

**A STUDY OF  
THE CANADIAN WHEAT BOARD'S  
ROLE IN GRAIN TRANSPORTATION**

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## **EXECUTIVE SUMMARY**

### **Study Objective and Scope**

Through its role in car allocation and train-run programming, the Canadian Wheat Board (CWB) is a major participant in Canada's grain handling and transportation system. Over time, this role has been the basis for significant discussion within the industry as to the degree to which the CWB should be involved in grain transportation. Participant preferences range from a greater involvement in day-to-day grain logistics to moving the CWB entirely out of day-to-day operations, as well as minor modifications to the current system.

The overall objective of the study is to provide a preliminary evaluation and balanced discussion of operational alternatives to the current transportation role of the CWB. The study provides a detailed account of the Board's current role in transportation and describes a range of options including their potential impacts. The study does not make recommendations.

This study is predicated on the simple and basic premise that the purpose of the grain logistics system is to get the right grain to the right place at the right time. This implies a need for sensitivity to the changing needs (and changing composition) of the customers for Prairie grains.

### **Options to the Current System**

Three basic options to the current system are examined. These include:

1. The CWB as buyer at port. In this option the CWB would take possession of grain at the port, and offer tenders to the grain companies for the business of moving grain from the primary elevator facilities to vessels. The CWB would no longer be involved in the sourcing, country origination, transportation and terminal handling and storage.
2. The CWB as on-farm buyer. The CWB would purchase grain directly from producers, take ownership of the inventory on-farm, and contract with grain companies to move the grain from the farm to sales position.
3. Zone allocation. The CWB would allocate cars to grain companies on the basis of larger catchment areas or zones rather than the current train run system. This would involve 12

zones compared to the current 220 train runs. This modification is scheduled for implementation in October 1998.

In developing the alternatives, attention is given to the role of each participant from the farm through to the final destination. This includes a description of the types of contractual obligations that would be required for each system participant, including identifying where penalties would apply for failure to fulfill these obligations. The discussions of the alternative approaches also identify the major changes required in the day-to-day operations of the system and outline operational problems (and potential solutions) that may arise as a result of changing the CWB's logistics role.

The current system and the alternative approaches are assessed against the objectives of the various system participants. These key objectives of the various participants may at times be in conflict. This leads to conflicting views on the optimal system configuration, and may lead to differing opinions on the alternatives examined. Due to these differing opinions, this study examines (in a qualitative way) the impact of the proposed options on the costs and benefits of the various system participants. When examining the qualitative impact on the costs and benefits, the study examines the impact of the proposed alternatives on the ability of the CWB to carry out its major objectives.

Through an examination of qualitative changes to costs and benefits for each participant group in the system, the study should be able to identify those system participants that would likely benefit from changing the CWB's logistics role, and those system participants that would expect a negative impact.

### **Criteria for Assessment**

The assessment of the options is based on the four basic criteria summarized below.

**Efficiency** is the impact on operating costs, asset management, and incentives for capital investment. This relates directly to the transaction costs of doing business.

**Accountability** is the impact on information needs to enter into agreements, the contractual process, and how each party to an agreement is held accountable for their contractual obligations.

**Competitive relationships** is the impact on each of the system participants' ability to realize market opportunities, and how their negotiating position might change as the role of the CWB in logistics changes. This influences the extent to which efficiency gains are shared by other system participants.

**Equitable delivery opportunity** is the impact on the principle of providing producers of CWB grains with equitable delivery opportunities, and on the CWB system of price

pooling for these grains. For purposes of this study, equitable delivery opportunity means producers' ability to sell their CWB grain within a crop year and to receive the same pooled price for similar quality grain regardless of when the grain is delivered during that crop year.

## **Study Methodology**

This study has four major components.

### ***Review of Historical / Current Setting***

This part of the study reviews the current system for grain handling and transportation, namely, how logistics planning and operations are carried out today and the rationale. The report also discusses in several sections why the current system no longer fulfills some of the system participants' objectives, and why pressures for change have been building.

An overview of changes to the legislative environment is given in the Background section, including the repeal of the Western Grain Transportation Act (WGTA), the inclusion of grain provisions in the Canada Transportation Act (CTA), and amendments to the Canadian Wheat Board Act (Bill C-4).

### ***Key Participant Interviews***

A second element to this study involves a detailed questionnaire and interview process with key participants in the grain handling and logistics chain. The intent of the interviews was to: (1) develop an understanding of accountability within the current system and any changes to accountability for the various options; (2) obtain participants' views on the impact on costs and benefits for individual participants that would result from changing the CWB's role in transportation; and (3) provide an opportunity for participants to comment on the options. Key participants, for the purposes of this study, include producers, grain companies, railways, and the CWB. Information was obtained from 22 organizations and individuals, namely, members of the Senior Executive Officer (SEO) Group plus several agricultural organizations.

### ***Economic Analysis***

An economic model based on the concepts of transaction costs and market power is used to analyze how the three alternative roles for the CWB in grain logistics would affect the degree of competition in grain handling and transportation, and how this would influence the basis charged to producers.

## *Synthesis of the Alternatives*

The findings of the first three components of the study are synthesized to provide an assessment of the likely effects of each of the options in terms of efficiency, accountability, competitive relationships and equitable delivery opportunities as compared to the current system. Key findings are summarized, as are some suggestions for other options.

## **Observations, Findings and Conclusions**

Below are summarized a number of general observations, key findings, and conclusions from the study.

### **General Observations**

1. In reviewing the role of the CWB in grain logistics it is important to separate philosophical issues relating to the role of the CWB in grain marketing from issues relating to its role in grain logistics. This report focuses on the latter.
2. The changing demand and composition of the end use customers for prairie grains places, and will continue to place, greater pressure for a grain logistics system that gets the right grain to the right place at the right time. This will require a greater degree of cooperation and understanding among system participants than is sometimes currently the case.
3. Current owners of the primary elevator system, along with several new participants, are in the process of renewing the system. System renewal consists of fewer, but larger, high throughput elevators with cleaning and blending capabilities. Grain companies are investing millions of dollars in this process and, consequently, want greater control of their assets in order to maximize efficiency and throughput in the collection and shipping of all grain, including CWB grain.
4. Although there is a wide range of legislative authority relating to grain handling and transportation under the Canada Grain Act, the Canadian Wheat Board Act, and the Canada Transportation Act, not all of the provisions of these Acts are used. This has significant implications for the degree of confidence felt by system participants as they conduct their business and make investment decisions. Many aspects of the car allocation system have evolved through general industry agreement and convention, rather than through regulation or formal contracts. This situation creates an atmosphere of uncertainty that is not conducive to a smoothly functioning system.
5. A major issue from the producers' perspective is the sharing of benefits from efficiency gains. Given that the producer pays all the costs associated with the production, marketing, and logistics of grain, equity suggests the producer should also benefit from cost reductions brought about by system improvements. Although this principle is

generally espoused by system participants, there is some question as to how much it is practiced.

6. The port buying and on-farm option are both contingent on the assumption that all parties would be willing to enter into service contracts. Whether the railways would be willing to enter into such agreements under the current regulated rate structure is not certain. This then would affect whether the accountability of the railways would significantly increase.
7. There are two important factors to consider here regarding the negotiating position of the CWB under any option that removes it from the transportation logistics chain. The first consideration is that if certain grain companies were able to reserve a large proportion of the railway capacity, then the CWB would be in a fairly weak bargaining position for both the on-farm option and the port buying option. If capacity is not an issue then the reverse is true and the CWB would have the negotiating advantage. The second consideration is that if, in the on-farm option, the CWB was trying to move its grain from an area served by only one grain company, their negotiating position for handling services would again be weakened.

## **Key Findings and Conclusions**

Concerns with the current system, in terms of the criteria used in this study, are summarized in Table ES1 (located at the end of the executive summary). This process of evaluating the current system and the three options has provided some important insights into making the system perform better. These are summarized by the criteria used in this study.

### ***Efficiency***

1. Grain delivered to the primary and terminal elevators without a market for that grain ties up valuable handling capacity. From a logistics standpoint the grain should remain on the farm until a sale is anticipated at port position. Forward planning of the logistics function and car allocation are hampered by the lack of information on the quality of on-farm stocks and the lack of commitment by producers to deliver to a particular facility. Perhaps producers could contract with specific grain companies well in advance of delivery dates. If this was done, it could provide a mechanism for car allocation to grain companies on the basis of delivery contracts rather than past shipments.
2. Managing price, quantity, and quality risk is an important yet costly activity. Price pooling and initial prices protect grain companies from price risk between the time the grain is purchased from producers and when the companies eventually deliver the product to terminal position. A port buying system where grain companies tendered for CWB sales would result in price variation at port. Increased system efficiencies could offset some or all of these price risks, provided that efficiency gains are shared. The price risk attached

to these price variations would increase costs for grain companies; these costs would likely be passed on to producers through a higher basis.

3. Each of the options examined, particularly the port buyer option, would give the grain companies more control over the use of their assets. The added flexibility in car allocation for all three options should lead to a reduction in the operating costs at primary elevation, as more grain is handled by high throughput facilities. This consolidation of the grain handling system should also reduce the operating costs of the railways. However, producer delivery costs, as well as road costs, will tend to increase as the system consolidates to fewer delivery points.

### ***Accountability***

4. All participants raised the issue of inadequate accountability. A greater use of bilateral contracts with enforced financial penalties would enhance accountability. If contracts are to be enforced there is a need for a timely contract dispute resolution. Public institutions such as the Canadian Grain Commission play an important role in contract dispute resolution. Using the share of car allocation as rewards and penalties may be less effective than financial penalties in achieving accountability.
5. With capped freight rates, the railways may be reluctant to agree to contracts with penalties for under performance. As a result, if financial penalties for poor rail service are to exist, they may have to be imposed by statute.
6. There is a trade-off between accountability and efficiency. If improved accountability increases the financial risk of a participant, this risk will be reflected in an increased charge for services. Some of the cost of this financial risk may be offset through increased system efficiency, provided that efficiency gains are shared.

### ***Competitive Relationships***

7. The railways potentially have a great deal of market power. If freight rates were deregulated, this market power is likely to result in higher freight rates at the expense of producers and grain companies.
8. With the current capped freight rates, cost savings of the railways have not been, nor are they likely to be, reflected in reduced rail rates.
9. A port buying system would be a more commercial system than the other options, but it would not represent a competitive market. The CWB would be the single buyer of grain. The sellers would be made up of a small number of grain companies which at times will hold a very large percentage of the available stocks or the available shipping capacity for

specific grades of grain. The prices in this market would be difficult to predict, thus creating price risk for the participants.

10. Increasing the flexibility for grain companies to allocate cars increases the degree of primary and terminal competition. This was true for each of the alternatives considered, but would vary among options.
11. The current system of car allocation is based on past shipments and current commercial stocks and does not reflect the quantities available on-farm for delivery. This approach to allocation reduces the degree of competition between grain companies by making market share more rigid.

### *Equitable Delivery Opportunities*

12. Equitable delivery opportunities often conflicts with other measures of system performance. Annual price pooling reduces financial risk associated with uncertain delivery dates. A system where storage was paid to producers for contracted grains, as is currently done for malting barley, would further reduce the financial risk associated with uncertain delivery dates.

### *General Comments on the Options*

Given the qualitative nature of the assessment of the options against the four criteria used, it is difficult to draw an overall conclusion as to which is the “best” option. Depending on the weighting that is put on each criterion, the conclusions would vary widely. Table ES2 summarizes the ability of each participant to meet their objectives under each of the options. The interpretation of this table requires a detailed reading of Section 7.2 in the main report.

The range of views from industry participants varied widely on the current system and options. When these are coupled with the results of the economic analysis, it is not surprising that one could easily draw the conclusion that the current system does not work, nor are there any workable alternatives! In reality, there are some advantages and disadvantages to each of the options, although there is no total unanimity on these.

The **port buyer option** is seen by many system participants as leading to a more efficient and responsive grain logistics system, with more contractual accountability and more control by grain companies and railways over their assets and operations. Concerns about this option center around greater price and basis risks for producers, especially the operation of an initial price system, and a decrease in competition in the grain logistics system.

The **on-farm buyer option** would provide a greater degree of market power for producers in dealing with grain companies and railways, and a better information system for the CWB for managing the logistics of grain movement to meet market requirements. There were,



however, very strong views by all grain companies and both railways, and most producers that this option would lead to a “bureaucratic nightmare,” with higher administrative costs that would more than offset any economic advantages from this option. The loss of “interface” between producers and grain companies would be a significant disadvantage from a business perspective.

The **zone allocation option** provides greater flexibility to the grain companies and railways without disadvantaging producers. However, it is generally seen as not going far enough for most system participants.

It was not the intent of this study to identify the “best” option; rather the intent was to provide a preliminary evaluation of the options, as identified here, and what some of the impacts might be. Because each of the options evaluated in the report have significant weaknesses when assessed using the criteria of efficiency, accountability, competitiveness and equity, three modified versions of the port buyer option are briefly presented and evaluated in Section 7.4 of the report.

The next logical step is to take the findings of this study (and other similar studies) as a basis for further discussion and negotiation among system participants. Clearly, a detailed discussion of the operational implications of the options included here was beyond the scope of this study. Participants in the grain logistics system have risen to challenges in the past; we are confident that they can do so in the future.

**Table ES1: Major Accountability, Efficiency, Competitive Relations and Equitable Delivery Opportunity Concerns with the Current Logistics System.**

Criteria Type and Concerns	Impact	Participant Groups Most Affected
<b>Accountability Concerns</b>		
Shippers', marketers' and carriers' capacity estimates for capacity planning. No contractual responsibility for overestimating.	Accuracy of capacity planning is reduced.	All participants.
IRCAP allocation procedures and present system of penalizing does not effectively prevent loading of rail cars with the wrong grain or in the wrong sequence.	The wrong grain arrives at port.	CWB and producers.
Lack of contractual responsibility on the part of shippers and CWB for moving CWB grains out of primary and terminal elevators.	Inefficient use of primary and terminal elevator space.	Grain companies and terminal operators
Spotting of rail cars at country elevators by railways.	Cars are not spotted when required.	Grain companies and the CWB.
Movement of loaded rail cars to port by railways.	Grain does not arrive at port when required.	Grain companies and the CWB.
Pooling of rail cars at port makes it difficult to apply responsible parties to individual rail cars.	Makes it difficult to apply responsibility for any unload delays or for grain companies to enforce handling agreements with terminal operators.	All participants.
Failure of CWB to apply contract penalties when producers do not deliver their contracted amount.	CWB may not have enough grain to meet its sales requirements.	CWB and producers.
<b>Efficiency Concerns</b>		
Equitable delivery opportunities and IRCAP car allocation procedures prevent efficient use of facilities	Restricts firms' ability to manage assets in cost minimizing manner	Grain companies, railways, and some producers.
Consensual decision-making process of CAPG.	Allocation process does not respond quickly to make required changes.	All participants

Continued,

**Table ES1, continued**

<b>Criteria Type and Concerns</b>	<b>Impact</b>	<b>Participant Groups Most Affected</b>
Policy of negotiating CWB/non-Board split in advance of shipping programs may be too slow to respond to market changes.	May force rationing for some grains while others may have more capacity than required.	CWB and grain companies
Wide windows for: 1) producer contract deliveries, and  2) vessel arrival at port.	1) Poses challenges to grain companies to match deliveries with sales requirements 2) Terminal elevators can be congested with grain or be short of grain when vessels arrive.	Grain companies, terminal operators, CWB
CWB practice of making sales FOB leaves control of vessel arrival with buyer.	Inventory management costs are shifted to the Canadian logistics system.	All participants.
<b>Competitive Relations Concerns</b>		
Lack of accountability and an inefficient logistics system.	Impedes ability to meet customer requirement and diminishes competitiveness.	All participants.
Equitable delivery opportunities and price pooling prevents producers from competing with each other for delivery opportunities and price.	Some producers are concerned that this increases their transportation and handling costs and decreases their revenues.	Producers
IRCAP allocation procedure of using historically based calculations means it can take a long period of time for a company to increase its market share of grain movements.	Does not encourage competition between grain companies.	Grain companies.
<b>Equitable Delivery Opportunities</b>		
Equitable delivery opportunities and price pooling is considered an inequitable practice by some producers.	Prevents these producers from delivering when and where they want and for the price they want. Does not give these producers access to price and risk management tools that are available for non-CWB crops.	Producers.

**Table ES2: Ability of Participant Groups to Achieve the Four Basic Criteria Under the Current Logistics System and the Three Options.**

Criteria	Do significant impediments exist in the current system to prevent participants from achieving their objectives within each category?				
	Producers	CWB	Smaller Grain Companies	Larger Grain Companies	Railways
Accountability	Yes	Yes	Yes	Yes	Yes
Efficiency <sup>1</sup>	Yes/No	No	Yes	Yes	Yes
Competitive Relationships	Yes/No	Yes/No	Yes/No	Yes	Yes
Equitable Delivery Opportunities	No	No	N/A	N/A	N/A
<b>Zone Allocation Option</b>	<b>Participants' ability to meet their objectives within each category - direction of change from current system.</b>				
Accountability	0	0	0	0	0
Efficiency <sup>1</sup>	- / +	-	+	++	+
Competitive Relationships	- / +	0	-	+	+
Equitable Delivery Opportunities	-	-	N/A	N/A	N/A
<b>Port Buyer Option</b>					
Accountability	+	+	+	+	+
Efficiency <sup>1</sup>	+ / -	-	+	++	++
Competitive Relationships	+ / -	+ / -	--	++	++
Equitable Delivery Opportunities	--	--	N/A	N/A	N/A
<b>On-Farm Buyer Option</b>					
Accountability	+	+	+	+	+
Efficiency <sup>1</sup>	+ / -	+ / -	+	+	+
Competitive Relationships	- / 0	+ / -	-	+	+
Equitable Delivery Opportunities	0	0	N/A	N/A	N/A

+, -, or 0 indicates an increase, decrease or no change from the current system, respectively;

N/A - not applicable

<sup>1</sup>The cost of risk management was not considered. See Section 7.3 of the report for more detail.



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# 1 INTRODUCTION

## 1.1 Study Objectives and Scope

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Through an examination of qualitative changes to costs and benefits for each participant group in the system, the study should be able to identify those system participants that would likely benefit from changing the CWB's logistics role, and those system participants that would expect a negative impact.

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**Accountability** is the impact on information needs to enter into agreements, the contractual process, and how each party to an agreement is held accountable for their contractual obligations.

**Competitive relationships** is the impact on each of the system participants' ability to realize market opportunities, and how their negotiating position might change as the role of the CWB in logistics changes. This influences the extent to which efficiency gains are shared by other system participants.

**Equitable delivery opportunity** is the impact on the principle of providing producers of CWB grains with equitable delivery opportunities, and on the CWB system of price pooling for these grains. For purposes of this study, equitable delivery opportunity means producers' ability to sell their CWB grain within a crop year and to receive the same pooled price for similar quality grain regardless of when the grain is delivered during that crop year.

## **1.2 Study Methodology**

This study has four major components.

### ***1.2.1 Review of Historical / Current Setting***

This part of the study reviews the current system for grain handling and transportation, namely, how logistics planning and operations are carried out today and the rationale. The report also discusses in several sections why the current system no longer fulfills some of the system participants' objectives, and why pressures for change have been building.

An overview of changes to the legislative environment is given in the Background section, including the repeal of the Western Grain Transportation Act (WGTA), the inclusion of grain provisions in the Canada Transportation Act (CTA), and amendments to the Canadian Wheat Board Act (Bill C-4).

### ***1.2.2 Key Participant Interviews***

A second element to this study involved a detailed questionnaire and interview process with key participants in the grain handling and logistics chain. The intent of the interviews was to: (1) develop an understanding of accountability within the current system and any changes to accountability for the various options; (2) obtain participants' views on the impact on costs and benefits for individual participants that are likely to result from changing the CWB's role in transportation; and (3) provide an opportunity for participants to comment on the options. Key participants, for the purposes of this study, include producers, grain companies, railways, and the CWB. Information was obtained from 22 organizations and individuals, namely, members of the Senior Executive Officer (SEO) Group plus several agricultural organizations.

### ***1.2.3 Economic Analysis***

An economic model based on the concepts of transaction costs and market power is used to analyze how the three alternative roles for the CWB in grain logistics would affect the degree of competition in grain handling and transportation, and how this would influence the basis charged to producers.

### ***1.2.4 Synthesis of the Alternatives***

The findings of the first three components of the study are synthesized to provide an assessment of the likely effects of each of the options in terms of efficiency, accountability, competitive relationships and equitable delivery opportunities as compared to the current system. Key findings are summarized, as are some suggestions for other options.

### **1.3 The Study Team**

The research team for this study drew upon a blend of experienced academics and industry professionals. Located in the Department of Agricultural Economics at the University of Manitoba, the study team leader was Daryl Kraft, and the study manager was Ed Tyrchniewicz. Other University of Manitoba team members included Cam Dahl, former Secretariat to the Car Allocation Policy Group; Barry Prentice, Director of the University of Manitoba Transport Institute; and Brenda Chorney, Research Assistant. Richard Gray, University of Saskatchewan, rounded out the academic component of the team. The industry group includes Clarence Roth, consultant and former CEO of Prince Rupert Grain Ltd.; Heather Gregory, Pivotal Plus Consulting Ltd.; Ray Snitynsky, farmer and former manager of country services for United Grain Growers Ltd.; Bob Martinelli, retired CP Rail employee; Terry Chabluk, Non-Board Allocation Office; and John Groenewegen, JRG Consulting Group. All of these people, and others, made valuable contributions to the study; the contents of the report are the responsibility of the study team manager.

### **1.4 Report Organization**

The study report is presented as two volumes; the first volume being the study report itself, and the second volume being the appendices.

The second section of the report provides background information on grain industry trends, the legislative framework for the regulation of grain logistics, and forces/issues driving the grain handling and transportation system. The third section focuses on the conceptual framework for this study, including concepts of transaction costs, criteria for the analysis, and system participants' objectives. Section four describes the current system and the options that are analyzed. Section five provides a summary and synthesis of system participants' perspectives on the current system and options. Section six describes the economic analysis model and presents some of the results from the model. Section seven synthesizes the information from the previous sections to provide an evaluation of the options, and presents a very preliminary discussion of some variations on the port buyer option. And finally, section eight summarizes a number of general observations and key findings and draws some conclusions. A glossary of terms is provided at the end of the report.

Volume 2, the series of appendices, includes: detailed descriptions of the current logistical system (Appendix 1) and the on-farm buying option and port buying option (Appendix 2); a summary of the participant questionnaire (Appendix 3); a summary of the responses from the questionnaire and interview process (Appendix 4); and the economic analysis model (Appendix 5). A detailed description of the zone allocation option is not given in Appendix 2 with the port buyer and on-farm options, due to its similarity to the current system.

## **2 BACKGROUND TO THE STUDY**

In order to place the CWB's role in grain logistics in proper perspective, this section of the report summarizes some of the trends in the grain industry, the legislative authority for regulating the logistics of the grain handling and transportation system, and some of the forces and issues that are driving the grain handling and transportation system.

### **2.1 Grain Industry Trends**

To understand some of the physical challenges of the grain handling and transportation system, a brief review is provided of statistics for western Canadian grain production, marketings and exports. Table 2.1 presents summary statistics for the 1996/97 crop year, as well as for the previous 10-year average. Also given are similar figures for the 1976/77 crop year to illustrate some of the changes that have occurred in the grain industry.

In the 1996/97 crop year there were close to 110,000 CWB permit book holders in western Canada, covering a seeded area of 40 million hectares. Production of the six principal grains (all wheat, oats, barley, rye, flax and canola) in 1996 was close to 57 million tonnes for Canada, of which approximately half was exported. Of the 57 million tonnes of the six major grains produced in Canada, 53.6 million tonnes were produced in western Canada, of which 37.7 million tonnes were delivered into the grain handling system. The majority of western producer deliveries (36 million tonnes) are delivered into primary elevators.

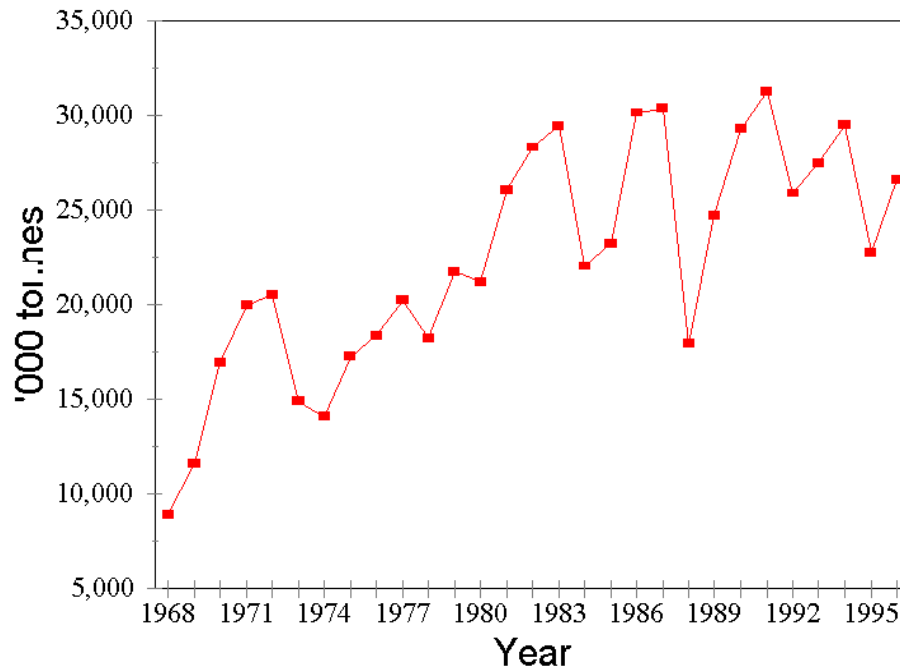
Of the 26.6 million tonnes of the six principal grains exported in 1996/97, 56 percent went west and 29 percent through Thunder Bay. In comparison, in 1976, 40 percent of the exports went through the West Coast and 51 percent through Thunder Bay. Wheat (including durum wheat) comprised the majority of the exported grains in 1996/97, 72 percent of the 26.6 million tonnes. Wheat and barley, together, comprised 84 percent of bulk exports in 1996/97 as compared to 89 percent in 1976/77. The majority of the grains were exported offshore, only 4.2 million tonnes (16 percent) went to the United States in 1996/97. This 4.2 million tonnes, however, is a large increase over the 282,000 tonnes exported to the United States in 1976/77.

Production of western Canadian crops has increased substantially, from the 52 million tonnes in 1976/77 compared to the 72 million tonnes in 1996/97 and the 63 million tonnes for the 1986 to 1995 average. In turn, bulk exports increased between 1976 and 1996, with an overall increase of 45 percent. Exports of the six major grains have been increasing for a number of years, as indicated in Figure 2.1, for the period from 1968 to 1996.

**Table 2.1: Production and Export Statistics for the Six Major Canadian Grains, 1996 and 1976**

	10 - Year Average 1986 to 1995	1996/97	1976/77	% Change 1996/1976
CWB Permit Book Holders	129,735	109,465	153,589	-28.7
Permit Book Holders Seeded Hectares (000)	43,522	39,996	33,882	18.0
<b>Statistics for the Six Major Grains</b>				
	(000 tonnes)			
Producer Deliveries to Licensed Elevators				
Canada	34,044	38,198	23,753	60.8
Western Canada	33,391	37,708	23,179	62.7
Producer Deliveries to Primary Elevators				
Western Canada	31,468	36,047	22,638	59.2
Production of Six Major Grains				
Canada	47,813	56,846	40,486	40.4
Western Canada	44,873	53,592	38,453	39.4
Western Canadian Production				
All Wheat	25,499	28,792	22,812	26.2
Barley	11,257	14,623	10,088	45.0
Oats	2,530	4,049	4,053	-0.1
Canola/Rapeseed	4,495	5,011	837	498.7
Rye	386	266	387	-31.1
Flaxseed	707	851	277	207.3
Subtotal	44,873	53,592	38,453	39.4
Other	18,374	18,722	13,964	34.1
Total	63,247	72,314	52,417	38.0
Bulk Exports by Clearance Sector - Canada				
Vancouver/Prince Rupert	16,554	15,441	7,348	110.1
Thunder Bay - St. Lawrence	7,128	5,734	8,163	-29.8
Atlantic Seaboard	220	94	792	-88.1
Churchill	310	336	735	-54.3
Thunder Bay	1,488	1,956	1,269	54.1
Prairie Elevators	1,209	3,016	44	6754.3
Total	26,910	26,577	18,351	44.8
Bulk Exports by Grain - Canada				
All Wheat	19,538	19,123	12,709	50.5
Barley	3,745	3,220	3,609	-10.8
Oats	561	1,221	491	148.7
Canola/Rapeseed	2,332	2,358	1,018	131.6
Rye	182	113	168	-32.7
Flaxseed	552	541	356	52.0
Total	26,910	26,576	18,351	44.8
Grain and Grain Product Exports to the US				
All Wheat	951	1,815	35	5085.7
Barley	569	913	168	443.5
Oats	530	1,184	20	5820.0
Canola/Rapeseed	79	105	-	
Rye	28	64	4	1500.0
Flaxseed	101	146	55	165.5
Total	2,258	4,227	282	1398.9

Source: Canada Grain Council, *Canadian Grains Industry Statistical Handbook*, various years.



**Figure 2.1: Canadian Exports of Six Major Grains, 1968 - 1996.**

Source: Canada Grain Council, *Canadian Grains Industry Statistical Handbook*, various years.

Storage of prairie grains is mainly on-farm, with an on-farm storage capacity of 62 million tonnes (Roth and Demmans 1998). The storage capacity of the 1,153 primary elevators in western Canada is 6.6 million tonnes, and Canada's 14 terminal elevators have a total capacity of 2.6 million tonnes (Canada Grains Council 1997). In contrast, many other grain exporting countries, such as Australia and Argentina, put greater emphasis on commercial storage, particularly in those countries where warm climates increase the potential for deterioration of grain quality if stored on-farm. The US has 382 million tonnes of on-farm storage and 220 million tonnes of commercial storage (Roth and Demmans 1998).

The trend in Canada, however, despite the increased production and exports, has been to decrease commercial storage space. Rationalization of the primary elevator system by the grain companies has resulted in replacement of numerous smaller elevators with fewer, but much larger, high throughput elevators. Despite the trend toward large elevators, the overall capacity of the primary elevator system has been declining. Table 2.2 shows the change in primary elevator numbers and storage capacity between 1975 and 1997 for grain companies operating on the prairies. Recent announcements of planned construction of high throughput elevators by existing grain companies, as well as new entrants, may alter the downward trend in commercial storage space.



**Table 2.2: Western Canada, Primary Elevator Ownership, Numbers and Storage Capacity, 1975 and 1997**

Company	1997		1975		Percent Change	
	Number	Storage Capacity (tonnes)	Number	Storage Capacity (tonnes)	Number	Storage Capacity (tonnes)
Alberta Wheat Pool	179	1,018,190	818	2,045,752	-78.1	-50.2
Cargill Ltd.	66	521,300	267	557,778	-75.3	-6.5
Manitoba Pool Elevators	120	504,260	298	718,306	-59.7	-29.8
Parrish and Heimbecker	27	239,780	69	249,053	-60.9	-3.7
N.M. Paterson & Sons	47	208,510	90	237,124	-47.8	-12.1
Pioneer Grain	135	674,660	444	1,131,679	-69.6	-40.4
Saskatchewan Wheat Pool	374	1,717,970	1,436	2,966,680	-74.0	-42.1
United Grain Growers	170	931,760	720	1,706,439	-76.4	-45.4
Other	35	788,260	23	61,357	52.2	1184.7
<b>Total<sup>1</sup></b>	<b>1,153</b>	<b>6,604,690</b>	<b>4,165</b>	<b>9,674,169</b>	<b>-72.3</b>	<b>-31.7</b>

Source: Canada Grains Council, *Statistical Handbook 1997* and *Statistical Handbook 1975*.

<sup>1</sup>A change in the method of counting primary elevators on August 1, 1984, from individual elevators to counting two or more adjacent elevators under the control of one manager as a single licensed elevator, reduced the total by about 700 elevators.

Between 1975 and 1997, total elevator numbers decreased by 72 percent (see footnote to Table 2.2) and storage capacity decreased by 32 percent. The three largest companies, together representing 70 percent of the storage capacity in 1975, each decreased their storage capacity by 42 to 50 percent from 1975 to 1997, together representing 55 percent of the storage capacity in 1997.

Increasing segregations of grains in response to the changing demands of customers has further added to system challenges, particularly in light of the rationalizations in the grain industry. Grains are segregated not only by type and grade of grain, but also by non-grade specifications such as protein, as well as by identity preserved characteristics that are specified by some customers. The number of segregations required has increased over the years in terms of a greater number of products (such as special crops, increased wheat classes), and a greater number of grade and non-grade specifications for these products. Exporting countries have been subject to this increase in segregations as the result of customer demand for more specialized products to suit their requirements.

These segregations place demands on the grain handling and transportation system in that:

- a greater number of bins are required, while on the other hand rationalization is compelling companies to decrease bin numbers,
- the large number of segregations often necessitates use of many bins but at under capacity, and, therefore, results in inefficient use of elevator resources,
- there are increased challenges for rail car allocation, rail car loading, and in putting together single direction trains.

In sum, there are a number of physical constraints that contribute to the challenge of getting grain to export position. These include:

- The prairie grain production area covers a vast area, with at least half of what is produced exported out of country, plus the majority of the exports from this landlocked region goes offshore through Vancouver, Prince Rupert, Thunder Bay, or St. Lawrence River transfer elevators.
- Because of these large distances, the most economical means to transport western Canadian grains to West Coast ports and Thunder Bay is by rail, with trucks not being able to offer a practical alternative for any significant movements to ports.
- Because of the capacity constraints for storage in commercial elevators, storage is mainly on-farm, requiring rail deliveries at export points to be on a just-in-time basis. This presents a challenge in itself, to call in grain from widely dispersed origin points, put it through the primary elevator system to rail cars, and transport the grain by rail to port and have it loaded onto the vessels in a timely manner, and to do so without, at the same time, plugging the

system at any point along the chain. Added to this is the challenge of dealing with a number of grains and segregations, other commodities vying for the same transportation and handling resources, as well as peak shipping periods, usually between October and December or January.

These physical constraints demonstrate how the grain handling and transportation system is distinct from that of other western Canadian commodities, such as coal or potash, which are of a more homogenous nature with few product segregations, and whose production and origin points are not spread over such a wide area.

In addition to these physical constraints are the institutional considerations. There are a large number of participants involved in the grain handling and transportation system, each with their own objectives to meet. Institutional arrangements and policies continue to evolve to get the grain to port in a timely manner and at the same time attempt to satisfy the objectives of the participants. The concerns of the participants arise from what they see as the failure of the present and evolving arrangements to adequately satisfy their objectives.

## **2.2 Legislative Authority In Grain Handling and Transportation**

Three acts of Parliament significantly impact western grain handling and transportation. The first is the *Canada Grains Act*, which governs the operation of primary and terminal elevators. This Act also contains provisions for government involvement in the car allocation process. The second piece of legislation that affects the grain handling and transportation system is the *Canadian Wheat Board Act*, which defines the operations of the Canadian Wheat Board, including its authority over car allocation and the Board's relationship with its agents. The final piece of legislation which is reviewed in this study is the *Canada Transportation Act* (CTA). The CTA defines the role of the Canadian Transportation Agency, regulates freight rates for moving western Canadian grain, defines railway service obligations, and stipulates the procedures for railway abandonment.

### **2.2.1 Canada Grains Act**

The *Canada Grains Act* (CGA) defines, to a large degree, the manner in which the western Canadian grain industry operates. The CGA is administered by the Canadian Grain Commission (CGC). The CGA is not directly related to the role of the CWB in transportation (and so is assumed not to change in this study), however, a brief review of the relevant portions is warranted as the Act plays such an important role in the western Canadian grain industry.

Part II of the CGA establishes the authority to set (annually) the standards for the grading of grain. The number of grades and segregations of grain is an important factor in determining the efficiency of the grain handling and transportation system. The establishment of the annual grades and protein levels is closely coordinated with the CWB's export sales and market development programs. A consistent high quality export standard for Canadian grain is a key factor in marketing

Canadian grain as a high value product. However, a greater number of segregations make the problem of coordinating grain movement with sales programs more difficult.

Two sections, 115 and 118, of the CGA relate directly to the allocation of available railway capacity:

- Section 115(a) gives the Governor in Council the authority (if it is in the public interest) to require a railway company to supply cars for grain at any point at which the railway supplies service. No Order in Council has been issued under this section of the CGA.
- Section 115(b) gives the Governor in Council the authority to appoint a Minister of the Crown or agency of the government the authority to administer the allocation of available railway capacity to terminal elevators and transfer elevators and among shipping points on any line of a railway. It was an Order in Council under section 115(b) that provided the authority to the Minister of Transport to allocate cars. This authority was exercised by the Grain Transportation Agency on behalf of the Minister. This Order in Council was revoked with the Budget Implementation Act of 1995. Section 115(b) of the CGA is not utilized at this time.
- Section 118(a) gives the Commission the authority to allocate available railway capacity to terminal elevators and transfer elevators and among shipping points on any railway line if this authority is not granted to a Minister of the Crown or a government agency under section 115(b). Therefore, (as all Orders in Council under section 115(b) have been revoked) the Commission currently has the authority to allocate all available railway capacity between shipping points (note: the authority in sections 115 and 118 are subject to the CWB's authority under section 28 of the CWB Act). The Commission does not currently exercise the authority granted under section 118.

### ***2.2.2 The Canadian Wheat Board Act***

The Canadian Wheat Board Act (revised in June 1998) plays a pivotal role in the functioning of the grain handling and transportation system. This section briefly reviews the portions of the Act that are relevant to grain handling and transportation, and highlights recent changes to the Act that affect current grain handling and transportation practices, or are relevant to alternative systems discussed later in this report.

The CWB's access to the grain handling system is guaranteed under section 20 of the CWB Act that states "... every elevator shall be operated for and on behalf of the Board and no person other than an agent of the Board shall operate any elevator ...". This section of the act has not been proclaimed.

The section of the CWB Act (both before and after recent revisions) that may be most relevant to grain handling is section 28. Section 28 gives the CWB the power to control the flow of

producer deliveries and the allocation of hopper cars to delivery points (i.e., control the flow of grain from the primary elevator to terminal positions). It is important to note that the term “grain” used in section 28 refers to all grain produced within the western region and not just to CWB grains. This definition of grain is outlined in section 23 of the *Canadian Wheat Board Act*. Key provisions of this section include:

- Section 28 (f) gives the CWB the power to fix delivery quotas (i.e., control the flow of producer deliveries). This is a supplement to sections 24 and 25 of the CWB Act that stipulate no producer can deliver into the grain handling and transportation system unless they have the permission of the CWB.
- Section 28 (g) gives the CWB the power to prohibit the delivery of any grain.
- Section 28 (i) gives the CWB the authority to require any elevator (that is licensed under the *Canada Grains Act*) to move grain out of their facility.
- Section 28 (k) gives the CWB the authority to allocate rail cars between companies at a delivery point. As with previous portions of section 28, this section does not distinguish between CWB and non-CWB grain. That is, the CWB has the authority to allocate the rail cars available for all grain and among all grain handling firms.
- Section 28(k) does not give the CWB the authority to allocate available rail car capacity between delivery points. This authority currently rests with the Canadian Grain Commission.

Recent Amendments to the CWB Act have significantly altered the structure of the CWB. While these changes may have significant impact on the operations of the Board, only those that have potential to affect the CWB’s involvement in grain handling directly are mentioned here:

- A board of directors, with a majority of elected directors, could have important implications to the grain handling and transportation system, given the legislative powers of the CWB, in particular, those powers it has but is not currently implementing. Previous to these amendments, the government appointed commissioners were, in effect, answerable to government, who, in turn, were subject to political pressures from various participants in the grain industry. Depending on the make-up of the elected board members, and their positions with regard to the CWB’s role in grain handling and transportation, they have the ability to use section 28 to increase their control over rail car allocation or continue to choose not to fully implement the legislative power in section 28.
- For the purposes of this study, one of the most important changes to the CWB Act is the addition of section 39.1. This section in the 1998 Act allows the CWB to make cash purchases of grain outside the price pooling system. This adjustment may be necessary if either the “port buyer” or “on-farm buyer” options are implemented.

### 2.2.3 *The Canada Transportation Act*

The *Canada Transportation Act* (CTA) defines the rights and powers of the railways as well as their obligations to shippers. While the CTA is assumed not to change for the purposes of this study (including Division VI that sets maximum freight rates for grain), the application of this legislation, that is how shippers and carriers interact with each other, may change under the different options examined.

Much of the structure of the allocation system described in the following sections results from freight rate regulation. Freight rates for grain moving to Thunder Bay (or Armstrong), Churchill, or ports in British Columbia (with the exception of grain moving to BC for export to the US) are prescribed by Division VI of the CTA, and are not determined by market forces. Division VI defines a maximum freight rate for any delivery point within the western division. The key provisions of Division VI are:

- regulated freight rates are based upon distance to port (i.e., not the cost of moving grain from that particular location),
- the base for the maximum freight rates is the costing review carried out in 1992 under the *Western Grain Transportation Act*. This base has been adjusted for inflation and rail line abandonment,
- during 1999 the Minister must review Division VI to determine if the removal of the maximum rate provisions for grain will have an adverse effect on shippers and if this section should be repealed.

As a result of the regulated freight rates, grain transportation services are not rationed by price. Instead, transportation services are allocated (through car allocation procedures) by administrative methods.

Grain moving by rail from western Canada to interior domestic (i.e., not ports) or US destinations does not fall under the jurisdiction of Division VI. That is, these movements do not have a regulated maximum rate. Non-rate regulated grain movements are subject to the other provisions of the CTA, specifically confidential contracts that define rates and service conditions, and final offer arbitration.

Other parts of the CTA may not be specifically related to grain transportation. However, as they define the obligations of the rail companies and the rights of shippers, they are relevant to grain traffic. Section 113 (Accommodation for traffic in Part IV: Rates, Tarriffs and Service) of the CTA defines railways' service obligations to shippers, including procedures to address concerns about potential abuse of market power by the railways.

As a result of section 113 of the CTA, railway companies are prevented from discriminating among shippers, commodities, destinations, or origin points. The railway company must provide the equipment and facilities necessary (i.e., the equipment normally provided by a railway) for the movement of grain from all delivery points along its rail lines. The railway must also receive and carry grain from all delivery points within a reasonable amount of time (part c). Under section 116, shippers have the right ask the Agency to determine if these service requirements have not been met by the railway. If a shipper makes a service complaint to the Agency, the shipper must show that the service failure by the railway caused them “substantial commercial harm.” However, there have been few formal complaints to the CTA by shippers.

Section 27 of the CTA stipulates that the Agency “..must be satisfied ... that the applicant would suffer substantial commercial harm if the relief were not granted.”

The CTA also regulates the abandonment of rail lines (Division V). This section of the CTA is not germane to the CWB’s role in transportation. However, the issue of rationalization and branch line abandonment has been raised by many parties as a critical issue for the grain transportation and handling sector.

#### ***2.2.4 Concluding Comment on Current Legislation***

Although there is a wide range of legislative authority relating to grain handling and transportation under the Canada Grain Act, the Canadian Wheat Board Act, and the Canada Transportation Act, not all of the provisions of these Acts are used. This has significant implications for the degree of confidence felt by system participants as they go about their business and make investment decisions.

It is important to note that the car allocation system has evolved through general industry agreement and convention. The allocation system in place today does not match the legislative authority outlined in the CWB Act and the *Canada Grains Act*. That is, the Canadian Grain Commission does not allocate available hopper car supply between origin points and the CWB does not allocate all available hopper car supply between companies at each origin point. Some industry participants have expressed concern over the gap between legislative authority and industry practice. By choosing to exercise their legislative authority, the Canadian Grain Commission or the CWB could override many changes to the allocation system that have been generally agreed upon by the industry. This situation creates an atmosphere of uncertainty that is not conducive to a smooth functioning system. To address these concerns, both the Canadian Grain Commission and the CWB have sent letters to the Car Allocation Policy Group (CAPG) indicating they will abide by CAPG policies.

### **2.3 Forces/Issues Driving the System**

There are many forces and issues driving the Canadian grain handling and transportation system, and the perspectives on these forces and issues are diverse. Mr. Justice Estey’s Phase One

Report of the Grain Handling and Transportation System Review provides a succinct summary of the key forces and issues. The major ones are outlined below. In addition, there are other broad issues beyond the grain handling and transportation system that are also important.

### ***2.3.1 Estey Issues***

- The transportation role of the CWB. In addition to deeply ingrained philosophical differences surrounding an appropriate role for the CWB, there are major concerns by some about the CWB's effectiveness in implementing the operational aspects of its current and alternative roles.
- Producer benefits from efficiency gains. Given that the producer pays all the costs associated with the production, marketing, and logistics of grain, equity suggests the producer should also benefit from cost reductions brought about by system improvements. Although this principle is generally espoused by system participants, there is some question as to how much it is practiced. This exacerbates issues of branch line abandonment (including short lines), competitive access to rail lines and joint running rights, rail rate caps, trucking impacts, and hopper car ownership.
- Dispute resolution mechanisms. With the trend towards deregulation in the grain handling and transportation system, there are questions as to the effectiveness of the current CTA system for dispute resolution, especially from the perspective of grain producers and other small shippers.

### ***2.3.2 Other Forces and Issues***

- Changing grain markets. There has been a dramatic shift away from grain purchases by state trading enterprises under long term contracts, to a greater variety of commercial entities. This in turn places greater pressure for a grain handling and transportation system that is sensitive and responsive to the demands of the customers for Canadian grain. As mentioned earlier, this has led to pressures for more grade segregation of grain with resulting demands on the system.
- Erosion of safety nets. Canada, along with many other grain exporting nations, has moved away from safety net programs, primarily for fiscal reasons and the implementation of the World Trade Agreement. At the same time, production and market risks have not been reduced. This, in turn, increases the pressure for efficiency, accountability, and competitiveness in the grain handling and transportation system, often at the cost of equity.
- Philosophical differences. The pressures mentioned above, and solutions to these pressures, have led to a greater polarization of views on the role of governments and institutions in the marketing, handling, and transportation of grain. Indeed, the old adage that wheat is 13% protein and 87% politics and philosophy is truer today than it has ever been.





### **3 A CONCEPTUAL FRAMEWORK FOR THE STUDY**

In order to assess the role of the CWB in grain transportation it is useful to outline a conceptual framework for such an analysis. This section of the report begins with a brief discussion of transaction costs, followed by a brief discussion of criteria for the analysis, and ending with a summary of key system participant objectives.

#### **3.1 Transaction Costs and Grain Logistics**

##### ***3.1.1 Concepts of Transaction Costs***

In simplest terms, a transaction occurs whenever a good or service is transferred within a firm, between firms or in a marketplace. Further, every transaction incurs costs. Transaction costs fit into one of three categories. First, there are search costs, which are the costs of locating individuals who are candidates for a transaction. Second, negotiation costs are the costs of reaching agreement on the terms of exchange. Enforcement costs comprise the third category, and can be defined as the costs of monitoring the performance of parties to the transaction. These transaction costs have to be considered when evaluating a marketing arrangement, including grain logistics. Marketing arrangements affect the incentives of participants, who in this case include producers, grain companies, railways and the CWB. These incentives affect the quantity of grain marketed and the costs of the respective participants.

According to transaction cost economics, the efficiency of marketing arrangements depends on the characteristics of transactions involved. Transactions differ in three important ways; uncertainty, frequency, and asset specificity. Uncertainty, which is the extent to which an outcome of a particular contract is unknown, can arise because of: external shocks, such as weather or world price movements; coordination problems, such as over sold capacity; or deliberate opportunistic behavior, such as a contracted company deliberately using limited capacity to move a different product. Frequency is the second important way in which transactions can differ. Infrequent contracts require extensive negotiations and can differ substantially from one transaction to the next, while frequently recurring transactions are more likely to be governed by standardized contracts. Finally, transactions differ by how specific the assets involved in the transaction are. An asset is considered to be specific to a transaction when the value of this asset is much lower in any alternative transaction. For example, a concrete grain elevator is a valuable asset within the grain industry, yet it holds little to no value outside of the industry. Characteristics of transactions for grain logistics, and the cost implication, are outlined below.

## **Transaction Uncertainty**

The transactions in grain logistics have a significant amount of uncertainty. Participants potentially face price, delivery and quality risk. The world prices of grains change constantly. When the price of a product is variable, then there is financial risk associated with ownership. When price risks faced by a market participant cannot be effectively hedged, the financial risk of that participant will be reflected in a higher price for their services. This difference in price is referred to as a risk premium.

Delivery risk is the risk of not receiving the quantity of grain at the anticipated time of delivery. Some of this risk is inherent, due to factors such as weather that physically reduce the capacity of the system. The inherent delivery risk is exacerbated by contracts that do not effectively deter other market participants from shifting resources to other activities despite contract obligations. The industry practice of car pooling at the West Coast, while designed for more efficient use of rail cars at port, was cited as an example of a case where accountability was not sufficient. Improved accountability implies that the agent involved is financially responsible for delivery delays. This accountability, while improving the incentives and the performance of the agent, also creates some financial risk for the agent that will be reflected in higher charges for service.

Quality risk occurs in the system where a contract may call for a specific grade of grain, but the capacity is used to ship a different grade of grain. Some of the mis-graded shipment is due to measurement and human error. However, some of this uncertainty may be due to a lack of sufficient incentives or disincentives to ship the specified quality, such that cars are loaded out of sequence, or loaded with grain which is not required at port.

In the longer run, system participants are put at risk by excessive pricing or reduced service by firms with market power, and by potential regulatory changes.

## **Transaction Frequency**

Transactions in the grain industry tend to be frequent and somewhat similar in nature. These transactions are generally governed by contracts which are periodically modified to improve the incentives within the system. The transactions, however, are not identical in that there are many possible transactions that could be used to move a specified volume from a primary elevator position to a port position. Choosing the specific pattern of shipments to achieve delivery objectives most efficiently requires logistics planning and search costs. There are also many transactions that are governed by government regulations. These regulations have cumbersome mechanisms for change and have been slow to evolve to improve the incentives within the system.

## **Asset Specificity**

In order to complete an export transaction, a commodity of a specific quality is shipped to a specific location at a specific time. If any participant fails to maintain quality, location or time then the value of the transportation service can be greatly reduced, resulting in demurrage, and system congestion. The asset specific nature of the grain shipments is especially important given the inherent risk associated due to weather conditions. This problem is further compounded by the market power of the two railways and the very concentrated grain industry, giving a single firm the ability to disrupt the system for all other participants.

### ***3.1.2 Marketing Institutions and Transaction Costs in the Grain Logistics System***

While the frequency of transactions should reduce the transaction cost by allowing the development of standardized contracts, the uncertainty and the asset specific nature of the transactions would suggest that transaction costs are large and should be considered in the development of a least cost set of marketing arrangements. A low transaction cost marketing system must effectively deal with issues of price, delivery, and quality risk, as well as with optimum logistics, and finally with issues of market power. The framework to consider each of these issues is outlined below.

## **Market Institutions and Price, Delivery and Quality Risk**

The price risk faced by a middleman in the marketing channel is normally addressed by negotiating a price for future delivery or by hedging the product on a related futures market. In the non-board market, both forward selling and hedging are used to reduce price risk. Despite these arrangements to reduce price risk, the price risk for many grains remains significant and extra basis is charged as an insurance against unhedged risk. Currently the CWB mitigates this risk by offering initial prices and a final payment. Producers and grain companies holding CWB grains face no price risk because the initial price is a floor price which may only be increased. Thus, when a grain company purchases grain as an agent of the CWB and loads it onto rail cars they face no price risk. As a result price risk is not built into the current basis.

Delivery risk is a real economic cost for all of the participants in the grain transportation sector including the producers, primary elevators, railways, terminal elevators, the CWB, and the end customer. In order to plan activities, each participant must be able to anticipate both the volume and timing of grain delivery. In the present system, on-farm storage plays a significant role in providing participants with a steady flow of product through the crop year. In order to plan grain delivery activities and make financial plans, the producer must have some indication of when a delivery opportunity will arise. Likewise, the primary elevator has limited storage and must use this limited storage to take delivery from producers in time to load the railcars requested by the board. This requires some knowledge of how much grain producers will deliver and how many rail cars will be spotted for loading. Delivery risk is also important for the railways, the CWB and for terminal operators, and ultimately the end buyer of the grain.

Some of the delivery risk is inherent in moving grain in a cold climate. Regardless of how effective the marketing arrangements are at addressing these issues, some excess capacity and storage at key points in the system is important. Some delivery risk is due to the difficulty of coordination that is compounded when capacity is hampered due to weather, causing stocks to build up at undesired points in the transportation system. Finally, delivery risk can be created by the opportunistic behavior of any participants in the system who do not make delivery as anticipated. These latter two forms of delivery risk can be affected by the marketing institutions used to govern transportation transactions. The current system does not deal adequately with the incentive for delivery, as there are a lack of instruments of accountability at many points along the logistics chain, resulting in unnecessarily high delivery risk for participants. In the case of CWB grains, delivery risk is generally borne by producers through the pool accounts, rather than by the grain companies or the railways. This lack of accountability will be discussed more in-depth in later sections.

Quality risk is also a part of any grain handling system. System participants must be able to anticipate the quality of the grain being delivered. Some quality risk is inherent. Grain can easily lose quality if it heats during storage, or it is mixed with other grades or grain during the transportation process. Grain can be blended or mixed at the primary elevator or port terminal, but not during the transportation process. Most quality risk is avoidable to the extent that if the participants have sufficient incentives to maintain or improve the quality of grain they are handling, then quality will be maintained. There is also the risk that grading standards may change from time to time. Some incentives are part of the current system. Grain companies are paid on the basis of the Canadian Grain Commission (CGC) grade of the grain unloaded at terminal position. In effect, the grain companies demonstrate that they are fully responsible for the quality of the grain in their possession with the result that the average grade of grain arriving at port positions is higher than the average grade purchased from producers. The incentive system however, is not sufficient to deter all quality risk. In particular, mis-graded grain is often delivered to terminals. This grain may be intentionally shipped from primary elevators to make space for other grades. When this mis-graded grain arrives to be unloaded at port it must be stored until there is demand for it. Meanwhile, the required grades may be in short supply at the terminal. This of course slows terminal operations and increases the delivery risk.

## **Marketing Institutions and Logistics Performance**

Determining the most efficient movement plan of grain is a very complex problem that requires an enormous amount of information and coordination. In 1996 there were over 100,000 producers delivering numerous grades and types of grain to over a thousand primary elevators that loaded 300,000 - 400,000 cars for shipment to five different ports, which eventually shipped to buyers all over the world. With a transportation challenge this large, finding the least cost patterns of movement that would increase system capacity is an important consideration in evaluating the transaction cost associated with a specific marketing arrangement. There are basically two approaches that can be used in logistics. One approach is to attempt to gather all of the relevant information together at a single point and design a global logistics plan. To some extent the CWB and the CAPG play this role in the current system. The difficulty with this type of system is its ability

to react to a disruption. In this case, the information and the planning required to solve the problem exceed the resources in the system, resulting in unnecessary costs and delays. Another dimension of the slowness in responding to a disruption, is the difficulty in reaching a consensus among the participants as to how to proceed.

The other general logistics approach is to use contracts and market signals to decentralize the task of solving the logistics problem. This system requires far less central information to administer and can be far more responsive to new information. The drawback of this approach is the possibility of strategic interactions between the various players that could lead to over utilization of common resources, or to the unused capacity of one participant that another could use. The degree to which strategic interaction will be a problem will ultimately depend upon the competitiveness of the industry and the incentives that are in place.

Currently, the CWB, through the sales program and the car allocation process, largely controls the logistics for CWB grain movement. The grain companies are directly involved in logistics only to the extent that they are responsible for allocation within a train run. Indirectly, these companies are involved in the process by providing information and responding to the allocation incentives. The producers are also indirectly involved in the logistics process by contracting certain quantities of grain to the CWB and by ultimately selecting which primary elevator to deliver to. Tendering processes that would contract for delivery to port position would decentralize logistics control. In these tendering systems, grain companies would be responsible for finding the most efficient means to get the grain to port position and, most important, they would have the incentive to do so.

### **West Coast Capacity Constraints**

Over the past forty years the highest price grain markets have tended to shift away from the Atlantic toward the Pacific Ocean. This shift has been driven by many factors, such as Europe becoming an exporter of wheat, the loss of markets in the Former Soviet Union and the growth in the Asian markets. The net result has been an increase in the demand for shipments from West Coast ports and a reduced demand for shipments out of Thunder Bay and East Coast ports. Despite the increases in capacity at the West Coast, the demand for West Coast shipments regularly exceeds the capacity of the grain terminals and the railways to move grain through the West Coast.

It is not easy to determine the exact capacity of the West Coast, as this is a function of many factors including weather, type and quality of crop produced, and importantly, how the grain handling system is organized. It is also impossible to attribute the limited capacity to a single factor. If there were unlimited rail capacity then the current terminals could ship more grain in a year. Similarly, if there was unlimited terminal capacity, the railways could move more product with their current resources. In the last ten years, annual West Coast grain exports have averaged 16.6 million tonnes out of the total average of 26.9 million tonnes of exports.

Given the market conditions that have existed over the past three years, most of the Canada Western Red Spring (CWRS) wheat produced west of Brandon, Manitoba, would ideally have moved through West Coast ports. The limited West Coast capacity has forced the CWB to ship most of the wheat produced as far west as Sinaluta, Saskatchewan out of the East Coast or to US destinations. This pattern of shipments is reflected in the CWB catchment areas and the pattern of the basis deductions used to determine CWB initial prices.

