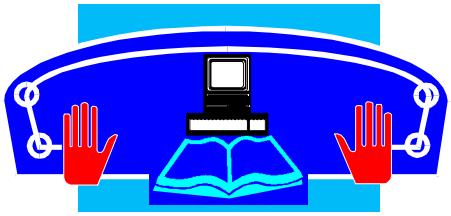

Costs And Benefits Of Nwt Participation In The Supply Management Systems For Egg, Chicken And Turkey

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I
Introduction

The Government of the Northwest Territories (GNWT) has sought entry into the national supply management system for eggs, chicken and turkey. As part of this process, the GNWT has entered into negotiations with the three national supply management agencies—Canadian Egg Marketing Agency (CEMA), Canadian Chicken Marketing Agency (CCMA) and Canadian Turkey Marketing Agency (cTMA)-as well as the National Farm Products Council (NRC). Legislation, to establish the regulatory structures required for participation in the supply management plans for these three products, has also been passed but has not yet received assent.

Proposed quotas have been agreed with the CCMA and CTMA for chicken and turkey, but have not been approved and signed by the signatories to the respective federal-provincial agreements. The proposed quotas are: 1,100,000 kg's. of eviscerated chicken (1,494,768 kg. liveweight) and 150,000 kg's. of eviscerated turkey (182,927 kg. liveweight).

Agreement on the proposed quota for eggs has not been reached. Initially, the GNWT requested a quota of up to 100,000 layers. CEMA responded with a proposal for 37,000 layers, which is lower than the NWT's current production capacity and would not enable NWT producers to meet the total current demand for eggs in the NWT.

As part of their preparations for finalizing the negotiations over the proposed quotas, the GNWT sought our help to:

> "... evaluate the costs and benefits in the NWT of production and regulation of chicken, turkey and eggs under supply management regimes . . . (to) . . . assist in determining the benefits to NWT producers operating within the National Supply Management Regime relative to costs incurred by producers and government.
>
> The cost benefit analysis will compare costs of operating within the present supply management system against the option of the NWT operating a separate system outside of the national systems."

This report presents our findings relating to:

- The estimated costs of production of eggs, chicken and turkey in the NWT, under supply management.
- The estimated costs and benefits of administering a NWT supply management system.
- The scope and impacts of agricultural support programs available to poultry producers in the provinces, and of support programs potentially available to NwT producers.

- The issue of comparative advantage as it relates to quota allocation to the provinces and how it would relate to NWT requests for quota.

- The potential impacts of using food mail subsidies (paid by the Departrnent of Indian and Northern Affairs to Canada Post Corporation) to support the costs of transporting egg, chicken and turkey products from the western Arctic to the eastern Arctic.

Key highlights from our analysis are presented in the next chapter, along with our conclusions on the costs and benefits to the NWT of participation in the national supply management systems. Our detailed findings are presented in the chapters following the highlights.

II
Highlights

A. Introduction

The Terms of Reference for this study asked us to report on five issues identified as having major implications for the overall costs and benefits to the NWT from participation in the national supply -gement systems for eggs, chicken and turkey, and seeking to satisfy NWT demand for these products with locally produced product. Our findings for each of these issues are presented below, followed by an assessment of the overall costs and benefits.

B. Estimated NWT costs of production of eggs, chicken and turkeys

The first issue we were asked to investigate was to:

> *Derive cost ofproduction (COP) estimates for chicken, turkey and eggs. Such costs* of *production will be derived from forrrudaspresendy used by national andprovincial agencies as they apply toproduction in the NWT. An additional factor to be included is the impact of economies of scale on operations relative to the production in the NWT.*

In each case we developed estimates of NWT production costs using the structure of the respective COP formulas and cost information applicable to the NWT, assuming all production would take place in the Hay River area. Our analysis focused on the major cost factors-feed, pullets/chicks/poults, labour, producer levies, depreciation, financing and, in the case of chicken and turkeys, energy. The estimated costs of production have been compared to the current COP estimates for Ontario, Manitoba and Alberta. Many of the NWT estimates of the various cost factors in the COP formulas are based on current production and cost structures in Alberta.

1. Estimated NW egg production costs

The analysis of likely egg production costs investigated a combination of:

- Three potential quota levels-37,000 layers, 60,000 layers and 100,000 layers. If this quota were allocated to a single producer that producer would have a quota significantly larger than either the national average number of layers per producer, of 12,096 layers, or the Alberta average, of 7,036.

- **Opportunities** to achieve major economies of scale in going from 37,000 layers to 100,000 are limited, being largely confined to incremental **improvements in labour productivity** and potentially lower Territorial levy costs (reflecting the *relatively* **fixed nature** of the producer board's **costs).**

- Two levels of producer efficiency-an "average" producer and a "more efficient" producer. These variations reflect differences **in** the care and attention given to managing production operations and achieving **optimal** balances between the key production coefficients-the feed conversion ratio and rate of lay per bird.

The estimated NWT cost of production for each of the three quota levels is:

Production base	**"Avsra@' Producer (¢/doz.)**	**"More Efficient" Produesr (¢/doz.)**
.37,0001ayers	101.68-104.45	96.82-99.54
.60,000 layers	95.13-97.06	90.65-92.53
.100,OOO layers	*92.64-93.31*	*88.34-88.96*

These costs are lower than the April 1993 COP estimates for Ontario, Manitoba and Alberta, of 117.23 **¢/doz.,** 112.97 **¢/doz.** and 111.62 #/doz., respectively.

The estimated *NWT* costs **differ** horn Alberta's costs in the following areas:

Cost Factor	**Cost Difference vs. Alberta (¢/doz.)**
➤ Lower feed costs, due to the fact that NWT producers are eligible for subsidy payments on the grain they use in their **feed,** amounting to 6.91-7.56 **¢/doz.**	-4.23-6.83
➤ **Lower labour coda,** due to economies achieved with larger flock sizes and NWT **labour** rates that are lower than the proxy labour rates used in the COP formulas.	-6.35-14.64
➤ **A potentially** higher Territorial producer levy, because of the NWT's small production base, to fund the required supply management administrative functions.	+0.0 -0.98

Our cost estimate assumes that the age of the NWT facilities will be equal to the average age of barns and equipment for all Canadian producers-of 11.8 years for buildings and 7.6 years for equipment. This age assumption has a major impact on the determination of depreciation and financing costs, which account for 4.4% and 3.9% of the current national COP estimate. Newer production facilities would have higher immedl'ate depreciation and finance costs, which would then remain relatively constant until such time as major repairs or equipment replacement is required.

2. Esthnsted NWT chicken production costs

The analysis of likely chicken production costs investigated a single production scenario, in which the annual production is 1,494,768 kg. liveweight (1,100,000 kg. eviscerated) is produced by one farmer. The key production coefficients assumed for this scenario—the feed conversion ratio, of 2.01 kg./kg., average weight Of birds shipped, of 1.78 kg., and mortality rate, of 6.5%-are the same as those found among Alberta producers in the CCMA's 1990 survey of producers. (This assumption implies that the broiler buyers in the NWT market would be demanding similar weight birds to those demanded in Alberta.)

The estimated cost of producing chicken in the NWT under this scenario is 123.71-127.28 ¢/kg. This is 8- 11% higher than the current (April) COP estimate for Alberta, of 114.72 ¢/kg. The NWT cost estimate differs from Alberta's costs in the following areas:

Cost Factor	Cost Difference vs. Alberta (WW*)
► Lower feed costs, due to the impact of the Feed Freight Assistance program on NWT costs.	*-5.56*
► Lower labour costs, due to economies achieved with larger flock sizes and NWT labour rates being below the proxy labourrates used in the COP formulas.	*-1.55*
► Higher chick costs, due to the cost of transport from hatcheries in Alberta or Saskatchewan, particularly if deliveries are less than a full truckload.	+1.20 -3.60
► Higher energy costs The NWT's energy costs are significantly higher than Alberta's. (NWT's costs may be even higher than we estimated, given that the climate will require a higher level of energy consumption for heating.)	*+7.08*
► Higher depreciation and financing costs, because we have assumed the NWT production facilities will not be as old as the average facility in Alberta (14.6 years for barns and 11.4 years for equipment). Our estimates are based on costs in P.E.I., where the average barn is 4.0 years old and the equipment averages 2.8 years.	*+9.56*
► Higher NWT producer levy, due to the small production base in the NWT. (By way-of comparison, Alberta had a 1992 quota allocation of 45.3 million kg.).	*+0.63 -1.80*

3. Estimsted NWT turkey production costs

The analysis of likely turkey production costs investigated a single production scenario, in which the annual production (of turkey hens) is 182,927 kg. liveweight (150,000 kg. eviscerated). The key production coefficients used-feed conversion ratio of 2.82 kg./kg., average weight of birds shipped of 8.35 kg., and mortality rate of

8.43%--are the same as those found among the "most efficient" Alberta producers in the CTMA's 1991 survey of producers (i.e., excluding the 10% of producers with the highest production costs).

In comparison to the egg and chicken scenarios, the proposed turkey quota for the NWT is less than the typical production scale, as indicated by the fact that the "model farm" used by the CTMA to update some of the base costs in its COP formula assumes a single producer can efficiently produce 239,500 kg. of turkey per year. '

The estimated cost of producing turkey in the NWT under this scenario is 172S9 -185.76 ¢/kg.. This is 30- 40% higher than the current (April) COP estimate for Alberta, which is 132.85 ¢/kg. The NWTcostestimate differs from Alberta's costs in the following areas:

Cost Factor	Cost Difference vs. Alberta (¢/kg.)
► Higher feed costs, which appear to be higher due to the updating methodology used by the CTMA rather than any fundamental cost differences.	-1.32
► Higher poult costs, due to the cost of transport from hatcheries in Alberta, particularly if deliveries are less than a full truckload.	+0.57 -1.16
► Higher labour costs, due to the relatively small size of the NWT operation and higher proportionate costs for - g e m e n t .	+6.10
► Higher energy costs The NWT's energy costs are significantly higher than Alberta's. (NWT's costs may be even higher than we estimated, given that the climate will require a higher level of consumption for heating.)	+4.99 -6.00
► Higher depreciation and financing costs, because we assumed the NWT production facilities are newer than the average in Alberta, of 15 years for barns and 12 years for equipment. The financing cost is also sensitive to interest costs-a change of 1% accounts for the 2.06@ difference in the range shown.	+16.44 -18.50
► Higher NWT producer levy, because of the small production base in the NWT, and our assumption that the NWT turkey board will have the same costs as the egg and chicken boards.	+12.32 -21.83

C. Comparative advantage issues and their relation to NWT quota requests

The second issue we investigated was that of:

> *Comparative advantage, as it relates to quota allocation to provinces and how it would relate to NWT requests for quota.*

Comparative advantage has primarily been an issue for the chicken and turkey sectors, where there is growing consumer demand. Both CCMA and CTMA have developed methodologies to factor comparative advantage considerations into their allocations of overbase production quotas to the provinces. In these formulas, a province has a comparative advantage when its cost of production plus transport of live birds to processing plants in another province is lower than the cost of production within that province.

Even so, within these formulas relative market size and consumption rates make the biggest contribution to the determination of overbase quota allocations. Comparative advantage measures provide a means of adjusting the market shares and thus result in the re-allocation of a relatively small proportion of the overall overbase quota amounts.

This means that, if demand for chicken and turkey continues to grow and it can be demonstrated that the NWT has a comparative advantage, the amount of additional quota going to the NWT would be marginally higher than if allocations were based purely on population and consumption levels. The magnitude of any gains achieved will depend on the relative size of the comparative advantage enjoyed by the NWT.

In the case of eggs, it will be very difficult for the NWT to obtain further increases in its initial quota allocation. While the NWT will be focusing on local demand trends and supply opportunities that may be running counter to the national trends, CEMA will be likely to seek across the board reductions in quotas, as part of its efforts to manage the balance between table and breaker demand

As part of its negotiations with CEMA, we recommend that the GNWT propose a formula for using comparative advantage to regularly review and adjust the NWT quota. The proposed formula would need to identify how the particular circumstances facing the NWT-such as opportunities to increase overall demand for table eggs that are not readily exploited by the existing marketing and distribution structures-and the circumstances of the national market facing CEMA could be reconciled.

D. Costs and benefits of administering a NWT supply management system

The third major issue for the GNWT is that of the costs of administering the NWT's participation in the supply management system. Consequently, our analysis also examined

> *a) Costs associated with participation in national supply rnanagernent systems as they would be borne by producers, government and national agencies.*

b) ***Levies*** *associated* ***with*** *each* ***commodity*** *in other jurisdictions and levy* ***formulas*** *at various* ***levels*** *of production for the NWT that would be* ***required*** *to* ***offset*** *the costs of administration.*

c) *Costs associated with the NWT regulating its own supply of specified commodities outside of tk present national system and* ***offsetting*** *admiru"stration and cost of transport to access* ***entire*** *NWTrnarkets through collection of levies,*

2. Estimatsd costs of administering the NWT's participation in supply managsmsnt

The national supply management system requires the performance of a number of administrative and regulatory functions by Provincial/Territorial governments-via a supervisory boards for supply managed commodities-and producers-via producer boards for each supply managed commodity. The roles and responsibilities of the respective regulatory and administrative organizations that would need to be established in the NWT, and their estimated annual costs, are as follows:

a) **Supervisory** board-NWT Agricultural Products Marketing Council

- Ensure overall compliance by producers with the supply management agreements for each of the three commodities.
- Review the performance of the **producer** boards, and review and approve their proposed annual budgets and producer levies.
- Adjudicate any disputes between either producer boards, producers and/or processors within the NWT.
- Liaise with the National Farm Products Council and **provide** feedback to **NWT producers.**

We estimate that between 54 and 81 days per year will be required to perform these functions, at a cost of $16,200- 26,2S0. Support costs, for secretarial support and overheads will require approximately $17,800-21,750. The **total** estimated annual cost, in 1993 **dollars,** would be about $34,000-48,000.

b) Producer boards for each supply managed commodity

- Set policies for the allocation, review and transfer of production quotas.
- Allocate and, when necessary, transfer quotas between NWT producers in **accord** with quota policies.
- Monitor and control NWT production.
- For eggs-set producer prices. For chicken and turkey-negotiate producer prices with processors.

- Determine budgets for the boards' operations and set levies to recover the NWT's share of these costs.
- Collect and disseminate producers' levy payments.
- Participate in meetings of the national agencies.

We estimate that participation by the chairperson of each of these boards in the nationaI meetings organized by the respective national agencies (CEMA, CCMA and CTMA) will require a total of 38-48 days per year. This is a significant amount of time for a producer representative to spend away from his farm, and thus, also carries a signMcantopportunity cost. The cost of this time, as well as the associated travel and accommodation costs, would be borne by the national agencies.

The administrative functions performed by each of the producer boards would require an estimated 51-96 days per year, at an estimated cost of $16,500-31,100. Support costs, for secretarial support, office expenses and travel within the NWT, would amount to another $9,700-12,500. The estimated total cod, which would be funded through a **producer levy, would he $26400- 43,600.**

The assumption that each of the producer boards would have equal costs is somewhat artificial, given that the relative sizes of the proposed production quotas for each of the three commodities varies considerably. If a single organization were established to undertake the administrative functions of all three producer boards there should be opportunities to achieve savings in overhead COStS and thUS, to minimize the size of the NWT adrmnistrative levies.

2. Producer levies required to fund the three producer boards

a) Egg levy

The NWT egg producer boards' administrative functions would need to be funded using two levies:

- The provincial/territorial administration component of the Administration levy, of 2 #/doz.
- A supplementary levy, set to cover the excess of costs that would not be funded by the Administration levy. This additional amount may be passed onto consumers (i.e., incorporated into the NWT producer price for eggs) if the producer board believes the resulting higher wholesale and retail prices will not diminish demand.

The total levy required will depend on the quota allocated to the **NWT:**

Quota size	Administration Levy	Supplementary Levy	TOTAL (¢/doz.)
37,000 layers	2.0	1.18-3.28	3.18-5.28
60,000 layers	2.0	0.00-1.26	1.% -3.26
100,000 layers	*2.0*	*0.00*	**0.00***

(Aquotaof this sise would produce asmailsurplusfor theproducerboard.)*

The comparable levy amount for Alberta is 4.30 **¢/doz.**

b) Chicken levy

Allocation of the estimated administrative costs for the chicken producers' board over the proposed NWT chicken quota of 1,494,768 kg's. live weight (1,100,000 kg's. **eviscerated)** would result in a territorial administrative levy of 1.75-2.92 **¢/kg.** This levy compares with the current provincial levy of 1.12 **¢/kg.** in Alberta.

c) Turkey levy

Allocation of the estimated territorial administrative costs for turkey over the **proposed turkey quota** for the NWT of 182,927 kg. liveweight (150,000 kg. eviscerated) will result in a producer levy of 14.32-23.83 **¢/kg.** This levy range compares with the **current** provincial levy of 2.00 **¢/kg.** in Alberta.

The NWT cost per kilogram is significantly different horn the levies charged across the provinces. It reflects the relatively small production base proposed for the NWT (which may not result in a viable stand-alone production operation), as well as the fact that the estimated cost of the producer board's administrative functions assumes it will have the same workloads as the egg and chicken beads.

3. Costs associated with the NWT regulating supply outside of the national systems

The major costs and benefits of the NWT operating its own supply management systems, instead of participating in the national systems, would be as follows, assuming that essentially the same regulatory and administrative functions are undertaken:

- Greater flexibility in defining, administering and varying regulatory structures to meet the needs of the NWT production sector, compared to the structures required under the national supply management systems.

- Time and cost savings for the GNWT and NWT producers, because it would not be necessary for the NWT Council to participate in the activities of the **NFPC** and the prcxlucer board representatives would not have to participate in the activities of the national agencies.

- These savings are likely to be, at least partially, offset by a need to perform a wider range of administrative functions, to compensate for the fact that the NWT will not receive services that would otherwise be provided by the national agencies.

- "Re-allocated" levy payments would remain in the NWT and could be used to cover the NWT administrative costs and, possibly, to support transport costs involved in accessing the entire NWT market from the western Arctic.

- Differences in the levy structures between the three commodities would mean that egg levies would provide the majority of the additional funding available from the "m-allocated" levies.

	National Levies Avoided/Re-allocated[1]	Estimated Total Levy Payments Avoldad
Eggs		
37,000 layers	9.7 #/doz.*	$80,000-86,100
60,000 layers	" "	$129,800-139,700
100,000 layers	" "	$216300-232,800
Chicken:	0.5 ¢/kg.	$7,500
Turkey:	1.3 ¢/kg.	$2,400

1. These levies are used to collect payments remitted to the national agencies. Provincial/Territorial administration levies have been excluded.

2. Based on Alberta industrial levy of 7.7 ¢/doz. plus 2 ¢/doz. for CEMA administration.

- The establishment of a single administrative body for the NWT (as opposed to separate producer boards) would facilitate the performance of administrative functions and the associated pooling and disbursement of levy payments.

There could also be a number of intangible costs that could affect the GNWT'S ability to develop the NWT poultry sector:

- The NWT will not have a voice in national decision making and planning for supply managed commodities, which will limit recognition of the special circumstances faced by producers in the NWT.

- NWT producers will be limited to serving the NWT market, or only the western Arctic if delivered prices of NWT products in the eastern and central Arctic are not competitive with existing supply sources.

