



# Resurrection of Agriculture in Alaska

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## Table of Contents

Introduction .....	4
Breadth .....	8
The Importance and Necessities of Agriculture in Relation to our Nations Economy .....	8
Global Commerce (Keynesian vs. Austrian / Public Sector vs. Private Sector) .....	8
Combining Keynesian and Austrian Economics .....	15
Jobs and Economic Development/Incentive Projects in the Financial Sector .....	23
The Economics of Agriculture in the Global Market and the United States .....	30
Why Clusterization of the Agricultural Industry? .....	30
The Importance of Import Substitution .....	31
Current Agricultural Elements of the United States and the World .....	33
The Global State of Affairs .....	33
Agriculture Centralization and Industry Sustainability .....	34
Farmer Collaboration and Public/Private Sector Involvement .....	36
The issue of Sustainability in Farming .....	38
Food Safety and Sovereignty .....	42
Co-Ops and Collaborative Marketing .....	44
Conclusion for Land Based Farming in the United States and the World Marketplace .....	45
Depth .....	46
Why Utilize the Cluster Model in Alaska’s Agricultural Industry? .....	46
Agriculture in Alaska .....	48
Current Infrastructure .....	48
The “Alaskan Brand” .....	49
Potential Sustainability of Agriculture in Alaska .....	50
Programs .....	55
Education is Not Enough .....	56
Summary .....	56
Application .....	60
Securing Alaska’s Agricultural Sustainability, Promoting an Economical Viable Production Environment, and Assuring Food Security: An Alaska Specific Solution .....	60
Introduction .....	60
Summary of Problem .....	61

Solution .....	63
I. Centralized Destination.....	64
Destination Center Project Plan.....	66
Phase I - Feasibility.....	66
Phase II – Infrastructure.....	67
Phase III – Implementation .....	68
II. Sustainable Out-Of-Season Production Ability .....	68
Pilot Growing Center Project Plan .....	72
III. Production Enhancement .....	74
Production Enhancement Project Plan .....	75
Possible Projects for Alaska – From Failure to Prosperity .....	77
Seeds of Change Greenhouse Project.....	77
Delta Barley: A Grimm Story with Existing Potential .....	79
Matanuska Creamery.....	81
Point MacKenzie – New Dairy for Alaska? .....	84
Nenana-Totchaket .....	86
Possibility of Growing Northern Wild Rice.....	87
Conclusion.....	87
Works Cited.....	90
Attachments.....	98
Seeds of Change Demand Study .....	98

## Introduction

Regional economies are complex, created out of many industries working together or against each other and interacting with the rest of the global economy; yet it is often important to understand the economic relationships that are prevalent in a regional economy, it is the micro-economics that combine with each other, compounding, to create macro-economics; so it is economically essential that regional economies are studied to properly assess the viability of different economic “clusters”. This publication reports the results of applied economic research that quantifies the contribution of the food and agriculture “cluster” to the regional micro-economies of the state of Alaska.

The economic model and methodology used to create this paper is a sophisticated input-output structure combined with classical/modern economic schools of thought designed specifically to capture the interdependencies and linkages among various sectors and industries composing the complex agricultural economics of Alaska. The purpose of this document is to describe the linkages among various sectors of the economy and is designed specifically to provide estimates of the economic importance of the food and agriculture-related “cluster”, along with the general manufacturing and service sectors, of the state’s economy. This publication provides several types of economic multipliers in detail for the Alaskan agricultural economy with detailed information as to current United States agricultural economics, current Alaskan agricultural economics, and proposed solutions to help the potential agricultural “clusters” within the state to reach critical mass and become economically viable and competitive with the national and international market.

Facts relating to the need of the creation of this report relating to agriculture in Alaska have been identified and are as follows:

- Alaska’s dairy industry is collapsing and will severely impact all other agricultural sectors.
- Funding for agriculture projects is not being properly targeted, supported, or maintained.
- Alaska and Alaskan’s are at risk due to food security and food sovereignty issues.
- Alaskan products can not compete with low cost imports from the Lower 48 with current levels of collaboration and marketing.
- There is a severe lack of co-operation in between all levels of the agriculture industry in Alaska leading to high levels of fledgling project failure and inability to construct “cluster” micro-economic structures.

## Problem Statements

“The Death of Agriculture in Alaska” a study conducted by the Alaska Manufacturing Extension Partnership (AMEP) in 2007 surmised that agriculture in Alaska was in such serious decline that within the next few years there will be nothing left but a few scattered producers who are growing and raising product for the vegetable market, directly for themselves, animal feed, and

small temporary niche markets that disappear as soon as they came to fruition; this, sadly, is exactly the case with very few standouts that have recently come into being. Support for the agriculture industry has been nascent and haphazard in a process that has been coined as “Distributed Failure”. This distributed failure is a result of the small amount of funding that has been made available to the industry that has been parceled out in such small pieces to so many differing entities that there has been, ultimately, very little overall impact in any agricultural sector for any producer.

This is why the strategic and responsible management and funding of agriculture in Alaska is so important. Michael E. Porter, a Harvard economist believes that today’s economic map of the world is characterized by what he refers to as “clusters”: critical masses in one place of linked industries and institutions--from suppliers to universities to government agencies--that enjoy unusual competitive success in a particular field. The most famous examples are found in Silicon Valley and Hollywood, but clusters dot the world’s landscape. Porter explains how clusters affect competition in three broad ways: first, by increasing the productivity of companies based in the area; second, by driving the direction and pace of innovation; and third, by stimulating the formation of new businesses within the cluster. Geographic, cultural, and institutional proximity provides companies with special access, closer relationships, better information, powerful incentives, and other advantages that are difficult to tap from a distance. The more complex, knowledge-based, and dynamic the world economy becomes, the more this is becomes true. Competitive advantage lies increasingly in local things--knowledge, relationships, and motivation--that distant rivals cannot replicate.

Though this model for economic prosperity rings true in many areas in the United States where business has been established and growing for over 100 years, many areas of the U.S. are left without economic support for new innovation in the manufacturing of agricultural value added-products because it does not fall under the category of a “cluster”. The truth of the matter is, all industries, were born from the seeds of innovation, innovation that took advantage of a geographic location’s unique positioning, and after general infrastructure was established new industries were built off of this initial innovation and then “clusters” started to form. These “clusters” then, growing in power, attempt to leverage all local and statewide resources to expand their economic power, and in the process would create jobs, new economic sectors, and increase overall economic and sociological prosperity.