In a market-based grain logistics system, the limited West Coast capacity would be allocated by price, rather than the administrative choices of the CWB. This would mean additional charges for West Coast movement. The additional charges for West Coast capacity would have to be large enough to reduce the West Coast demand to a level where the demand was equal to the capacity limit. The additional charges, called "capacity rents," would create economic rents for those firms that had access to the limited capacity. If St. Lawrence and the West Coast prices continue to be in the same price range, and shipping patterns remain the same as currently exist, then these capacity rents would be \$8.50 per tonne, which is equal to the current difference in the cost of shipping East rather than West from Sinaluta. To illustrate this concept in another way, if a producer at Sinaluta has to choose to ship wheat East and receive the St. Lawrence price minus basis costs, then the West coast price minus basis has to be lower than the East Coast net price. Given that the actual cost of transport is \$8.50 per tonne less going west from Sinaluta rather than east, the West Coast congestion charge has to be at least \$8.50 per tonne to offset this advantage. If the congestion charge were less than \$8.50 per tonne, then shipments to the West Coast would exceed capacity. These additional charges on West Coast shipments would reduce producer revenue per tonne by a similar amount.

Although West Coast capacity is likely to be limited in the short run, in the long run there may be many factors that will make the West Coast capacity constraint less important. First of all, the capacity is likely to increase, given the consolidation of the primary elevator system and the amount of inland cleaning capacity currently being built. Secondly, as more grain feeding and domestic processing takes place, there will be less total demand for exports. Finally, the US market, which is not accessed via West Coast ports, continues to grow in importance.

## **Marketing Institutions and Market Power**

The grain handling and transportation industry is made up of very few firms. In the case of Canadian railways, only Canadian National (CN) and Canadian Pacific (CP) operate Class I railways. Given that railway costs are less than three cents per tonne mile and trucks are at least twice this level, the railways do not face effective competition for long hauls from other modes of transport in western Canada. There is also no threat of a new rail company entering the market without government intervention, given the very high cost of creating a new rail corridor. As a result, these companies share a demand for grain transport which is relatively insensitive to price. If a railway chose to charge a moderately higher price for grain movement, the amount of freight business would decrease but certainly would not fall to zero. If the regulated freight rate caps were removed, then the two Canadian railways would be in the position of determining the freight rates that would

maximize their profits. To some extent this would be constrained by CTA provisions and potential political pressures.

Without effective competition, rail rates can rise far above cost levels as they have done on the Burlington Northern Santa Fe Railway (BNSF) for Shelby, Montana, which has no effective competition. Figure 3.1 shows the rail freight rates charged for 52 car lots on the BNSF for westward wheat movement, and compares the per tonne mile freight rates to the regulated freight rates for Moose Jaw west and the more competitive rates charged from Kansas City, which has water competition. While the competitive and regulated rates closely track each other, the BNSF rates are approximately double the rail freight costs, which are also roughly equal to equivalent trucking rates.

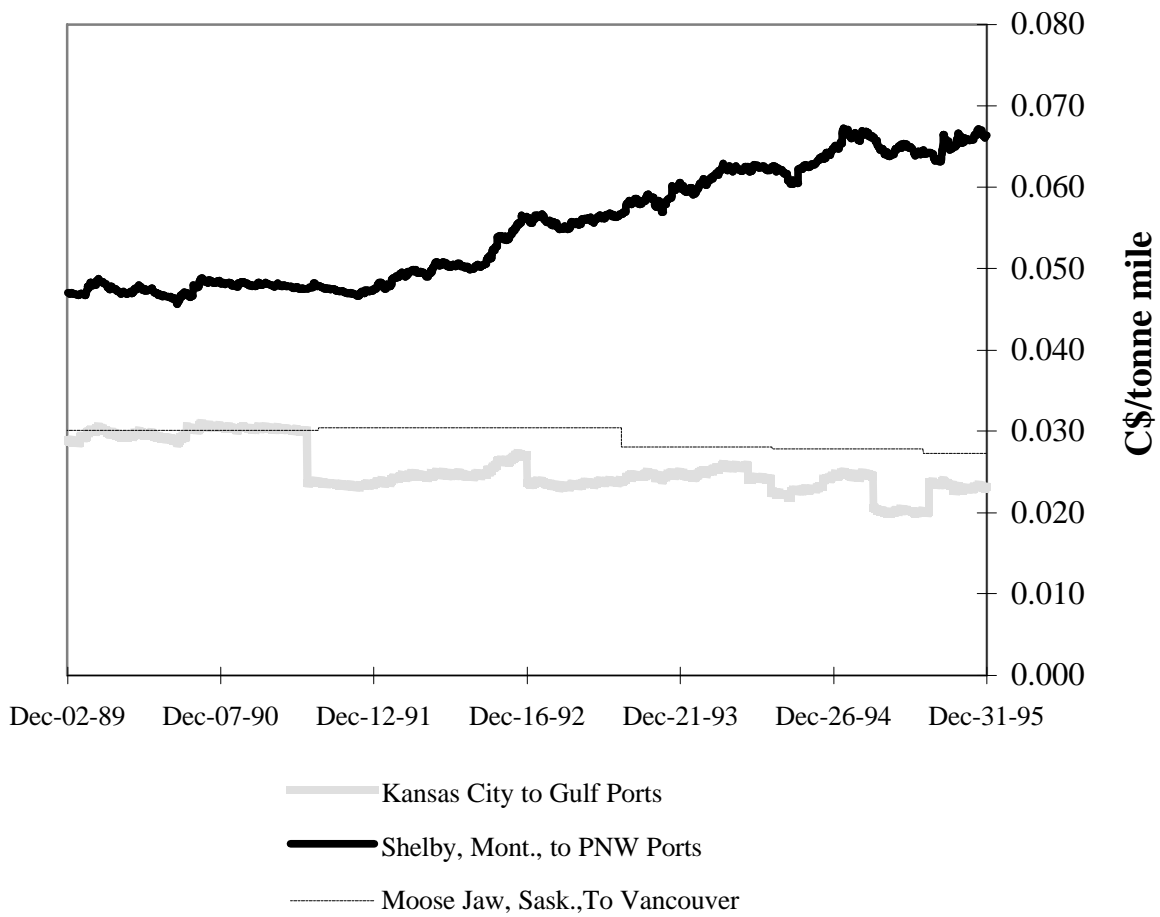
The grain handling industry is more competitive than the railways. There are more firms in the industry and entry is far less restricted. Two large multinational firms have recently entered the grain industry in western Canada. However, there will always be a limited number of firms in the grain handling industry. This is due to large fixed costs and economies of scale in operation, particularly for terminal operation. These fixed costs and low marginal or operating costs serve as a barrier to entry except for very large firms. Basically, existing firms have some market power which they use to price above marginal cost. If conditions are such that the industry becomes abnormally profitable, this would tend to attract new entrants who would reduce the prices charged. Nevertheless, the limited number of firms in the grain industry does give the industry some market power, particularly in the short run. Although there are five terminals at the West Coast, shared by six companies, the number of firms that a producer can realistically deliver to tends to be smaller. This is because some regions have only two or three firms, giving each primary elevator operator some limited market power. The market power at local levels is far greater when farmer delivery costs are higher.

The market power of grain companies can also be affected by the marketing/regulatory structure within which they operate. In the current car allocation system, the number of cars allocated is very much a function of past shipments and grain in storage. This limits the ability of primary elevator operators to quickly change market share, and may constrain the degree of competition for business.

### ***3.1.3 Concluding Comment on Transaction Costs***

Transaction costs are the costs of doing business that must be included in an analysis of the CWB's role in grain transportation. The transactions in grain logistics have price, delivery and quality uncertainty. The problems of logistics are complex, and require a great deal of information and coordination. Many transactions involve the use of specific assets controlled by a limited number of firms, resulting in market power. These concepts form part of the basis for criteria in an analysis of the role of the CWB in grain transportation.





**Figure 3.1: Freight Rates for Wheat, Selected US and Canada Points**  
*(point to port using minimum 52 car spot)*

## 3.2 Criteria for the Analysis

As already indicated, the Canadian grain handling and transportation system faces a myriad of challenges in getting the right grain to the right place at the right time. For commercial entities involved in the system, there is also the expectation of making a profit. In addition, the system is constrained by regulatory frameworks that are changing and concepts of equity that are deeply ingrained in policies, institutions, and the Prairie psyche.

This situation places many conflicting demands on the participants in the grain handling and transportation system. Based on the earlier discussion in this section and the policy environment in which the system is operating, it is possible to narrow down the objectives or criteria to four. These include: efficiency, accountability, competitive relationships, and equitable delivery opportunities. It is recognized that each of these terms can have a wide range in interpretation. For purposes of this analysis, and as was outlined in Chapter 1, the following definitions are used.

- **Efficiency** is the impact on operating costs, asset management, and incentives for capital investment. This is directly related to the transaction costs of doing business.
- **Accountability** is the impact on information needs to enter into agreements, the contractual process, and how each party to an agreement is held accountable for their contractual obligations.
- **Competitive Relationships** is the impact on each of the system participants' ability to realize market opportunities, and how their negotiating position might change as the CWB's role in grain transportation changes. This influences the extent to which efficiency gains are shared by other system participants.
- **Equitable Delivery Opportunity** is the impact on the principle of providing producers of CWB grains with equitable delivery opportunities, and on the CWB system of price pooling for these grains. For purposes of this study, equitable delivery opportunity means producers' ability to sell their CWB grain within a crop year and to receive the same pooled price for similar quality grain regardless of when the grain is delivered during the crop year.

### 3.2.1 *System Participants' Perspectives on Criteria*

One of the questions on the system participant questionnaire related to the relative importance that system participants placed on each of these objectives/criteria. For the producers and agricultural organizations that answered this question, competitive relationships and equitable delivery opportunity ranked about equally, and were considered slightly more important than efficiency and accountability (ranked about equally). For the grain companies that answered this question, competitive relationships ranked first in importance, followed by efficiency and accountability (ranked about equal), and equitable delivery opportunity being the lowest priority. It

should be noted that there was considerable variability in ranking within each of the participant groups.

The conclusion that can be drawn from this is that no single criterion or objective dominates the operation of the grain handling and transportation system. Further, the variability in ranking within and among system participant groups suggests that any departure from the current system (which has its problems) will likely have gainers and losers.

To better understand the impact of the options analyzed, the next part of this section outlines the objectives of the various system participants.

### **3.3 System Participants' Objectives**

To evaluate the performance of the current grain logistics system, as well as any changes to it, it is important to understand the basic objectives of the various system participants. Such an understanding also helps recognize the pressures for change. Even though system participants may have similar objectives, they often disagree on how these objectives might be achieved.

Before commenting on specific participant objectives, it is useful to emphasize several key points on which system participants generally agree:

- The purpose of the grain logistics system is to get the right grain to the right place at the right time.
- The changing demands and composition of the end use customers for western Canadian grain are placing greater pressure on the grain logistics system (and the participants) to be sensitive and responsive to these changing demands.
- Differences of opinion among system participants as to how best to improve the logistics system are often based on philosophical differences regarding the appropriate role of government and CWB roles in marketing and logistics regulations.
- All participants in the system recognize the importance of revenue or profit maximization, but they often disagree on the optimal division of these revenues and profits.

Against this background, the objectives of each of the system participants are briefly described below.

#### **3.3.1 CWB**

The CWB has adopted the mandate to maximize returns to Prairie producers by marketing the wheat and barley that producers make available to the CWB during the crop year. This is achieved in a number of ways.

The CWB provides a consistent, high quality product to the customers for western Canadian wheat and barley. The ability of the CWB to meet this objective is aided by the CWB's control (through the allocation system) over the regions from which grain will flow into the system, and the timing of the grain flow. This control allows the CWB to blend the qualities found across the prairies into a well defined, consistent product that is wanted by customers. This could also be accomplished through a tendering process that identifies regions from which grain is to be sourced.

The CWB also provides cost effective price risk management to producers through the use of the price pooling system. Under this system, prices are averaged over the crop year, reflecting the appropriate grade spreads. Essentially the price pooling system is diversification through time. Under the price pooling system producers receive an initial payment for grain delivered into the grain handling and transportation system. This initial payment is a percentage of the CWB's estimate of the average price it will receive, less estimated transaction costs. At the end of the crop year producers receive a final payment from the CWB. The final payment is based on the difference between the revenue earned by the CWB and the costs (including the initial payment) incurred. The price pooling program also shares the risk of extraordinary costs (e.g., demurrage) among all producers of CWB grains and across the entire crop year.

The CWB provides equitable market access for all producers of CWB grains across western Canada. This objective is closely tied to the CWB's system of price pooling and to some is inseparable from the CWB's single desk selling authority. As the primary elevator is the point of contact between the CWB and the producers of CWB grains, equitable market access is ensured by equitable access to the primary elevator system. The CWB uses its involvement in the car allocation process to accomplish this goal. This involvement has been revised over time somewhat as the CWB has allowed grain companies more flexibility to manage grain sourcing, through provisions such as flex cars.

### **3.3.2 Producers**

Producers, as business entities, are concerned with maximizing their profits from grain production on both a short-run and long-run basis. Given that they bear the costs of marketing, handling, transportation, and storage of their grain, any changes that reduce system costs will be viewed positively, provided that they gain a share in the benefits.

A fundamental issue that impacts on producers' objectives is compulsory participation in CWB marketing of wheat and barley through single-desk selling. Aside from philosophical issues, many producers believe that they are able to perform marketing functions, including risk management, more effectively than the CWB, and therefore should have a choice in marketing their wheat and barley. Other producers prefer to have the CWB continue in its role as a single-desk seller of wheat and barley for business reasons. Also, some producers, especially the smaller ones, tend to be more concerned about equitable delivery opportunities. These differences of opinion carry forward to the role of the CWB in grain logistics.

### 3.3.3 *Grain Handling Companies*

The principal objective of the grain handling companies is the maximization of shareholder returns. In general, grain handling companies work toward the profit maximization objective through revenue maximization and cost minimization.

Generally, revenues are increased through an increase in the volume of grain handled and an emphasis on higher margin grain such as canola. Grain companies in western Canada are limited in their ability to extract additional revenues from handling CWB grains because the basis on CWB grains is very transparent to producers due to price pooling and maximum freight rates. For these reasons, grain companies must place emphasis on cost minimization and market share. The provision of agricultural services, such as fertilizer sales and applications or farm management assistance, is a large source of revenue for many grain handling companies. Many grain handling companies use their contact with producers at the primary elevator as an opportunity to sell additional services. Often the grain handling services have been bundled together with the provision of other services. For example, some companies have provided interest free loans on agricultural chemicals if producers sign a delivery contract with that company.

A large portion of the costs associated with grain handling are fixed in capital and overhead. Therefore, to reduce the cost of operating a facility, the volume of grain moved through the facility must be increased (the cost per unit of grain falls as the volume of grain increases). This is especially true of new, high throughput facilities that have not been fully depreciated. As the total volume of grain to be moved is generally fixed, a grain handling company can only increase the volume of grain moving through a facility by taking market share from a competitor, or consolidating their market share in fewer facilities.

The pressures for system consolidation that arise out of the cost minimization objective may at times conflict with the CWB's blending objectives, and the CWB's objective of providing equitable market access to producers of CWB grains. For example, it may be optimal for a cost minimizing grain company to operate a few large volume facilities, and / or to operate their facilities as "speciality houses" (i.e., concentrating grain handling services on one or a few commodities) during different times of the year. This may conflict with the CWB's desire to spread its grain sourcing evenly across the entire drawing region. To whatever extent system consolidation results in increased trucking costs to producers and if the benefits of consolidation are not shared with producers, this will conflict with producers' profit maximization objectives.

Grain companies may also be able to capture some reductions in transportation costs (i.e., incentive rates) by shipping large blocks of cars from a single facility to a single destination. This would require the grain company to concentrate country originations at a few facilities. Again, this concentration may conflict with the CWB's desired sourcing pattern.

Costs associated with business uncertainty may also be reduced by increasing the business planning horizon. For example, the ability to plan facility utilization (e.g., timing of grains and

grades to move through a facility) months in advance of movement. The ability to undertake this type of advance planning is reduced if decisions of outside parties are critical to facility management.

### **3.3.4 Railways**

Like the grain companies, the principal objective of the railways is profit maximization. This objective is accomplished primarily through cost minimization.

The rail companies moving grain in western Canada currently have little opportunity to increase grain transportation revenues. This is due to two factors. First the rail companies have little influence over the total volume of grain to be moved in a crop year. Second, under current legislation the railways' ability to "charge what the market will bear" has been curtailed. This has resulted in the railways' focus on cost reductions as a means of profit maximization.

As with the grain handling companies, the railways must place a large part of their profit maximization efforts upon cost minimization. This can be accomplished by decreasing switching times. Switching times may be reduced by moving larger blocks of cars assigned to a single destination from a single point. Like the cost minimization goal of the grain companies, this can be aided by system consolidation. Again, this goal may at times conflict with some of the goals of the CWB and producers, especially if benefits of consolidation are not shared.

Costs associated with business uncertainty may also be reduced by increasing the business planning horizon. This has resulted in railway pressure for the introduction of long term (e.g., four to six months) car spotting agreements.

Progress toward the goal of cost minimization may be enhanced if an organization can smooth asset use throughout the year. That is, costs may be reduced if asset use is the same in each season and there are no "peak" seasons. For the railways moving western Canadian grain this implies that costs can be reduced if the same volume of grain is moved fall, winter, summer, and spring. However, demand for grain movement tends to peak in the first half of the crop year and therefore grain marketers wish to move as much grain as possible during these peak seasons. The cyclical nature of grain orders conflicts with the railways objective of smoothing the flow of grain throughout the crop year.



## **4 CURRENT GRAIN LOGISTICS SYSTEM AND THE OPTIONS**

This section begins with a description of the current grain handling and transportation system, with the focus being on the role of the CWB in this logistics process. In order to consider the options and their impact on the logistics process, an understanding is required of the current system, which will be used as a benchmark against which to measure any changes to this system.

The various options being considered are also described in this section. However, discussion of the options is reserved to Sections 5 and 7, the former dealing with the participants' perspectives of the options as assessed through the questionnaire and interview process, and the latter providing an evaluation of the options, and synthesis of the study findings.

### **4.1 Description of the Current System**

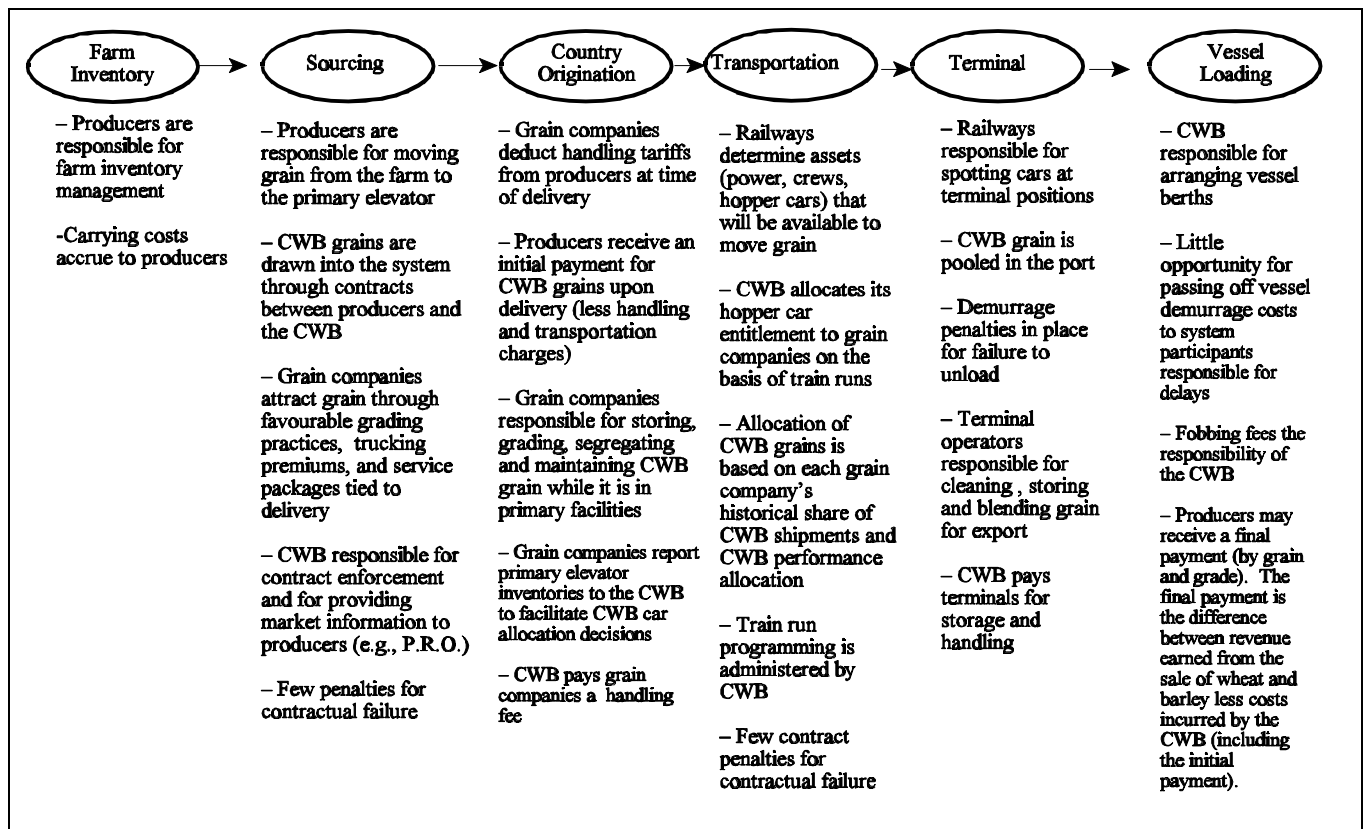
Figure 4.1 represents a schematic of the various functions of the grain handling and transportation system logistics chain, including the value added with each element, and the responsibilities of the various participants along the chain. The functions are presented in a sequential ordering and will be used here and throughout subsequent sections to illustrate the boundaries of involvement for producers, railways, grain companies and the CWB, and to illustrate the institutional structures in place to move grain from farm to port.

In order to match grain production with demand, grain must be stored following harvest. Farmers add value to the grain through retaining the product until it is ordered. Sourcing functions include trucking, as well as transactional activities, which involve acquiring information, entering into contracts and complying with the contractual arrangements. Producers, grain companies and the CWB are involved with the sourcing functions. Trucking is done by producers and grain firms while the CWB draws grain into primary elevators through contracts and quotas with producers. The CWB has handling agreements with elevator companies who add value to wheat and barley through quality control, handling and storage. Contractual arrangements between the elevator companies, railways and the CWB are somewhat less clear when transportation services are utilized. Hopper car allocation and train runs for wheat and barley are managed jointly between the CWB and the railways through the Car Allocation Policy Group (CAPG), while train operations are the sole responsibility of the railways. Terminal operations include receiving grain, quality control, storage and transactional agreements. The CWB and grain companies negotiate the contractual parameters which add value to wheat and barley through terminal operations. Vessel loading requires that the right grades and grain are loaded to meet the sales commitments of the CWB. For each marketing



function identified in Figure 4.1 there is a set of transactions that define the accountability of the parties. Contracts are the means of coordinating the functions.

Currently, as outlined in Table 4.1, the CWB is involved directly in all functions of this chain, with the exception of farm inventory management. Concerns over CWB involvement in the logistics chain are centered primarily with country originations, transportation, and terminal operations.



*\*\* Note that capacity planning is an important feature of all steps along the logistics chain \*\**

**Figure 4.1: Value Added Functions and Participant Responsibilities Along the CWB Grains Logistics Chain, Current System**

**Table 4.1: Participant Involvement in the Current Grain Handling and Transportation Logistics Chain**

Functions	Producers	CWB	Grain Co.	Railways
Farm Inventory Management	yes	no	no	no
Sourcing	yes	yes	yes	no
Country Origination	no	yes	yes	yes
Transportation	no	yes	yes	yes
Terminal	no	yes	yes	yes
Vessel Loading	no	yes	yes	no

Understanding the current car allocation role of the CWB is necessary to evaluate the impacts of changing the CWB’s role in the logistics chain. The CWB hires various grain companies operating in western Canada to move wheat and barley from the country elevator to the final destination. The CWB does not allocate its business to grain companies through a competitive tendering process. Rather the market for handling CWB grains is divided among the grain companies through a set of procedures agreed upon by the companies. Car allocation is the means by which the CWB implements these market sharing arrangements.

Following is a description of the current process for moving grain from the farm gate to export position, utilizing each function along the chain illustrated in Figure 4.1 to work through this process. This description is expanded in Appendix 1 to give a detailed account of each of the steps in the procedures used to move western grain. The glossary at the end of this report (Volume 1) gives a description of the various organizations involved in the car allocation process, as well as a description of the classifications for the various commodities and rail corridors.

The description of the current system begins with a discussion on capacity planning. A characteristic of all functions along the logistics chain is the need to deal with any capacity constraints that exist at certain times of the year and/or points along the chain.

#### ***4.1.1 Capacity Planning***

The purpose of capacity planning within the grain transportation and handling system is to provide grain marketers and grain handling firms, as well as carriers, with an estimate of shipping requirements (i.e., sales) and the capacity available (primary elevator, railway, terminal elevator) to meet sales requirements.

The Car Allocation Policy Group (CAPG), a group established by, and with representation from, participants of the grain industry, is responsible for establishing high level car allocation policy for movement of rate regulated grain. Rate regulated grains are those that are shipped in corridors subject to a maximum rail rate per tonne scale. Non-rate regulated grain movements are those that are moved in corridors subject to commercially determined rates. The CAPG has taken on the responsibility for two important components of the capacity planning process, the *Capacity Working Plan* and the *Four Month Handling and Transportation Plan*. Both plans rely on industry estimates of potential sales and available capacity.

### **The Capacity Working Plan**

*The Capacity Working Plan* is produced twice annually, first at the beginning of the crop year and then approximately halfway through the crop year. Weekly sales requirements are compared with estimated weekly available capacity. Available capacity takes into account the hopper car fleet the railways estimate they will have, the railways' estimate of hopper car cycle times, and the industry's estimate of port capacity (i.e., how many hopper cars can be moved into the port, spotted at terminals, and unloaded in a week).

As part of the planning process undertaken at the beginning of the crop year, the CWB and the grain companies negotiate an allocation split (by destination) between CWB grains and non-Board grains. For example, the CWB and the grain companies may agree that allocations to the West Coast should be comprised of 80 percent CWB grains and 20 percent non-Board grains. These negotiated splits are based upon both estimated production (i.e., available supply) and estimated sales requirements. These negotiated splits are used in the weekly allocation process when rationing of rail cars is required.

The Capacity Plan also outlines the priorities for rate regulated movements for the upcoming year, as negotiated within the industry. These priorities are developed through negotiations within the industry. For example, it may be determined that during times of rationing, shipments to Vancouver will have the highest priority, followed by shipments to Thunder Bay, while movements to Prince Rupert will have the lowest priority. If available capacity is below the level of demand, shipments to the high priority ports will be met first.

### **Four Month Handling and Transportation Plans**

The *Four Month Plan* sets guideline unloads for the upcoming four month period, and is produced each month. The Plan gives an estimate of the weekly capacity available to each grain sector (i.e., CWB, non-Board, and non-administered). The capacity available to the CWB and non-Board shippers is based on the splits negotiated between the CWB and the grain companies. The capacity available to the non-administered shippers is proportional to the capacity available to the CWB and non-Board shippers.

The capacity planning documents produced by CAPG are augmented by the CWB's eight week plan for CWB grains. The eight week plan outlines the CWB's planned movement, and the planned drawing region. The intent of the plan is to give grain companies and railways an indication of the CWB's sourcing requirements by train run.

#### ***4.1.2 Farm Inventory***

As was discussed in Section 2, the majority of grain storage in Canada is on-farm. Producers add value by storing the grain until required for a sale. They may also add value on-farm by performing such functions as drying, cleaning or blending. Any grain storage costs (e.g., interest or insurance) are carried by the producer. However, producers can receive advance payments for their grain prior to delivery.

#### ***4.1.3 Sourcing***

##### **CWB Contract with Producers**

The CWB sources the grain through contracts with producers, which define each of the grade, delivery window, and quantity of grain. Through the equitable delivery access mandate of the CWB, the CWB commits to accept all wheat and barley that producers wish to make available during a crop year. The volume of grain assigned to the CWB through producer contracts gives the CWB an indication of the volume of grain that the CWB will have available for sale during the crop year. The contract system is augmented with a quota system during the harvest season. This allows for the delivery of a minimum of 40 tonnes per permit book directly from the field outside of the contract system.

The CWB controls the flow of grain into the system through contract calls. Producers are responsible for delivery of their contracted grain to the primary elevators. The contract agreement specifies the penalty to producers for failure to deliver within the contracted time frame, however, the CWB imposes minimal penalty on producers if they do not deliver the contracted grain within that time-frame.

##### **The CWB's Agency Agreement with Primary Elevators**

As the CWB does not own any of its own grain handling facilities, it enters into handling agreements with primary elevators who act as agents of the CWB. As an agent of the CWB, primary elevators agree to accept producer deliveries of wheat and barley, and to carry out the purchase, storage and shipment of wheat and barley. The agreement outlines the responsibilities of the grain company as an agent of the CWB during the terms of the agreement. Agreements are signed annually. Companies gain access to CWB grains by favourable grading practices, competitive prices to producers for non-CWB grain, and by offering service packages to producers.

#### ***4.1.4 Country Origination***

Upon delivery to a primary elevator, producers receive an initial (partial) payment for their product from the primary elevator, who is acting as an agent of the CWB. This initial payment is based on the CWB's estimate of the total value of the annual sales of that commodity and an assessment of the annual transaction costs. Handling and transportation fees for the grain companies are deducted from the payment. The elevator manager manages the grain by grading, segregating, storing and maintaining the grain while it is in the primary elevator. Grain companies are able to extract value from the grain by blending stocks to meet CWB requirements. Some of this value is often shared with producers through grading premiums or trucking incentives. Grain companies report inventories to the CWB, which assists the CWB in planning for car allocation.

#### ***4.1.5 Transportation***

##### **Available Car Supply**

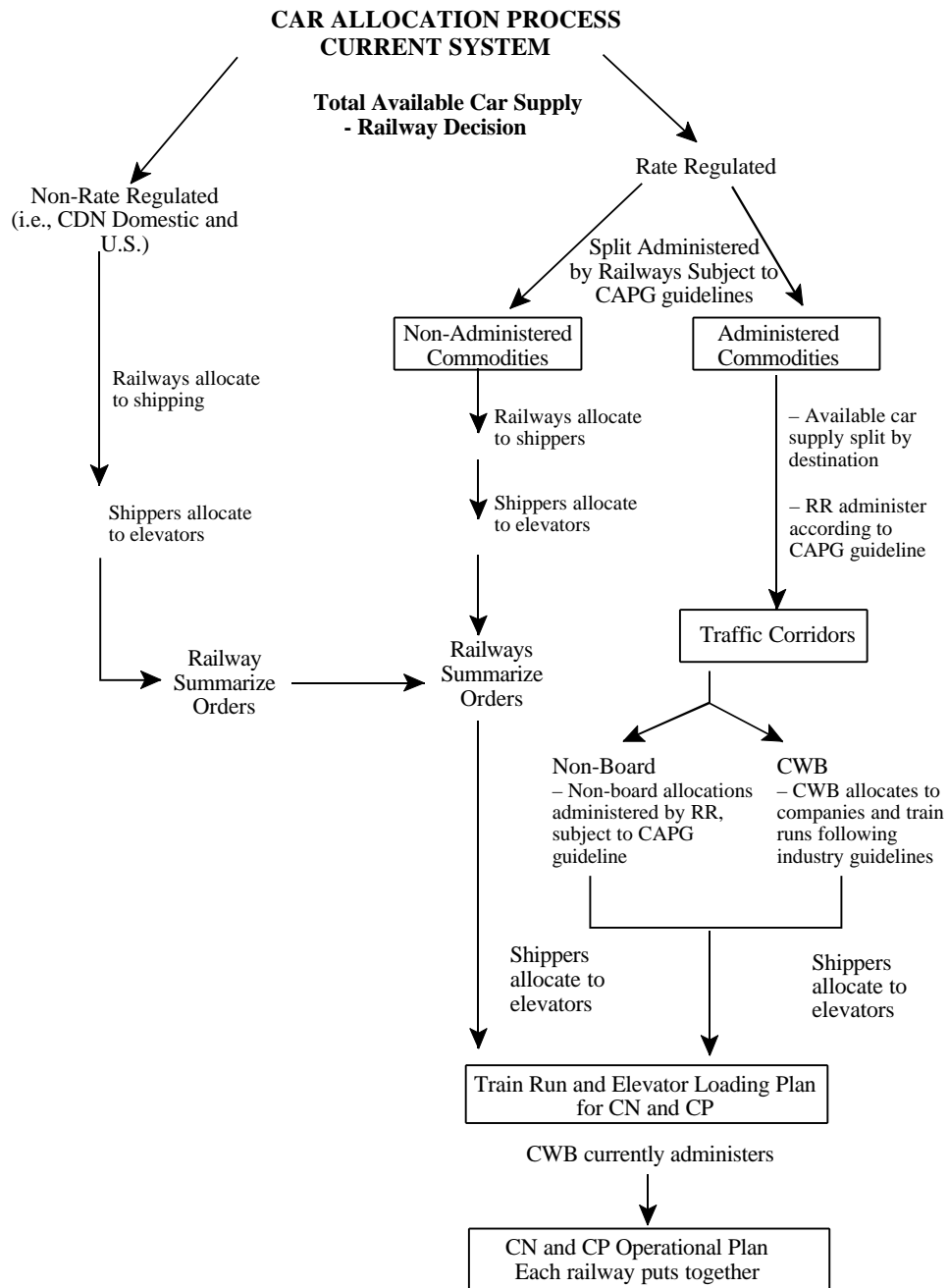
An overview of the car allocation process is provided in Figure 4.2. When rationing of available rail capacity is required (due to, for example, terminal congestion, weather, insufficient cars or locomotives, unexpected grain volumes, etc.), the car allocation process serves two purposes, that of allocation and rationing.

Each Friday the two class one Canadian railways determine the number of railcars they will have available for loading in the week beginning the following Sunday. The available car supply is split (by the railways) between the various destinations (the West Coast, Thunder Bay and non-rate regulated movements).

The split between rate regulated and non-rate regulated movements is an internal railway decision. The railways allocate the cars available for non-rate regulated movements. Non-rate regulated allocation decisions by the railways are internal decisions that fall outside of the mandate of CAPG. These decisions are based on the contractual obligations of the railways (e.g., swap car arrangements), shipping requirements to other destinations, and railways' common carrier obligations. Each customer informs the railways of the desired origin point for their allocated car supply. The railways in turn provide a summary of the non-rate regulated allocation to the CWB in order to incorporate them into the train run programming system.

The car supply available for rate regulated movements is split into three categories: CWB grains; non-Board grains (canola, oats, and non-Board feed grains); and non-administered grains (low volume rate regulated commodities such as rye, flax, and specialty crops). The split among the three categories is determined through guidelines established through industry agreement.

The split among the various rate regulated destinations takes into account the shipping requirements of the grain companies and the CWB, the capacity of the various ports, and recent



**Figure 4.2: Hopper Car Allocation Process for Grain Shipments**

unloading performance at the various ports (e.g., if Vancouver has a backlog of loaded cars due to terminal capacity concerns the railways may choose to allocate the available rate regulated capacity to other destinations). In allocating cars available for rate regulated movement among destinations (i.e., Vancouver, Prince Rupert, Thunder Bay, Churchill) the railways follow the priorities negotiated by the industry (as outlined in the *Capacity Working Plan*).

### **Allocation of CWB Grains to the Various Grain Companies**

The CWB determines the grains and grades it needs to fulfill its export commitments. This assessment is combined with an assessment of the location of the required grains and grades and an assessment of the regions from which the grain will be drawn. The determination of the drawing region is based on the CWB's assessment of the lowest cost shipping route, and the CWB's commitment to provide equitable market access for all producers in western Canada.

The CWB allocates the available car supply to its agents based on the Industry Rail Car Allocation Policy (IRCAP). The IRCAP committee consists of representatives from the CWB's agents and the CWB, and the policies govern the method of allocating the CWB's available car supply to its agents. The majority of this allocation is made to specific train runs (a train run is a number of delivery points located on a common rail line) and by commodity. (Note: beginning with week 10 of the 1998/99 crop year this step will change from train runs to zones). The basic mechanisms for allocation are through performance based allocation and the weighted average handle, with a certain amount of cars also allocated by space. These allocation methods are summarized below, with a more detailed description given in Appendix 1.

Up to a maximum of 25 percent of the allocation of cars to a train run is through space car allocation. If space for additional deliveries to a facility is significantly less than the available space at other facilities on the same train run, the CWB will allocate cars to such elevators in order to reduce the differences in available capacity.

The weighted average handling percentage uses each grain company's weighted percentage of historical receipts of CWB grains on a train run less penalty assessments for the current allocation week. More recent weeks are given a heavier weighting than distant weeks.

The historically based train run allocation to agents is augmented by a performance based allocation system, which rewards or penalizes grain companies based on their performance on previous weeks. The CWB allocates 25% of its available car supply (with a minimum of 1,000 cars per week when the CWB's car supply is 3,000 cars or more) under the performance based formula. Grain companies may make their own allocation decisions for performance cars, provided they meet the CWB criteria and requirements.

Allocation flexibility has been incorporated into IRCAP allocation policies. Grain companies may move a portion of their CWB allocations to alternative train runs provided a number of conditions are met, including that this flexing must not conflict with the CWB's attempt to equalize

delivery opportunities or with the termination of CWB delivery calls, plus train run minimums and maximums must be maintained. During peak movement periods (when the grain companies would most benefit from “flexing”) these conditions can be difficult to meet, although there are some differences of opinion among participants as to how hard it is to meet these conditions. As a result, only a small portion of annual allocations (in the range of 5,000 - 6,000 cars per year) are moved to alternative train runs under the “flex” policy. In addition, space car allocations cannot be flexed (cannot be moved to another train run or company).

### **Allocation of Car Supply for Non-Board Grains**

Allocation of the hopper car supply available for movement of non-Board commodities into Vancouver and Thunder Bay is administered by the Non-Board Allocation Office (NBA), on a ship-to-sales basis, subject to authorization of the terminals.

Grain companies indicate to the CWB the desired origination points for their non-Board allocations. The CWB combines the non-Board allocations with the CWB allocations to form a train run program. The train run programs may require some adjustments (i.e., some of the allocations may have to be moved to other train runs) if the total number of cars allocated to a train run exceed the maximum number of cars for weekly movement from a train run or the total allocations are less than the minimum number of weekly cars on a train run. The train run minimums and maximums are determined by the railways, largely based on operational requirements.

### **Spotting and Loading of Hopper Cars in the Country**

When accepting the loading program commitment, the railways take into account many factors which might affect the car availability, including the expected amount of shipping and number of cars to be unloaded, as well as the basic fleet of railcars and diesels available for grain traffic. This is determined on the basis of the Capacity Working Plan and adjusted by the Four Month Handling and Transportation Plan.

The railways’ ability to have empty cars available for distribution to the primary elevators is dependent on the number of cars unloaded in previous weeks. Cars unloaded are moved from the export terminals to the railway yard distribution points, from where the empties are moved to the primary elevators according to car orders issued by the grain companies. The railways’ ability to spot empty cars is dependent on the ability of the export terminals to unload cars at the agreed unload target. The export terminals unloading performance is in turn dependent on receiving the required type and grade of grain and the availability of ships to load at the proper time.

After the allocated cars have been spotted at a primary facility, the grain companies are responsible for loading the correct grain and grade to the correct destination (i.e., loading the grain that was allocated). The CWB may impose an allocative penalty on a company if they fail to load the correct grain and grade (described in Appendix 1).



Currently, there is very little direct movement of unit trains from origin to destination, for both loaded cars to port as well as returning empties. Considerable savings can be achieved if there are sufficient cars loaded at one primary elevator for one destination. In this situation the train can be operated to final destination without any switching. It would enable the railways to reduce their switching costs and to reduce the time required for a car to complete its full cycle. Thus, it would enable the grain industry to move a larger volume of grain with their current investment in the rail car fleet. Processes which would facilitate the evolution of a primary elevator system and terminals toward this objective would reduce the costs of moving grain. Rationalization in the elevator and railway industry creates an environment in which larger unit blocks of trains can be loaded and moved directly from elevator to terminals.

The railways are responsible for moving the loaded grain cars from the primary facility to port. Currently the railways do not face any financial penalties if the cars are not delivered to the ports in a timely fashion.

#### ***4.1.6 Terminals***

Rail cars carrying CWB grains are pooled at Thunder Bay and Vancouver. A car of CWB grain is not assigned to any particular terminal, but, rather, is entered into a pool of CWB cars that can be unloaded at any available terminal. The intent of the system of car pooling at the ports was to reduce the cost and time required to sort the cars and assign them to the correct terminal.

Through industry agreements (both formal and informal) the terminal owners have determined that each terminal is entitled to unload a volume of CWB grain equal to the volume of grain that was sourced by the terminal's parent company, or sourced by companies with whom the terminal has handling agreements.

The grain industry currently has a system of railcar demurrage in place at Thunder Bay and the West Coast. The intent of the railcar demurrage system is to encourage quick unloading of the cars brought to the ports.

#### ***4.1.7 Vessel Loading***

The clearance associations (the Lakehead Clearance Association and the BC Clearance Association) assign vessels to specific berths. The CWB assists the clearance associations in making these decisions for CWB grains. Due to the volume of grain moving through Vancouver, and the fact that Vancouver operates at near capacity through much of the year, the CWB has an office in Vancouver to assist in these coordination decisions.

The terminal operators are responsible for loading the correct volume of the correct grain and grade onto the vessel in a timely fashion. A contractual system of demurrage exists at the vessel level. That is, financial penalties are incurred if the vessel is not loaded in a timely fashion. Currently the demurrage costs incurred by vessels loading CWB grain are incurred by the CWB, and,

ultimately, the producers. Similarly, the CWB can also earn dispatch if a vessel leaves early; this dispatch is passed on to the producers through the price pooling system.

A large portion of CWB sales are made free-on-board (FOB) West Coast or St. Lawrence. That is, the customer is responsible for arranging the freight (including the timing of vessel arrivals). An alternative method of arranging vessels is cost, insurance and freight (CIF), in which the Canadian marketer charters vessels and the foreign buyer takes possession of the grain in their home port.

Producers receive a final payment for grains sold through the CWB. This payment is based on the difference between the revenues earned by the CWB, and the costs (including the initial payment) incurred by the CWB. The final payment is split by grain and grade.

## **4.2 Zone Allocation Option**

The following section outlines the zone allocation system for CWB grains. The industry (through the Industry Rail Car Allocation Policy committee) has agreed to implement zone allocations beginning with week ten of the 1998/99 crop year. This section gives a general description of the changes being made. Under the zone option, the CWB's car allocation to grain companies will be expanded from the current train run system, to a larger catchment area, or zone system. The grain industry is in the process of implementing this system (currently scheduled to be implemented October 1998). Each participant's responsibilities along the transportation chain under the zone allocation option are similar to those in the current system (see Figure 4.1), except for the changes noted below.

Expanding the size of the catchment areas will increase a grain company's sourcing and shipping flexibility, as they will now be able to allocate their share of CWB grain to any of their elevators within this larger zone, rather than by smaller train runs. The goal is to increase the grain companies' ability to manage their primary elevator operations. The logistics system will operate much the same as the current system that was outlined in the previous section. The essential difference will be that the CWB will no longer allocate its weekly hopper car entitlement to individual train runs. Rather, the CWB will allocate its entitlement (by company and commodity) to zones that encompass a number of train runs. There will be twelve zones across western Canada (vs about 220 train runs in the current system). This will give grain companies more flexibility in choosing specific origin points than under the current system. Another change is that coordination of individual car spots will shift from the CWB to the railways and the grain companies (i.e., the railways will be responsible for train run programming).

## **4.3 Port Buyer**

In this option the CWB is moved to the port end of the grain handling and transportation chain. This section gives a brief outline of the fundamentals of this option. The operational details are outlined more fully in Appendix 2 for this and the on-farm buyer option. The zone option is not

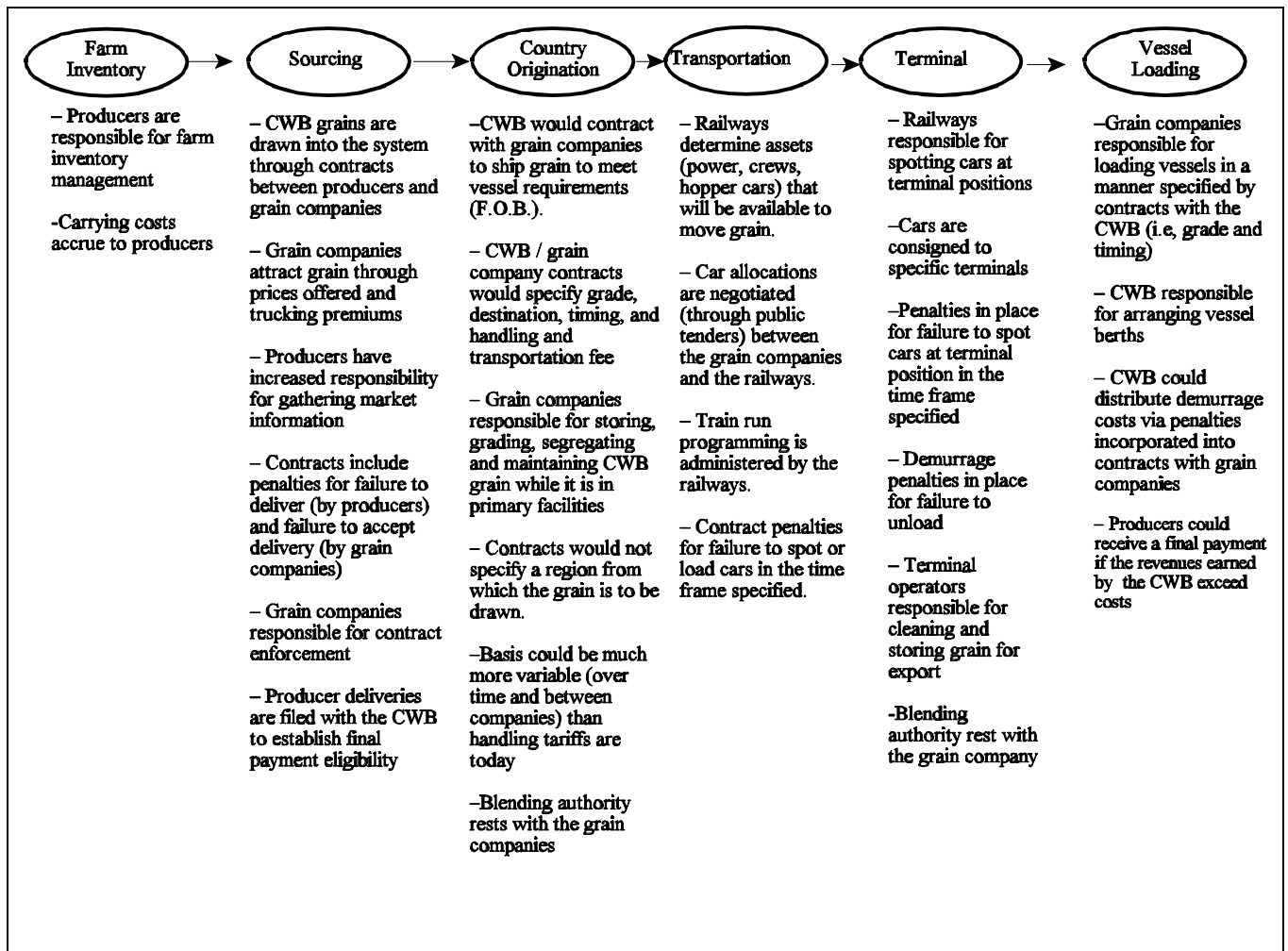
included in Appendix 2 due to its similarity to the current system, which is described in detail in Appendix 1.

In this alternative, the CWB would take possession of grain at the port, and offer tenders to the grain companies for the business of moving grain from the primary facilities to vessels. The CWB would no longer be involved in sourcing, country origination, transportation and terminal handling and storage. Table 4.2 highlights the level of involvement of each system participant in each link of the transportation and handling chain, while Figure 4.3 gives a brief overview of each participant’s responsibilities in each link of the chain.

**Table 4.2: Participant Involvement in the Grain Handling and Transportation Logistics Chain, Port Buyer Option**

<b>Functions</b>	<b>Producers</b>	<b>CWB</b>	<b>Grain Co.</b>	<b>Railways</b>
Farm Inventory Management	yes	no	no	no
Sourcing	yes	no	yes	no
Country Origination	no	no	yes	yes
Transportation	no	no	yes	yes
Terminal	no	no	yes	yes
Vessel Loading	no	yes	yes	no

This option would significantly change the nature of the initial price paid to producers. The producers would receive a payment from the grain companies at the time grain was delivered. The price offered by the grain company for each transaction would become the “initial” payment for that load of grain. Because the prices would be negotiated between producers and elevator companies, and the port prices would also be changing daily, these initial prices would vary by day, by location, and by producer. The concept of all producers receiving an equal price throughout the crop year would no longer apply. The payment to producers would remain an initial price only to the extent that the producers would still be eligible for a final payment from the CWB after the crop year closed. The variable nature of these initial payments may represent a change substantive enough to require a change in CWB legislation.



*\*\* Note that capacity planning is an important feature of all steps along the logistics chain\*\**

**Figure 4.3: Participant Responsibilities Along the Grain Handling and Transportation Chain, CWB a Port Buyer of Grain**

Grain companies would bid on tenders issued by the CWB to deliver a given quantity and grade to a destination within a specific time interval. The grain companies would be sellers of wheat and barley to the CWB, while bidding to purchase grain from producers (through the price offered at the elevator). The CWB would no longer be charged for cleaning, drying, or storage costs. The CWB would also not be responsible for adverse freight charges. In addition to the payments from the grain handling firms, producers would be entitled to any final payment declared by CWB.

The removal of the CWB from the logistics chain and placement at the end of the chain would affect the system logistics along the chain, mainly in terms of shifts in participant groups functions and responsibilities. The changes that may be expected are summarized below for each step of the chain. Farm inventory management would remain as in the current system and is not discussed.

#### ***4.3.1 Sourcing***

Grain companies are responsible for sourcing the grain and coordinating the flow of grain into the system. This would likely be accomplished through contractual arrangements between producers and grain companies. Again, these contracts would include penalties for failure to fulfill contractual obligations. Grain companies would be able to draw grain into their elevators by varying the basis, favourable grading practices, trucking premiums, and service packages tied to delivery.

#### ***4.3.2 Country Origination***

A grain company earns revenue from the contractual sale of wheat and barley to the CWB (FOB.). The CWB would contract with the grain companies to meet vessel requirements. These contracts would not normally specify regions from where the grain was to be drawn; this would be at the discretion of the grain companies in the course of their business operations.

Producers would not receive an initial payment from the CWB when they deliver their grain into the primary elevator system. Rather, farmers would receive payment directly from grain companies upon delivery. A grain company's gross margin would depend upon the value of sales to the CWB, blending opportunities, prices paid to farmers, operating costs and tariffs negotiated with the railways. Farmers would no longer be explicitly charged for handling and transportation. Rather, the handling and transportation charges would be incorporated into the payment they receive from the grain companies.

Basis would equal the difference between the grain company's bid to the CWB and the price offered by the grain company at primary facilities. Basis would vary from day to day and between grain companies as they compete to meet the terms of their contracts with the CWB.

### 4.3.3 *Transportation, Terminals, and Vessel Loading*

Rail car allocations would be negotiated (through public tenders) between grain companies and the railways. The resulting contracts would define the time of spotting at primary facilities, the time allowed for loading, pickup and shipment to final destination, and unloading at the final destination, and penalties for failure if any party does not meet their contractual obligations.

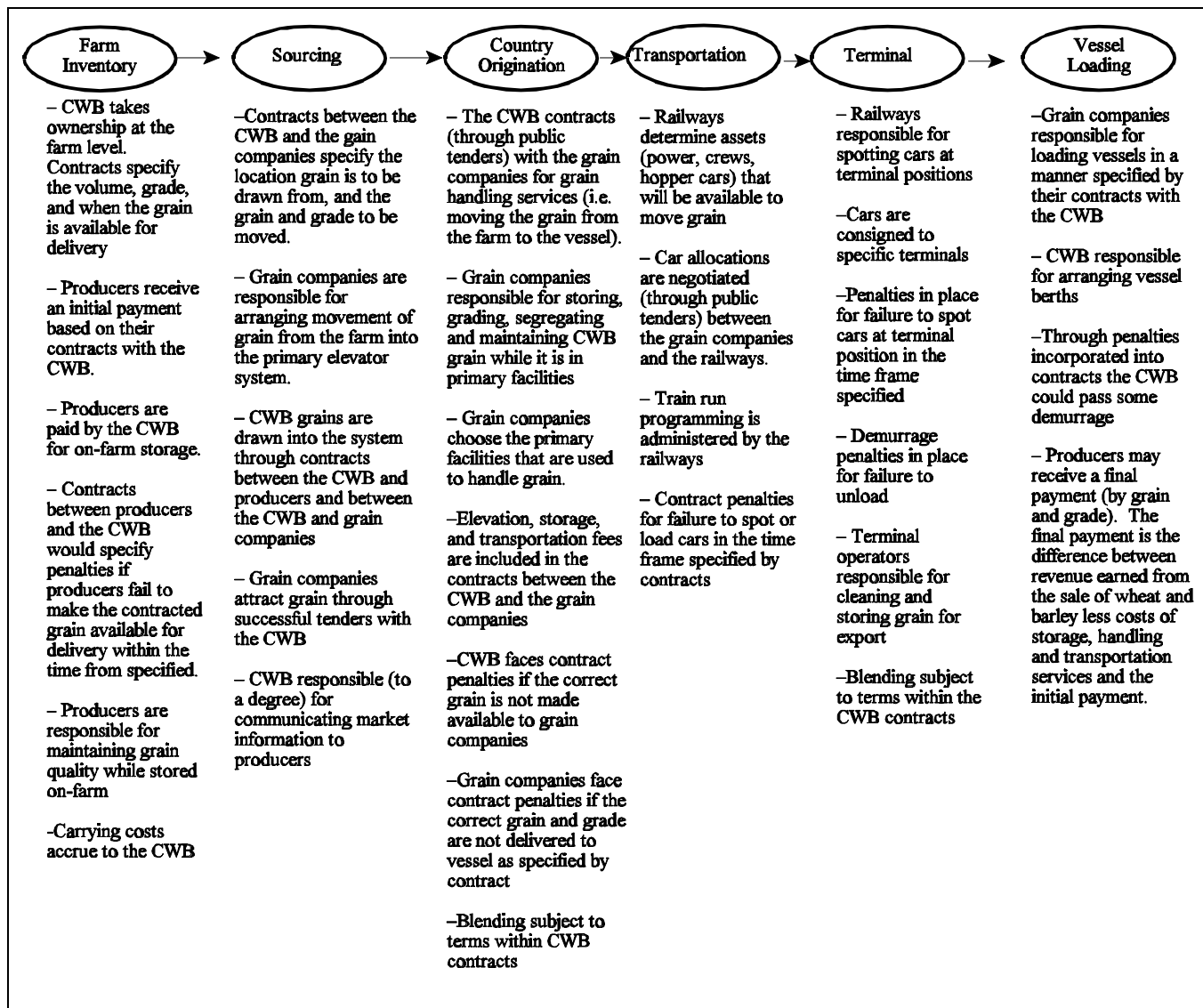
Cars would be consigned to specific terminals. Due to the contract process, and with it the requirement to assign responsibility to each car, terminal pooling arrangements and car exchange programs would no longer be in place. The CWB would continue to make arrangements for the loading of vessels. Grain companies would be responsible for loading vessels with the quantity and quality of grain defined by their contract with the CWB. Grain companies would be subject to penalties for failure to load vessels in the specified time period with the specified grain and grade. In addition to the payments from the grain handling firms, producers would be entitled to any final payment declared by the CWB.

### 4.4 **On-Farm Buyer Option**

The CWB’s role in the middle of the grain handling and transportation chain could also be changed by moving the CWB to both ends of the chain. Under this alternative the focus of the CWB would shift to the beginning of the logistics chain. The CWB would purchase grain directly from producers, take ownership of the inventory on-farm, and contract with grain companies to move the grain from the farm to sales position. Table 4.3 outlines each participant’s involvement along the handling and transportation chain under the on-farm option, and Figure 4.4 gives a brief overview of each participant’s responsibilities in each link within the chain.

**Table 4.3: Participant Involvement in the Grain Handling and Transportation Logistics Chain, On-Farm Buyer Option**

<b>Functions</b>	<b>Producers</b>	<b>CWB</b>	<b>Grain Co.</b>	<b>Railways</b>
Farm Inventory Management	yes	yes	no	no
Sourcing	no	no	yes	no
Country Origination	no	no	yes	yes
Transportation	no	no	yes	yes
Terminal	no	no	yes	yes
Vessel Loading	no	yes	yes	no



*\*\* Note that capacity planning is an important feature of all steps along the logistics chain\*\**

**Figure 4.4: Participant Responsibilities Along the Grain Handling and Transportation Chain, CWB Owns Grain From the Farm Through to the End User**

Like the port buyer option, the CWB would not be operationally involved in country origination, transportation, or terminal handling and storage. However, once the grain is purchased “on-farm” the CWB would be involved as a contractor of services throughout the logistics chain.

#### ***4.4.1 Farm Inventory***

CWB contracts with producers would define the quantity and quality of grain that would be made available for delivery into the grain handling system. Producers would be responsible for storing and maintaining the grain until it is needed to meet sales commitments. The CWB contracts with producers would define when the grain would be made available for delivery, and the penalties incurred if the terms of the contracts are not fulfilled. In addition, since the grain is now owned on-farm by the CWB, contracts with producers would include provisions for storage and payment.

The on-farm buyer option would allow the CWB to retain price pooling in its current form except that transportation and handling deductions would perhaps be estimated in advance with day to day variations absorbed in the pool. A final payment would be forthcoming if sales revenue exceeded the initial payment plus all marketing costs.

#### ***4.4.2 Sourcing and Country Origination***

The CWB would contract with grain handling firms (through public tenders) to move grain from the farm to port positions. Grain companies would make the arrangements for movement of grain from farm to elevator, whether it was through the producer or commercial trucking arrangements. Contracts would define the quantity and quality of grain to be moved, as well as the origins and final destinations. Grain companies would choose the primary facilities used to handle the grain. Contracts would also define penalties if any party fails to fulfill the terms of the contract. The CWB would control the flow of grain into the system through its contracts with producers and grain handling firms.