E. Scope and impacts of support programs

A wide variety of support programs are available to primary producers in Canada, provided by either the federal government or the provincial governments. Consequently, we were also asked to examine:

Programs available to specific ***commodity*** *farm operations in the provinces and estimate how these programs impact on cost of production to enhance the revenue generating ability of operations in those provinces or to* ***offset*** *losses. Concurrently,* ***evaluate territorial*** *and* ***federal*** *programs available to* ***NWT producers*** *of* ***specified*** *cornrnodi"ties and assess the* ***potential*** *impacts on cost ofproduction.*

Direct **support programs—***those* where benefits flow directly to producers in the form of either payments, exemptions and/or refunds-impact most on the cost of production of supply managed commodities.

1. Direct support programs available to provincial producers

The major programs and their estimated impacts on producers costs areas follows:

a) Feed **freight subsidies**

- Feed Freight Assistance Program:

  Provides an offset to the higher domestic grain prices caused by the Western Grains Transportation Act subsidy paid to grain producers. The amount of assistance paid to livestock producers varies according to their location; NWT producers are eligible for the maximum subsidy, of $54 / tonne of grain or the grain content in animal feeds, while Prairie producers receive no subsidy.

  Assuming a feed mix with 80% eligible grains NWT producers would receive the following FFA benefits. These cost savings have already been included in the cost estimates presented in Section B, above.

  Eggs: 6.91-7.56 **¢/doz.,** depending on the feed conversion ratio achieved.
  Chicken: 8.64 **¢/kg. liveweight.**
  - Turkey: 12.31 **¢/kg. liveweight.**

- Alberta Crow Offset Program:

  Provides a similar type of **freight** subsidy to Alberta livestock **producers,** Of **$10/tonne,** which **should already** be included in the COP estimates for **Alberta,** of:

  Eggs: 1.28-1.40 #/doz.
  Chicken: 1.61 **¢/kg.**
  Turkey: 2.28 #/kg.

b) Credit programs

The federal government and the provinces we focused on in our analysis-Ontario, Manitoba and Alberta-provide an array of credit programs that provide benefits in the form of either

- Long and medium term loans for the acquisition of farms, farming equipment, an&in some cases, production quotas. The interest rates charged on these loans are generally in line with commercial rates of interest (i.e., prime plus 1- 2%).

- Guarantees on lending by commercial lending institutions and private mortgage investors.

In addition, beginning farmers in Manitoba and Alberta are eligible for subsidized interest on their long term loans. These producers can receive interest rebates (Manitoba) or lower interest rates than established producers (Alberta).

Without these programs it is likely that the amount of credit available to farmers would be lower and/or the cost of these funds would be higher. The overall impact on production costs cannot be precisely estimated without detailed information on producers' splits between debt and equity, the incidence of beginning farmers, and the value of their assets. It is clear that the magnitude of the benefits generated will be small, as fixed asset financing costs account for a small proportion of the COP estimates, varying between 1.570 and 3.9% across each of the three commodities in Ontario, Wtoba and Alberta.

c) Fuel tax exemptions and rebates

primary producers in Ontario and Alberta can benefit from reductions in the cost of vehicle fuels and, in Alberta, propane. These benefits take the form of:

- Refunds of the 14.77 ¢/l. for gasoline and 14.3 ¢/l. for diesel used to run unlicensed equipment, in Ontario. These refunds may not always be picked up in COP surveys.

- Discounts on the purchase price of 13 ¢/l. for gasoline, 19 ¢/l. for diesel and 6.5 ¢/l for propane, in Alberta.

d) Property tax rebates

Ontario primary producers are eligible for a rebate of 75% of their property taxes. The resulting benefit is quite insignificant in the overall mix of producers' costs, as property taxes represent less than 0.5% of the COP estimates.

* * * * *

The major support programs described above—credi‘t programs, and provincial and municipal tax exemptions, refunds and rebates-probably lead to marginally lower production costs, and, in the case of credit programs, more assured and consistent access to competitively-priced financing.

We subjectively estimate that this marginal difference would be equivalent to 1 -2% of the cost per dozen, or per kilogram, respectively, for credit programs, provincial

and municipal tax exemptions, refunds and rebates. The fright subsidy available to Alberta producers would represent perhaps another 1.5- 2% of the current costs of production of egg, chicken and turkey in the province.

To a large extent, these cost savings should already be reflected in the COP formulas, because of the way information is collected in the cost of production surveys. Nevertheless, it is possible that some producers may provide gross cost information (rather than net) in the cost of production surveys, particularly if the refund and rebate payments are take place separately from the initial payments.

2. Prograrna available to NWT producers

The major support programs available to NWT producers are the federal credit programs and the Feed Freight Assistance (FFA) program. The FFA program makes a significant difference to the costs of producing egg, chicken and turkey in the NWT. Without these payments—currently $54/tonne for eligible grains and the grain proportion of pre-mixed poultry feeds-the NWT costs of production would be significantly higher. The likely increases would be between 7% and 8% for each of the three commodities.

F. Potential impacts of food maii subsidies on the distribution of NWT products

The ultimate viability of producing eggs, chicken and turkey in the NWT will be determined as much by issues associated with the processing and distribution of NWT products as by the on-farm costs of production. In relation to transportation costs, we were asked:

> *From a Territorial perspective, examine available postal subsidies for perishable products and estimate the impacts of these subsidies in offsetting costs of transporting eggs, chicken and turkey from the western Arctic to the eastern Arctic communities.*

The Department of Indian Affairs and Northern Development (DIAND) provides subsidy payments to Cana& Post Corporation (CPC) to reduce the cost of distributing nutritious perishable food to isolated northern communities that lack year round surface transportation. The Northern Air Stage Program, as it is called, enables CPC to offer the following postage rates for air shipments of perishable food going from designated entry points to designated communities:

	To July 1,1993	After July 1,1993
Fixed charge per parcel[1]:	$0.75	$0.75
Postage rate per kilogram:	$1.20	$0.80
Maximum parcel weight:	30 kg.	30 kg.

1. A "parcel" would be a box of eggs (15 &zen) or wholesale food pack used to distribute chicken or turkey products.)

The special freight rates apply only to food mail shipments going from designated food entry points to specific communities designated as Air Stage offices. The designated entry point for the Baffin Region is Val-d'Or, Quebec, and the designated entry point for the Keewatin Region is Churchill, Manitoba. Yellowknife, Norman Wells and Inuvik m the entry points for shipments going to designated communities in the western Arctic.

The existing south⇔north shipping patterns for food mail shipments, and the underlying structure of the CPC postal network (which reflects the south@ north patterns for mail movements) would appear to work against the GNWT'S efforts to develop west⇨east distribution channels for NWT egg, chicken and turkey products. This difficulty may be increased by the founding of Nunavut.

This means that the GNWT has two alternative transportation channels available to it. In choosing between them it will be necessary to consider both the transportation costs, and the amount of time and handling involved, particularly if markets for fresh poultry products are to be pursued The two channels are:

1. Send NWT egg, chicken and turkey products to CPC'S staging points in Churchill and Val-d'Or for subsidised delivery throughout the central and eastern Arctic by CPC.

2. Negotiate arrangements for direct shipment of the NWT products to the eastern and central Arctic from Yellowknife.

Transportation independent of the food mail program (i.e., option 2), would appear to be a simpler proposition, and certainly one that would minimize both the transit time and amount of handling. However, the total transportation cost may be lower on the indirect distribution route, if freight rates are lower for food shipments going south from Yellowknife. Information on typical freight costs—for both Yellowknife to Winnipeg/Churchill and Ottawa/Montreal/Val-d' Or, and Yellowknife direct to eastern and central Arctic communities-will be required, in addition to the above food mail cost information, to arrive at a definitive comparison of the two transportation scenarios.

The current Northern Air Stage Program expires at the end of the 1993-94 fiscal year, and prior to that date DIAND and CPC will be reviewing the effectiveness of the program. We recommend that the GNWT pursue the option of seeking changes in the program, as part of the review, to ensure that it does not provide disincentives for developing the NWT's western Arctic food production and distribution capacity.

G. Conclusions-costs and benefits to the NWT from participation in the national supply management systems

The primary focus of our work was on the analysis of the likely costs of production for eggs, chicken and turkey that would be incurred by producers if the NWT were to participate in the national supply management systems for these commodities. Our analysis identified the following costs associated with this participation:

1. Eggs

The estimated cost of production of eggs, including national and Territorial levies, ranges between 88.34 and 101.68 #/dozen, depending on the size of the quota assigned to the NWT and the relative efficiency of the producer(s). This cost is lower than that currently estimated for Alberta (111.62¢), Manitoba(112.97tt) and Ontario (117.23@), and suggests that eggs can be economically produced in the NWT under supply management.

These cost levels would be sensitive to variations in a"number of cost factors, which affect the sensitivity of our estimates:

- LabOur coda. Information on Iabour costs was provided by one of the two NWT producers. Labour accounts for 17% of the national average cost of production so a higher than expected Iabour requirement would have a quite significant impact on the NWT's production costs.

- Feed costs. The federal Feed Freight Assistance Program provides payments that reduce the cost of producing eggs in the NWT by 7- 8% (6.91 - 7.56@). If the FFA payments were eliminated the NWT's production cost could rise to a level on par with costs in Alberta.

- Depreciation, and interest costs and producer returns. These costs are sensitive to assumptions about the age of the producers' facilities. If the existing facilities need to replaced or upgmded then these two cost factors will rise significantly-by as much as 4.9 ¢/doz. if the cost comparison involved a new production facility.

- Energy costs and consumption rates. Energy costs, which have been included in the Plant and 'Administration Overhead 'factor, have been assumed to be the same as in Alberta. This approach means that they have probably been underestimated, as NWT energy costs are higher than Alberta's and consumption for heating purposes is likely to be greater in the NWT.

2. Chicken

The estimated costs of producing chicken in the NWT are 8- 11% higher than in Alberta, primarily due to higher chick, energy, depreciation and financing costs. The estimated cost of production, of 123.71-127.28 ¢/kg., is probably not out of line with the cost levels experienced by many producers in Alberta.

Compared to the egg cost estimates there is probably less risk that production costs have been underestimate& because allowances for the upside cost risks have already been factored into the snalysis.

A critical factor in the overall viability of a chicken production capability in the NWT will be the location and cost of processing. If no processing capability exists in the NWT then product costs, and quality, will be impacted by the need to transport birds

to processing facilities in Alberta and then transport eviscerated products back to the NWT.

3. Turkey

The estimated costs of producing turkey in the NWT are significantly higher than in Alberta-by as much as 40%. The estimated NWT cost, of 172.59-185.76 ¢/kg., is higher due to the estimated costs of poults, labour, energy, depreciation and financing. As with chicken, these costs estimates probably do not contain the same level of upside risk that may be present with eggs.

The economics of processing NWT-produced turkeys will also be an issue, and should be considered in the analysis of the feasibility of establishing a poultry processing capability in the NWT.

4. Producer levies

Leviea, to fund the administrative functions that would have to be undertaken by the NWT producer board(s), would also be significantly higher than in the provinces. The primary reason for this is that the NWT will have a small production base over which to spread the costs of administering participation in the national supply management systems.

The impact of higher levy rates is greatest for the proposed turkey quota, accounting for an estimated 14.32-23.83 ¢ of the total estimated cost of production (this compares to provincial levies of 0.30 - 2.20 ¢/kg). While there are probably opportunities to reduce the administrative costs for turkey production-for instance, by establishing a single administrative body to undertake these functions for all three commodities, and recognizing that the scale of the proposed production facility in the NWT is equivalent to a smaller-than-average farm-it is still unlikely that the Territorial administrative levy could be reduced to the rates used in the provinces.

H. Recommended directions

1. Pursue the allocation of an egg production quota as its first priority.

A 1990 report to the GNWT, by Deloitte & Touche, estimated the per capita consumption of eggs in the NWT to be 20.0 dozen, somewhat higher than the then national average of 17.35 dozen. On this basis, and assuming the NWT producer(s) is (are) able to economically serve communities throughout the western, central and eastern Arctic, an appropriate quota level would be of the order of 50,000-55,000 birds.

2. Pursue the allocation of the proposed chicken quota, if production and processing is economically viabie.

The proposed chicken quota appears reasonable, and the NWT's costs are probably not too high to make NWT product non-competitive. However, processing and

distribution costs will also play a critical role in determining the viability of the chicken sector in the NWT. Distribution costs should also be taken into account in determininggg the feasibility of processing in the NWT.

3. **Postpone consideration of a turkey quota until the viability of the egg and chicken sectors has been demonstrated.**

The costs of producing turkey appear to be too high to allow the NWT to compete effectively with other sources of supply, and the size of the quota proposed by the CTMA may not be sufficient for a turkey farm in the NWT to be viable. However, as the knowledge base and experience builds in the NWT it will be worthwhile to re-assess the economics of turkey production, particularly if it is apparent that some of the major cost factors, such as levies, would be lower than we have estimated.

Participation in the national supply management systems would also provide a number of intangible benefits for the NWT. These factors should also be weighed in the GNWT'S decision making:

- Participation in the national supply management system provides the NWT with the opportunity to ensure that the special circumstances under which its producers operate are recognized in national policy setting and decision making for supply managed commodities.

- Opportunities to foster, or accelerate, the development of the agri-food production capacity in the Hay River area, and to foster further economic development in the region through spin-off benefits horn the production operations.

- NWT producers will potentially have the opportunity to access a larger market for their products. For instance, NWT producers may be able to develop new markets in the Yukon and Alaska.

- The NWT producer boards and Agricultural Products Marketing Council will obtain access to a wider range of services, resources and knowledge—in the national agencies and NFP-than would otherwise be the case.

As a final note, the GNWT should also consider how it will value and allocate the quotas it may be allocated Valuable lessons may be drawn horn the experiences of the provinces, where quotas have a significant value, and represent a significant part of the total value of a producer's operations and assets.

III
Estimated Costs Of Production Of NWEggs, Chicken And Turkey

A. Introduction

This chapter analyses the likely costs of producing eggs, chicken and turkey in the NWT, and compares the estimates with current average costs in the three provinces that account for the majority of the egg and poultry product coming into the NWT. It addresses the first objective set for this study by the GNWT:

> *Derivation of cost of production for three specific commodities, those being chicken, turkey and eggs. Such costs of production will be &rived from formulas presentty used by national and provincial agencies as they apply to production in the NWT. An additional factor to be included is the impact of econonu"es of scale on operations relative to the production in the NWT.*

Our analysis has focused on the components of the three cost of production (COP) formulas, that account for the most significant proportions of the total on-farm costs of producing eggs, chicken and turkey, as it is these costs that will largely determine the relative competitiveness of the NWT production.

The cost information used in our analysis came from a number of sources: one of the two producers with farms in the NWT (although not currently in operation); suppliers of major production inputs, such as pullet, chicken and poult suppliers, and feed suppliers based on the Prairies; the three national supply management agencies; Agriculture Canada; Statistics Canada; and, the GNWT.

Information relating to the various cost factors in the COP formulas was converted to costs per dozen and cost per kilogram, as applicable, to produce a cost comparison between a hypothetical NWTproducer and the average producer represented by the COP formulas. In doing so, we used the conversion coefficients derived from the national agencies' surveys of producers and, in the case of eggs, rule of thumb estimates for the conversion coefficients achieved by the more efficient producers.

Technically, the COP formulas do not include levies, which are not so much a cost of production for the producer as a cost of participating in supply management. In order to simplify the presentation of our findings we have used a working definition of the cost of production that includes levies. This means that the COP estimates we use can be equated with the cost bases used to set (for eggs) or negotiate (for chicken and turkey) producer prices.

The following sections summarize the findings for eggs, chicken and turkey, covering:

- The structure of the respective COP formulas.
- Estimates for each of the major cost components and explaining the reasons for any differences between the COP averages and the NWT estimates.
- Estimates of the total costs of production for the respective commodities. ‘

This approach to the estimation of the costs assumes that the efficiency of the NWT producers will beat least equal to that of the “average” producers represented by the COP cost estimates and possibly as high as other “most efficient” producers in Canada. The actual level of efficiency that can be achieved will depend very much on a range of interdependent cost and operating factors, and great care is necessary to ensure that the costing assumptions and production coefficients are internally consistent, and the resulting cost estimates reflect optimal production circumstances. For example, it would be unrealistic to expect that low unit cost flocks of laying pullets would have high rates of lay, low feed conversion rates and low mortality rates following placement.

B. Estimated costs of production for NWTeggs

1. Structure of the cost of production formula for eggs

The COP formula used by the Canadian Egg Marketing Agency (CEMA) to set producer prices for eggs has six cost factors plus producer levies and a conversion factor to equate the cost base to a price for “Grade A Large” eggs. The 1990 update cost of production survey conducted on behalf of CEMA established the base level for each of the six factors. Monthly updates are prepared, based on changes in costs since the 1990 base period

The six’ cost factors are defined below, while Exhibit III-1 shows the current composition of the COP in Ontario, Manitoba and Alberta.

- Pullet cost-Purchase cost per dozen eggs produced, taking into account mortality rates during the laying period (approximately twelve months) and deducting the net salvage value (revenue received for, or costs of disposal of, birds when sold to processors at the end of the laying period).
- Feed cost-Delivered cost per dozen of feed, supplements and medication.
- Labour cost-Cost per dozen for family, arms-length employees and contractors. (Support for the family farm is a comerpiece of the supply management system and the majority of farms are owner-operated.) The estimated breakdown from the 1990 COP survey was:

Management time	19%
Family time	44%
(Time by family members on non-management tasks)	
Arm’s length time	37%

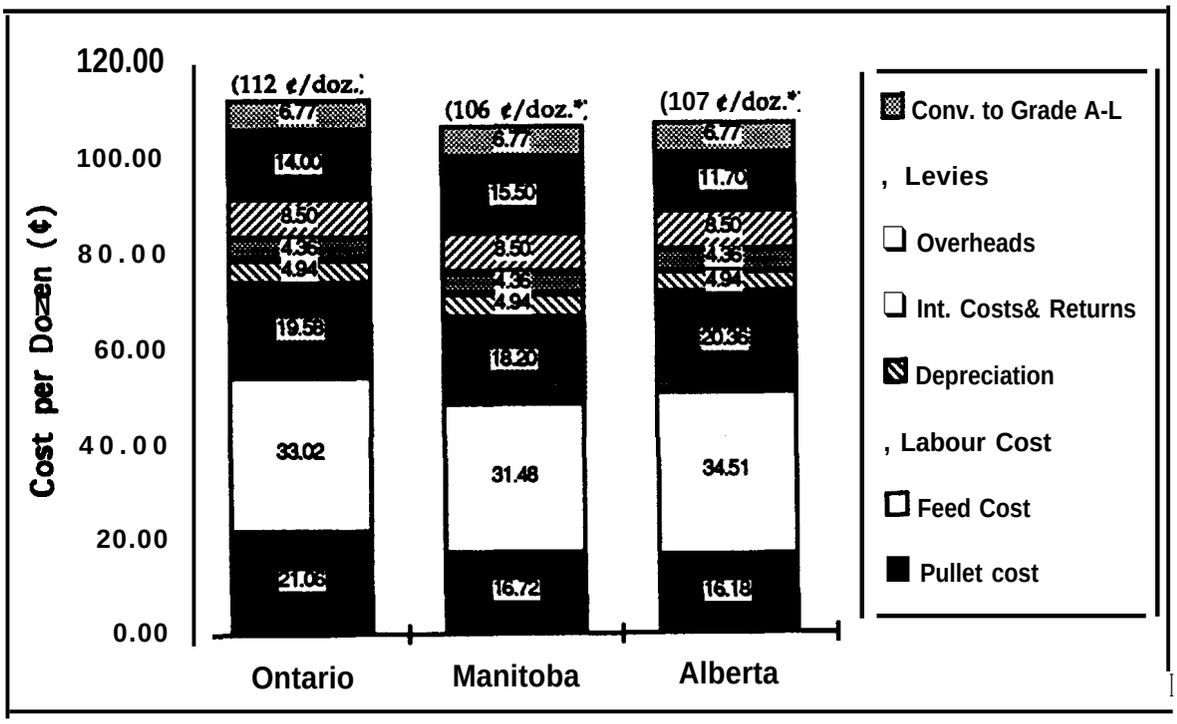
Information on labour times and allocations was used to develop an average labour hours per dozen. The cost estimates are updated using proxy labour rates drawn from the Federal Public Service Classification system and Statistics Canada's manufacturing wage rate series, plus a benefit rate of 20%.