However, for states that were relatively behind the curve as far as the economic growth of the United States and its “clusters”, such as Alaska, a new state of economic functionality begins to develop, “Neo-Colonial Economics”. Neo-Colonial Economics is a state of economic functionality in which these modern “clusters” in the already economically established regions of the nation seek to leverage resources to grow internal industry and economic diversification by utilizing the resources of another state or province entirely. Alaska, for example, has

continued to solely export its resources to the lower 48 because its economic inception into the United States 50 years ago was established through the “rulers” of out-of-state established “clusters” who needed the resources. In fact, even Alaska’s extension of government serves to ensure that Alaska’s resource extraction industry is well funded and supported when other industries are left to fend for themselves, because without it, Alaska could not survive economically. States like Alaska are essentially a colony of another entity or group of entities (“economic clusters”) that literally serve to supply its originators with raw materials to be used to enhance their, foreign, economic growth and diversification.

So how will Alaska and other regions escape Neo-Colonial Economics and become self sufficient instead of merely subsisting off of revenue generated from a handful of industries? The answer lies in a balance between modern economic schools of thought and public and private sector collaboration to establish and grow economic “clusters” by supporting innovation and entrepreneurial activity inside of a Neo-Colonial economy.

This is exceedingly difficult for agriculture in Alaska as food production needs are aggregated entirely outside of the state, so unlike oil, there is currently no demand for agricultural products from Alaska.

So who destroyed the potential for a farming culture in Alaska?

The last of the dairy farmers in South Central Alaska are on the brink of closing their doors, selling off their cattle, and exiting the state, leaving most of agriculture in Alaska in a catastrophic state. This series of events is catapulting us to a point where Alaska’s agricultural industry will no longer have the critical mass to resurrect itself without direct, immediate, and financially/sociologically responsible attention.

One of the primary reasons for this deleterious state is that Alaska lacks a unified vision of the complexly, interconnected, interdependent, and relational systems that exist in what is essentially an isolated agricultural community. Without this unified vision intelligently applied, to create clusters of collaboration in the agricultural sector, Alaska’s agricultural industry cannot survive. Validation of this detrimental chain reaction can be found when we examine a few basic facts about the foundation of our agricultural endeavors:

### **The dairy industry-**

The Alaskan dairy industry has a direct impact on the hay and other feed crop farmers, fertilizer manufacturing and distribution companies, the slaughterhouse industry, two different bottling and distribution enterprises, segments of the transport industry, and various local providers of farm equipment in Alaska; this includes the perceived value of various institutions such as the University of Alaska’s agricultural division, the cooperative extension service, the plant material center, the State Division of Agriculture, and various greenhouse projects around the state;

Alaska's expensive agricultural land, fuel, feed, labor, etc, are much higher than those of competing lower 48 farms; even if all of Alaska's dairies were to combine, they would not be able to achieve the critical mass that would allow them to compete in the same arena with the large corporate dairies in the Lower 48, or government subsidized dairies like those found in Washington State.

Alaskan owned and operated dairy is restricted to a single creamery, which removes any competition for their milk; and Alaska's creameries owned outside of the state (one in South Central and one in the Interior) are able to brand their products as Alaskan made, without regard to the percentage of milk that actually comes from Alaska. Thus, they have no vested interest in the dairy industry's survival in Alaska.

An outcome of our present discussion is to help illustrate the complexity and vulnerability of Alaska's unique agricultural industry, as well as to propose a simple but far reaching plan that will curtail the downward spiral our agriculture industry is experiencing; while offering a means of obtaining stability and profitability throughout the industry.

So to answer the original question "So who destroyed the potential for a farming culture in Alaska?"

Out of state competition and unfocused local resource management has all but killed our agricultural industry.

The local USDA office and the Alaska Department of Agriculture intentions are to grow Alaska agriculture and be as fair as possible in the distribution of funding that they receive, but the effect in many cases dilutes the potential impact of the funding and distributes it to organizations that have no impact on the growth or diversification of agriculture. In fact the result of this distribution method actually harms the industry as the initial targets of these grants receive inadequate funding across the entire state, spreading a veil of capital so thin that, already mismanaged scattered farms are given just enough capital to subsist, and then perish. Without the redirection of this funding or the acquisition of additional monies, the basis of the agricultural industry in Alaska, the dairy industry, will almost surely disappear.

### **Case in Point**

Interior Alaska is no better off from current funding opportunities and programs unless "Alaska specific" measures are taken into account to integrate as many elements of the agricultural industry together to create new agricultural clusters that are actually capable of reaching critical mass.

## Breadth

### The Importance and Necessities of Agriculture in Relation to our Nations Economy

Civilization began with agriculture, when our nomadic ancestors began to settle and grow their own food, raise their own livestock, and trade their food for resources, human society was forever changed. Not only did villages, towns and cities begin to flourish, but so did knowledge, the arts, and the technological sciences. And for most of history, society's connection to the land was intimate. Human communities, no matter how sophisticated, could not ignore the importance of agriculture. To be far from dependable sources of food was to risk malnutrition and starvation.

In modern times, however, many in the urban world have forgotten this fundamental connection. Insulated by the apparent abundance of food that has come from new technologies for the growing, transportation and storage of food, humanity's fundamental dependence on agriculture is often overlooked. This oblivious lifestyle has led to the ruin of huge sections of farm land by industrial growers and taken the responsibility of agriculture out of capable local hands and encouraged mass production in order to aggregate the lowest possible costs with the highest possible yield.

This movement to create mass production of agricultural products has led to “agricultural centralization” in many cases; this is the clusterization of farming at its best and its worst. 40% of the world's crop and pasture land is already degraded or degrading, and an estimated 20 million hectares of cropland will go completely out of production each year. However, before this document will elaborate upon the condition of farming in the United States, the world, and Alaska it is important that two classic economic schools of thought are discussed in order to better describe the relationship of the global and national marketplace as it relates to public and private sector influence. This understanding will lay the framework for the methodology behind the clusterization model discussed within this document.