#### ***4.4.3 Transportation, Terminals, and Vessel Loading***

These functions and the responsible parties would be essentially the same as in the port buying option. One difference is that, whereas in the port buying option grain companies would be able to capture the value added from blending, both at the terminal and primary elevator level, in the on-farm option any blending at any point along the logistics chain would be subject to the terms of the CWB contract.





## **5 SYSTEM PARTICIPANTS' PERSPECTIVES**

An important component of this study was a detailed questionnaire and interview process with key participants in the grain logistics chain. The intent of the questionnaire and interviews was to develop a better understanding of contracts and accountability, as well as the anticipated impact of changing the CWB's role in the logistics chain on costs and value added for the various participants. In addition, system participants were invited to comment on the three options.

The target for the questionnaire and interviews was the membership of the SEO group, plus four additional agricultural organizations. Information from questionnaires or letters was obtained from 22 organizations and individuals in this phase of the study. The breakdown of system participants was as follows: three producers (all members of the SEO), four agricultural organizations, the CWB, The Canadian Grain Commission, the two railways, and 11 grain companies. In the course of the interviews and questionnaires, it became apparent that the views of the grain companies, regarding the current logistics system and the options, varied according to the number of primary elevators the company owned in western Canada. For analytical purposes, the grain company group was divided into large and small companies according to their number of primary elevators in western Canada, with the result that six companies were included in the smaller group and five in the larger group.

The study team gained valuable insights from the questionnaires and interviews, and the cooperation of the participants in this process is sincerely appreciated. To ensure the interviewers had correctly interpreted the participants observations and concerns, a one page summary of these interpretations was prepared and sent to each respondent for verification.

The intent of the questionnaire and interview process was to gain insights into the operation of the current system and the three options. It was not the intent to tally or tabulate the responses. Accordingly, the synthesis reported in this section makes no attempt to conclude which would be the "preferred" option by all participants.

The synthesis that follows is divided into the views of the five key groups: producers and agricultural organizations, smaller grain companies, larger grain companies, railways, and institutions (CWB and CGC). For each group, comments of a general nature are followed by comments on each of the options. The questionnaire and a more detailed summary of the responses are presented in Appendices 3 and 4.

## **5.1 SEO Producer Members & Agricultural Organizations**

### **5.1.1 General Comments**

A wide range of opinions were offered on the “best” option. Some preferred the zone allocation system, as its administrative formulas ensured predictability and equitable market access while at the same time allowing grain companies increased flexibility to use their assets. Others favoured the port buyer option because it established a totally commercial environment with contracts ensuring accountability and promoting efficiencies in the total system.

Rationalization was considered to be inevitable regardless of the option selected. The only variant among the options would be the pace at which rationalization occurs. Most were of the opinion that the on-farm option would slow the pace, as the CWB would have a tendency to attempt to keep branchlines open. However, there was concern the CWB may target deliveries to more efficient elevators and speed up the rationalization process. Road damage, longer trucking distances and increased use of commercial vehicles would be the natural outcomes of this rationalization. In addition, rationalization erodes the personal producer/agent relationship and necessitates more “shopping around” to try and negotiate grade and dockage.

There were also concerns expressed over the lack of rail competition. One group emphasized the need to have costing reviews reinstated, in addition to the continuation of the maximum freight rates, to ensure the producer would receive a share in efficiency gains. They suggested competition would exist if there was open access to the rail bed for a regulated fee (similar to the telecommunications industry). Some felt producer cars encouraged competition.

Increased value-added activities on the prairies could result in fewer bulk exports, more processed product exports and more internal rail movement. This would alter the required handling capacities at the ports.

There were mixed views on the CWB’s role in equitable delivery opportunities, ranging from those who felt the CWB had an integral role to play, to those who felt this principle was no longer relevant, because of the elevator manager’s influence, and the competitive environment.

Some indicated that the payment of storage and interest payments would alleviate the delivery pressure created by CWB price pooling. Others were of the opinion that price pooling was an integral risk management tool.

### **5.1.2 Zone Allocation**

This was considered the best option by some respondents, as it balanced the need for equitable access with the railways’ and grain companies’ desires to increase their control of their assets. Grain companies would benefit from increased flexibility to move cars between locations to

maximize throughput. It was generally acknowledged that the impact on an individual producer would depend on the added distance he would have to travel to the elevator.

Others felt this option would promote main and secondary main line grain movement. They foresaw (a) producers storing more grains on-farm and trucking longer distances to the elevator, (b) the road network deteriorating from increased truck traffic and (c) grain companies being the big gainers as they would increasingly use their high throughput elevators and would have more opportunities to blend because of the larger catchment area.

Some pointed out that this option was simply the resurrection of the 1970's block shipping system.

### **5.1.3 Port Buyer**

Most respondents felt contractual arrangements would assign responsibility and accountability.

Opinions differed on the level of competition for the producer's grain. Some felt this would be locational specific depending on the number of competing grain companies in the surrounding area. Others felt fewer elevator points resulted in less competition over the long-term and higher profits to the grain companies because of increased use of high throughput elevators and the added benefits of grading and blending.

It was suggested that, under this option, the time lag between making sales commitments and knowing available supplies would produce inefficiencies. Concerns were expressed that companies could make commitments and then find the product was unavailable for delivery or that the basis margin would be insufficient to draw the grain into the system. The result could compromise Canada's reputation as a reliable supplier. Others felt that returning management authority to the asset owners (railways and grain companies) would enhance system efficiencies by eliminating third party intervention.

It was recognized by all respondents that the basis would now reflect all costs including handling tariffs. The basis would change depending on available supplies and customer demand. Some felt the basis would be wider after harvest and would narrow over the year. Competition by grain companies for market share would influence the basis level. This competition would depend on how the CWB awarded contracts. With more grain stored on-farms for longer periods of time, there would be increased potential for grain deterioration. Most felt the grain companies would blend grain more frequently with only a portion of these benefits being passed back to the producer.

### **5.1.4 On-Farm Buying**

Many questioned the viability of this option. Most negative comments focused on a centrally planned and controlled system that would be an administrative and logistical nightmare.

Centralization of decision making would mitigate against efficiency, competitive relationships and accountability. Producers would not benefit directly from blending but would have to share the gains through the pool accounts. Concern was expressed that the grade the producer thinks he has may not be the grade actually delivered.

Others felt the option would ensure equal access by producers, enhance the CWB's role, and streamline the movement of the grain, with the end result being that the gains of this option mostly accrue to the producer. Some indicated there may be opportunities to spot multiple numbers of producer cars at a given location (unit train type of movement) and thereby by-pass the grain companies.

Some felt this option would shift the grain inventory to the farm level (viewed by some as the least cost storage option) and would encourage more on-farm cleaning and blending. The CWB would have better knowledge of the inventories and could draw grain from a wide geographic area to best use the high throughput and local elevators, while ensuring the optimum level of buffer stocks. Gains from blending beyond the farm gate would accrue to all producers through the pool accounts.

Some felt the knowledge of grades and amounts of grain on-farm would improve while others indicated this information was totally dependent on the quality of the sample taken and had nothing to do with the role of the CWB.

Under this option, many were of the opinion that the grain companies' incomes would be restricted to income from handling tariffs. These handling tariffs would have to increase sufficiently to offset the income lost from foregoing blending, storage revenues and any potential profit built into the margin.

## **5.2 Smaller Grain Companies**

### **5.2.1 General Comments**

In general, these companies see future opportunities in handling not only Board grains but other crops as well. They tend to emphasize service in addition to grade/blending benefits. They viewed the CWB as important because it services both producers and customers.

The general consensus was rationalization will continue regardless of the option selected. However, the process may be accelerated under the port buyer option and slowed down under the on-farm option. Competition from grain companies will attract grain from larger draw areas to be handled by the high throughput elevators. This competition will be intense as the marketplace changes and the system evolves.

These companies viewed efficiency and competitiveness as important themes. Most thought equitable delivery was less relevant, given the need to better manage elevator assets.

Some indicated the operating costs at the elevators operated by the smaller grain companies will be unchanged because these companies are shifting staff resources to other value-added activities.

Elimination of the rate cap may impact what grains are moved and the percentage of grain related revenue reinvested by the railways. A company favoured elimination of the rate cap because, in their view, it tends to distort where to construct handling and processing facilities. Others were concerned about the market power the railways would have to dictate prices and services. The railways could react to shipper complaints through other means and often do.

Most respondents suggested the US grain sales program has many features worthy of evaluation when considering revising the grain handling and transportation system.

### ***5.2.2 Zone Allocation***

All respondents felt the zone allocation system will allow better utilization of elevator space and railway cars/locomotives for the benefit of all participants. This option treats all grain companies equitably for car allocations, regardless of whether or not they own a terminal.

All smaller grain handlers indicated larger grain companies will have more flexibility to move cars to their competitive points. They will flex cars from the smaller elevators on branchlines to the larger high throughput elevators. Small grain companies have less flexibility because they have fewer locations. Some companies highlighted that car allocation is a major concern for smaller independent companies, as they need access to the cars to effectively use their elevator space.

The current car allocation formula, which places a weighting on historical market share, was considered by some to deter new players from entering the marketplace. Conversely, others suggested new entrants are privileged because they are given an automatic car allocation (with a corresponding decline to existing companies) without having to compete.

### ***5.2.3 Port Buyer***

Some stated the port buyer option would allow the grain companies and railways to better manage their assets. Most respondents were of the opinion that the efficiencies gained by the railways and grain companies through multiple car loading would be shared with producers. Most companies indicated this option would encourage better management and movement of grains by using on-farm storage as the source of buffer stocks. One respondent suggested that established grain companies with a large number of elevators may find it difficult to downsize, given member demands and the large number of facilities.

All smaller grain handlers stated this option would provide advantages to those grain companies with terminal elevators. Cars would be consigned to a specific terminal. Grain companies with terminals may give preferential treatment to their cars over the independent's cars. Grain companies may have a tendency to "pull" grain from a specific geographic area.

Some smaller grain companies felt that through linkages to the processing industry, they may be able to see their market share grow as the value-added sector expands. Others felt that companies with ownership in major international processing operations will be able to bid low on tenders for handling grain knowing they can arbitrage the offshore markets (bid lower for the purchase price). They may also "cherry pick" the quality/type of grain for the US market by attracting specifically what they require to their facilities.

Concern was expressed that because grain companies would have to bid for both CWB business and rail cars, they would lack sufficient market power to negotiate effectively with the railways. The company's inability to realize anything more than the handling fee means that any risk associated with demurrage must be deducted from this margin. Larger companies would be better able to absorb this risk.

Some suggested the CWB would have difficulties administering price pooling under this option.

#### **5.2.4 *On-Farm Buying***

All respondents stated this option was viewed as extremely bureaucratic and contrary to global market trends to reduce government involvement and regulation.

### **5.3 *Larger Grain Companies***

#### **5.3.1 *General Comments***

All respondents stated that the lack of detail in the options (particularly the on-farm buying option) necessitated making a number of assumptions which would affect their assessment of the potential impacts of the options. One respondent stated that they simply wanted to better manage their assets and had no particular preference on the option until they knew all the operational details. Another expressed concern that the long-term and short-term impacts could be quite different, yet the survey did not distinguish between the two.

Most companies indicated the logistical chain needs a minimum number of participants, each of whom have direct involvement in the management of all or part of the logistical chain. A third party simply complicates the process and prevents efficiencies from being realized.

A belief by all respondents is the need for a flexible system to meet the changing needs of customers. Several pointed out the current system was developed when there were few buyers and

a limited number of segregations and crops handled. The future system must be more adaptable to be able to respond to rapidly changing production and use patterns. Given the changing global economy and demands for less intervention, less government involvement in the grain handling and transportation system was desired.

Some companies indicated that the primary and export standards should be the same to get greater efficiencies. Others indicated the customer should be given choices on the level of dockage and the associated discounts.

One company suggested changes must be implemented all at one time rather than the piecemeal approach done in the past, to ensure unforeseen impacts do not result.

Again, the general consensus was rationalization will continue regardless of the option selected. However, the process may be accelerated under the port buyer option and slower under the on-farm option. Market shares of individual companies will depend on the company's ability to develop, maintain and manage customer relationships. The competitive environment will be impacted by preferential grading, trucking incentives and other factors rather than the specific option selected. Competition from grain companies will attract grain from larger draw areas to be handled by the high throughput elevators. This competition will be intense as the marketplace changes and the system evolves.

The larger grain handlers viewed efficiency and competitiveness as important themes. Most thought equitable delivery was less relevant given the need to better manage elevator assets.

There was a mixed response on the retention/elimination of the rate cap. To some, greater competition must exist before considering elimination of the rate cap, while to others elimination of the cap would ensure appropriate rewards/penalties, based on performance, and would encourage railway investment for the betterment of all participants. One company stated if the rate cap was removed then there should be an obligation for the railways to improve their information systems regarding product and car movement. This obligation, in their view, must be guaranteed or negotiated, prior to removal of the cap.

Most felt price pooling could operate under any option. However, several companies indicated price pooling masks market signals and does not draw the grain into the system when required.

### ***5.3.2 Zone Allocation***

The respondents felt the zone allocation system, although a minimal change from the current system, will allow for better utilization of elevator space and railway cars/locomotives for the benefit of all participants. Companies would be better able to coordinate the merging of CWB orders and non-Board orders for specific corridors and for certain delivery windows. However, it was expressed



that market signals will continue to be ineffectively communicated to producers because of the third party involvement of the CWB.

All respondents indicated larger grain companies will have more flexibility to move cars. Some stated grain companies will be required by the CWB to service certain train runs regardless of the company's willingness to operate elevators on those train runs,

One respondent felt this was the best option for the short-term as it recognized the impact of insufficient rail competition. Although there are a number of mechanisms which the CWB and railways can use to impose accountability on grain companies, there are few mechanisms available to the grain companies to impose accountability on the CWB or the railways.

All respondents suggested terminal car pooling is an impediment to accountability because it weakens the linkage between loads and unloads.

### **5.3.3 Port Buyer**

Most respondents favoured this option because of the accountability/efficiency associated with a more commercial environment. This option was felt to provide the greatest opportunity for coordinating grain movement because the asset owners make the decisions with no third party involvement. It was pointed out, however, that the lack of railway competition would have to be addressed.

Several respondents indicated this option would eliminate the need for inbound grading at port and CGC auditing. This would provide a greater opportunity for terminals to blend grains at port prior to loading. Terminals would no longer be tied to consignment formulas at the country level but, instead, competition would dictate product movement. Coordination of Board and non-Board movement would result in better timing of rail car arrivals at port with vessel arrivals. One company indicated they would like the opportunity to sell grain CIF to better respond to markets and increase export opportunities. This could increase the size of the pie.

All companies said the handling tariff would be included in the margin. Competition between grain companies would influence the size of this margin. One company indicated that a larger producer may have more leverage in negotiating with a grain company. This would result in two producers with the same quality of grain receiving different prices. Most felt, however, that competition for the producer's Board and non-Board grains would ensure equitable treatment as producers would "shop around" for the best deals.

One larger grain handler indicated a preference for more than one port buyer (rather than just the CWB) as it would result in a more robust market.

### **5.3.4 On-Farm Buying**

All respondents stated this option was viewed as an extremely bureaucratic system focused on micro-management and contrary to global market trends to reduce government involvement and regulation.

All felt this option would encourage on-farm storage and necessitate more on-farm grading and inspections. It was uncertain if there would be sufficient on-farm storage to allow for the smooth flow of grain throughout the crop year, and if grain quality could be maintained. Several felt payment of on-farm storage would distort market signals, particularly as producers fail to consider the opportunity costs associated with storage. The CWB and producers would both see their administrative time and associated expenses rise.

Under this option, the larger grain handlers indicated there was no incentive to offer trucking incentives as the CWB would direct grain deliveries. Some indicated that loss of the grain company/producer interaction would be a disadvantage and result in less effective communication of market needs.

Most felt this option would result in them losing control of their assets and, thus, they would be unwilling to enter into contracted performance arrangements with the railways. Several questioned if the railways would be willing to provide guaranteed delivery windows to the ports because they are not offered in the US. All companies pointed out they would simply compete using their handling fees, as the grade would be specified in the producer's contract. It would also take away options to differentiate grain companies based on service.

## **5.4 Railways**

### **5.4.1 General Comments**

Both railways emphasized the need for the system to focus on the customer's needs and the ability of the system to capture value from the customer. One railway stated equitable delivery was only a CWB objective and should not be considered. This railway also was of the view that price pooling was a social welfare issue and not a risk management tool.

Both railways stated the elimination of the rate cap is essential if carriers are to have any incentives for providing service guarantees. Stated simply, one cannot talk service without discussing price. There must be additional rewards for risk taking.

Both railways raised questions about the options presented. The lack of detail made it difficult to assess potential impacts.

Rationalization will continue no matter which option is selected. However, the on-farm option may slow the process down. Trucking distances and commercial traffic will increase. The

individual producer will decide how far he hauls his crop. The competitive environment (including grading and blending incentives) will impact his decision on where to truck his grain.

Both railways indicated car pooling is possible under any option.

One railway stated their discounts for multiple car blocks are based on long-term variable cost savings. Although the per tonne payments may not increase, rationalization will increase the total payout.

One railway stated car turnaround times and car switching would depend on other operational factors, as well as grain/grade patterns and the commodity mix, not on the specific option.

#### **5.4.2 Zone Allocation**

Both railways viewed this option as a minor modification to the existing system. It will be a push system and will not provide increased marketing opportunities.

#### **5.4.3 Port Buyer**

Both railways indicated this was their preferred option as it allows the establishment of an accountable logistics chain, with competition between Board and non-Board grain movements of the various companies seen as a favourable outcome. It would result in a cost effective, demand-pull system which is able to assign responsibility for nonperformance. This environment will encourage investment and will result in growth of market opportunities for all participants.

The system would allow terminal operators to meet the unloading commitments of shippers. However, more switching may result as cars are consigned to specific terminals. Terminal buffer stocks will depend on the company's strategy of where to best hold this inventory.

#### **5.4.4 On-Farm Buying**

Both railways considered this to be an administratively complex push system which would encourage more on-farm storage regardless of whether it was needed or not. It would, in their view, increase everyone's costs and diminish the market opportunities as the added administration would prevent the best use of assets.

One railway felt the option as described failed to give the CWB total control of the logistics movement. They stated they would expect the CWB to want to manage the total movement of the grain through the logistics chain rather than simply be involved on-farm and at port.

## **5.5 Institutions**

### **5.5.1 General Comments**

Both institutions indicated rationalization will continue regardless of the option selected. A natural outcome will be increased trucking distances and more use of commercial vehicles. One institution stated that as the elevator size increases and the number and size of unit trains increases, the ability of terminals to blend up from primary tolerance levels to export tolerance levels will decline. One institution felt larger grain companies have more flexibility regardless of the option selected.

One institution felt that under all three options it would be difficult to isolate grain company and railway performance.

One institution stated investment by the railways is affected by rates, volume and captivity. In their view, one would need to change the car allocation process to impact the shipper's willingness to invest in hopper cars.

One institution stated equity of access refers to the producer's ability to deliver similar quality grain within the crop year for the same price regardless of when the grain is delivered. It does not, in their view, prevent the system and its participants from increasing system efficiencies and can provide for orderly and timely access to a constrained system.

### **5.5.2 Zone Allocation**

This option will provide grain companies with greater flexibility to manage their resources, while at the same time ensuring the CWB will be able to source grain to meet its sales commitments. The CWB's role changes from administering to monitoring the train run programming.

It was noted that contracts and railway service agreements could exist in the current system. Service agreements between terminals and the CWB are currently being discussed. These agreements would guarantee a handle of the CWB tonnage for a negotiated fee.

One institution suggested the current 4 and 8 week loading plans were effective in helping grain companies better manage their resources.

One institution indicated that with the railways currently charging the maximum freight rate, they have little incentive to increase performance or service levels, as they cannot be compensated for offering better service.

One institution raised the issue of the Seaway viability as to where one tendered the grain and how the cost of the Seaway would be addressed.

Both institutions stated producer cars would be assigned the lowest priority. Under this system, one-week delays in accessing the cars could result if the demand for cars exceeded supply. Additional problems may arise if the car minimum for a train run is not met.

Both viewed this option as not impacting CGC grading and inspection.

One institution suggested the current car allocation system could be strengthened by introducing financial penalties.

One respondent indicated their preferred option was the zone allocation system with terminal handling agreements. They further stated the option could be enhanced with on-farm buying (through CWB agents), with the net result being better returns to producers.

### **5.5.3 Port Buyer**

One respondent indicated there would be no producer cars unless producers could directly contract with the CWB.

Because handling tariffs are included in the margins, the CGC could not collect data on tariffs or mediate producer complaints.

Both institutions stated there would be increased importance on knowing the quality and volume of crop available for sale when the CWB was planning its sales activities. The harvest survey conducted by the CGC would be critical to this.

Inspections at primary elevators would become more important as well because of the existence of contracts. Grading costs paid by the producer may increase.

Elimination of car pooling would possibly eliminate inward inspections at the port terminals and shift the emphasis to outward inspections when loading the vessels. The ability to blend grains at port would benefit the grain companies, and not necessarily producers. Quality control was considered by both respondents to be more difficult under this option.

Both thought terminal handling tariffs would be based on competition.

One respondent felt equitable access could not be assured under this option and that price pooling would be eroded as delivery access to the system would be controlled through the fluctuation of the basis. They further indicated car pooling would disappear as grain companies would be unwilling to assume the risk of contract default due to another company being unable to meet the tender requirements. Car turnaround times would increase because the CWB would not coordinate transportation and car pooling at port.

One institution felt there would be an increased risk of underutilization of Churchill and Prince Rupert as the grain companies would build their lost terminal handling into their tender prices, thereby reducing the attractiveness of using these ports.

#### **5.5.4 On-Farm Buying**

Similar to the port buyer option, inspections at primary elevators would remain important because of the existence of contracts. Grading costs paid by the producer may increase. Elimination of car pooling would possibly eliminate inward inspections and shift the emphasis to outward inspections. The ability to blend grains at port would benefit the grain companies, not necessarily producers. Quality control was considered by both respondents to be more difficult under this option.

Both thought terminal handling tariffs would be based on competition.

One institution indicated there would be no producer cars and the CGC would have a reduced role in mediating producer complaints.

Both institutions suggested there may be more on-farm storage and expected more on-farm inspections and/or producer submitted samples. This would necessitate proper sampling techniques being used on the farm. Because of contracting, one respondent stated more inspections could occur at the primary elevator. Overall, both expected there would be better knowledge of what grains and grades are available.

One respondent suggested that if the CWB contracted with grain companies to do the on-farm buying, it may complicate the administration faced by the producer and the grain company.

Both felt that because the producer contracts would specify the grade, companies could only compete using trucking and input-related incentives.

One indicated price pooling would continue but loss of car pooling would increase switching costs.

#### **5.6 Overall Summary**

Because the options, particularly the on-farm and port buyer options, were not spelled out in full operating detail, this created some differences of interpretation on the part of participants in how they viewed the options.

In terms of preferred options, the SEO producer members and farm organizations had a wide range of opinions with some favouring the zone allocation option for its predictability, and others preferring the port buyer option because of its commercial environment. The response by grain companies depended on the number of elevator sites they had across western Canada and the degree

of flexibility this represented. In general, those grain companies with fewer sites preferred the zone allocation system as the formula assured some predictability in their market share. Those grain companies with many sites across the prairie region favoured the port buyer option as it allowed the greatest flexibility and management control over their assets. The railways also supported the port buyer option. However, they were quick to point out that the elimination of the freight rate cap would be essential if one was to have incentives for providing service guarantees. Of the two institutions interviewed, one did not state any preferred option while the other indicated it favoured a modification of the zone allocation option to include on-farm buying through grain companies who would act as agents of the CWB.

The on-farm buying option was viewed by most to likely cause more storage to be built on the farm with the consequence that this would be the primary location for buffer stocks to meet CWB sales. Both railways and most grain companies saw the on-farm option as being more administratively complex and were, therefore, strongly opposed to it.

In general, a common theme throughout all the groups was the feeling rationalization will continue to occur regardless of the option selected. This would increase the distances producers had to haul their grain and would encourage more commercial traffic. Most felt the on-farm option may slow the pace of rationalization somewhat.

Some industry participants noted that having the CWB purchase grain “on the farm” does not preclude the CWB from being involved in the other links in the logistics chain. That is, the CWB taking possession of the grain at the farm level does not mean it would have to remove itself from the various links in the logistics chain. This alternative structure of “on-farm” ownership does not accomplish the objective of reducing the CWB’s role in transportation.

## **6 ECONOMIC ANALYSIS OF THE CWB ROLE IN TRANSPORTATION**

Section 5 outlined the industry perspectives on the current system and the three proposed alternatives. This section provides an economic analysis of the current system and the proposed alternatives by examining these options through the lens of transaction cost economics and by examining the markets for transportation services. The material contained in this section is presented as background to the evaluation of the options presented in the next section, where both economic analysis and industry perspectives are considered.

The section begins with a brief description and a comparison of the contractual relationships between the participants in the current system and the alternatives. This allows attention to be focused on the issues of accountability, risk, and information flows in each of the options.

The second part of the section discusses the markets for primary elevation services, rail freight and terminal elevation services. The economic model assists in examining how the alternative CWB roles in transportation may affect these markets and the basis charged to producers.

### **6.1 Accountability and the Contractual Relationships Between the Participant Groups**

As was discussed in Section 3, a central idea in transaction cost economics is that the cost of doing business in a sector is a function of how the transactions in an industry are arranged. A key part of any arrangement is the contract, or rules of exchange, that exist between each industry participant. These rules of exchange not only influence transaction costs, they also determine the distribution of benefits within the system. The various contractual relationships (written and unwritten) between the participants in the system are discussed below for the current system and for each of the options.

Accountability is derived when there is a bilateral contract between two parties which agree to an exchange. Adding additional parties or additional contracts to the exchange reduces accountability. The contractual relationships that exist between the various participants is not one and the same with accountability within the system. A system that requires a high level of interacting relationships between the various system participants, but which is lacking in instruments of accountability within these relationships, increases transaction uncertainty and therefore increases delivery and quality risks to the various participants. The issue of accountability is pervasive throughout the grain logistics chain, and for this reason is considered in some detail below prior to considering the levels of interactions between the participants.



### ***6.1.1 Accountability in the Logistics Chain***

The problem with considering accountability and the role of the CWB in the logistics chain is that it is not always clear as to what is the instrument of accountability to the various parties along the chain, or if in fact there is any such instrument. To assist in this process, Table 6.1 lays out the functions in the logistics chain. This includes the the participant responsible for each function, as well as with whom the the participant has made the arrangements, and the level of accountability that currently exists.

From Table 6.1 it is clear along each function on the chain who is the responsible party for the function, and to whom they are responsible for that function. However, it is not always clear who is ultimately responsible for the grain itself along each step of the chain. Although handling agreements between the CWB and grain companies identify the grain companies as the shipper, and hence it would be expected that grain companies have ultimate responsibility for the grain from delivery at elevator until delivery at port, from the interview process it has become clear that there is not a consensus amongst the industry that this is the case. There appears to be confusion within the industry itself as to who is the “shipper”; the grain companies or the CWB?

When considering the instrument of accountability for each function along the chain, there are written contracts or agreements at the sourcing and origination stages, these being producer contracts between the CWB and producers, and primary elevator handling agreements between the CWB and primary elevators.

Producers have delivery contracts with the CWB which oblige producers to deliver when a contract call is made. Penalties for failure to deliver are not always enforced. When the grain is actually delivered, the producer must also reach an agreement (usually verbal) with a grain company as to, for example, the time of delivery, the grade, the dockage level and the elevation tariffs. Thus, two contracts govern the delivery of grain, making the producer accountable to both the CWB and the grain company, with the result that the producer is not fully accountable to either one.

Handling agreements between the CWB and primary elevators outline the responsibilities of the elevators as agents of the CWB, but do not specify any nonperformance penalties, other than the ability of both parties to cancel the agreement. Specific penalties and disincentives are covered in the IRCAP.

It is at the transportation stage of the chain that there appear to be less clear levels of accountability, and, in fact, it is not always clear what exactly the instruments for accountability are for the various functions.

**Table 6.1: Current System - Level of Responsibility and Accountability Along the Logistics Chain**

<b>Function in Logistics Chain</b>	<b>Participant Responsible for Function</b>	<b>Participant that Transaction made with and Instrument of Accountability</b>	
1. Grain stored on-farm	Producer	CWB	- producer contracts with CWB
2. Grain trucked to elevator	Producer	1. CWB 2. Grain company	- contract calls by CWB - primary elevator acceptance
3. Elevation/storage	Grain Company	CWB	- primary elevator handling agreement
4. Railway capacity for moving grain	Railways	CWB and Railways	- CTA/CAPG
5. Rail car allocation to elevators	CWB - train runs Grain Co. - elevators within runs	CWB/Grain companies/Railways	- IRCAP
6. Rail cars spotted	Railways	Grain company	- CTA
7. Rail cars loaded	Grain Company	1. CWB 2. Railway	- IRCAP - none
8. Movement to port	Railways	Grain company	- CTA
9. Cars unloaded at terminals	Terminal Operators	1. If terminal co. is shipping co. grain co./railway 2. If shipping co. has handling agreement with terminal co. shipper/railway terminal co./shipper-	- rail car demurrage - rail car demurrage - handling agreement
10. Vessels loaded	1. Terminal Operators 2. Buyer 3. CWB	1. Terminal/CWB 2. Buyer/CWB 3. CWB/Buyer	- handling agreement - sales contract - sales contract

Railways provide capacity for CWB grains, as provided for in the Canada Transportation Act and through the CAPG negotiations (step 4 in Table 6.1). Rail car allocation to elevators (step 5) is guided by the IRCAP agreements, with no firm contractual arrangements. Railways are responsible to the grain companies for timely and appropriate spotting of cars at the elevators, with the only instrument of accountability being the CTA, which has provisions on the furnishing of suitable accommodation; there are no written instruments for timely spotting of cars.

Grain companies are responsible to the CWB for correct loading of rail cars (step 6), with level of accountability stemming from IRCAP agreements, which outlines performance incentives and penalties. The grain companies are also responsible to the railway for timely loading of rail cars, but there are no written instruments for this responsibility.

Railways are responsible to the grain companies for moving the loaded rail cars to port and delivering them to the correct terminal. The only instrument of accountability here is the CTA, which states that railways must move the cars without delay and with due care [Section 113(c)]. Service contracts do not currently exist between the grain companies and the railways, for spotting or moving of cars by the railways, or loading of cars by the grain companies. This is not a factor of the CWB's role in the logistics chain, but rather is considered a result of the regulated freight rates and the railways' reluctance to enter into such contracts under rate regulations.

Contributing to the accountability concerns at port is the practice of pooling railcars at port, which has been discussed previously. The practice of exchanging of railcars between terminals has not, however, necessarily arisen from the CWB's role in the logistics system, as is evidenced by the Vancouver canola car exchange.

Once cars of loaded grain are at port it is the responsibility of the terminal operators to unload the grain, perform any cleaning, blending and segregation functions and load the grain on the proper vessels (steps 9 and 10). There are several levels of accountability at this stage. Unloading of cars at port is the responsibility of terminal operators. The party they are responsible to would be the railway, if the terminal company and the shipping grain company are from the same parent company. Any unload delays would be subject to a rail car demurrage. If the grain company shipping the grain was a different company from the terminal company, the two would enter into a handling agreement. Unload delays would result in the railway applying a demurrage fee to the shipping company, who would in turn charge for any delays to the terminal company, if in fact there were any such provisions in the handling agreement.

Terminal operators are responsible to the CWB for timely and proper loading of vessels. The buyer of the grain is responsible to the CWB for proper ship arrival. The CWB, and ultimately, the producer, is responsible to the buyer of Canadian wheat and barley for loading vessels with the right grain at the right time.

It is important to note in this and any discussion on accountability, that while contractual agreements are a means of applying nonperformance charges on offending parties, in order for such contracts to be effective, they need to be enforced and there must be an effective means of determining the party responsible for the nonperformance.

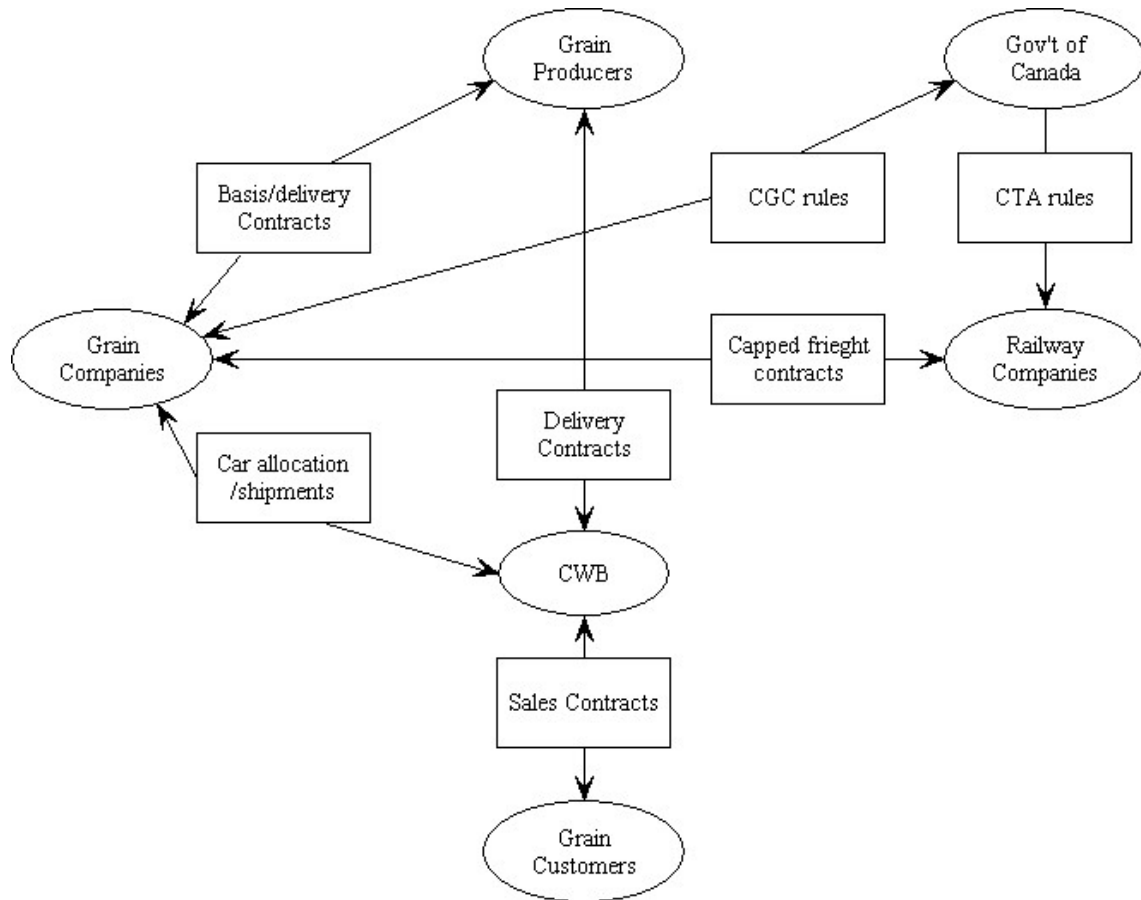
### ***6.1.2 Contracts in the Current System***

The contractual relationships in the current system are illustrated in Figure 6.1. This diagram considers the producer, the grain companies, the railways, the CWB, the customers, and the government each as participants. The contracts that govern the relationship between any two participants are represented as connecting arrows with a rectangular box as a label.

Figure 6.1 illustrates seven contracts that exist between the six participant groups in the current system. The CWB has delivery contracts with producers that govern the amount of grain the producer will deliver to the CWB. The producer also eventually makes an agreement with the elevator company, for time of delivery, grade, and basis charged. The grain company is obligated to certain practices by the Canada Grain Act, which is enforced by the Canadian Grain Commission. The grain companies also have contracts with the railways that govern delivery conditions and incentive rates. These contracts are developed within the confines of the Canada Transport Act which governs railway service and freight rates, and within the confines of the CWB car allocation procedure. The CWB not only has delivery contracts with producers and is responsible for car allocation, they also negotiate sales agreements with customers for Canadian grain.

With the large number of contracts, many of the transactions are influenced by more than one contract and involve more than two parties. As result of more than one contract governing an exchange, the accountability of the participants is reduced. For instance, the CWB, the Canadian Grain Commission, grain companies, and producers are all involved in the decision of a producer to ship grain. Similarly, the railways, the grain companies and the CWB are all involved in the allocation of rail service.

The complexity of the whole set of contracts is quite striking. Price plays a very minor role in allocation. The only contract where price can be used to freely negotiate quantity is the relationship between the CWB and the customer. The ability of the producer to negotiate quantity with the primary elevator is constrained by the CWB delivery contracts. The freight rates are capped by the CTA, and therefore price does not currently play a role in the allocation of rail cars. The CWB car allocation process governs the grain shipments. The lack of simultaneous price and quantity negotiation hinders the development of demurrage provisions, which could enhance accountability.



**Figure 6.1: Contracts in the Current System and Zone Shipping Alternative**

Information flows are also difficult to manage in this system. Although contracts with producers provide the CWB with information about on-farm stocks, the CWB does not know to which primary elevation points the grain will be delivered. The CWB is allocating cars to train runs while the companies may have better information about the least cost method of collecting the grain.

### ***6.1.3 Contracts in Zone Allocation***

In a move to zone allocation the only significant change will be the nature of the car allocation contract between the CWB and grain companies. Whereas, in the current system the CWB allocates cars to approximately 220 train runs, in the zone system they will allocate cars to 12 zones in western Canada. This will give the grain companies more freedom to manage their facilities and to react to competitive pressures within a zone. As will be discussed later, this should increase the rate of consolidation leading to a reduction in elevation and possibly rail costs, and should also provide some additional scope for competition between grain companies.

This move to zone allocation will give more control to the grain companies, which should have better information about where stocks are located and what the least cost pattern of delivery may be.

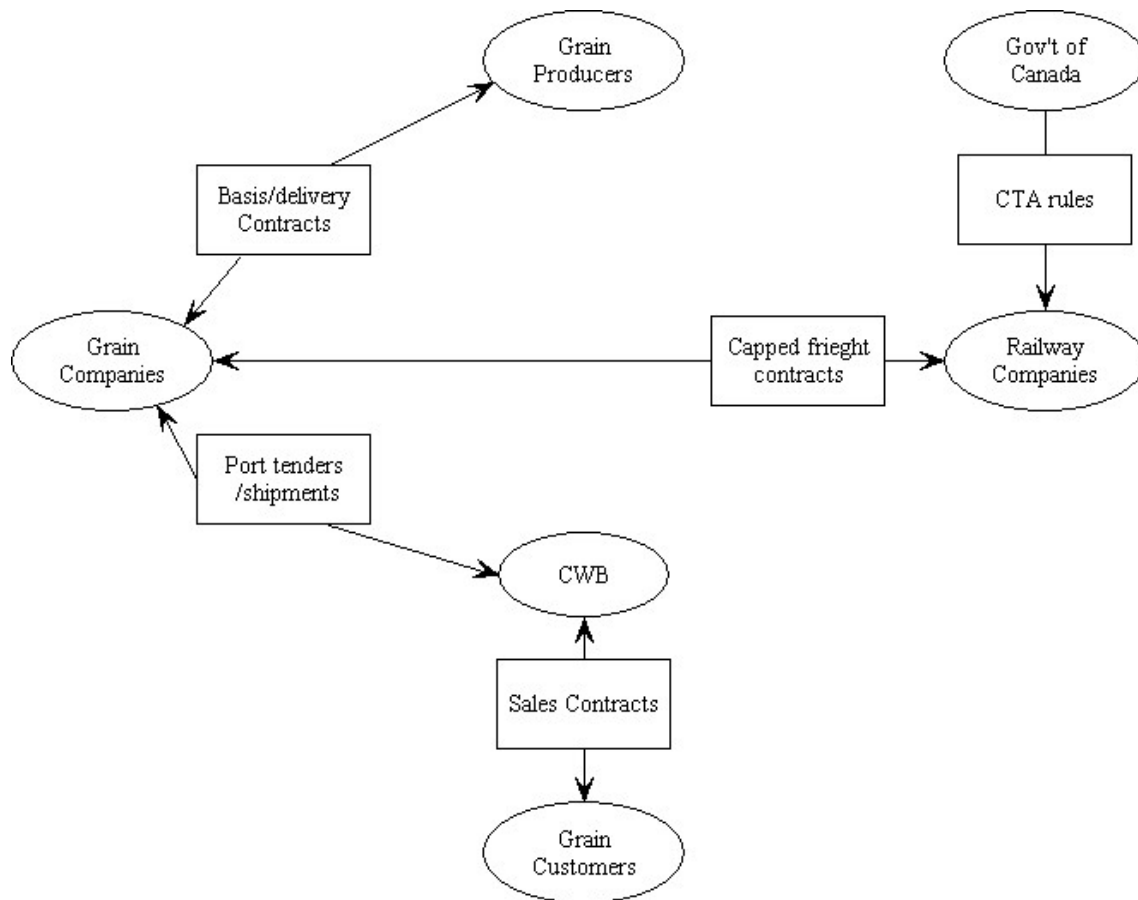
### ***6.1.4 Contracts in the Port Buying Option***

The contracts in the port buying option are illustrated in Figure 6.2. This alternative removes the CWB from control of producer delivery and from the car allocation process. It also reduces the role of the CGC by eliminating the public house provisions and by giving the grain companies more flexibility in pricing.

The result is a system where the grain companies negotiate price and quantity with both the CWB and the producers. With the freight cap in place the grain companies would still have a limited ability to negotiate quantity with the railways and would therefore continue to operate in some form of administered (albeit private) car allocation system.

This system would make the grain companies much more accountable to both the producers and the CWB. However, this increased accountability would come at the expense of a significant increase in financial risk for the grain companies and producers.

In this port buying system, the CWB would tender at port for specific quality, quantity, and delivery dates. The CWB would be the only buyer at port and could therefore use its monopoly position to hold the grain companies accountable when the companies had committed to purchase the grain from producers. Similarly, when the market is inverted, the grain companies would be in a position to market the limited port capacity at a very high price. The result would be port prices that vary a great deal within the crop year. This price risk would have to be borne



**Figure 6.2: Contracts in the Port Buyer Alternative**

by either the grain companies, which would charge a risk premium to handle the risk for producers, or by the producers themselves, as they would see initial cash prices vary on a daily basis.

In this system much more of the information would reside with the grain companies. However, the information on their share of on-farm supply and the future vessel demand would only exist to the extent that forward contracts were used.

### **6.1.5 *Contracts in the On-Farm Buying Option***

The contracts for the on-farm buying option are illustrated in Figure 6.3. In this alternative the CWB establishes an on-farm price for producers and in return producers agree to make specific quantities available for delivery. The CWB then tenders with grain companies for shipment from farm location to vessel.

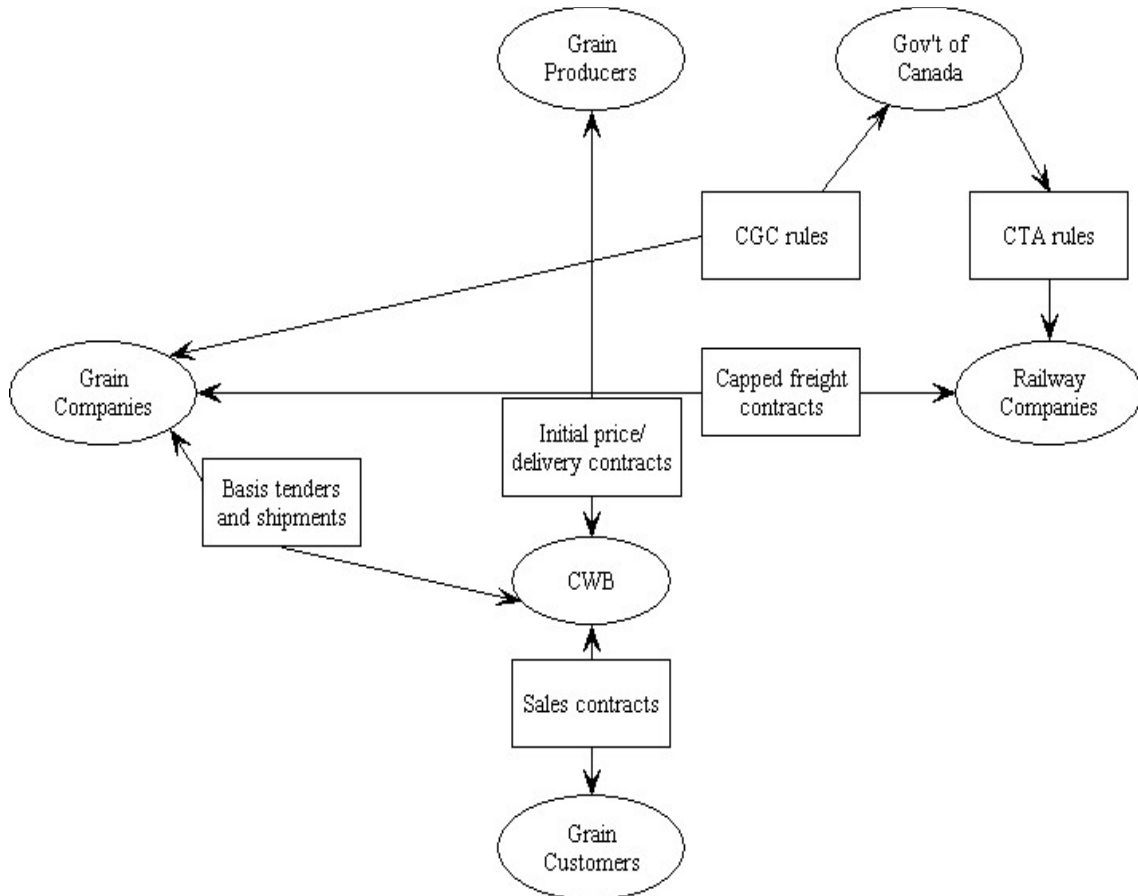
This system not only makes the grain companies more accountable for delivery it does not expose the grain companies to price risk. This system would leave the CWB in charge of allocating where shipments originated, and the grain companies would have the flexibility of determining the most cost effective way to ship grain from a particular farm to vessel.

This effectively eliminates any form of negotiation between the producer and the primary elevator. Without some scope for negotiation it would be very difficult to manage the relationship between these parties. Grading, dockage levels, dates of delivery, and hours of pick up would be very difficult to manage because there would be no scope for negotiation. Producers could no longer choose which company to deliver to, regardless of the treatment they had previously received. This would change a very complex and important relationship in the grain industry. It would necessitate a much greater CGC involvement in grading and dispute settlement.

## **6.2 Modeling the Market for Transportation Services**

To examine the issues of how basis may change with alternative CWB roles, it is useful to think of transportation (and handling) services as markets. The producers demand or pay for the transportation services that are supplied by primary elevators, railways and terminal elevators. In theory, the quantity of services provided and the price charged for these services are determined by the point where the supply equals the demand for these services. Effectively there are markets for primary elevator services, for rail transportation, and for terminal services. Although price and quantity relate these three markets, it is useful to consider each separately. Later, in section 6.4, they will be considered simultaneously.





**Figure 6.3: Contracts in the On-Farm Buyer Alternative**

### **6.2.1 *The Market for Primary Elevation Services***

The supply and demand for primary elevator service are determined in the country with each producer choosing to purchase transportation services from primary elevators. The quantity exported using these services will be the amount of grain produced minus the amount consumed in the region minus the amount shipped in other ways. At a very low basis (or price for transportation services), shipping grain to export will be an attractive option and more grain will be produced, less will be consumed domestically and other routes will look less economical. The result will be a large quantity of services demanded at a low basis. At higher basis less quantity of these services will be demanded as production is reduced, domestic use is increased and other transportation routes become more attractive. At a very high basis there will be zero demand for these transportation services, as other production, uses or shipment options become more attractive.

The primary elevator managers are assumed to take terminal and rail charges as given. These primary elevator managers have an incentive to set a primary tariff level, which can include grading premiums and trucking premiums, at a level that will maximize the return to primary elevation for their company. Each company faces a volume versus a margin trade off. By lowering margins the companies are able to expand volume. This expanded volume can cause congestion and additional operating costs.

As a group, the primary elevator company will face the producer demand for transportation services. However, for an individual company, the demand is much flatter and is more responsive to price. In the presence of other firms, if one company decides to increase its tariff this will drive the producers to its competitors.

The extent to which a primary elevator loses business when it raises its tariff is dependent on many factors. First of all, it is dependent on the market share of the firm. If a firm with a large market share decides to increase tariffs, the other firms will see a significant increase in demand for their services and are more likely to react with some increase in their tariff. This reaction by other firms will reduce the flight away from the firm initially raising the tariff.

The shift of business to competitors also depends on the extent that firms offer the same service in the same location as the competitors. Companies are often in different locations than their competitors and in this case a producer will be more willing to pay a higher primary elevator tariff to a local elevator if the competitors are many miles away.

Finally, the shift to competitors will depend on the extent to which the competitors are able to absorb the new business without increasing tariffs. Any capacity constraint, storage constraint, or car allocation constraint will limit the ability of competitors to absorb the new business. Similarly, a capacity constraint will limit the ability of a firm to gain new market share by lowering tariffs.

### **6.2.2 *The Market for Rail Transportation***

Rail freight represents the majority of basis cost between the producer and port position. This portion of the basis can be modeled as a regulated market. The demand for rail freight is the quantity of rail freight that will be demanded at various freight rates. This can be derived by subtracting the cost of primary and terminal elevation services from the demand for export movement in each region. At low freight rate charges, more quantity is moved while at high freight rates less is moved.

The railways have a marginal cost of moving grain that is relatively constant for any volume they move, up until the West Coast capacity constraint is reached. When the system is operating at capacity it becomes difficult and expensive to ship more grain.

In a deregulated market, the rail companies examine the demand curve for freight service and charge a rate that will maximize their profits. With only two railways operating, each firm faces a relatively steep demand curve for their services and may find it profitable to increase their rates.

The CTA currently caps freight rates at the 1995 levels with some adjustment for branchline abandonment and inflation. The railways find it profitable to set their rates at this capped level. The cap means they will face the same freight rate regardless of volume and therefore they have an incentive to move grain to the point where marginal cost is just equal to the regulated freight rate.

### **6.2.3 *The Market for Terminal Elevation Services***

The supply of terminal services is very similar to the supply of primary elevator services except there are even fewer companies involved. Each company faces a downward sloping demand curve for services and has some incentive to charge a tariff greater than marginal cost. As with primary elevation, the extent that a company will lose business to competition if tariffs are raised is influenced by market share, the extent that they offer differentiated services, and the capacity of competitors to absorb additional business. Thus, these factors influence the competitiveness of the terminal elevation market.

The terminal tariffs could also be substantially influenced by the West Coast capacity constraint. In the current system, this capacity is rationed by the CWB with the rents being retained for producers through the CWB pool accounts. If this constraint were rationed through price, which it would be in the port buying option, the cost of West Coast delivery would increase. In a freight capped environment these capacity rents would flow to the grain companies unless the CWB acted deliberately to prevent this by systematically offering lower prices at Vancouver than at the St. Lawrence. These effects can be large and could potentially offset any efficiency gains from moving to port buying. For a further discussion of these issues see Appendix 5.

### 6.3 Modeling the Transportation Markets Together as a Vertical System

So far, the discussion has been regarding primary elevation, rail transportation and terminal elevation as separate markets. With this approach some insight was gained into how these markets will be affected by alternate CWB roles. Unfortunately, the picture is more complex than this. These three markets each strongly interact with one another. They are related in quantity, because the quantity shipped by primary elevators is also moved by rail and handled by the terminals. They are related in price, because the total basis is the sum of the basis charges in each of these markets. In addition, grain companies own both terminal and primary elevators.

Examining the effects of changes in the CWB transportation roles requires a model that goes beyond what can be easily presented graphically or what can be concisely discussed in a few paragraphs. This whole set of interactions was examined by modifying a mathematical simulation model that was developed by Baylis et al., and was presented at the 1998 Transportation Research Forum in Edmonton. This model is documented and described in some detail in Appendix 5 and is summarized in the following paragraphs.

The model recognizes that grain handling and transportation services, such as transportation, and local and terminal elevation, are needed in equal proportions with physical grain located on the prairies, to produce an end product of export grain at port position. In other words, to produce one tonne of grain at port requires one tonne of grain destined for export at the farm along with the services required to handle one tonne of grain at the local and terminal elevators and in the rail system. Each input is modeled as a link in a vertical chain.

The services provided by the different firms in each of the sectors (e.g., the country elevator companies, the rail companies and the terminal elevator companies) are assumed to be slightly different from each other. Because of the spatial distances between country elevators and railways, as well as brand loyalty to certain elevator companies, the model assumes that firms can set a price different from their competitors. In other words each firm faces a downward sloping demand for its service. Thus, the firms are assumed to choose price when maximizing profit, as opposed to choosing quantity. Although the model assumes that any given firm can choose a price for its services that is different than its competitors, in equilibrium all firms providing the same service are assumed to set the same price.

Producers are assumed to be located in ten regions across the prairies. The regions are defined within the existing catchment areas so all exports from a region are shipped to the nearest port. Each region is assumed to have its own supply curve for grain, allowing the model to take different local costs of production into account. The price at port position is assumed to be unaffected by the quantity exported. Local elevators charge a price to handle and remove dockage within each region. Railways charge a price to move the grain from region to port. Grain terminals at the port are assumed to charge a price for terminal operations. For each region the sum of these charges makes up the export basis. Thus, a grain farmer delivering his/her grain for export will receive a price equal to the world price minus terminal tariffs minus rail freight minus

primary elevator tariffs. Given the producer price, producers in each region will produce quantities represented as a point on the region's supply curve. Demand by local grain users in each region is given by a demand curve for each region showing the amount of grain demanded locally, either as feed or for domestic processing. In southern Manitoba an allowance is made for trucking to the US. Exports of grain from each region are therefore modeled as the production minus the local demand minus the grain exported by truck.

Prices or basis levels are determined in two stages within the model. In the first stage, the railways and terminals simultaneously choose their prices to maximize profits. With capped freight rates the railways are modeled as having little flexibility to set rates. Prices are chosen independently by each firm. The prices chosen represent a "Nash equilibrium in prices," which means that at the chosen prices no firm finds it optimal to change the price it is charging. In the second stage, knowing the rail freight rates and terminal charges, the local elevators then set their prices to maximize their returns. Once again, the prices that are chosen represent a Nash equilibrium. The model assumes that the railways and terminals know how the local elevators will react to freight rates and terminal charges, and take this reaction into account when making their pricing decision.

The model incorporates the vertical integration found in the elevator industry. All the firms that own terminal elevators also own some local elevators, but not all local elevator companies own a terminal. The extra competition that results because of the presence of independent local elevator companies is taken into account in the model. As well, the model recognizes that terminal elevator companies do not have to compete with each other for most of the business they do, since grain that is sourced in their local elevator system is funneled through the terminal elevator.

#### **6.4 Simulation Results**

The mathematical simulation model described above is used to analyze the three alternative roles of the CWB in grain transportation. The results presented in Table 6.2 show how the roles affect the market power and the basis charges for Canada Western Red Spring (CWRS) wheat. The assumptions employed in these "Best Estimates" are discussed in some detail, along with the results, in Appendix 5. Later in this section these assumptions are changed to show which factors have the most impact on the basis charged in each alternative.

**Table 6.2: Alternate Simulation of Freight Rates and Elevator Charges for Wheat, Currently and With Combined Effects under Port and Farm Buying<sup>1</sup>**

Regions	Scenarios	Primary Elevator Tariffs	Rail Rates	Seaway Charge	Terminal Charge	CWB/ Capacity	Total Basis
(\$/tonne)							
South Alta.	Zone Alloc.	9.00	29.00		12.37	4.00	54.36
	Port Buying	7.14	29.31	N/A	9.52	8.45	54.53
	Farm Buying	7.27	29.82		9.79	4.00	50.89
Peace River	Zone Alloc.	11.06	30.56		12.37	4.00	57.99
	Port Buying	8.31	30.55	N/A	9.43	8.45	57.27
	Farm Buying	8.50	31.99		9.69	4.00	53.77
Northeast Alta.	Zone Alloc.	9.86	31.94		12.37	4.00	58.17
	Port Buying	7.62	32.30	N/A	9.43	8.45	57.90
	Farm Buying	7.78	32.81		9.69	4.00	54.37
<b>West Sask.</b>	<b>Zone Alloc.</b>	<b>9.26</b>	<b>37.92</b>		<b>12.37</b>	<b>4.00</b>	<b>63.54</b>
	<b>Port Buying</b>	<b>7.29</b>	<b>38.22</b>	<b>N/A</b>	<b>9.43</b>	<b>8.45</b>	<b>63.48</b>
	<b>Farm Buying</b>	<b>7.45</b>	<b>38.73</b>		<b>9.69</b>	<b>4.00</b>	<b>59.96</b>
Southwest Sask.	Zone Alloc.	8.31	34.62		12.37	4.00	59.30
	Port Buying	6.77	34.85	N/A	9.43	8.45	59.59
	Farm Buying	6.90	35.37		9.69	4.00	56.06
Northeast Sask.	Zone Alloc.	8.72	30.28	11.55	8.41	4.00	62.97
	Port Buying	6.85	30.16	20.00	7.09	--	64.09
	Farm Buying	6.97	30.57	11.55	7.17	4.00	60.25
Southeast Sask.	Zone Alloc.	7.59	28.66	11.55	8.41	4.00	60.21
	Port Buying	6.27	28.48	20.00	7.04	--	61.84
	Farm Buying	6.35	28.90	11.55	7.15	4.00	57.97
East Sask./ West Man.	Zone Alloc.	8.26	27.79	11.55	8.41	4.00	60.02
	Port Buying	6.61	27.65	20.00	7.04	--	61.35
	Farm Buying	6.72	28.05	11.55	7.15	4.00	57.48
Southwest Man.	Zone Alloc.	7.86	21.74	11.55	8.41	4.00	53.57
	Port Buying	6.42	21.67	20.00	7.04	--	55.17
	Farm Buying	6.50	21.88	11.55	7.15	4.00	51.10
Southern Man.	Zone Alloc.	8.18	18.56	11.55	8.41	4.00	50.71
	Port Buying	6.58	18.51	20.00	7.04	--	52.18
	Farm Buying	6.66	18.67	11.55	7.15	4.00	48.05

<sup>1</sup>Source: As simulated. For a more detailed model description please see Appendix 5.