- Depreciation-The depreciation cost per dozen is based on the depreciation cost derived from the 1990 COP suxvey and updated using changes in Statistics Canada's Farm Input Rice Indices.

- Interest costs and producer returns-The cost of interest and returns per dozen is calculated in relation to the value of working capital, net book value of buildings and land, and historic cost of land. The assumed interest rate is prime plus 2%.

- Plant and administration overhead-The cost per dozen for overhead is based on the derived cost from the 1990 survey updated using Statistics Canada indices for the major components, principally repairs, maintenance and energy costs.

Exhibit III-1
Composition of provincial COP estimates used to set producer prices for eggs-Ontario, Manitoba and Alberta-May, 1993



** Manitoba and Alberta figures are before a seasonal adjustment of 2¢ per dozen.*

Source: CEMA, Cost of Production Summary, April 28, 1993

The costs of administering the supply management system for eggs, and supporting the costs incurred by the surplus removal program, are funded through a complex system of levies. Not all of the levy amounts are recovered, i.e., included in the pmducerprices set by the provincial boards. The levies are structured as follows:

- **Administration** levy—Administration costs for CEMA and the provincial boards are tided by an adrmin's tration levy. The Administration levy is 4@, with 2¢ going to CEMA, for national administration, and 2¢ to the provincial boards, to fund their administration costs.

- **Industrial** levy—The costs of surplus removal are funded by an "industrial levy", which has two components:

  A "recoverable" element (i.e., that is included in the price paid to producers and, thus, passed on to consumers). This element is composed of 2@ / doz. that goes to a national product pool for supporting domestic sales of surplus eggs and variable provincial amounts, administered by CEMA, that are used to support provincial surplus removal programs.

  A "non-recoverable" element, paid by the producer from his/her profits, which is used to fund export sales of surplus product. This amount is currently 2@ / doz.

  The industrial levy varies between provinces, depending on the significance of their surplus production (i.e., difference between demand for table eggs and volume produced).

  Ontario and Quebec have withdrawn from the national surplus removal program and administer their own programs, including remitting 4 ¢/doz. to CEMA. Among the remaining provinces Alberta has the lowest industrial levy, of 7.7¢ recoverable plus 2¢ non-recoverable, and Manitoba and Saskatchewan are at the maximum, of11.5# plus 2¢.

- Variable provincial contributions-Used by the provincial producer boards to fund additional costs of surplus removal over and above the amount of the industrial levy, and other operating costs. Excluding Ontario and Quebec (which have different levy structures because they are running their own surplus removal programs), the amounts levied vary between 0.74 (in Newfoundland) and 4.7¢ (in Nova Scotia). Alberta has a levy of 2.3¢ and Manitoba 4.5@. These amounts are not included in the calculations used by CEMA to arrive at its monthly estimates of the cost of production in each province.

Provincial boards set the producer prices for their respective jurisdictions taking into account the COP estimates for their province and pricing trends in both their own and adjoining provinces. This means they have the option of recovering additional levy amounts by increasing their producer prices, to cover either part, or all, of their additional administration and surplus removal costs. For instance, the difference

between the May COP estimates and producer prices for Grade A Large eggs for the first week Of **May was:**

	COP (After seasonal adiustment)	Producer Prke
	(¢/doz.)	(u/doz.)
Ontario	112	111
Manitoba	104	106
Alberta	105	114

The minimum amount of recoverable levy (i.e., incorporated into CEMA'S COP estimates for use in setting the producer price) that would be applied to NWT production would be:

	¢/doz.
Administration levy:	
- CEMA sham:	2.0
- NWT share:	**2.0**
Industrial levy (Domestic account)[1]:	**7.7**
Total:	**11.7**

1. ***Assuming the*** same Industrial ***levy as in Alberta.***

In addition, producers would pay a non recoverable levy of 2 **¢/doz.—for** the export surplus account-and would probably need to pay a supplementary NWT levy, to cover shortfalls in the producer board's administration costs not covered by the 2 **¢/doz. provincial/territorial** share of the Administration levy.

In calculating the estimated costs per dozen there are three key conversion coefficients that must be used to convert input costs to costs per dozen eggs produced. These are:

- Rate of lay-The average number of eggs laid per bird placed. The rate of lay used in the COP formula is 22.3 dozen per bird. The actual rate achieved by producers varies around this level, and varies between their flocks. The rate of lay achieved is often due to a combination of good management and good luck. "Better" producers (i.e., who are generally more **efficient** and more careful in their management and operations) do have flocks that produce higher long term average rates of lay. Figures as high as 25 dozen per bird can be achieved by the "more efficient" producers.

- Feed conversion ratio (FCR)—The amount of feed (including supplements and medication) required to produce one dozen eggs. The COP formula uses a figure of 1.75 kg. per dozen while "more efficient" producers do achieve rates as low as 1.45-1.50 kg. per dozen. (The same comments and cautions mentioned in reference to rates of lay also apply to feed conversion ratios.

- Labaur hours per dozen eggs—The COP formula uses a figure of 0.01175 hours per dozen, covering management, family and arms-length time.

  In practice, wide variations occur in the amount of labour per dozen, which are reflected in the confidence intervals for the labour cost estimates (compared to the confidence intervals for pullet and feed costs) derived from the data collected in CEMA's producer surveys. Our cost estimates are based on estimates of the labour requirements for the three different quota sizes examined, supplied by one of the two NWT producers.

As Exhibit III-1 shows, pullet, feed and labour costs are the most significant cost components, accounting for 80% of those costs that are under the control of producers (i.e., COP excluding levies and the factor for converting costs to a Grade A Large price equivalent). Accordingly, our analysis of costs has focused on these three components and the costs of depreciation and financing, which vary with the age of producers' barns and equipment,

2 Rsssons fordiffersncss between the cost structures of individual producsrs snd estimates dsrivsd by ths COP formuia

Cost estimates produced using the COP formula are likely to differ from actual costs in the NWT for a number of reasons:

a) Most producers have production quotas that are much smaller than those proposed for NWT producers

The 1990 cost bases used in the COP formula have been derived from survey data from a sample of producers with quotas of between 8,000 and 50,000 birds. As such, they reflect the cost structures that apply to producers with smaller quotas than those proposed for the NWT. (cEMA's 1992 Annual Report shows the average number of layers per producer to be 11,347 in Ontario, 9,891 in Manitoba and 7,036 in Alberta.)

Larger producers, able to operate on a scale similar to that envisaged for the NWT, can achieve some economies of scale in their operations, such as better labour utilization rates. Other major cost contributors, such as feed and pullets, are unlikely to vary between a quota of 37,0(X) and 100,000, beyond short term savings aud discounts that maybe negotiated with suppliers.

b) Marked variations occur in the key coefficients between "average", "more efficient" and "less efficient" produceIYL

These variations reflect differences in the care and attention given to managing production operations and achieving optimal balances between the production coefficients and, thus, production costs. The differences between COP averages for rate of lay and feed conversion and those that are achieved by "more efficient" producers can have a significant impact on the profitability of operations.

c) Government support programs may enable aome producers to reduce their production costs

Producers are able to benefit from a variety of federal and provincial support programs for livestock producers that provide direct payments or rebates to producers. However, the number, types and financial impacts of these programs vary by province and, for some programs, regions within provinces. The cost 0$ production surveys used by CEMA to establish the base costs used in the egg COP formula are intended to measure the net costs (i.e., excluding any subsidies, rebates and refunds) but, it is possible that some of the information provided by the participating producers may not have had all of the benefits netted out. As a result, the average costs determined from the surveys may slightly overstate the true cost picture.

This situation is most likely to occur when a refund or rebate is received separately from the producers' actual purchase and payment processes. For example, Ontario producers are eligible for refunds of provincial taxes paid on gasoline and diesel purchased for on-farm use.

It should be noted, however, that there is an underlying trend to reduce both the number of programs available to producers, and to reduce the size of payments made to producers under those that remain. This trend reflects the financial circumstances and fiscal restraint faced by the federal and provincial governments as well as pressures to reduce levels of agricultural assistance, prompted by the Canada-U.S. free trade arrangements and GATT negotiations on agricultural support levels.

3. Estirnsted costs of egg production in the NWT

Exhibit III-2 summarizes the estimated costs per dozen for each of the three proposed quota levels, and compares them with the current costs in Ontario, Manitoba and Alberta. We have split the levy estimates into two components-those that are recoverable and those that are either non-recoverable or recoverable at the option of the individual provincial/terntorial producer boards (and subject to the approval of their supervisory boards).

Two production scenarios have been assumed for each of the three alternative quotas. These scenarios assume different levels of management effectiveness and production efficiency—one scenario assumes an "average" producer with production coefficients in line with those used for the national COP formulas and the other assumes a "more efficient" producer, able to achieve better-than average rates of production efficiency. The coefficients used for the scenarios are as follows:

Production Coefficients	scenario 1 "Average Producer"	Scenario 2 "More Efficient Producer"
Rate of Lay (doz./bird):	22.3	24.0
Feed conversion ratio (kg./doz.):	1.75	1.60
Mortality rate for pullets:	9%	9%
(Affects the allocation of Salvage returns to the cost of pullets Placed)		

Exhibit III-2
Estimated costs of production-NWT versus Ontario, Manitoba and Aiberta

Option 1 — "Average NWT Producer"

Cost Component	NWT—37,000 layers	NWT—60,000 layers	NWT—100,000 layers
	(¢/doz.)	(¢/doz.)	(¢/doz.)
PuUet cost	17.94-18.61	17.94-18.61	17.94-18.61
Feed cost	30.28	30.28	30.28
LabOur cost	14.01	8.64	6.15
Depreciation	4.94	4.94	4.94
Plant & Admin. O'head	8.50	8.50	8.50
Interest cost &return	4.36	4.36	4.36
Recoverable levies:			
- Admin. (Nat./Terr.)	4.00	4.00	4.00
- Industrial (Domestic)	7.70	7.70	7.70
Non-recoverable/ optional levies:			
- Industrial	2.00	2.00	2.00
- Territorial support	1.18 - 3.28	0.00 - 1.26	0.00
Conversion - Grade A-L	6.77	6.77	6.77
TOTAL:	101.68-104.45	95.13-97.06	9264-93031

Option 2 — "Efficient NWT Producer"

coat Component	NWT—37,000 layers	NWT—60,000 layara	NWT—1 OO,OOO layers
	(¢/doz.)	(w =)	(¢/doz.)
pullet cost	16.67-17.29	16.67-17.29	16.67-17.29
Feed cost	27.68	27.68	27.68
Labour cost	13.02	8.03	5.72
Depreciation	4.94	4.94	4.94
Plant & Admin. O'head	8.50	8.S0	8.50
Interest cost & return	4.36	4.36	4.36
Recoverable levies:			
- Admin. (Nat./Terr.)	4.(XI	4.00	4.00
- Industrial	7.70	7.70	7.70
Non-recoverableJ optional levies:			
- Industrial	2.00	2.00	2.00
- Territorial support	1.18 - 3.28	0.00 - 1.26	0.00
Conversion - Grade A-L	6.77	6.77	6.77
TOTAL:	%082 -99054	90.65-9253	88034- 8&%

Exhibit III-2 (Cent'd.)
Estimated coats of production —NWT versus Ontario, Manitoba and Aiberta

Provincial COP eatimatea

Cost Component	Ontario	Manitoba	Alberta '
	(u/doz.)	(u/doz.)	(u/doz.)
Pullet cost	21.06	16.72	16.18
Feed cost	33.02	31.48	34.51
Labour cost	19.58	18.20	20.36
Depreciation	4.94	4.94	4.94
Plant & Admin. O'head	8.50	8.50	8.50
Interest cost & return	4.36	4.36	4.36
Recoverable levies:			
- Admin. (Nat./Terr.)	*4.50**	4.00	4.00
- Industrial	4.00*	11.50	7.70
Non-recoverablel optional levies:			
- Industrial	2.00*	2.(X)	2.00
- Provincial contribution	8.5(P'	4.50	2.30
Conversion - Grade A-L	6.77	6.77	6.77
TOTAL:	117.23	112.97	111.62

Note:

- *Some incremental economies can be achieved in going from 37,000 layers to 60,000 and 100,000 but most volume economies are achieved in going from a production level around the national average number of layers per producers, of 12,096, to a level of 37,000. The major difference between an 'average" producer and a %ore efficient" producer is primarily in the quality and consistency of their management skills.*

- *Ontario levy structure rejlects the fact that Ontario has withdrawnfrom the national surplus program (along with Quebec) and administers its own scheme, resulting in lower Adnu"nistration and Industrial levies, but higher Provincial Conbibudon levies.*

- *Cost estimate for feed in tk NWT is a delivered cost after subtracting the payment of Feed Freight Assistance(FFA) of $54/t. on tk grain component of feed costs, and a volume discount of $7/t. The FFA payment is eqtu"valent to $0.0691 - 0.0756/doz. and tk transport discount is equivalent to $0.0112- 0.0123/doz.*

- *Depreciation and interest cost estimates assume NWT facilities are tk same age as the national average age of barns and equipment.*

The estimated costs are based on cost and production information provided by: one of the two NWT producers; suppliers of pullets, feed, equipment and other inputs; the GNWT; and, our office in Yellowknife.

As Exhibit III-2 shows, the estimated coat of producing egga in the NWT, and adding in recoverable and non-recoverable levies on producers, and the Conversion to Grade A—Large factor, ranges between:

- 37,000 layers: **96.82** -104.45 **¢/doz.**
- 450,000 **layers:** **90.65-97.06 ¢/doz.**
- **100,000 layers:** 8834-93.31 **¢/doz.**

These are current cost estimates, i.e. they assume the facility is in production now, and its barns and quipment have the same average ages as found in the rest of Canada, of about 12 years for a barn and about 8 years for the quipment. A brand new facility would have production costs approximately 4.93 **¢/doz.** higher.

The estimated NWT costs are lower than the current COP estimates for Ontario, Manitoba and Alberta. The differences between the estimated NWT cost levels and those in Alberta-the province with the lowest COP estimates of the three-is explained below:

Cost Fsctor	Cost Difference vs. Albsrts COP sstlmste
Lower Co6t **Inputs:**	**(¢/kg.)**
- *Feed costs* Due to the impact of the Feed Freight Program (FFA) and, to a lesser extent, volume discounts that could be obtained for the different flock size options. Without these savings the feed cost would be 29% higher.	*-4.23-6.83*
- ***Labour costs.*** Information provided by one of the NWT producers suggests that the large scale production operations in the NWT will achieve considerable labour savings and economies compared to the typical producers and quotas that underlie the estimated labour costs in the COP estimates. His information on unskilled labour rates in the NWT indicates that hourly labour rates would be lower than the proxy rates used in the COP formula.	-6.35-14.64
Cost Factor	**Cost Difference vs. Albsrts COP sstlmste**

Potentially Higher **Cost Inputs:**	
- *Territorial support levy* **A** support levy maybe necessary to fund the NWT producer board's administration functions, depending on the size of the quota that may be allocated and the actual costs that will be incurred by the board. The support levy would be quivalent to the existing "Provincial Contribution" levied by provincial **producer** boards.	+0.98
- *Depreciation costs* *The estimates* presented in Exhibit III-2 assume the NWT facilities would be the same age as the average production facility assumed in the COP formula, i.e., an average age of buildings of 11.8 years and quipment of 7.6 years. These assumed ages are used in the calculation of the base costs for depreciation and interest on freed assets in the COP formula. Individual producers' depreciation costs would rise and fall around this average, depending on when they build their production facilities and undertake major repairs and replacements. The difference in depreciation on an average age farm and a farm with all new facilities will be significant-approximately 26% higher.	+1.28 (Over andsbove the **estimated sts shown** in Exhibit III-2 and **Appendix** A)
Interest cost andproducer return Interest costs will also vary for the same reasons as depreciation costs, with the variations being even more pronounced. For instance, the estimated interest cost (or implicit rate of return that should be expected by a producer if he funds the facility using quity capital) for a new facility would be 84% higher than for an average age facility.	+3.65 (Over andabovethe estimated **costs shown in** Exhibit **III-2 and Appendix A)**

It should be **noted,** too, that the COP estimates are averages, and many producers in Ontario, Manitoba and Alberta will also have costs of production below those estimated by CEMA. In addition—as we have noted in Appendix A, which provides a more detailed breakdown of the rationale and assumptions underlying the cost estimates-there are a number of the smaller cost factors where we have used the average cost currently used in the national COP estimates and where the actual costs that would apply in the NWT maybe higher than the national average. For instance, the combination of a more severe climate and higher-than-average energy costs would be expected to result in a higher that average cost level for Plant and Administration Overhead. Insurance premiums may also be higher.

C. Estimated costs of production for NWT chicken

1. Structure of the cost of production formula for chicken

The COP formula for chicken is composed of eleven cost factors. Two levies—to cover provincial and agency administration costs-are added to arrive at a total cost estimate for use in negotiating producer prices with processors. The base values for each of the cost factors were derived from a survey of producers conducted in 1991, which collected information on 1990 costs. The approach taken by the Canadian Chicken Marketing Agency (CCMA) to the establishment of an updated COP formu differs from CEMA'S approach for eggs in two significant areas:

- Estimates of the costs of labour, taxes and insurance, depreciation, and financing of fixed assets were based on estimates of the costs of establishing and manning a "model farm", i.e., a typical chicken production facility. This approach was used to overcome perceived weaknesses in the use of survey data to estimate costs related to fixed assets and Iabour utilization rates.

- Producers who were deemed to be "inefficient" (i.e., the 10% of producers in each province with the highest costs of production) were excluded from the estimation of base costs so that the COP formula would reflect the performance of the "most efficient" producers. Provincial COP estimates fell by up to 1.9% when these producers were excluded

The eleven cost factors and two levies are defined below, and Exhibit III-3 shows the contribution each of these factors, plus producer levies, makes to the current COP estimates for broiler production in Ontario, Manitoba and Alberta. All cost information is converted to cost per kilogram of liveweight chicken produced.

- Feed-Cost of all feed purchased for flocks, including delivery and medications added to the feed.

- Chick-Cost of day old chicks including delivery and related services such as sexing and vaccination.

- Labour-Estimated cost of Iabour required for management, skilled labour and general labour. The amount of labour time per kilogram of chicken was based on the analysis of Iabour requirements for the "model farm" used in the most recent COP update. This approach examined the job functions to be performed and developed estimates of the labour hours required for the production levels assumed for the "model farm". The estimated total, of 3,000 hours, was composed of:

  Management: 670 (22.3%)
  Skilled labour:. 39 (24.6%)
  General labour: 1591 (53.0%).

The hours per kilogram are costed using a number of proxy labour rates:

Public Service Agriculture salaries for management time plus 10.53% for benefits.
Statistics Canada Industrial Wage Aggregate Rate (Hourly) for skilled Iabourplus 14.53%.
70% of the Industrial Wage Aggregate Rate (Hourly) for general labour plus 14.53%.

- Repairs and **maintenance—Expenditures** on repairs and maintenance of buildings, equipment and vehicles involved in the production of chicken.