#### Global Commerce (Keynesian vs. Austrian / Public Sector vs. Private Sector)

We have now have a become global economy where an entrepreneur in the United States may be developing a product specifically targeted at a consumer in Asia and have little or no market for his product in the local economy. This means that it takes governmental entities to establish trade relationships between countries for that entrepreneur to create his product and get it to his targeted market.

We see that global markets create global problems, but those problems cannot all be solved at the global level; in order for an entrepreneur in Alaska or Hawaii to develop and sell a product in South Korea they must compete with entrepreneurs in Russia, Brazil and New Zealand. For example a local bottled water producer that is creating a product with Alaskan Glacial water has identified a strong potential market in a South Korean grocery store chain. The cache of Alaska's purity is only one of the sales factors that the buyer will consider when purchasing the



bottled water. This must be balanced against the availability of bottled water from Russia which has its own claim to glaciers and purity at a price substantially less than water shipped from Alaska.

This means that in addition to the Neo-Colonial state of functionality that is exhibited between Alaska and the U.S., economies like Alaska must also compete with the cheap costs associated with foreign agricultural food production.

So part of the question becomes what can states in America do to enhance the ability of the entrepreneur to run their own business and sell their own products to their target market?

There are two main schools of thought on economics that this portion of the document will focus on; the Austrian (based on the word Austere rather than on the country) believes that the entrepreneur or business man must be able to compete without significant government aid or interference of any kind. The other school of thought is the Keynesian, which says that an ever increasing role for government in the production and distribution of goods is a positive thing due to the increasing complexities of production and distribution into a world-wide market that is controlled through governmental decision, subsidy, investment, treaty and taxation.

Allan Coddington, explained Keynesian economics in his book 'The Search for First Principles':

*"3. Liquidity preference and loanable funds*

*In discussing the relationship between the work of Keynes and of Hicks, there is a third individual who must make an appearance sooner or later. That individual is Sir Dennis Robertson. There are at least two reasons why he should be brought into the picture. First, of those who were critical of the monetary theory of Keynes's General Theory, Robertson's (1940) critique was perhaps the most penetrating and certainly the most lucid.<sup>7</sup> Second, the analytical basis of Robertson's critical response to Keynes's theory of money and interest is practically identical with the analytical basis of Hicks's sympathetic response. Thus, we have the intriguing state of affairs, as regards the monetary and interest theory of the General Theory, that Hicks and Robertson agreed with one another as far as any purely analytical questions were concerned, and yet disagreed quite fundamentally in their overall assessment of the merit of the theoretical developments involved.*

*We shall consider next the analytical issues, first as presented by Hicks, and then as presented by Robertson. It will emerge that Hicks and Robertson agreed that Keynes's liquidity preference theory of interest differs from the 'classical' loanable funds approach not by virtue of its substance, but only as a matter of analytical procedure. In all this we adopt the usual convention that there is a plane of discourse on which it makes sense to talk of 'the' rate of interest.*

*Hicks expounded the equivalence of liquidity preference and loanable funds approaches to the theory of interest in a very clear but necessarily condensed form in the Economic Journal review of 1936; this interpretation was present, although peripherally, in 'Mr.*

*Keynes and the "Classics" (1937). The fullest expression, by Hicks, of this interpretation, is to be found in Chapter XII of Value and Capital (1946, pp. 153-162). Here Hicks adopts a general equilibrium framework, and shows that it can make no difference of substance which price is associated, in the model, with which market (including among our list of 'markets' one for the holding of money).*

*Once it is admitted that each trader faces a budget constraint<sup>8</sup> it must be conceded that not all markets are independent of one another. Thus, once we have embarked on general equilibrium theory, it makes very little sense to speak, for example, of 'the price of widgets being determined in the market for widgets'. Rather, in so far as one can give any causal interpretation of a general equilibrium model (and the more fastidious practitioners of the art would avoid doing so) it would be that the vector of relative prices is determined by the whole configuration of parameters (this is precisely what the reduced-form equations tell us, reading them 'from right to left'). Thus, whether we eliminate the money equation (as in the 'classical' approach) or the borrowing and lending ('loanable funds') equation (as in the Keynesian approach) is entirely a matter of analytical procedure: that is, it is at most a matter of convenience.*

*All this would appear platitudinous to a general equilibrium theorist, but to someone trained in the Marshallian tradition of partial equilibrium analysis it goes against the grain. The disposition dies hard to think of each price as determined in the market in which the good in question is traded. Accordingly, controversy about whether the rate of interest is determined in the market for 'loanable funds' (by borrowing and lending) or in the money market (by 'liquidity preference') was rife in the late 1930s and beyond, despite the existence of a well-articulated framework in which the controversy could be shown to depend on a false dichotomy: to involve the setting up of a misguided opposition of views which can be very readily reconciled with one another. But, before Value and Capital, how much interest was there in England (outside the London School of Economics) in the work of Walras? To the extent that British economists of this period were either unaware of, or uninterested in, the economic theory of Walras, we may attribute some of the pointlessness and inconclusiveness of this controversy to a state of intellectual insularity." (CODDINGTON, 1976)*

So it becomes very clear in Keynesian economics that the government needs to play a significant role in value and capital in order to compete with other states in a nation, and in the world-wide economy. But how much interference is good and at what point does it become detrimental, not only to the entrepreneur, but to the very economy that provides the funding for the government to exist.

The Austrian school of thought says that the lesser the amount of interference by the government in economic issues the better. But in a world-wide economy where states and federal governments consistently and empirically create subsidization for their own economies how can an entrepreneur or businessman in a state such as Alaska compete against a similar entity in China.

In China the state will fund the majority of the capital necessary to create and run the business and then develop an enhanced environment for it to be nurtured and grown to the point where external businesses cannot compete with it inside of China or in the greater international market.

