained from the Environmental Farm Plan (EFP) process, the Blanshard ALUS pilot project, and other instances in which on-farm assessments and compliance monitoring have been required, MCPA believes that it will be essential to create a structure that reassures farmers that their personal farm information (the condition of natural capital, farm management practices, etc.) is kept confidential by a neutral third-party. Uptake on the program will be considerably enhanced if producers can be assured that the same arms-length process that occurs with the Farm Stewardship Association of Manitoba (FSAM) or the Canadian Cattle Identification Agency (CCIA) is in place, creating *confidential distance* between the producer's farm information and government administrators.

**In reviewing the various options, it is the recommendation of the Manitoba Cattle Producers Association that on-farm program assessments and compliance evaluations for the ERSP be conducted by a third-party Manitoba Farm Stewardship Certification Agency funded jointly by government, industry, and conservation organizations.**

This agency would be the body tasked with developing the competence and ability to scientifically and accurately conduct on-farm assessments to determine a producer's program *eligibility* and *estimate the impact of agricultural activity* for the calculation of EG&S and SG&S supplied by the farm operation. The agency would then issue a *Farm Stewardship Certificate* declaring program eligibility and indicating the farm's proportional *program tier* for establishing the relevant ERSP payout. The agency would also be tasked with compliance monitoring around its Farm Stewardship Certificate.

**Given their third-party experience in establishing Environmental Farm Plans with Manitoba farmers, and given that possessing an EFP would logically be one of the base requirements for ERSP program eligibility, MCPA suggests that the Province look at an expanded FSAM as the agency to provide ERSP certification and compliance monitoring.**

MCPA believes that FSAM could form an excellent starting point around which to build a future third-party verification agency. This would entail FSAM expanding its mandate and finding and retaining capable individuals possessing the scientific knowledge, skills and

competence needed to provide verification services. By utilizing FSAM as the starting agency for providing environmental farm certifications across Manitoba, the province has the advantage of being able to speed up the program development process as it would not be building a new agency from scratch. MCPA envisions an expanded FSAM with cross-funding and support from among various government, industry, and conservation organizations with an interest in environmental farm certifications.

MCPA also notes that under the Alberta Livestock and Meat Strategy launched this year, the Alberta government will be moving to an environmental farm certification process in any event, and it would make good sense for Manitoba to begin developing a Farm Stewardship Certification Agency of its own immediately in anticipation of this event.

### *Program Eligibility Baselines*

Ultimately, the responsibility for providing government and industry with an authoritative and detailed set of recommended criteria for program eligibility would fall to those with the relevant expertise employed at Farm Stewardship Certification Agency.

**In anticipation of a discussion around program eligibility, MCPA would expect that initial program baselines would look *similar to those under the US Conservation Security Program* and would include:**

- evidence that the program applicant/enrollee is actively engaged in an aspect of agricultural production that forms the majority basis of his/her vocational activity;
- demonstrated compliance with all existing provincial and federal agricultural and environmental regulations and requirements
- the adoption of an environmental farm plan
- the required amount of BMPs dependent on the type and intensity of the farm operation to determine the prorated stewardship payment

A point-based system such as that use under the UK's Environmental and Rural Stewardship Programs could conceivably be used to determine if baseline criteria are met and what program category the farm operation falls under for the calculation of ERSP payments.

### *Determining Eligibility in Instances of Leased Land*

Equally, MCPA would anticipate that program eligibility for agricultural lands that are in a lease arrangement would be determined using a method similar to that of the US Conservation Security Program.

Under the CSP, the basic criterion for who gets to apply and receive payments is who has primary or exclusive control over land use decisions on the land under the program.

Generally speaking, farm land that meets CSP baseline standards but is under lease is counted as eligible for CSP payments provided that (a) there is some form of written confirmation between lessor and lessee that a lease agreement has been reached between the two, (b) one of the parties is an active agricultural producer, and (c) the land in question is under agricultural use. This is to ensure that parties to the lease are fully aware of the status of the land and can negotiate freely the necessary terms of the lease.