- Energy-Cost of energy consumed **for** chicken production from all energy **sources—electricity,** propane, natural gas, fuel oil, gasoline, diesel, coal, etc. Cost variations occur depending on which energy combinations are available to producers and the relative costs of substitutable **sources,** such as propane, natural gas, fuel oil and diesel.

- **Production and** business overhead-Costs of: production supplies, service fees, overhead and "other" costs, as well as property taxes and insurance.

- Catching-Cost of labour charges for catching and loading market weight chickens for transport to processing plants.

- **Transportation—Cost** of shipping market weight chickens **from** farms to processing plants. Alberta is the only province where producers pay this cost directly.

- Depreciation-Estimated cost of depreciation for the production assets of the "model farm", backdated to reflect the average ages of these assets, as determined from the survey of producers. Depreciation rates used were:

  Buildings —25 **years**
  Bam equipment-15 years
  Tractors — 15 years
  Vehicles and other— 10 years.

- Cost of financing assets-Estimated interest costs, based on a 60 month rolling average rate of prime plus 2%, for financing farm assets. The costs were calculated for the net book value of all freed assets. This approach to calculating freed asset financing costs does not differentiate between debt and equity financing. Rather, the same interest rate is deemed to accurately reflect both the cost of borrowed capital and a reasonable **return** on the invested producer equity capital.

- Working capital-Estimated costs of financing working capital, based on a 60 month rolling average interest rate of prime plus 2% and an assumed need to finance 50% of flock operating costs over the period of the flock's life, of2 months. The flock operating costs consist of the costs of: repairs

and maintenance, energy, overheads, catching, transportation, labour, taxes and insurance, fixed asset financing and levies.

Two levy amounts are added to the COP estimates to arrive at a cost for use in provincial producer boards' negotiations with chicken processors to set producer prices. The levies are set to cover the administrative costs of the CCMA and provincial producer boards. The CcMA's Agency levy is currently 0.5 ¢/kg. while the Rovincial levy varies between 0.5 ¢/kg. and 2.4 ¢/kg. The Provincial Levies in Ontario, Manitoba snd Alberta are 1.2 ¢/kg., 0.86 ¢/kg. and 1.12 ¢/kg., respectively.

Provincial boards set the Provincial levy, subject to the approval of their provincial supervisory boards, and taking into account the producer prices negotiated with processors. In April, 1993, the producer price was above the COP estimates in provinces-Alberta (+1.28@, Saskatchewan (+5.31@), Manitoba (+5.86¢), Ontario (+3.07¢) and Nova Scotia (+2.36@. In the rernaining five provinces the shortfall was as high as -5.99$.

The key conversion coefficients that must be used to convert the unit cost information for each of the cost factors are as follows:

- Feed conversion ratio (FCR)—The amount of feed (including supplements and medication) required to produce one kilogram of liveweight chicken. The CCMA survey found the following FCR'S for broiler chicken:

  Ontario — 2.06 kg. /kg.
  Manitoba — 1.98 kg. /kg.
  Alberta— 2.01 kg. /kg.

- Average weight of birds shipped-The average weight of the birds shipped to processors. The averages from the CCMA survey were:

  Ontario — 1.% kg.
  Manitoba— 1.91 kg.
  Alberta — 1.78 kg.

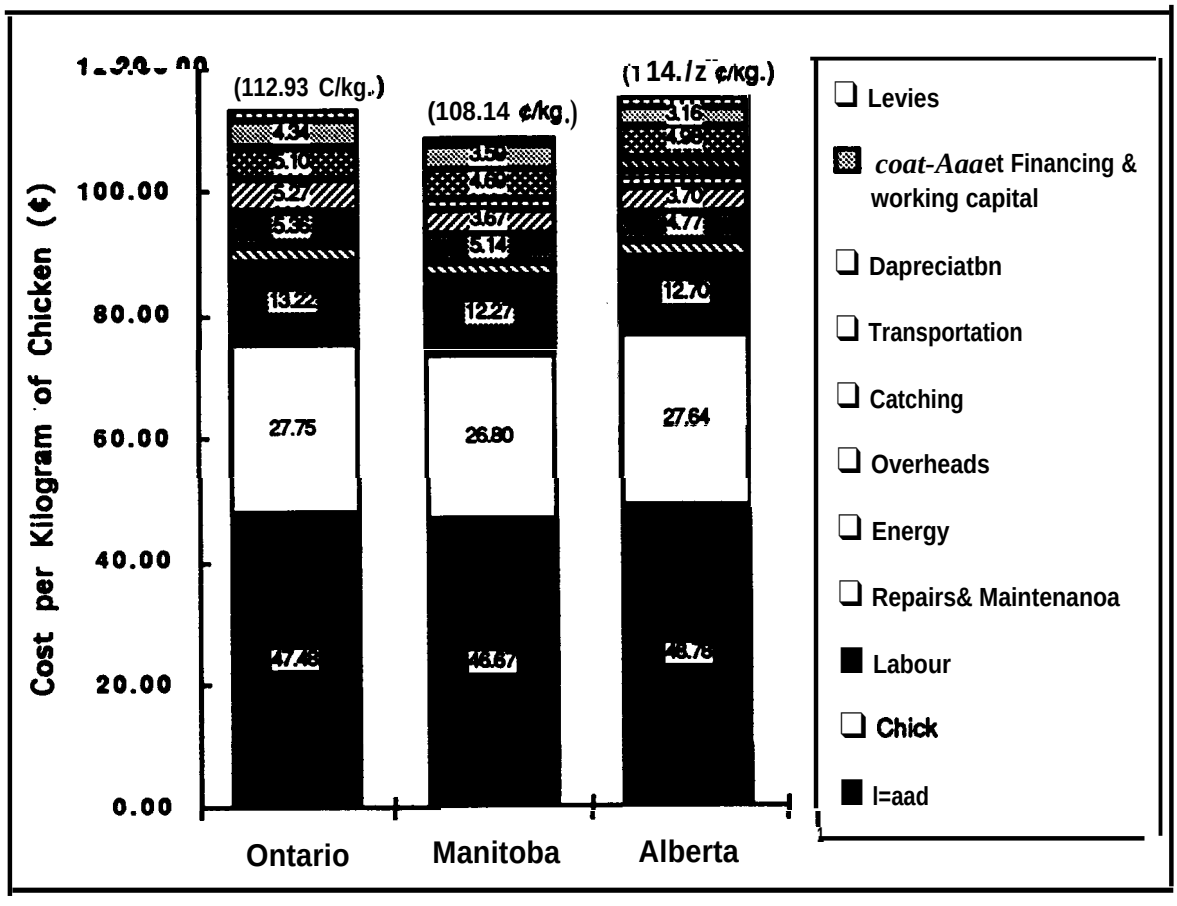
  The weight of birds shipped is, to some extent, driven by the nature of the demand within the markets being served.

- Mortality rate-The percentage of birds that die during the growing period. The survey averages were:

  Ontario — 5.8%
  Manitoba— 6.3%
  Alberta — 6.5%.

The composition of the respective COP estimates for Ontario, Manitoba and Alberta is shown in Exhibit III-3. The importance of feed, chick, labour and energy costs, which together account fbr 82- 84% of the total cost, is readily apparent.

Exhibit III-3
Composition of **provincial** COP **estimates** ussd to **negotiate** producer **prices for chicken—Ontario,** Manitoba and **Alberta—May,** 1993



source: *CCMA, 1990 cost of Production Study Update, April,* 1993

2. **Estimated** costs **of chicken production in ths NWT**

Exhibit III-4 **summarizes** our calculations of **the estimated** costs for each of the main contributors to the cost of producing chicken, using the proposed production quota of 1,494,768 kg. of liveweight chicken (1,100,000 kg. eviscerated), along with equivalent breakdowns of the CCMA'S current COP estimates for Ontario, Manitoba and Alberta. Appendix B, provides a more detailed explanation of the rationale and assumptions for the cost estimates, drawing upon unit cost information provided by suppliers of chicks, feed and other inputs as well as NWT producers and the GNWT. In converting the unit costs to costs per kilogram we have used estimates of the key conversion coefficients for **Alberta,** derived from the findings from the CCMA'S 1990 **survey** of producers:

- Feed conversion ratio 2.01 kg. / kg.
  Average weight of bids **shipped** 1.78 kg.
  Mortality rate 6.5%.

The **estimated net cost of produang chicken (i.e., after' taking Feed Freight Assistance payments and volume discounts on feed transport into account) in the NWT ia 123.71-127.28 ¢/kg. NWT's** likely production costs are between **8%** and 18% higher than those in Ontario, Manitoba and Alberta. The breakdown of the cost differences between NW'I' and Alberta estimates is as follows:

Cost Factor	**Coat Difference vs., Alberta COP estimate**
Higher coat **Inputs:**	**(Wm.)**
- *Ctu"ck costs,* due to the cost of transport from hatcheries in Alberta and Saskatchewan, particularly if deliveries are less than a full truck load.	+1.2 -3.6
- *Energy costs. NWT* electricity costs are approximately 44% higher than Alberta's (10.6 **¢/kWh** VS. 7.34 **¢/kWh),** and NWT propane costs, measured in **cents/megajoule,** are 312% higher (0.861@ vs. **0.244¢).** Potentially, energy costs could be even higher, as the more severe climate in the NWT would probably result in a higher rate of energy consumption for heating, compared to Alberta.	+7.08
- *Depreciation and jinancing costs,* due to the NWT's production facilities being newer than the average age of production facilities in the three provinces, and resulting in higher book values for the NWT's facilities. (This assumes we are comparing **current** costs of production. A longer term comparison would need to recognize **that,** as the farm assets age, and are updated or replaced, the costs of depreciation and **financing** will rise and fall.)	+2.27 **(Depreciation) +7.29** (Fiiing)
- *Territorial **levy,** as* a result of the small production base in the NWT, which then provides the base for financing the functions of the NWT producer board.	+0.63 -1.80
Lower **Cost** Inputa:	
- *Feed costs,* due to the Feed Freight Assistance program payments.	-5.56
- *Labour costs,* due to the difference between the proxy labour rates used in the COP calculations and actual rates that would be payable in Hay River.	-1.55

A related issue, which will be critical to determining the overall viability of the chicken (and turkey) production sector in the NWT, is that of where processing will take place. If processing takes place in Alberta then the delivered price of NWT products will be affected by the cost of shipping birds to the plant and then shipping the eviscerated products back to the NWT. The distances involved are substantial and it is quite possible that processors would expect transportation costs to be paid directly by producers. (The average transportation cost—for birds going to **processing plants—is** 2.37 **¢/kg.)** Alternatively, if processing is undertaken in the

NWT the **processing** cost per kilogram may be higher than in **Alberta,** because the plant will have much lower throughput volumes.

Exhibit III-4
Estimated costs of chicken production — NWT versus Ontario, Manitoba and Alberta COP estimates

cost component	NWT	Ontario	Manitoba	Alberta
	(¢/kg.)	(em.)	(m?.)	(¢/kg.)
Feed cost	43.22	47.48	46.67	48.78
Chick cost	28.84-31.24	27.75	26.80	27.64
LabOur cost	'11.15	13.22	12.27	12.70
Repairs &maintenance	2.37	2.70	2.10	2.37
Energy	11.85	5.36	5.14	4.77
Production & business overhead	3.70	5.27	3.67	3.70
Catching	2.63	0.00	1.86	2.63
Transportation	0.(K)	0.00	0.00	2.37
Depreciation	**7.25**	5.10	4.69	4.98
cost of financing assets	**10.23**	4.12	3.38	2.94
Working capital	0.22	0.22	0.21	0.22
Provincial/Territorial levy	1.75-2.92	1.20	0.86	1.12
Agency levy	0.50	0.50	0.50	0.50
TOTAL:	123.71-127028	112.93	108.14	114.72

Note:

- *Cost estimate for feed in the NWT is a delivered cost after subtracting the payment of Feed Freight Assistance(FFA) of $54/t. on the grain component of feed costs, and a volume discount of$71t. Information prow&d by feed suppliers indicates that FFA grains account for approximately 80% of thefeed used by chicken producers. The FFApayment is equivalent to 8.64 ¢/kg. of chicken and the transport discount is equa"valent to 1.41¢/kg. of chicken.*

- *No transportation costs have been assunud for the NWT production. However, if there are no processing facilities in the NWT the producers may have to pay the cost of transporting their market weight chicken to processing plants.*

- *Energy cost estintate assumes an even balance between electricity and natural gas costs. NWT estimate is based on difference between Alberta and NWT commercial rates for electricity, Alberta natural gas costs and propane costs in Hay River.*

D. Estimated costs of production for NWTturkey

1. Structure of the cost of production formula for turkey

The Canadian Turkey Marketing Agency (CI'MA) has developed three COP formulae for turkey to estimate production costs for the three different categories of turkey produced:

- Broilers —liveweightofunder 6.2kg.
  Hens — liveweight of 6.2- 9.8 kg.
  Toms — Iiveweight of above 9.8 kg.

As the anticipated production mix (i.e., balance between broilers, hens and toms) in the NWT has not yet been determined we have used the hen COP formula as the basis for developing the estimated NWT production costs.

The turkey COP formula consists of thirteen cost factors; a provincial and CTMA levy are added to the COP estimates to arrive at cost estimates for use by provincial producer boards in their negotiations with processors on the prices to be paid to producers. The base values for each of the factors were developed using data collected from a survey of producers, covering their 1991 production costs, and an analysis of two "model farrns''-one for broilers and hens, and the other for toms- representing an efficient, family farm production unit. The approach used was similar to that used by the CCMA for setting the base costs for chicken.

The proposed NWT turkey quota, of 182,927 kg. liveweight (150,000 kg. eviscerated), is smaller than the production volumes assumed in the CTMA'S broiler/hen "model farm", of 239,500 kg. liveweight. This smaller production base fbr the NWT has major implications for the size of the territorial levy and the funding of the proposed NWT producers' board. (Chapter V examines this issue in detail.)

In setting the base costs for the turkey COP formula, the CTMA excluded the 10% of producers who had the highest variable costs (feed, poult, repairs and maintenance, other direct production, administration overheads, catching, and transportation), to arrive at a cost base for the "efficient" producers. The average variable production costs incurred by the 90% of producers who were deemed to be "efficient" were marginally lower than the overall survey averages-2.1% lower in Ontario, 0.8% in Manitoba, and 0.9% in Alberta.

The thirteen cost factors and two levies are defined below, and Exhibit III-5 shows the contribution each of these factors, plus producer levies, makes to the current COP estimates for turkey hen production in Ontario, Manitoba and Alberta. All cost information is converted to cost per kilogram of liveweight turkey produced.

- Feed-Cost of all feed purchased for flocks, including delivery and medications added to the feed.

- **Poult—Cost** of all **poults** purchased for flocks, including delivery and **associated services,** such as sexing and toe clipping.

- Labour-Estimated cost of labour required for **management, skilled** labour and general labour. The amount of labour time per kilogram of turkey was based on the analysis of Iabour requirements for the "model farm" used in the most recent COP update. This approach examined the job functions to be performed and developed estimates of the labour hours required for the production levels assumed for the "model farm". The estimated total hours **for** an annual hen production of 239,500 kg. was:

  Operator (i.e., **producer)—skilled** Iabour and management functions — 2,190 hours (6 hours/day, 365 **days p.a.)**
  Casual **labour —** 500 hours **(1x10 hour day/week).**

  The current COP formulas appear to assume an hourly rate of between $16.14 and $19.47 for operators, in Ontario, Manitoba and Alberta, and between $10.78 and $12.47 for **casual** labour.

- Energy-Cost of energy consumed for turkey production from all energy sources-electricity, propane, natural gas, fuel oil, gasoline, diesel, coal, etc. Cost variations occur depending on which energy combinations are available to producers for heating For instance, in **Alberta,** natural gas is most commonly used while Manitoba and Ontario producers use either natural gas or propane.

- Catching--Cost of labour charges for catching and loading market weight turkeys for transport to processing plants.

- **Transport—Cost** of shipping market weight turkeys **from** farms to processing plants. Only producers in Alberta, and some in B. C., are required to pay this cost.

- Direct production **costs—Cost** of such items as production supplies (special medications, disinfectants, litter, etc.) and flock casualty insurance.

- **Repairs** and **maintenance—**Expenditures on repairs and maintenance of buildings, equipment and vehicles involved in the production of turkey.

- **Administra**tion-Costs of farm overhead, service fees and any miscellaneous charges.

- **Property taxes and insurance-Based** on the property taxes and insurance that would be applicable to the **"model** farm". Considerable variations in property taxes occur from province to province, reflecting differences in assessment **values,** net mill rates, municipal reductions and allowances, a@ where appropriate, provincial **rebates** and refunds.

- **Depreciat'**mrt-Estimated cost of depreciation for the buildings, equipment and vehicles used by the "model farm", backdated to reflect the average ages of these assets, as determined from the survey of producers. The depreciation rates used assume the following asset lives:

  - **Buildings — 20 years**
  - **Equipment – 10 years**
  - **Vehicles — 10 years.**

- **Financing costs-Estimated** interest costs, based on the current prime rate plus 2%, for financing farm assets. The costs were calculated for the net book value of all fixed assets. The approach used does not differentiate between debt and equity financing, in that the interest rate used is deemed to reflect either a reasonable return on equity investments or the cost of borrowed funds.

- **Interest on working** capitaI-Estimated costs of financing working capital requirements, based on the current prime rate plus 2%, applied to those cost factors that are generally incurred either at the start of each flock (e.g., **poult** costs) or over the life of each flock (i.e., number of days on feed), such as energy, repairs and maintenance, and labour.

- Levies-Costs set by the CTMA and provincial producer boards to fund their respective administration fimctions. The CI'MA's levy is currently 1.30 @kg. while the Rovincial levy varies between 0.3 **¢/kg.** and 2.2 **¢/kg.** The Provincial Levies in Ontario, Manitoba and Alberta are 1.10 **¢/kg.,** 2.00 **¢/kg.** and 2.00 $/kg., respectively.

The key conversion coefficients used to convert the unit cost information to costs per kilogram of liveweight chicken are:

- **Feed conversion ratio (FCR)—The** amount of feed (including supplements and medication) required to produce one kilogram of Iiveweight turkey. The CI'MA survey found the following FCR'S for turkey hens:

  - **Ontario — 2.69** kg, /kg.
  - Manitoba — **2.39** kg. /kg.
  - Alberta— 2.82 kg. /kg.