In each region of the world labor has a value, and for each region that value is determined by the maturity of the local economy and the ability of the individual. Money outside of those currencies are tied to a physical (sometimes mineral) standard and that physical system is, in turn, based upon that value of labor. So the greater the amount of governmental interference the lower the value of the labor and thus the lower the value of the currency. Ludwig V. Mises, explains this in his book 'Human Action':

### *"3. Human Labor as a Means*

*The employment of the physiological functions and manifestations of human life as a means is called labor. The display of the potentialities of human energy and vital processes which the man whose life they manifest does not use for the attainment of external ends different from the mere running of these processes and from the physiological role they play in the biological consummation of his own vital economy, is not labor; it is simply life. Man works in using his forces and abilities as a means for the removal of uneasiness and in substituting purposeful exploitation of his vital energy for the spontaneous and carefree discharge of his faculties and nerve tensions. Labor is a means, not an end in itself.*

*Every individual has only a limited quantity of energy to expend, and every unit of labor can only bring about a limited effect. Otherwise human labor would be available in abundance; it would not be scarce and it would not be considered as a means for the removal of uneasiness and economized as such.*

*In a world in which labor is economized only on account of its being available in a quantity insufficient to attain all ends for which it can be used as a means, the supply of labor available would be equal to the whole quantity of labor which all men together are able to expend. In such a world everybody would be eager to work until he had completely exhausted his momentary capacity to work. The time which is not required for recreation and restoration of the capacity to work, used up by previous working, would be entirely devoted to work. Every non-utilization of the full capacity to work would be deemed a loss. Through the performance of more work one would have increased one's well-being. That a part of the available potential remained unused would be appraised as a forfeiture of well-being not compensated by any corresponding increase in well-being. The very idea of laziness would be unknown. Nobody would think: I could possibly do this or that; but it is not worthwhile; it does not pay; I prefer my leisure. Everybody would consider his whole capacity to work as a supply of factors of production which he would be anxious to utilize completely. Even a chance of the smallest increase in well-being would be considered a sufficient incentive to work more if it happened that at the instant no more profitable use could be made of the quantity of labor concerned.*

#### 4. Economic Calculation and the Market

*The quantitative treatment of economic problems must not be confused with the quantitative methods applied in dealing with the problems of the external universe of physical and chemical events. The distinctive mark of economic calculation is that it is neither based upon nor related to anything which could be characterized as measurement.*

*A process of measurement consists in the establishment of the numerical relation of an object with regard to another object, viz., the unit of the measurement. The ultimate source of measurement is that of spatial dimensions. With the aid of the unit defined in reference to extension one measures energy and potentiality, the power of a thing to bring about changes in other things and relations, and the passing of time. A pointer-reading is directly indicative of a spatial relation and only indirectly of other quantities. The assumption underlying measurement is the immutability of the unit. The unit of length is the rock upon which all measurement is based. It is assumed that man cannot help considering it immutable....*

*...There are monetary units and there are measurable physical units of various economic goods and of many—but not of all—services bought and sold. But the exchange ratios which we have to deal with are permanently fluctuating. There is nothing constant and invariable in them. They defy any attempt to measure them. They are not facts in the sense in which a physicist calls the establishment of the weight of a quantity of copper a fact. They are historical events, expressive of what happened once at a definite instant and under definite circumstances. The same numerical exchange ratio may appear again, but it is by no means certain whether this will really happen and, if it happens, the question is open whether this identical result was the outcome of preservation of the same circumstances or of a return to them rather than the outcome of the interplay of a very different constellation of price-deteragricultural factors. Numbers applied by acting man in economic calculation do not refer to quantities measured but to exchange ratios as they are expected—on the basis of understanding—to be realized on the markets of the future to which alone all acting is directed and which alone counts for acting man.*

*We are not dealing at this point of our investigation with the problem of a "quantitative science of economics," but with the analysis of the mental processes performed by acting man in applying quantitative distinctions when planning conduct. As action is always directed toward influencing a future state of affairs, economic calculation always deals with the future. As far as it takes past events and exchange ratios of the past into consideration, it does so only for the sake of an arrangement of future action.*

*The task which acting man wants to achieve by economic calculation is to establish the outcome of acting by contrasting input and output. Economic calculation is either an estimate of the expected outcome of future action or the establishment of the outcome of past action. But the latter does not serve merely historical and didactic aims. Its practical meaning is to show how much one is free to consume without impairing the future capacity to produce. It is with regard to this problem that the fundamental notions of*

*economic calculation—capital and income, profit and loss, spending and saving, cost and yield—are developed. The practical employment of these notions and of all notions derived from them is inseparably linked with the operation of a market in which goods and services of all orders are exchanged against a universally used medium of exchange, viz., money. They would be merely academic, without any relevance for acting within a world with a different structure of action.*

*He who wants to provide for the satisfaction of future needs must correctly anticipate these needs. If he fails in this understanding of the future, his provision will prove less satisfactory or totally futile. There is no such thing as an abstract saving that could provide for all classes of want-satisfaction and would be neutral with regard to changes occurring in conditions and valuations. Ordinary interest can therefore in the changing economy never appear in a pure unalloyed form. It is only in the imaginary construction of the evenly rotating economy that the mere passing of time matures ordinary interest; in the passage of time and with the progress of the process of production more and more value accrues, as it were, to the complementary factors of production; with the termination of the process of production the lapse of time has generated in the price of the product the full quota of ordinary interest. In the changing economy during the period of production there also arise synchronously other changes in valuations. Some goods are valued higher than previously, some lower. These alterations are the source from which entrepreneurial profits and losses stem. Only those entrepreneurs who in their planning have correctly anticipated the future state of the market are in a position to reap, in selling the products, an excess over the costs of production (inclusive of net ordinary interest) expended. An entrepreneur who has failed in his speculative understanding of the future can sell his products, if at all, only at prices which do not cover completely his expenditures plus ordinary interest on the capital invested. Like entrepreneurial profit and loss, interest is not a price, but a magnitude which is to be disengaged by a particular mode of computation from the price of the products of successful business operations. The gross difference between the price at which a commodity is sold and the costs expended in its production (exclusive of interest on the capital invested) was called profit in the terminology of British classical economics.<sup>5</sup> Modern economics conceives this magnitude as a complex of catallactically disparate items. The excess of gross receipts over expenditures which the classical economists called profit includes the price for the entrepreneur's own labor employed in the process of production, interest on the capital invested, and finally entrepreneurial profit proper. If such an excess has not been reaped at all in the sale of the products, the entrepreneur not only fails to get profit proper, he receives neither an equivalent for the market value of the labor he has contributed nor interest on the capital invested.*