For CSP:

*A producer* means an owner, operator, landlord, tenant, or sharecropper who shares in the risk of producing crop or livestock; and is entitled to share in the crop or livestock available for marketing from a farm (or would have shared had the crop or livestock been produced);

*An applicant* must be a producer, as defined above, *who has control of the land unit for an agricultural purpose* and has requested in writing to participate in CSP. *Control* means possession of the land by ownership, lease, or agreement. If the applicant is a tenant, the applicant must provide written evidence or assurance of control from the landowner(s);

Importantly, under CSP landlords and owners of cash rented land are not considered producers if they do not directly share in the risk of producing any crop or livestock and are not entitled to share in the marketing of crop or livestock. They are ineligible to be an applicant. This means that only a producer can receive stewardship payments and prevents ERSP going to 'absentee landlords' who want to purchase land for the sole purpose of gaining an ERSP payment.

In practice, the CSP requirements around leased land would mean that:

*A tenant-producer* would be eligible to apply for an ERSP payment for land he/she leases from a non-producer landlord.

*A landlord-producer* would not be eligible for ERSP payment for land leased out to a non-producer for non-agricultural use.

In the case of a landlord-producer leasing land to a tenant-producer, both parties must provide a written declaration of who holds *primary control of the leased land*. The individual possessing primary control would be the applicant and receive eligible ERSP payments. Because of the disclosure requirement, both parties would be informed of the ERSP value of the land under a lease and would have the opportunity to negotiate lease terms with that information in mind.

### *Delivery of Program Payments*

As the public aggregator and purchaser of the beneficial ecological and social goods and services produced by Manitoba farmers, the Province of Manitoba would be responsible for issuing the payments to agricultural producers under the ERSP program for the public goods and services provided.

**Based on the some of the experiences of the Blanshard ALUS pilot project, MCPA recommends that a Crown organization such as Manitoba Habitat Heritage Corporation (MHHC) be designated as the payment delivery agent for the province under the ERSP program.**

One of the reasons for choosing an agency such as MHHC for program delivery is the agency's familiarity and capacity with working with agricultural producers in Manitoba on the broader aspects of negotiating on-farm agri-environmental measures, such as wildlife conservation agreements. It is a provincial agency with broad representation from a cross-section of stakeholders and a diverse history of working with farmers.

In order to initiate and continue ERSP payments under the program, producers would be required to supply MHHC with their Farm Stewardship Certificate as evidence of their program eligibility and supply of EG&S and SG&S. Based on the information contained in under the Farm Stewardship Certificate, MHHC will calculate the amount of the on-going ERSP payment pro-rated against the index value of the agricultural land under application.

### *Summary of Program Steps under ERSP*

- The interested agricultural producer voluntarily contacts the *Farm Stewardship Certification Agency* (FSAM-plus) for information and/or a consult with program specialist.
- Representative(s) of the Farm Stewardship Certification Agency, with approval of the producer, conduct an initial *confidential on-farm assessment* and determines program eligibility for the ERSP program.
- Farm operations that meet ERSP program eligibility are issued a *Farm Stewardship Certificate* by the Farm Stewardship Certification Agency certifying program eligibility and identifying which Program Tier the applicant falls under in terms of the type and invasiveness of agricultural production.
- Farm operations that do not meet ERSP program eligibility are provided with a list of possible measures that could be undertaken to bring the farm operation into program eligibility. Applicants are invited to approach the Farm Stewardship Certification Agency for re-assessment once the producer takes measures to bring the operation into eligibility.

- Producers possessing a valid *Farm Stewardship Certificate* can then choose to apply to MHHC for an ERSP payment for a specified duration of time. Producers who do so will fill out the application and provide MHHC with a copy of their certificate.
- MHHC uses the Program Tier information contained on the certificate to calculate the amount of pro-rated payment the producers is entitled to against program index values.
- MHHC then issues regular payments based on its calculation for the length of time contracted under the application.
- At any point during the contracted period that the producer makes substantial changes to his farm operation that affects positively or negatively his Program Category under ERSP, the producer is required to contact the Farm Stewardship Certification Agency for re-assessment of the Program Tier. The revised category is then communicated to MHHC and the payment value is recalculated.
- The Farm Stewardship Certification Agency will be empowered and responsible for conducting compliance audits under the program to ensure producer compliance with the terms of their contracts with MHHC. At any time that the Farm Stewardship Certification Agency determines a change in the producer's status under the program, it will communicate that change to MHHC for payment recalculation or termination.
- At the expiry of the contracted period of time, payments from MHHC terminate. A producer can then request re-certification by the Farm Stewardship Certification Agency and re-apply to MHHC for payments for a new/renewed contract period.