- **Average weight of birds shipped-The** average weight of the birds shipped to processors. **The** averages from the **CTMA** survey were:

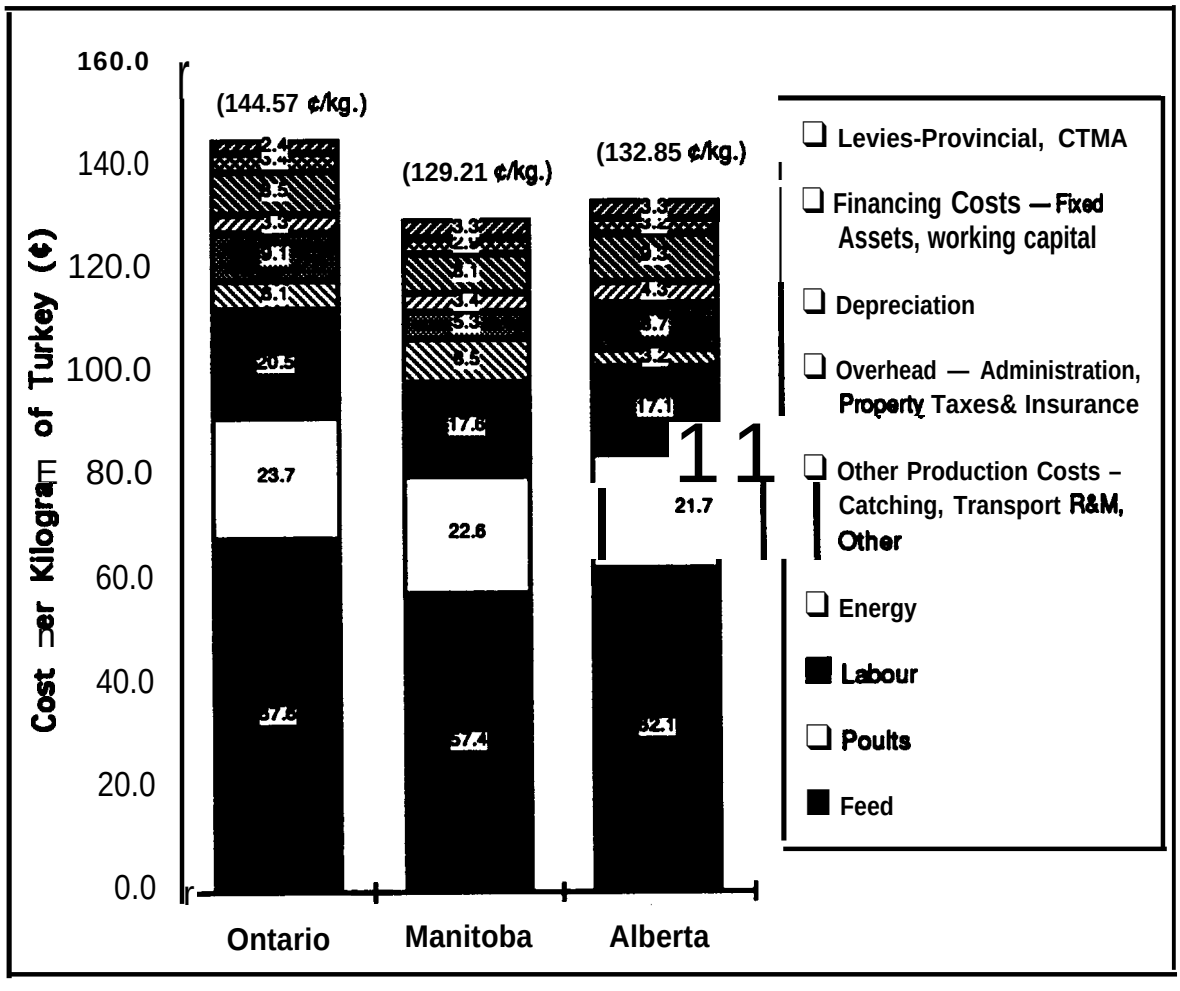
  Ontario — 7.37 kg.
  Manitoba — 6.88 kg.
  Alberta— 8.35 kg.

- **Mortality rate-The** percentage of birds that die during the growing period. ‘he survey averages were:

  - **Ontario —** 8.50%
    Manitoba— 7.60%
    Alberta — 8.43%.

As Exhibit III-5 shows, **feed,** pouk and labour costs are most **significant, accounting** for 76% of the total estimated production costs. **The** following analysis of likely production costs in the NWT **focuses** most heavily on these three cost factors.

Exhibit **III-5**
Composition of provincial COP estimates used to negotiate producer prices for turkey hens-Ontario, Manitoba and Alberta—May, 1993



Source: ***CTMA, Consolidated Provincial Cost of Production Study, April,*** **1993**

2. Estimated costs of turkey production in the NWT

Exhibit III-6 summari‘zes our calculations of the estimated costs for each of the main contributors to the cost of producing turkey in the NWT, based on the proposed

production quota of 182,927 kg. liveweight (150,000 kg. eviscerated), and compares them with the current COP estimates for Ontario, Manitoba and Alberta. Appendix C presents the detailed assumptions and analysis underlying the NWT cost estimates shown in Exhibit III-6.

Unit cost information used in the estimates was provided by suppliers of poults, feed and other inputs as well as NWT producers and the GNWT. In converting the unit costs to costs per kilogram we have used the following conversion coefficients, which are the same as the Alberta averages from the CI'MA's 1591 survey of producers:

Feed conversion ratio	2.82 kg./kg.
Average weight of bids shipped	8.35 kg.
Mortality rate	8.43%.

The eatimated net coat of producing turkey hena (i.e., after taking Feed Freight Assistance payments and volume discounts on feed transport into account) in the NWT is 172.59-185.76 #/kg. NWT's estimated production costs are 30- 40% higher than those in Alberta.

The assumed NWT levy on producers, which accounts for 8- 13% of the total estimated cost, makes a big difference to the total estimated cost. It is high because it assumes that the producer board costs for turkey will be the same as those for eggs and chicken even though the proposed quota is nowhere near as significant.

The other major contributors to the estimated total costs arc as follows:

Coat **Factor**	**Coat Difference vs. Alberta COP Eatlmate**
	(M%)
Feed costs, which appear to be higher due to the updating methodology used by CTMA rather than due to fundamental cost differences (i.e., average Alberta feed cost published by CI'MA is $228, which is similar to the $225 quoted to us.)	+1.32
Pouft costs, due to the cost of transport from hatcheries in Alberta, particularly for less than full truckloads.	+0.57 -1.16
Labour costs, due to the relatively small size of the proposed quota and increased significance of the assumed labour cost for the owner-operator.	+6.10
Energy costs Alberta has the lowest energy costs in Canada while NWT's costs are among the highest. The estimated NWT cost is close to the CTMA's estimated energy costs in Manitoba and Quebec.	**+4.99 -6.00**

Coat **Factor (Cent'd)**	**Cost Dlfferenee vs. Alberta COP Estimats**

Depreciation costs, due to the fact that new production facilities will need to be established in the NWT whereas the average age of Alberta barns is of the order of 15 years 014 and equipment is 12 years old.	+4.32
· *Financing costs,* which also reflect the assumed age differences in production facilities. This cost is also sensitive to interest rates.	+12.12 -14.18

Exhibit iii-6
Estimated costs of turkey hen production—NWT versus Ontario, Manitoba and Aiberta COP estimates

cost Component	NWT	Ontario	Manitoba	Alberta
	(¢/kg.)	(¢/kg.)	(¢/kg.)	(¢/kg.)
Feed cost	63.45	67.56	57.41	62.13
Poult cost	22.30-22.89	23.74	22.61	21.73
Labour cost	23.24	20.51	17.62	17.14
Energy	8.14-9.15	6.09	8.53	3.15
Catching	2.42	1.74	1.21	2.42
Transportation	0.00	0.00	0.00	2.00
Direct production costs	1.84	3.76	2.36	1.84
Repairs & maintenance	2.40	3.55	1.76	2.40
Administration	2.49	1.62	1.00	2.49
Property taxes & insurance	1.79	1.72	2.43	1.79
Depreciation	13.57	8.51	8.06	9.25
Financing costs	14.36-16.42	2.22	2.00	2.24
Interest-working capital	0.97	1.14	0.93	0.97
NWT / Provincial levy	14.32-23.83	1.10	2.00	2.00
CTMA levy	1.30	1.30	1.30	1.30
TOTAL:	**172.59 - 10S.76**	**144.57**	**129.21**	**132.85**

Note:

- *Cost estimate forfeed in tk NWTis a &livered cost after subtracting thepayment of Feed Freight Assistance(FFA) of $54/t. on tk grain component of feed costs (about 80% of tk totalfeed volume), and a volume discount of $7/t. Tk FFA payment results in a cost reduction of 12.31 ¢/kg., and the transport discount a reduction of 1.995 ¢/kg.*

- *No transportation costs have been assumed for tk NWT production. However, if no processing facilities are &veloped in tk NWT, producers may have to directly pay for transportation to* Alberta *processing plants.*

- *Financing costs are sensitive to both asset* ages (and costs), and *interest rates. The lower cost estimate for financing is based on an interest rate of prime plus 1%* (7%), and *tk higkr estimate prime plus* 2%

IV

Comparative Advantage Issues And Their Relation To NWT Quota Requests

In the process of negotiating production quotas it is desirable to establish mechanisms for reviewing and modifying the agreed production volumes in response to national and provincial/temitorial demand trends and market structure changes. In recognition of this factor we were also asked to:

> *Examine the issue of comparative advantage as it relates to quota allocation to provinces and how it would relate to NWT requests for quota.*

A. Application of the concept of comparative advantage in supply management systems

Comparative advantage considerations come into play when the supply management agencies allocate production quotas in excess of the base volumes set in the respective Federal-Provincial Agreements. The NFPC, in its 1991-92 Annual Report, defined the conceptual basis for overbase quota allocation in the following terms:

> "TO arrive at provincial market shares, the Agency must first consider the base shares set out in the (commodity) marketing plan. The base shares represent the provincial production levels prior to the establishment of the Agency . . . . Any increased production (overbase quota) must be allocated according to the criteria in the marketing plan, e.g., comparative advantage of production."
>
> **(Same: NFPC, Annual Report, 19!J1-1992, p.13.)**

Comparative advantage has primarily been an issue for the chicken and turkey sectors, where demand growth has lead to growth in the amount of quota available, over and above the base market shares.

In the case of eggs, CEMA has not been in the position of having to establish a methodology for allocating overbase quotas that incorporates comparative advantage considerations because table egg demand has declined. This decline has not been offset by the increased demand for breaker eggs (i.e., liquid, frozen and powdered egg products), which also have different pricing suuctures that are much less attractive to egg producers.

Both the CCMA and CTMA have developed methodologies for taking comparative advantage into account in allocating their overbase quotas. The purpose of these methodologies is to factor in a means of recognizing those provinces that have lower costs

of production rather than just allocating the overbase quantities on a basis of each province's consumption rates and population.

The main features of these methodologies areas follows:

- Provincial cost of production estimates, averaged over the previous 6 months (chicken) or 24 months (turkey), are used to measure on-farm production costs in each province.

- The cost of transporting live birds between provinces is added to the cost of production cost estimates to obtain an estimated delivered cost, (i.e., delivered for processing).

- Comparative advantage is then calculated, using the% cost differences between the delivered costs in each province. Proximity is also factored into this calculation, on the basis that a lower cost province is more likely to win market share in an adjacent province than in a province that is, say, three provinces removed.

  The CTMA recognizes proximity by restricting its calculations of comparative advantage to regional groupings of provinces, composed of adjacent provinces or adjacent plus one. For example, Alberta's costs are compared with those in British Columbia, Saskatchewan and Manitoba; and Quebec's costs with those in Ontario and New Brunswick.

  The CCMA uses a weighting system to adjust the percentage measures of comparative advantage, with an adjacent province getting a rating of '9", one that is two provinces removed getting an "8", one that is three provinces removed a "7", and so on.

- The comparative advantage measures are then used to develop estimates of market volumes for each province, taking into account estimated consumption in each province plus volumes captured in other provinces by the provinces with comparative advantages. The resulting volume estimates-which are artificial because they assume provinces with comparative advantages capture markets in other provinces but higher cost provinces do not lose any of their in-province markets—are used to obtain market share percentages that are used to allocate the overbase production volumes.

The impact of comparative advantage is mitigated in the case of c'hicken by the fact that only 45% of the overbase quota allocation is based on the comparative advantage methodology. Another 45% is allocated based on market shares (i.e., calculated using estimated national per capita consumption rates and estimated provincial populations). The remaining 10% can be negotiated between the provinces but is usually allocated on a pro rate basis.

The net effect is that relative market size and consumption rates make the biggest contribution to the determination of overbase quota allocations. Comparative advantage measures provide a means of adjusting the market shares and thus result in the re-allocation of a relatively small proportion of the overall overbase quota amounts. For instance, in the

case of chicken, comparative advantage results in "re-allocations" equivalent to about 5% of the total overbase volume.

B. Application of comparative advantage to NWT requests for quota

The proposed NWT quotas provide for a base level of production for the NWT. Increases above these levels may be obtained as function of the methods used by the national agencies to allocate production quotas in line with population growth, consumption rates and comparative advantage.

The principal means of obtaining increases in the NWT's egg, chicken and turkey quotas will be in relation to population, and thus demand, growth. However, reliable market information—on total and per capita rates of consumption, used in conjunction with Statistics Canada population estimates—will be necessary to support any requests the NWT makes.

Incremental gains, in addition to the requests based on the so called "self sufficiency" rationale, may be possible for chicken and turkey if the NWT's costs of production and transport can be shown to be below production costs in adjoining provinces. If this is the case, then the experience with the allocation methodologies used by the CCMA and CTMA suggests that small increases in the NWT's overbase allocation could be achieved. The exact magnitude of any gains achievable will depend on the size of the comparative advantages enjoyed by the NWT.

The situation is less clear for eggs, for three reasons:

- As yet, the structure of the NWT quota has not been defined, within the terms of the Federal-Provincial Agreement for eggs. That is, will the quota be defined as being "overbase" or "base", and where will the quota come from, given that CEMA is grappling with the issue of how best to handle surplus production of table eggs.

- Similarly, CEMA does not have a methodology for determining how comparative advantage can be applied to determining variations in the NWT's quota, where justifiable.

- In the past, at least one province has, unsuccessfully, sought to obtain a quota increase because its population was increasing at a rate above the national average. This suggests that the NWT would be unlikely to obtain quota increases purely on the basis of population growth and/or demonstrable increases in per capita consumption rates.

Once the NWT's initial quota has been agreed and approved by the signatories to the Federal-Provincial Agreement it will be very difficult to obtain further increases. This is because CEMA will likely be seeking to reduce quotas across all provinces (and the Territories)--as part of its efforts to manage the balance between table and breaker

demand-while the NWT will be focusing on local demand trends and supply opportunities.

The fact that CEMA has not developed a methodology for using comparative advantage to allocate overbase quotas may provide the NWT with an opportunity to propose a formula for reviewing its quota as part of the negotiation of an initial quota level. That is, the NWT quota may be formally defined to include a means of periodically reviewing and varying the NWT quota. This methodology would need to identify how the particular circumstances facing the NWT-such as opportunities to increase overall demand for table eggs that are not readily exploited by the existing marketing and distribution structures-and the circumstances of the national market facing CEMA could be reconciled.

V
Costs And Benefits Of Administering A NWT Supply Management System

This chapter reviews the range of administrative functions that would be required if the NWT participates in the national supply management systems for egg, chicken and turkeys, and estimates the costs of undertaking these functions, focusing on:

a) *Costs associated with participation in national suppiy management systems as they would be borne by producers, government and national agencies.*

b) *Levies associated with each commodity in other jurisdictions and levy formulas at van"ous levels of production for the NWT that would be required to offset the costs of administration.*

c) *Costs associated with the NWT regulating its own supply of specified commodities outside of the present national system and offsetting administration and cost of transport to access entire NWTmarkets through collection of levies.*

A. Scope of the required administration structures

Participation in national supply management systems for eggs, chicken and turkey requires the establishment of a formal administrative structure to oversee the implementation of, and compliance with, the national and provincial/territorial marketing plans for each of the three commodities. This structure has been recognized in the NWT Agricultural Roducts Marketing Act. The requisite administrative functions would be split between a supervisory council and three producer boards. The roles of these two types of organization are summarized below.

1. Supervisory council-the NWT Agricuiturai Producta Marketing Council

The major functions of the NWT Agricultural Products Marketing Council (the Council) would be to:

- Ensure that producers of the three commodities, and their respective producer boards, comply with the terms and conditions of the federal-provincia4territorial agreements, their associated marketing plans, and the GNWT'S regulations under the NWT Agricultural Products Marketing Act.

- Review the proposed budgets, performance and financial position of the producer boards and approve (or disapprove) producer levies and charges to fired the operations of the beads.

- Adjudicate any disputes that may arise over decisions by the producer boards and/or between producers and processors.

- Liaise between the National Farm Products Council (NFPC)—which monitors and reviews the operations of the national marketing agencies, and looks after the federal jurisdiction for inter-provincial and international trade in the supply managed commodities—and producers in the NWT.

The Council's operations and staff would be funded by the GNWT.

2. Producer boards for eggs, chicken and turkeys

The major functions of these boards would be to:

- Set policies for the allocation, review and transfer of production quotas.

- Determine the allocation of the NWT's production quotas between producers, and periodically review and transfer quotas, as required.

- Monitor and control production, drawing upon information to be supplied by producers. Production information would be collected and consolidated in a number of ways, for use at the territorial and national levels. Periodic inspections and audits would also be required to monitor compliance.

- Set, or negotiate, farm gate prices to be paid to producers. Currently, the provincial chicken and turkey boards negotiate producer prices with processors. Reducer prices for eggs are set by provincial producers' boards, and closely linked to the monthly cost of production estimates produced by CEMA and trends in the prices set by the producer boards in adjoining provinces.

- Determine budgets for the boards' operations and set producer levies at appropriate levels to provide these funds. (Producer boards' budget and levy proposals would be subject to approval by the Council. Levies to fired the national agencies and, in the case of eggs, support for surplus disposal are set at the national level and are in addition to the territorial producer levy.)

- Collect and disseminate levy payments from producers.

- Participating in meetings of the Boards and committees of the national agencies, thereby contributing to the ongoing development and management of the national supply systems.

Funding of the producer boards' operations and staff would come from the administrative levies collected on sales of eggs, chicken and turkey. Participation in

national agency meetings and associated expenses would be funded by the national agencies from the national components of the administration levies. All other producer board operations would be funded from the territorial components of the administration levies.

B. Estimated costs of administering the NWT's participation in , suppiy management

Exhibit V-1 summarizes the estimated administration costs that are likely to be incurred under supply management. The costs are based on estimates of the amount of time required to fulfill the major roles and responsibilities, and typical costs for the labour, support functions and expenses involved. The estimated total costs to be borne by the GNWT, territorial producers and the national agencies, based on the analysis presented in Exhibit V-1 would be as follows:

1. GNWT

The GNWT would be responsible for funding the NWT Agricultural Products Marketing Council, at an estimated annual cost (in 1993 dollars) of $34,000-48,000.

2. Territorial producers

Our analysis of likely administration costs for the egg, chicken and turkey boards has assumed that each board will have similar management and administration functions and, thus, cost structures. The estimated annual costs for each of the three producer boards would be of the order of $26,000-44,000.

Reducers who represent the NWT industry on the producer boards spend a significant amount of time attending national agency meetings and seminars as well as performing their board functions. While the producer representatives receive per diem payments for the time they spend attending national agency meetings, and may receive minimal stipends for the time they spend performing other board functions, the consequence is that they have less time available for managing and operating their farms, and are likely to incur higher production costs in ensuring that someone is "looking after the fad'.