The combined effects modeled are the increase in local and terminal elevator competition, independent actions on the part of the terminals and railways and for Port Buying, the West Coast capacity constraint. Readers are encouraged to refer to Section 6.4.4 before drawing definitive conclusions from these results.

Care should be taken with the interpretation of the results in this table. First of all, the model explicitly does not deal with the issues of price risk, efficiencies that may be derived from better incentives, or the losses due to increased inefficiency, which are impossible to quantify. These effects are discussed and included in the analysis presented in Chapter 7. The model is only intended to examine the effects of the changes in the CWB role on the degree of competition in the sector. Even this analysis is quite difficult and built on many assumptions about firm behavior and the economic environment these firms will operate in. The model results, however, give an indication of how the changing role of the CWB may affect particular components of the system. These effects should be interpreted as the directional change rather than absolute numbers. Likewise, the summation of the effects should be interpreted only as a point within a range of possible outcomes.

#### ***6.4.1 Zone Allocation -- the Base Case***

The zone allocation alternative is used in this document as the benchmark for comparison of the port tendering and the on-farm buying alternatives. The simulation model was created with ten regions, which is close to the 12 zones proposed for the fall of 1998. The primary elevator tariffs for the zone allocation are slightly below those currently observed, which is consistent with increased primary elevator competition. The zone allocation also reflects the current seaway subsidy of \$4 per tonne from the pool account and the corresponding reduced East Coast basis. The primary, rail and terminal elevator tariffs for each of the ten regions are reported in Table 6.2. For instance, in West Saskatchewan the primary, rail and terminal elevator tariffs are \$9.26, \$37.92 and \$12.37 per tonne respectively. Adding the CWB pooled seaway subsidy; the total simulated basis cost for this region is \$63.54 per tonne.

#### ***6.4.2 Port Buying***

The port buying option was modeled as an increase in the degree of competition at both the primary and the terminal elevators by making the individual demand curves faced by each firm flatter, or more responsive to price. In effect, the tender system would make the market share of each participant more sensitive to price and would therefore create an incentive for each firm to reduce tariff rates. Examining this effect in isolation, the model shows a significant reduction in primary and terminal elevation rates.

However, in this system, the capacity constraint at the West Coast is allocated by price, forcing the West Coast basis to increase by \$8.45 per tonne relative to the East Coast basis. In this system the access to the limited West Coast capacity will now reside with those companies with West Coast terminals, and these capacity rents will get bid into the terminal basis.

In this particular simulation the combined effect of the increased competition which tended to lower tariffs and the transfer of the capacity rent almost exactly offset each other. In West Central Saskatchewan the basis is \$63.48 per tonne, only \$.06 per tonne different than for the zone allocation option. Similar results held for all regions, showing little net change from zone

allocation. In the case of the eastern catchment areas, the basis reduction due to increased competition is offset by the loss in the CWB seaway subsidy.

### ***6.4.3 On-Farm Buying***

The on-farm buying option would have grain companies bid for basis for port delivery for the grain purchased on-farm by the CWB. The tendering system would increase both the primary and terminal competition for the business. In the case of West Central Saskatchewan, this system would result in the primary, rail and terminal elevator tariffs being \$7.45, \$38.73, and \$9.69 per tonne respectively. In this system, the CWB would retain control over which port grain was sent to. This would prevent the capacity constraint from being bid into the basis as long as the CWB did not exceed the West Coast capacity in its tenders. In the simulation, the on-farm buying option provides the lowest basis, because it enhances competition between companies while preventing a transfer of the West Coast Capacity rents to the grain companies. In the case of West Saskatchewan, the total basis for this alternative is \$59.96 per tonne, which is \$3.58 per tonne lower than the zone allocation alternative and \$3.52 per tonne lower than the port buying alternative.

### ***6.4.4 Summary and Qualifications***

The zone allocation represents a modest modification of the current system which will likely lead to increased primary elevator competition and somewhat lower primary elevator tariffs. The port tendering option creates a greater degree of competition at the primary and terminal level. Much of this pro-competitive effect could be offset by the transfer of the West coast capacity rents from the CWB pool account to the grain companies. The on-farm buying option would have a pro-competitive effect, which would not be offset by the transfer of West Coast capacity rents.

As was noted earlier, these results should be viewed only for their direction and are very much conditioned on the assumptions of the model. In the simulation, it was assumed the West Coast capacity constraint would not change in value. With an effective tendering strategy the CWB may be able to retain these rents. The model also assumes that a bidding process results in a more competitive environment for the grain companies. This of course assumes that the bidding process does not affect the grain companies' ability to collude to raise tariffs.

Finally, many aspects of transaction costs were not considered in the simulation model; these include search, negotiation, and enforcement costs, that are not easily quantified. Indeed, these unqualified costs may more than offset the cost advantages implied for the on-farm option. This was a point that was made strongly by many of the industry representatives that were interviewed.



## **6.5 Sensitivity Analysis**

A number of key parameters in the model are modified to see if the results of the simulation are changed. Equally importantly, this sensitivity analysis gives an indication of the “realism” of the model results. The results of these modifications are presented in Table 6.3 for West Central Saskatchewan. These are compared to the simulation results from Table 6.2 for the same region, and which are given in Table 6.3 as ‘Best Estimates.’ Full results of these modifications for each region are presented in a series of tables at the end of Appendix 5.

### ***6.5.1 Increased Primary Elevator Competition***

Increased primary competition was modeled by increasing the willingness of firms to take on additional business from the competitors in all regions. This pro-competitive outcome effect could be brought about by reductions in trucking costs, by a more transparent pricing system (which would lower search costs of producers), or, it could be brought about by an increased number of grain companies in each region. As one would expect, the result of increased primary elevator competition is to lower primary elevator tariffs from the base model (Table 6.3). It also slightly increases both the terminal and the rail tariffs as the demand for these services increase. The overall effect on basis in comparison to the base model is less than \$1 per tonne for each of the options, suggesting that the primary elevators are relatively competitive at the present time. The increase in competitiveness of primary elevators has very little impact on the relative performance of the three alternatives.

### ***6.5.2 Reduced Primary Elevator Competition***

Recent mergers in the grain industry create the possibility of having a reduced number of firms and a reduced amount of primary elevator competition. This reduced competition had a very large simulated impact on the primary elevation tariffs, which increased by \$18 per tonne in the zone allocation and by approximately \$2 per tonne for both the on-farm buying and port buying alternatives (Table 6.3). The very large increase in the zone allocation is too large to be reasonable, however, it does serve to indicate that if any link in the transportation chain gains too much market power then there is an incentive to reflect the market power in higher basis charges.

**Table 6.3: Parameters and Basis Charges for West Saskatchewan**

	<b>Zone</b>	<b>Port</b>	<b>Change</b>	<b>On-Farm</b>	<b>Change</b>
	<b>Allocation</b>	<b>Tender</b>	<b>from Zone</b>	<b>Purchase</b>	<b>from Zone</b>
	(\$/tonne)				
<b>Best Estimates</b>					
Primary Tariff	9.26	7.29	-1.97	7.45	-1.81
Rail Tariff	37.92	38.22	0.3	38.73	0.81
Terminal Tariff (WC)	12.34	9.43	-2.91	9.69	-2.65
WC Capacity Charge	0	8.45	8.45	0	0
Total Terminal Charge	12.34	17.88	5.54	9.69	-2.65
Pooled Seaway Subsidy (CWB)	4	0	-4	4	0
Total Basis	63.54	63.48	-0.06	59.96	-3.58
<b>Increased Primary Competition</b>					
Primary Tariff	7.33	6.21	-1.12	6.29	-1.04
Rail Tariff	38.34	38.34	0	38.86	0.52
Terminal Tariff (WC)	12.91	9.59	-3.32	9.86	-3.05
WC Capacity Charge	0	8.45	8.45	0	0
Total Terminal Charge	12.91	18.04	5.13	9.86	-3.05
Pooled Seaway Subsidy (CWB)	4	0	-4	4	0
Total Basis	62.58	62.59	0.01	59.02	-3.56
<b>Reduced Primary Competition</b>					
Primary Tariff	27.06	9.14	-17.92	9.42	-17.64
Rail Tariff	36.1	38	1.9	38.49	2.39
Terminal Tariff (WC)	10.57	9.4	-1.17	9.66	-0.91
WC Capacity Charge	0	8.45	8.45	0	0
Total Terminal Charge	10.57	17.85	7.28	9.66	-0.91
Pooled Seaway Subsidy (CWB)	4	0	-4	4	0
Total Basis	77.73	64.99	-12.74	61.57	-16.16
<b>Increased Terminal Competition</b>					
Primary Tariff	9.42	7.33	-2.09	7.49	-1.93
Rail Tariff	38.49	38.35	-0.14	38.86	0.37
Terminal Tariff (WC)	9.66	8.43	-1.23	8.61	-1.05
WC Capacity Charge	0	8.45	8.45	0	0
Total Terminal Charge	9.66	16.88	7.22	8.61	-1.05
Pooled Seaway Subsidy (CWB)	4	0	-4	4	0
Total Basis	61.57	62.55	0.98	58.97	-2.6
<b>Continued,</b>					

**Table 6.3 (continued): Parameters and Basis Charges for West Saskatchewan**

	<b>Zone</b>	<b>Port</b>	<b>Change</b>	<b>On-Farm</b>	<b>Change</b>
	<b>Allocation</b>	<b>Tender</b>	<b>from Zone</b>	<b>Purchase</b>	<b>from Zone</b>
			<i>(\$/tonne)</i>		
<b>Increased West Coast Capacity</b>					
Primary Tariff	9.34	7.44	-1.9	7.52	-1.82
Rail Tariff	38.35	38.7	0.35	38.95	0.6
Terminal Tariff (WC)	12.89	9.77	-3.12	9.9	-2.99
WC Capacity Charge	0	4.22	4.22	0	0
Total Terminal Charge	12.89	13.99	1.1	9.9	-2.99
Pooled Seaway Subsidy (CWB)	1.00	0	-1.00	1.00	0.0
Total Basis	61.58	60.13	-1.45	57.37	-4.21
<b>Larger Zones</b>					
Primary Tariffs	8.65	7.29	-1.36	7.45	-1.2
Rail Tariff	38.39	38.22	-0.17	38.73	0.34
Terminal Tariff (WC)	11.28	8.76	-2.52	8.96	-2.32
WC Capacity Charge	0	8.45	8.45	0	0
Total Terminal Charge	11.28	17.21	5.93	8.96	-2.32
Pooled Seaway Subsidy (CWB)	4.00	0	-4.00	4.00	0
Basis	62.32	63.48	1.16	59.96	-2.36
<b>Uncapped Freight Rates</b>					
Primary Tariff	6.87	5.97	-0.9	6.04	-0.83
Rail Tariff	71.49	70.27	-1.22	73.12	1.63
Terminal Tariff (WC)	8.65	6.89	-1.76	7.00	-1.65
WC Capacity Charge	0	0	0	0	0
Total Terminal Charge	8.65	6.89	-1.76	7.00	-1.65
Pooled Seaway Subsidy (CWB)	4.00	0	-4.00	4.00	0
Total Basis	91.01	83.14	7.87	90.15	-0.86

Source: As Simulated. For a more complete description of the model please see Appendix 5.

Note: These results are sensitive to model assumptions and should be considered qualitative in nature. Readers are encouraged to read Section 6.4.4 before drawing definitive conclusions from these results.

### **6.5.3 Increased Terminal Competition**

Increased terminal competition could arise in a number of ways. The current method of allocating capacity is based on each company's share of primary elevator deliveries and contract primary elevator deliveries. If tendering for port service was to occur, this could increase the degree of competition at the terminal level. Competition could also be increased with the entrance of new companies into Canadian terminal operations. Finally, mechanisms such as allowing US terminals to bid on terminal services would increase the degree of competitiveness.

The simulated effect of increased terminal competition resulted in a decrease in basis of approximately \$2 per tonne in the zone allocation and only \$1 per tonne in the port buyer and on-farm buying alternatives (Table 6.3). These relatively small impacts suggest that terminal operations are currently somewhat competitive and even more competitive in the port buyer and on-farm purchase options. The size of the effect in the zone allocation alternative does raise some concern over the lack of potential competition if mergers between firms take place.

### **6.5.4 Reduced West Coast Capacity Rents**

As mentioned previously, the West Coast capacity constraint and the capacity rents would become less significant if either capacity increased or West Coast shipment demand declined. In reality, increased cleaning capacity in the country and construction of new facilities are reducing the West Coast capacity constraint. As cleaning capacity on the prairies increases, with perhaps as much as 25 percent of the grain cleaned to export standards, this will reduce capacity constraints, and hence capacity rents, at West Coast ports.

The effect of an increase in West Coast capacity is simulated in Table 6.3. In this case it is assumed the capacity constraint would be less binding and capacity rents would decline to \$4.22 per tonne. This reduction in capacity rents would reduce the seaway subsidy to \$1 per tonne, and would therefore serve to reduce the overall basis in each of the options. The impact was largest in the port buying option, where the capacity rents had accrued to the West Coast terminals. The net result of increased West Coast capacity is a reduction in the total basis in the zone and on-farm buying by \$1.96 and \$2.59 per tonne, respectively, while reducing the cost of the port tendering alternative from the base estimate by \$3.35 per tonne (Table 6.3). Thus, increased terminal capacity increases the attractiveness of the port buying option.

### **6.5.5 Larger Zones**

Some advocates of the port tendering option have suggested that an intermediate step would be to allocate cars to railway companies on the basis of a few very large zones. The logistics within the zone would then become the responsibility of the grain companies. To examine the effect of larger zones on the market power in the sector, the case was considered where there was only one zone for each port. This scenario represents the extreme in terms of zone size because it assumes that producers have equal access to all firms operating within the

zone. In reality many firms would be beyond the economic trucking range of the individual producer.

The results of going to a single zone per port had a limited effect on competitiveness at the primary and terminal elevator level (see Table 6.3). This is reflected in a reduction in total basis of \$1.22 per tonne, which is a modest amount. This modest effect on basis also supports the conclusion that a move to the proposed zone allocation alternative will have a very limited effect on basis levels.

### **6.5.6 *Uncapped Freight Rates***

Throughout the analysis thus far it has been assumed that the current rail freight rate caps remain in place. The caps serve to limit the market power of the railways and reduce the flexibility they have in pricing services. These freight rate caps will be reviewed in 1999. The model was used to simulate the basis charges when the two railways were unconstrained and operated in a non-collusive manner.

The results simulating the removal of freight rate caps are presented in Table 6.3. The uncapped freight rates resulted in a dramatic increase in freight charges in all three scenarios. The rail freight rates for West Saskatchewan increase to over \$70 per tonne. These results implicitly assume that CTA provisions have no effect in deterring freight rate increases of this magnitude. In reality, CTA provisions do provide a recourse to shippers under such circumstances; similarly, political pressure on the railways would also make such a result unlikely. Nevertheless, the direction of change if freight rates are uncapped is very clear.

Even though these higher freight rates force the grain companies to reduce basis, the overall impact was approximately a \$30 per tonne increase in total basis charges for the zone allocation and the on-farm buying alternatives. The relative attractiveness of the port buyer option improves somewhat in this scenario as the much higher freight rates would reduce the demand for freight, and thus lessen the demand and capacity rents for the limited West Coast capacity.

## **6.6 Summary**

There are several points of note that can be drawn from examining the options within the framework of economic models. The current system is heavily regulated and is governed by a complex set of bilateral contracts. The alternatives to the current system involve fewer contracts, which could facilitate improved accountability and improved information flow. The market for transportation services is made up of markets for primary elevation services, rail transportation services and terminal elevation services. Given the limited number of firms, the individual firms face downward sloping demand for their services, which creates an incentive for the firms to price above the marginal cost of providing service. The railways currently operate near or at the capped freight rates and as result price plays a very small role in the provision of rail service.

There is a significant West Coast capacity constraint and the capacity rents are currently captured for the pool accounts by the CWB. The simulation model suggested that each of the options increased the degree of primary elevator competition and led to modest reductions in primary tariffs. In the port buying option, there is a potential for the grain companies to capture significant West Coast capacity rents. The sensitivity analysis revealed that the uncapped freight rates could result in substantial increases in basis levels.



## 7 EVALUATION OF THE CURRENT SYSTEM AND OPTIONS

This section of the report brings together the findings from the earlier sections into a synthesis of the information based on the perspectives of key system participants, the economic modeling, and the knowledge and judgement of the authors of the report. The section is divided into three parts: assessment of the current system using the four basic criteria, evaluation of the options and concluding comments on the criteria.

### 7.1 Assessment of the Current System Using the Four Basic Criteria

The performance of any logistics system may be judged on how well each participant's objectives are satisfied. As has been discussed earlier in this report, this study has been structured around the four basic criteria of efficiency, accountability, competitive relationships and equitable delivery opportunities for producers. Participant objectives may be considered within the context of these criteria. The definitions of these four criteria, as used in this study, are repeated below.

**Efficiency** is the impact on operating costs, asset management, and incentives for capital investment. This relates directly to the transaction costs of doing business.

**Accountability** is the impact on information needs to enter into agreements, the contractual process, and how each party to an agreement is held accountable for their contractual obligations.

**Competitive relationships** is the impact on each of the system participants' ability to realize market opportunities, and how their negotiating position might change as the role of the CWB in logistics changes. This influences the extent to which efficiency gains are shared by other system participants.

**Equitable delivery opportunity** is the impact on the principle of providing producers of CWB grains with equitable delivery opportunities, and on the CWB system of price pooling for these grains. For purposes of this study, equitable delivery opportunity means producers' ability to sell their CWB grain within a crop year and to receive the same pooled price for similar quality grain regardless of when the grain is delivered during that crop year.



The three criteria of efficiency, accountability and competitive relationships are closely related. Efficiency is a necessary requisite for any business seeking to minimize costs, as is the ability to compete effectively necessary to maximize revenues. A business's efforts for efficiency and effective competitiveness will be diminished when there is a lack of accountability in the environment within which it operates. Similarly, efficiency is required for effective competition. A main consideration for any business is in meeting customer requirements and responding effectively to market signals. The success of businesses in meeting these requirements is, in turn, dependent on their efficiency and competitiveness.

The criterion of equitable delivery opportunities is considered a basic tenet of the CWB, and, to some producers, is a requisite for their business operation. The impact of any changes to the CWB's role in the logistics system on this criterion need also be considered.

A number of system participants consider the current system to be underperforming, for a number of reasons. Section 5 provided a discussion of the major concerns system participants have with the current system. Many of these concerns stem from the current system's impact on efficiency and accountability. A summary of the major accountability, efficiency and competitive relationships concerns are given in Table 7.1. What are pointed out as concerns of the system might be construed as a weakness. However, it is important to point out that what one group of participants might consider a weakness, another group with a different perspective might consider a strength.

Table 7.1 can be used to further assess and summarize the performance of the current system, in terms of whether or not significant impediments exist with this system to prevent participant groups from achieving their objectives. This summary is given in Table 7.2 and the assessment is given in the context of the four basic criteria. While this is a qualitative and simplified assessment, it does serve to separate out the impact of the current logistics system on the four basic criteria for each of the participant groups. It also provides a base upon which to measure the various options, and their impact on each of the participant's ability to satisfy their objectives under each of these criteria.

From Table 7.1 and 7.2, the current logistics system presents accountability problems to all participant groups. In fact, the lack of clear contractual arrangements along the logistics chain has been targeted as one of the key concerns with the current system. A good deal of this lack of accountability has been related to the current method of car allocation and the CWB's close involvement in this process. Some of this lack of accountability, however, is the result of other factors within the system. For example, cases have been identified in the preceding description where contractual obligations are present but not always enforced. Grain companies may choose not to use contracts for services, as is often the practice with non-Board grains. Also, it has been suggested that regardless of the role of the CWB in the logistics system the railways would be reluctant to enter into service contracts because of regulated freight rates, as well as their market power.

**Table 7.1: Major Accountability, Efficiency, Competitive Relations and Equitable Delivery Opportunity Concerns with the Current Logistics System**

Criteria Type and Concerns	Impact	Participant Groups Most Affected
<b>Accountability Concerns</b>		
Shippers', marketers' and carriers' capacity estimates for capacity planning. No contractual responsibility for overestimating planned grain movement.	Accuracy of capacity planning is reduced.	All participants.
IRCAP allocation procedures and present system of penalizing does not effectively prevent loading of rail cars with the wrong grain or in the wrong sequence.	The wrong grain arrives at port.	CWB and producers.
Lack of contractual responsibility on the part of shippers and CWB for moving CWB grains out of primary and terminal elevators.	Inefficient use of primary and terminal elevator space.	Grain companies and terminal operators
Spotting of rail cars at country elevators by railways.	Cars are not spotted when required.	Grain companies and the CWB.
Movement of loaded rail cars to port by railways.	Grain does not arrive at port when required.	Grain companies and the CWB.
Pooling of rail cars at port makes it difficult to apply responsible parties to individual rail cars.	Makes it difficult to apply responsibility for any unload delays or for grain companies to enforce handling agreements with terminal operators.	All participants.
Failure of CWB to apply contract penalties when producers do not deliver their contracted amount.	CWB may not have enough grain to meet its sales requirements.	CWB and producers.
<b>Efficiency Concerns</b>		
Equitable delivery opportunities and IRCAP car allocation procedures prevent efficient use of facilities	Restricts firms' ability to manage assets in cost minimizing manner	Grain companies, railways, and some producers.
Consensual decision-making process of CAPG.	Allocation process does not respond quickly to make required changes.	All participants

Continued,

**Table 7.1, continued**

<b>Criteria Type and Concerns</b>	<b>Impact</b>	<b>Participant Groups Most Affected</b>
Policy of negotiating CWB/non-Board split in advance of shipping programs may be too slow to respond to market changes.	May force rationing for some grains while others may have more capacity than required.	CWB and grain companies
Wide windows for: 1) producer contract deliveries, and  2) vessel arrival at port.	1) Poses challenges to grain companies to match deliveries with sales requirements 2) Terminal elevators can be congested with grain or be short on grain when vessels arrive.	Grain companies, terminal operators, CWB
CWB practice of making sales FOB leaves control of vessel arrival with buyers.	Inventory management costs are shifted to the Canadian logistics system.	All participants.
<b>Competitive Relations Concerns</b>		
Lack of accountability and an inefficient logistics system.	Impedes ability to meet customer requirements and diminishes competitiveness.	All participants.
Equitable delivery opportunities and price pooling prevent producers from competing with each other for delivery opportunities and price.	Some producers are concerned that this increases their transportation and handling costs and decreases their revenues.	Producers
IRCAP allocation procedure of using historically based calculations means it can take a long period of time for a company to increase its market share of grain movements.	Does not encourage competition between grain companies.	Grain companies.
<b>Equitable Delivery Opportunities</b>		
Equitable delivery opportunities and price pooling are considered inequitable practices by some producers.	Prevents these producers from delivering when and where they want and for the price they want. Does not give these producers access to price and risk management tools that are available for non-CWB crops.	Producers.

**Table 7.2: Ability of Participant Groups to Achieve the Four Basic Criteria Under the Current Logistics System**

Criteria	Do significant impediments exist in the current system to prevent participants from achieving their objectives within each category?				
	Producers	CWB	Smaller Grain Companies	Larger Grain Companies	Railways
Accountability	Yes	Yes	Yes	Yes	Yes
Efficiency <sup>1</sup>	Yes/No	No	Yes	Yes	Yes
Competitive Relationships	Yes/No	Yes/No	Yes/No	Yes	Yes
Equitable Delivery Opportunities	No	No	N/A	N/A	N/A

N/A - not applicable

<sup>1</sup>The cost of risk management was not considered. See section 7.3 for more detail.

From Table 7.2, under the current system there are impediments for attaining efficiency goals for almost all participants. This is considered to be due to the lack of accountability within the system, as well as other system constraints, that are summarized in Table 7.1. With respect to any efficiency gains that could be realized through improved accountability, these must be measured against the related costs that come with greater accountability. Risk of nonperformance on contracts have costs associated with them which participants will, in turn, apply to their costs of service. The question is, would greater accountability produce a net gain in efficiency and will these net gains be shared across participants?

Grain companies and railways consider the CWB's involvement in the logistics chain through car allocation and through equitable delivery opportunities a major impediment to efficient management of their facilities. The CWB's perspective on efficiency would likely be that any impediments to achieving efficiency could be dealt with through modifications within the current structure. The ability of individual producers to achieve efficiency goals is measured through the impacts on the CWB and its returns to producers, as well as within the producer's own operation. For this reason, producers are given a yes/no rating in Table 7.2. Some producers would feel the CWB's involvement in the logistics system (through equitable delivery goals and car allocation procedures) would impede their efficiency goals while others would not.

The ability of the various participants to effectively compete in their respective markets is assigned a yes/no for producers and the CWB. There are aspects of the current system which enhance the CWB's ability to compete (e.g., blending capabilities), while those features which

inhibit quick and efficient movement of grain to port and loaded to vessels will have negative consequences on the CWB's ability to compete in the global market. For example, a study by Kraft et al. (1996) cited one of the problems associated with purchasing wheat from Canada by Brazilian buyers as being the very limited shipping flexibility due to port constraints.

With respect to producers, those producers in support of the CWB's involvement in the logistics system may be satisfied with their current competitive relations, while those producers not in support of the CWB's involvement would feel that a market driven transportation and handling system would provide them with greater market opportunities and place them in a stronger negotiating position with the grain companies.

Larger grain companies are considered to be constrained in the area of competitive relations, while smaller grain companies are given a yes/no rating. For the smaller grain companies, although they would be up against the same constraints as the larger companies, the current handling agreements with the CWB, and the current car allocation system, assures them a share of the handling and transportation business and enables them to compete with the larger grain companies.

The current system is considered to have some negative impact on the railways' ability to compete. While a large part of this would be the result of the rate regulations imposed on the railways, the CWB's role in transportation also places limitations on the railways' and grain companies' ability to compete.

The criterion of equitable delivery opportunities for producers is not applicable to grain companies or the railways, as this is a mandate of the CWB and involves the CWB and producers. The equitable delivery or access criterion definitely is considered to impact grain companies and railways, but these have been evaluated under the efficiency criterion.

Under the current system, the CWB and producers are able to achieve equitable delivery opportunities, as defined in this study. However, producers that are not in agreement with this mandate would consider the current delivery system as inequitable because of its lack of marketing freedom, both in terms of where and when their grain is marketed.

An issue that exists across all of the criteria and perceptions of participants is uncertainty. Uncertainty is fueled by the prevalence of "gentlemen's agreements," rather than binding and enforced contracts: CAPG procedures are a good example of this. Similarly, the philosophical differences regarding the role of the CWB and the protracted process of changing the CWB Act, as well as the recent CTA hearings, have aggravated the underlying uncertainties.

## **7.2 Evaluation of the Options**

This section evaluates the alternatives presented for the role of the CWB in the grain logistics system. One means of assessing the alternatives is by using the current system as a

benchmark. One question to consider is how the alternatives would affect the ability of the various participants to meet their objectives. This includes what impact they would have on the operations of the CWB and whether or not the CWB would be able to operate within their current mandates. Specifically, will the CWB be able to continue price pooling and assuring market access to producers, as well as continue in its efforts for minimizing producer transportation costs and meeting customer requirements?

It is necessary to mention that the effectiveness of the options is dependent on willingness of all participant groups to enter into the appropriate service contracts. It is assumed that with this will follow the appropriate logistics of service contracts (such as enforcement and/or dispute channels, means of establishing appropriate risk premiums, etc.).

It is important to note, as it was in the evaluation of the current system, that this evaluation is a qualitative assessment of the alternatives by the study authors, based on a synthesis of the material that has been utilized for this study. This has included their knowledge of the system, the modeling results, and the results from the questionnaire and interview process. It became clear during the survey process that not all participants were in agreement as to the ramifications of the impact of the various options on the system and its participants. Therefore, some of the evaluative statements made below will not be in agreement with opinions held by some participants.

An initial and quick means of assessing the options is to compare them to the current system with respect to the ability of each of the participant groups to meet their objectives within the four basic criteria. Table 7.2 for the current logistics system is used as a benchmark against which to measure changes expected with the options. This assessment is presented in Tables 7.3 to 7.5 for each of the options.

The assessment of the criteria for each of the options is given as direction of change from the current system. For example, if one of the options was assessed as providing improved opportunities under the efficiency criterion, an increase would be indicated.

### ***7.2.1 Zone Allocation***

The zone allocation option (Table 7.3) is considered a minor change from the current system by many participants. The accountability criterion is not expected to improve any over the current system for any of the participants as there are not expected to be any changes in contractual relationships.

Efficiency is expected to improve for grain companies and railways, with the greatest benefit to the larger grain companies. With larger zones, grain companies and railways would have greater opportunities to put together larger train units which should improve asset

**Table 7.3: Ability of Participant Groups to Meet their Objectives Under the Zone Allocation Option, Direction of Change from the Current System**

<b>Zone allocation option vs. current system - direction of change of participants' ability to meet their objectives within each category.</b>					
<b>Objective Category</b>	<b>Producers</b>	<b>CWB</b>	<b>Smaller Grain Companies</b>	<b>Larger Grain Companies</b>	<b>Railways</b>
Accountability	0	0	0	0	0
Efficiency <sup>1</sup>	- / +	-	+	++	+
Competitive Relationships	- / +	0	-	+	+
Equitable Delivery Opportunities	-	-	N/A	N/A	N/A

+, -, or 0 indicates an increase, decrease or no change from the current system, respectively; N/A - not applicable

<sup>1</sup>The cost of risk management was not considered. See section 7.3 for more detail.

management. Grain companies would also have more control over which elevators they draw the grain from, however, this will be of greatest benefit to the larger companies with more facilities and more origin points to from which to draw grain. This will create a decrease in the competitiveness of smaller grain companies. Consolidation opportunities should increase for the railways and larger grain companies.

Under the zone option, efficiency will decrease some for the CWB as they will lose some control over grain origination points. On the other hand, they have the opportunity to reduce sourcing costs, in that their sourcing strategy need now be limited to the zone level, and it will be the grain company's responsibility to source by train run within a zone. Producers will either increase or decrease in efficiency depending on where they are located and how the grain companies call in the grain within the zones. As the option will accelerate the consolidation of delivery points, producers, on average, will have to haul their grain a greater distance.

There should be no change in the competitive relationships for the CWB. Producers' competitive relations may either increase or decrease. Their ability to realize market opportunities, as well as their negotiating position with the grain companies, may increase or decrease, depending, again, on where they are located in relation to where the grain companies choose to target their sourcing efforts within the zone. However, given that equitable delivery opportunity (or access) is still in effect, any impact on market opportunities should be in terms of when in the year producers can sell their grain.

Railways should experience some increase in their ability to meet competitive relations objectives. The degree of change in the railways' competitiveness will depend on whether any changes in origination patterns by the grain companies has the potential to affect market share of the railways, and the railways response to these potential shifts.

As mentioned, small grain companies may lose to larger grain companies in competitiveness, particularly in the longer run.

The larger zones may diminish the CWB's ability to provide equitable access to the market to a small extent. However, the CWB should still be able to ensure producers' grain is called into the system at some point over the crop year, which is the essence of equitable delivery opportunities. Similarly, producers' equitable delivery opportunity should be similar to that of the CWB's.

### ***7.2.2 Port Buying Option***

Under the port buying option, accountability is expected to increase for all participant groups, as there will be greater reliance on contractual relationships (Table 7.4). One exception to this increase in accountability will be in the area of market information. Grain companies and the CWB will have an increased incentive to keep market information to themselves. Operating efficiency gains should be experienced by grain companies and railways, both of whom will now have greater control over asset management. Smaller grain companies will likely not have the same level of efficiency gains as the larger companies, who will be in a better position to make use of large unit trains.

Risk management costs are likely to increase for both grain companies and producers under the port buying option. The port buying option would increase the price and delivery risk faced by grain companies. In order to secure supplies companies would have contracts with producers specifying price and/or quantity for delivery. They would have to turn around and sell the commodity at port position to the CWB. Having a bidding process determine price at both the buying and selling end of the transaction would create both price and quantity risk for the grain companies. Because the price risk would be generated from an internal tendering process between a single buyer (the CWB) and a few sellers each holding specific products, it is unlikely this price risk will be easily managed through hedging or some other market mechanism. This will add to the cost of managing this risk. This cost will be paid by the producer through a lower offering price by grain companies.

Producers will gain or lose in efficiency and competitive relations, depending on their location. Those producers located closer to high throughput elevators that will make use of large unit trains will have efficiency gains and will be in a better position for taking advantage of marketing opportunities or negotiating handling fees with the grain companies. Producers that are located at greater distances may have increased trucking costs and a reduced competitive position.



**Table 7.4: Ability of Participant Groups to Meet their Objectives Under the Port Buying Option**

Objective Category	Port buying option vs. current system - direction of change of participants' ability to meet their objectives within each category.				
	Producers	CWB	Smaller Grain Companies	Larger Grain Companies	Railways
Accountability	+	+	+	+	+
Efficiency <sup>1</sup>	+ / -	-	+	++	++
Competitive Relationships	+ / -	+ / -	--	++	++
Equitable Delivery Opportunities	--	--	N/A	N/A	N/A

+, -, or 0 indicates an increase, decrease or no change from the current system, respectively; N/A - not applicable

<sup>1</sup>The cost of risk management was not considered. See section 7.3 for more detail.

Producers may also benefit from efficiency gains in the grain companies and/or railways, depending on whether or not these gains are shared with the producers.

The CWB has the opportunity to gain and lose in efficiency, although it is uncertain as to the net result. By placing itself at port position the CWB has the opportunity to pass on some of the delivery risks to grain companies. However, it is likely the grain companies would, in turn, pass these on to the producers. Also, in the event that grain companies determined it would be financially beneficial to them to not deliver on their contracts and pay the penalty, the CWB would be placed at risk of being unable to deliver on their contracts. The CWB could also lose information on supplies available in the country.

Competitive relations will increase for larger grain companies, but smaller grain companies will find it increasingly difficult to compete, particularly over the long-run. The ability of the railways to compete will also increase, for similar reasons as outlined for the zone allocation option. The CWB could find its competitiveness, in terms of market opportunities, increasing or decreasing, depending on how well the system responds to the CWB's sales requirements.

An important factor to consider here is the negotiating ability of the CWB with the grain companies. If certain grain companies were able to reserve a large proportion of the railway capacity, then the CWB would be in a fairly weak bargaining position for negotiating handling fees, especially if it had forward sold some grain. If capacity is not an issue then the reverse is

true and the CWB would have the negotiating advantage. In any event, with a single buyer at the port, and at times very few sellers, there is little reason to expect that the market for grain at port will operate in a competitive manner.

Equity in delivery opportunities will no longer be assured under the port buying option, as laid out in this study. Delivery opportunities will be essentially a function of negotiation between the grain producers and the grain companies.

Annual price pooling, which is closely tied with equitable access, will be virtually eliminated in this port buying option. Although the producer would still receive a final payment, the initial payment would depend on the cash or contracted price at the time each producer sold their grain. This price would no longer be similar for all producers and could vary a great deal over a season or between companies.

### **7.2.3 On-Farm Option**

The on-farm option is similar to the port buyer option from the origination step of the logistics chain on, because for both of these options, the transportation functions are structured around contracts negotiated with the CWB. The difference is that in this option, the CWB buys the grain on-farm and becomes more involved in sourcing decisions than they are currently. Under the on-farm option (Table 7.5), accountability would increase for all participant groups, since, as with the port buyer option, the system is served by a number of more fully defined contractual relations. Again, because service contracts would be negotiated with the CWB, there would be more incentive to withhold market information for commercial reasons.

While overall accountability will increase under this option, there are some concerns raised about accountability for grain quality. If the grain companies are made accountable for the grade of grain that arrives at terminal then producers will have an incentive to over report the quality of the grain and grain companies will have an incentive to under grade the grain. In this situation the producer is not the grain company's customer, therefore, neither party would have an incentive to compromise for the sake of future transaction. This system effectively removes the choice of primary elevator from the producer, which in effect eliminates any input of the producer in the marketing decision for CWB grains.

The removal of the CWB from the handling and transportation chain will permit efficiency gains to be made by grain companies and railways, through a greater ability to manage assets. However, there are numerous concerns over the logistics of on-farm ownership by the CWB. There is anticipation this would increase administration costs for all participants and that grain companies would lose control of their assets, as the CWB would manage location and time of shipment from farm to port.

**Table 7.5: Ability of Participant Groups to Meet their Objectives Under the On-Farm Buying Option**

Objective Category	On-farm option vs. current system - direction of change of participants' ability to meet their objectives within each category.				
	Producers	CWB	Smaller Grain Companies	Larger Grain Companies	Railways
Accountability	+	+	+	+	+
Efficiency <sup>1</sup>	+ / -	+ / -	+	+	+
Competitive Relationships	- / 0	+ / -	-	+	+
Equitable Delivery Opportunities	0	0	N/A	N/A	N/A

+, -, or 0 indicates an increase, decrease or no change from the current system, respectively; N/A - not applicable

<sup>1</sup>The cost of risk management was not considered. See section 7.3 for more detail.

The CWB has the potential to both gain and lose in efficiency. On the plus side, they will have more sourcing options available to them and more control over blending opportunities. On the minus side, however, they stand to have increased administrative costs since they will be sourcing by farm rather than train run. Those producers that would welcome the CWB purchasing their grain on-farm would consider this an efficiency gain for them as they will receive payment for their grain immediately after harvest, while producers opposed to such actions would consider this a further increase in centralized selling and a loss in efficiency and competitive ability for the individual producer. Also, losses in blending opportunities to producers would be considered an efficiency loss.

With transportation services in the control of grain companies and railways, both groups should experience efficiency gains, as occurred with the port buying option, but to a lesser degree, because of CWB involvement at the farm level, which will reduce the grain companies' and railways' flexibility, relative to the port buyer option. The flexibility that grain companies and railways would have to manage their facilities would be dependent, however, on the sourcing patterns used by the CWB.

Grain companies will be competing for delivery contracts with the CWB. Larger grain companies will be in a better position to procure CWB grains through lower bids. The ability to compete should increase for larger grain companies but decrease for smaller companies, particularly, again, over the long run. Much of this is dependent, however, on how the CWB

tenders for grain handling and transportation services and whether price is the only factor they consider.

The competitive relations of the railways should increase due to flexibility increases for grain companies under on-farm buying. That of the CWB could increase or show a significant decrease, depending on the service provided by the grain companies and railways. There are two important factors to consider here regarding the negotiating position of the CWB under this option. The first consideration is the same as was considered for the port buying option. If certain grain companies were able to reserve a large proportion of the railway capacity, then the CWB would be in a fairly weak bargaining position. If capacity is not an issue then the reverse is true and the CWB would have the negotiating advantage. The second consideration is that if the CWB was trying to move its grain from an area served by only one grain company, its negotiating position for handling services would again be weakened.

Competitive relations for individual producers should experience no change or a small decrease from the current system. Producers should experience no difference in market opportunities from the current system. However, with respect to their negotiating capabilities, in the current system producers can negotiate a grading premium from grain companies as an incentive to bring their grain to that particular elevator. However, in the on-farm option, grain companies tender for the grain handling service with the CWB and the only incentive the grain companies might have for providing producers with a bit of a grading premium is to procure the producer business for other services (e.g. non-board grain purchases, or input sales).

Equitable delivery opportunities by the CWB will still be possible and should experience no change, and similarly, producers should find no change to their equitable delivery opportunities.

### **7.3 Concluding Comments on the Criteria**

This part of the report draws together some concluding comments about the criteria used in the study and how they are impacted by each of the options.

#### **7.3.1 *Efficiency of the Options***

In this study efficiency was defined broadly to include all relevant costs. Specifically, the impact on operating costs and transaction costs for each participant was considered. Operating costs are influenced by asset management and incentives for capital investment. The transaction costs represent the cost of doing business including search costs, financial risks, monitoring costs, and dispute settlement costs. In a competitive industry, changes in efficiency, or changes in costs will be reflected in the price a participant will charge for service. In a non-competitive industry, more of these efficiency gains accrue to the participant who provides the service.

Table 7.6 provides a qualitative assessment of the changes in costs of each participant group for each of the three alternatives. The three columns represent changes in the cost relative to the costs in the current system.

### **Primary Elevator Costs**

Each of the alternatives would give the grain companies greater control over the use of their primary elevator assets. This would allow a reduction in operating costs as the current process of rationalization is accelerated. The rationalization effect is greatest with the port and on-farm buying alternatives where the bidding process and the removal of the car allocation process would allow more direct competition between primary elevators. The port option also leads operating cost reduction at the primary elevator level as producer contracts will improve the utilization of capacity. This would happen to some degree in the on-farm alternative, as product would tend to remain on-farm until called for delivery.

Financial risks for the grain companies are costs associated with an unanticipated change in price, quantity or quality. Port buying would increase the price and delivery risk faced by primary elevators. The primary elevator would have contracts with producers specifying price and/or quantity for delivery. They would have to turn around and sell the commodity at port position to the CWB. Having a bidding process determine price at both the buying and selling end of the transaction would create both price and quantity risk for the grain companies. The zone allocation system would lead to an overall increase in efficiency, as the primary elevator operating costs fall and financial risk does not increase. The same is likely true for the on-farm buying option, as there would be greater reductions in operating costs with only a modest increase in financial risk. For the port buying option the result is ambiguous because there could be a significant reduction in operating costs but there will be a significant price risk incurred by the firms. The higher basis levels in canola would indicate that the net effect could be an increase in primary elevator costs.

### **Terminal Costs**

The operating cost of terminals will likely decrease somewhat in each of the options. The process of rationalization will move more grain through primary facilities that can dry and clean grain to export standard. This will increase the capacity of the terminals resulting in a greater throughput and reduced costs. With the port buying and the on-farm alternative there could be a small reduction in operating cost reflecting better anticipated flows of grains.

In the port buying option there would be an increase in the financial risk of terminal operators. The terminal operators would tend to hold some stock in order to successfully bid on nearby CWB orders. The financial risk on this grain would be borne by the terminal operators. In addition, the financial penalties involved in either the on-farm or port buying option would expose the grain companies to financial risk. This would be especially true if they were unsuccessful in negotiating adequate demurrage provisions with the railways.

**Table 7.6: Changes to Participants Costs Under the Options**

	<b>Zone Allocation</b>	<b>Port Buyer</b>	<b>On-Farm Buyer</b>
(Change From the Current System)			
<b>Primary Elevators</b>			
Operating Cost	-	--	--
Price Risk	0	++	0
Delivery Risk	0	+	0
Quality Risk	0	+	++
<b>Railways</b>			
Operating Cost	-	--	--
<b>Terminal Elevators</b>			
Operating Cost	-	--	--
Price Risk	0	++	0
Delivery Risk	0	+	+
Quality Risk	0	+	+ / -
<b>CWB</b>			
Operating Cost	0	0	++
Price Risk	0	+ / -	0
Delivery Risk	0	--	-
Quality Risk	0	-	+ / -
<b>Producers</b>			
Storage Cost	0	0	0
Delivery Costs	+	++	++
Price Risk	0	++	-
Delivery Risk	+	+	-

+, -, or 0 indicates an increase, decrease or no change from the current system, respectively;

The zone allocation option would likely lead to a modest reduction in terminal costs and the accelerated primary elevator rationalization would increase the percentage of cleaned grain. While it is clear that operating costs would fall also for the other alternatives, it is less clear if there would be net reduction in costs, as the costs associated with the financial risk of the terminal operations would increase.

### **Railway Costs**

The railways would have lower costs due to the increased system rationalization brought about in each of the three options. Rationalization allows the railways to move larger blocks of cars and will tend to accelerate the process of branchline abandonment. The reduction in costs would be greatest in the case of the port buying option and less so with the on-farm buying option. The zone allocation option would have only a slight effect on the rationalization process.

### **CWB Costs**

The move to zone allocation would have almost no effect on CWB operations or costs. The move to the port could either increase or decrease price risk, depending on the nature of the bidding process for port purchases. The potential for demurrage charges in the delivery contract would decrease the delivery and quantity risk for the CWB. The on-farm purchase option would increase the average cost of the CWB by necessitating the many more country representatives to buy grain from producers. The CWB would also face considerable quality risk in this option depending on the extent this risk is absorbed by the grain companies through penalty provisions.

### **Grading and Dispute Settlement Costs**

Historically, the CGC has played an important role in grain grading and dispute resolution. In the current system most grain is graded in the primary elevator by mutual agreement between the elevator manager and the producer. In the case of port buying more of the grain would be graded before contracts with producers were signed, further reducing the demand for CGC grading. In contrast, the on-farm buying alternative is likely to dramatically increase the demand for CGC grading as elevators will have an incentive to grade as tough as possible to reduce the probability of a lower grade at port. Dockage levels and dockage disputes would also be expected to increase.

Given the change in incentives for the grain companies, it is likely that the number of disputes heard by the CGC would also increase for the on-farm alternative. The increase in the financial penalties for lower grades in the port buying option would result in some increase in the CGC dispute settlement required. Given the CGC operates on a cost recovery basis, these transaction costs would be reflected in higher basis charges.

The CTA can be used to resolve disputes between shippers and the railways. These disputes are likely to increase in the case of the on-farm and the port buying option, as contracts will tend to assign larger penalties for under performance.

### **Producer Costs**

The producer delivery cost will increase in each of the alternatives as the system is rationalized. This effect would be smallest with the zone option, which is the most similar to the current system.

The price risk faced by producers would increase with the port buying option as the prices cash prices and contract prices would vary on a daily basis.

The delivery risk would increase in both the zone and port buying options. Given that elevators are able to allocate cars to any point, a particular producer may not get an opportunity to deliver until late in the year. With on-farm buying individual storage risk is eliminated as producers are paid storage.

#### ***7.3.2 Accountability in the Options***

Accountability is an important feature of economic relationships. When a participant is accountable to another, opportunistic behavior is discouraged. An obvious way to achieve accountability between firms is to contract for service with agreed upon penalties that are imposed in the case of under performance. The current grain transportation system has many transactions that are not effectively governed by contracts leaving the participants often unaccountable for their actions.

The effect of the alternatives on the accountability of the participants is summarized in Table 7.7. The zone allocation has no perceptible impact on accountability. The impact of the port buying and the on-farm alternatives is significant. In both of these options the exchange between the producers, grain companies and the CWB is governed by contracts with financial penalties. This creates accountability and incentives to move the product through the system.

Interestingly these options do not eliminate accountability problems. First of all, the railways are subject to capped freight rates and given their market power they may be reluctant to enter into any contracts which could result in financial penalties with no apparent gain for themselves. Even if this problem were overcome, there would still be a problem with information in these alternatives. As long as the grain companies are negotiating price or basis with the CWB, there will be an incentive for both parties to withhold information and use their private information in bargaining, rather than share information to improve logistics.



**Table 7.7: Expected Change in Accountability of Participants with the Three Alternatives**

	<b>Zone Allocation</b>	<b>Port Buyer</b>	<b>On-Farm Buyer</b>
(change from current system )			
<b>Primary Elevator</b>			
Accurately forecast capacity	0	--	-
Load cars on time	0	+	+
Load cars with correct grade	0	++	+
<b>Railways</b>			
Accurately forecast capacity	0	+ / 0	+ / 0
Provide level of service	0	+ / 0	+ / 0
Provide Timely Service	0	+ / 0	+ / 0
<b>Terminal Elevators</b>			
Accurately forecast capacity	0	--	-
Load vessels on time	0	++	+
Unload railcars on time	0	++	+
<b>CWB</b>			
Accurately forecast demand	0	--	-
<b>Producers</b>			
Deliver grain on time	0	++	+
Deliver contracted quality	0	+	+
Deliver contracted amount	0	++	+

+, -, or 0 indicates an increase, decrease or no change from the current system, respectively.

### **7.3.3 Competitive Relationships in the Options**

As was described in Section 6, competition forces participants to price at the cost of providing a service. If all services are priced at cost, the market will efficiently allocate these services. Many features of the Canadian grain industry would suggest that it is inherently non-competitive, which makes market power an important issue. Competitiveness also impacts on each of the system participants' ability to realize market opportunities. The impact of each of the options on the competitive positions of the participants, relative to the current system, is considered in Table 7.8.

From the questionnaire and interview process, there was concern by some of the participants regarding the market power of the railways, particularly if rate caps were removed.

**Table 7.8: Expected Change in Competitive Relationships with the Three Options**

	<b>Zone Allocation</b>	<b>Port Buyer</b>	<b>On-Farm Buyer</b>
	(change from current system )		
Small Grain Cos.	-	--	-
Large Grain Cos.	++	++	+
Railways	+	++	+
CWB	0	+ / -	+ / -
Producers	- / +	+ / -	+ / -

+, -, or 0 indicates an increase, decrease or no change from the current system, respectively.

There was also concern by a number of participants that some of the natural competition was being stifled by the CWB's role in the current system.

While Table 7.8 indicates the expected changes in competitive relations for the options over the long-run, in the short-run, each of the alternatives would have a positive effect on primary elevator competition. In the zone allocation option, the grain companies would have the flexibility to move cars to the locations in the zone facing the most competition. This would also be true in the port buying option. In the on-farm buying option, the increase in competition could come through the tendering process. The degree to which this would occur depends on the CWB behavior. There was also a concern that the more severe the primary elevator competition was in the short run, the fewer firms that would survive in the long run, ultimately reducing the competitiveness of the sector.

Each of the alternatives gives the large grain companies a greater ability to effectively compete, by giving them greater control over their assets and the flow of grain, in both the short- and long-run. Small grain companies are more likely to be adversely affected by these changes, as their competitive position relative to the large companies deteriorates over time.

The alternatives each improve the competitive position of the railways as the system is rationalized. Both railways commented that the removal of the freight rate cap would do far more to improve their competitive position. The competitive position of the CWB would depend on the actual tendering process that took place and the extent that the CWB was willing and able to use its monopoly position to secure the lowest basis and the highest returns for producers. The effect of the options on the competitive position of producers is unclear. Some producers will benefit from system rationalization while others will face longer trucking distances and increases in basis charges.

The results for the terminal elevators differ from the primary elevator competition, particularly for the West Coast. In both the port buying and the on-farm buying option, the grain companies will effectively have control of the car supply and the access to the capacity in the system. When capacity is limited, the grain companies will be in a very strong position to raise basis levels. With the current West Coast capacity constraint these capacity rents would, on average, be significant, particularly for wheat and feed barley.

The other factor that will influence the competitiveness of the grain companies will be the actual behavior of the CWB in the tendering process. The CWB will be in a monopoly position to purchase export grains from these firms. If the CWB exerts this monopoly power it could diminish or offset any market power of the grain companies. The outcome of this type of bargaining situation is very unclear. It is unlikely, however, that this system would resemble a competitive market.

### 7.3.4 Equity and the Options

The current system offers producers similar delivery opportunities based on volume contracts. This system also offers an annual pooled price. Some producers strongly endorse these mechanisms. Other producers feel these mechanisms prevent producers from delivering when and where they want and for the price they want. The current system also does not give producers access to price and risk management tools that are available for non-CWB crops.

Delivery equity, as described above, is reduced in all three options. However, in the on-farm option, the financial burden associated with delivery risk is eliminated by a storage payment (Table 7.9).

Annual price pooling is maintained in the zone alternative. The only price risk faced is a small basis risk. The port buying alternative effectively eliminates annual price pooling. Although producers would receive a final payment, the initial payment would depend on the cash or contracted price at which they sold their grain. This price would no longer be similar for all producers and could vary a great deal over a season. In the on-farm option, all intra-year or inter-company price variability is removed for the producers.

**Table 7.9: Equity and the Alternatives**

	<b>Zone Allocation</b>	<b>Port Buyer</b>	<b>On-Farm Buyer</b>
	(change from current system )		
<b>Producer</b>			
Delivery Equity	-	-	+
Price Equity	0	--	+

+, -, or 0 indicates an increase, decrease or no change from the current system, respectively;

### **7.3.5 General Comment on the Criteria**

Given the qualitative nature of the assessment of the options against these criteria, it is difficult to draw an overall conclusion as to which is the “best” one. Depending on the weighting that is put on each criterion, the conclusions could vary widely.

It was not the intent of this study to identify the “best” option; rather the intent was to provide a preliminary evaluation of the options, as identified here, and what some of the impacts might be. The next section provides some very preliminary assessments of variations on the port buyer option.

## **7.4 Variations on the Port Buyer Option**

Each of the three alternatives evaluated in the report have significant weaknesses when assessed using the four criteria of efficiency, accountability, competitiveness and equity. Clearly, more research is required to develop a role for the CWB in grain transportation that better meets the evaluation criteria used in this analysis. This process must begin with proposals, discussions, analysis, refinement and negotiations. While numerous options are possible, three modified versions of the port buying option are briefly presented and evaluated here.

The first modified port option discussed is one where the CWB contracts with grain companies to purchase grain at port position at a fixed initial price. Sales are allocated to grain companies in direct proportion to the quantities each company has contracted with producers. This will be referred to as the fixed-price port buying option.

The second modified port option is where grain companies are required to pay producers an initial price at primary elevators, which is adjusted according to distance to port. Grain companies will continue to tender for delivery at vessel position. This will be referred to as the farm initial price port buying option.

The third modified port option is where the grain companies bid for basis on port deliveries. This option will be referred to as basis tender port buying option.

### **7.4.1 Fixed-price Port Buyer Option**

This “fixed-price” port buying proposal is designed to reduce the transaction costs in the port buying alternative. The port buying alternative has the advantage of creating accountability and increased competition between firms. It has the disadvantage of increasing the price risk faced by firms, potentially transferring West Coast capacity rents to grain companies, changing the nature of the initial payments, and providing incentives for grain companies to protect information about available supplies from the CWB. These disadvantages are addressed by modifying the proposal, such that, instead of tendering with the grain companies, the CWB would buy grain from grain companies at a fixed initial price either at trackside, or in-store, or at vessel.

A producer would sign elevation agreements with the primary elevator of his or her choice for a specified tonnage, grade, delivery period, and handling fee. By signing an agreement, the producer would be obligated to deliver to the elevator when called by the elevator company. This commitment would be indicated on the producer's certificate. Ideally, the producer would be obligated to provide a sample of the grains they are contracting for delivery so the grain companies will know exactly what grade, dockage, moisture level or any other characteristics of the grain that is available for delivery.

The CWB would buy grain from grain companies at a fixed initial price either at trackside, in-store or at vessel. Grain companies would indicate to the CWB exactly what grades and quality of grain they have available for delivery. When the CWB wished to call forward a specific grade the volume would be allocated to the grain companies in direct proportion to the total quantity of the specific grade that each company has contracted with producers.

Elevator companies would call forward grain to meet their tendered contract obligations with the CWB. A producer would deliver his or her grain during the call period and receive the port initial price less the freight and handling charges specified in their delivery contract. Producers would be entitled to any interim and final payments issued.

As agents of the CWB, the grain companies would sign operating agreements where they agree to deliver the grain to the CWB when called for, subject to grain car availability. The grain companies would be responsible to the CWB to deliver the right product within the time period specified in their contracts with the CWB. Failure to deliver the right product on time would result in the assessment of penalties against the grain company. If the failure to deliver on time were the fault of the railway, the railway could be responsible for all or part of the penalties assessed against the grain company. These penalties would provide incentives for performance. However, to the extent that these penalties increase risk for grain companies, the increased risk would be reflected in higher contracted basis charges for producers.

This port buying modification would also include provisions for premiums paid to grain companies for special CWB orders, where premiums would be offered for faster port delivery or a special quality selection.

The rents for the West Coast capacity constraint could be dealt with in this option by reducing the relative initial price at the West Coast. This would reduce the pressure for West Coast delivery and prevent the capture of capacity rents. The resulting cost saving would accrue to the CWB and be distributed to producers from the pool account.

The railways would interact with the CWB only to the extent that they indicate the total car supply they will make available for CWB grains for each port. The CWB, in turn, would agree not to exceed this limit in making calls for grain company deliveries.

In this option, producers are going to demand some provisions for storage and interest costs in their contracts with grain companies to offset the cost of any delayed opportunity for delivery. To reduce this risk, the CWB could institute storage payments to grain companies in the event of delayed sales. With these CWB storage payments, the grain companies should be able to offer storage payments in the contracts with producers.

This modification of the port option also restores an initial price for producers. Because the initial prices are fixed at port position and producers have a contract that specifies basis, they will know exactly what their initial price will be for their grain. This option would be complemented by tradable CWB final payment certificates which would allow producers to sell their crop at anytime after a delivery contract is signed and receive the expected pool return.

### **Option Evaluation**

**Efficiency.** This option would allow a similar rationalization of the primary elevator system as in the other options and would therefore lead to a similar reduction in operating costs. Unlike the port buying option, this option does not expose the grain companies to price risk. Thus risk management costs should be much lower for grain companies. This option would also improve information about the quality of the grain inventory on farms and which companies have access to this grain. This would make it easier to call very specific types of grain forward to meet niche markets.

**Accountability.** This system would be driven by contracts and would therefore improve accountability. Because the CWB is not bargaining directly with the grain companies, there would be no incentive for grain companies to protect important information about stocks and grain available for delivery.

**Competitive Relationships.** There would be competitive pressure to sign delivery contracts with producers. The bidding for basis would likely cause primary elevator competition that would not be restricted to single delivery points or zones. The CWB buying process would give the primary elevator operators strong incentive and, what is more important, the ability, to capture market share in the short run by offering a favourable basis to producers.

**Equity.** This option maintains annual price pooling other than small variations in basis. Elevator companies would have an incentive to offer delivery opportunities to as many producers as they can attract. This should leave producers with some access to the system for product delivery.

**Overall assessment.** Overall, this option shows a good deal of promise and may in fact be the next logical move in the evolution of the CWB role in transportation. However, this option has not been explored with the industry and, as such, this assessment should be regarded as very preliminary. Further development and assessment are required.