*Summary of key deliverables for the parties to the ESR program*

DELIVERABLE TO THE PROVINCE FROM THE PRODUCER:

1. A certified statement by a qualified assessment authority that confirms that a producer enrolled in the program has the sufficient on-farm natural capital, beneficial management practices, farm production methods, etc. in place for a on-going supply of a designated/contracted quantity of EG&S and/or SG&S for an applicable period of time.
2. The actual bundle of on-going EG&S and/or SG&S agreed to under the program for the applicable period of time.

DELIVERABLE TO THE PROVINCE FROM A QUALIFIED ASSESSMENT AUTHORITY:

3. A designated number of producer-anonymous audit statements and reports that would be necessary under Generally Accepted Accounting Principles to demonstrate reasonable confidence that producers enrolled in the program are in compliance of the contracted delivery of EG&S and/or SG&S under the province.

4. An outside peer review of the program administration's benchmarks and assessment practices and calculations for determining the granting of a ERSP certificate under deliverable #1.

DELIVERABLE TO THE PRODUCER FROM THE PROVINCE:

5. A regular, on-going payment to producers enrolled in the program for their contracted provision of a bundle of EG&S and/or SG&S as certified by a qualified assessment authority.

# Appendix

## Initial ERSP Remuneration Estimates for All Modules and Components

5,056,992 acres  
 \$/ha/year    \$/acre/year    Prov. Pasture    75% Uptake YR1

### Pillar I – Ecological Goods & Services from Equivalent Conservation Cover

<i>Climate and Atmospheric Stabilization Module</i>				
Carbon Sequestration Component	\$19.60	\$7.93	\$40,111,180.63	\$30,083,385.47
GHG Regulation & Mitigation Component	\$9.38	\$3.80	\$19,196,065.01	\$14,397,048.76
Air Quality / Air Pollutant (SO2) Component				
<i>Total</i>	<i>\$28.98</i>	<i>\$11.73</i>	<i>\$59,307,245.64</i>	<i>\$44,480,434.23</i>

<i>Water Resource Module</i>				
Water Filtration Component	\$28.12	\$11.38	\$57,547,265.27	\$43,160,448.95
Water Supply, Retention & Recharge Component				
Hydrological Flow Stabilization Component	\$4.80	\$1.94	\$9,823,146.28	\$7,367,359.71
Water Disturbance & Disaster Mitigation				
<i>Total</i>	<i>\$32.92</i>	<i>\$13.32</i>	<i>\$67,370,411.54</i>	<i>\$50,527,808.66</i>

<i>Soil Resource Conservation Module</i>				
Erosion Control & Soil Sediment Retention Component	\$7.29	\$2.95	\$14,918,903.41	\$11,189,177.56
Soil Formation, Fertility & Nutrient Cycling Component				
Waste Treatment, Detoxification & Mobile Nutrient Recovery Component				
<i>Total</i>	<i>\$7.29</i>	<i>\$2.95</i>	<i>\$14,918,903.41</i>	<i>\$11,189,177.56</i>

<i>Biodiversity and Biosecurity Module</i>				
Wildlife Habitat & Endangered Species Component				
Pollination Component				
Invasive Species & Biological Control Component				
Plant, Animal, & Human Disease Control Component				
Synthetic Chemical Reduction Component				
Genetic Resource Conservation/Provision Component				
<i>Total</i>				

	\$/ha/year	\$/acre/year	5,056,992 acres Prov. Pasture	75% Uptake YR1
--	------------	--------------	----------------------------------	----------------

**Pillar II – Rural Social Goods and Services**

*Aesthetic Heritage Module*

Physical Landscape, Scenery and Ornamental Resources Component

Physical Recreational Activities Component

*Total*

\$15.78	\$6.39	\$32,293,593.38	\$24,220,195.04
\$15.78	\$6.39	\$32,293,593.38	\$24,220,195.04