### *3. The Price Premium as a Component of the Gross Market Rate of Interest*

*Money is neutral if the cash-induced changes in the monetary unit's purchasing power affect at the same time and to the same extent the prices of all commodities and services. With neutral money, a neutral rate of interest would be conceivable, provided there were no deferred payments. If there are deferred payments and if we disregard the*

*entrepreneurial position of the creditor and the ensuing entrepreneurial component in the gross rate of interest, we must furthermore assume that the eventuality of future changes in purchasing power is taken into account in stipulating the terms of the contract. The principal is to be multiplied periodically by the index number and thus to be increased or decreased in accordance with the changes that have come to pass in purchasing power. With the adjustment of the principal, the amount from which the rate of interest is to be calculated changes too. Thus, this rate is a neutral rate of interest.*

*With neutral money, neutralization of the rate of interest could also be attained by another stipulation, provided the parties are in a position to anticipate correctly the future changes in purchasing power. They could stipulate a gross rate of interest containing an allowance for such changes, a percentile addendum to, or subtra-hendum from, the rate of originary interest. We may call this allowance the—positive or negative—price premium. In the case of a quickly progressing deflation, the negative price premium could not only swallow the whole rate of originary interest, but even reverse the gross rate into a minus quantity, an amount charged to the creditor's account. If the price premium is correctly calculated, neither the creditor's nor the debtor's position is affected by intervening changes in purchasing power. The rate of interest is neutral.*

*However, all these assumptions are not only imaginary, they cannot even hypothetically be thought of without contradiction. In the changing economy, the rate of interest can never be neutral. In the changing economy, there is no uniform rate of originary interest; there only prevails a tendency toward the establishment of such uniformity. Before the final state of originary interest is attained, new changes in the data emerge which divert anew the movement of interest rates toward a new final state. Where everything is unceasingly in flux, no neutral rate of interest can be established,*

*In the world of reality all prices are fluctuating and acting men are forced to take full account of these changes. Entrepreneurs embark upon business ventures and capitalists change their investments only because they anticipate such changes and want to profit from them. The market economy is essentially characterized as a social system in which there prevails an incessant urge toward improvement. The most provident and enterprising individuals are driven to earn profit by readjusting again and again the arrangement of production activities so as to fill in the best possible way the needs of the consumers, both those needs of which the consumers themselves are already aware and those latent needs of the satisfaction of which they have not yet thought themselves. These speculative ventures of the promoters revolutionize afresh each day the structure of prices and thereby also the height of the gross market rate of interest.*

*He who expects a rise in certain prices enters the loan market as a borrower and is ready to allow a higher gross rate of interest than he would allow if he were to expect a less momentous rise in prices or no rise at all. On the other hand, the lender, if he himself expects a rise in prices, grants loans only if the gross rate is higher than it would be under a state of the market in which less momentous or no upward changes in prices are anticipated. The borrower is not deterred by a higher rate if his project seems to offer such good chances*

*that it can afford higher costs. The lender would abstain from lending and would himself enter the market as an entrepreneur and bidder for commodities and services if the gross rate of interest were not to compensate him for the profits he could reap this way. The expectation of rising prices thus has the tendency to make the gross rate of interest rise, while the expectation of dropping prices makes it drop. If the expected changes in the price structure concern only a limited group of commodities and services, and are counterbalanced by the expectation of an opposite change in the prices of other goods, as is the case in the absence of changes in the money relation, the two opposite trends by and large counterpoise each other. But if the money relation is sensibly altered and a general rise or fall in the prices of all commodities and services is expected, one tendency carries on. A positive or negative price premium emerges in all deals concerning deferred payments.<sup>3</sup>*

*The role of the price premium in the changing economy is different from that we ascribed to it in the hypothetical and unrealizable scheme developed above. It can never entirely remove, even as far as credit operations alone are concerned, the effects of changes in the money relation; it can never make interest rates neutral. It cannot alter the fact that money is essentially equipped with a driving force of its own. Even if all actors were to know correctly and completely the quantitative data concerning the changes in the supply of money (in the broader sense) in the whole economic system, the dates on which such changes were to occur and what individuals were to be first affected by them, they would not be in a position to know beforehand whether and to what extent the demand for money for cash holding would change and in what temporal sequence and to what extent the prices of the various commodities would change. The price premium could counterpoise the effects of changes in the money relation upon the substantial importance and the economic significance of credit contracts only if its appearance were to precede the occurrence of the price changes generated by the alteration in the money relation. It would have to be the result of a reasoning by virtue of which the actors try to compute in advance the date and the extent of such price changes with regard to all commodities and services which directly or indirectly count for their own state of satisfaction...*

*...It is necessary to realize that the price premium is the outgrowth of speculations anticipating changes in the money relation. What induces it, in the case of the expectation that an inflationary trend will keep on going, is already the first sign of that phenomenon which later, when it becomes general, is called "flight into real values" and finally produces the crack-up boom and the crash of the monetary system concerned. As in every case of the understanding of future developments, it is possible that the speculators may err, that the inflationary or deflationary movement will be stopped or slowed down, and that prices will differ from what they expected." (Mises, 2009)*

### **Combining Keynesian and Austrian Economics**

So Mises, believes that the government must be kept out of the management of economics, away from the currency and have no negative impacts on business whatsoever. But we are left with the question of whether or not this stand point is viable in a world economy.

We discussed earlier that governments will act to support business entities within their borders at the expense of the tax payer in order to help in the selling of goods and services; thereby jobs are created in order to provide a necessary level of employment to 90% of the employable population. Governments must do this in order to compete against other governments who have differing abilities and resources for the creation and distribution of goods and services. If the world economy was a pure Austrian economy where entrepreneurs and businesses would engage in competition against their peers regardless of governments, then no governmental interference would be necessary in order for them to compete. Their success would be based solely on their intellect, operations and ability to produce; but this would inevitably lead to corporatism, where a select few companies would then have control over, essentially, all active business throughout the global economy.

We know however that a system built upon pure Austrian or Keynesian economics does not even exist within small localities let alone countries or the world-wide market. Therefore governments must be engaged; the question then becomes at what level should they be engaged and what point does their engagement become detrimental to their own existence or actually negate the beneficial aspects that they can provide the private sector?