#### **7.4.2 Port Buyer Option with a Minimum Initial Price**

The port buying option substantially changes the nature of the initial price. Effectively, the purchase price paid to producers becomes the producer "initial price" in the port buying option. These purchase prices could vary a great deal during a crop year, across regions, and even among producers delivering the same product at the same location. As a result, producers have no assurance of a minimum price they will receive for grain they have not yet delivered. Some producers felt this was a weakness in the port buying option that needed to be addressed. One of the proposed modifications to address this problem is to require that grain companies pay producers a minimum initial price at primary elevators. These minimum prices could be adjusted to reflect differences in rail transportation to port position.

In this modification to the port buying option a condition of the CWB contracts with the grain companies is that the companies would agree to pay the farmers at least the initial payment level at port minus a set of maximum rates/tariffs (a maximum basis). The freight charges could also include freight adjustment factors at certain locations. The grain companies could pay producers more than this (by charging less than the maximum rates/tariffs).

This proposal can only be effective in establishing a minimum price for producers if the initial price is set high enough so that initial price becomes the price generally offered producers. If the initial price is not binding, then each producer will receive a different initial price, which is the same as the unmodified port option. In the analysis to follow we will assume that the initial price becomes a floor price where grain companies generally do not choose to offer any premiums.

All other aspects of the port buying option would be maintained.

#### **Option Evaluation**

**Efficiency.** This modification does not reduce the price risk faced by grain companies nor does it reduce the incentive for grain companies to protect information about available supplies from the CWB. It may, however, reduce the efficiency of the port buying option and expose grain companies to additional delivery risk. While port buying contracts would make grain companies accountable for delivery to ports, the principal instrument for preventing unwanted deliveries and attracting deliveries when required would be lost. The fixed initial price would reduce the ability of the grain companies to manage producer deliveries. The result would be to expose grain companies to delivery risks, which would be reflected in a higher basis.

**Accountability.** This modification would likely result in line-ups for access into the elevator system as price would no longer be used to ration deliveries. Therefore, a grain company could no longer be accountable for accepting delivery from a particular producer.

**Competitive Relationships.** This modification would reduce the use of price as a signal to attract deliveries. Elevators would be forced to compete more on a non-price basis, which may be less transparent and may reduce the overall level of competition somewhat.

**Equity.** This option maintains annual price pooling. Space and delivery opportunities will still have to be rationed. Some producers may have to wait for long periods for system access.

**Overall assessment.** This modified port buying option would be less efficient, less accountable, and less competitive than the unmodified port buying option. When system access cannot be rationed by price it will be done by being forced to wait for delivery or through other less transparent means. While this modification restores an initial price for producers, it is basically incompatible with port tendering.

### ***7.4.3 The Basis-Tender Port Buyer Option***

Two of the shortcomings of the port buying option were the additional price risk created for grain companies which would tend to be reflected in higher basis charges and the potential transfer of capacity rents from the pool account to grain companies. As a result of these concerns, a modification was proposed where grain companies would bid on basis to port rather than the delivered price to port.

In this option the CWB would ask grain companies to tender for the basis between prairie locations and port position. After adjusting for differences in location and rail transport costs, the company with the lowest net basis tender would be awarded the contract. In this way grain companies would not face price risk.

One of the key components of this modification would be the calculation and the verification of basis charges by grain companies. The basis bid would have to be easily verifiable in order to ensure that a company would not bid one basis level and after receiving the cars would charge a higher basis level. This would be extremely difficult for a number of reasons.

First of all, in this port buying option any one company may be purchasing grain from producers for several CWB tenders at once. For instance, the tenders for the second and third week of October may be being delivered by producers in the last week of September. Suppose the company had bid \$40 and \$50 per tonne on these two tenders and the basis that week averaged \$43 per tonne. Are they complying with the bid?

Secondly, in any port buying option there would likely be some deferred delivery contracts used to buy grain from producers. If the price has been established in a deferred delivery contract, how could this price be reflected in the current basis calculation?

Finally, and perhaps most important, the total basis cost for producers includes many costs and benefits that are not included in the standard elevation and transportation tariffs. A



producer's bottom line is also influenced by the grade, protein, dockage, trucking premiums, hours of service, input credit and many other variables. The elevator which can offer the producer the best return may have little to do with the lowest tariff, or the lowest basis from primary elevator to port position. Yet, within this port option, the company with the lowest bid tariff would be awarded the tender, which would force producers to delivery to those facilities. This would provide a very strong incentive for companies to bid a low basis while effectively raising the basis paid by the producers in less transparent ways.

## **Option Evaluation**

**Efficiency.** This option would reduce the price risk faced by grain companies and therefore reduce risk management costs in the system. The misallocation resulting from the strong incentives to report a low basis while raising basis in other ways would tend to have the opposite effect and reduce the efficiency of this option.

**Accountability.** As with the on-farm option evaluated in this report, because the producer deliveries would not drive this system, grain companies would become less accountable to producer needs.

**Competitive Relationships.** This modification would probably reduce the effective competition by awarding tenders on the lowest reported basis, rather than an incentive to reduce the total effective basis faced by producers.

**Equity.** The effect on equity is unclear. Certainly some producers will lose trucking premiums and other indirect services they currently receive from grain companies.

**Overall assessment.** This modification to the port buying option does not seem to be viable given the problem with measuring the whole basis faced by producers. While this option eliminates price risk, it suffers from many of the same problems as the on-farm option. This modification to the port buying has not been explored with the industry, so this assessment should be regarded as preliminary with more development and assessment required.

## 8 SOME CONCLUDING OBSERVATIONS

This concluding section highlights a number of general observations, key findings, and conclusions from this study.

### 8.1 General Observations

1. In reviewing the role of the CWB in grain logistics it is important to separate philosophical issues relating to the role of the CWB in grain marketing from issues relating to its role in grain logistics. This report focuses on the latter.
2. The changing demand and composition of the end use customers for prairie grains places, and will continue to place, greater pressure for a grain logistics system that gets the right grain to the right place at the right time. This will require a greater degree of cooperation and understanding among system participants than is sometimes currently the case.
3. Current owners of the primary elevator system, along with several new participants, are in the process of renewing the system. System renewal consists of fewer, but larger, high throughput elevators with cleaning and blending capabilities. Grain companies are investing millions of dollars in this process and, consequently, want greater control of their assets in order to maximize efficiency and throughput in the collection and shipping of all grain, including CWB grain.
4. Although there is a wide range of legislative authority relating to grain handling and transportation under the Canada Grain Act, the Canadian Wheat Board Act, and the Canada Transportation Act, not all of the provisions of these Acts are used. This has significant implications for the degree of confidence felt by system participants as they conduct their business and make investment decisions. Many aspects of the car allocation system have evolved through general industry agreement and convention, rather than through regulation or formal contracts. This situation creates an atmosphere of uncertainty that is not conducive to a smoothly functioning system.
5. A major issue from the producers' perspective is the sharing of benefits from efficiency gains. Given that the producer pays all the costs associated with the production, marketing, and logistics of grain, equity suggests the producer should also benefit from cost reductions brought about by system improvements. Although this principle is generally espoused by system participants, there is some question as to how much it is practiced.

6. The port buying and on-farm option are both contingent on the assumption that all parties would be willing to enter into service contracts. Whether the railways would be willing to enter into such agreements under the current regulated rate structure is not certain. This then would affect whether the accountability of the railways would significantly increase.
7. There are two important factors to consider here regarding the negotiating position of the CWB under any option that removes it from the transportation logistics chain. The first consideration is that if certain grain companies were able to reserve a large proportion of the railway capacity, then the CWB would be in a fairly weak bargaining position for both the on-farm option and the port buying option. If capacity is not an issue then the reverse is true and the CWB would have the negotiating advantage. The second consideration is that if, in the on-farm option, the CWB was trying to move its grain from an area served by only one grain company, their negotiating position for handling services would again be weakened.

## **8.2 Key Findings and Conclusions**

This process of evaluating the current system and the three options has provided some important insights into making the system perform better. These are summarized by the criteria used in this study.

### **8.2.1 Efficiency**

1. Grain delivered to the primary and terminal elevators without a market for that grain ties up valuable handling capacity. From a logistics standpoint the grain should remain on the farm until a sale is anticipated at port position. Forward planning of the logistics function and car allocation are both hampered by the lack of information on the quality of on-farm stocks and the lack of commitment by producers to deliver to a particular facility. Perhaps producers could contract with specific grain companies well in advance of delivery dates. If this was done, it could provide a mechanism for car allocation to grain companies on the basis of delivery contracts rather than past shipments.
2. Managing price, quantity, and quality risk is an important yet costly activity. Price pooling and initial prices protect grain companies from price risk between the time the grain is purchased from producers and the companies eventually deliver the product to terminal position. A port buying system where grain companies tendered for CWB sales would result in price variation at port. Increased system efficiencies could offset some or all of these price risks, provided that efficiency gains are shared. The price risk attached to these price variations would increase costs for grain companies; these costs would likely be passed on to producers through a higher basis.
3. Each of the options examined, particularly the port buyer option, would give the grain companies more control over the use of their assets. The added flexibility in car allocation

should lead to a reduction in the operating costs at primary elevation, as more grain is handled by high throughput facilities. This consolidation of the grain handling system should also reduce the operating costs of the railways. However, producer delivery costs, as well as road costs, will tend to increase as the system consolidates to fewer delivery points.

### **8.2.2 Accountability**

4. All participants raised the issue of inadequate accountability. A greater use of bilateral contracts with enforced financial penalties would enhance accountability. If contracts are to be enforced there is a need for a timely contract dispute resolution. Public institutions such as the Canadian Grain Commission play an important role in contract dispute resolution. Using the share of car allocation as rewards and penalties may be less effective than financial penalties in achieving accountability.
5. With capped freight rates, the railways may be reluctant to agree to contracts with penalties for under performance. As a result, if financial penalties for poor rail service are to exist, they may have to be imposed by statute.
6. There is a trade-off between accountability and efficiency. If improved accountability increases the financial risk of a participant, this risk will be reflected in an increased charge for services. Some of the cost of this financial risk may be offset through increased system efficiency, provided that efficiency gains are shared.

### **8.2.3 Competitive Relationships**

7. The railways potentially have a great deal of market power. If freight rates were deregulated this market power is likely to result in higher freight rates at the expense of producers and grain companies.
8. With the current capped freight rates, cost savings of the railways have not been, nor are they likely to be, reflected in reduced rail rates.
9. A port buying system would be a more commercial system than the other options, but it would not represent a competitive market. The CWB would be the single buyer of grain. The sellers would be made up of a small number of grain companies which at times will hold a very large percentage of the available stocks or the available shipping capacity for specific grades of grain. The prices in this market would be difficult to predict, thus creating price risk for the participants.
10. Increasing the flexibility for grain companies to allocate cars increases the degree of primary and terminal competition. This was true for each of the alternatives considered, but would vary among options.

11. The current system of car allocation is based on past shipments and current commercial stocks and does not reflect the quantities available on-farm for delivery. This approach to allocation reduces the degree of competition between grain companies by making market share more rigid.

#### **8.2.4 *Equitable Delivery Opportunities***

12. Equitable delivery opportunities often conflicts with other measures of system performance. Annual price pooling reduces financial risk associated with uncertain delivery dates. A system where storage was paid to producers for contracted grains, as is currently done for malting barley, would further reduce the financial risk associated with uncertain delivery dates.

### **8.3 General Comment on the Options**

Given the qualitative nature of the assessment of the options against the four criteria used, it is difficult to draw an overall conclusion as to which is the “best” option. Depending on the weighting that is put on each criterion, the conclusions would vary widely. It was not the intent of this study to identify the “best” option; rather the intent was to provide a preliminary evaluation of the options, as identified here, and what some of the impacts might be. Because each of the options evaluated in the report have significant weaknesses when assessed using the criteria of efficiency, accountability, competitiveness and equity, three modified versions of the port buyer option were briefly presented.

The range of views from industry participants varied widely on the current system and options. When these are coupled with the results of the economic analysis, it is not surprising that one could easily draw the conclusion that the current system does not work, nor are there any workable alternatives! In reality, there are some advantages and disadvantages to each of the options, although there is no total unanimity on these.

The **port buyer option** is seen by many system participants as leading to a more efficient and responsive grain logistics system, with more contractual accountability and more control by grain companies and railways over their assets and operations. Concerns about this option center around greater price and basis risks for producers, especially the operation of an initial price system, and a decrease in competition in the grain logistics system.

The **on-farm buyer option** would provide a greater degree of market power for producers in dealing with grain companies and railways, and a better information system for the CWB for managing the logistics of grain movement to meet market requirements. There were, however, very strong views by all grain companies and both railways, and most producers that this option would lead to a “bureaucratic nightmare,” with higher administrative costs that would more than offset any economic advantages from this option. The loss of “interface” between producers and grain companies would be a significant disadvantage from a business perspective.

The **zone allocation option** provides greater flexibility to the grain companies and railways without disadvantaging producers. However, it is generally seen as not going far enough for most system participants.

The next logical step is to take the findings of this study (and other similar studies) as a basis for further discussion and negotiation among system participants. Clearly, a detailed discussion of the operational implications of the options included here was beyond the scope of this study. Participants in the grain logistics system have risen to challenges in the past; we are confident that they can do so in the future.



## Glossary of Terms

### 1 Classification of Commodities and Traffic Corridors

Board (or CWB) Grains	All grain that falls within the marketing mandate of the CWB. This applies to all wheat and barley sold for export or used domestically for human consumption.
Non-Board Grains	The term “Non-Board Grains” applies to grains not marketed by the CWB. This includes canola and oats moving to the West Coast, as well as canola, oats, and non-Board feed grains moving to Thunder Bay.
Non-Board Feed Grains	Wheat and barley to be used domestically for animal consumption.
Administered Commodities	Refers to CWB and non-Board grains moving within rate regulated corridors. These commodities have an administered car allocation process.
Non-Administered Commodities	Non-administered commodities are all grains moving within rate regulated corridors that do not fall have an administered car allocation process (eg. rye, flax, specialty crops). Shipment of these commodities is shipper/carrier negotiated.
Rate Regulated Traffic Corridors	Grain moving in these corridors are subject to a maximum rate per tonne scale that railways may charge. All destinations listed in Division VI of the <i>Canada Transportation Act</i> fall within the rate regulated category. These destinations are: Thunder Bay (or Armstrong), Churchill, or port in British Columbia (with the exception of grain moving to BC for export to the US).



Non-Rate Regulated Traffic Corridors

All destinations not listed in Division VI of the *Canada Transportation Act* are not subject to freight rate regulation. US destinations and internal (i.e., not ports) domestic destinations fall within this category.

## **2 Organizations Involved in Car Allocation**

Canadian Wheat Board (CWB)

The CWB is responsible for marketing all wheat and barley for export or for domestic human consumption. The CWB allocates its sourcing business to grain handling firms through an administered car allocation system.

Car Allocation Policy Group (CAPG)

CAPG was formed through the SEO group after the end of the Grain Transportation Agency's mandate. CAPG's mandate is to develop policies to guide car allocation procedures for rate regulated corridors and to carry out industry capacity planning. CAPG's executive committee, which is responsible for approving policy changes, consists of one representative from each of the following groups: western Canadian grain handling firms, the two Canadian class one railways, the Canadian Wheat Board, and western Canadian producers. CAPG is a voluntary organization with no legislative mandate.

CAPG Secretariat

The CAPG Secretariat is responsible for monitoring grain forwarding procedures and outcomes to ensure that CAPG policies have been carried out. The CAPG Secretariate is also responsible for preparing the capacity planning documents and the CAPG contingency plans.

Non-Board Allocation Office (NBA)

The NBA is currently funded by the Western Grain Elevator Association. The NBA is responsible for allocating hopper cars for

non-Board movements according to the policy guidelines set out by CAPG.

#### Senior Executive Officer Group (SEO)

The SEO group is an organization composed of senior executives from western grain handling firms, the CWB, the two class one railways, and three western producer representatives. The SEO group was formed to develop consensus within the western Canadian grain industry on policy issues. The SEO group was responsible for developing the CAPG constitution and has been consulted by government on western grain policies.

#### Industry Technical Committee

Established by the SEO, the Technical Committee is composed of senior operational personnel from grain companies, the CWB, the two class one railways, and two producer representatives. The Technical Committee is responsible for developing detailed operational policies from guidelines set out by the CAPG Executive Committee (or in some cases the SEO group).

#### Industry Rail Car Allocation Policy Committee (IRCAP)

The IRCAP Committee is responsible for developing the policies that govern the CWB's methods of allocating its available car supply to its agents. The IRCAP Committee consists of representatives from the CWB and all of the CWB's agents.

#### CWB Agents

Any grain handling firm that has signed an Agency Agreement with the CWB is an Agent of the CWB and has the right to purchase grain from western producers on behalf of the Board. A grain handling firm that is not an Agency of the Board may not make purchases of CWB grains from western Producers.

### 3 Terminal Agreements

#### Car Exchange Programs

Car Exchange programs (e.g., the canola pooling program in Vancouver) were developed to reduce the level of switching required at the ports. Each terminal elevator company agrees to allow other terminals to unload cars consigned to it, provided that it unloads a similar number of cars (and tonnage) assigned to other terminals. Under the car exchange programs the terminal unloading cars consigned to other terminals treats the grain as if it was the originating handling company. That is, it uses the stock for its own shipping program. If the imbalance (i.e., the number of cars owed or owed to a particular terminal) becomes too large, terminals can adjust the imbalance by swapping stock.

#### Stock Pooling Programs

Stock pooling programs for CWB grains are very similar in nature to non-Board car exchange programs, and have the same objective of reducing railway switching. However, the stock pooling programs are slightly different because the CWB is the owner of all the Board grain in all the terminals. That is, the pooled CWB grain is not used by the individual grain handling firms to fill their commitments. Rather, the CWB can use the stock held in any terminal to meet its immediate vessel requirements.

#### Railway Car Placement Agreements

Car placement agreements between the railways allow CN cars to be unloaded at terminals serviced by CP, and vice versa.

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## **APPENDICES**

### **A STUDY OF THE CANADIAN WHEAT BOARD'S ROLE IN GRAIN TRANSPORTATION**

Prepared under contract for  
Agriculture and Agri-Food Canada and Transport Canada  
by  
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## **APPENDIX 1**

### **Detailed Description of the Procedures Used to Move Grain**

This appendix gives a detailed description of the logistical system for moving grain from the farm to export position. As a description of the current system has been provided in the body of the report, the focus here is in outlining the organizations involved in the car allocation process, how rail cars are allocated between commodities, and how the CWB allocates between grain companies.

#### **1 Organizations Involved in Car Allocation**

A number of different organizations and groups are involved in setting policy for grain transportation in western Canada. An understanding of these groups and their responsibilities is necessary if the day to day operations are to be understood.

Since the Budget Implementation Act of 1995, the Government of Canada is not one of these organizations. Before the 1995 budget, the Government of Canada (through the Grain Transportation Agency or GTA) was responsible for administering the allocation of hopper cars between destinations (i.e., West Coast, Thunder Bay, domestic, and US movements) and between commodities (i.e., CWB, non-Board, and non-administered). Prior to the 1995 budget, changes to grain transportation policy were recommended and reviewed by the Senior Grain Transportation Committee (SGTC). The SGTC was a committee composed of grain handling firms, the CWB, railways, the trucking industry, organized labour and elected producers. The functions of the GTA and the SGTC have been taken over by the grain industry beginning with the 1996/97 crop year.

In response to the end of the GTA and SGTC mandates, the western Canadian grain industry established the Senior Executive Officers group (SEO) to review and carry out grain handling and transportation policy. The SEO is composed of senior executives from western Canadian grain handling firms, the two class one railways, the CWB, and three producer representatives. The three producer representatives on the SEO group have been confirmed by a convention of western Canadian producer associations. Two of these producer representatives (the two Technical Committee representatives) were previously elected to the SGTC. The SEO operates independently of government. That is, it receives no funding from government nor does it have a legislative mandate.

The SEO has established an Industry Technical Committee to develop detailed operational policies from SEO guidelines. The Technical Committee consists of senior operating personnel from grain handling firms, the two class one railways, and the CWB. In addition two producers

(who also sit on the SEO) are included in the Technical Committee to represent producer interests.

Through direction from the SEO and the detailed work by the Technical Committee, the grain industry has established the Car Allocation Policy Group (CAPG). CAPG is responsible for establishing high level car allocation policy for movement of rate regulated grain. The Technical Committee developed (and the SEO approved) a constitution for CAPG that outlines the responsibilities of the group and its decision making process. The CAPG constitution has been signed by approximately 30 firms involved in grain handling and transportation.

The CAPG constitution established an executive committee that is responsible for approving allocation policies for rate regulated grain. The CAPG Executive Committee consists of one representative from the CWB, one representative from the railways, one representative from grain handling firms, and one producer representative (who is also an SEO representative and a Technical Committee representative). The decisions of CAPG's Executive Committee must be unanimous for most allocation policy issues. If the policy decision before the committee relates entirely to the commercial relationships between the grain companies, the CWB and the railways, policy will be determined by unanimous approval of the CWB, the railway and the grain company representatives.

CAPG is responsible for establishing guidelines for the allocation of hopper cars between rate regulated corridors and between commodity groups (i.e., CWB, non-Board, and non-administered). CAPG is also responsible for carrying out capacity planning (through the biannual *Capacity Working Plan* and the monthly *Four Month Handling and Transportation Plan*).

The CAPG constitution also established a car allocation dispute resolution process. If any signatory to the CAPG constitution believes that CAPG policies have not been correctly applied, they may bring their complaint before an arbitration panel established by the Executive Committee. Complaints may only be with regard to application of guidelines and not concerning the guidelines themselves. To date no car allocation disputes have been brought forward by a CAPG member. Also, the CAPG constitution clearly indicates that the dispute resolution process does not negate any participant's rights under the *Canadian Transportation Act*.

The Non-Board Allocation Office (NBA) is responsible for allocating rail cars for non-Board grains according to guidelines established by CAPG.

Policies for the allocation of CWB grain between grain companies and origination points are established through the Industry Rail Car Allocation Policy (IRCAP) Committee. IRCAP consists of representatives from the CWB and representatives of agents of the CWB.

## **2 Categorization of Traffic Corridors and Commodities**

The various traffic corridors and commodities are categorized according to a number of administrative and/or regulatory arrangements. An understanding of these categorizations is necessary for an understanding of the current system. Figure A1.1 indicates how the various categories of traffic corridors and commodities fit into the car allocation process.

### **2.1 Non-rate Regulated Movements**

Non-rate regulated movements of commodities includes movement of grains from the Western division to any location other than Thunder Bay, Ontario, or Churchill, Manitoba or any port in British Columbia for export to locations other than the United States. In other words, non-rate regulated movements include grains moving to any other domestic Canadian location, besides the ports mentioned above, or to the US via any route other than through Thunder Bay. Grains moving to the US through a British Columbia port are considered non-rate regulated provided they are for consumption within the United States.

Tariff rates of these commodities are not subject to a maximum rate scale, but are determined by the railways, providing they are done so in accordance with any provisions in the *Canada Transportation Act (CTA)*.

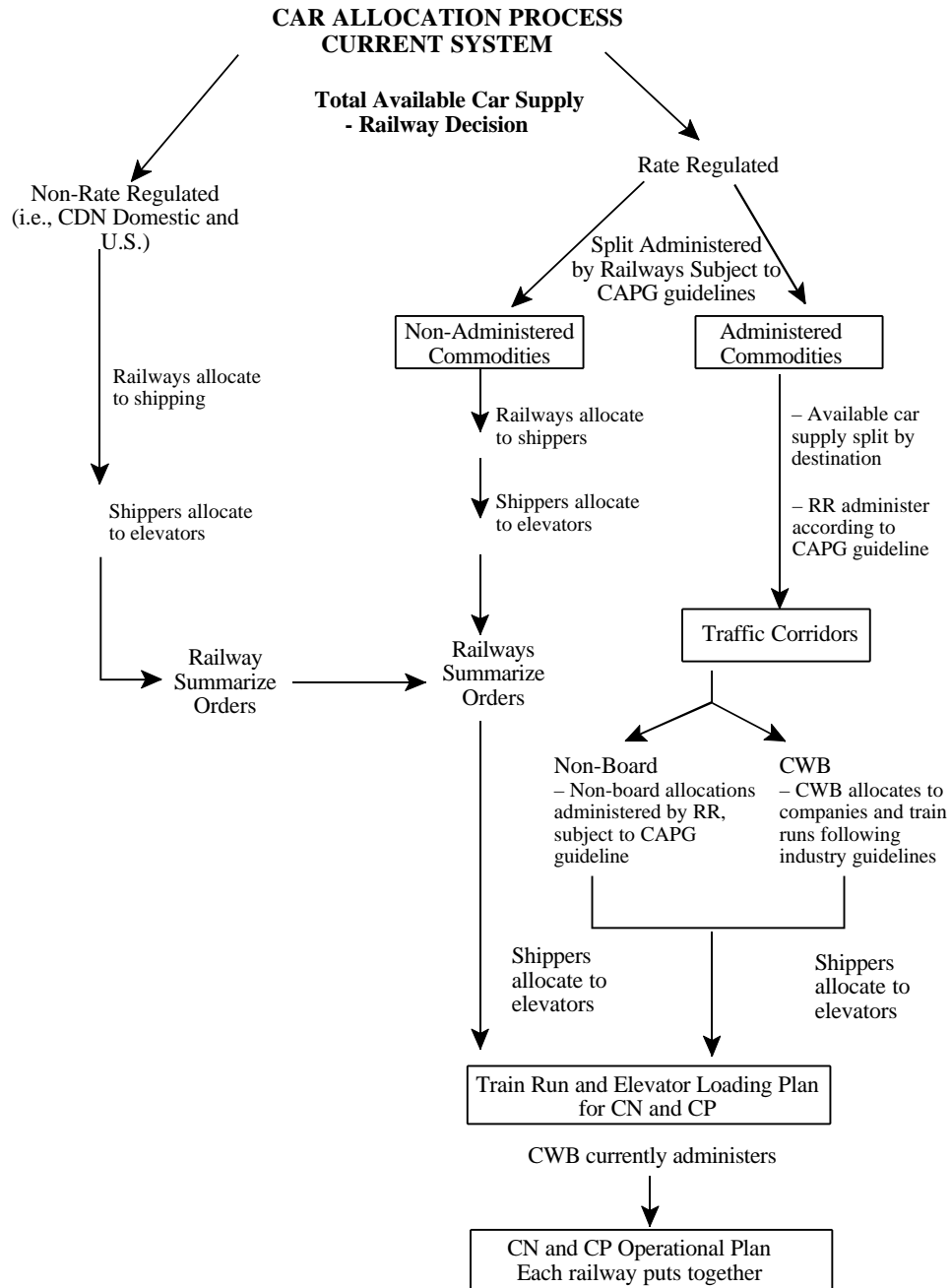
### **2.2 Rate Regulated Movements**

Rate regulated movement of grains are subject to a maximum rate scale, which, as defined by section 147 of the CTA means “a scale of maximum rates per tonne that may be charged for the movement of grain over specified ranges of distance.” The maximum rate scale is determined by the Canada Transportation Agency, in accordance with the formula set out in section 150 of the CTA.

Movements subject to a maximum rate scale include all movement of grains (or grain products) produced in the Western Division of Canada (west of Thunder Bay, Ontario), as outlined in Schedule II of the CTA, that are being shipped by rail to Thunder Bay, Churchill, or to Vancouver or Prince Rupert (except, in the case of Vancouver or Prince Rupert, for exports to the United States for consumption in that country). Therefore, exports to countries other than the United States are rate regulated, plus movement of grains through Thunder Bay for either domestic destinations or to the United States are also rate regulated up to Thunder Bay (for example, grain moved by rail to Thunder Bay and then by rail to Montreal is only rate regulated up to Thunder Bay).

Rate regulated movements are split into administered and non-administered grains:

- Non-administered grains include those grains whose shipment is carried out through negotiations between the shippers and the railways. The allocation of non-administered



**Figure A1.1: Hopper Car Allocation Process for Grain Shipments**

car supply to shippers is administered directly by the railways and is not subject to guidelines established by CAPG or IRCAP. However, the total volume of cars available for non-administered movement each week is subject to CAPG guidelines. Generally, non-administered commodities move in much lower volumes with irregular product flow and include such grains as rye, flax and specialty crops.

- Administered grains are those regulated grains whose shipment is administered through the car allocation process. Administered grains are further broken into:
  - i) Board grains, which are marketed by the CWB and include all wheat and barley for export or domestic human consumption, and
  - ii) non-Board grains, which include canola, oats and feed barley or feed wheat for domestic use.

While the designation between rate regulated and non-rate regulated grains is defined within the CTA, there is no legislation defining the designation between administered and non-administered grains, rather this designation is through industry agreement.

### 3 Procedures for Moving Grain

The CWB currently plays an important role in coordinating the movement of wheat and barley from the gate through to the end user. Table A1.1 gives a brief overview of the links in the transportation chain that involve the CWB.

**Table A1.1: Participant Involvement in the Current Grain Logistics Chain**

Functions	Farmers	CWB	Grain Co.	Railways
Farm Inventory Management	yes	no	no	no
Sourcing	yes	yes	yes	no
Country Origination	no	yes	yes	yes
Transportation	no	yes	yes	yes
Terminal	no	yes	yes	yes
Vessel Loading	no	yes	yes	no

The CWB signs agency agreements with the various grain companies operating in western Canada that outline the services the firms will provide to the CWB. These services include the acceptance of producer deliveries, and purchase, storage and shipments of wheat and barley. The

CWB does not allocate its business to grain companies through a competitive tendering process, but rather the market for handling CWB grains is divided among the grain companies through a set of procedures agreed upon by the companies and the CWB. Car allocation is the means by which the CWB implements these market sharing arrangements. The following step-by-step procedure outlines the current process for moving grain from the farm gate to final destination.

### **3.1 Capacity Planning**

The purpose of capacity planning within the grain transportation and handling system is to provide grain marketers and grain handling firms, as well as carriers, with an estimate of shipping requirements (i.e., sales) and the capacity available (primary elevator, railway, terminal elevator) to meet sales requirements. Two processes fill CAPG's capacity planning requirement, the *Capacity Working Plan*, and the *Four Month Handling and Transportation Plan*. For CWB grains the capacity planning documents produced by CAPG are augmented by the CWB's eight week plan. The eight week plan outlines the CWB's planned movement, and the planned drawing region. The intent of the plan is to give grain companies and railways an indication of the CWB's sourcing requirements by train run.

#### ***3.1.1 The Capacity Working Plan***

The Capacity Working Plan is produced twice annually, first at the beginning of the crop year and approximately half way through the crop year. The Working Plan produced at the beginning of the crop year projects shipping requirements (by month) for the crop year. This projection is based on sales estimates for the first six months and estimates of production for the final six months (i.e., the Plan assumes the entire crop will be shipped, therefore, the shipping requirements for the second half of the crop year are equal to the total available supply less the sales during the first six months).

Weekly sales requirements are compared with estimated weekly available capacity. Available capacity takes into account the hopper car fleet the railways estimate they will have, the railway's estimate of hopper car cycle times, and the industry's estimate of port capacity (i.e., how many hopper cars can be moved into the port, spotted at terminals, and unloaded in a week).

As part of the planning process undertaken at the beginning of the crop year, the CWB and the grain companies negotiate an allocation split (by destination) between CWB grains and non-Board grains. For example, the CWB and the grain companies may agree that CWB grains should compose 80 percent of allocations to the West Coast and non-Board grains 20 percent. These negotiated splits are based upon both estimated production (i.e., available supply) and estimated sales requirements. The negotiated split between non-Board and Board grains is incorporated into capacity planning documents, and is used in the weekly allocation process when rationing is required.

The Capacity Plan also outlines the priorities for rate regulated movements for the upcoming year. These priorities are developed through negotiations within the industry (e.g., through the Industry Technical Committee). For example, the Technical Committee may determine that during times of rationing, shipments to Vancouver will have the highest priority, followed by shipments to Thunder Bay, while movements to Prince Rupert will have the lowest priority. If available capacity is below the level of demand, shipments to the high priority ports will be met first.

The plan produced at the beginning of the crop year is updated during the second half of the crop year. The update compares performance over the first half of the crop year with the projections initially included in the plan and re-estimates shipping requirements for the last half of the crop year. These shipping requirements are based on sales projections and updated estimates of total available supply. The updated plan also re-evaluates the projections for available capacity. The CWB and the grain companies re-evaluate the CWB / non-Board splits negotiated at the beginning of the crop year to determine if adjustments are required to meet revised sales commitments.

### ***3.1.2 The Four Month Handling and Transportation Plan***

The *Capacity Working Plan* is augmented monthly by the *Four Month Handling and Transportation Plan*. The Four Month Plan is produced each month, and sets guideline unloads for the upcoming four month period. Guideline unloads are the lower of estimated available capacity (primary elevator, railway, terminal elevator) and sales requirements.

The Plan gives an estimate of the weekly capacity available to each commodity sector (i.e., CWB, non-Board, and non-administered). The capacity available to the CWB and non-Board shippers is based on the splits negotiated between the CWB and the grain companies.

The capacity available to the non-administered shippers is proportional to the capacity available to the CWB and non-Board shippers. For example, if the non-administered portion (to all rate regulated destinations) of a railway's total sales program is 10%, the capacity available (on a weekly basis) to non-administered shippers on that railway will not exceed 10%. The intent of the non-administered policy is to apply the same level of rationing to the non-administered program as to the CWB and non-Board shippers. That is, if the CWB and non-Board shipper can only meet 90% of their sales requirements then the non-administered shippers will face a similar degree of rationing.

This system of rationing capacity to non-administered shippers recognizes some unique elements of speciality crop movements. Generally the non-administered commodities move in lower volumes to administered commodities. As a result of the lower volume of grain moving through the system, and the fewer number of points from which the grain can originate, shippers of non-administered commodities do not have the flexibility to fill sales requirements from other sources if they do not receive an allocation at their desired origin point. Allocations for non-

administered commodities were streamlined to give shippers of these commodities increased flexibility. In addition, movements of these commodities involve many small grain shippers that are not involved in movements of administered commodities. Incorporating many of these smaller players into the administered allocation system would be difficult.

### ***3.1.3 The Capacity Planning Process***

The capacity planning documents are produced by the Secretariat to CAPG through consultation with the participants in the grain handling and transportation system. Both the *Capacity Working Plan* and the *Four Month Handling and Transportation Plans* rely on industry estimates of potential sales and available capacity. To facilitate this planning process the CAPG Secretariate is provided with estimates of:

- CWB sales for wheat and barley (by destination).
- the percentage of CWB grain (by destination) to be moved by each railway (for example the CWB may estimate they would like CN to move 35 percent of their grain into Vancouver and CP 65 percent). This estimation is based on the CWB's knowledge of the location of the stocks required to meet their sales requirements and the desire to maintain equitable delivery opportunities. As CWB grains still form the bulk of grain movement, the railway splits estimated by the CWB are incorporated into the planning process.
- grain companies' domestic sales of wheat and barley for animal feed (commonly referred to as non-Board feeds), canola, and oats (by destination).
- non-administered commodity movements, non-rate regulated movements (i.e., to domestic destinations other than ports, and to the US) and available capacity, as estimated by the railways.
- available primary and terminal elevator capacity, as provided by the industry (e.g., through the Industry Technical Committee).

Both the *Capacity Working Plan* and the *Four Month Handling and Transportation Plans* include estimates of sales and capacity for rate regulated as well as non-rate regulated movements. This is done in order to provide marketers, shippers, and railways with a complete picture of transportation and handling requirements and potential constraints. However, non-rate regulated shipments fall outside of CAPG's mandate. This is the reason estimates of non-rate regulated movements are provided directly by the railways. The railway estimates are based (at least to a degree) on commercial arrangements between the railways and grain companies and the CWB (such as shipper supplied hopper cars).

Beginning with the 1997/98 crop year, CAPG has instituted a contingency plan system intended to give advance warning of difficulties in the transportation and handling system and to



provide measures for quickly correcting problems that arise. The main elements of the contingency plan are:

- If grain movement in the most recent four week period (calculated weekly as a moving average) falls below 95% of the *Four Month Transportation and Handling Plan* guideline the CAPG Secretariate will convene a meeting of operating managers within the grain industry to discuss the reasons for the shortfall and to estimate if the discrepancy between the guideline unloads and the actual unloads will continue or if the problem is short term and;
- If grain movement in the most recent four week period falls below 90% of the Plan's guidelines the CAPG Secretariate will convene a meeting of operating managers to discuss recommendations for correcting the shortfall. These recommendations will be passed to the CAPG Executive Committee for approval. Some of the measures that can be taken to increase grain movement (at least for the short term) include to: concentrate on mainline movements (which tend to have a lower cycle time); institute more directional movements (i.e., movements from a single train run to a single destination); increase the number of terminal specific unit trains originating from single origination points; and suspend terminal unload formulas (i.e., the first available terminal will unload cars regardless of their entitlement) until unload levels improve.

### **3.2 CWB Contract With Producers**

CWB contracts with producers define each of the grade, delivery window, and quantity of grain. The volume of grain assigned to the CWB through producer contracts gives the CWB an indication of the volume of grain the CWB will have available for sale during the crop year. By convention the CWB commits to accept all wheat and barley that producers wish to make available during a crop year.

The CWB divides their contracts into series. The series define the order in which the CWB will call the grain into the system (i.e., series A is called before series B). The intent of the different series is to allow producers to assign a lower proportion of their potential crop to the CWB when the volume and grade are unknown. For example, in July, a producer may only assign 50% of their estimated crop to the series A contract (for number one hard red spring wheat) because they do not precisely know the volume or quality of grain that will be harvested. As producers become more certain regarding the volume and quality of their crop they will assign the remainder of their crop to later contracts. The different contract series also allows producers the ability to manage their cash flow through the crop year.

Within 18 days of the sign-up deadline for a specific contract series the CWB will announce the acceptance levels for the series. The acceptance levels are based on sales requirements and system capacity. Consistent with the principle of equitable delivery opportunity,

the acceptance levels are the same for all producers that have signed contracts under a specific series.

Producers are responsible for delivery of their contracted grain to the primary elevators. Currently the CWB imposes minimal penalty on producers if they do not deliver the contracted grain within the contracted time-frame. Producers are charged liquidated damages if they fail to deliver at least 85 percent of their contracted volume for which the CWB has issued contract calls. For example, if a producer has contracted for 100 tonnes and the CWB has issued an 80 percent contract call, the producer is obligated to deliver at least 68 tonnes ( $100 \times 80\% \times 85\%$ ) or face contract penalties. The contract penalties range between \$6 to \$15 per tonne for wheat, durum, and designated barley and from \$6 to \$25 per tonne for feed barley.

The contract system is augmented with a quota system during the harvest season. This allows for the delivery of a minimum of 40 tonnes per permit book directly from the field outside of the contract system.

### **3.3 Delivery into the Primary Handling and Storage System**

As the CWB does not own any of its own grain handling facilities, it enters into handling agreements with primary elevators, who act as agents of the CWB. As an agent of the CWB, primary elevators agree to accept producer deliveries of, and to carry out the purchase, storage and shipment of, wheat and barley. The agreement outlines the responsibilities of the grain company as an agent of the CWB during the terms of the agreement. Agreements are signed annually. Companies gain access to CWB grains by favourable grading practices, competitive prices to producers for non-CWB grain, and by offering service packages to producers.

The CWB can control the flow of grain into the system through contract calls. Upon delivery, producers receive an initial (partial) payment for their product. This initial payment is based on the CWB's estimate of the total value of the annual sales of that commodity and an assessment of the annual transaction costs.

### **3.4 Determination of Available Car Supply**

An overview of the car allocation process (steps 4, 5, and 6 in this outline) can be found in Figure A1.1. Each Friday the two class one Canadian railways (Canadian National and Canadian Pacific) determine the number of railcars they will have available for loading in the week beginning the following Sunday (i.e. nine days later).

The available car supply is split (by the railways) between rate regulated (Thunder Bay, Churchill, Vancouver, Prince Rupert) and non-rate regulated movements (US and domestic interior destinations). The split between rate regulated and non-rate regulated movements is an internal railway decision.

The railways allocate the hopper cars available for non-rate regulated movements. Non-rate regulated allocation decisions by the railways are internal decisions that fall outside of the mandate of CAPG. These decisions are based on the contractual obligations of the railways (e.g., swap car arrangements), shipping requirements to other destinations, and railways common carrier obligations. Each customer informs the railways of the desired origin point for their allocated car supply. The railways in turn provide a summary of the non-rate regulated allocation to the CWB in order to incorporate them into the train run programming system.

Both Canadian National Railway (CN) and Canadian Pacific Railway (CP) have instituted a swap car policy for non-rate regulated movements. The intent of the swap car agreements is to provide grain marketers with a guaranteed minimum level of service and to shift some of the risk of supplying hopper cars (i.e., the risk that movement will not materialize as anticipated and leased hopper cars will not be utilized) from the railways to grain marketers. Under the swap car policy, grain marketers lease hopper cars in return for an allocation guarantee. The weekly allocation entitlement is dependent upon the destination for the swap cars as well as the number of cars leased by the grain marketer. Under the current swap car arrangement the railways will reimburse (up to a maximum amount) the grain companies for the cost of leasing the hopper cars as long as they are used. If the extra capacity is not necessary the grain marketer is responsible for the cost of the lease (this is how the lease risk is shifted from the railway to the grain company).

Swap car arrangements are commercial agreements between grain marketers and the railways. These arrangements do not fall under the jurisdiction of CAPG and are only available for non-rate regulated movements. The industry has not yet determined procedures for incorporating swap car arrangements into the allocation procedures for rate regulated movements.

The railways split the rate regulated capacity between the various destinations, (Vancouver, Prince Rupert, Thunder Bay, Churchill) following the priorities negotiated by the industry (as outlined in the *Capacity Working Plan*). The split takes into account the shipping requirements of the grain companies and the CWB, the capacity of the various ports, and recent unloading performance at the various ports. For example, if Vancouver has a backlog of loaded cars due to terminal capacity concerns, the railways may choose to allocate the available rate regulated capacity to other destinations.

The available car supply for rate regulated movements is split between administered commodities (wheat, barley, canola, and oats) and non-administered commodities (all other grains). The split between administered and non-administered commodities is administered by the railways according to CAPG guidelines.

During times when rationing of available capacity (primary elevator, railway, or terminal elevator) is required, this split follows the guidelines established through the four month plan. Each month the non-administered percentage of total rate regulated sales is calculated (by railway). In each week's allocation the non-administered percentage of each railway's rate

regulated hopper car supply cannot exceed the percentage calculated in the four month plan. The railway's have the flexibility to allocate the hopper car supply available for non-administered movements to the destination with the most time critical requirements.

The hopper cars available for administered movements are split between CWB grains (all wheat and barley for export and domestic wheat and barley used for human consumption) and non-Board grains (canola, oats, and domestic feed wheat and barley). The split between CWB and non-Board grains are specific to the two rate regulated traffic corridors (i.e., Thunder Bay - Churchill, and Vancouver - Prince Rupert), and follow the guidelines established in the *Capacity Working Plan*.

### **3.5 Allocation of CWB Grains to Various Grain Companies**

The CWB determines the grains and grades it needs to fulfill its export commitments. This assessment is combined with an assessment of the location of the required grains and grades and an assessment of the regions from which the grain will be drawn. The determination of the drawing region is based on the CWB's assessment of the lowest cost shipping route, and the CWB's commitment to provide equitable market access for all producers in western Canada.

The CWB allocates the available car supply to its agents. Allocation to specific agents is based on performance allocation, space car allocation and the weighted average handling percentage. The majority of this allocation is made to specific train runs (a train run is a number of delivery points located on a common rail line) and by commodity. For example, company A may be allocated ten cars of barley to be moved from the Swan River train run. (Note: beginning with week 10 of the 1998/99 crop year this step will change from train runs to zones)

#### **3.5.1 Weighted Average Handling Percentage**

Train run allocations are determined by each grain company's weighted percentage of historical receipts of CWB grains on the train run less penalty assessments for the current allocation week. The formula for determining train run allocation places a heavier weight on recent volumes and a diminishing weight on volumes handled in the more distant past (the formula goes back one year).

PERIOD	WEIGHT
Most recent nine weeks	20
Next nine weeks	15
Next nine weeks	10
Next nine weeks	7
Next eight weeks	6
Next eight weeks	5

Penalty assessments reduce a company's allocation (on each train run) if the number of CWB orders filled incorrectly (e.g., cars loaded with incorrect grain, cars pulled empty by a railway) is proportionally greater than the number of incorrect orders of other grain companies. The penalties applied against a company are equal to the assessed penalties less the penalty allowance. The calculation of the various components of the penalty system is as follows:

*Penalties Assessed:* Generally penalties are assessed on a four-to-one basis. That is, the CWB assesses a four car penalty for every incorrect order. Penalties are assessed for the following reasons: cars loaded with the incorrect grain, cars pulled empty, and cars consigned to the wrong destination.

*Penalty Allowance:* Each company's penalty allowance is equal to their weighted average handled (described above) multiplied by the total number (i.e., across all companies) of penalties assessed. For example, if a company's weighted average handled was 25% and there was 100 penalties assessed on a train run, then that company's penalty allowance would be 25 cars.

The sum of all the penalties assessed on a train run must equal zero. That is, penalty cars assessed against a company are assigned to that company's competitors on the train run.

*Example:*

- Two companies have elevators on a train run. Company A's weighted average handle is 75% and company B's weighted average handle is 25%
- 100 penalties are assessed on a train run in a week, 80 cars against company A and 20 cars against company B.
- Company A's penalty allowance is 75 cars (75% multiplied by 100) and company B's penalty allowance is 25 cars.
- In this case a 5 car penalty would be assigned against company A and given to company B. That is, five cars would be removed by company A's allocation on the train run and given to company B

### **3.5.2 Performance-based Allocation**

The historically based train run allocation is augmented by a performance based allocation system. The CWB allocates 25 percent of its available car supply (with a minimum of 1,000 cars per week when the CWB's car supply is 3,000 cars or more) under the performance based formula.

The performance based allocation system rewards companies for correctly loading and moving CWB grain from the primary elevator to the final destination. Grain companies have the discretion to flex their performance based cars according to flexing policies, as will be described below.

A company's performance entitlement percentage is calculated as the company's percentage of total net performance credits (i.e., across all companies). The net performance credits are calculated as the performance credits less the performance debits. The performance debits and credits are calculated as follows:

*Performance Credits:* are based on the average number of CWB orders for the three weeks of actual movement prior to the current shipping week. For example, if the initial allocation is being made for week ten, the current shipping week is eight and the performance credits would be based on weeks five, six, and seven.

*Performance Debits:* performance debits are based on the number of changes a company has made to their CWB allocation during the assessment week. The assessment week is three weeks before the current shipping week. Carrying on with the previous example, if the initial allocation is currently being calculated for week ten, the assessment week will be week five (as the current shipping week is eight). Performance debits are calculated according to the following weights:

ACTION	PENALTY WEIGHT
Number of company initiated changes to the finalized loading program	2
Number of company initiated cancellations to the finalized loading program.	4
Number of cars pulled empty by a railway	8
Number of penalties assessed for the current allocation week	4

### **3.5.3 Space Car Allocation**

If space for additional deliveries to a facility is significantly less than the available space at other facilities on the train run, the CWB will allocate (up to a maximum of 25% of the allocation to the train run) railcars to reduce the differences in available capacity. Space cars cannot be flexed.

### **3.5.4 Allocation Flexibility**

Allocation flexibility has been incorporated into IRCAP allocation policies. Grain companies may move a portion of their CWB allocations to alternative train runs provided the following conditions are met:

- orders must remain on the same railway,
- orders must maintain the same destination as the original allocation,
- CWB grain and grade requirements must be maintained (e.g., if a grain company wishes to move soft white spring wheat but the CWB does not need this commodity the change in grade pattern would not be approved),
- if the original allocation would move all CWB stock at a location, the CWB would not approve the changes,
- “flexing” will not be approved if the allocation changes conflict with the CWB’s attempt to equalize delivery opportunities or conflicts with the termination of CWB delivery calls and,
- train run minimums and maximums must be maintained.

During peak movement periods (when the grain companies would benefit the most from “flexing”) these conditions are difficult to meet. As a result, only a small portion of annual allocations (in the range of 5,000 - 6,000 cars per year) are moved to alternative train runs under the “flex” policy.

### **3.6 Allocation of Car Supply for Non-Board Grains**

Allocation of the hopper car supply available for movement of non-Board commodities into Vancouver and Thunder Bay is administered by the Non-Board Allocation Office (NBA). This office is funded by the Western Grain Elevator Association.

Canola to Vancouver is allocated on a ship-to-sales basis. Each week grain companies submit a Vancouver canola position statement to the NBA. This statement provides the NBA with each company’s sales (i.e., volume of sales, buyer, vessel name, and vessel arrival data) and supply information (i.e., purchases from other suppliers, stock on hand in Vancouver, cars en route from primary elevators to Vancouver, and cars allocated in past weeks but not yet en route to Vancouver). A company will receive an allocation for Vancouver canola if their sales requirements exceed their available supply. For Vancouver canola the NBA attempts to maintain about a 2 - 2 ½ week lead time. That is, the NBA allocates cars so that cars for Vancouver canola are spotted in the country about 2 weeks before scheduled vessel arrival.

During times of rationing (i.e., hopper cars available for non-Board movements are less than sales requirements) Vancouver oats, Thunder Bay non-Board feeds, Thunder Bay canola, and Thunder Bay oats are allocated on a ship-to-sales basis (i.e., similar to Vancouver canola).

If rationing is not required, Vancouver oats, Thunder Bay non-Board feeds, Thunder Bay canola, and Thunder Bay oats are allocated on a terminal authorization basis. Under this allocation system grain companies submit requests for allocation to the NBA. The NBA grants these requests if a terminal elevator operator will certify that they will unload the hopper cars upon arrival in port.

Grain companies indicate to the CWB the desired origination points for their non-Board allocations. The CWB combines the non-Board allocations with the CWB allocations to form a train run program.

The train run programs may require some adjustments (i.e., some of the allocations may have to be moved to other train runs) if the total number of cars allocated to a train run exceed the maximum number of cars for weekly movement from a train run or the total allocations are less than the minimum number of weekly cars on a train run. The train run minimums and maximums are determined by the railways, largely based on operational requirements.

#### **4 Railway Operations**

In accepting the loading program commitment the railways take into account many factors which might affect the car availability. These factors include:

- the basic fleet of railcars and diesels available for the grain traffic as determined on the basis of the Capacity Working Plan and adjusted by the Four Month Handling and Transportation Plan,
- the expected amount of shipping, and
- the expected number of cars to be unloaded.

The railways' ability to have empty cars available for distribution to the primary elevators is dependent on the number of cars unloaded in previous weeks. Cars unloaded are moved promptly from the export terminals to the railway yard distribution points from where the empties are moved to the primary elevators. The railways' ability to spot empty cars is dependent on the ability of the export terminals to unload cars at the agreed unload target. The export terminals unloading performance is in turn dependent on the availability of ships and the shipment of the required type and grade of grain.

The process of moving grains from the country elevators to export terminals can be broken down into the following steps:



- Yard or Road Switchers moved the unloaded empty cars from the export terminals to the major yards associated with the West Coast and Thunder Bay.
- Empty cars are moved in train load lots or as part of a regular train to the Main Classification Yards ( Calgary & Edmonton for West Coast, Winnipeg for Thunder Bay), and from here to Distribution Yards. At the distribution points train crews and diesels are made available to operate the trains servicing the primary elevator system.
- Trains departing the distributions points will be spotted as empty cars at primary elevators according to car orders issued by the grain companies.
- On the return trip, the train will bring loaded (and released) cars back to the distribution points, where they are moved to the major Classification yards by train load lots or as part of a regular scheduled train.
- The loaded cars are then moved to Vancouver and Thunder Bay by train load lots or as a filler to the regular schedule trains.
- Yard or Road Switchers move the loaded cars to the yard adjacent to the export terminals. Yard switchers assigned to work with the terminals, spot loaded cars at the terminal elevators as required during the day. In general, the tracks available to spot loaded cars or empty cars are not sufficient to handle a full unloading capacity of the terminal.

Considerable savings can be achieved if there are sufficient cars loaded at one primary elevator for one destination. In this situation the train can be operated to final destination without any switching. Such train operation would by-pass many of the steps identified above. It would enable the railways to reduce their switching costs and to reduce the time for a rail car to complete its full cycle. Thus, it would enable the grain industry to move a larger volume of grain with their current investment in the rail car fleet, reducing the costs of moving grain.

## **5. Loading of Hopper Cars in the Country**

After the allocated cars have been spotted at a primary facility, the grain companies are responsible for loading the correct grain and grade to the correct destination (i.e., loading the grain that was allocated). Currently the CWB may impose an allocative penalty on a company if they fail to load the correct grain and grade (as was described above).

## **6. Movement to Port**

The railways are responsible for moving the grain from the primary facility to port. Currently the railways do not face any financial penalties if the cars are not delivered to the ports in a timely fashion.

## **7. Unload at Port**

CWB grains are pooled at Thunder Bay and the West Coast. This means that a car of CWB grain is not assigned to any particular terminal. Rather the car is entered in a pool of CWB cars that can be unloaded at any available terminal. The intent of the system of commodity pooling at the ports was to reduce the cost and time required to sort the cars and assign them to the correct terminal.

Through industry agreements (both formal and informal) the terminal owners have determined that each terminal is entitled to unload a volume of CWB grain equal to the volume of grain that was sourced by the terminal's parent company, or sourced by companies with whom the terminal has handling agreements.

The grain industry currently has a system of railcar demurrage in place at port position. The intent of the railcar demurrage system is to encourage quick unloading of the cars brought to the ports.

The CWB operates an office in Vancouver that assists in the coordination of unloads. That is the CWB assists in coordinating (along with the railways and terminal operators) the spotting of cars at the terminals in a way that will optimize port operations (both car unloads and vessel loadings) and meet the CWB's shipping requirements.

## **8. Vessel Loading**

The clearance associations (the Lakehead Clearance Association and the BC Clearance Association) assign vessels to specific berths. The CWB assists the clearance associations in making these decisions for CWB grains. Due to the volume of grain moving through Vancouver and the fact that Vancouver operates near its capacity through much of the year, the CWB has an office in Vancouver that assists in these coordination decisions.

The terminal operators are responsible for loading the correct volume of the correct grain and grade onto the vessel in a timely fashion.

A contractual system of demurrage exists at the vessel level. That is, financial penalties are incurred if the vessel is not loaded in a timely fashion. Currently the demurrage costs for loading CWB grains are incurred by the CWB.

A large portion of CWB sales are made free-on-board (FOB) Vancouver. That is, the customer is responsible for arranging the freight from port position (including the timing of vessel arrivals). Cost, insurance and freight (CIF) is an alternate method of arranging vessels, in which the Canadian marketer charts vessels and the foreign buyer takes possession of the grain in their home port.

## **9. Final Payment**

Producers receive a final payment for grains sold through the CWB. This payment is based on the difference between the revenues earned by the CWB, and the costs (including the initial payment) incurred by the CWB. The final payment is split by grain and grade.



## APPENDIX 2

### Detailed Description of the On-Farm and Port Buyer Options

#### A. *CWB On-Farm Option*

In the on-farm option, the CWB purchases the grain on-farm, but is removed from the transportation logistics. The CWB would contract with the grain companies to move the grain from farm to port. The question may be asked “Why Consider the Functions of Sourcing Through Vessel-Loading as a “Package Deal”?”

In theory, the CWB could issue requests for tenders for any one or combination of the functions in the transportation and handling chain. The main implication of such an approach would be the ability of the CWB to displace the grain companies as the party with whom the railways would negotiate rate and service terms with respect to specific grain shipments.

The grain companies and railways could still establish agreements for financial contributions from the railways with respect to facility construction and/or annual volume. However, rate incentives associated with specific shipments would be between the railway and the party who has contracted with the railway for those specific shipments; namely the CWB.

Grain companies could still try to garner a portion of any shipment-specific financial incentives, but this would have to be achieved through their contracts with the CWB, which would be strictly for grain sourcing and handling functions. Because the CWB would be the sole source of contracts for handling CWB grains, and because there are strong competitive pressures for market share between grain companies (associated with their high ratios of fixed to variable costs), under this scenario the grain companies may find themselves unable to obtain any significant portion of shipment-specific railway financial incentives.

Under the current system, the grain companies negotiate shipment-specific incentives directly, and these incentives directly accrue to the grain companies (although they may choose to share these with producers). For this reason, any alternative to the current system that would remove the grain companies from the transportation function could be viewed as an economically unviable option by the grain companies.

#### **1 Farm Inventory**

Functions required at this link in the chain are:

- execution of purchase/sale agreement between the CWB and the producer

- storage (and possible conditioning and blending by the producer)
- loading to a truck.

## **1.1 Purchase/Sale Agreement**

The current “delivery contract” would be replaced by a “sales contract.” There would need to be a “cut-off date” for signing of sales contracts so the CWB could structure its marketing and sourcing plans. Like the current delivery contract, the sales contract would specify the type, grade (as estimated by the producer) and volume of grain, as well as the location (farm-specific) of the contracted grain.

The producer would receive an initial payment upon signing of the sales contract. This would eliminate the need for the Prairie Grain Advance Payments Program for CWB grains, developed under the Federal Agricultural Marketing Programs Act. The initial payment would be calculated the same as it is currently, except that additional deductions would be made based on estimated costs to each pool account for on-farm storage and farm-to-elevator trucking.

It is expected that grain companies would administer the purchase/sales agreements as agents for the CWB, although producers could also deal directly with the CWB.

## **1.2 Storage**

### ***1.2.1 Storage Over Time***

**Storage agreement.** As part of the purchase/sales agreement, the producer would agree to store the contracted grain for the CWB, at a standard rate/tonne/day, from the date of signing to the date of delivery to the grain company.

There may be the perception that this would introduce a new source of revenue to producers as a whole. This would, however, not be the case, as an adjustment for estimated total on-farm storage costs would be deducted from the calculation of the initial payment, for each pool account. For individual producers, however, storage payment could be an additional source of revenue. Under the current system, producers normally like to move the grain off the farm as quickly as possible, because payment is received upon delivery at the elevator and there is no compensation for on-farm storage. Under the CWB on-farm option, the CWB could face pressure from individual producers to leave the grain on-farm as long as possible. The CWB would need to consider the equitable distribution of its on-farm storage business amongst producers.