*Cultural Heritage and Diversity Module*

Preservation & Transmission of Cultural Heritage Component

Maintenance of Historical Sites & Experiences Component

*Total*

*Domestic Food Security Module*

Quantitative Food Safety Component

Qualitative Food Safety Component

*Total*

*Knowledge Management Module*

Experiential Knowledge Systems Component

Research and Development Component

*Total*

*Land Occupancy & Rural Asset Management Module*

Rural Employment Component

Fire Protection & Suppression Component

*Total*

## Reference and Supporting Documents

---

- Arfini, Filippo & Donati, Michele. 2002. "Valeur économique de la multifonctionnalité dans les exploitations agricoles de la province de Parme." *La multifonctionnalité de l'activité agricole et sa reconnaissance par les politiques publiques*. Actes du colloque international de la Société Française d'Économie Rurale, March 2002.
- Aumand, Anthony; Le Cotty, Tristan; & Voituriez, Tancrede. 2001. "Changeons de Multifonctionnalité," *Courrier de la planète*, Vol. V, No. 65.
- Barthélemy, D. & Nieddu, M. 2002. Produire de l'identité avant de produire les biens pour le marché? La multifonctionnalité, une caractéristique ancienne de la politique agricole commune (2e partie). *Oléagineux Corps gras Lipides (OCL)*, Vol. 9, No. 6. November-December, 2002.
- Blanchemanche, Sandrine; Laurent, Catherine; & Mouriaux, Marie-Françoise. 2000. Multifonctionnalité de l'agriculture et statuts d'activité. *Économie Rurale*, No.260.
- FAO/Netherlands. 1999. Issues Paper: "The Multifunctional Character of Agriculture and Land" at FAO/Netherlands Conference on the Multifunctional Character of Agriculture and Land. Maastricht, Netherlands, 1999.
- Gouin, Daniel-Mercier. 2000. La multifonctionnalité de l'agriculture, une nouvelle façon de soutenir l'agriculture ou une nouvelle justification pour ne rien changer. *Le Coopérateur agricole*. October, 2000.
- Government of Canada. 2006. *Potential Contribution of Payments for Ecological Goods and Services to Farm Income*. Agriculture and Agri-Food Canada, Strategic Policy Branch. Gouin, D-M. & Royer, A. ISBN 978-0-662-45514-1.
- Government of Canada. 2008. *Watershed Evaluation of BMPs (WEBs)*. Agriculture and Agri-Food Canada, Greencover Canada. <http://www.agr.gc.ca/>
- Government of Quebec. 2005. *Remuneration for Ecological Goods and Services Produced by Agriculture: Elements for a Quebec Analysis*. Agriculture, Pêcheries et Alimentation, Agri-Environmental Policy Branch. Gagnon, B; St. Onge, F. & Gagnon, M-F. September, 2005.
- Government of Switzerland. 2000. *Specific characteristics of agriculture and the need to treat agriculture separately within WTO*. International Conference on Non-Trade Concerns

- in Agriculture, Ullensvang, Norway, July 2000. Discussion Paper No. 1, submitted by Switzerland.
- Laurent, Catherine. 2001. La multifonctionnalité de l'agriculture. *Vers un accord entre l'Europe et le Mercosur*, Durand M.-F., Giordano P., Valladao A., eds. Presses de Sciences Po, Paris.
- Legg, Wilfrid. 2007. *Agricultural and Agri-Environmental Policy Impacts on Land Use*. OECD. Presentation to Policy Pioneers Conference, Calgary, AB, October, 2007.
- Losch, Bruno. 2002. "La multifonctionnalité face aux défis des agriculture des Suds : une perspective de refondation des politiques publiques?" *La multifonctionnalité de l'activité agricole et sa reconnaissance per les politiques publiques*. Actes du colloque international de la Société Française d'Économie Rurale. March, 2002.
- OECD. 1998. *Agriculture in a changing world: which policies for tomorrow?* Meeting of the Committee for Agriculture at the Ministerial level, Press Communiqué, Paris, March 1998.
- OECD. 2001. *Multifunctionality: Towards an Analytical Framework*. [www.oecd.org](http://www.oecd.org)
- Olewiler, Nancy. 2004. *The Value of Natural Capital in Settled Areas of Canada*. Ducks Unlimited Canada & Nature Conservancy of Canada.
- Rae, Geneva & Beale, Bethany. 2008. *Thinking Outside the Fence: Internaitonal Land Stewardship Policy Options for the Canadian Agriculture Sector*. Canada West Foundation. March, 2008. ISBN 1-897423-20-2.
- Velasco Arranz, A. 2002. *Les contradictions de la modernisation en agriculture*. L'Harmattan, Collection Logiques Sociales.