So we have determined that a mix of the two schools of thought must exist between Austrian and Keynesian economics in order for entrepreneurs and businesses to flourish, for innovation of new products and services to take place and for the enhancement of each regions economic base. Therefore it is the role of government to provide an environment in which entrepreneurs and business owners can flourish in order to drive business and innovation for the greatest amount of economic impact possible. But how do we find that balance where the government can assist without becoming so intrusive to where innovation is stifled? Lundstedt and Colglazier, discuss how to achieve this balance in their book 'Managing Innovation'.

*Just where the public goods aspect of innovation and the private goods aspect actually meet or overlap is a quite difficult question. It is particularly difficult when it comes to the developmental aspects of innovation. There is a good deal in the remark, attributed, I think, to Edison, that an invention is 1 percent inspiration and 99 percent perspiration. Disapproval of plagiarism is an indication that most societies regard ideas as property, at least when expressed in terms of an original document. Plagiarism, however, is defined in terms of words, usually in written language. Oddly enough, a person whose ideas are stolen by others feels rather flattered by this. Here again, the motivation of self-esteem and contributing to the general welfare may be quite significant. A very important question which is of particular political significance at the moment is whether the state should create a grants economy for inventors, particularly inventors of theories, ideas, methodologies, and so on, which do not usually fall under the patent law. The National Science Foundation and the government laboratories, both social inventions, are examples of a grants economy, presumably based on the principle that new ideas and scientific discoveries are public goods which, once discovered, are the property of all and cannot be protected by anything like a patent law. In this case, therefore, direct subsidy is the best means of assuring an adequate supply of such public goods. In its early days, science was mainly supported by a private grants economy, from*



*the rich or from endowed institutions like universities. Now it is moving increasingly into the public grants economy simply because of its increasing scale and expense, although private foundations still play a significant role. A very interesting question is whether government laboratories, like Los Alamos, have not actually perverted science toward human destruction.*

*The state, after all, is basically a threat system. It supports itself by threatening its own citizens into making them pay taxes or by extracting resources out of them by creating money, by which it can draw resources from the public by inflation. It is not surprising, therefore, that test, particularly sovereign states; devote a good deal of their resources to threats against foreigners, as well as against their own cities. Innovation that is directly state supported, therefore, may be ex-cited to go in large part to the threat system. The National Science Foundation is an exception to this because of a tradition that proposals r research in science should be judged largely by peers—that is, by I low scientists. There is a certain danger in this that the subcultures I science may become too narrow and isolated from the general public id that hostility will develop between science and the rest of society, which could severely curtail the grants that society is willing to make i limit the rate of development of science itself. Just where the public goods aspect of innovation and the private goods aspect actually meet or overlap is a quite difficult question. It is particularly difficult when it comes to the developmental aspects of innovation. There is a good deal in the remark, attributed, I think, to Edison, that an invention is 1 percent inspiration and 99 percent perspiration.*

*Certainly the translation of ideas into actual methods of production may involve much more human activity than having the ideas in the first place. Just how much development should be publicly supported and how much is satisfactorily dealt with in the private sector is a question to which there is certainly no easy answer.*

*In looking at the policy implications of these considerations, what is easy to overlook is that grants to society from the innovators may easily be more important in deteragricultural the rate of innovation and the success of innovation than grants from society to the innovators. A society which is infused with a spirit of ennui and disillusionment, in which the integrative aspects of the grants economy languishes because nobody really loves anything or anybody very much, may very well stagnate no matter what legislative incentives, tax remissions, and public and private grants are applied. This is perhaps the "supply side economics" of innovation. It has been much neglected in research on the problem, partly, no doubt, because it is very difficult to study. Just what creates a spirit of generosity, outgoingness, self-sacrifice, and pride in achievements of others is very little understood. It is certainly easy for a society to slide down into a kind of mean-minded, penny-pinching, ungrateful, self-centeredness that may be much more destructive to creative innovation than any defects in the patent system, the tax laws, or even government subsidies. One worries whether our own society is falling into this kind of threat to innovation that may be much more psycho logical than it is economic.*

## *Definitions and Scope*

*Broadly speaking, what we are setting out to explore in this chapter is innovation, particularly technological innovation, in its various ramifications. Economists define an innovation as the first commercial application of a new or improved process or product.<sup>1</sup> Nowadays we would extend this definition to include a system such as the supermarket, time-shared computer, satellite communication, etc. In this context, there are, of course, also social innovations of the most important consequences, but I cannot possibly cover so broad a topic herein. The innovative process consists of two distinct stages:*

- 1. Conception or invention*
- 2. Subsequent commercialization or exploitation*

*Thus the economist would point out that the invention by itself is not an economic good; it is only by commercialization that it becomes one.*

*Whereas the former task is that of the inventor, the latter role falls to the entrepreneur. Fundamentally, entrepreneurship is the process whereby people, money, markets, production facilities, and knowledge are brought together to create a commercial enterprise which did not exist before. Doing so does not have to embody an invention; it can simply be the founding of a new dry-cleaning establishment on a block which did not have one but where a need existed, or a new plant by a corporation using existing technology. If invention is involved, the importance of the entrepreneurial activity is even greater, because inventive novelty implies new risk<sup>2</sup> and completes an innovation.*

*1. The entrepreneur, particularly the technological innovator, functions best in an atmosphere of freedom, in a decentralized system. It is probably also true that this grass-roots innovation is the best method for most social innovation too. Certainly, large government-sponsored programs of specific national importance have been successfully implemented through the private sector firms in the past (World War II synthetic rubber, the atomic bomb, the space program), but for these to succeed in the world market under the pressure of competitive forces, the action of the "invisible hand" is infinitely more effective. It is very doubtful whether the currently fashionable concept of technology assessment has any real long-range value, as studies of the past (such as by Professor Rosenberg, or by Professor Hughes) have demonstrated. On the other hand, it is absolutely necessary, in view of the speed with which science and technology change, to develop greater technical literacy among the general public and to communicate honestly with them about the scientific work that is being done, while at the same time improving our engineering education generally.*