**Costs of grain ownership (interest costs).** Under the current system, as well as the CWB on-farm option, all such costs are borne by the individual producers until they receive an initial payment. Once an initial payment is received, part of this cost is shifted from the individual producer to the CWB pool account. Under the current system these costs are alleviated by the

Advance Payments Program, funded by the Government of Canada, in which interest-free loans are made available to producers, secured against the producer's grain inventory.

Under the CWB on-farm option, there would no longer be a need for an advance payments program for individual producers since they would receive an initial CWB payment while the grain is still in-store at the farm level. The federal government would no longer bear any portion of grain ownership (i.e., "carrying" ) costs. Producers as a whole will carry the full cost of ownership; as individuals until their grain is sold to the CWB and an initial payment is received, then collectively through the CWB pool accounts.

Although producers' carrying costs would then increase under the CWB on-farm option relative to the current system, this is because the current system includes a federal subsidy in the form of the advance payments program. If the effect of the subsidy is excluded, then the CWB on-farm option would probably reduce producers' carrying costs as a whole, assuming the CWB can borrow at rates lower than those available to individual producers.

**Risk of product deterioration.** As is currently the case, this risk would be borne by the individual producer. With respect to misgrades, as is the current case with CWB delivery contracts, the purchase/sales contract would include a formula for determination of liquidated damages, as well as a provision for acceptance of misgrades without assessment of damages if, at the discretion of the CWB, the producer was deemed to be acting in good faith. Such misgrades would, of course, require an adjustment to the producer's CWB account to reflect the difference in value between the grade contracted and the grade delivered.

Since the CWB's contracts with grain companies for handling and transportation services would be tailored to fulfill specific sales/vessel commitments, it is likely that there would be less leniency (i.e., higher financial penalties) with respect to misgrades as compared with the current system.

**Price risk and handling/transportation costs risks.** As is currently the case, this risk would be averaged for all contracted producers participating in a pool account.

### ***1.2.2 Conditioning and Cleaning***

Under the current scenario, a producer's decision to dry grain is driven by the threat of severe product deterioration due to heating, and, for tough or damp grain which is not in imminent danger of heating, by the cost of drying relative to the price discount that would be assessed if the grain were delivered in its tough or damp state

Under the CWB on-farm buying option, this scenario would be similar except that in the case of contracting the grain as tough or damp, the CWB may either move it off-farm as is and dry elsewhere, or pay the producer a standard rate to dry the grain. The producer's decision to dry the grain or sell it to the CWB as tough or damp will continue to take into account the price

discount for excess moisture, and the producer's cost of drying, but it will also take into account a new parameter, which is the rate the CWB is willing to pay for on-farm drying. Under this option, the price discounts for tough or damp might have to be increased, as they must clearly exceed the amount the CWB will pay for on-farm drying. Otherwise, producers may have an incentive to contract dry grain as tough or damp, then enter into an agreement with the CWB in which they would charge for drying.

A final consideration with regard to drying applies also to on-farm blending. Under the current system, an elevator manager may sometimes compete for Board grain deliveries from producers by over-grading certain producer deliveries. Elevator managers currently have the opportunity to recoup such incentive payments through blending. Under the CWB on-farm option, grain companies will compete for Board grain volume through their tenders to the CWB. Blending opportunities are removed from the grain companies. The only remaining incentive for an elevator manager to "do a favour" when determining the final grade for a Board grain delivery from a particular producer is in the hope of getting that producer's business for non-Board deliveries and input purchases. Therefore, under the on-farm option, the competitive incentive for elevator managers to over-grade CWB grain receipts will be diminished.

Given all of the above, investment in on-farm drying and grain handling (to facilitate blending) equipment may increase under the CWB on-farm option.

Under the current scenario, individual producers bear the cost of trucking dockage to the primary elevator, which provides an incentive for the producer to limit dockage. Under the CWB on-farm option, the contracted grain company may offer the producer the option to deliver grain from his farm to the elevator. Trucking rates based on gross tonnes could create an incentive (albeit a small one) for some individual producers to be less careful about limiting the dockage in their grain, as greater gross tonnage would generate additional trucking revenue.

### **1.3 Loading to Truck**

Under the current system, the producer decides when, within the fairly wide window of a delivery contract call, grain will be trucked to the elevator (taking into account the current opportunity cost of the producer's labour and condition of the yardsite).

Under the on-farm option, as part of the purchase/sales contract, the producer would agree to load the contracted grain to a truck, as arranged by the grain company. This would include making the farm yardsite ready for this function, upon some reasonable notice being given, probably first by the CWB, then later by the grain company with a specific delivery date. The grain company will decide when a load is to be picked up at the farm, and the time window is likely to be considerably narrower than is the current case for CWB contract calls. This will require close coordination between the grain company, producers, and truckers, and also between the contracted grain company and the CWB.



## 2 Sourcing

Functions required at the sourcing link of the chain are:

- development of a sourcing strategy by the CWB
- execution of a sourcing agreement between the CWB and a grain company
- making of arrangements between the contracted grain company and the individual producers identified in the sourcing agreement for producer delivery or commercial truck pick-up of the contracted grain from the producer's storage facility.
- transport of the grain from the producer's storage facility to the elevator.

### 2.1 Sourcing Strategy, Agreements and Patterns

**The CWB.** Presumably, there would be no change to the general process by which the CWB determines from where and when it wishes to source specific grains and grades in relation to its sales. However, the CWB on-farm option would require the translation of these sourcing plans into tenders for the movement of grain from individual farms to port. Currently, the CWB's grain sourcing plans are translated into weekly grain/grade pattern rail car shipping instructions given from the CWB to the grain elevator companies, and the weekly allocation of CWB rail car orders by grain, train run and grain company.

There would be an overall "transportation and handling service agreement" established between the CWB and the contracting grain company. The overall agreement could specify compensation based on "total transportation and handling services", or could include a breakdown of the total fee by service component. In any case, payment to the contracting grain company would probably be based on actual net tonnes delivered to vessel/customer.

Currently, the CWB manages its acceptance of producer delivery contracts such that grain is drawn from all farms and geographic areas in a reasonably balanced manner over time. The intent is two fold; to blend regional quality differences to achieve homogeneity of the quality of product delivered to customers over the course of the crop year; and to provide equitable delivery opportunities for producers. Under the CWB on-farm option, the latter objective would no longer be required (although there may be new pressures to provide equitable opportunities for producers to earn storage revenue). Assuming that the pressure to earn storage revenue could be managed through the level of on-farm storage payment rates, the CWB, in its grain sourcing strategy, could look at systematically "cleaning out" selected grain sourcing areas over short periods of time.

By concentrating grain sourcing (as well as handling and transportation) activities into specific regions over specific time periods there may be opportunities to introduce efficiencies in the utilization of trucking resources (especially commercial trucking). In addition, the concentration of grain trucking traffic in a region into fewer, well-defined time periods could have an impact on municipal road maintenance costs by reducing the frequency of gravel road grading and/or re-graveling requirements.

**The Grain companies.** Grain companies currently have limited ability to compete for Board grain deliveries on the basis of price (with the exception of trucking premiums, and occasional grade or protein over-grading when blending opportunities make this feasible). The other means by which they currently compete for Board grains are associated with establishing customer loyalty through service and through the rapport of the elevator manager with the producers in his area. These means of establishing customer loyalty are more easily pursued the closer the physical location of the elevator to the producer. Under the CWB on-farm option, grain companies will compete for Board grain volume in their tenders to the CWB. The customer will then be the CWB, not the individual producer. For Board grains, this may lead to a decline, in the view of grain companies, in the importance of the sheer proximity and “visibility” of elevators to producers, as it relates to the objective of producer loyalty. This in turn would be conducive to an increase in the rate and degree of elevator rationalization.

## **2.2 Delivery to Elevator**

Once a contract has been established with a grain company, the CWB would have to notify the producers relevant to that contract of the identity of the contracted grain company, the grain and grade to be picked up, and some indication of the time frame. The contracted grain company would contact the relevant producers and either make arrangements for farm pick-up of the grain by the grain company, or sub-contract the trucking function to the producer.

Under this scenario, as with the current system, producer-trucking would have a competitive advantage in short-haul (due to ready availability of the truck and low opportunity cost of labor - especially if grain deliveries are “fit in” to a producer’s schedule) but this advantage diminishes as distance of haul increases due to the operating efficiencies of large commercial truck-trailers. If the CWB on-farm option results in tighter time-windows for the sourcing function, this would tend to encourage more commercial trucking relative to the current system, as the trucking function may coincide more frequently with periods when the producer’s labor opportunity cost is high.

Since elevator rationalization would be encouraged at an increased rate, average truck hauling distances would increase more quickly, as would the use of commercial trucking.

There may be the perception that the subcontracting of the trucking function to producers would introduce a new source of revenue to producers as a whole, as opposed to the current situation in which producers incur the cost of trucking from farm to collection point. In fact, producers will share the costs of trucking through the pooled accounts. However, for an individual producer, the trucking function could be a source of additional revenue.

Under the CWB on-farm option, in those situations where the producer is contracted to haul the grain from his own farm, the producer will technically be hauling grain owned by the CWB. Practically, however, this in itself would have little impact on the producer in that he

would still directly bear the risk of quality deterioration during transit (as settlement grade would be determined at the elevator).

### **3 Country Origination**

Functions required at the country origination link are:

- execution of country elevation and shipping agreement with CWB
- receiving (unloading of truck) and grading of grain
- storage over time
- conditioning (drying, cleaning) and blending
- execution of car spotting/loading agreement with railway
- loading to rail car

#### **3.1 Country Elevation and Shipping Agreement**

The same comments apply as per “Sourcing Agreement.” It should also be noted that because the CWB on-farm option considers removing the CWB from handling and transportation entirely, the request for tenders issued by the CWB would likely give specific vessel commitments for the contracted grain. This should foster an increased emphasis on “just -in-time” logistics.

#### **3.2 Receiving and Grading**

As with the current system, the elevator manager unloads the truck, and records in the producer’s sales contract book (instead of a delivery permit book as is the current case) the gross tonnes, grain, grade, protein and dockage. The trucker is paid as per his contract with the grain company.

Presumably, the introduction of contract-based grain forwarding would create opportunities for a grain company to concentrate deliveries of specific commodities into specific elevators during certain time periods, which should facilitate elevator operating efficiencies.

Since the grain company would not be purchasing the grain, but merely receiving and handling it for a fee charged to the CWB, the elevator manager’s objective would be simply to confirm that the grain delivered meets the specified grade and that net tonnes are assessed accurately. There would be no profit motive for a grain company to under-grade or over-estimate dockage on CWB grain deliveries. This would be different from the current system, in which the grain company pays the producer based on grade and dockage as assessed at delivery, but receives payment from the CWB based on grade and dockage delivered to export terminal/customer.

### 3.3 Conditioning and Blending

There would be no profit motive for grain companies to dry grain at country elevators, except for on a “per tonne fee for service” basis for producers and/or for the CWB

Under the current system, there is a profit motive for dockage over-estimation as the company pays the producer directly based on net tonnes delivered to the country elevator, then is reimbursed from the CWB based on net tonnes delivered to the terminal/customer. However, if a producer feels the assessment at the elevator is unfair he can deliver his grain to a competing grain company.

Under the on-farm option, since payment to the grain company would probably be based on net tonnes delivered to vessel, the grain company would be assuming a new risk in that they would have to build into their tenders an estimate of the gross tonnes for which they will incur transportation costs (for sourcing from producers and for shipping from country elevators). If this risk remains fully with the grain company, this may result in increased cleaning at country elevators if the cost/tonne for cleaning is less than the rail freight rate saving achieved.

Alternately, this risk could be shifted back to the individual producers by including in the producer/CWB agreement an estimate of the dockage in the contracted grain, with a formula for assessing liquidated damages payable to the contracting grain company in the event that actual dockage exceeds that estimated in the sales/purchase agreement. This latter approach would create a profit motive for elevator managers to over-estimate dockage in establishing, as agents for the CWB, the sales/purchase agreements with producers. In this way, grain companies could build in a profit “cushion” in that they would formulate their bids in response to the CWB’s request for tenders based on inflated gross tonnage estimates. This motive would be lessened to some extent by the fact that an individual elevator manager would not know whether or not his grain company will win the handling and transportation contract specifying the sourcing of grain against a particular sales/purchase agreement. There may also be an incentive to over-estimate dockage upon delivery to the elevator in an attempt to earn a liquidated damages payment, knowing that the producer has no option to take the contracted grain to another grain company. Because of the latter situation, there would be increased likelihood that producers will sample their production more carefully, and obtain independent assessment of the dockage content of grain samples.

Unlike the current system, there would be no profit motive for grain companies to blend grain at country elevators except for on a “per-tonne fee for service” basis for individual producers and for the CWB. Blending benefits would accrue to the CWB pool accounts, and/or an agreement would be negotiated between the grain company and the CWB to share in value-adding opportunities that an elevator manager might identify through blending.

### **3.4 Storage Over Time**

Since payment to the grain company would probably be based on net tonnes delivered to vessel, the payment received will be unrelated to the length of time that grain spends in country elevator storage. This is no different from the current system, in which grain companies receive a standard payment per tonne for storage of CWB grains.

### **3.5 Car Spotting and Loading**

#### ***3.5.1 Accountability and Risk***

The contracting grain company will make arrangements with the railways for car spotting as part of an overall agreement. These agreements will likely include terms regarding the making available of empties by a terminal unloading cars, spotting of the empties at country elevators, loading of the cars by the grain company, lifting of the loaded car from the elevator, and delivery of the load to a terminal/customer.

The performance obligations specified in the transportation agreements will be driven by the delivery obligations specified in the CWB's contract with the grain companies. As the spotting, loading and unloading of rail cars is a cyclical process, sufficiently narrow time windows will be required along the cycle to enable the responsible parties to commit to their functions. For export shipments through port terminals, this begins with the time windows specified by the CWB for delivery to vessels. Such windows will have to be sufficiently narrow to allow grain company terminals to commit to railways to unload rail car arrivals in a time frame narrow enough for the railways to, in turn, commit to spotting the empties generated by the terminals at country elevators. If a railway is unable to commit to a time window for spotting, then it follows that the same will hold true for delivery of the loaded car to the terminal.

The ability of the CWB to commit to a narrow time frame for taking delivery on to a vessel is affected by its ability to obtain a commitment from the buyer (if sale is FOB) or vessel owner (if sale is CIF) to have a vessel in place at the terminal within a narrow time frame, and/or maintain a sufficiently large and continuous sales program so as to maintain a steady flow of vessel arrivals over time.

Based on the above, while the ability of the CWB to commit to a narrow time frame for delivery to a vessel is independent of whether it is operating under the current scenario or as an on-farm buyer, it will become necessary for the CWB to make such commitments to the contracting grain companies if there is to be any hope of the grain companies making any significant commitments (i.e., other than for very wide time frames or for a small percentage of the contracted tonnage) for delivery of the product, or of the railways making any significant commitments regarding country service or product delivery to port.

Grain companies which do not own terminal facilities would have to construct three party agreements between themselves, the railway and the terminal.

Car spotting agreements will include a commitment on the part of the elevator to load the car. The grain company will load whatever commodity it sees fit at the time the cars are spotted, according to its various sales or delivery contracts (i.e. for Board and non-Board grains). The flexibility to load any commodity lessens the risk to the grain company of being unable to load the cars on time (and incur contract penalties).

Under the current grain forwarding system, grain companies and railways face risks in the timely performance of their functions as a result of the actions of other parties in the logistics chain. The costs associated with these risks is, to a large degree, not borne by the parties who fail to perform, but by the system as a whole. Ultimately, much of this cost is passed to producers, for example from vessel demurrage and contract penalties. An appropriately structured set of CWB/grain company and grain company/railway agreements could serve to significantly reduce or even eliminate these risks. In theory, a best case scenario would be one in which the only uncontrollable risks faced by any party in the logistics chain are “force majeure”; i.e., those risks which are outside of anyone’s control. However, in so doing, each individual party would face a new risk, which is that of being held accountable for his own performance.

The current level of grain company and railway service rates do not reflect any significant accounting for risk arising from liability for timely performance of functions, since most of this risk currently is borne by producers. Development of a contract-based grain forwarding system would likely see some lively debates with respect to the need for rate increases to offset this risk

### ***3.5.2 Advance Planning and Efficiency***

The current grain forwarding system (including the current system modified for zone allocations) has two characteristics which fundamentally affect the nature of forward-planning in grain forwarding logistics: i) the absence of a commitment to receive grain to a vessel/customer within a pre-specified and sufficiently narrow time frame, and ii) a system of allocating entitlements to order rail cars for spotting at country elevators which is driven by grain already taken in-store at elevators (i.e., allocations to grain companies based on historical receipts, and allocations to individual elevators based on relieving current elevator congestion through “space cars”.)

These two characteristics significantly limit the ability of a grain company and railway to establish agreements in advance for car spotting at individual elevators (because they cannot know in advance the specific patterns of grain flows).

Maximizing throughput is critical to maximizing return on investment for elevator facilities. In theory, the more control a grain company has over both grain receipts and shipments at an elevator facility, the more control it has over its ability to maximize throughput. The ability

to establish agreements in advance for car spotting would enhance a grain company's control over elevator shipments. This is one of the basic arguments put forward by grain companies for removing the CWB from the transportation function.

The ability to establish advance plans for car spotting at individual elevators should also benefit the railways, in terms of operational efficiency, in that it should allow for an earlier determination of destinations of empty rail cars generated from an unload.

If a CWB/grain company contract calls for the "clean-out" of a particular grain sourcing area, this could facilitate efficient cycling of cars between origin-destination pairs for sustained periods of time.

### ***3.5.3 Coordinating with Railway Operating Plans***

To minimize its financial risk, in preparing a tender (i.e., a proposal) for a CWB contract, a grain company may want to establish contingent agreements with the railways on service and rates as required with respect to that contract. In traffic corridors subject to over-crowding, they may simply wish to book agreements for railway service in advance of their securing any CWB contracts. In negotiating such advance agreements for service, proposals which rely more heavily on shipments from elevators with large car spots will have a definite advantage. A railway would be expected to more readily commit in advance to provide service to an elevator that can load a sufficient number of cars in one spot to make servicing of that individual elevator economically viable for the railway.

The current system processes all shipping orders for a given week at one time, such that orders for numerous smaller elevators along a train run can readily be coordinated into a viable train run operation. In a system where orders are contracted in advance with the railways, at any one point in time a railway will be negotiating (and coordinating) orders for numerous different car spotting dates. The coordination of small individual orders into viable train run operations is likely to become more difficult under this scenario.

### ***3.5.4 Ability to Negotiate Incentive Rates***

Under a system of grain company/railway contracts for car spotting, single origin-destination pair movements over a sustained number of cycles could become viable for a greater number of country elevator facilities, and the frequency of incentive rates based on this service characteristic therefore could increase.

As noted earlier, under the current system smaller elevators are more economically viable than they are likely to be under a transportation contracting system. Therefore, under a contracting system, railways may find it less necessary to use incentive rates in order to encourage greater use of large car spots.

Grain companies preparing tenders for the same CWB contract will find themselves competing with each other for access to the railways' transportation resources in the geographic area and time frame dictated by the CWB contract. In such situations, and given the continued presence of a rail freight rate cap, grain companies may "bid" for railway service through car spotting proposals that currently earn a rate discount.

As noted earlier, grain company/railway contracting for transportation services is likely to lead to increased utilization of elevators with large car spot capacity. Such facilities obviously require car loading capacity to facilitate loading of a large number of cars over a short period of time.

## **4 Transportation**

### **4.1 Allocation of Railway Service**

#### ***4.1.1 CWB/non-Board Split***

The first step in this process is longer term planning (i.e., crop year) to develop a projection of the level of resources to be made available for grain movement during various periods throughout the crop year, and then "flagging" those time periods in which potential sales demand is projected to exceed handling and/or transportation system capacity. Since this process is driven by sales projections, it is unlikely to change under a CWB-on-farm option.

Under the current system, over-selling of projected available capacity is minimized by the pre-negotiated CWB/non-Board split. By knowing in advance the projected capacity within a traffic corridor and the split that will be used to ration available capacity if necessary, grain companies and the CWB manage their sales programs accordingly.

Under the on-farm option, with transportation arranged through grain company/railway contracts, grain companies will presumably load cars with whatever grain they see fit when the cars are spotted. The mechanism to avoid over-selling of a traffic corridor would be for the railways to provide on-going feedback to grain companies and the CWB, as to the remaining capacity still available to be booked by traffic corridor and time period.

The Vancouver traffic corridor traditionally has the potential to be over-sold in relation to capacity from October to at least February. Knowing this in advance, under a transportation contracting system, grain companies are likely to have a strong incentive to book railway service agreements early in the crop year, prior to securing sales for non-Boards or handling and transportation contracts for CWB grains. This could result in all projected available capacity being booked solid. In such situations, a grain company will subsequently allocate its available contracted transportation capacity amongst non-Board sales and CWB contracts. Since the grain companies earn a marketing margin on non-Board sales, for CWB grains to gain access to



anything greater than the “residual” capacity, CWB contracts would have to offer a sufficient margin to compete for capacity with non-Board sales.

#### **4.1.2 *Traffic Corridor, Train Run, Grain Company***

Under the current system, these decisions are made weekly for service to be rendered two weeks hence. Under grain company/railway contracting, the current operating decisions as to where available empties are spotted will be driven by the contractual agreements. Presumably, different contracts may specify different levels of contract penalties. The size of the contract penalty will determine the priority for allocation of available car supply.

### **4.2 Railway Operations**

Previous sections have indicated that grain company/railway contracted transportation would probably result in an increased rate of elevator rationalization and increased frequency of rail shipments in large car blocks. Advance planning of car spotting would be facilitated, as would origin-destination pair car cycling. This suggests improvements in railway resource utilization through improved planning, increased frequency of loaded and empty train movements that can by-pass marshaling/distribution yards, and an increase in the rate of concentration of service onto fewer, heavier volume rail lines.

## **5 Terminal**

### **5.1 Terminal Handling Agreement**

Terminal handling agreements would be established as a part of the overall CWB/grain company contract for handling and transportation services. Grain companies which do not own terminal facilities may need to try to secure a separate agreement for access to a pre-determined level of a terminal’s capacity early in the crop year.

### **5.2 Terminal Functions**

Under the current system, terminal functions include receiving and grading the grain, as well as conditioning, blending and storage functions. The majority of CWB grain car loads delivered to port terminals currently are pooled. Under a contract-based grain forwarding system, the benefits of pooling could still be maintained (using car exchange arrangements similar to those employed currently for Vancouver canola). However, if the grain companies’ contracts with the railways include significant contract penalties for failure to unload cars on time, then a process for monitoring grain car arrivals and unloads would be required. If a terminal is “current” with respect to the car exchange, but cars consigned to that terminal incur contract penalties for failure to unload, contract penalties owing on those cars should be assessed against terminals who are “behind” in the car exchange. In any case, the value and optional degree of car pooling/exchanges

will diminish as there is an increase in the frequency of large block shipments from an increasingly rationalized country elevator network.

The grading function at the terminal level would be unaffected by a change to the CWB on-farm option.

Terminals may choose to consider escalating storage charges (or other measures for ensuring timely outward shipment from terminals) in negotiating their agreements with the CWB.

Under the CWB on-farm option there would be no profit motive for a terminal to upgrade product through drying, cleaning or blending except for on a per tonne fee for service basis for the CWB.

## **6 Vessel Loading**

Payment to the grain company by the CWB would be based on net tonnes delivered to vessel. As under the current system, the CWB would be involved in vessel berthing decisions. Under the CWB on-farm option, these decisions would have to take into account the additional parameter of the CWB commitment to accept delivery of the grain onto vessels within a specified time period.

The evolution of contract-based grain forwarding would likely see a balance develop between the desire to establish accountability for performance and a willingness to accept that “spot” sales and/or sales which push capacity limits are more difficult for the system to respond to. Contract-based grain forwarding would therefore be expected to accommodate a certain portion of the total grain movement occurring under wide performance windows, with low default penalties (and presumably with low rates for grain handling and service services), which grain companies and railways will “fit in” to their schedules.

## ***B. CWB Port Buyer Option***

In the port receiver option, the CWB is focused at the port, tendering to the grain companies to deliver the grain to port and purchasing from the grain companies at port. The CWB is no longer involved in any link in the transportation and handling chain prior to delivery at port.

### **1 Farm Inventory**

Farm inventory functions would be the same as the on-farm option, but the producer now contracts with the grain company for sale of grain. The CWB still requires knowledge of available on-farm stocks in order to manage sales programs. This could be accomplished through continued use of producer delivery books at country elevators.

#### **1.1 Purchase/Sale Agreement**

There would no longer be an initial payment from the CWB to producers. Producers would, instead, sell their grain to the grain companies, who would re-sell the grain to the CWB at port position. Grain companies would source (i.e., buy) CWB grains from producers like they do the non-Boards, through a combination of contracts and cash purchases. Contracts with producers would specify the type, grade and volume of grain, as well as the delivery window.

#### **1.2 Storage**

##### ***1.2.1 Storage Over Time***

**Storage agreement.** Some contracts could conceivably be developed which would include storage payments to producers, although the current experience with non-Boards would suggest this would be unlikely.

**Cost of ownership of the grain.** “Equitable delivery opportunities” would no longer be a grain forwarding consideration for the CWB. There would be a strong need for continuation of the Advance Payments Program, as some regions may see little opportunity to deliver for long periods of time, and producers would be particularly vulnerable to being “forced” to sell early in the crop year (when bills are due) into a wide basis. Advance payments alleviate producers’ cash flow urgency.

**Risk of product deterioration.** As is the case currently for non-Board grains, the risk would be borne by producers. Grain contracted to grain companies would be subject to misgrade penalties, so producers would have a strong incentive to carefully sample and obtain independent grade assessment for grain they intend to contract (particularly since, once contracted, the producer no longer has the option of taking the contracted volume of grain to a different grain company).

**Price risk and handling/transportation costs risks.** There would still be a final payment from the CWB, so risk of export price fluctuations would continue to be averaged for all producers through the pool accounts. Individual producers would face local price risk, as grain companies would use variations in the basis to manage grain deliveries into country elevators.

### ***1.2.2 Conditioning and Cleaning***

Producer's decisions to dry grain will be the same as under the current system. Grain companies will continue to compete for producer deliveries based on moisture and/or grade blending opportunities. There should be no change from the current scenario regarding producers' decisions to limit and/or remove dockage.

### **1.3 Loading to Truck**

The same comments apply as for the on-farm option, except that the CWB is "out of the loop" in terms of forwarding grain from farms.

## **2 Sourcing**

### **2.1 Sourcing Strategy, Agreements and Patterns**

**The CWB.** The CWB would no longer need to develop a sourcing strategy by region. It would lose its ability to manage sourcing with a view to obtaining consistency of quality of grain deliveries to customers throughout the crop year. The CWB would, however, continue to require knowledge of on-farm stocks in order to plan their sales programs.

**The grain companies.** The CWB agreements with grain companies would specify port/customer delivery details only. It would be up to the contracted grain company to determine how, when, at what price and where the grain is sourced. Grain companies would face the risk of being unable to source the required grain to meet their sales commitment to the CWB (the same risk grain companies currently face for their non-Board sales programs).

The importance of the grain company/producer relationship would be greater than under the current system or the on-farm option, since a grain company would be at risk of contract default if it could not source the required grade and quantity of CWB grain.

The grain companies could choose to concentrate grain sourcing activities from selected areas over short periods of time, with resulting efficiencies. The range of sourcing pattern options available to a grain company would be less restricted under the port-buyer option as compared with either the current system or on-farm option.

## **2.2 Delivery to Elevator**

For grain which producers have contracted to grain companies, the same comments apply as for the on-farm option, except the CWB is now “out of the loop”. Because only the grain company and producer are involved in the port option, there would be less administration in this function as compared with the on-farm option. Grain companies will source grain by a combination of contracts (of various forms) and cash deliveries.

## **3 Country Origination**

### **3.1 Country Elevation and Shipping Agreement**

There would be no such agreement. The grain companies’ contract with the CWB would be for delivery at destination for a tendered price. The fee charged by the grain company for elevator and shipping functions will be reflected in the prices offered to producers (i.e. it will be in the basis).

### **3.2 Receiving, Grading, Conditioning and Blending**

Receiving and grading would be the same as for non-Board grains, with the exception that the producer delivery would continue to be recorded by the elevator manager in a CWB delivery record book (so the final payments can be directed to producers and so the CWB can continue to monitor on-farm stocks relative to export sales programs).

Just as in the current case for non-Board grains, there is a profit motive for the grain company to under-grade and/or over-assess dockage, which is countered by incentives to attract and keep producer-customers so as to meet contract requirements and maximize market share. Compared with the current system for CWB grains, the grain companies would face greater (financial) penalties for delivery of misgrades and/or insufficient net tonnes to port position in relation to contract commitments. Penalties associated with misgrading and dockage would be expected to be similar to those under the on-farm option (i.e., in both cases relating to liquidating damages resulting from the mis-identification).

As under the current system, the grain companies would capture all the benefits of blending activities at country elevators (which they could choose to share with producers).

### **3.3 Storage Over Time**

Grain companies would bear the cost of storage in country elevators, and would seek compensation for this cost through the basis.

### **3.4 Car Spotting and Loading**

The same comments would apply as under the on-farm option, except the CWB is removed from the sourcing function. The only difference in relation to the on-farm option is that the rail shipping patterns, which are dependent on grain sourcing patterns, will be determined solely by the grain companies and railways (i.e., the CWB would have no influence on grain sourcing patterns). This would, presumably, allow a greater range of operating options for country elevators.

## **4 Transportation, Terminal and Vessel Loading**

The scenario would be very similar as in the on-farm option for these steps along the logistics chain. Removal of the CWB from the logistics chain would allow a greater range of options for the railways and grain companies. Regarding conditioning of the grain in the terminals, under the current system, as well as in the on-farm option, the CWB retains ownership of the grain within the terminal. In the port buyer option, assuming the grain company contract with the CWB is FOB vessel, the terminals will be able to earn profit on CWB grains through product upgrading and terminal overages.

## **APPENDIX 3**

### **A Questionnaire on the Western Canadian Grain Handling and Transportation Industry**

#### **Summary of the Questionnaire Used in the Study**

A detailed questionnaire was developed to gain a better understanding of contracts and accountability in the grain logistics chain, as well as the anticipated impact of changing the CWB's role in the logistics chain on costs and value added for the various participants. Comments were invited on the three options.

Following a description of the functions in the grain logistics and the three options, a series of "what if" statements were posed for each function. Respondents were asked to indicate their agreement/disagreement with each statement, as well as an explanation of their response. In addition, respondents were invited to make additional comments about their perspectives on the options, the criteria used, or any other matters of relevance to the study.

The descriptive material that was provided at the beginning of the questionnaire is not repeated in this appendix, as it is contained elsewhere in this report. In the following questions, the complete question is given for question one; i.e. the statement is presented and the respondents are asked to give their level of agreement or disagreement with this statement for each of the three options. As the majority of the remaining questions were structured in the same format, only the statement portion of those questions is given here, in order to reduce space requirements.

Questionnaire Completed By \_\_\_\_\_

A. **On-Farm Inventory Management**  not a participant in on-farm inventory management

1. Investment in on-farm storage would *increase* if the CWB:

a) allocated railcars to a larger catchment area than train runs (i.e., zones)

strongly disagree  disagree  agree  strongly agree  no opinion

b) took ownership of grain at the port (FOB) and grain companies arranged deliveries

strongly disagree  disagree  agree  strongly agree  no opinion

c) owned grain from the farm through to the end user and paid to store grain on-farm

strongly disagree  disagree  agree  strongly agree  no opinion

Please Explain:

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**In order to reduce the space requirements for this appendix, wherever the remaining questions have the exact same structure as question 1 above, only the statement portion is presented.**

2. Total interest payments incurred to carry on-farm inventory would be *lower* if the CWB:

3. Knowledge of the grades and amounts of CWB grains stored on-farm would *improve* if the CWB:

4. Insurance costs and losses associated with grain deterioration would *increase* if the CWB:

5. The frequency that grain would be graded (and therefore the cost of grading) would *increase* if the CWB

6. Administration time and expenditures by producers (in terms of identifying of marketing opportunities and signing contractual agreements) would *decrease* if the CWB:



7. Administration time and expenditures by grain handling firms (in terms of identifying required stocks and arranging for their delivery and enforcing agreements with producers) would *decrease* if:
8. Administration time and expenditures by the CWB (in terms of identifying required stocks and enforcing contracts with producers and grain companies) would *decrease* if the CWB

**B. Sourcing**  not a participant in sourcing

1. Total distance travelled by trucks (from farm gate to primary elevators) would *increase* if the CWB:
2. *More* grain would be hauled by commercial trucks (vs producers) if the CWB:
3. Producers' opportunities to receive preferential grading considerations from grain handling firms would *increase* if the CWB:
4. Trucking incentives paid by grain companies to producers would *increase* if the CWB:
5. Competition between the various grain handling firms for market share (of wheat and barley) would *increase* if the CWB
6. The ability of the CWB to administer its price pooling contracts with producers would *decrease* if the CWB:
7. Maintaining equitable market access for producers of CWB grains would become *more difficult* if the CWB
8. A grain handling firm's ability to retain its producer customers would *decrease* if the CWB:
9. Opportunities to strengthen the relationship between the CWB and producers would *increase* if the CWB:
10. The coordination of the flow of grain into the primary elevator system would *improve* (i.e., the grades delivered and timing of deliveries would better match sales requirements) if the CWB:

**C. Country Origination**  not a participant in country origination  
(i.e., arranging for movement of grain from primary elevators)

1. The level of “buffer stocks” in the primary elevator system (i.e., stocks held in reserve in the event that deliveries are not sufficient to meet sales requirements) would *decrease* if the CWB:
2. Pooled pricing contracts and equal market access (currently maintained through delivery contracts calls) *reduce* a grain company’s ability to manage their primary elevators  
 strongly disagree  disagree  agree  strongly agree  no opinion
3. Turnover of wheat and barley will *increase more* in the larger elevators (i.e., high-throughput vs. older, smaller facilities) if the CWB:
4. Grain inventory in primary elevators will be turned over *more often* if the CWB:
5. The cost of operating the primary elevator system (e.g., salaries, utilities, repairs, etc.) would be *lower* if the CWB:
6. The incentive for a primary elevator to blend grain would *increase* if the CWB
7. The ability of producers to realize any gain in value from blending would *increase* if the CWB:
8. Grain handling tariffs (elevation and storage) would *decrease* if the CWB:
9. Expected net earnings attributed to primary grain handling facilities in western Canada would *increase* if the CWB:
10. The trend towards fewer but larger primary elevators would be *accelerated* if the CWB:
11. The market share of total grain movement handled by the three largest grain companies would *increase* if the CWB:

**D. Transportation**  not a participant in transportation  
(i.e., moving grain from the primary elevator to terminal elevators)

1. The terms and conditions for rail transportation services will become *more formal* (e.g., contractually driven) if the CWB:

2. The administrative procedures required for a grain company to negotiate, sign, and enforce shipping contracts with railways would *increase* if the CWB:
3. The administrative requirements for a railway to negotiate, sign, and enforce shipping contracts would *increase* if the CWB:
4. The probability that system participants (CWB, grain companies or railways) will be able to mitigate income losses associated with inadequate performance will *increase* if the CWB:
5. The principle of equal market access for CWB grains contributes to weekly car spottings that are spread over a greater number of primary elevators, with fewer hopper cars per spot.  
 strongly disagree    disagree    agree    strongly agree    no opinion
6. Large blocks of hopper cars would be spotted *more often* if the CWB:
7. Turn-around time for the hopper car fleet (used to move grain from primary elevators to port positions) would *decrease* if the CWB:
8. The number of hopper cars switched by a railway (before they reach their destination) will *decrease* if the CWB:
9. Service arrangements offered by the railways would become *more precise* (e.g., smaller spotting windows, fewer open orders) if the CWB:
10. Railway operating costs (e.g., locomotives, crews) associated with moving grain would *decrease* if the CWB:
11. Railway discounts for large car blocks (and/or other efficiency initiatives) will *increase* if the CWB:
12. The value of grain will be given *more consideration* in negotiating shipping arrangements if the CWB:
13. The percentage of grain related revenue reinvested by the railways in the hopper car fleet used to move western grain, would *increase* if the CWB:
14. Incentives for shippers to invest in hopper cars will *increase* if the CWB:
15. The percentage of railway grain related revenue reinvested in other capital (e.g., locomotives, track capacity) required to move grain from elevators to port positions would *decrease* if the CWB:

16. Further rationalization of the rail network in western Canada would be *accelerated* if the CWB:

**E. Terminal Operations**  not a participant in terminal operations

1. The development of contractual arrangements between primary elevator, railways, and terminal operators is *not compatible* with terminal railcar exchange programs and terminal stock pooling arrangements.

strongly disagree  disagree  agree  strongly agree  no opinion

2. The ability of the system to identify (and correct) causes of unloading delays would *improve* if the CWB:

3. Terminal operators' administrative requirements for signing and meeting the terms of unloading commitments with rail companies would *increase* if the CWB:

4. Administrative time required by rail companies to sign and meet spotting commitments with terminal operators would *increase* if the CWB:

5. Administrative requirements of terminal operators needed to sign and meet the terms of handling arrangements for CWB grains would *increase* if the CWB:

6. Administrative time incurred by the CWB to sign and meet shipping commitments with terminal operators would *increase* if the CWB:

7. The number of hopper cars interchanged between rail companies (and the need for interchanges) at port positions would *decrease* if the CWB:

8. The number of hopper cars switched by a railway at port positions would *decrease* if the CWB:

9. Terminal "buffer stock" (i.e., stocks held in reserve in the event that rail car arrivals are not sufficient to meet vessel requirements) requirements would *decrease* if the CWB:

10. Terminal inventories of wheat and barley will turn over *more often* if the CWB:

11. Terminal handling tariffs would *decrease* if the CWB:

12. Terminal storage fees would *increase* if the CWB:

13. The incentives for terminal operators to increase their income through blending various grades would *increase* if the CWB:
14. The market share of grain handled by the owners of the three largest terminal facilities (at each port) would *increase* if the CWB:
15. Incentives to invest in terminal handling facilities would be *enhanced* if the CWB:

**F. Vessel Loading**

not a participant in vessel loading

1. The probability of identifying the parties responsible for not meeting grain delivery requirements would *increase* if the CWB:
2. The ability to coordinate terminal stocks with vessel arrivals would *increase* if the CWB:
3. The lead time between a CWB sale and delivery to port would *decrease* if the CWB:
4. The ability of the system to take advantage of spot sales (for wheat and barley) would *increase* if the CWB:
5. The number of berths required to fully load a vessel will *decrease* if the CWB:

**G. System Perspective**

1. Average prairie farm gate prices for wheat and barley will *increase* if the CWB:

Under your preferred option please identify any possible negative impacts to producer net incomes and how could these negative impacts be mitigated.

2. As a group, net income for grain handling firms will *increase* if the CWB:

Under your preferred option please identify any possible negative impacts on grain company net returns and how could these negative results be mitigated.

3. As a group, net income to rail companies will *increase* if the CWB:

Under your preferred option, please identify any possible negative impacts on railway net returns and how could these negative impact be mitigated.

4. If zone allocations were implemented, please indicate which sector (Producers, Grain Companies, Railways) you believe will benefit the most by placing a weight next to each sector listed. The sum of all three weights should equal 100. For example, if you believe all sectors will benefit equally, each sector should receive a weight of 33.

5. If the CWB took possession of grain at port positions, please indicate which sector (Producers, Grain Companies, Railways) you believe will benefit the most by placing a weight next to each sector listed. The sum of all three weights should equal 100. For example, if you believe all sectors will benefit equally, each sector should receive a weight of 33.
6. If the CWB owned grain from the farm through to the end user, please indicate which sector (Producers, Grain Companies, Railways) you believe will benefit the most by placing a weight next to each sector listed. The sum of all three weights should equal 100. For example, if you believe all sectors will benefit equally, each sector should receive a weight of 33.

#### **H. Ranking of Questionnaire Themes**

The preceding questions have been structured to address four basic objectives that the grain handling and transportation system is often asked to meet. These objectives are: a) efficiency, b) accountability, c) competitive relationships, and d) equitable delivery opportunities.

Please indicate the importance of each theme to your firm by placing a weight next to each item. The sum of all four weights should equal 100. For example, if a firm believed that each theme was equally important they would place a weight of 25 next to each item.

#### **I. Ranking of the Options**

Rank in order of preference the four (the current system plus the three alternatives briefly outlined in the introduction) options. The most desirable option should be ranked 1 while the least desirable option should be ranked 4. The most desirable option should be the one that best meets the objectives of your organization.

Current System\_\_\_, Zone Allocation\_\_\_, Port Buyer\_\_\_, On-Farm Buyer\_\_\_

#### **J. Additional Comments**

Please indicate any other options for the CWB in transportation that you believe may improve the grain handling and transportation system. In addition, please provide any comments on issues that have not been adequately covered by the questionnaire.

## **APPENDIX 4**

### **Summary of Questionnaire and Interview Responses**

Below are comments and opinions on the options, as summarized from the interview and questionnaire process of the four participant groups. These groups were: Grain Handling Firms; SEO Producer Members and Organizations; Railways; and Institutions (CGC and CWB). Each summary has subsections in the same order as the three options listed in the Questionnaire (i.e.: Zone Allocation, At Port Buying, On-farm Buying) followed by “General Comments on the Options” and those comments that best fit in Section J of the questionnaire, “Additional Comments.” The Questionnaire has not been summarized according to the tick boxes but was used as a source of information.

The summaries are presented in an anecdotal arrangement, with each paragraph representing the opinions of one or several participants, as indicated. It is important to note that each paragraph cannot be interpreted as an opinion of a separate participant, as comments of one particular respondent may be presented in several different paragraphs in the relevant sections.

#### **1 Grain Companies**

In this Summary grain companies have been expressed as being “smaller” or “larger” according to the number of elevators they operate in western Canada. Of the total number of grain companies interviewed, half were in each group.

##### **1.1 Zone Allocation**

A smaller grain handler favoured the current system as it treats all grain companies in an equitable manner. The zone allocation system would provide more flexibility to the larger grain companies with many elevator locations. These larger companies would place more cars at their competitive points. Companies with terminals could ensure the growth of their market share by refusing grain from independent companies. Car allocation is a major concern for the smaller independent companies, as they need access to cars to effectively use their facilities. This firm anticipates that its turnover ratio would decline under this option. The railways are viewed as the big winners under this option as they will be better able to manage their assets.

A smaller grain handler preferred the zone allocation option as it treated all grain companies in an equitable manner, whether or not a given company owns a terminal. It also has the advantages of better utilizing elevator space and railway cars/locomotives, which will benefit all participants.

A smaller grain handler with no West Coast terminal facilities views the zone allocation system as their preferred option because it considers historical shares but still allows for “managed” change. They see their opportunities in handling other crops in addition to Board grains and selling the farmer on their service oriented approach.

A smaller grain handler is of the opinion that the zone allocation system in combination with the railway administering the train runs represents major change from the train run system. The zone allocation system will benefit the larger companies with a large number of elevator locations as it will allow them to flex cars from smaller elevators on branchlines to larger high throughput facilities. This will result in further elevator consolidation and rail rationalization. Smaller companies with fewer elevators or new market entrants will not have the same degree of flexibility and may see their market share negatively impacted. This firm is concerned about their market share under the zone allocation system, and prefers the current system.

A smaller grain handler’s view was the current system and zone allocation system deter new players from entering into the marketplace because rail cars are and will continue to be allocated based on historical market shares. New elevators can only get 50 cars per week. This policy coupled with the operational process of allowing the pooling of CWB grains militates against shipper-owned cars, affects investment decisions and maintains the competitive status quo. (Interviewer’s note: historical market share is only one of five factors that determines car allocations.) The zone allocation option is a minor modification of the existing system. Companies will be required by the CWB to service certain train runs regardless of the company’s willingness to operate the elevators on those train runs.

Another smaller grain handler commented that under the zone allocation system, grain companies will be using some of their crib elevators for storage of grains and then trucking the grain to a larger elevator for shipment. This double handling of the grain will create inefficiencies. Some companies expressed the view that grain storage should be on-farm.

In the short-term, a larger grain handler supports the zone allocation system because it addresses many of the needs of the industry but recognizes that there is currently insufficient rail competition. The zone allocation system will allow those building a new facility to get an off the top allocation of hopper cars from the CWB. The CWB can impose accountability through penalties on the grain companies. The opinion was expressed that few mechanisms are available under which the grain company can impose accountability on the CWB and railways. It was questioned whether a contract approach would be an effective vehicle for creating real accountability. It is not clear that the CWB and railways would be willing to enter into agreements that place additional burdens on themselves. The questionnaire linked terminal pooling and car exchange arrangements as features of zone allocation. This firm feels that terminal pooling is a stand-alone policy, which can be an impediment to accountability and should not be identified with only the zone allocation option.



The zone allocation system that will take effect in the fall of 1998 will have the CWB no longer able to allocate orders down to train runs in order to match to their sales programs, stated a larger grain handler. The main advantage to the zone allocation system is that it allows grain companies to better coordinate the merging of Board and non-Board orders required for specific corridors for certain delivery windows. This will hopefully improve the opportunity to present the proper mix at the port to load vessels more efficiency. Unfortunately, the market signals are fuzzy. Farmers deliver Board grain that will not move to a sale for three months and thus is not able to respond to market signals.

A larger grain handler expressed the view that it is extremely concerned about the non-competitive behavior of the railways. The railways can react to shipper complaints through other means and often do. This firm views maximum freight rates as addressing, to some extent, the non-competitive behavior of the railways.

A larger grain handler feels that under the zone allocation option, the grain companies would have more control to offer preferential grading considerations and/or rely on blending more frequently to attract customers. Trucking incentives would continue to be used to attract grain to particular locations. Grain companies would have an incentive to enter into contractual arrangements with the railways for larger blocks of cars. If the grain companies controlled unit trains they may invest in terminals to handle these trains. There are hidden costs through higher provincial and government taxes (associated with road costs) which may limit the net gains to farmers.

## **1.2 At Port Buying**

A smaller grain handler expressed the opinion that the port buying system would eliminate the smaller companies and thereby reduce competition for the producers' grain. On-farm ownership of grain would enhance the CWB's powers and reduce grain companies to toll handlers.

The port buyer option may favour those companies with the terminal elevator space but the largest beneficiary would be the railway under this option in the view of a smaller grain handler. The on-farm option was viewed as administratively bureaucratic and could result in disbenefits for all players including farmers.

The port buyer option was not considered to be viable by a smaller grain handler. This firm feels that the CWB has responded to criticisms of how the current system was being managed and is now changing how it operates. A port buyer system would place smaller grain companies between two monopolies---the railways and the CWB. The grain companies would have to bid for CWB business and simultaneously bid for rail cars. Smaller grain handlers (and for that matter all grain companies) do not have the market power to negotiate effectively with the railways, particularly when one considers that their future grain handle depends on cooperation with the railways. The smaller grain handler's inability to realize anything more than a

handling fee means that any risk associated with demurrage must be deducted from this limited margin.

It was observed by a smaller grain handler that grain handlers with ownership in major international processing operations will be able to bid low on tenders for handling grain knowing that they can arbitrage the offshore markets (bid lower for the purchase price of the grain at port). In effect, the margins of one subsidiary would be offset by the gain of the other. These companies which also ship to their owner companies in the US will target the market to “cherry pick” the quality/types of grain to meet their specific needs. Global ownership will therefore place pressure on the CWB and result in the Board becoming less relevant. The net result would be a negative impact on the Canadian economy, on the Canadian jobs market and on the net returns to farmers. From a Canadian perspective, the port buyer option is not in the smaller firm and farmer’s interests.

A smaller grain handler was of the opinion that the port buyer option was viewed as disadvantageous to grain companies with no terminal assets. Cars would be consigned to a specific terminal. Grain companies may have a tendency to pull grain from a specific geographic area rather than from across the prairie.

A smaller grain handler may have slightly better turnover ratios depending on its access to cars and potential linkages with terminals. The CWB would have extreme difficulty in administering price pooling.

A smaller grain handler preferred the port buyer option followed by the zone allocation system. On-farm and the current system were tied for the least desirable options. This grain handler had a general theme of the need for less CWB involvement and to allow the players to better manage their resources. Given the changing global economy and recent trade agreements, this necessitates less government involvement.

Port buyer is the preferred option of a larger grain handler, as this would enable system participants to concentrate on specific functions without hindering other players. Grain companies must have better control of their assets to ensure their best usage and to justify current and future levels of investment. Efficiency, accountability and competition will result. The system will be more market driven with all costs reflected through the handling margins. Competition will provide equitable treatment of producers.

In the opinion of a smaller grain handler the port buyer option encourages better management and movement of grains by using on-farm storage as the source of buffer stocks. Rationalization will occur at a faster pace under port buying resulting in longer trucking distances, more commercial movement, and facilities with larger handling capabilities and the ability to clean to export standards.

A larger grain handler felt that its objectives are best met by the port buyer option. Under the port buyer option, companies could expand the sales opportunities by managing the vessel logistics (C&F) and increase the global competitiveness of Canadian grains. They see the port buyer option as being able to pay farmers for on-farm storage. Infrastructure will evolve at different rates depending on how the owners are able to control their assets. This will impact re-investment. To date, the primary grain handlers have been the ones who have changed the most (loading in a shorter time frame, investing capital in new facilities and competition for supplies). Competition will continue to drive efficiencies under this option. Competitive factors plus the fact that farmers shop around for the best deal will ensure that tariffs may decline or be unchanged under this option. Companies would vie for producers' grains. Efficiencies gained by the railways and grain companies through multiple carload would be shared with producers. Some companies may see their market share grow as they are directly linked to processors while traditional grain companies are less able to capitalize on value-added initiatives. Clear market signals coupled with low-cost services and direct interaction with buyers should provide the most unencumbered opportunity for all players to benefit from the port buying option. All grain movements must be coordinated with better knowledge of what is being demanded further in advance. This should remove the need for excessive buffer storage stocks.

Over the long-term, a larger grain handler supports the port buyer option, as the CWB would no longer be directly involved in transportation. This option can only be implemented if the concerns of railway competition are adequately addressed. Bidding for rail cars even with a rate cap ultimately means more dollars for the railways unless some acceptable solution could be found to address the monopolistic nature of the rail market. If the rate cap were eliminated, the rates and service risk would rise.

A larger grain handler feels that currently there is a myriad of rules and regulations that preclude assigning responsibility. Accountability will improve under the port buyer option with commercial contracts having rewards and penalties. These contractual arrangements could specify loading and unloading maximums, guaranteed transit times, etc. Incentives for larger train loading of 50 or more cars will be encouraged to realize increased efficiencies. Better use of the infrastructure will determine the required level of future investments.

A larger grain handler wants more accountability, competition and efficiencies. The port buyer option most closely meets these objectives as it removes the CWB from the transportation logistics and allows the railways and grain companies to better control their assets. Under the port buyer option, the CWB grains would be handled in a manner similar to that used for non-Board grains with rewards/penalties being allocated to the appropriate party. The current system masks price signals and restricts the ability of the grain companies to respond.

A larger grain handler was of the opinion that under the port buyer option, one could eliminate inbound terminal grading, as grading only at the vessel is required. This also provides a greater opportunity for terminals to blend grain prior to delivery. CGC auditing requirements of terminals are assumed to no longer be in effect. Farmers would spend more time evaluating

marketing options/prices/services. This would intensify competition between the grain companies and it may provide further opportunity to grain companies to blend grain thereby allowing the possibility of better grades being given to producers from time to time. Margins may decline and producer prices rise. There is the potential for the larger farm operators to have greater negotiation leverage with the grain companies. In effect, two producers with the same quality of grain may not necessarily yield the same price. Companies could offer more trucking incentives to direct grain movement (in addition to blending). This option provides the greatest opportunity for the efficient coordination of grain movement, as those owning the assets (railways and grain companies) would be directly involved with no third party intervention. The best use of the assets would result in optimum stock levels. Contractual arrangements with rewards/penalties would improve accountability and efficiencies. Terminals may no longer be tied to consignment formulas at the country level thereby allowing competitive market forces to dictate what is shipped to which port. Because the grain companies tender to one buyer (CWB) this may reduce the grain company's net income as it competes for contracts. Would prefer a robust market with many buyers at port.

In the opinion of a large grain handler, official grading could be lessened under the port buyer option, as the grain would be graded only when loaded in the vessel. More efficiency can be achieved by moving the primary and export grade standards together. More blending could occur under the port buyer only if the CWB takes possession of outbound not inbound grain. Geographic diversity necessitates terminal blending.

### **1.3 On-Farm Buying**

A small grain handler expressed the view that the on-farm option was administratively bureaucratic and could result in disbenefits for all players including farmers.

The opinion of a smaller grain handler was that the on-farm buying option was worse than the zone allocation option.

A smaller grain handler felt that the on-farm option would result in a cumbersome, bureaucratic system focused on micro-management. Overall, it would be a regressive step as communication problems would increase and the system would have additional problems ensuring the right product moved. They questioned if there would be sufficient on-farm storage to allow for the smooth flow of grain and if grain quality could be maintained throughout the crop year given the lower technology available in on-farm versus commercial storage.

A number of grain handlers considered the on-farm option as unworkable, given its complexity and raised serious concerns as to this being a viable option. They indicated they could not support the survey with this option identified in it. They felt this option moved away from global market trends to reduce government involvement and regulations. The on-farm option in their opinion would remove the potential for accountability, as the grain companies would lose control of their assets. Grain handlers would not know where the supply will come from or how

much, but would be expected to book hopper cars with the railways. The net result would be the grain companies being assessed penalties for nonperformance for areas they have no control over and would discourage re-investment by grain companies. Because grain companies are restricted to the handling margin, they will have limited resources to attract grain through trucking incentives.

A larger grain handler was of the opinion that the on-farm option was the most unclear of the three options presented. It is unclear as to how grain would move in this option. There is the potential for the grain company and the farmer to no longer have many interactions as the CWB would dictate where the producer delivers grain. In addition to the uncertainty about how grain was to be drawn into elevators under the on-farm buying option, it was felt that unless railway market power issues were addressed, the on-farm option exposed shippers to all the same transportation risks that are associated with the port buyer option. The lack of management control which seemed to be implied by the on-farm option would force elevator companies to compete only on price and would take away options to differentiate grain companies on the basis of service or other considerations.

The on-farm option is the least desirable option, in the opinion of a larger grain handler.

A larger grain handler was of the opinion that the on-farm option has the least opportunity for an efficient system, as the CWB, with no investment in elevator or railway assets, would be charged with the responsibility of managing the logistics. Also, the on-farm option may encourage more on-farm storage. This would necessitate more on-farm inspections to determine the grades and amounts of CWB grains. Additional grading/inspection would be expected along with increased administration time and expense for the CWB. There would be no incentive to pay trucking premiums, as the CWB would direct grain deliveries to specific elevators to ensure equitable market access. The CWB would become the principle customer of the grain companies rather than the producers

In the opinion of a larger grain handler the on-farm option would remove any incentive to improve capacity. Grain companies would be unable to manage their assets and would not be willing to enter into contracted performance arrangements with the railways. The involvement of a third party would render the logistics chain more rigid and less responsive. The grain companies would be restricted to revenue from the handling margin. This would limit its resources to attract grain. Communication channels would be less effective. Farmers would lose market opportunity and potential revenue. Any option, which erodes the relationship between the farmer and grain company, would not be acceptable to this grain handler because it would reduce responsiveness and flexibility of the logistics chain.

## 1.4 General Comments on the Options

A smaller grain handler expressed the observation that currently rail cars are allocated based on performance, available space in nearby elevators compared to a particular elevator, new entrants, US allocated cars and a weighted average of the previous 52 weeks handle. New entrants have been able to receive guaranteed movement (to a maximum of 50 cars per week) at the expense of other established companies without having to compete for the business. Although these companies may complain the allocation is not enough, it is given without competition.

A smaller grain handler felt that the US grain sales program has a number of features that could be incorporated into the system for moving grain into the offshore export sales program. The US allocated cars have performed well under this system. This success highlights the need for more forward planning to achieve greater system efficiencies.

Efficiency and competitiveness are the most important themes in the view of a smaller grain handler. Equitable delivery is a thing of the past given that designated elevators can now get a license to allow them to prioritize the grains that will be received.

A smaller grain company was of the opinion that both the grain companies and railways would better use their assets under the zone allocation and port buyer options. Under the port buyer option, the large companies may find it difficult to downsize (i.e. reduce number of country points) fast enough given member demands and the large number of facilities they have.

A smaller grain company was of the opinion that rationalization will continue regardless of the option selected. Competition between grain companies for market share will be intense as the marketplace changes and the system evolves. There is a general need for the CWB and producers to work on improving the transmission of pricing signals back to the farm level to ensure what is demanded is produced. Operating costs at primary elevators would be unchanged regardless of the option selected. Elevators have not been reducing their staff but have been shifting their staff duties to focus less on buying activities and more on processing/value-added activities. Elimination of the rate cap may impact what grains are moved and the percentage of grain related revenue re-invested by the railways.

A small grain handler is extremely concerned about the non-competitive behavior of the railways. The railways can react to shipper complaints through other means and often do. They view maximum freight rates as addressing, to some extent, the non-competitive behavior of the railways. They view cooperation between all the players in the system as being the key to achieving greater efficiencies for the advantage of everyone, including producers.

A smaller grain handler expressed the opinion that the maximum freight rate should be eliminated to let market factors better reflect where to construct handling and processing facilities. In turn there is an obligation for the railways to improve their information systems regarding product and car movements. This obligation should be guaranteed or negotiated prior to removal

of the rate cap. This may increase railway income but in the long-term this will result in increased investment by the railways which will result in a better system for all.

A number of grain handlers noted that many of the changes identified in the questionnaire (longer trucking distances, increased commercial traffic, etc) are a direct result of consolidation. Consolidation will occur under all three options but the pace may be slower under the on-farm buying option compared to the other two.

Rationalization of the rail lines and elevators will continue under all options, stated a small grain handler. However, it may be slightly accelerated under the port buyer option. The rationalization process will force increased competition from grain companies as they try to attract grain from a larger draw area. Blending premiums and trucking incentives will be some of the mechanisms used to attract the grain. Under the zone allocation and port buyer options, handling fees at country elevators may decline. The larger companies with terminals could increase their terminal fees under the port buying option.