3. National marketing agenciea

The national marketing agencies would be responsible for funding the costs of the NWT producer boards' participation in the decision making of the three national marketing agencies. In turn, the funding would come from the national administrative component of the producer levy, mcaning that the NWT producers would ultimately pay a small part of the cost of their representation. We estimated the annual cost to be about $28,500-35,000. This amount compares with total administration levies of the egg, chicken and turkey marketing agencies, in 1992, of $13.8 million

Exhibit V-1
Estimated administration costs under participation in the nationai suppiy management systems

Organization	Source of Funding	Major Functlona and Activities	Assumptions	Estimated Tlma (Days pa.)	Annual Coat ($)
NWT Agricultural Products Marketing council	GNWT	1. Monitor/enforce compliance with the marketing plans for eggs, chicken and turkey by the producer boards, via: - Liaiaonwith boards/producers - Reviews of production trends, uaingbomds' statistical reports.	(3x6 meangsp.a. 0.5 days each.) (0.5 - l.Oday per month reviewing performance trends.)	9 6-12	
		2. Revkw financial positiona of boards and approve territorial administration levies.	(3 meetings, 1-2 days/meeting)	3 - 6	
		3. Mjudicate any territorial disputes arising between bed producers and processors.	(Can't be predicted; allow for up to 2 days per mmmodity)	0 - 6	
		4. Participation by the hairperson of the council (or designate) in Federal-Provincial/Territorial Ministers' meetings on supplymanagement.	(1 -2 p.a. @ *2daya* each)	2 - 4	
		5. Attendance at meetings of the NFPC by the chairperson of the council (or designate).	(Numbers vary; allow for2 pa., each bating 2-3 days.)	4 - 6	
		6. Travel time associated with #4 and 5.	*(2days per trip,4* trips)	8	
		7. Preparation for and/or follow-on actions from #2 - 5 / "Keeping in touch."	*(Equal to time* spent on board liaison and # 2- 5.)	18-30	
		Total — Supervisory Functions	(Based on an annual salary of $71300, incl. 15% for benefits.)	50-81	$16300-26.250
	GNWT	8. Secretarial support	(Allow 15- *2odays.)*	15 - 20	$3,300-4,400
		9. Expenses: - Office space and overheads - Telecommunications, postage, couriers - Travel, accommodation, meals	($10-12 / ft² - Hay River; 300 ft² plus utilities of about $400 pa.)		$3,409- 4,0(X) ‘ $1,000 $10,000-12,000
Estimated Total Cost — Supervisory Functions					**$33,900-47,650**

Exhibit V-1 (Cent'd.)
Estimatsd administration costs undsr participation in the nationai suppiy management systems

Organization	Source of Funding	Major Functlona and Activities	Assumptions	Estimated Time/Board (Days pa)	Annual cost /Board ($)
Producer Boards for Eggs, Chicken and Turkeys — Members of the Board	voluntary	1. AtIend *meetings* of the NWT produccrboards.	(6p.a. @ 0.5- l.Oday per meeting, incl. preparation)	3 - 6	
	Voluntary	2 Liaise with management of the respective -- and the council.	(0.5 days per month)	6	
	National Agencies (via *national Sdminish'ati on* kvics)	3. Participate inboard meetings of the respective national agencies (by Chailperaon, or alternate).	(6 meetings p.s., each 2 days, plus 0.5 days preparation)	15	
		4. Participate in committee meetings of the respective nationsl agencies (by hairperson/alt.).	(2 -3 meetings p.a.,1 day each)	2-3	
		5. Attend seminars/retreats relating to supply management planning and issues organized by the respective agencies and/Or NFPC.	(1 - 2 p.a. @ 2-3 dSyS each)	2-6	
		6. Travel time associated with #3 -5.	(9 -11 tripsp.a. @ 2 &yS/trip. Savings possible if committee andbuardmeehngs combined.)	18-22	
		7. Periodic conference calls involving board members of the respective national agencies.	(1 - 2days pa, in total)	1-2	
		Total—Producer Representation and Participation (Using a per diem rate of $250) (Excluding # 1 and 2.)		38-48	$9$00-12,000
	National Agencies (via national admin. levies)	Expenses: - Travel toand from agency meetings	(9 -11 trips@ $l,750/trip. Assuming no combined trips for board and committee meetings.)		$16,000-19,000
		- Accommodation and meals	(16 -21 nights@ $180/night)		$3,000-4,000
Estimated Total Cost per Board-Producer Representation and Participation					$28$00-35,000

Exhibit V-1 (Contgd.)
Esthnatsd administration costs undsr participation in the nationai suppiy management systems

Organization	Source of Funding	Major Functlona and Activities	Aaaumptlona	Estimated Time/Board (Days p.a.)	Annual Coat /Board ($)
Producer Boards for Eggs, Chicken and Turkeys — Management and *Staff*	*NWT* Producers (Via Territorial admin. levy, which *Wotdd be passed on, in total orin* part, to buyers of NWTeggs.)	*L* *Determine* Sllocstions of quotas to producers and periodically re-tdlocate or transfer, Ss required.	(5 days p.a.)	5	
		2 Monitor and tnansge production: - Negotiate producer prices forchicken/twkey) with processors / Set producer prices for) eggs, linked to NWT C.O.P. estimates.) - Collect and disseminate statistical data on) production volumes, flock inventories, etc.) Collect and dishurse producer levies.) - conduct periodic audits Snd inspections of producers' *flocks* and operations.	(0.5 - 1.0 day per week) (3 -5 days pa)	26-52 3-5	
		3. Arrange and support producer beard meetittga	(6p.a @) 0.5- 1.0 day each)	3-6	
		4. Develop annual plans, budgets and territorial levy proposals. Present snd confirm/modify with the producer board and, subsequently, the Couttcil.	(5 - 10 days p.a.)	5-10	
		5. Li8ise with members of the board and producers.	(1 - *2dsys/qusrter)*	4-8	
		6. Undatake market development and promotion activities, *designed* to increase consumption of the respective commodities in the NWT.	(5 -10 days p.s.)	5-10	
		Total — Administrative Functions	(Average annual salary cost for staff of $71,300 incl 15% for benefits)	51- %	**$16$00-31,100**
	Producers (Via admin. levy)	7. Secretarial Support	(Allow 15-25 days, Salary of $48,300, incl. 20% for benefits.)	15-25	$3,300-5,500
		8. Expenses: Office space snd overhesds Telecommunications, couriers Travel, accommodation, etc.	($10-12 / ft^2 - Hay River; 300 ft^2 plus utilities of about $400 p.a.)		$3,400-4,000 $1,000 $2,000
Estimated Total Cost per Board-Administrative Functions					**$26,200 -43,600**

The above costing estimates assume that the Council and producer boards would be run as separate and independent entities. However, the production base in the-~ will be small and it probably makes sense to find a way where the performance of the administrative functions of the producer boards could possibly be undertaken by staff of the GNWT, such as managing the administrative functions of the boards and undertaking the clerical activities involved in collecting, compiling and disseminating production information

Under this scenario, it would be necessary to implement an accounting and time measurement system that would clearly identify and account for the services provided to the producer boards and enable the GNWT to recover these costs through the relevant producer levies for each of the three commodities. Alternatively, it may be possible to negotiate a contractual arrangement with the Alberta producer boards to perform various functions on behalf of the NWT. This approach mayreduce the costs of administration but would carry the risk that the interests of NWT producers could be subordinated to those of Alberta producers.

C. L&e&required to fund the operations of the NWT producer

The three producer boards' costs would be funded by an administrative levy on tenitorial producers' sales of eggs, chicken and turkey, respectively. The levy ranges required to fund the estimated annual costs per board are summarized in the following sections.

1. Egg levy

The amount of the levy will vary, depending on the quota size negotiated between the NWT and the signatories to the federal-provincial agreement on egg marketing. CEMA adds two national levies to the COP estimates-the Administration and Industrial levies. The Administration levy, which is 4 ¢/doz., provides 2@ to fund CEMA'S costs, and 2@ for the provincial boards' administration costs.

However, because the provincial boards set the producer prices for their jurisdictions they have the option of varying the producer price from the COP estimate, ant to include additional provincial contributions when they set their prices. For instance, the difference between the May COP estimates and producer prices.for Grade A Large eggs for the fimt week of May was:

(Cents /dozen)	COP, (Including Admin. and Ind. levies, ● d after seasonal ● djustments)	Producer Price
Ontario	112	111 (FOB Farm)
Manitoba	104	106 (FOB Egg Stations)
Alberta	105	114 (FOB Egg Stations)

(Source: *CEMA, Cost of Production Summary, April 28, 1993 and Agriculture Canada, Poultry Market Report, May 1993)*

A number of provinces with small production bases such as P.E.I. and Newfoundland, collect a 3¢ administration levy instead of 2¢ and have the option of including this amount in the producer prices they set. The cost per dozen for the estimated NWT administration costs, assuming a rate of lay of 22.3 doz./bir& for the three alternative quota levels would be as follows.

Quota size	coat / *do%*
37,000 layers	3.18-5.28 ¢
60,000 layers	1.96-3.26 ¢
100,OOO layers	1.17-1.96$

In each case, 2 ¢/doz. will be provided by the provincial component of the Administration levy. The NWT producer board would have the option of recovering amounts in excess of 2¢ in the producer prices it sets if it believes demand for NWT eggs will not be affected by the resulting higher producer prices.

2. Chicken levy

Allocation of the estimated administrative costs for the chicken producers' board over the proposed NWT chicken quota of 1,494,768 kg's. live weight (1,100,000 kg's. eviscerated) would result in a territorial administration levy of 1.75-2.92 ¢/kg. This levy compares with the current provincial levies of:

	¢/kg.[1]		¢/kg.[1]		¢/kg.[1]
Newfoundland	2.40	Quebec	0.85	Manitoba	0.86
P.E.I.	0.50	Ontario	1.20	Saskatchewan	1.50
Nova Scotia	1.25			Alberta	1.12
New Brunswick	1.11			British Columbia	0.80

1. Cents per kilogram of live weight chicken.

3. Turkey levy

Allocation of the estimated territorial administrative costs for turkey over the proposed NWT turkey quota (182,927 kg. liveweight, 150,000 kg. eviscerated) will result in a territorial administration levy of 14.32-23.83 ¢/kg. This levy range compares with the current provincial levies of:

	¢/kg.[1]		¢/kg.[1]		¢/kg.[1]
Nova Scotia	1.70	Quebec	1.77	Manitoba	2.00
New Brunswick	2.20	Ontario	1.10	Saskatchewan	0.30
				Alberta	2.00
				British Columbia	2.20

1. Cents per kilogram of liveweight turkey.

The NWT cost per kilogram is significantly different from the levies charged across the provinces. Given that the proposed quota for the NWT is equivalent to a smaller

than average size farm (the model farm used in the analysis to set the base prices for the CTMA's COP formula assumes an efficient producer with a capacity of 239,500 kg. liveweight per year), it is reasonable to expect that the time and cost of administering the NWT supply management system for turkey should be lower than that assumed for eggs and chicken. If this can be demonstrated then the territorial levy could be reduced, although it is unlikely it would be as low as, say, the 2¢ levy applied in Alberta and Manitoba. A levy of 2@ in the NWT would produce levy revenues of $3,658 on the proposed quota of 182,927 kg.

D. Costs associated with the NWT regulating its own supply of specified commodities outside of the present national system

A possible alternative to participation in the national supply management systems for egg, chicken and turkeys is for the GNWT to regulate the production and supply of these commodities within the NWT. This approach would have the effect of restricting production to meet local demand and, instead of funding participation in the national systems, using equivalent (or lower) levies and government funding for regulatory supervision to offset the local administration costs and to support intra-NWT transportation costs.

1. Potential areas of saving

If the GNWT were to adopt essentially the same regulatory and administrative structures as those envisaged under the national supply management schemes there could be tWO areas of saving:

- For the GNWT-time and cost savings, because the chair (or designate) of the NWT Agricultural Products Council would not have to attend meetings of the NFPC and Ministers' meetings on the supply management agreements. The value of these time reductions and associated expenses would be of the order of $15,300-16,600 (in 1S93 dollars), based on the estimates and assumptions presented in Exhibit V-1.

- For the producer representatives on the boards of the three national marketing agencies-time savings, because they would not have to attend meetings of the respective national agencies. No cost savings would accrue to the GNWT or NWT producers as these costs are met by the national agencies. The producer representatives would forego the per diem payments provided by the national agencies to compensate them for their time attending national activities. They would also have more time available for farm management and production activities.

2 Administrative requirements and potential funding sources

It is likely that, in some areas, the administrative requirements may be greater, because the NWT would probably have to undertake a range of functions whose costs would otherwise be shared between provincial boards and national agencies. Increased inspection and monitoring activities, and promotion of NWT-produced eggs and poultry are two possible areas where a higher level of activity would likely be

required If this is the case, the NWT administrative levies would need to be higher than under the national supply management systems.

The overall cost to producers need not be higher, however, because producers would not be paying the national administration levies, which fund the administration costs of the national agencies, and the surplus removal program for eggs. These "avoided" levies, and the total "avoided" levy payments that would otherwise be generated from the proposed NWT quotas, are as follows:

	Agsney Lavisa Avoided[1]	Eatlmatad Total Levy Payments Avoided
Eggs	9.7 ¢/dozen[2]	
37,000 layers		$80,000-86,100
60,000 layers		$129,800-139,700
100,OOO layers		$216,300-232,800
Chicken:	0.5 $/kg.	$7,500
Turkey:	1.3 $/kg.	$2,400

1. *These levies are used to collect payments remitted to the national agencies. ProvinciallTerritorial administration levies have been excluded.*

2. *Based on Alberta industrial levy of 7.7 (Idoz.plus241&z.for CEMA administration.*

These estimates of avoided payments would appear to provide, in total, substantial scope for using levies to fired the producer beads' functions and, potentially, to offset transport costs incurred in distributing product throughout the NWT. The actual size of any levies that are set will need to take several other factors into account, in addition to the costs of administering an NWT supply management system:

- A probable need to pool the egg, chicken and turkey levy payments, to allow for differences in the relative sires of the three production bases. This means that egg levies would be used to support the administration costs for chicken and turkey as well as eggs. A single administrative body, instead of separate producer boards, would facilitate the operation of a pooling system

- A need to ensure that the levies do not increase producers' costs and prices to the point where their products will be non-competitive and/or consumers reduce their consumption rates rather than paying higher prices.

3. Other factors affecting the choice of territorial versus federai suppiy management

A number of intangible factors should also be taken into account in choosing between participation in the national supply management systems and an NWT system. These factors include:

- If the NWT opts out of the supply management system then it will lose the opportunity for ensuring that the special circumstances under which its

producers operate are recognized in national policy setting and planning for the supply managed commodities.

- The NWT producers will be limited to serving the NWT market only, and possibly only the western Arctic if the delivered prices of NWT products in the central and eastern Arctic are higher than prices for supplies coming from Manitoba, Ontario and Quebec. Potentially, the NWT production sector would also miss out on opportunities to develop new markets in the Yukon and Alaska.

- If NWT producers can only serve a more restricted market, and they have only limited funds to promote consumption of their products, then the rate at which the NWT's production sector can develop, and generate spin-off benefits, will be limited.

4. Summary-major costs and benefits of a territorial supply management system

In summary, if the NWT was to operate its own supply management system, instead of participating in the national systems, the major costs and benefits would be as follows, assuming the same regulatory and administrative functions would be required

- Greater flexibility in defining, administering and varying regulatory structures to meet the needs of the NWT production sector, compared to the structures required under the national supply management systems.

- Time and cost savings for the GNWT and NWT producers, because it would not be necessary for the NWT Council to participate in the activities of the NFPC and the producer board representatives would not have to participate in the activities of the national agencies. However, it is likely that a wider range of offsetting administrative functions would be necessary because the NWT will not be able to benefit from services currently provided by the national agencies.

- Opportunities to fund the administrative functions and, possibly, offset transport costs involved in accessing the entire NWT market, due to the fact that national levies would not be collected. Differences in the levy structures between the three commodities would mean that egg levies would provide the majority of the additional funding (over and above amounts generated by the equivalent of current provincial administrative levies). The establishment of a single administrative body for the NWT (as opposed to separate producer boards) would facilitate the performance of administrative functions and the associated pooling and disbursement of levy payments.

- The NWT will not have a voice in national decision making and planning for supply managed commodities, which will limit recognition of the special circumstances faced by producers in the NWT.

- NWT producers will be limited to serving the NWT market, or only the western Arctic if delivered prices of NWT products in the eastern and central Arctic are not competitive with existing supply sources.

VI
Scope And Impacts Of Support Programs

A. Introduction

Agricultural support programs (other than supply management) may provide a range of opportunities for egg, chicken and turkey producers to reduce their costs and increase their returns. Consequently, the GNWT asked us to examine:

> *Programs available to specific commodity farm operations in the provinces and estimate how these programs impact on cost of production to enhance the revenue generating ability of operations in those provinces or to offset losses. Concurrently, evaluate territon"al and federal programs available to NWTproducers of specified commodities and assess the potential impacts on cost ofproduction.*

Primary producers in *Canada* benefit from a wide range of support programs. This support may take the form of:

- Direct expenditures on agriculture that flow to producers and transfers that arise from tax exemptions.
- Government expenditures that create indirect benefits for producers, such as agricultural research and development, and assistance to the food processing sectors.
- Regulatory programs that involve no government expenditures and impact producers' costs and/or prices, such as supply management systems, tariffs and import duties.

The programs that are most important to the analysis of production costs are those that result in the reduction of input costs, in the form of cost reductions, rebates and refunds. The surveys conducted on behalf of the national agencies to determine base costs for the COP formulas are designed to measure net costs, i.e., excluding any benefits from subsidy and support programs. Consequently, the programs examined in the following sections of this chapter should not be viewed as producing additional income benefits for producers in the provinces. However, it is possible that some of the cost information collected in the COP surveys may not be net of all cost benefits stemming from federal and provincial support programs. The following sections of this chapter identify and analyze the impacts that these programs have-in the case of existing producers-r may have—in the case of NWT producers.

B. Direct support programs available to provincial producers

Both federal and provincial governments provide direct support programs for primary producers, with the following categories of assistance being most applicable to poultry and egg producers:

- **Federal:**

  Feed freight assistance
  Credit programs.

- ***Provincial:***

  Freight assistance
  - Tax exemptions and rebates
    credit programs.

These programs and the types of impacts they have on producers are summarized in the following sections. The programs available are applicable to either: all eligible primary producers, all eligible livestock producers, or livestock producers located in designated regions. The fact that supply management systems are already in place for egg, chicken and turkey producers generally means that government agencies feel that no additional specific assistance for these producers is warranted

1. Federal support programs

a) Feed Freight Assistance program

The Livestock Feed Board of Canada is responsible for administering the Feed Freight Assistance program. Feed freight assistance provides an offset to the higher domestic grain prices caused by the Western Grains Transportation Act subsidy (which subsidizes the cost of transporting western grain to port for export and increases the price per tome received by grain growers).

Only registered "end users" of grain may claim assistance from the Livestock Feed Board, who may be either feed manufacturers, retail feed dealers or livestock producers. The amount of assistance paid varies by zone and is intended to provide, as nearly as possible, equitable net freight costs for all zones.

NWT livestock producers are eligible for the maximum payment, of $54 per tonne of grain. Forpremixed poultry feed, which consists of about 80% eligible grains, the payment would be about $43 per tome. NWT producers would pay the net price for feed delivered by feed merchants, i.e., the administrative structure of the program requires that feed mills deduct the FFA amounts from their invoiced prices.

Until April 1, 1993, the rate was $60/tonne. Further reductions in the support level, of $3/tome, will take place on April 1,1995 and 1997.

Prairie livestock producers are not eligible for feed freight assistance payments. However, Alberta producers do receive payments of $10/tonne from the Alberta Crow Benefit Offset program, which has a similar purpose to the Feed Freight Assistance program.

b) Credit programs

There are three federal credit programs available that create direct benefits for primary producers. These programs may result in producers having access to funding at rates below the prime plus 2% rate assumed in the COP formulas. It should be noted that the COP formulas use prime plus 2% as a means of reflecting both the cost of borrowed capital and a reasonable return on producers' equity capital.

► **Farm Improvement Loam**

These loans are provided under the Farm Improvement and Marketing Co-operative Loans Act. Eligible expenditures under the act include:

The purchase or installation of agricultural tools, implements and machinery.

The improvement, major repair or overhaul of agricultural implements, tools, equipment and machinery, when such costs are more than $2,000.

- The purchase of additional land for farming and related costs.

The purchase, movement to and installing of complete or partially completed structures.

The purchase of livestock, including poultry, bee stock and for-bearing animals.

Quota purchases and short term operating loans are not eligible.