*2. The entrepreneur, whether individual or corporate, requires an external climate marked to the maximum degree by steadiness of course in the society around him, although he usually is prepared to cope with a reasonable degree of surprises. However, the perils of the entrepreneur's career itself in a competitive world are amply able to*

*provide him with surprises, so that he doesn't need any additional burdens from governments or segments of society acting through government.*

3. *Technological innovation has been the major driving force for the growth of the American economy for a very long time. As Charles Schultze has put it:*

*The final virtue of market-like arrangements that I wish to stress is their potential ability to direct innovation into socially desirable directions. While the formal economic theory of the market emphasizes its ability to get the most out of existing resources and technology, what is more important is its apparent capacity to stimulate and take advantage of advancing technology. Living standards in modern Western countries are, by orders of magnitude, superior to those of the early seventeenth century. Had the triumph of the market meant only a more efficient use of the technologies and resources then available, the gains in living standards would have been minuscule by comparison. What made the difference was the stimulation and harnessing of new technologies and resources.<sup>60</sup>*

*What Schultze does not say is that this market triumph, occurring only in Western countries, did not therefore arise in the ancient civilizations of the East, where the idea of progress did not exist, and which to this day have living standards far below those in the West, so that the social milieu is after all the decisive factor. This feedback ability of the American economy, if not stifled, is its greatest strength, because it is self-correcting. Thus, the real priority belongs to technological innovation. It is government's job to set the course and then get out of the way! If there are no foreign "surprises," the developing national consensus as described above might permit a gradual improvement in our national condition during the 1980s.*

*The driving force behind technological innovation is money—the lure of making it. For the individual, that motivation is extremely clear, even though, of course, there are other motivations as well (desire for independence, hope of peer group esteem, etc.). For the corporation to innovate, given the problems I have described, there is no better recipe than a profitable business. A good profit record engenders a willingness to take risks, and risk-taking lies behind all innovation. Similarly, Professor Mansfield<sup>62</sup> points out that the higher social than private rate of return for innovation cannot efficiently be addressed by direct government intervention, but rather by improving the profit-making climate for innovation.” (Colglazier, 1982)*

But is it the government's role to make decisions on what investments are good investments or bad investments? Is it the government's role to determine what projects should be funded and what projects should not? Is the government without bias? Is the government without individuals who have self interests that could affect the decision making process for proper investments? Could a government create and manage an innovation system without having political posturing and favoritism enter into the equation?

The answers to these questions are obvious; the government may be able to conduct investments in projects in a systematic way that removes predatory practices from taking place and accumulate enough capital from the masses to provide significant funding for potential projects and even implement some of those projects without negative consequences, but eventually the combination of politics and the complete authority over the controlling of money will cause strife, consternation, and a myriad of problems that are not easily dealt with.

As we have seen in the recent past with Fannie Mae and Freddie Mac, government entities do not always make proper investment decisions. Fannie and Freddie created programs that were established to help lower income level individuals and help them qualify for mortgages in order for them to attain the American dream of home ownership.

Unfortunately what we have seen is gross mismanagement and poor investment decisions that created a significant recession in the US economy. 1/3 of all mortgages were written underneath these governmental organizations and then the taxpayer was stuck with the cost of keeping them alive, or they would face a greater recession or possibly a depression. It is clear that establishing an investment fund that is under the direct control of the government and the politicians that make up that government is not optimal; otherwise the government would seek to create a planned economy where the investment choices are determined and given to those who support the status quo and the political establishment.

Therefore a state of equilibrium must be found where the government can aggregate capital (through taxation) to be invested in the state, local, and national economies while keeping the political establishment from having a decision making role in exactly how the investments are made. The investments must be made based upon what goods and services are demanded by the market and where entrepreneurs and business owners seek to fulfill market needs. For example, an individual or economic "cluster" in Washington may decide is imperative for economic success in their state to fulfill certain needs that may cripple the economy of another state. However, states will not always reject inappropriate federal funding, even if their state offices could not properly utilize the capital, the funds are usually absorbed and distributed in a procurement process to achieve a "best possible" scenario instead of putting it into the hands of truly capable local management to support local "cluster" growth.

It is not the fault of the states who take money they can not properly manage, they do desire to make change and attempt to set up systems in which will use the funding appropriately; but they also understand that their federal counterparts may cease to offer funds to a state if the state should refuse them.

Just because state funds are earmarked to be spent in a certain way or for certain economic development does not mean that a state is capable of distributing funds or assessing those to receive funds properly. This is often not the fault of the state, it is merely the functionality of our nation; we as states take the money invested by our citizens through taxation and try our best to fulfill our states needs; but it is hard to, as states, realize that private organizations may better know the business environment of a state and could more cost effectively distribute funds allocated by federal government.

Private sector individuals managing federal or state funds is a hard concept to swallow as private entities, like governments, have their own agendas; this is why synergy must be reached in between the public and private sector spending of capital to invest within a state; once again a blending of Austrian and Keynesian economics.

The capital structure of society is never fully integrated but instead driven by market demand; if goods and services are created that the market does not desire, the investment is completely at risk. This has been seen in the past as planned economies such as in the former Soviet Union, where the government determined how many of an individual product would be made and what the price would be to the consumer; this of course led to products and services being pushed that the market did not call for and individuals did not want to buy, and led to the eventual collapse of their entire economy.

Only when investment decisions take into account the market forces directed at a product or service, can a proper investment decision be made. Governments have shown themselves somewhat incapable of making many investment decisions, whereas the private sector thrives off of making proper investment decisions which is why government agencies offer procurement opportunities to the private sector. The problem with procurement opportunities is that they are tailored using ideologies and methodologies derived from research that spans many local, regional, and state economies with the influence of countless public and private sector bias mixed in, thereby, making successful “state specific” procurement opportunities nearly impossible.

Having local private sector input and collaboration with public sector financing activities is key to maximizing economic “cluster” growth in states that are unique from one another.

Understanding the driving factors that create a market for products and services is essential for the determination of what a good investment looks like; and it is also important for governments seeking to create economic development and an economic base in a region to keep as much capital in the local economy for as long as possible in order to generate economic impact, growth, and development.