A grain handler has adopted a different perspective than traditional grain companies because (a) they have fewer country elevators and (b) they are a major purchaser of Canadian grains for their processing facilities. They support the CWB because they see it servicing both producers and customers.

One smaller grain handler felt that price pooling could be achieved under any option. But, price pooling masks market signals and does not necessarily draw the grain into the system when it is needed. Better price signals are needed. Equitable access prevents sending market signals and deters value-added activities.

A grain handler observed that it is essential that changes be made for the whole system rather than in a piecemeal approach because small changes tend to cause unforeseen negative impacts on other components in the system. Rationalization will continue under all the options but it may occur at a slightly slower pace under the on-farm option. One must not focus on the increased costs of administration, as there may be benefits to allocating more time to reviewing the marketing options. There is a need to realize that administration costs are simply the costs of doing business, such as coordinating more directly railcar and vessel movements.

It is not a specific option but rather the competitive environment that will impact preferential grading, trucking incentives and other factors, in the opinion of a grain handler. If we want greater efficiencies, we need to change the primary and export grade standards. More prairie cleaning will also help improve utilization of terminal capacities.

A larger grain handler reflected that rationalization would continue under all the options. However, the rate may be slower under the on-farm option. Market shares of individual grain companies will depend on the individual company's ability to develop, maintain and manage customer relationships.

Price pooling can operate under any option was the opinion of a larger grain handler.

A larger grain handler wants to have a system that allows the grain companies to better manage their assets by controlling the movement of grains into and out of their country elevators. The result will be a more commercial system based on a demand-pull approach. This grain handler believes that the "best" option cannot be ascertained until they know the details [the devil is in the details]. The zone allocation" system will create increased flexibility for grain companies. They question the political reality of the port buyer option, as it would alter the mandate of the CWB.

Equity is difficult to define and as such should not be an objective for consideration. Market competition will ensure grain moves into the system equitably because the farmer grows more than just Board grains and will deal with whichever company best meets his needs for all crops, not just Board grains.

A larger grain handler is of the opinion that efficiency, accountability and competitiveness are all intertwined. Contractual arrangements will result in efficiencies and accountability through rewards and penalties. The existence of the rate cap will impact these themes. Deregulation is necessary to ensure the appropriate rewards and penalties based on performance.

Equitable market access in the view of a larger grain handler is an irrelevant objective, as it does not mean all farmers have equal opportunity to deliver. Equitable should instead be defined as ensuring the right grain is delivered to meet current (not future) market demands and effectively use the infrastructure.

A larger grain handler is of the view that farmers need to increasingly appreciate the implications of a commercial system. They should have no direct involvement in the hopper car allocation. This should be a totally commercial process with the farmers having the opportunity to provide input through the CWB (if required at all).

A larger grain handler is of the opinion that there is a need to decouple the business and car allocation systems of west versus east and US shipments. Even US exports should be allocated cars on a more commercial basis. Past actions have assumed that there is an oversupply of grains relative to system capacity, necessitating a controlled movement. As more grains are processed locally, this may be less of a reality with the industry facing in the future more idling of capacity at the ports.

A larger grain handler observed that primary and export grade standards should be the same. Customers should be given choices on the level of dockage and the associated discounts. Cleaning will occur where it is the most economical.

A larger grain handler felt that many of the changes identified in the questionnaire (longer trucking distances, increased commercial traffic, etc) are a direct result of consolidation.



Consolidation will occur under all three options but the pace could be slower under the on-farm buying scenario compared to the other two.

In the opinion of a larger grain handler the zone and on-farm options protect the existing markets shares of the three major companies by using the combined principles of equitable market access and historical grain receipts. This gives these companies the critical mass required to "push out" the smaller competitor. FOB port would force increased competition as it does not use a formula allocation but instead considers performance and the ability of the company to bring value to farmers and CWB. Any alternative should have the following characteristics:

- Quick and clean market signals for farmers regarding what grain is required by the end user over the next 3 to 4 weeks and beyond.
- A dynamic and responsive logistics chain matched to asset utilization and management.
- Clear logistics pathways and "eye ball to eye ball" contractual arrangements involving only those parties involved at that operational link (farmer/grain companies/railways)
- Accountability through direct contractual arrangements that motivate asset owners to manage risks and accepts loss when it occurs.
- Competition for all the farmer's grain deliveries in order to coordinate the movement of all this grain and allow the grain to be globally competitive.

In the opinion of a larger grain handler, equal market access competes against market forces in a pull system by forcing car spots over a greater number of primary elevators. Price pooling could operate under any option. Rationalization of the system will continue regardless of the option. Under the port buyer and on-farm options, trucking distances may increase as producers seek out the best service and/or price or the CWB directs grain to further points. It is anticipated that the zone allocation and port buyer options would allow better use of high throughput elevators and create added efficiencies. Greater competition by grain companies regardless of the option will reduce overall elevator and storage costs paid by the producers. If the railways can achieve better turnaround times, they may be more inclined to reinvest.

A larger grain handler indicated that the answers to the questionnaire depended on the operational assumptions made.

The system was originally designed to handle a few segregations of bulk grains, a large grain handler stated. The logistics chain has experienced significant changes, handling a greater variety of crops and more quality spectrums. The logistics chain must be able to respond rapidly changing production use patterns of the end user/buyer. The existing system has had to respond to these changes within a rigid structure. It is essential that farmers and grain companies be able to coordinate receipts of both Board and non-Board grains to avoid the inefficiency of a two-stream method of calling grain forward. This can only be achieved by removing CWB from the transportation process. They also indicated that a merger of terminal operations is also required so that grain uploads can be more effectively matched to vessel loading.

A larger grain handler felt that on-farm storage would be static under the zone allocation and port buyer options but would increase under the on-farm option, as CWB payments would encourage this investment. Payment of on-farm storage is contrary to marketplace signals and fails to highlight the opportunity costs associated with storage.

## **1.5 Additional Comments (Section J of Questionnaire)**

A larger grain handler was of the opinion the questionnaire involved too much subjectivity in the interpretation of the questions. The respondent was required to make a number of assumptions and when completing the questions had no mechanism to identify between short-term and long-term impacts.

A larger grain handler felt the overall approach to the study, the structure of the options and the format of the questionnaire would not provide a balanced perspective to the issues. The development of fundamental principles by which the system should operate or the development of alternative options to be reviewed should have been part of the study. The operational structure of the three options was viewed as incomplete and did not accommodate different means by which to apply the options. This grain handler felt forced to make assumptions on the key operational parameters and stated the questionnaire was highly subjective when interpreting results.

They do not question the role of the CWB in marketing grain but simply its direct role in the logistics chain. The chain needs to be constructed with a minimal number of participants, each of whom have direct management of all or part of the chain's operational capabilities and efficiencies. This allows participants who own assets along the logistics chain to utilize these assets to their maximum capability and to assume the accompanying gain or loss associated with the management of their assets. This gain or loss will be translated into clear market signals to the farmer, CWB and end user, and will identify which grain company can perform effectively. This approach will provide competition, efficiency and accountability.

## **2 SEO Producer Member And Organizations**

### **2.1 Zone Allocation**

An SEO producer member's opinion was that the zone allocation option represents a return to the block shipping system of the 1970's. This change was viewed as minimal and is perceived as not having any significant impact on the efficiency of the system. It will only marginally increase a grain company's control over its assets by allowing it some flexibility to distribute shipping orders and somewhat manage its facilities. However, the grain company cannot negotiate rail rates/services with the railways and cannot control shipments through its elevators.

An organization favoured the zone allocation system as they felt the CWB had an important role to play in the transportation system. The zone allocation option would basically

redistribute the revenue between grain companies without costing the farmer more. Producers with the greatest distance from their closest elevator may be negatively impacted by the zone allocation or port options as compared to those producers nearer to the elevator.

An organization felt that a problem associated with the options is the lack of costing reviews. Basically the railways will see their revenues continue to rise. Maximum freight rates are necessary to keep some level of competition. Removal of the freight rates cannot occur until rail competition is increased. They would prefer open access to the rail bed for a regulated fee (similar to the telecommunications industry).

An organization preferred the zone allocation system due to its acceptability by railways and grain companies. The companies would allocate to preferred elevator locations to move more volumes of grains. In effect, the grain companies would flex the cars to where the grain is. This would maximize the system throughput. Grain companies would use blending to make additional profits. Some of these profits would be shared with producers. For the individual producer, his gains will depend on the distance to the high throughput elevators and the number of grain companies vying for his business. This option however still makes it difficult to assign onus for system problems.

An organization was of the opinion that under the zone allocation option, grain companies and railways will favour movement from main lines and high throughput elevators. This will (a) force more on-farm storage, (b) increase trucking distances and (c) negatively impact the road network. One would expect farmers on branchlines to travel the farthest. High throughput managers would use trucking incentives to lure farmers from greater distances. The net effect would be the grain companies would have more control over the system and increased opportunities for profits from blending and use of lower cost high throughput elevators.

## **2.2 At Port Buying**

An SEO producer member prefers the port buyer option as it allows businesses to best manage the system with no to little institutional involvement. He sees all players gaining as grain companies will be able to not only share benefits with producers but can also capitalize on spot deliveries which the Board cannot do. Basically, the “pie” will grow for all to share. Given the global trend to less government involvement, this option is the most viable for the future.

An SEO producer member’s opinion was that port buying has not worked for other commodities such as malting barley. The grain companies will not be pricing to the buyer (i.e. they have no control over the selling price). This means that at some times throughout the year, the basis margin may not be sufficient to draw grains into the system. This would compromise our ability to meet the buyer’s demands. In addition, the grain companies and the CWB would face higher administrative costs to track the grain.

The port buyer option was favoured by an SEO producer member as it would encourage a more commercial environment, with contracts ensuring accountability and system efficiency, as well as providing increased incentives for grain companies to invest in hopper cars.

An organization favoured the port buyer option. They indicated that the current system is highly centralized and regulated. This undermines the ability of grain handlers and railways to manage their resources and eliminates any effective accountability in the system. Returning management authority to the grain companies would allow for a more accountable system based on commercial contracts between the CWB and the shipper and the shipper and the carrier. Although rationalization has increased in the last few years, it would be enhanced as the system achieves the necessary efficiencies and closes smaller elevators. The net result would be increased multiple car loading and use of unit trains, plus reduced buffer stocks. A secondary impact would be slightly increased trucking distances and more commercial truck movement. A further reason for favouring the port buyer option is that it allows businesses to best manage the system with little to no institutional involvement. They see all players gaining as grain companies will be able to not only share benefits with producers but can also capitalize on spot deliveries which the Board cannot do. Basically, the “pie” will grow for all to share. Given the global trend to less government involvement, this option is the most viable for the future.

Under the port buyer option, contractual arrangements would assign responsibility and accountability, stated an organization. They expected the grain companies to maximize their profits through rationalization, grading and blending, as this option would result in a less competitive environment. The level of competition would be location specific depending on the number of grain companies and nearness to high throughput elevators. The focus of the grain companies will be on blending and special services. Farmers would have to spend more time assessing marketing alternatives. In the short term, there may be more opportunity for preferential grading but this may diminish with time depending on local competition. There would be a time lag between sales commitments and knowing the available supplies. Some grain companies may not be able to attract grain or may not have access to the required grades. This would create problems given they have contracted with the CWB. This could affect the system’s efficiency and ability to coordinate sales and grain movement. Hopper cars under this option would be assigned to a specific terminal. Price pooling may be replaced by margin pooling.

An organization was of the opinion that under port buying, the grain companies would be able to blend more grain. However, only some of the benefits would be shared with producers. If not, producers would shop around for the best return. Farmers have an attitude that once the grain is moving, a few more miles is irrelevant.

An organization believes that under the port buyer option, the basis would be larger at harvest and narrower over the remainder of year. Farmers would have an incentive to store grain but also increased potential for the grain to deteriorate. Duplication of information on grain inventories and producer reluctance to share information would negatively impact the system. Larger grain companies would initially fight harder to expand their market share. Competition by

the elevators would be necessary to ensure that any penalties are not passed back to farmers. It is anticipated that the grain companies would become more efficient and keep more of the profits associated with blending. The level of competition may vary over time. The impact on grain handling tariffs depends on how the CWB awards contracts. Competition between grain companies for the right to move CWB grains will determine if the CWB can extract more profits from the system for the benefit of farmers.

### **2.3 On-Farm Buying**

An SEO farmer member was of the opinion the on-farm option would be a logistical and administrative nightmare as the CWB tries to track and move grain through the system. It would be quite possible to pay producers storage and interest without the CWB owning the grain. The complex process of purchasing grain on-farm would add additional red tape for farmers and the CWB, with the administrative costs more than offsetting any benefits. Benefits such as blending would accrue to producers through the pool account rather than to the individual. Board policies will impact elevator closures, volumes handled by each elevator and car allocation. The net effect would be the retention of more elevators than under a truly efficient system.

An SEO producer member felt that on-farm buying would benefit the farmer most, as the grain companies would have to tender for their share of the grain. Given the Board's bargaining position, farmers will benefit, but all these benefits (including trucking premiums) will be shared through the pool accounts. The Board would manage buffer stocks throughout the system at the most appropriate levels. On-farm buying may also temper the rationalization process and result in less elevator closures.

An SEO producer member least favoured the on-farm option because it added another level of bureaucracy. He felt that extra grading under this option would create problems if the grade made on-farm failed to be the same grade when the grain was delivered.

An organization felt there was a problem with the on-farm option because the grade the farmer thinks he has may not be the actual grade delivered. Farmers who have developed a relationship with their agent and directly receive the benefits of blending would no longer benefit directly as the blending function would be captured and shared by all producers through the pool account. They saw the knowledge of grades and amount of grain on-farm not improving under any option because this information is only as good as the sample taken by the farmer.

An organization was of the opinion that the on-farm option represents a centrally planned and controlled system that would be an administrative nightmare. It appears "out of the blue" as no group has put forward this option. Past regulation has not worked and further central planning would spell disaster. This option would discourage blending of grains.

The on-farm option was an organization's second choice. It would ensure equal access by producers, enhance the CWB's role, and at the same time streamline the movement of grain.

Under this option, the exact grades and quantities of grains would be known by the CWB. The CWB may target deliveries to more efficient elevators, thereby speeding up rationalization. At the same time, the railways may be forced to service smaller elevators identified by the CWB. The railways may be willing to spot cars for producer cars if there are a large number at a location. This type of movement would by-pass the grain companies. Some of the storage costs currently incurred at the primary elevator would be transferred to the farm level. This option would encourage more on-farm cleaning and blending. Grain companies would be restricted to income from handling tariffs. The handling tariffs would have to increase to offset lost income from blending and storage.

An organization's preferred option is the on-farm option. It would provide more profit to producers. Paying farmers for storage will allow for a more even flow through the system. It also provides for equitable deliveries in an organized way (i.e. more grain stored on-farm). The CWB would have a better handle on what is on the farms. It would draw grain from a wide geographic area and emphasize overall system efficiencies using both high throughput and local elevators. The CWB would balance equity of delivery and producers' hauling costs against the cost savings of using the high throughput elevators. No grading or trucking incentives would go directly to the producers; instead the total benefits of blending would be shared through the pool accounts. The allocation of elevator space between Board and non-Board grains would have to be carefully planned. Grain companies and the railways may view Board grains as a secondary market compared with non-Board grains. The net result of this option would be to maximize producer returns by capturing more profits from blending and reducing storage payments.

## **2.4 General Comments On The Options**

In the opinion of an SEO producer member, rationalization erodes the farmer/agent trust and reduces the farmer's ability to negotiate on grade and dockage. It also reduces competition, as there is a greater distance between elevator companies. Trucking incentives will only exist until the system is fully consolidated. It is questionable if elevator-operating costs will decline for the new concrete structures given the high fixed costs. These new facilities are less flexible in handling different crops. The CWB's preoccupation with equitable farmer delivery opportunities through intensive central control is misplaced. Delivery opportunities are first and foremost controlled by the elevator manager. The CWB bureaucratic impact is merely ancillary to this end and railway service. Given that customer retention is critically important, elevator companies and their agents will endeavor to provide reasonable and equitable service to all customers---without CWB interference. Further payment of storage and interest would alleviate much of the delivery pressure created by the CWB price-pooling regime.

An SEO producer member viewed the existing system as the best followed by on-farm buyer, zone allocation and port buyer. He believes that modifications to the existing system could address any problems as the system has functioned well in most years.

A major problem under all the options is the power of the railways and lack of competition, an SEO producer member indicated. This railway power ensures that the railways would never provide guarantees on delivery windows at port. The maximum freight rate is necessary and will continue to influence railway investment decisions.

Centralization of decision-making and control as in the case of the CWB militates against efficiency, competitive relationships and accountability in the opinion of an SEO producer member.

An organization was of the view that elevator closure and rationalization will lead to less buffer stocks, more distances traveled and increased use of commercial vehicles. Where the CWB takes possession has no impact on this process. Companies will use their storage space to take advantage of the lowest cost facilities. This means more cars would be allocated to the high throughput elevators and less to the older structures. The result is closure of the smaller capacity facilities with those farmers farthest from the main line most negatively impacted. Farmer loyalty to a company will decline and the producer will shop around to get the best grade, lowest dockage, etc. The size and frequency of trucking incentives offered is impacted by local competition for the grain. Fewer elevators mean less competition. Producer cars serve a purpose in that they encourage competition.

An organization was of the opinion that the existing system does not effectively penalize the party which places the wrong grain at port (the penalty for mis-shipments is simply a slap on the wrist). When grain is backed up in the system, the CWB bears the cost and the elevator companies have no mechanism to resolve the problem. The system for non-Board grains has been far more responsive to customer needs.

An organization was of the view that value-added activities on the prairies could result in more internal rail movements, fewer exports of bulk grains and more processed product exports. A pull system could result in minimal storage capacity. They viewed equitable delivery and accountability as equally important. Accountability would drive efficiencies and competition.

An organization stated that rationalization would continue regardless of the option selected. As rationalization occurs, competition will decline and there will be less preferential grading. Trucking incentives could be used to increase market share but may decline over time. Rationalization will result in larger car blocks being spotted, less car switching and improved turnaround times. Road upgrading and taxes will increase and the farmer will have more wear and tear on his vehicle due to poorer roads and longer distances traveled.

An organization anticipated that grading of inbound grain at the terminal would continue under all three options.

Producer profitability is the most important issue as it necessitates balancing efficiency and competition, noted an organization. The abandonment procedures in the CTA do not consider

costs external to the railways. If road maintenance/upgrading costs and the added trucking costs faced by the producer were factored into abandonment decisions, the rate of rationalization would slow down. Price pooling reduces risk by evening out prices throughout the year. The CWB also provides geographic equity. It is possible under any option but may be slightly more complex under the on-farm option as one must have a computer program to take into account blending.

An organization indicated a need for the system to load trains to meet certain sales and to have more direct hits. Without equitable market access there will be fewer of the small primary elevators. Railway costs, profits and discounts for large car blocks are strongly tied to the freight regulations rather than the CWB's role in transportation. The railways would be more profitable if they could move more grain over the main lines rather than branchlines, but this is not necessarily in the interests of the other participants.

## **2.5 Additional Comments (Section J of Questionnaire)**

An SEO producer member indicated his concern that the provincial farm organizations selected to receive a questionnaire and to be interviewed are general farm organizations and not grain specific organizations (with the exception of the Western Wheat Growers Association). Concern was noted in respect to the make-up of the study team potentially biased in favour of central desk selling and centralized control of transportation by the CWB. He supports the federal government in recognizing the need for action on improving accountability in the western grain transportation and handling system.

## **3 Railways**

### **3.1 Zone Allocation**

The zone allocation option is simply a minor modification to the existing system and does not change the size of the pie. The zone allocation and on-farm buying options are push systems.

### **3.2 At Port Buying**

The port buyer is the desired option as it will increase efficiency and accountability and simultaneously meet the end user's needs. This will create an environment that encourages investment and is a demand-pull system. The result will be a growth in market opportunities for all participants. There could be a market share shift between grain companies as they modify the grains they handle to best suit their asset base.

The port buyer option would promote accountability and competition among logistics chain handlers, for both Board and non-Board grain movements. This would result in cost effectiveness with the shipper/carrier relationship, and a receiver/shipper relationship able to assign responsibility for nonperformance, and the terminal operators able to work out unloading commitments with the shippers. More switching may result if cars are consigned to port



terminals. Terminal buffer stock levels will depend on the competitive strategy of the participants in the logistics chain. Because of potential congestion, terminal operators may want to shift buffer stocks to the terminal in the country.

### **3.3 On-Farm Buying**

The on-farm option is administratively complex and will increase everyone's costs with a net negative impact. It may diminish the "size of the pie" as the CWB creates another administrative layer and prevents best use of the assets. Market signals will be distorted, however, the on-farm option may slow the rationalization process down. This option will encourage more on-farm storage regardless of whether or not it is needed.

For the on-farm option, a railway expected that the CWB would be empowered to, and would want to, manage movement of the grain through the logistics chain rather than be simply involved on-farm and at port. Because the description of the option failed to give the CWB total control of the logistics movement, it was felt they could not adequately assess the feasibility of the option.

### **3.4 General Comments On The Options**

Equitable delivery opportunities should not be a theme. The themes identified in the questionnaire achieve the CWB's objectives, not the industry's. The system should focus on the end user's needs and the ability to capture value from the customer. The end user should drive the system's practices. The other themes identified in the questionnaire are secondary to these objectives.

Price pooling is a social welfare issue and is not a risk management tool. It can exist under any option. Price pooling prevents clear market signals being sent to farmers and impacts grain movement.

Rationalization will continue no matter the option. Trucking distances and commercial trucking will increase. The individual farmer will decide how far he will haul his crop. The competitive environment (including grading and blending issues) will impact his decision on where to truck his grain. Car turnaround times and car switching depend on other operational factors, as well as grain/grade patterns and commodity mix, not the specific option.

Car-pooling would still be possible no matter which option might be implemented, as various swapping arrangements could be negotiated and managed among terminal elevator operators or other system participants.

Railway discounts for multiple car blocks are based on the long-term variable cost savings taking into account car cycle times, switching and train related efficiencies. This is not a function of the role of the CWB. Although per tonne payments may not increase, rationalization will

increase the total payout. Rationalization is driven by the country elevator system---less traffic is a precursor to usual line closure.

### **3.5 Additional Comments (Section J of Questionnaire)**

Elimination of the rate cap is essential to reward carriers for additional risk taking.

A railway stated that the overall approach to the study, the structure of the options and the format of the questionnaire would not provide a balanced perspective to the CWB's role in grain transportation. The study does not allow for (a) development of fundamental principles by which the system should operate or (b) development of alternative options to be reviewed. The operational structure of the three options is incomplete and does not accommodate different means by which to apply the options.

It felt the options tended to be ill defined and failed to focus on what could be operationally achievable. The lack of detail made it difficult to assess the potential impacts, particularly for the on-farm option. In many instances, there are a variety of different contractual arrangements or contract tendering mechanisms, which could be used.

They indicated that the consultants should study the malting barley and non-Board transportation and handling systems to gain a greater appreciation of how other less regulated systems respond.

## **4 Institutions (CWB and CGC)**

### **4.1 Zone Allocation**

The CWB and industry are moving to zone allocation in October. This move will provide grain companies with greater flexibility to manage their resources, while at the same time ensuring the CWB will be able to source grain to meet its sales commitments. Under zones, the flexibility for the grain companies increases. The CWB would simply monitor train run programming, as the railways would assume this role. It is possible to have contracts under zones, for example, through terminal agreements and railway service agreements. The CWB has been working with the industry to develop terminal handling agreements. These would be signed by the CWB and terminal companies, and would guarantee the handle of CWB tonnage in exchange for a negotiated fee. The agreements would contain financial penalties in the event of nonperformance on the part of the CWB or the terminals. These discussions are ongoing. But the railways have little incentive for entering into service agreements, given maximum freight rates. If one tenders, the system must also address the issue of Seaway viability (Thunder Bay to St. Lawrence costs), plus the viability of other ports such as Churchill and Prince Rupert.

Under the zone allocation system, producer cars would be assigned the lowest priority. This could delay accessing cars by one week if demand exceeds the available car supply.

Additional problems may arise if the car minimum for a given train run is not met. This option will have no impact on grading or inspection activities of the CGC.

## **4.2 At Port Buying**

Under the port buyer, there would be no need for inward CGC inspection. There would be increased work for the CWB to ensure the contracts are met, but less administration related to transportation. The CWB would need more lead time to meet sales. Equitable access could not be assured. Price pooling would be eroded as delivery access (to the system) would be controlled through the fluctuation of the basis and no longer by delivery contracts with the CWB. However it would not be affected in any way by the elimination of car pooling at port. Car pooling at port is controlled by the grain companies and railways, not the CWB. Car pooling will most likely disappear under port buying, as grain companies would be unwilling to assume the increased risk of defaulting on the contract due to another grain company's grain not meeting the tender requirements. Car turnaround time may increase, as the CWB may not be able to coordinate transportation and car pooling at port. Greater flexibility to blend grains would exist but the benefit would accrue to the grain companies. Competition by grain companies would be limited by system capacity. There is increased risk of under utilization of Churchill and Prince Rupert ports if the CWB moves to a port-buyer position. Grain companies would build their lost terminal handling (from Vancouver or Thunder Bay) into their tender prices for Churchill and Prince Rupert, thereby reducing the attractiveness of CWB sales at these ports.

The CWB feels that the port buyer option is incompatible with its mandate as the CWB would then (a) lose essential information on available supplies which is used to develop sales plans, and (b) have no assurances that all the grain will be marketed in a crop year. Under the port buyer option, bids may be competitive early in the crop year. But when supplies are low and/or supplies are concentrated in certain areas throughout western Canada and companies tie up supplies, tender prices may be less competitive later in the crop year.

Under the port buyer option, there would be no producer cars unless producers were allowed to contract directly with the CWB. The CGC could not collect information on handling tariffs or mediate disputes because the handling charges would be buried in the basis. The harvest survey conducted by the CGC would become a more important tool for the CWB when planning its sales activities. Inspections at primary elevators will become more important due to the existence of contractual arrangements with rewards/penalties. Grading costs paid by producers would increase. The elimination of car-pooling may impact inward inspections, shifting the emphasis to outward inspection. This would make quality control more difficult and place additional pressure on increased sampling and more vigorous checks. It would also limit the terminals' ability to blend grains. Terminal handling tariffs would be based on competition.

### **4.3 On-Farm Buying**

Under the on-farm option, there would be an increased incentive for on-farm storage. There would be better information on-farm stocks of grain. Not all grain would have to go through the primary elevators, so that the total number of times graded may diminish. Farmers would sign a contract with the CWB plus a delivery contract with the grain company. This would necessitate increased administration on the part of the farmers. The grain companies would also face more administration but would benefit from increased flexibility. Because the grade would be specified in the contract, the companies would only be able to offer trucking and input-related incentives. The CWB would need more lead time to meet sales. Price pooling would continue but loss of car pooling would increase switching.

Under the on-farm option, there would be no producer cars. As the CWB would contract with grain companies, the CGC would have a reduced role in mediating producer complaints. The emphasis would be on (a) increased on-farm inspections and/or producer submitted samples, (b) more inspection at the primary elevator to ensure the grain delivered meets the contract terms. Grading costs faced by producers would increase. If the CWB contracted with the grain companies to do the on-farm buying, the paperwork would be more complicated and proper sampling would become more important. Elimination of car-pooling means inward inspection is less important and/or eliminated. Outward inspection and quality control would become more difficult. Blending incentives would depend upon the CWB contracts with grain companies. Terminal handling tariffs would be based on competition (potential for Vancouver to increase tariffs while unused facilities at Thunder Bay may decline).

### **4.4 General Comments On The Options**

The CWB's preferred option is zone allocation combined with terminal handling agreements. Furthermore, the CWB believes that zone allocation can be enhanced with on-farm buying (where on-farm buying occurs through the CWB agents) to generate better returns for producers, earlier in the crop year.

In the CWB's opinion, equity of access refers to the producers' ability to deliver similar quality grain within the crop year for the same price regardless of when the grain is delivered. It does not prevent the system, and its participants, from increasing system efficiencies. Equity of access provides for orderly and timely access to the constrained grain handling and transportation system (thereby increasing system efficiencies).

Rationalization of the system will continue regardless of the option. Under the port buyer and on-farm options, trucking distances may increase as producers seek out the best service and/or price or the CWB directs grain to further points. It is anticipated that the zone allocation and port buyer options would allow better use of high throughput elevators and create added efficiencies. Greater competition by grain companies regardless of the option will reduce overall elevator and storage costs paid by the producers. As elevator size increases and number and size

of unit trains increases, the ability of terminal operators to blend up from the primary tolerance levels to export tolerance levels will decline. Larger grain companies have more flexibility than smaller companies, no matter what option, but capacity constraints at Vancouver could mitigate this somewhat. Under all three options, it is difficult to isolate grain company and railway performance. Rates, volume and captivity affect investment by the railways. One would need to change the car allocation process to impact shippers' willingness to invest in hopper cars. If the railways can achieve better turnaround times, they may be more inclined to reinvest.

Given that railways are already charging the maximum freight rate, they have little economic incentive to increase performance or service levels. Unless the railways are compensated for offering better service, they would most likely be unwilling to assume the additional risk associated with increased performance.

The CWB strongly believes that the consideration of customers' requirements and the maintenance and/or enhancement of system capacity are vital to the redesign of Canada's logistics system, especially considering Canada's high level of exports relative to its low commercial storage capacity. The structure of the system should be to meet customer needs. If this is not at the forefront, Canada will suffer relative to international competition. The system must recognize that the main demand and premium prices occur during the October to March period. The CWB believes it must meet the customers' needs.

The CWB indicated that introducing financial penalties could strengthen the current car allocation system. The CWB and industry are currently working on a proposal to evaluate grain company performance and impose financial disincentives. The CWB felt that the four and eight week loading plans, which outline by grain and grade the program the CWB will be looking to load in the country in the future weeks, greatly assists the companies in better managing their facilities and more efficient use of system capacity.



## APPENDIX 5

### Modeling the Canadian Wheat Board's Role in Transportation

#### 1 Introduction

This appendix explores the impact of the Canadian Wheat Board (CWB) on Canada's grain transportation and handling industry. First, the Canadian grain transportation and handling system is described. The market structure of the sectors involved in grain transportation and handling is outlined. Next, the role of the Canadian Wheat Board in grain transportation is discussed. A model is used to simulate the export basis, incorporating the elevator, rail and terminal sectors. Finally, the model is used to simulate the export basis with the Canadian Wheat Board playing different roles in the grain transportation and handling system.

Much of the description of the Canadian system and the core of the economic model was developed by Katherine Baylis, as part of a Masters of Science Thesis, under the supervision of Dr. Murray Fulton, at the University of Saskatchewan. Additional background and additional mathematical detail of the model is provided in the thesis, which is available from the Department of Agricultural Economics, University of Saskatchewan. The modification of the model to examine the role of the CWB in port buying was done with the assistance of Ms. Baylis.

#### 2 Description of the Canadian System

Over 40 million tonnes of grain is produced annually in the prairie region, approximately 60 percent of which is exported.<sup>1</sup> The grain is produced approximately 1000 miles from tidewater position. The grain is stored on-farm for up to a year before being brought to the elevator. Throughout the year, export-bound grain is trucked about 25 kilometers to a country elevator owned by one of 8 companies at one of approximately 800 delivery points across the prairies. At the elevator, the elevator manager offers a grade for the grain. The grain is elevated. The farmer receives an initial payment for CWB grains and the spot price for non-Board grains.<sup>2</sup> The prices received will generally be the port price with deductions for elevation, removal of dockage, transportation, and terminal charges.

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<sup>1</sup> Based on 10 year average figures for production and export of the six major grains and oilseeds (Canada Grains Council, various years).

<sup>2</sup> Futures markets are also an option for some grains.

The grain sits in the local elevator for anywhere from a few days to 10 weeks. Much of it is then loaded onto railcars to be transported to port. Representatives from the railways, elevators and farmers, in combination with the CWB, allocate railcars as sales are made.

The grain is transported to port by one of two main-line railways. It is delivered to terminal elevator facilities where the grain is inspected and officially graded by the Canadian Grain Commission. The grain is then cleaned and loaded onto ships for transport to the buyer. Some buyers take possession of the grain at export port, whereas others will take ownership when it reaches the importing country.

Prices for grain are determined in the world market. Canada is a small country exporter in terms of total sales, but has a relatively large share of the export market for some crops such as durum, canola, and high protein wheat.

The next sections outline the different sectors involved in the grain transportation industry. Approximate costs of different services are identified. Indications of the potential for market power are presented. The chapter then discusses the different institutions involved in grain movement and their effect on the future grain transportation system.

## **2.1 Farm**

There are about 140,000 farms (120,000 CWB permit book holders) on the Canadian prairies. On average, prairie producers have on-farm storage amounting to 1.2 times their annual production. With the need for segregation, this storage capacity is effectively less (Western Provinces 1998). Storage costs are estimated to be between \$4.29 and \$7.08 per tonne (Saskatchewan Highways and Transportation 1992).

Farm deliveries to elevators occur throughout the year with peak deliveries occurring during the fall. Deliveries are often limited in the spring due to road bans resulting from soft roadbeds. Farm trucking costs are estimated to range between \$2.70 to \$10.35 per tonne for a 15 kilometers haul. These figures do not include initial capital costs or depreciation. ATKearney (1994) estimated costs for these short hauls to be \$4.98 per tonne. The current average trucking distance from farm to elevator is estimated to be about 25 km, which is projected to increase to 65 km with system rationalization (Western Provinces 1998).

Farm costs of production vary by soil zone and cropping practice. Table A5.1 shows the on-farm costs of production in Saskatchewan.



**Table A5.1: 1997 Farm Variable Cost of Production for Saskatchewan, by Crop and Soil Zone**

Crop	Cropping Practice	Soil Zone		
		Black	Dark Brown	Brown
			(\$/tonne)	
Wheat	Fallow Seeded	95.84	93.73	82.54
	Conventional Stubble Seeded	120.79	132.9	138.81
	Direct Seeded	125.46	109.72	141.63
Canola	Fallow Seeded	177.80	195.86	--
	Conventional Stubble Seeded	240.62	336.32	--
	Direct Seeded	238.64	329.67	--

Source: Saskatchewan Agriculture and Food (1997) and Author's Calculations

Note: The costs presented in this table include labour.

Grain produced on the prairies goes both to the domestic market, for feed or processing, and to the export market. The dependence on the export market varies from crop to crop. From 1984 to 1994, over 12 million tonnes of barley was produced annually in western Canada. One third of the production was exported, while over half went for feed in Canada; another 2 million tonnes went to the domestic commercial market. Over the same time frame, western farmers produced an average of 26 million tonnes of wheat per year, 19 million tonnes of which was exported. Thus, only about 27 per cent of wheat went to the domestic market. Over half of the domestic disappearance went for feed, with a little over 3 million tonnes going to the domestic commercial market (Canadian Wheat Board 1994). Flour mills are the largest consumers, purchasing 2 million tonnes per year (Kennett 1997). Over 4 million tonnes of canola per year was produced during the same time period, half of which was exported. Of the amount remaining in Canada, 1.5 million tonnes were crushed (Canada Grains Council 1995).

Because of the large number of farmers and their production of a relatively homogeneous product, each individual producer takes grain and oilseed prices as being given. Nevertheless, producers do have two alternatives to delivering grain into the export grain transportation and handling system at any point in time: they can store the grain, or, they can deliver it to the domestic market.

## 2.2 Primary Elevators

The elevator system across the prairies has undergone a dramatic change over the past several decades as it consolidated from many smaller elevators to fewer, larger elevators and inland terminals. In 1971/72, the prairies had 4,545 primary elevators at 1,666 delivery points with 10.8 million tonnes of capacity. In 1997, there were 1,146 elevators at 808 delivery points with 6.6 million tonnes of capacity. This is a 75 per cent drop in the number of elevators, a 50 per cent drop in the number of delivery points and a 40 per cent drop in capacity (Western Provinces 1998).

The number of elevators per delivery point has declined from 2.7 to 1.4. This means there are fewer delivery points with multiple elevators. Older, wooden elevators are being replaced with large high throughput concrete structures. The overall decrease in elevator capacity has coincided with an increase in grain deliveries. This means the average elevator has increased its annual turnover from 2.35 turns in 1971/72 to 5.47 turns in 1996/97 (Western Provinces 1998). A 1984 study by Agriculture Canada, estimated that an increase in turnover from 3 times per year to 6 times per year decreases elevator cost per tonne by about 40 per cent. More recent work by Alberta Agriculture has indicated that elevators with a turnover ratio of 5.25 had approximately one-half the operating costs of an elevator with a turnover ratio of 2.25 (IBI 1994). This study, however, did not include the increased depreciation costs of the newer, higher turnover facilities. The move towards higher throughput elevators with larger turnover ratios is not likely to end soon. Some industry observers state that a reasonable turnover ratio is 8 to 10 times per year. (See, for example, Curt Vossen, president of Pioneer, quoted in the Western Producer Aug 21, 1997.)

Saskatchewan Highways (1992) has attempted to model the costs of the primary and terminal elevator industry. Table A5.2 compares the approximate country elevator costs to those of an inland terminal. The difference between cost structures implies there are some economies of scale in the elevator industry.

The existence of economies of scale is consistent with the notion that primary elevators have a cost structure characterized by a high level of fixed costs. These fixed costs are larger for the newer, high turnover elevators. Variable costs, specifically labour costs, are lower with the newer elevators. A new high throughput elevator costs about \$7 to \$10 million (Western Provinces 1998). IBI (1994) found that the typical sales price of a country elevator was 25 to 30 per cent of its replacement cost.

The Western Provinces (1998) have anticipated that the rationalization of the prairie grain handling industry will continue to the point where there will be only 100 to 200 delivery points within the next five years. The facilities at these points will likely be all high throughput elevators. The report also notes that very few of the new high throughput elevators are located off of main or secondary rail lines. The report anticipates that the rationalization will directly impact 25 per cent of grain exports.

**Table A5.2: Primary Elevator Costs vs Terminal Elevator Costs**

	Country Elevator 4,500 tonne capacity 5X turnover	Inland Terminal 13,600 tonne capacity 12X turnover
	(\$/tonne)	
Depreciation	1.1	2.50
Interest	0.65	1.20
Insurance	0.15	0.10
Taxes	0.4	0.35
<i>Total Fixed Costs</i>	2.3	4.05
Labour	3.1	1.10
Utilities	0.25	0.30
Repairs & Maintenance	0.65	0.65
Other	0.65	0.15
<i>Total Variable Costs</i>	4.65	2.20
Total Costs	6.95	6.25
ATKearney Estimates	7.28	5.36

Source: Saskatchewan Highways and Transportation (1992), and ATKearney (1994)

The decrease in the number of elevators and delivery points may point to a decrease in the competition between elevator firms. Since there are fewer delivery points with multiple elevators, more elevators are separated by distance, making it more difficult for producers to force the elevators to compete for business. Once a producer has transported grain to a delivery point, he or she has incurred a sunk cost, which gives the elevator operator some bargaining power. On the other hand, farmers located an equal distance between two or more delivery points, may be able to continue to force the elevators to compete for their business.

There is evidence that primary elevators have the ability to price above marginal cost. IBI (1994) found that primary elevator tariffs increased 46 per cent from 1983 to 1993, whereas over that same time frame IBI states that costs have decreased. Charges for the removal of dockage have also more than doubled over that same time frame. Even if these numbers indicate that elevators are pricing above marginal cost, rates of return to investment are not exorbitant. IBI notes that the return on investment for the majority of existing primary elevators is rather low at 5 to 6 per cent, although it can be three times as high at the newer high throughput operations.

Until 1994, the Canadian Grain Commission set maximum tariff rates, with elevators pricing below these rates. Since 1994, elevators must file a maximum charge with the CGC. The current filed maximums are higher than what was charged before 1994, but not exorbitantly so. Although there are currently filed tariffs that are above the 1994 cap levels, there are also rates that are below. The filed tariffs for 1997 are compared with the maximum tariffs in Table A5.3.

One trend which has appeared since the removal of the maximum tariffs, is that the filed charges now differ between provinces. Alberta and Manitoba have consistently higher rates files than Saskatchewan, as illustrated in Table A5.4. If tariffs are set based on residual profit, it might be expected that regions with lower freight rates would have higher elevation tariffs.

**Table A5.3: 1994 Tariff Cap versus 1997 Filed Tariffs**

		1994 Cap	1997	
			Max	Min
			(\$/tonne)	
Wheat	Elevation	10.75	12.2	7.81
	<i>Removal of Dockage</i>	3.11	4.1	2.61
Canola	Elevation	17.2	18.35	11.45
	<i>Removal of Dockage</i>	4.14	4.87	5.43

Source: Vercammen et al. (1996) and Canadian Grain Commission (1998)

**Table A5.4: 1997 Filed Tariffs for Selected Elevator Companies, by Province**

	Cargill	Parish and Heimbecker	Pioneer	Provincial Pool	UGG
	(\$/tonne)				
Manitoba	10.09	9.92	10.33	9.93	12.2
Saskatchewan	8.82	8.81	8.51	8.82	10.5
Alberta	9.37	9.36	9.4	9.37	11.25

Source: Canadian Grain Commission (1998)

If the elevator industry is a decreasing cost industry, a high level of market concentration might be expected. To determine the level of concentration in an industry, one often looks at the market shares of the firms in the industry. As a proxy for market share in the elevator industry, the storage capacity of a firm as a percent of the total prairie elevator capacity is considered. In 1998, the Saskatchewan Wheat Pool (SWP) had the most elevator capacity at 1,918 thousand tonnes. Alberta Wheat Pool (AWP) was second with 966 thousand tonnes of storage capacity. United Grain Growers (UGG) had 883 thousand tonnes. Then came Pioneer with 665, Cargill at 526, Manitoba Pool at 515, Parish and Heimbecker at 240 and N.M. Patterson and Sons at 220. There are also a number of smaller elevator companies and locally owned elevators, which together had 419 thousand tonnes (Canadian Grain Commission 1998). It can be seen that Saskatchewan Wheat Pool has 31 per cent of the total prairie capacity and 53 per cent of the Saskatchewan capacity. Alberta Wheat Pool has 15 per cent of the total prairie capacity and 55 per cent of the Alberta and B.C. capacity. Manitoba Pool Elevators have 8 per cent of prairie capacity, or slightly under 50 per cent of the Manitoba capacity. UGG is the largest non-cooperative grain handling company, with 14 per cent of the prairie capacity. If one considers each wheat pool company separately, the largest four companies have 70 per cent of the market. If measured by province, the market concentration is higher. The largest four companies in Manitoba have 85 per cent of the capacity, while the largest four companies in Saskatchewan have 84.1 per cent of the capacity. In Alberta and B.C., the largest four companies have 92.9 per cent of the capacity.

When considering whether firms have the power to set price above marginal cost, one should also consider whether they produce a homogeneous or a heterogeneous product. Much of the competition that occurs between elevators is in services, not posted tariff. The Saskatchewan government (1992) notes that elevators have some ability to set price independent of their competitors because of “producer preference for hauling to the nearest point, high trucking relative to freight costs, priority given by grain companies to non-price strategies for maximizing market share, and firm loyalty.”

There have been a number of dramatic structural changes in the elevator industry in the past few years. The cooperative elevators are undergoing change. The firm with the most capacity in the prairies, Saskatchewan Wheat Pool, has changed its financial structure and is offering non-voting shares on the Toronto Stock Exchange. The three prairie pools are increasingly encroaching into each other’s territory. Saskatchewan Wheat Pool has recently announced it will construct several elevators in both Manitoba and Alberta, adding to the few they already have in place under the AgPro label. Manitoba and Alberta Pools are merging, and have recently shown interest in entering the Saskatchewan market with their bid on Humbolt Flour Mills.

There have also been moves by multinational grain companies to enter the Canadian grain handling market. Louis Dreyfuss has recently announced the construction of three new elevator facilities across the prairies, with several more expected. Both ConAgra and Continental are also

constructing facilities on the prairies. Archer Daniels Midland has bought 45 per cent of UGG, and Alberta Wheat Pool has a terminal sharing agreement with Cargill.

Business observers anticipate there will be several more mergers in the elevator industry over the next five to ten years. As an example, Dominion Bond Rating Service recently noted that it felt there were too many firms in the industry, and return on investment was too low (Western Producer 1998). Given the recent merger of US elevator companies Harvest States and Cenex, increasing concentration may be a North American trend.

### **2.3 Rail**

There are two primary main-line carriers in the Canadian rail system: CN and CP.<sup>4</sup> Like the elevator industry, the rail industry is in the midst of change. With the removal of the prohibition on branch-line abandonment, which occurred with the end of the WGTA, some additional carriers have entered the system as short-lines. These short-line railways are generally captive to a single mainline operator; thus they cannot currently compete with the mainlines.

Railways are also making more north-south connections. As an example, CN has recently offered to purchase Illinois Central Corp for \$2.4 billion. Illinois Central has track running from Chicago to the Gulf of Mexico. The CPR already owns the Soo Line Railroad Co. and the Delaware and Hudson Railway Inc. which combined, give the CPR access to the Northeast and Midwestern states.

There are 29,600 km of track in the prairie rail system. At this, 8,900 km are grain dependent, which means that over 60 per cent of the traffic either originating or terminating on the line is grain (Western Provinces 1998). A total of 5,565 km of rail line has been abandoned since the 1970s (Transport Concepts 1995). Further branchline abandonment is expected. Approximately 20 per cent of the grain dependent branchline network is listed as 'to be discontinued'. Some industry observers anticipate that up to 50 per cent of the branchline network will be abandoned over the next five years (Western Provinces 1998).

Railways are an example of a declining-cost industry. There are high fixed costs associated with rail. Track is very expensive to build, as evidenced by the fact that there has been virtually no new track construction since 1963 (Transport Concepts 1995). It is speculated that railways also have a high degree of sunk costs.

Because of the lower volume shipped, total cost per tonne-mile of rail transportation is higher on grain-dependent branchlines than on mainlines. ATKearney (1994) estimated branch-line hauling costs to be \$0.11 per tonne-mile and branch to mainline interswitching costs to be \$0.40 per tonne. In total, they estimate the cost of a 75 km branchline haul to be \$8.39 per tonne

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<sup>4</sup> BC Rail also operates in western Canada, although the only grain delivery point on its trackage is Fort St. John B.C.

and a main-line haul from Regina to Vancouver to cost \$22.00 per tonne (or \$0.018 per tonne-mile). The study estimates Burlington Northern costs to be about C\$16.52 (or \$0.014 per tonne-mile) for that same mainline haul. Other estimates for the average cost of moving Saskatchewan grain are \$5.75 per tonne for the branchline system and \$37.50 for the main line movement (Saskatchewan Highways and Transportation 1992).

In 1992, the total rail cost for moving Western Canadian grain to port exceeded \$1 billion. These include volume related costs of \$824.7 million (includes capital and depreciation), contribution to railway overhead (20 percent return on investment) at \$164.9 million and the \$81.9 million for line-related costs. The line-related costs are meant to account for costs accruing from grain-dependent branchlines (Vercammen et al. 1996). Volume related costs amount to approximately 80 to 87 per cent of total costs.<sup>1</sup> The sum of these costs divided by the volume of grain shipped give a 1992 cost of approximately \$0.03 per tonne-mile, which became the freight rate paid to the railroads. In 1998, the freight rate cap (which is meant to be an approximation of total rail costs) is approximately \$0.035 per tonne-mile.

Another factor in the cost of rail transportation is the cost of hopper cars. Grain is the only commodity where the public owns the majority of the rail cars. Since 1972, governments have provided a total of 19,192 hopper cars to railways for grain transportation. The railways use these cars for moving Canadian grain to terminal positions, paying only for the cars' maintenance. In the spring of 1994 the fleet for grain transportation was 26,400 cars: 18,600 of those were government (provincial and federal) and CWB hopper cars, 7,100 hopper cars were owned and leased by the railways, plus the railways had 700 box cars (IBI 1994). The railways get extra cars from their fleet or from the US in peak periods. The Grain Transport Agency estimated the cost of a hopper car was \$80,000 in 1992 compared to \$54,000 in 1981. IBI estimated that the costs of the cars are \$5,216 per year or \$3.11 per tonne.

IBI (1994) showed that even after the NTA'87, which gave shippers of other commodities the ability to bargain with the railways, grain was still returning the railways less revenue per tonne-mile than non-grain commodities. The revenue for barley was between 2.42 and 2.24 cents per tonne-mile and for wheat it was 2.13 to 1.96 cents per tonne-mile. In comparison the railways were garnering 3.03 cents per tonne-mile for coal, 2.80 cents per tonne-mile for potash and 3.61 cents per tonne-mile, for sulphur. This is particularly notable considering that the grain had to travel across low-density (and therefore high-cost) branchlines whereas the non-grain commodities travel primarily on main and secondary main lines. Thus, the regulated grain rates were still lower than the non-regulated rates for other commodities, even with the advent of shipper access provisions. This brings into question the ability of shippers to bargain the rail rate down to average cost.

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<sup>1</sup> Because the volume related costs as calculated by the National Transport Agency include a portion of fixed costs, the marginal cost of rail transport would constitute a smaller percentage of total cost.

The next-best option to rail for grain shippers is trucking. ATKearney estimated direct trucking costs to be 5.5 cents per tonne-mile for a 75 km haul. Thus trucking is not currently cost-competitive for shipping to port, although it appears to be competitive to branchline hauls, especially without counting road costs. Trucking also poses the problem of unloading grain at port. West Coast ports are not constructed to handle large amounts of truck traffic. These restrictions of the next-best alternative to rail transport implies that railways may have the ability to set price above marginal cost.

Canadian railways are generally believed to have a degree of market power. The large sunk costs act as a barrier to entry. The lack of the threat of entry combined with a non-competitive next-best option implies that railways may have the ability to set price if freight rates were completely deregulated. Because there are only two mainline carriers serving the Canadian prairies, this market power may be substantial.

## **2.4 Terminal Elevators**

In 1996/97, Canada's ports received 24.6 million tonnes of the six major grains. Net receipts for 1996/97 were for 11.32 million tonnes for Vancouver and 4.16 million tonnes for Prince Rupert, making the total grain shipped through the West Coast 15.48 million tonnes. Thunder Bay received 8.82 million tonnes and Churchill received 0.34 million tonnes (Canada Grains Council 1997). Use of the west coast ports has increased over time. In the early 1980s, only 40 per cent of Canadian grain went through Vancouver and Prince Rupert, whereas in 1994/95 West Coast movement had increased to 63 per cent. At its maximum, the West Coast moved 20 million tonnes in 1991 through 1.1 tonnes of storage capacity. In 1998, the capacity at Thunder Bay was 1.3 million tonnes. Churchill has 140 thousand tonnes.

Overall, since 1971/72, average turnover for all terminal elevators has grown from 7 to 10 tonnes per year. Turnover at West Coast terminals is higher. From 1981/82 until 1992, the average turnover increased from 11 to 15 tonnes per year at Vancouver and from 20 to 26 tonnes per year at Prince Rupert. On the other hand, average turnover at Thunder Bay declined from 8 to 6 tonnes per year over that same time period.

There is some movement to increase West Coast capacity. For example, AWP and Cargill plan to increase handling capacity at their West Coast facility from 4.2 million tonnes to 6 million tonnes.

There is concern about declining grain movement through the St. Lawrence by those who provide the service. Total grain shipments out of Thunder Bay totaled 10.2 million tonnes, of which roughly 8 million tonnes were wheat. It is anticipated that this year the port is looking at receiving only 5.5 million tonnes of CWB grains (Western Producer 1998).



Table A5.5 lists various estimates of West Coast terminal costs. On top of these direct costs of terminal operation are other charges, such as Canadian Grain Commission Inspection costs, estimated to be \$1.30 per tonne, and marshalling costs at the port terminal, estimated to be \$1.00 per tonne (ATKearney 1994).

**Table A5.5: Estimated Terminal Elevator Costs**

<b>Terminal Elevator Costs</b>	
	(\$/tonne)
Depreciation	0.65
Interest	0.1
Insurance	0.3
Taxes	0.25
<i>Total Fixed Costs</i>	<i>1.3</i>
Labour	2.25
Utilities	0.35
Repairs and Maintenance	1.6
Other	0.65
<i>Total Variable Costs</i>	<i>4.85</i>
<b>Total Costs</b>	<b>6.15</b>
ATKearney estimates <sup>6</sup>	7.19
IBI estimates	7.5

Source: Saskatchewan Highways and Transportation (1992), ATKearney (1994) and IBI (1994)

In 1998, there were 13 terminal elevators at port position, owned by 7 elevator companies. Most of the owners of terminal facilities also own local elevators across the prairies. Rail shipments are distributed to terminals in proportion to volumes originating at primary elevators owned by the same company. Locally owned elevators and other elevator companies that do not own terminal facilities pay for terminal handling.

Most elevator companies own a terminal at only one port. The Saskatchewan Wheat Pool and UGG are the only companies to own elevators at both Thunder Bay and the West Coast. There are six<sup>7</sup> terminals at Thunder Bay, five at Vancouver, and one each at Prince Rupert and Churchill. Ownership of terminal capacity is slightly more concentrated even than the country

<sup>6</sup> Includes \$1.93 for rail to terminal transfer, \$2.02 for elevation, \$1.59 for cleaning and \$1.65 transfer to ship.

<sup>7</sup> In this paper, the two UGG terminals at Thunder Bay are considered as one.

capacity. Saskatchewan Wheat Pool has the most capacity at 23 per cent, and UGG is second at 17 per cent. N. M. Patterson, ADM and ConAgra do not own terminal facilities.

Since export grain must move through a terminal, terminal elevators may have market power since there is no alternative to this service. Terminal market power is likely to be greater at the West Coast, where terminals are operating at capacity, than at Thunder Bay and the St. Lawrence where terminals have excess capacity. The difference in market power between the ports can be illustrated by the maximum terminal tariffs in Table A5.6. The charges at the West Coast are generally higher than those charged at Thunder Bay.

**Table A5.6: Filed Tariffs for Various Thunder Bay and Vancouver Terminals**

<b>Terminal</b>	<b>Charge</b>	<b>Wheat</b>	<b>Canola</b>
<b>Thunder Bay</b>			
Cargill	Elevation (\$/tonne)	6.45	10.40
	<i>Storage (\$/tonne/day)</i>	<i>0.052</i>	<i>0.063</i>
MPE	Elevation (\$/tonne)	6.45	10.35
	<i>Storage (\$/tonne/day)</i>	<i>0.052</i>	<i>0.063</i>
SWP	Elevation (\$/tonne)	6.45	10.25
	<i>Storage (\$/tonne/day)</i>	<i>0.052</i>	<i>0.063</i>
UGG	Elevation (\$/tonne)	6.45	10.50
	<i>Storage (\$/tonne/day)</i>	<i>0.052</i>	<i>0.063</i>
<b>Vancouver</b>			
AWP	Elevation (\$/tonne)	6.71	10.41
	<i>Storage (\$/tonne/day)</i>	<i>0.054</i>	<i>0.066</i>
Pioneer	Elevation (\$/tonne)	6.85	10.60
	<i>Storage (\$/tonne/day)</i>	<i>0.052</i>	<i>0.063</i>
SWP	Elevation (\$/tonne)	6.78	10.60
	<i>Storage (\$/tonne/day)</i>	<i>0.054</i>	<i>0.066</i>
UGG	Elevation (\$/tonne)	6.80	10.50
	<i>Storage (\$/tonne/day)</i>	<i>0.054</i>	<i>0.062</i>

Source: Canadian Grain Commission (1998)

There is potential for the exercise of market power by primary and terminal elevators as well as by the railways. This is due to the structure of these industries as described above. Adding the capacity constraint to this situation only serves to increase the potential for confusion, congestion, and strategic behaviour. In the current system, the CWB attempts to mitigate these potential problems.

### **3 The Canadian Wheat Board's Role in Transportation**

The Canadian Wheat Board (CWB) is the sole exporter of western Canadian wheat and barley. It also sells all western Canadian wheat and barley for human consumption within Canada. The single-desk selling authority of the CWB is legislated through an Act of Parliament: *The Canadian Wheat Board Act* (1943). This Act was amended in 1998.

The CWB is involved in rail car allocation for board grains. It determines which cars get sent to which train runs. The elevators along those train runs then get allocated rail cars on the basis of past volume. Car turnaround times indicate that board-grains have a faster turnaround than off-board grains. CWB grains have a turnaround time of 17.9 days to the West Coast, versus 29.9 days for specialty crops.

The CWB also acts to ration the capacity constraint within the grain handling system. While western Canada exports about 30 million tonnes, 20 million of which is wheat, primary elevators only have a capacity of 6.5 million tonnes. The rail system is limited to what it can store in rail cars, and the terminal elevators have storage capacity for only 2.9 million tonnes (Demmans and Roth 1998). Thus the grain transportation and handling system could not handle the delivery of all export grain at one time. Ninety-seven percent of the wheat brought to the primary elevator is delivered to the CWB (Hucq 1997). Under the CWB, all producers receive the same price for their grain regardless of when in the crop year they deliver. The result is that if producers have a discount rate greater than zero, they will have the incentive to deliver their grain as soon after harvest as possible. Thus, the CWB has to regulate the timing of deliveries throughout the year to ensure the grain transportation and handling system does not get plugged.

In 1993-94, the CWB moved to a contract system for timing the sourcing of grain from producers. Producers sign a contract for a certain quantity and grade of grain, to be delivered before a specific date. There are four delivery deadlines in the year. Within a few weeks after the last date to sign a specific contract, the CWB calculates the percentage of the contracted grain needed and calls it forward (Canadian Wheat Board 1994).

As a result of the CWB rationing the West Coast port capacity, grain is directed through the St. Lawrence Seaway that would have otherwise been shipped through the West Coast. The CWB reflects the administered movement of grain in the prices charged for grain transportation. Producers shipping east receive a subsidized rate for the use of the St. Lawrence Seaway. The cost of the subsidy is charged to all grain producers through the price pooling system. The full cost of using the St. Lawrence Seaway is about \$20.00 per tonne of grain. The CWB instead charges a Freight Adjustment Factor (FAF) of \$11.55 per tonne to the cost of rail movement to Thunder Bay. The CWB (and thus producers) cross-subsidize the use of the seaway, therefore, by about \$8.45 per tonne. The lower cost of the seaway is paid for by all producers from the pool accounts, amounting to about \$4.00 per tonne for all CWB grain.