The maximum loan is $250,000 and multiple loans, up to this value, may be held. Up to 80% of the value of the asset may be borrowed and the maximum term is 15 years for land and 10 years for other purposes. Loans are provided by financial institutions designated under the Act. Interest rates are of the order of prime plus 1% for variable rate loans and prime plus 1% plus 0.25% for each year of the freed term, e.g., a three year fixed rate would be based on current prime plus 3.75%.

► **Farm Credit Corporation—long term loans**

The Farm Credit Corporation (FCC) provides long term mortgage credit to farmers for purchasing:

- Farm land

Farm equipment and breeding stock
Building construction
Or for sny purpose that will facilitate the efficient operation of the farm.

FCC loans can also be used to consolidate existing farm debts. The maximum amount per loan is $350,000 for a single applicant, and $600,000 for two or more applicants, for periods of up to 30 years, and secured by a mortgage on the farm, or farm and farm assets. A variety of variable and fixed rate interest structures are available. Interest rates are set in relation to financial market conditions and adjusted in line with changes in the costs of funds. In mid-January, 1993, the rates varied between 9% and 10.75%.

- **Farm Debt Review Act:**

Provides farmers that are in financial difficulty, or facing foreclosure, with access to an impartial third-party review of individual farm circumstances and possible financing/re-financing options. The Act is administered by Faxm Debt Review Boards within each province.

2. Provincial support programs

a) Freight assistance

Ontario:

Ontario has no freight assistance program for livestock producers.

Wtoba:

Manitoba has no freight assistance program for livestock producers.

Alberta:

The Alberta Crow Benefit Offset Program provides a subsidy of $10/ tonne on grain purchases to offset "the distortion in Alberta feed grain prices which results horn the current method of payment of the federal crow benefit (Western Grains Transportation Act) directly to the railways". Registered producers receive payment certificates from Alberta Agriculture that can be used as partial payment when purchasing feed grain. This means that the cost paid by producers is net of the subsidy. Producers who use their own grain for feed can also claim $10 / tonne for the grain they use for on-farm livestock feeding.

b) Tax exemptions and rebates:

Ontario:

Ontario has two major tax rebate programs that benefit primary producers:

- **Ontario Farm Tax Rebate Program—Provides** rebates of 75% of property taxes to fsrmers with an annual gross farm production value of at least $7,000.

- **Gasoline and fuel tax refund programs—Provides full refunds of the provincial taxes on gasoline and diesel fuel purchases that are used in a "non taxable" manner, i.e., to run unlicensed equipment. The tax on gasoline (regular unleaded) is 14.77 #/l. and 14.3 ¢/l. on diesel. There i's also a Fuel Coloration Program that allows colored (dyed red) fuel to be sold exempt of fuel tax for "non taxable" uses.**

Manitoba:

Manitoba does not have any tax exemptions or rebates for primary producers.

Alberta:

The Alberta Treasury administers the Alberta Farm **Fuel Distribution Allowance (AFFDA)** program that enables producers to purchase marked gasoline or diesel fuel at a reduced cost from bulk fuel dealers. Farmers who have gross farm revenues in excess of $10,000 pa. are eligible. The AFFDA benefit is composed of:

- A benefit (i.e., reduction) of $0.10 / litre on diesel and $0.04/ Iitre on gasoline. There is no AFFDA benefit on propane used in farm trucks and machinery but producers can obtain an LPG tax refired of $0.065 / litre.

- An exemption from the provincial fuel tax, of $0.09 / Iitre.

The fuel so purchased should be for farm-related activities, as defined in the legislation and regulations, and includes: agriculture production, transport of material produced or consumed on the farm, farm-related use of a farm truck, and custom work on farmland.

Alberta producers, who can be "economically serviced", are also eligible for subsidized comections to natural gas supply in gas franchise areas, under the Alberta Rural Gas Program.

c) Credit programs

Ontario:

Ontario is currently revising its strategy for improving the availability and affordability of farm credit. Ontario has one program under the new strategy—the Ontario Private Mortgage Guarantee Program (OPMGP)-that is available to all primary producers.

The OPMGP is designed to improve access to affordable long term credit for the purchase of farm real estate or to refinance existing farm mortgages by beginning or expanding farmers. Under the terms of the program, the

Government of Ontario guarantees private loans to producers, up to 80% of the amount owing to the lender (the maximum amount that will be guaranteed for any farm business is $5CU),000. The maximum interest rate is the average of the major chartered banks' Guaranteed Investment Certificates plus 1%. The amortization period can be between 5 and 20 yearn.

Until recently there were a range of credit programs available, which included interest rate reductions and rebates (discontinued in 1991) and Farm Start, a special assistance program for first time farmers (no new applications are being accepted and the program will cease once existing participants' terms expire).

Manitoba:

Manitoba provides a variety of credit programs involving either loans from the Manitoba Agricultural Credit Corporation (MACC), interest rate reductions, interest rebates or loan guarantees. The major programs are:

- **Long Term Direct Loans—Provide loans of up to $200,000 over 30 years for land, permanent improvements and debt consolidation. The interest rate is set at 1% over the cost of financing to the province.**

- **Intermediate Term Direct Loans—For the purchase of land, machinery, breeding stock, permanent improvements and debt consolidation. The maximum amount is $200,000 for up to 80% of the value of land and livestock and 65% of machinery, and the maximum term is 10 years. The interest rate is set at 1% over the cost of financing to the province.**

- **Comprehensive Refinancing-Uses similar terms** and conditions as Long Term Direct Loans except that the interest rate is set at 9.75% for the first five years after which it reverts to the MACC'S regular rate at the time the loan was made.

- **Young Farmer Interest Rebate-Farmers aged** 18-39 who obtain loans from the MACC are eligible for a rebate of up to 4% of the first $100,000 of the loan during the first five years of the loan.

- Guaranteed Operating Loans-Provide guarantees on new lines of credit provided to farmers by financial institutions to cover farmers' operating expenses. The guarantee cannot exceed $150,000 for farms with one or two operators, and $200,000 for farms with three or more operators. The amount outstanding is repayable annually or on completion of a production cycle. The maximum interest rate is prime plus 1%.

- Farmstart (guaranteed privately financed mortgages)-Provides guarantees on private mortgage loans, to facilitate the inter-generational transfer of farms and provide beginning farmers with access to lower than market cost credit while providing retiring farmers with a secure investment in agriculture. The maximum amount guaranteed is $200,000 (and up to 80% of the security) for20 years. Interest rates must be at least

30% lower than the MACC's interest rate for loans of similar terms (i.e., the rate on Long Term Direct Loans).

Alberta:

The Alberta Agricultural Development Corporation (ADC) provides a similar mix of interest rate support, direct loans and guarantees to those offered in Ontario and Manitoba. 'he major programs offered include:

- **Beginning Farmer Program—Provides** loans to young beginning and developing farmers to enable them to undertake such activities as: purchasing land, making permanent improvements, purchasing breeding stock, purchasing quotas, purchasing equipment and machinery, restructure existing financial amangements, and financing first year startup COStS. For individual farmers the maximum amount available is $200,000 and for farm units consisting of three or more individuals the maximum id $600,000; in both cases the ADC will lend up to 80% of the appraised value of the security. The maximum loan term is 20 years; the interest rate is fixed for the life of the loan (the current rate is 9% and is reviewed biannually).

- **Developing Farmer Program—Provides financial assistance to farmers** to develop or maintain viable farms under similar terms and conditions to loans provided under the Beginning Farmer Program, excluding lending for operating capital. The rate charged is linked to the ADC's cost of funds, rounded up to the next 0.5% (the current rate is 9%) and is reviewed monthly.

- **Farm Loan Specific Guarantee Program—Provides 100% guarantees** on loans for purchasing agricultural assets, providing operating capital and debt consolidation when the borrower cannot secure financing from the lender of their choice due to the lender's policies *on* loan term, security, risk and/or amount.

- **Alberta Farm Development Loan Program (AFDL)—Provides guarantees for short and medium term loans** (of Up to $1OO,(KXI) made by commercial lenders, for such purposes as: purchasing farm land, machinery equipment, livestock, quota; obtaining operating capital; refinancing outstanding interest free loans from manufacturers of farm equipment; and, making permanent improvements to increase the productive value of farm assets. The commercial lending institutions, not the ADC, determines whether loans will be made to applicants. The maximum interest rate charged is prime plus 1% for loans with terms of ten years or less, and prime plus 1.5% if the term exceeds ten years.

- **Vendor Mortgage** Plan-provides 100% guarantees on vendor (private) mortgages, using the same terms and conditions as Beginning Fsrmer and Developing Farmer loans, excluding start up costs, refinancing and construction work. The maximum interest rate on these mortgages is 9% but if Guaranteed Investment Certificate (GIC) rates exceed 9% the ADC

pays the difference to the lender while the bomower's interest cost is capped,

C. Impacts of the major agricultural support programs

1. Impact of federal and provincial support programs

The periodic cost of production surveys conducted on behalf of CEMA, CCMA and CTMA to establish base costs for the COP formulas are intended to measure producers' net on-farm costs of production, i.e., after subsidy payments and rebates have been subtracted fmmproducers' gross costs of production. However, the survey methodology cannot guarantee that all subsidies will be identified and netted out. (To do so would require a formal audit of each of the producers in the survey sample.) Consequently, it is possible that the estimated base costs will be based on a mix of net and gross Cost information, for such reasons as the following:

- Support programs that result in producers being invoiced and paying the net costs, such as Alberta's fuel subsidies and the federal Feed Freight Assistance program, are more likely to be included as net costs.

- **The methodologies** used **for the chicken and turkey** COP surveys and formulas-which use a "model farm" estimate property taxes-explicitly build in the impacts of provincial rebate/refund pro-resulting in a net cost estimate.

- Support programs that are not directly linked to the invoicing and payment process, and where claims for refunds and rebates provided by third parties take place at a different time, are more likely to be shown as gross costs (unless the suxvey questionnaires used request itemized information on the value of rebates and refunds). For example, fuel tax refunds and property tax rebates in Ontario may not be factored into the calculation of COP estimates for Ontario egg producers.

Therefore, the impacts of federal and provincial support programs that provincial producers are able to take advantage of will already be factored into the COP estimates, at least partially. This means that the following estimates of the quantitative impacts on costs may not represent enhancements of producers' incomes, over and above the returns gained from their production and marketing operations.

Freight assistance:

- Producers in zones that are eligible for Feed Freight Assistance receive support payments of up to $54 / tonne for their costs of transporting domestic grain. NWT producers are eligible for maximum payments, Prairie producers are not eligible and producers in other provinces receive varying amounts depending on their locations. The maximum support payments, assuming the feed mix used by producers contains about 80% eligible grain, would be:

Eggs: 6.91-7.56 ¢/doz., depending on the feed conversion ratio achieved
Chicken: 8.64 ¢/kg. liveweight.
Turkey: 12.31 ¢/kg. liveweight.

These cost savings should already be reflected in the calculation of provincial COP estimates.

- Alberta producers receive a payment equivalent to the following, under the Alberta Crow Benefit Offset Program, which should also be reflected in the cost information collected in the respective COP surveys:

Eggs:	1.40 ¢/doz. (feed conversion ratio of 1.75 kg.)
Chicken:	1.61 ¢/kg. liveweight (PCR of 2.01 kg.)
Turkey:	2.26 ¢/kg. liveweight (PCR of 2.82 kg.)

Fuel tax exemption and refunds:

- Ontario producers can receive a refired of 14.77 ¢/l. for gasoline (regular unleaded), and 14.3 ¢/l. for diesel, used to run unlicensed equipment (e.g., on-farm operation of tractors and equipment). This refund may not be reflected in the COP estimates as the refund process is separated from the actual purchase prucess.

- Alberta producers can buy gasoline and diesel at discounted prices, and free of provincial fuel tax. The total value of this benefit is 13 ¢/l. for gasoline and 19 #/V for diesel. Exemptions fmm the 6.5 ¢/l. LPG tax can also be received for propane purchases. The fuel maybe used in a wider range of applications than those allowed in Ontario. This benefit should be reflected in the COP estimates for Alberta producers as eligible producers pay the net cost to their fuel distributors.

- Without detailed information on the breakdown of producers' energy consumption (i.e., between electricity, gasoline diesel, propane and/or natural gas) per dozen, or per kilogram we cannot estimate the impact of these programs on producers' overall costs. However, we do know the impact would be relatively minor, given that:

  - Energy costs for egg production are included in the larger cost category of "plant and administrative overhead", which accounts for 7.6% of the estimated national average cost of production.

  - Energy costs for chicken vary between 4.2% (Alberta) and 4.8% (Manitoba) of the estimated cost of production.

  - Energy costs for turkey vary between 2.4% (Alberta) and 6.6% (Manitoba) of the estimated cost of production.

property **tax rebates:**

- Ontario producers sre eligible for a rebate of 75% of their property **taxes.** The resulting benefit is quite insignificant in the overall mix of producers' costs, at least based on estimates that arc possible for chicken and turkey:

  - Property taxes represent approximately 0.26 **¢/kg.,** or 0.2%, of the cost of producing chicken in Ontario.

    For turkey producers, property taxes represent approximately 0.56 **¢/kg.,** or 0.4%, of the total cost of Production

Credit programs:

- All three provinces as well as the federal government provide an array of credit programs that provide benefits in the form of either:

  Long and medium term loans for the acquisition of farms, farming **equipment, and,** in some cases, production quotas. The interest rates charged on these loans are generally in line with commercial rates of interest (i.e., prime plus 1- 2%).

  Guarantees on lending by commercial lending institutions and private mortgage investors.

  Without these programs it is likely that the amount of credit available to farmers would be lower and/or the cost of these finds would be higher. Now that interest rates are significantly lower than about two years ago, most producers should have lower costs of financing their fixed assets than is assumed in the COP estimates, unless they elected to take out fixed rate loans when rates were higher. That is, the COP formulas use a rolling 60 month average interest rate of prime plus 2%. Compared to the assumptions used in the supply management agencies' COP formulas- which use a rolling 60 month average **interest** rate of prime plus 2%.

  This implicit benefit in the COP structure is available to all producers, and would be available to NWT producers through the programs offered by the Farm Credit Corporation and under the Farm Improvement and Marketing Co-operative Loans Act.

- Beginning farmers in Manitoba and Alberta are eligible for subsidized interest on their long term loans. These producers can receive interest rebates (Manitoba) or rate reductions compared to financing costs for established producers (Alberta).

- The **impact on costs of the credit programs cannot be precisely estimated without** detailed information on the characteristics of egg, chicken and turkey producers' financing structures, splits between debt and equity, and the value of their assets. The overall **impact—on** production costs-of paying lower interest costs than might otherwise be the case is likely to be

low, as fixed asset financing costs account for a small proportion of the COP estimates:

For eggs, "interest costs and producer returns" account for 3.9% of the total national average cost of production.

For chicken, the proportion varies between 3.6% (Ontario) and 2.6% (Alberta).

For turkey, the proportion varies between 1.7% (Alberta) and 1.5% (Ontario and Manitoba).

To summarize, without the major support programs available to egg, chicken and turkey producers in the provinces of Ontario, Manitoba and Alberta (for fuel and property tax savings and credit programs) producers' production costs would probably be marginally higher. We subjectively estimate that this marginal difference would be equivalent to 1 -2% of the cost per dozen, or per kilogram, respectively. The freight subsidy available to Alberta farmers would represent another 1.5- 2% of the current costs of production of egg, chicken and turkey in the province.

This does not mean that producers in Ontario, Manitoba and Alberta have actual production costs that are as much as 1 - 4% lower than the current COP estimates, because at least part of these cost savings are already reflected in the calculation of the base costs in the COP formulas.

2. Programs available to NWT producsrs

The major support programs available to NWT producers are:

The federal credit programs outlined in the previous section.
The federal Feed Freight Assistance (FFA) program

The FFA program makes a significant difference to the costs of producing egg, chicken and turkey in the NWT. Without these payments—currently $54/tome for eligible grains and the grain propordon of pm-mixed poultry feeds-the total costs of production of eggs, chicken and turkey in the NWT would be significantly higher—by approximately 7- 9%.

It should be noted that the payments per tome under the FFA program will be reduced by another $6, in two $3 increments, in 1995 and 1997, leading to higher net costs of production in the NWT. Changes in the WGTA support program for prairie grain growers are also proposed. These changes are expected to lead to reductions in the price of grain to domestic livestock producers and may lead to further changes in the structure of the FFA program.

VII
Potential Impacts Of Food Mail Subsidies On The Distribution Of NWT Egg and Poultry Products

A. Introduction

The ultimate viability of producing eggs, chicken and turkey in the NWT will be determined as much by issues associated with the processing and distribution of NWT products as by the on-farm costs of production. This chapter examines one issue associated with the distribution of NWT products beyond the farm gate, that is:

> *From a Territorial perspective, examine available postal subsidies for perishable products and estimate the impacts of these subsidies in offsetting costs of transpom"ng eggs, chicken and turkey from the western Arch"c to the eastern Arctic commuru"ta"es.*

Our analysis of this issue has focused on identifying the types of impacts the current food mail subsidy program may have on the GNWT'S future efforts to develop markets for NWT products in the eastern and central Arctic. We have not quantified the likely impacts the food subsidy may have on total transportation costs but have identified the factors that will need to be evaluated in such an exercise. However, it is clear that the food mail program acts to reduce only a proportion of the transport costs that would be incurred in moving product from the western Arctic to the eastern and central Arctic. This cost saving maybe more than offset by higher costs and longer transit times required to move NWT products to the entry points for the food mail program.

B. Scope of the postal subsidies available for food products

The Department of Indian Affairs and Northern Development (DIAND) provides subsidy payments to Canada Post Corporation (CPC) to reduce the cost of distributing nutritious perishable food to isolated northern communities that lack year round surface transportation. The Northern Air Stage Program, as it is called, provides annual payments of $15 million to CPC to enable special rates to be charged for commercial air freight shipments of food.

The rate structure for this "food mail" service for nutritious perishable food products-which includes eggs and fresh and frozen poultry products-is as follows:

	To July 1,1993	After Juty 1,1993
Fixed charge per parcel[1]	$0.75	$0.75
Postage rate per kilogram:	$1.20	$0.80
Maximum parcel weight:	30 kg.	30 kg.

1. A "parcel" *would be a box of eggs (15 dozen)* or *standard wholesale food pack used to , distribute chicken or turkey products.*

The July 1 rate changes bring the postal rates for NWT shipments down to the target rate, of $0.80/kg., which is the same as that charged for shipments going to isolated communities in the provinces.

A number of special conditions apply to the operation of the food mail program, which will have a major impact on the GNWT'S efforts to take advantage of the program to access the eastern and central Arctic from the western Arctic:

- **Canada Post ships eligible food packages on ita established mail distribution network throughout the NWT, Le., it does not have a special network for food shipments. Any changes in the distribution routes used by CPC are made on the basis of the economics of moving non-food mail volumes. The majority of the non-food mail handled by CPC flows in north⇔south directions in each of the three regions of the NWT, and CPC does not expect this structure to change (and, in fact, it will probably be strengthened with the founding of Nunavut).**

- **The special freight ratea apply only to food mail shipments going from designated food entry points, which are usually the most northerly road or rail** network supply centres with air cargo facilities, to **specific** communities designated as Air Stage offices. The designated entry point for the Baffin Region is Vald'Or, Quebec, and the designated entry point for the central Arctic is Churchill, Manitoba. Yellowknife, Norman Wells and Inuvik are the entry points for shipments going to designated communities in the western Arctic.

- **Organizations that satisfy CPC'S minimum mail volume criteria need to sign a sales agreement with CPC, to become a Commercial** Air Stage shipper, before they can benefit from the subsidised postage rate. The minimum volumes are either

  5 parcels or more than 20 kg's. per day
  20 parcels or more than 80 kg's. per month.

  Food shipments must be delivered to the designated entry points by the shipper, which means that a shipper in, say, Ottawa who wishes to send eggs or poultry to, say, Iqaluit would have to first truck his shipment to Val-d'Or prior to it being delivered by CPC's air freight service.

The structure of the Northern Air Stage Program reinforces the existing **north⇔south** transport and communications patterns in the NWT. It also imposes costs and/or time

delays on shippers by requiring them to deliver shipments to the designated entry points rather than using more convenient, and possibly, cheaper air freight centres in such locations as Winnipeg, Ottawa and Montreal.

The current Northern Air Stage Program expires at the end of the 1993-94 fiscal year and presumably, will be renewed and continue to receive a similar amount of subsidy. Prior to that date DIAND and CPC will be reviewing the effectiveness of the program in meeting its objective of reducing the costs of shipping nutritious perishable food products to remote communities. We recommend that the GNWT pursue the option of seeking changes in the program to ensure that it does not provide disincentives for developing the food production and distribution capacity in the western Arctic. In doing so, the GNWT will also need to give consideration to the impacts that Nunavut's founding is likely to have on regional development, and trade and transportation patterns.

C. Potential impacts of postal subsidies in offsetting transport costs from the western Arctic to the eastern and central Arctic

The existing south⇨north shipping patterns for food mail shipments, and the underlying structure of the CPC postal network would appear to work against the GNWT'S efforts to develop west⇨east distribution channels for NWT egg, chicken and turkey products. The structure of the food mail program means that there are two potential scenarios for shipping NWT products, as described in Exhibit VII-1.

From the point of view of simplicity, transportation independent of the food mail program, would appear to be a simpler proposition, and certainly one that would minimize both the transit time and amount of handling, which would work in favour of marketing chilled chicken and turkey products (assuming that the GNWT wishes to make both fresh and frozen products available). However, the total cost of transportation may make it worthwhile to consider the more indirect route, due to the combination of:

- Potentially lower freight rates per kilogram of fresh and frozen food for shipments going from Yellowknife to Winnipeg/Ottawa/Montreal than for shipments going directly to the eastern and central Arctic. The reason for this is that there is probably more height capacity available, and opportunities to negotiate more favorable freight rates, given that most of the food haulage capacity is required for shipping food products into the NWT.

- The subsidised rates for shipping perishable foods on the final legs of the transportation channels, which reduce the cost of sending frequent small shipments to small communities

Without information on the air freight rates that may be available to the NWT producer boards for shipments between these various locations (which, in turn, will be influenced by volume and timing of shipments, and the amount of freight capacity available) it is not possible to provide a definitive answer as to the which distribution channel would be most cost effective.

Exhibit VII-1
Scenarios for transporting NWT egg and poultry products to the eastern and central Arctic

#1—Using the Food Mail Program	#2—Independent of the Food Mail Program
A. Shipments to central Arctic:	**A. Shipments to central Arctic:**
1. Products shipped to Yellowknife fkom the processing plant or grading station	1. Products shipped to Yellowknife from the processing plant or grading station
2. Yellowknife to Winnipeg, by air freight or road, depending on cost and time factors.	2. Yellowknife to central Arctic, by air freight
3. Winnipeg LO Churchill, by either air freight or road/rail.	
4. Churchill to central Arctic, via CPC'S food mail service.	
B. Shipment910 eastern Arctic:	**B. Shipments to eastern Arctic:**
1. Products shipped to Yellowknife from the processing plant or grading station	1. Products shipped to Yellowknife fkom the processing plant or grading station
2. Yellowknife to Ottawa or Montreal, by air freight or road, depending on cost and time factors.	2. Yellowknife to eastern Arctic, by air freight
3. Ottawa/Montreal to Vald'Or, by road.	
4. Val-d'Or to Iqaluit, via ClW's food mail service.	

Appendix A

*Detailed Breakdown of the Estimated Production Costs for **NWT Eggs***

Appendix A
Detailed breakdown of NWT coat estimates for eggs

Cost Factors and Levies	Unit Costs	Estimated Costs/Dozen "Average Producer"	Estimated Costs/Dozen "Most Efficient" Producer	Notes / Assumptions
1. Pullet Costs	$4.00 - 4.15 / bird	$0.1794 - 0.1861	$0.1667-0.1729	• Costs apply to all 3 assumed quotas, of 37,000, 60,000 and 100,000 layers. • Prices are for pullets delivered to Hay River from hatcheries in Alberta and Manitoba. • Prices may goaslowas $2.50 per bird for lower quality "tail end" flocks, (probably with low rates of lay & high FCR's.) • Disposal value of birds at the end of the laying cycle is assumed to be $0.00. Producers may have to payadispa5alcoa4 thus increasinghe cost pper pilet. .
2. Feed Costs	Net cost of $173/ tonne (Based on: - Average feed coats of about $173/t. - Transport: $50/t. - volume discount *$7tt.* - FFA rebate of $43/t.	$0.3028	$0.2768	• Registered NWT producers in the NWT can receive payments under the Feed Freight Assistance program, of $54.00 per tonne on the grain content of feed mixes. • Eatimatedcostis for feed mix including supplements and medication. Grain proportion in the feed is about 80%, which is eligible for Feed Freight Assistance. • Transport cost (Alberta to Hay River), Of $50/t., can be reduced further *if the* trucker can obtain back haul loads.
3. Labour costs	37,000 layers - $115,600	$0.1401	$0.1302	• One of the two NWT producers provided the following estimate of production labour requirements (in teams of numbcraof full time equivalent people): - 37,0001ayers: 2 - 60,000 layers: 2 - 100,OOO layers: 3 We assumed these people were in addition to the producer, who winks full-time on management and production activities. • Annual labour costs, incl. 20% for benefits: · Producer @ $58,000 (based on CEMA's labour cat assumption for management time) First employee @ $38,400 (Producer's estimate) - Subsequent employees @ $21,600 (Producer's estimate)
	60,000 layers - $115,600	$0.0864	$0.0803	
	100,000 layers - $137,200	$0.0615	$0.0572	

Appsndix A (Cent'd.)
Detailed brsskdown of NWT cost estimates for eggs

Coal F-era and Levies	Unit Coats	Eatlmated Costs/Dozen "Average Producer"	Eatlmated Costs/Dozen "Meet Efficient" Producer	Notea / Assumptions
4. Depreciation		$0.0494	$0.0494	.From current COP calculation, based on the national average acquisition cost of buildings and equipment, and their average ages, of about 12 years for barns and 8 years for equipment. .Ifthe NWT facilities are newer than this then a higher cost per dozen should be used. For example, using infmmation horn CEMA's 1990 update survey and the Farm Inputs Rice Indexes, we estimate that the depreciation cost for a new (1992) facility would be $0.0622. 'his estimate assumes: - 37% of the depreciation cost estimate in the 1990 producers' survey, was for buildings, and 63% for equipment. - 1992capital costs of$12.416/bird ($O.5568/doz.) for buildings and $7.672/bird ($0.3440/doz.) for equipment. These costs were estimated by applying the Farm Input Price Indexes for buildings and equipment to the historic costs derived from the 1990 survey information. - Asset lives of20and 10 years respectively.
5. Plant and administration overhead		$0.0850	$0.0850	.From current COP calculation. .In practice, we would expect that energy costs, which are included in Overhead will be higher in the NWT-consumption will be higher because of the climate and energy costs are higher, especially compared to Alberta
6. Interest costs and producer return		$0.0436	$0.0436	• From current COP estimates, based on the national average net book value of buildings and equipment and landacquisition rest. .If the existing production facility in NWT is less than the national average age of facilities the cost per dozen should be increased, e.g., if a new facility were built in the NWT the cost per dozen would be of the order of $0.0801/doz., assuming: - Alandvalue of$lO,(M)O. - Same building andequipmentcosts as for Depreciation. An interest rate of 8% (prime Plus 2%).

Appendix A (Cent'd.)
Detaiied breakdown of NWT cost estimates for eggs

Cost Fsctors and Levies	Unit Costs	Estlmsted Costs/Dozen "Average Producer"	"Most Efficient" Producer	Notes / Aeeumptlons
7. Levies:				
a) *Recoverable:*				
• Territorial administration		$0.0200	$0.0200	• Baaed on estimated cows of NWT administrative functions under supply management from Exhibit V-l. Shortfall between revenue from provincial share of administration levy will need to funded using anon-recoverable levy.
9 National adminiafration		$0.0200	$0.0200	
• Induafrial levy (Domestic sales)		$0.0770	$0.0770	• Assumes same industrial levy as that applied to Alberta producers.
				9 NWT administration levy (recoverable and non-recoverable elements) baaed on the national rate of lay, of 22.3 ¢/dozen.
b) Non-Recoverable:				
• Industrial levy (Export sales)		$0.0200	$0.0200	
c) Potentially non-recoverable:				
• Supplemental admin. levy (For NWTadmin. shortfall:				
, 37,000 layers		$0.0118 - 0.0328	$0.0118-0.0328	
- 60,000 layers		$0.0 - 0.0126	$0.0 - 0.0126	
100,000 layers		$0.0	$0.0	

Appendix B

Detailed Breakdown of the Estimated Production Costs for NWT Chicken

Appendix B
Estimated NWT production costs for NWT broiler chicken

COP Components	Unit Costs	Estlmsted Costs per Kilogram of Liveweight Chicken	Notss / Aeeumptlons
1. Feed Costs	Average net cost of $215 /tome (Baaed on: - Average feed cost of $215/t. Volume discount: $7/t. - Transport: $5(W. - FFA rebate of $43/t.)	$0.4322	• NWT producers receive payments under the Feed Freight Assistance program of $54.00 per tonne on the grain content of feed mixes. • Estimated cost is for feed mix including supplements and medication. Groin proportion in the feed is about 80%. • Price includes a $7 volume discount, based on the projected production of chicken and associated feed requirements. • Transport cost, of $50/t., can bereducedif the transport operator obtains back hauls.
2. Chick Costs	Delivered cost of 51.1 -55.4 #/chick	$0.2884-0.3124	• Costperbird, including vaccination, of47$. • Delivery cost will depend on whether producer is buying full, orpart, truckloads. In turn, the ability of the producer to buy full truckloads would depend on production schedul
3. Labour Costs	Management: $30.72/hour skilled LabOur: $13.71/hour General LabOur: $9.60/hour	$0.1115	This cost estimate is based on: • Estimateaofthe labourtime developed forthe CCMA's''model farm", adjusted to reflect the difference in production scale between the "model farm" and the proposed NWT quota (400,000 kg. VS. 1,494,768 kg.). • The assumed labour hours are: Management — 1,950 hours (18%); Skilled Labour — 2,762 hours (26%); General Labour — 5945 hours (56%). The time estimates assume management dine/kg. will fall slightly (management time is equivalent to one full time producer-manager) and skilled and general labour time/kg. remains constant. • Labour cost estimates are based on: - Management -proxy rate used by CCMA, of$30.72, incl. 10.53% for benefits. - Skilled -typical rates in Hay River, incl.209b for benefits, of$18.00/hr. (low end of range estimated by KPMG, Yellowknife, of $15- 20/hr., plus benefits.) - General -typicslratesin Hay River, incl. 20% for benefits, of $9.60/hr. (information provided by one NWT producer).
4. Repairs and maintenance		$0.0237	• From current COP estimate for Alberta. • Rates for Ontario and Manitoba are $0.027 and $0.021, respectively.

Appendix B (Cent'd.)
Estimated NWT production cost ranges for NWT broiler chicken

COP components	Untt Costs	Estimated Costs per Kilogram Of Llvewelght Chicken	Notes / Assumptions
5. Energy	Hydro— approx. $0.14 ¢/kWh Ropane: 22- 25.7¢/l.	$0.1185-0.1326	•Current CCMA COP estimate for energy is4.77 ¢/kg. in Alberta. •Alberta producers use natural gas almost exclusively; NWT producers would have to use propane. • Propane cost is approximately 22 -25.7 ¢/l. (equivalent to O.861 -1.006 ¢/megajoule). Cost of natural gas in Alberta, for commercial use, isapprox. 0.244 ¢/megajoule. This means NWT propane cost is 253% - 312% higher. •Electricity costs in NWTareapproxirnately 44% higher than in Alberta (baaed on Statistics Canada information on Alberta electricity costs and equivalent costs and consumption in NWT. •Aasumed 50:50 balance between electricity and natural gas/propane costs..
6. Ptud. & business o'head		$0.0370	•From current COP estimate for Alberta.
7. Catching		$0.0263	• From current COP estimate for Alberta.
8. Transportation		$0.000	•Alberta is the ordy province that includes the coat of transportation from the farm to the processing plantin the estimation of production costs. Ifprocessing takes place in Alberta NWT producers may also have to pay transportation costs directly. Alberta COP estimates includes 2.37 ¢/kg. for transportati[illegible];
9. Depreciation		$0.0714	•COPestimate for P.E.I. used, because it has thenewestproduction facilities-average age of barns and equipment in PE.I. was 4 and 5 years, respectively, at the time of the 1990 COP survey. •'he average ages in Alberta were 14 and 10 years, where fhe current COP estimate for thiS factor cost is $0.0489 ¢/kg.
10. cost of financing assets		$0.0911	• COP estimate for P.E.I. •Establishment of additional capacity in NWT-to bring it up to approx. 1.5 million kg.—would increase this cost (and that for Depreciation) to reflect the costs of new facilities. • Figure for Alberta is $0.0294/kg.'
11. working capital		$0.0022	•From current COP estimate for Alberta.
12. NWT levy		$0.0175-0.0292	•From analysis of potential NWTadministration costs in Chapter V.
13. Agency levy		$0.0050	• Current levy, set by the CCMA and approved by the NFPC.

Appendix C

Detailed Breakdown of the Estimated Production Costs for NWT Turkey

Appendix C
Estimated NWT production costs for NWT turkey hens

COP Components	Unit Costs	Estimated Costs per Kilogram of Liveweight Chicken	Notes / Assumptions
1. Feed Costs	Average net cost of $225 / tonne (Based on: - Average feed cost of $225/t. - Volume discount: $7h. - Transport: $50/t - FFA rebate of $43/0	$0.6345	.NWT producers receive payments undsrthe Feed Freight Assistance program of $54.00 per tonne on the grain content of feed mixes. .Estimated cost is for feed mix including supplements and medication. Grain proportion in the feed is about 80%. .Price includes a $7 volume discount, baaed on the projected production of turkey and associated feed requirements. " Transport cost, of $50/t., can be reduced ifthetransportoperator *back hauls.
2. Poult costs	Delivered cost of $1.705 - 1.750 / chick	$0.2230-0.2289	· Cost per poult, including vaccination, debeakin g and 2 toes clipped, of $1.68. .Delivery cost will depend on whether producer is buying full, or part, truck loads. In turn, the ability of the producer to buy full truck loads would dspend on production scheduling. Cost per bird for a full truckload- 2.5@, for apart load — up to 7 ¢/poult.
3. Labour Costs	Management: $30.72/hour skilled LabOur $18.00/hour Casual Labour: $9.60/hour	$0.2324	• CTMA "model farm" used to obtain labour time/kg. The %pemtOr" component was split into "management" and "skilled" time, baaed on the proportions of labour time spent on manageanent in the CEMA and CCMA COP analyses. • The resulting estimate of labour time to produce 182,927 kg. liveweight (150,000 kg. e*ted) was — "management"—670 hours, "skilled"—1005 hours, and "casual"—400 hours. • "Management" time is costed using the proxy salary used in the CCMA COP de*, of $30.72/hr., including 10.53% for benefits. • Hourly "casual" labourcost is baaed on typical rates in Hay River (including 20% for benefits)., of $9.60/hour. (Informatiofrom NWT chicken/egg producer.) • "Skilled" labour rate is based on typical rates for skilled labour in Hay River, including 20% for benefits, of $18.00/hr. (L.owendofmteestimated by KPMG, Yellowknife, of $15- 20/lu.,plusbenefits.)

Appendix C (Cent'd.)
Estimated NWT produotlon cost ranges for NW turkey hens

COP Components	Unit Costs	Estlmstsd Costs psr Kilogram of Liveweight Chicken	Notes / Assumptions
4. Energy	Hydro — approx. $0.14 ¢/kWh ' Propane: 22-25.7¢/l.	$0.0814-0.0915	• Current CTMA COP estimate for energy is3.17 #/kg. in Alberta. .Alberta producers use natural gas almost exclusively; NWT producers would have to use propane. .Propane cost is approximately 22 - 25.7 U/l. (e@valenttoO.861 -1.006 ¢/megajoule). Cost of natural gas in Alberta, for commercial use, is approx. 0.244 ¢/megajoule. This means NWT propane cost is 253% - 312% higher. .Electricity costs in NWTare approximately 44% higher than in Alberta (based on Statistics Canada infcsmation on Alberta electricity costs and equivalent costs and consumption in NWT. .CTMA survey found that, in Alberta, light/power cost (electricity) was approximately 46% of the total energy cost and heating cost (naturat gas) accounted for the remaining 54%.
5. Catching		$0.0242	.From current COP estimate for Atberta.
6. Transportation		$0.000	.In Al-producers are required to directly pay the cost of transporting market weight turkey to processing plants. A number of producers in B.C. are also required to pay because of the distance fmm their farms to the processing plant. .If NWT product has to got to Alberta forproceasing it is likely that NWT producers Woutd also be expected to directly pay the cost of transportatfon, which is currently 2.00 ¢/kg. in Alberta.
7. (Other) Direct production costs		$0.0184	.From current COP estimate for Alberta. .Rates for Ontario and Manitoba are $0.0376 and $0.0236, respectively.
8. Repairs and maintenance		$0.0240	• From current COP estimate for Alberta. .Rates for Ontario and Manitoba are $0.0355 and S0.0176, respectively.
9. Administration		$0.0249	.From current COP estimate for Alberta. • Rates for Ontario and Manitoba are$O.0162 and$O.OIOO, respectively.

Appendix C (Cent'd.)
Estimated NWT production cost ranges for turkey hens

COP components	Unit Costs	Estimated Costs per Kilogram of Liveweight Chicken	Notes / Assumptions
10. Property taxes and insurance		$0.0179	• From current COP estimate for Alberta. • Rates for Ontario and Manitoba are $0.0172 and $0.0243, respectively.
11. Depreciation		$0.1357	• Assumes the NWT facility will have a new barn, equipment and vehicles. • Depreciation rate: 20 years for buildings, 10 for equipment and vehicles. • Average age of Alberta barns-15 years, equipment—10 years, and vehicles-8 years. • Estimated 1992 value of the hypothetical NWT farm has been calculated by updating the historic value of the Alberta facilities (obtained from the CTMA's 1991 COP survey) using the "Buildings and fencing" and "Machinery and motor vehicle" indices published by Statistics Canada.
12. Financing costs		$0.1436-0.1642	• Assumes the NWT facility will have a new barn, equipment and vehicles. • Lower cost estimate assumes an interest rate of 7% (prime plus 1%) and higher cost estimate assumes a rate of 8%. • NWT cost estimate is much higher than that for the provinces (e.g., Alberta costs 2.24 ¢/kg.) This difference is due to the lower average age of facilities in the provinces.
11. working capital		$0.0097	• From current COP estimate for Alberta. • Rates for Ontario and Manitoba are $0.0114 and $0.(X)93, respectively.
12. NWT levy		$0.3116-0.3828	• From analysis of potential NWT administration costs in Chapter V.
13. Agency levy		$0.0130	• Current levy, set by the CTMA and approved by the NFPC.