The effect of the west coast capacity constraint and the CWB subsidy is illustrated in Figure A5.1. The horizontal axis represents western Canada from west to east. The left origin represents the West Coast (WC), and the right origin represents Thunder Bay (TB). The vertical axis represents the price for grain received at any point. The price paid for grain at the West Coast is the world price ( $P_w$ ) and the price paid for grain at Thunder Bay is the world price less seaway costs ( $P_w - SC$ ). The diagonal lines represent the price producers receive for their grain at any point along the prairies; the slope of the diagonal lines is the freight rate per tonne-mile. Thus, the price the farmer receives is the price at the port less the freight rate,  $r$ , times the distance to port (for the purposes of simplicity, local and terminal elevator charges will be ignored in this diagram). Producers are assumed to ship to the port from which they will receive a higher price.

If there was no West Coast capacity constraint, and the full cost for the seaway is charged, producers at point 'm' are indifferent between which port they ship to (for wheat, point 'm' is approximately at Brandon, Man.) Point 'm' is determined by finding the point on the horizontal axis where the diagonal lines starting at  $P_w$  on the left and  $P_w - SC$  on the right intersect. Farmers located at point 'm' will receive the same price for grain whether the grain is shipped through the east or West Coast.

Now assume there is a capacity constraint at the West Coast such that only grain to the left of point 'k' can be accommodated. To ration the use of the West Coast ports, the CWB subsidizes the cost of using the seaway so that the mid-point is moved west to 'k'. For wheat, point 'k' is at Sinaluta, Sask. This increases the implicit price received at Thunder Bay from  $P_w - SC$  to  $P_w - FAF$ .<sup>8</sup>

The shaded area in Figure A5.1 represents the total value of the seaway subsidy; the per tonne cost of the subsidy is  $SC - FAF$ . To raise the funds for this subsidy, the CWB takes approximately \$4.00 per tonne from the pool accounts. If this per tonne cost is denoted as 'c', then the deduction means a lowering of the FOB price to all farmers from  $P_w$  to  $P_w - c$ . This pooled cost in turn lowers the price received by all producers. Producers to the left of point k receive  $P_w - c - rd$ , where  $r$  is the per tonne mile freight rate and  $d$  is the distance from WC. Producers to the right of point 'k' face a farm price equal to  $P_w - c - FAF - rd^*$ , where  $d^*$  is the distance from TB. The dashed diagonal lines in Figure A5.1 represent these farm prices.

With a deregulated freight rate, this restricted capacity would be rationed through higher prices (basis charges) to the West Coast. It is uncertain whether the railways, the West Coast terminals, or some other party would capture this rent. Figure A5.2 illustrates how the capacity constraint at the West Coast port can be rationed through price.

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<sup>8</sup> In fact, the world prices are different at the West Coast than at the east coast (thus the  $P_w$  at WC  $\neq$   $P_w$  at TB). The CWB takes these different prices into account and sets the FAF such that the mid-point of the catchment area remains at k.

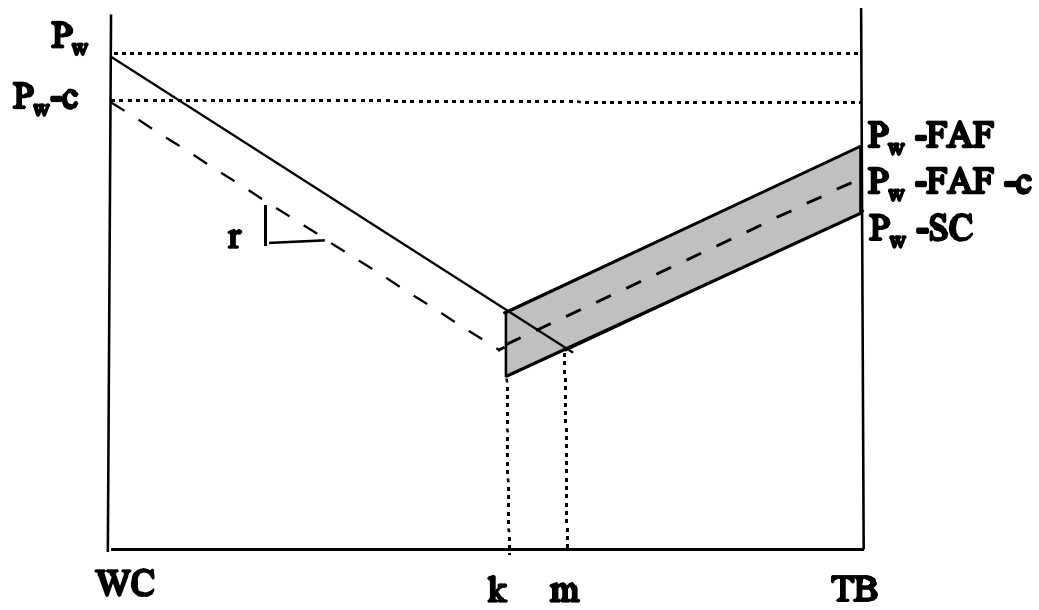


Figure A5.1: CWB Allocation of West Coast Capacity

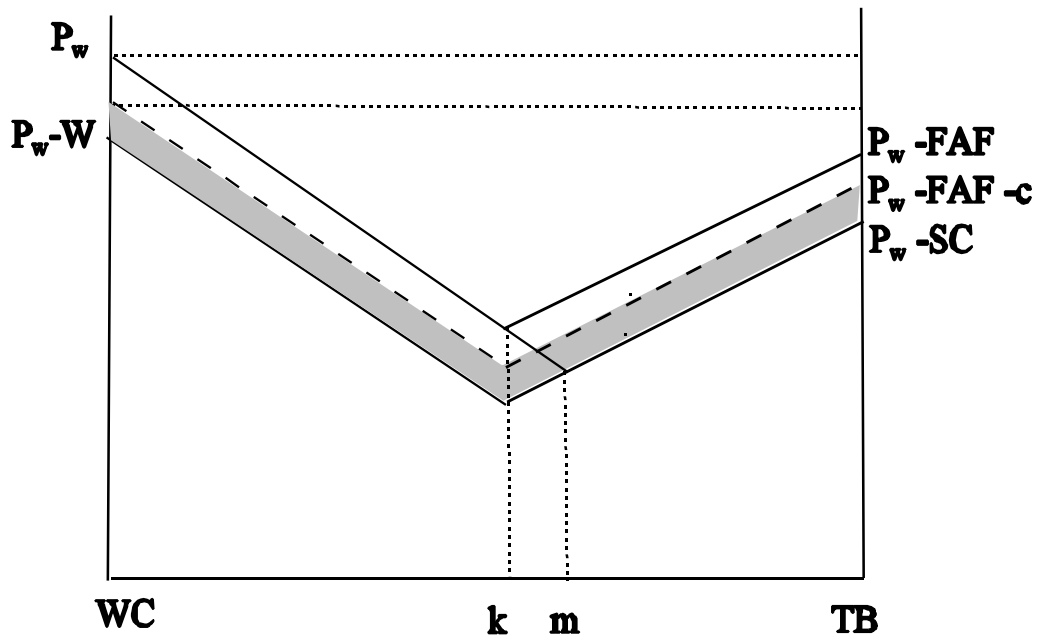


Figure A5.2: Market Allocation of West Coast Capacity

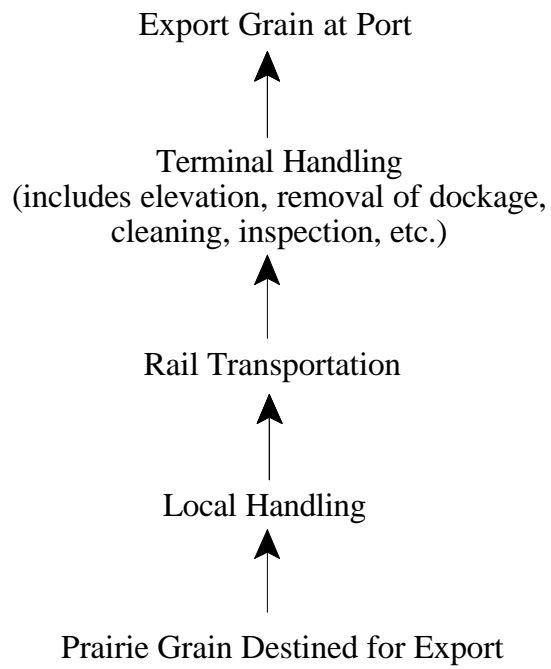
As in Figure A5.1, the dashed lines represent the farm gate price received under the CWB allocation of port use and seaway subsidy. If the full cost of the seaway is charged, the midpoint of the port catchment areas returns to point m. To ensure the mid-point is at point k, a charge must be levied on grain shipped to the West Coast. This charge must be sufficient to entice those producers situated between points k and m to ship through Thunder Bay rather than through the West Coast. In Figure A5.2 this extra charge is illustrated by W. This charge may appear as a congestion charge on the freight rate or on hopper cars or as an increased charge at the West Coast terminal elevators. Producers whose grain is shipped through the West Coast will now receive less for their grain, as represented by the black solid line to the left of k. The shaded area represents the loss to those producers from having the West Coast capacity constraint allocated through a market mechanism. This area is not lost to the grain handling industry, but is transferred to those parties that are able to charge for the capacity allocation.

#### **4 The Model**

This section describes the model used to simulate the above results. The model is based on the assumption that grain handling and transportation services, such as transportation, and local and terminal elevation, are needed in equal proportions with physical grain located on the prairies to produce an end product of export grain at port position. In other words, to produce one tonne of grain at port requires one tonne of grain destined for export at the farm along with the services required to handle one tonne of grain at the local and terminal elevators and in the rail system. Each input is modeled as a link in a vertical chain (Figure A5.3).

The model allows for various levels of market power within and between the sectors. The services provided by the different firms in each of the sectors (e.g. the country elevator companies, the rail companies and the terminal elevator companies) are assumed to be heterogeneous. Because of the spatial differences among country elevators and railways, as well as brand loyalty to certain elevator companies, the model assumes firms have the ability to set a price different from their competitors. Thus, the firms are assumed to choose price when maximizing profit, as opposed to choosing quantity. Although the model assumes that any given firm can choose a price for its services that is different than its competitors, in equilibrium all firms providing the same service are assumed to set the same price.

Farmers are assumed to be located in a number of regions across the prairies. The regions are defined so all production from that region is shipped to the nearest port. Each region is assumed to have its own supply curve for grain, allowing the model to take different local costs of production into account.



**Figure A5.3: Vertical Chain in Grain Transportation and Handling**



Figure A5.4 shows the quantity of grain produced and exported from any given region. The price at port position,  $p_w$ , is assumed to be unaffected by the quantity exported. Local elevators charge a price  $t_i$  to handle and remove dockage in region 'i'. Railways charge a price  $r_i$  to move the grain from region 'i' to port. Grain terminals at the port are assumed to charge a price  $T$ . For region  $i$ , the sum of these charges – i.e.,  $T + r_i + t_i$  – make up the export basis. Thus a grain farmer delivering grain for export in region 'i' will receive a price  $p_i = p_w - T - r_i - t_i$ . With a farm price of  $p_i$ , farmers in region  $i$  will produce quantity  $X_i^s$ , where  $X_i^s$  is a point on the region  $i$  supply curve  $S_i$ . The supply curve  $S_i$  is assumed to be a planning supply curve as opposed to the supply available at any single point in time. The rationale for using a planning supply curve is explained later.

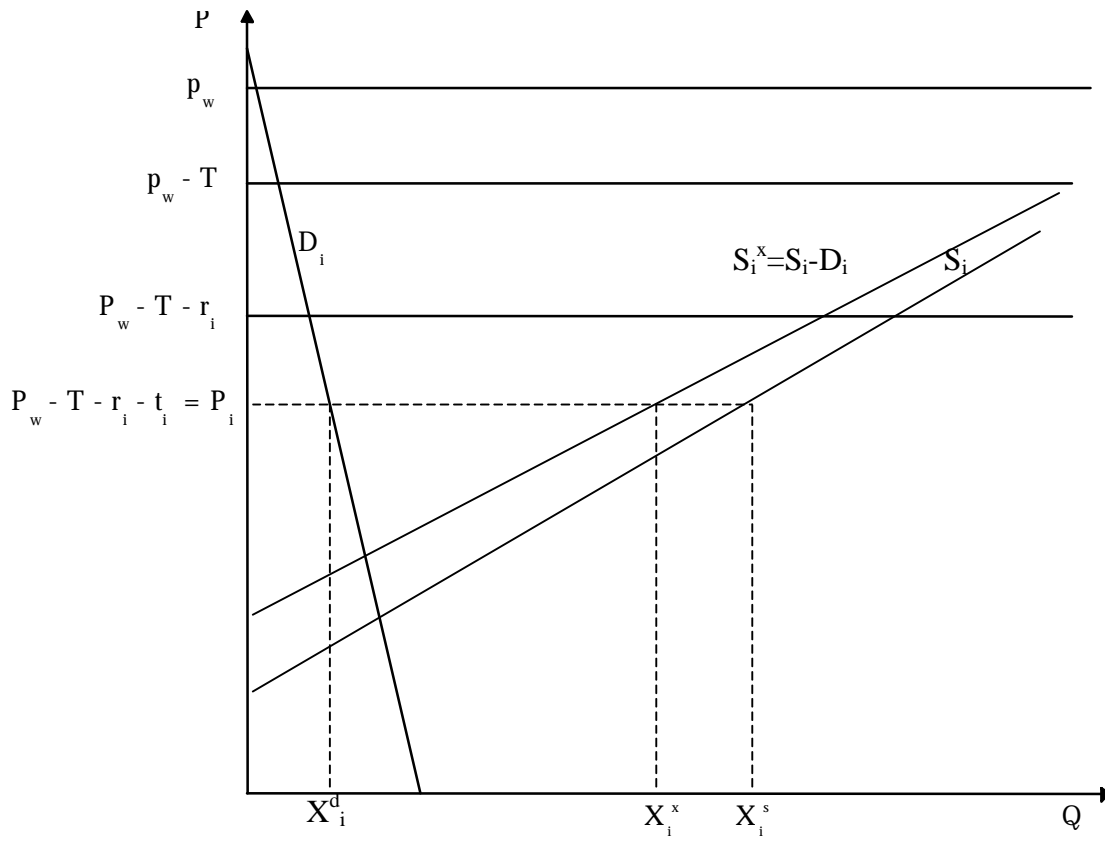
Demand by local grain users in region  $i$  is given by  $X_i^d$ , where  $X_i^d$  is a point on the region  $i$  demand curve  $D_i$ . Curve  $D_i$  shows the amount of grain demanded locally, either as feed or for domestic processing. Exports of grain from region 'i' are thus  $X_i^x = X_i^s - X_i^d$ , where  $X_i^x$  is a point on the export supply curve  $S_i^x$ . The export supply curve,  $S_i^x$ , is derived by taking the horizontal difference between  $X_i^s$  and  $X_i^d$ . The export supply curve in the model is assumed to be linear and represented by the following equation:

$$p_i = \alpha_i + \beta_i X_i$$

Prices are determined in a two-period game. In the first period the railways and terminals simultaneously choose their prices to maximize profits. The prices chosen represent a Nash equilibrium in prices, in that at equilibrium no firm finds it optimal to change the price it is charging. Knowing the freight rates and terminal charges, the local elevators then set their prices in the second period. Once again, the prices that are chosen represent a Nash equilibrium.

The model assumes the railways and terminals know how the local elevators will react to freight rates and terminal charges, and take this reaction into account when making their pricing decision. Formally, the railways and terminal elevators are leaders in the two period game, with the local elevators being the followers. All firms within a firm type (i.e. railways or local or terminal elevators) are assumed to have the same cost structure. As a consequence, each firm in the same region will charge the same price in equilibrium.

The model incorporates the vertical integration currently found in the elevator industry. All the firms that own terminal elevators also own some local elevators, but not all local elevator companies own a terminal. The extra competition that results because of the presence of independent local elevator companies is taken into account in the model. As well, the model recognizes that terminal elevator companies do not have to compete with each other for most of the business they do, since grain that is sourced in their local elevator system is funneled through the terminal elevator.

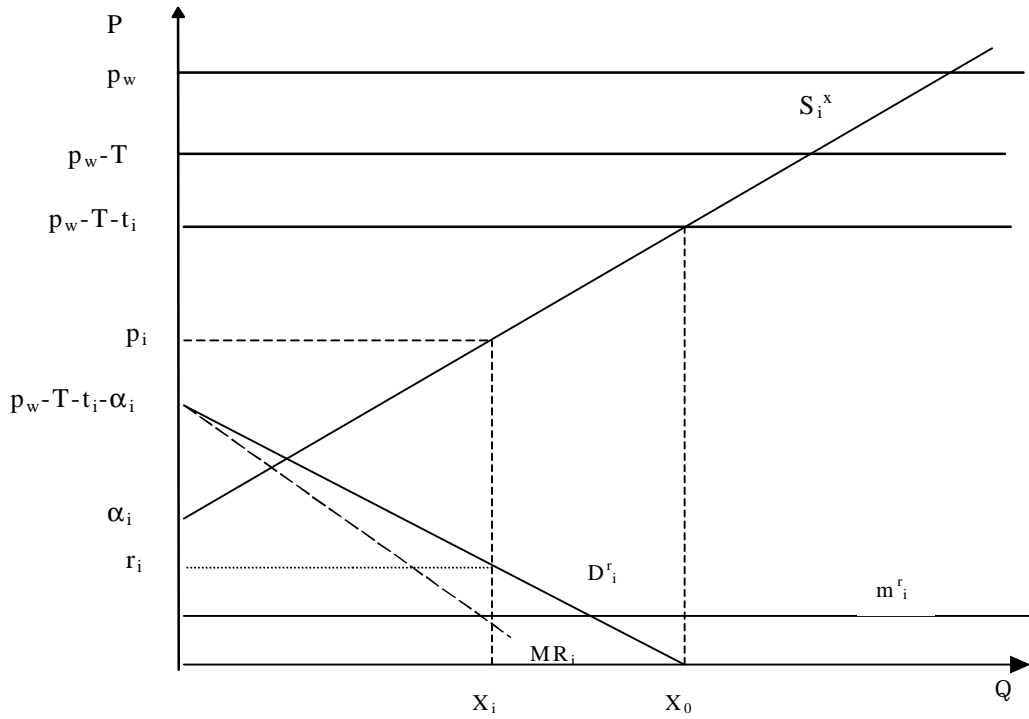


**Figure A5.4: Determination of Grain Exports from a Region**

Figure A5.5 illustrates how a railway firm in region ‘i’ would set its freight rate. The analysis begins with the derivation of the derived demand facing a monopoly railway in region ‘i’. The railway’s derived demand curve,  $D_i^r$ , is given by the vertical distance between a vertical line at  $p_w - T - t_i$  and the export supply curve  $S_i^x$ . The intuition is as follows. If the railways set rail rates equal to zero, the farm level price in region i would equal  $p_i = p_w - T - t_i$ . With this farm level price, farmers would export quantity  $X_0$ . Thus, the point  $(X_0, 0)$  represents one point on the derived demand curve. A second point on the derived demand curve can be found by noting that farmers in region i would export nothing if the rail rates were set equal to  $p_w - T - t_i$  less  $\alpha_i$ , the intercept of the export supply curve. Thus, the point  $(0, p_w - T - t_i - \alpha_i)$  represents another point on the derived demand. Connecting these two points gives the derived demand facing the railway. Given this demand curve, the railway sets its rail rate price  $r_i$ , where  $r_i$  is determined by the intersection of the railway’s marginal revenue curve ( $MR_i$ ) and marginal cost curve ( $m_i^r$ ).

If more than one railway was operating in the region, the determination of price is slightly different, although the principle is the same. The demand curve facing all the firms operating in the region is derived first – this demand curve is curve  $D_i^r$  in Figure A5.5. From this curve, the demand for an individual railway can be determined, which in turn allows the construction of the marginal revenue curve facing an individual railway. Determination of local and terminal elevator charges is done in a similar fashion to that of the railways. For instance, the demand facing the terminal elevators is found by vertical distance between a vertical line at  $p_w - r_i - t_i$  and the export supply curve  $S_i^x$ .

Because of the time lag between planning and resulting production, the supply curve for grain at any specific point in time is completely inelastic. However, this curve is not used for the determination of the export supply curve. Instead, the relevant supply curve is the *ex ante* or planning supply curve. The argument goes as follows. If the railways price off the highly inelastic actual demand, they will drive the price down below the point where producers would have chosen to produce. Assuming producers are rational, if the railways force their price below their shut-down point, they will expect this behaviour to occur again, and therefore will not produce. This model of behaviour is not dissimilar from the old adage, “fool me once, shame on you, fool me twice shame on me.” Thus it is assumed that the railways and elevators will use the planning supply curve to set their prices, even in a fully deregulated environment.



**Figure A5.5: Derived Demand Curve for Rail**

## 5 Description of Export Supply Curves and Model Market Power Parameters

Producers are assumed to not produce grain if price is below their marginal cost of production. Thus, supply of grain is assumed to have a positive intercept. There is literature that suggests the supply of grain is inelastic at the current price, therefore the percentage change in price is greater than the resulting percentage change in quantity. Supply elasticities for wheat from Saskatchewan is presented in Table A5.7. The farm price for Saskatchewan and quantity produced in western Canada are also shown.

**Table A5.7: Supply Elasticity and Farm Price, Wheat and Canola, Saskatchewan**

	Supply Elasticity	Farm Price (\$/tonne)	Quantity Produced (mmt)
Wheat	0.46	167.00	24
Canola	0.697	348.00	4.4

Sources: Yildirim 1990, Saskatchewan Agriculture and Food, Canadian Grain Commission and Wheeler (1996).

If a supply curve is assumed to have both a positive intercept, and is inelastic at the current price and quantity, it can be neither linear, nor logarithmic. Thus the hybrid formulation below is used

$$p_i = A_i^s + B_i^s X_i^G$$

From the information in Table A5.7 and the cost of production figures from Saskatchewan Agriculture and Food (1997), the regional values for A, B and G can be determined. These values are presented in Table A5.8.

Since this study is concerned with the supply of crop going to export, the domestic demand for these commodities must be subtracted from the domestic production. Following, in Table A5.9, are estimates of domestic demand elasticities, prices and quantities for various commodities. For simplicity, domestic demand is assumed to be equal across the regions.

**Table A5.8: Values for Parameters of Domestic Supply Curve**

<b>Region</b>	<b>Crop</b>	<b>A<sub>i</sub><sup>s</sup></b>	<b>B<sub>i</sub><sup>s</sup></b>	<b>G</b>
South Alta.	Wheat	101.00	0.09	5.52
	Canola	<i>185.00</i>	<i>1167.80</i>	<i>3.06</i>
Peace River	Wheat	96.00	0.09	5.52
	Canola	<i>180.00</i>	<i>1167.80</i>	<i>3.06</i>
Northeast Alta.	Wheat	96.00	0.09	5.52
	Canola	<i>180.00</i>	<i>1167.80</i>	<i>3.06</i>
West Sask.	Wheat	98.00	0.09	5.52
	Canola	<i>182.00</i>	<i>1167.80</i>	<i>3.06</i>
Southwest Sask.	Wheat	106.00	0.09	5.52
	Canola	<i>185.00</i>	<i>9712.27</i>	<i>3.06</i>
Northeast Sask.	Wheat	96.00	9.34	5.52
	Canola	<i>180.00</i>	<i>1167.80</i>	<i>3.06</i>
Southeast Sask.	Wheat	101.00	9.34	5.52
	Canola	<i>185.00</i>	<i>1167.80</i>	<i>3.06</i>
East Sask./	Wheat	96.00	9.34	5.52
West Man.	Canola	<i>180.00</i>	<i>1167.80</i>	<i>3.06</i>
Southwest Man.	Wheat	101.00	9.34	5.52
	Canola	<i>185.00</i>	<i>16955.10</i>	<i>3.06</i>
Southern Man.	Wheat	96.00	9.34	5.52
	Canola	<i>180.00</i>	<i>16955.10</i>	<i>3.06</i>

Source: Author's Calculations and Saskatchewan Agriculture and Food (1997)

**Table A5.9: Domestic Demand for Various Commodities**

	Demand Elasticity	Domestic Price (\$/tonne)	Domestic Demand (mmt)
Wheat	-0.5	167.00	4
Canola	-0.1	348.00	2

Sources: Schmitz et al (1997), Storey et al. (1993), Canadian Wheat Board, Canadian Grain Commission

Demand is assumed to be linear, of the form

$$p_i = A_i^d + B_i^d X_i^G$$

Export supply is the horizontal subtraction of the domestic supply less domestic demand, resulting in the following equation

$$X_i = \left[ \frac{p_i - A_i^s}{B_i^s} \right] - \left[ \frac{A_i^d - p_i}{B_i^d} \right]$$

The resulting elasticities, and initial price and quantities of the derived export supply curves are detailed in Table A5.10. The intercept represents the price at which there would be no crop exported.

Using the above supply curves, the model was calibrated using the elevator tariffs charged in 1997/98. Market power parameters ( $\gamma^l$  and  $\gamma^T$ ) for local and terminal elevators were calculated for each crop. The conjectural variation of the reaction of other firms to a change in any one firm's price ( $\gamma$ ) was assumed to be the same for each firm. The conjectural variation  $\gamma^l$  for local elevators was also assumed to be the same for each region shipping to the same port.

The key parameters are:

- $\gamma^l$      The conjectural variation of the price reaction of other local elevators to a change in price by any one local elevator. ( $1 \geq \gamma^l \geq -\infty$ )
- $\gamma^T$      The conjectural variation of the price reaction of other terminal elevators to a change in price by any one terminal elevator. ( $1 \geq \gamma^T \geq -\infty$ )
- $\gamma^R$      The conjectural variation of the price reaction of the other railway to a change in price by the other railway. ( $1 \geq \gamma^R \geq -\infty$ )

- $\phi^T$  The conjectural variation of the price reaction of the railways to a change in terminal elevator tariffs. ( $1 \geq \phi^T \geq -\infty$ )
- $\phi^R$  The conjectural variation of the price reaction of the terminals to a change in railway rates. ( $1 \geq \phi^R \geq -\infty$ )
- W The price wedge on grain moving west, needed to ration the use of the West Coast capacity.

**Table A5.10: Export Supply of Wheat & Canola for Various Regions of Western Canada**

Region	Crop	Export Supply Elasticity	Intercept (\$/tonne)	Farm Price (\$/tonne)	Quantity Exported (mmt)
South Alta.	Wheat	0.62	101.01	173.32	2.83
	<i>Canola</i>	<i>1.31</i>	<i>201.88</i>	<i>357.48</i>	<i>0.30</i>
Peace River	Wheat	0.60	96.01	168.72	2.83
	<i>Canola</i>	<i>1.32</i>	<i>196.95</i>	<i>348.73</i>	<i>0.29</i>
Northeast Alta.	Wheat	0.60	96.01	169.45	2.83
	<i>Canola</i>	<i>1.32</i>	<i>196.95</i>	<i>348.88</i>	<i>0.29</i>
West Sask.	Wheat	0.64	98.01	164.62	2.76
	<i>Canola</i>	<i>1.33</i>	<i>198.92</i>	<i>348.88</i>	<i>0.29</i>
Southwest Sask.	Wheat	0.69	106.01	168.83	2.74
	<i>Canola</i>	<i>1.35</i>	<i>202.14</i>	<i>351.75</i>	<i>0.15</i>
Northeast Sask.	Wheat	0.63	96.01	163.54	1.19
	<i>Canola</i>	<i>1.39</i>	<i>196.95</i>	<i>337.53</i>	<i>0.28</i>
Southeast Sask.	Wheat	0.66	101.01	166.59	1.19
	<i>Canola</i>	<i>1.37</i>	<i>201.96</i>	<i>348.71</i>	<i>0.29</i>
East Sask./	Wheat	0.62	96.01	166.32	1.20
West Man.	<i>Canola</i>	<i>1.37</i>	<i>197.04</i>	<i>340.60</i>	<i>0.28</i>
Southwest Man.	Wheat	0.63	101.01	172.59	1.21
	<i>Canola</i>	<i>1.36</i>	<i>201.96</i>	<i>349.57</i>	<i>0.12</i>
Southern Man.	Wheat	0.58	96.01	173.89	1.23
	<i>Canola</i>	<i>1.36</i>	<i>197.06</i>	<i>352.16</i>	<i>0.12</i>

Sources: Author's Calculations, Canadian Wheat Board and Canada Grains Council



Parameters  $\gamma^R$  for rail were set at 0 for most regions. The implicit assumptions are that 1) a railway assumes the other rail firm will not react if it changes its freight rate, and 2) a railway assumes that the terminals will not change their tariff if the railway changes its freight rate. The implication of the first assumption is that the model assumes the railways do not collude with each other. The conjectural variation,  $\gamma^R$ , for the railways is less than zero for several regions. In southwest Manitoba,  $\gamma^R$  was assumed to be -1, and in southern Manitoba,  $\gamma^R$  was assumed to be -1.5. The change in the parameter reflects the increase in transport competition due to the access to the US rail system and the US domestic market. The values for the parameters used in the model are presented in Table A5.11 (the remainder of the tables are located at the end of the appendix).

## **6 Results**

A model was used to simulate the effect of the removal of the St. Lawrence Seaway subsidy and the end of the regulatory rationing of the West Coast ports. The results of the simulation are presented in Table A5.12. If the CWB were moved to port position purchasing, it would no longer allocate the use of the West Coast port. As described above, the limited capacity would result in a price wedge in place to limit the use of the West Coast route for export. The model also captures the effect of increased or decreased competitiveness under the proposals of port buying, farm buying and zone allocation.

The results in Table A5.12 can be interpreted by taking southwest Saskatchewan as an example. With the freight rate cap in place, the simulation shows this region to have a local elevator charge (which would include elevation and handling as well as removal of dockage charges) of approximately \$8.28 per tonne. The capped rail charge is approximately \$34.82 per tonne and the terminal elevation charge, which would include all port functions is \$12.69. The CWB's seaway subsidy costs all producers about \$4.00 per tonne. This gives a total export basis for wheat from southwest Saskatchewan to Vancouver of about \$59.78 per tonne.

If the West Coast capacity was being rationed through price as opposed to CWB administration, producers shipping west will pay an extra \$8.45 per tonne, but will not longer have the \$4.00 pooled cost to contend with. Under this scenario, producers face a local elevator charge of \$8.04 per tonne, a capped railway charge of \$34.33 per tonne and a terminal charge of \$12.24 per tonne. The \$8.45 per tonne will be portioned out between the railways and terminal elevators depending where the constraint lies and which sector has the ability to capture the rents. The total export basis will be \$63.07 per tonne.

### **6.1 Change in Market Power Due to Port Buying**

Port buying would affect primary elevator competition through the car allocation process. In the current system, the volume of cars allocated to any elevator is based largely on the shipments made by that elevator the previous year, along with incentive and penalty cars. The large weight attached to the previous shipments makes it difficult for a primary elevator to

significantly change market share within a year. In effect, this allocation process constrains the ability of competitive actions to attract business in the short run. This constraint means that companies tend to operate on the assumption of virtually fixed market shares. In an environment that did not have this car allocation formulae, the local grain elevators may have more flexibility to change market share. Thus the market for local elevation services might become more competitive.

Under the current system, the conjectured parameter for wheat for local elevators  $\gamma^t$  was estimated to be at -7.5, implying that there is some competition among local elevators. If the current car allocation scheme acted to completely block any change in market share, one might assume that local elevators would use a Hotelling-Smithies conjectural variation; thus it is assumed that other elevators will not react to a change in price by any one elevator, thus  $\gamma^t = 0$ . The rationale is that if an elevator knows that its market share will not dramatically change with a change in price, there will be little incentive to enter into price competition. If this constraint is removed, elevators may be expected to react to a change in price charged by other elevators, giving a  $\gamma^t < 0$ .

Another effect of port buying is the elimination of car pooling at the port. For a terminal to attract grain from an elevator company that does not own a terminal facility, a contract will have to be signed early in the year. It may be assumed that where there is no terminal capacity constraint, terminals will compete for grain sourced from independent elevators. This price competition for independent elevator grain may affect the level of competition between the terminals. Thus, the  $\gamma^T$  of the terminal elevators may change from the status quo.

## **6.2 Changed West Coast Capacity Due to Port Buying**

The effect of port buying on the West Coast capacity is unknown. If the CWB were contracting for grain at the port position, it may equally be able to contract for grain delivered at Portland, Oregon. Because the CWB has an interest in preserving the quality of the grain, the CWB would be likely to ensure that the grain is inspected and cleaned to specification even though it is at the US port. If the use of the Portland port were indeed possible, it may ameliorate the capacity constraint problem.

The elimination of car pooling at the port may increase port congestion. At the same time, the increased incentive for grain companies to ensure timely delivery may lead to an increase in West Coast capacity.

## **6.3 The Combined Effect of Port Buying**

The combined effect of a move to port buying is unknown. The change in car allocation, a change in car pooling at the ports, and a move to contracting for rail services by elevators, will all have different effects on the numerous conjectural variations in the model. Table A5.13 illustrates

the combined effects of increased local and terminal competition and the West Coast capacity constraint. These are some potential effects of a port tender system.

#### **6.4 The Effect of On-Farm Buying**

The on-farm buying option would increase the degree of price competition at the farm level. The CWB would be very price sensitive as they would use a bid system to determine which primary elevators were used. Like the Port buying option, on-farm buying would enhance the competition among the local elevator companies. As above, the increased competition among local elevator companies would affect  $\gamma^f$ .

Given that the Port Buying option modeled here is essentially a bid for basis at port position, the key difference between the port buying and farm buying options is the farm buying option gives the CWB the continued ability to ration the use of the West Coast port. The difference in West Coast capacity allocation is the only change between the port and farm buying options illustrated in Table A5.13.

The results presented in Table A5.13 assume the railways and terminals believe that the other will not react to a change in their price. Thus, if terminal companies believe there are extra rents in the system they will set their tariffs without regard to the reaction their rates will induce on the part of the railways. Given that all of the following scenarios assume a continued freight rate cap, this may be a realistic assumption. If, however, the freight rate cap were to end, there may be pricing interaction between the terminals and the railways.

Tables A5.14 through A5.19 illustrate a number of sensitivity analyses on the above results. If there is a change in the amount of local elevator competition, either caused by increased bargaining power on behalf of producers through the Canadian Wheat Board, or decreased competition due to elevator consolidation, the export basis will be affected. Tables A5.14 and A5.15 illustrate the effect of a change in local elevator competition.

There may equally be an increase in the amount of terminal competition, which is modelled in Table A5.16. Table A5.17 illustrates the impact of an increase in the West Coast capacity, and Table A5.18 looks at an increase in the size of the zones used for car allocation. Lastly, the impact of freight rate deregulation is illustrated in Table A5.19.

**Table A5.11: Parameters for Local Elevators, Railroads and Terminal Elevators by Region**

<b>Region</b>	<b>Crop</b>	<b>Local Elevator</b>	<b>Rail</b>	<b>Terminal</b>
		$\gamma^L$	$\gamma^R$	$\gamma^T$
South Alta.	Wheat	-7.5	0	-25
	<i>Canola</i>	-8	0	-10
Peace River	Wheat	-7.5	0	-25
	<i>Canola</i>	-8	0	-10
Northeast Alta.	Wheat	-7.5	0	-25
	<i>Canola</i>	-8	0	-10
West Sask.	Wheat	-7.5	0	-25
	<i>Canola</i>	-8	0	-10
Southwest Sask.	Wheat	-7.5	0	-25
	<i>Canola</i>	-8	0	-10
Northeast Sask.	Wheat	-7.5	0	-45
	<i>Canola</i>	-8	0	-10
Southeast Sask.	Wheat	-7.5	0	-45
	<i>Canola</i>	-8	0	-10
East Sask./	Wheat	-7.5	0	-45
West Man.	<i>Canola</i>	-8	0	-10
Southwest Man.	Wheat	-7.5	-1	-45
	<i>Canola</i>	-8	-1	-15
Southern Man.	Wheat	-7.5	-1.5	-45
	<i>Canola</i>	-8	-1.5	-15

Source: Author Calculations and Canadian Grain Commission, 1998.

**Table A5.12: Simulation of Freight Rates and Elevator Charges for Wheat, Before and After Removal of CWB Rationing of West Coast Capacity**

Regions	Scenarios	Elevator Tariffs	Rail Rates	FAF/ Seaway	Terminal Charge	CWB/ Capacity	Total Basis
				(\$/tonne)			
South Alta.	<i>With cap</i>	8.96	29.24		12.69	4.00	54.89
	WC constraint	8.73	28.77	N/A	12.24	8.45	58.19
Peace River	<i>With cap</i>	11.01	30.81		12.69	4.00	58.50
	WC constraint	10.68	30.35	N/A	12.24	8.45	61.72
Northeast Alta.	<i>With cap</i>	9.82	32.18		12.69	4.00	58.69
	WC constraint	9.55	31.72	N/A	12.24	8.45	61.96
West Sask.	<i>With cap</i>	9.21	38.13		12.69	4.00	64.03
	WC constraint	8.94	37.66	N/A	12.24	8.45	67.29
Southwest Sask.	<i>With cap</i>	8.28	34.82		12.69	4.00	59.78
	WC constraint	8.04	34.33	N/A	12.24	8.45	63.07
Northeast Sask.	<i>With cap</i>	8.53	30.30	11.55	8.41	4.00	62.97
	WC constraint	8.31	29.89	20.00	8.26	--	66.93
Southeast Sask.	<i>With cap</i>	7.45	28.68	11.55	8.41	4.00	60.21
	WC constraint	7.29	28.26	20.00	8.26	--	63.93
East Sask./ West Man.	<i>With cap</i>	8.10	27.81	11.55	8.41	4.00	60.02
	WC constraint	7.60	27.40	20.00	8.26	--	63.72
Southwest Man.	<i>With cap</i>	7.60	24.87	11.55	8.41	4.00	53.57
	WC constraint	7.44	24.46	20.00	8.26	--	57.50
Southern Man.	<i>With cap</i>	7.87	22.75	11.55	8.41	4.00	50.71
	WC constraint	7.72	22.35	20.00	8.26	--	54.69

Source: Authors' Calculations

**Table A5.13: Alternate Simulation of Freight Rates and Elevator Charges for Wheat, Currently and With Combined Effects under Port and Farm Buying<sup>10</sup>**

Regions	Scenarios	Elevator Tariffs	Rail Rates	FAF/ Seaway	Terminal Charge	CWB/ Capacity	Total Basis
			(\$/tonne)				
South Alta.	<i>Zone Allocation</i>	9.00	29.00		12.37	4.00	54.36
	Port Buying	7.14	29.31	N/A	9.52	8.45	54.53
	Farm Buying	7.27	29.82		9.79	4.00	50.89
Peace River	<i>Zone Allocation</i>	11.06	30.56		12.37	4.00	57.99
	Port Buying	8.31	30.55	N/A	9.43	8.45	57.27
	Farm Buying	8.50	31.99		9.69	4.00	53.77
Northeast Alta.	<i>Zone Allocation</i>	9.86	31.94		12.37	4.00	58.17
	Port Buying	7.62	32.30	N/A	9.43	8.45	57.90
	Farm Buying	7.78	32.81		9.69	4.00	54.37
West Sask.	<i>Zone Allocation</i>	9.26	37.92		12.37	4.00	63.54
	Port Buying	7.29	38.22	N/A	9.43	8.45	63.48
	Farm Buying	7.45	38.73		9.69	4.00	59.96
Southwest Sask.	<i>Zone Allocation</i>	8.31	34.62		12.37	4.00	59.30
	Port Buying	6.77	34.85	N/A	9.43	8.45	59.59
	Farm Buying	6.90	35.37		9.69	4.00	56.06
Northeast Sask.	<i>Zone Allocation</i>	8.72	30.28	11.55	8.41	4.00	62.97
	Port Buying	6.85	30.16	20.00	7.09	--	64.09
	Farm Buying	6.97	30.57	11.55	7.17	4.00	60.25
Southeast Sask.	<i>Zone Allocation</i>	7.59	28.66	11.55	8.41	4.00	60.21
	Port Buying	6.27	28.48	20.00	7.04	--	61.84
	Farm Buying	6.35	28.90	11.55	7.15	4.00	57.97
East Sask./ West Man.	<i>Zone Allocation</i>	8.26	27.79	11.55	8.41	4.00	60.02
	Port Buying	6.61	27.65	20.00	7.04	--	61.35
	Farm Buying	6.72	28.05	11.55	7.15	4.00	57.48
Southwest Man.	<i>Zone Allocation</i>	7.86	21.74	11.55	8.41	4.00	53.57
	Port Buying	6.42	21.67	20.00	7.04	--	55.17
	Farm Buying	6.50	21.88	11.55	7.15	4.00	51.10
Southern Man.	<i>Zone Allocation</i>	8.18	18.56	11.55	8.41	4.00	50.71
	Port Buying	6.58	18.51	20.00	7.04	--	52.18
	Farm Buying	6.66	18.67	11.55	7.15	4.00	48.05

Source: Authors' Calculations

<sup>10</sup> The combined effects modeled are the increase in local and terminal elevator competition, independent actions on the part of the terminals and railways and, for Port Buying, the West Coast capacity constraint.

**Table A5.14: Alternate Simulation of Freight Rates and Elevator Charges for Wheat, Under Zone Allocation, Port and Farm Buying with Increased Local Competition**

<b>Regions</b>	<b>Scenarios</b>	<b>Elevator Tariffs</b>	<b>Rail Rates</b>	<b>FAF/ Seaway</b>	<b>Terminal Charge</b>	<b>CWB/ Capacity</b>	<b>Total Basis</b>
					(\$/tonne)		
South Alta.	<i>Zone Allocation</i>	7.17	29.42		12.91	4.00	53.51
	Port Buying	6.13	29.95	N/A	9.59	8.45	53.59
	Farm Buying	6.20	29.44		9.88	4.00	50.00
Peace River	<i>Zone Allocation</i>	8.35	31.11		12.91	4.00	56.37
	Port Buying	6.75	31.17	N/A	9.59	8.45	55.97
	Farm Buying	6.85	31.66		9.88	4.00	52.37
Northeast Alta.	<i>Zone Allocation</i>	7.66	32.42		12.91	4.00	56.99
	Port Buying	6.39	32.44	N/A	9.59	8.45	56.87
	Farm Buying	6.47	32.95		9.88	4.00	53.28
West Sask.	<i>Zone Allocation</i>	7.33	38.34		12.91	4.00	62.58
	Port Buying	6.21	38.34	N/A	9.59	8.45	62.59
	Farm Buying	6.29	38.86		9.88	4.00	59.02
Southwest Sask.	<i>Zone Allocation</i>	6.80	34.98		12.91	4.00	58.68
	Port Buying	5.93	34.95	N/A	9.59	8.45	59.92
	Farm Buying	6.00	35.49		9.88	4.00	55.35
Northeast Sask.	<i>Zone Allocation</i>	6.93	30.44	11.55	8.54	4.00	61.46
	Port Buying	5.97	30.24	20.00	7.10	--	63.31
	Farm Buying	6.03	30.63	11.55	7.18	4.00	59.39
Southeast Sask.	<i>Zone Allocation</i>	6.33	28.77	11.55	8.54	4.00	59.18
	Port Buying	5.66	28.54	20.00	7.10	--	61.30
	Farm Buying	5.71	28.95	11.55	7.18	4.00	57.38
East Sask./ West Man.	<i>Zone Allocation</i>	6.68	27.92	11.55	8.54	4.00	58.69
	Port Buying	5.84	27.72	20.00	7.10	--	60.66
	Farm Buying	5.89	28.11	11.55	7.18	4.00	56.73
Southwest Man.	<i>Zone Allocation</i>	6.48	21.81	11.55	8.54	4.00	52.38
	Port Buying	5.74	21.70	20.00	7.10	--	54.54
	Farm Buying	5.89	21.91	11.55	7.18	4.00	50.42
Southern Man.	<i>Zone Allocation</i>	6.64	18.62	11.55	8.54	4.00	49.35
	Port Buying	5.82	18.54	20.00	7.10	--	51.46
	Farm Buying	5.87	18.70	11.55	7.18	4.00	47.29

Source: Authors' Calculations

**Table A5.15: Alternate Simulation of Freight Rates and Elevator Charges for Wheat, Under Zone Allocation, Port and Farm Buying with Decreased Local Competition**

Regions	Scenarios	Elevator Tariffs	Rail Rates	FAF/ Seaway	Terminal Charge	CWB/ Capacity	Total Basis
			(\$/tonne)				
South Alta.	<i>Zone Allocation</i>	27.10	27.19		10.57	4.00	68.85
	Port Buying	8.90	29.10	N/A	9.40	8.45	55.85
	Farm Buying	9.13	29.59		9.66	4.00	52.39
Peace River	<i>Zone Allocation</i>	33.83	28.17		10.57	4.00	76.56
	Port Buying	10.92	30.68	N/A	9.40	8.45	59.45
	Farm Buying	11.26	31.16		9.66	4.00	56.08
Northeast Alta.	<i>Zone Allocation</i>	30.22	29.85		10.57	4.00	74.64
	Port Buying	9.74	30.68	N/A	9.40	8.45	59.65
	Farm Buying	10.02	31.16		9.66	4.00	56.22
West Sask.	<i>Zone Allocation</i>	27.06	36.10		10.57	4.00	77.73
	Port Buying	9.74	38.00	N/A	9.40	8.45	64.99
	Farm Buying	10.02	38.49		9.66	4.00	61.57
Southwest Sask.	<i>Zone Allocation</i>	33.13	33.13		10.57	4.00	71.01
	Port Buying	8.21	34.68	N/A	9.40	8.45	60.74
	Farm Buying	8.45	35.19		9.66	4.00	57.30
Northeast Sask.	<i>Zone Allocation</i>	25.24	28.67	11.55	7.91	4.00	77.40
	Port Buying	8.38	30.01	20.00	7.06	--	65.45
	Farm Buying	8.59	30.40	11.55	7.14	4.00	61.68
Southeast Sask.	<i>Zone Allocation</i>	20.61	27.34	11.55	7.91	4.00	71.46
	Port Buying	7.33	28.38	20.00	7.06	--	62.77
	Farm Buying	7.49	28.78	11.55	7.14	4.00	58.96
East Sask./ West Man.	<i>Zone Allocation</i>	23.92	26.30	11.55	7.91	4.00	73.67
	Port Buying	7.96	27.52	20.00	7.06	--	62.55
	Farm Buying	8.14	27.91	11.55	7.14	4.00	58.73
Southwest Man.	<i>Zone Allocation</i>	22.29	21.02	11.55	7.91	4.00	66.78
	Port Buying	7.61	21.61	20.00	7.06	--	56.28
	Farm Buying	7.76	21.81	11.55	7.14	4.00	52.27
Southern Man.	<i>Zone Allocation</i>	24.32	17.93	11.55	7.91	4.00	65.72
	Port Buying	7.91	18.46	20.00	7.06	--	53.43
	Farm Buying	8.06	18.69	11.55	7.14	4.00	49.37

Source: Authors' Calculations



**Table A5.16: Alternate Simulation of Freight Rates and Elevator Charges for Wheat under Zone Allocation, Port and Farm Buying with Increased Terminal Competition**

Regions	Scenarios	Elevator Tariffs	Rail Rates	FAF/ Seaway	Terminal Charge	CWB/ Capacity	Total Basis
		(\$/tonne)					
South Alta.	<i>Zone Allocation</i>	9.13	29.60		9.66	4.00	52.39
	Port Buying	7.17	29.44	N/A	8.43	8.45	53.49
	Farm Buying	7.31	29.95		8.61	4.00	49.87
Peace River	<i>Zone Allocation</i>	11.26	31.16		9.66	4.00	56.07
	Port Buying	8.35	31.12	N/A	8.43	8.45	56.35
	Farm Buying	8.55	31.62		8.61	4.00	52.78
Northeast Alta.	<i>Zone Allocation</i>	10.02	32.54		9.66	4.00	56.22
	Port Buying	7.66	32.43	N/A	8.43	8.45	56.97
	Farm Buying	7.82	32.94		8.61	4.00	53.37
West Sask.	<i>Zone Allocation</i>	9.42	38.49		9.66	4.00	61.57
	Port Buying	7.33	38.35	N/A	8.43	8.45	62.55
	Farm Buying	7.49	38.86		8.61	4.00	58.97
Southwest Sask.	<i>Zone Allocation</i>	8.45	35.19		9.66	4.00	57.30
	Port Buying	6.80	34.98	N/A	8.43	8.45	58.66
	Farm Buying	6.94	35.51		8.61	4.00	55.06
Northeast Sask.	<i>Zone Allocation</i>	8.59	30.40	11.55	7.14	4.00	61.67
	Port Buying	6.86	30.20	20.00	6.63	--	63.70
	Farm Buying	6.98	30.59	11.55	6.68	4.00	59.80
Southeast Sask.	<i>Zone Allocation</i>	7.49	28.78	11.55	7.14	4.00	58.96
	Port Buying	6.28	28.52	20.00	6.63	--	61.43
	Farm Buying	6.36	28.93	11.55	6.68	4.00	57.52
East Sask./ West Man.	<i>Zone Allocation</i>	8.14	27.90	11.55	7.14	4.00	58.73
	Port Buying	6.62	27.69	20.00	6.63	--	60.95
	Farm Buying	6.72	27.72	11.55	6.68	4.00	57.03
Southwest Man.	<i>Zone Allocation</i>	7.76	21.81	11.55	7.14	4.00	53.88
	Port Buying	6.42	21.69	20.00	6.63	--	54.75
	Farm Buying	6.51	21.89	11.55	6.68	4.00	50.64
Southern Man.	<i>Zone Allocation</i>	8.06	18.61	11.55	7.14	4.00	49.36
	Port Buying	6.59	18.53	20.00	6.63	--	51.75
	Farm Buying	6.67	18.68	11.55	6.68	4.00	47.59

Source: Authors' Calculations

**Table A5.17: Alternate Simulation of Freight Rates and Elevator Charges for Wheat, under Zone Allocation, Port and Farm Buying with Increased West Coast Capacity**

Regions	Scenarios	Elevator Tariffs	Rail Rates	FAF/ Seaway	Terminal Charge	CWB/ Capacity	Total Basis
			(\$/tonne)				
South Alta.	<i>Zone Allocation</i>	9.07	29.46		12.89	2.00	53.41
	Port Buying	7.26	29.79	N/A	9.77	4.43	51.05
	Farm Buying	7.33	30.04		9.89	2.00	49.27
Peace River	<i>Zone Allocation</i>	11.16	31.02		12.89	2.00	57.07
	Port Buying	8.48	31.46	N/A	9.77	4.43	53.94
	Farm Buying	8.58	31.71		9.89	2.00	52.19
Northeast Alta.	<i>Zone Allocation</i>	9.94	32.40		12.89	2.00	57.51
	Port Buying	7.77	32.77	N/A	9.77	4.43	54.54
	Farm Buying	7.85	33.03		9.89	2.00	52.77
West Sask.	<i>Zone Allocation</i>	9.34	38.35		12.89	2.00	62.58
	Port Buying	7.44	38.70	N/A	9.77	4.43	60.13
	Farm Buying	7.52	38.95		9.89	2.00	58.37
Southwest Sask.	<i>Zone Allocation</i>	8.38	35.04		12.89	2.00	58.32
	Port Buying	6.89	34.34	N/A	9.77	4.43	56.23
	Farm Buying	6.96	35.60		9.89	2.00	54.46
Northeast Sask.	<i>Zone Allocation</i>	8.72	30.28	11.55	8.41	4.00	62.97
	Port Buying	6.85	30.16	20.00	7.09	--	64.09
	Farm Buying	6.97	30.57	11.55	7.17	4.00	60.25
Southeast Sask.	<i>Zone Allocation</i>	7.59	28.66	11.55	8.41	4.00	60.21
	Port Buying	6.27	28.48	20.00	7.04	--	61.84
	Farm Buying	6.35	28.90	11.55	7.15	4.00	57.97
East Sask./ West Man.	<i>Zone Allocation</i>	8.26	27.79	11.55	8.41	4.00	60.02
	Port Buying	6.61	27.65	20.00	7.04	--	61.35
	Farm Buying	6.72	28.05	11.55	7.15	4.00	57.48
Southwest Man.	<i>Zone Allocation</i>	7.86	21.74	11.55	8.41	4.00	53.57
	Port Buying	6.42	21.67	20.00	7.04	--	55.17
	Farm Buying	6.50	21.88	11.55	7.15	4.00	51.10
Southern Man.	<i>Zone Allocation</i>	8.18	18.56	11.55	8.41	4.00	50.71
	Port Buying	6.58	18.51	20.00	7.04	--	52.18
	Farm Buying	6.66	18.67	11.55	7.15	4.00	48.05

Source: Authors' Calculations

**Table A5.18: Alternate Simulation of Freight Rates and Elevator Charges for Wheat under Zone Allocation, Port and Farm Buying with Provincial Zones**

Regions	Scenarios	Elevator Tariffs	Rail Rates	FAF/ Seaway	Terminal Charge	CWB/ Capacity	Total Basis
			(\$/tonne)				
South Alta.	<i>Zone Allocation</i>	8.50	29.48		11.28	4.00	53.26
	Port Buying	6.87	29.44	N/A	8.76	8.45	53.52
	Farm Buying	6.98	29.95		8.96	4.00	49.90
Peace River	<i>Zone Allocation</i>	8.67	31.28		11.28	4.00	55.23
	Port Buying	6.96	31.25	N/A	8.76	8.45	55.43
	Farm Buying	7.07	31.76		8.96	4.00	51.70
Northeast Alta.	<i>Zone Allocation</i>	8.60	32.52		11.28	4.00	56.40
	Port Buying	6.92	32.49	N/A	8.76	8.45	56.62
	Farm Buying	7.03	33.00		8.96	4.00	52.99
West Sask.	<i>Zone Allocation</i>	8.65	38.39		11.28	4.00	62.32
	Port Buying	6.95	38.36	N/A	8.76	8.45	62.52
	Farm Buying	7.08	38.87		8.96	4.00	58.92
Southwest Sask.	<i>Zone Allocation</i>	8.36	34.99		11.28	4.00	58.63
	Port Buying	6.79	34.95	N/A	8.76	8.45	58.95
	Farm Buying	6.93	35.47		8.96	4.00	55.36
Northeast Sask.	<i>Zone Allocation</i>	7.01	30.40	11.55	8.88	4.00	61.83
	Port Buying	6.03	30.17	20.00	7.80	--	64.00
	Farm Buying	6.10	30.57	11.55	7.86	4.00	60.07
Southeast Sask.	<i>Zone Allocation</i>	6.91	28.68	11.55	8.88	4.00	60.02
	Port Buying	5.98	28.44	20.00	7.80	--	62.22
	Farm Buying	6.05	28.85	11.55	7.86	4.00	58.30
East Sask./ West Man.	<i>Zone Allocation</i>	7.09	27.85	11.55	8.88	4.00	59.37
	Port Buying	6.08	27.63	20.00	7.80	--	61.51
	Farm Buying	6.14	28.02	11.55	7.86	4.00	57.57
Southwest Man.	<i>Zone Allocation</i>	7.13	21.76	11.55	8.88	4.00	53.32
	Port Buying	6.10	21.65	20.00	7.80	--	55.54
	Farm Buying	6.16	21.85	11.55	7.86	4.00	51.42
Southern Man.	<i>Zone Allocation</i>	7.37	18.58	11.55	8.88	4.00	50.38
	Port Buying	6.23	18.49	20.00	7.80	--	52.52
	Farm Buying	6.29	18.65	11.55	7.86	4.00	48.35

Source: Authors' Calculations

**Table A5.19: Alternate Simulation of Freight Rates and Elevator Charges for Wheat under Zone Allocation, Port and Farm Buying without the Freight Rate Cap**

Regions	Scenarios	Elevator Tariffs	Rail Rates	FAF/ Seaway	Terminal Charge	CWB/ Capacity	Total Basis
			(\$/tonne)				
South Alta.	<i>Zone Allocation</i>	7.96	52.50		8.89		69.33
	Port Buying	6.69	52.50	N/A	7.11	N/A	66.30
	Farm Buying	6.69	52.50		7.11		66.30
Peace River	<i>Zone Allocation</i>	9.37	56.00		8.89		74.26
	Port Buying	7.55	56.00	N/A	7.11	N/A	70.66
	Farm Buying	7.55	56.00		7.11		70.66
Northeast Alta.	<i>Zone Allocation</i>	8.31	59.50		8.89		76.69
	Port Buying	6.92	59.50	N/A	7.11	N/A	73.52
	Farm Buying	6.92	59.50		7.11		73.52
West Sask.	<i>Zone Allocation</i>	6.98	73.87		8.89		89.74
	Port Buying	6.11	75.65	N/A	7.11	N/A	88.86
	Farm Buying	6.11	75.65		7.11		88.86
Southwest Sask.	<i>Zone Allocation</i>	6.54	68.01		8.89		83.44
	Port Buying	5.86	69.57	N/A	7.11	N/A	82.64
	Farm Buying	5.86	69.57		7.11		82.64
Northeast Sask.	<i>Zone Allocation</i>	6.55	59.50	20.00	7.66		93.71
	Port Buying	5.88	59.50	20.00	6.97	N/A	92.35
	Farm Buying	5.88	59.50	20.00	6.97		92.35
Southeast Sask.	<i>Zone Allocation</i>	6.06	56.00	20.00	8.88		89.72
	Port Buying	5.60	56.00	20.00	7.80	N/A	88.57
	Farm Buying	5.60	56.00	20.00	7.86		88.57
East Sask./ West Man.	<i>Zone Allocation</i>	6.69	52.50	20.00	8.88		86.85
	Port Buying	5.95	52.50	20.00	7.80	N/A	85.42
	Farm Buying	5.95	52.50	20.00	7.86		85.42
Southwest Man.	<i>Zone Allocation</i>	6.57	45.50	20.00	8.88		79.73
	Port Buying	5.87	45.50	20.00	7.80	N/A	78.34
	Farm Buying	5.87	45.50	20.00	7.86		78.34
Southern Man.	<i>Zone Allocation</i>	7.09	38.50	20.00	8.88		73.25
	Port Buying	6.15	38.50	20.00	7.80	N/A	71.62
	Farm Buying	6.15	38.50	20.00	7.86		71.62

Source: Authors' Calculations

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