Outside of taxation, a dollar spent in the economy will return approximately \$1.30; that \$1.30 reinvested returns \$1.67 and so on and so on and so on. The amount of times a dollar can be circulated in a local economy prior to taxation determines the amount of economic impact and growth that an investment can achieve (which is why the aforementioned cycling of capital that occurs during manufacturing is so vital to an economies success, local or national.

Campbell and Skinner, in their book ‘Adam Smith’ explain this philosophy to discuss why Austrian economists seek to keep taxation low and money circulating in an economy.

*“Perhaps the logic of the process can be best represented by artificially splitting up the activities involved. Suppose at the beginning of the time period in question, that the major capitalist groups possess the total net receipts earned from the sale of products in the previous period, and that the undertakers engaged in agriculture open by*

*transmitting the total rent due to the proprietors of land, for the use of that factor. The income thus provided will enable the proprietors to make the necessary purchases of consumption (and investment) goods in the current period, thus contributing to reduce the stocks of such goods with which the undertakers and merchants began the period. Secondly, assume that the undertakers engaged in both sectors, together with the merchant groups transmit to wage-labor the content of the wages fund, thus providing this socio-economic class with an income which can be used in the current period. Thirdly, the undertakers in agriculture and manufactures make purchases of consumption and investment goods from each other through the medium of retail and wholesale merchants thus generating a series of expenditures linking the two sectors. Finally the process of circulation may be seen to be completed by the purchases made by individual undertakers within their own sectors. Once again these purchases will include consumption and investment goods, thus contributing still further to reduce the stocks of conic modifies which were available for sale when the period under examination began.*

*Given these points, the working of the system can be seen to involve a series of flows whereby income is exchanged for commodities in such a way as to generate a series of withdrawals from the 'circulating' capital of society. As Smith pointed out, the consumption goods thus withdrawn from the existing stock may be entirely used up within the current period, or used to increase the stock 'reserved for immediate consumption' or to replace the more durable goods (e.g. clothes) which had reached the end of their life in the course of the same period. Similarly, the undertakers as a result of their purchases, will add to their stocks of raw materials and/or their fixed capital, or replace the machines which lead finally worn out in the current period. Looked at in this way, the 'circular flow' may be seen to involve a certain level of purchases which takes goods from the market but which is at the same time matched by a continuous process of replacement by virtue of the productive activity which is currently carried on.*

*While this vision of the economic process is important in its own right, Smith also used it to demonstrate the importance of a wide range of economic problems as well as the interconnections which exist between them. The first and most obvious problem in the context of the exchange economy is that of price and its determinants. In handling this problem, Smith assumed the existence of what he called 'ordinary' or 'average' rates of wages, profit, and rent; rates of return which may be said to prevail within any given society or neighborhood during any given time period (such as a year). These rates of return determine the natural or supply price of any commodity, defined by Smith as that amount which is 'neither more nor less than what is sufficient to pay the rent of the land, the wages of the laborer, and the profits of the stock' according to their prevailing and natural rates. By contrast, market price is now defined as that price which may prevail at any given point in time, being regulated by 'the proportion between they quantity which is actually brought to market, and the demand of those who are willing to pay the natural price of the commodity. The two prices are interrelated in that in a competitive situation any divergence between them will cause the rates of return accruing to factors to rise if above or fall below their 'natural' rates, thus generating an inflow or outflow of*

*resources to or from the employment affected with consequent effects on the supply of the commodity. In short the natural price of commodities emerges as the equilibrium or 'central' price,' to which the paces of all commodities are continually gravitating."* (R. H. Campbell, 1985)

### **Jobs and Economic Development/Incentive Projects in the Financial Sector**

So it has been established that the amount of money circulating in a regional economy drives the market price and a product or service will then reach an equilibrium level to where the seller is able to make a profit and the buyer is satisfied with the value of their purchase. As stated before this drives the determination of whether an investment will create a significant return but returns will not rise forever; it is the idea that capital availability is tied directly to market demand which impacts the local economy through dollar circulation to determine value and price.

Without defining and providing for market capital needs, economies go unfulfilled and dollars are less likely to be circulated in an economy; the Austrian belief that this risk should be born solely by the investors and the producers is naïve, to believe in this day and age that new large private businesses would be able to start-up and be able to compete without government capital and incentive programs, is no longer realistic due to world wide competition and foreign government subsidy. The private sector can only be expanded so far without public programs to help new enterprise, without public support, pure capitalism will be lost, and corporatism will choke our nation to death if private enterprise should gain control over the government.

So, the question remains, what does return on investment look like in a scenario where outcomes must be accounted for on both the behalf of the entrepreneur and the state, each of whom has different desires and impacts; and when both must function independently of each other but both must simultaneously help to fulfill the needs of each other?

The entrepreneur seeks the growth of the business, to hire more employees, to increase the bottom line, and to increase his or her personal worth. The state seeks to have an increase in its business tax base, an increase to the capital funds bottom line, and an increase in the number of people with well paying jobs that again increase the personal tax base. So people and jobs are an important factor for both parties and a ROI can then be calculated utilizing both the private and public sectors through this consideration.

On the part of both the state and the private sector it then means creating jobs as efficiently and responsibly as possible. This means considering Human Resources Development as one primary driving factor in new financial sector development; whether it be financial development on the side of public or private program installments.

*"The calculation of the return on investment in HRD begins with the basic model ... where a potentially complicated process can be simplified with sequential steps. The ROI process model provides a systematic approach to ROI calculations. A step-by-step*

*approach keeps the process manageable so that users can tackle one issue at a time. The model also emphasizes that this is a logical, systematic process which flows from one step to another. Applying the model provides consistency from one ROI calculation to another. Each step of the model is briefly described in this chapter.*

#### **PRELIMINARY EVALUATION INFORMATION**

*Several pieces of the evaluation puzzle must be explained when developing the evaluation plan for an ROI calculation. Four specific elements are important to evaluation success and are outlined in the next section.*

##### **Evaluation Purposes**

*Although evaluation is usually undertaken to improve the E IRD process, several distinct purposes can be identified. Evaluation is planned to:*

- determine if a program is accomplishing its objectives,*
- identify the strengths and weaknesses in the HRD process,*
- determine the cost/benefit analysis of an HRD program,*
- assist in marketing HRD programs in the future,*
- determine if the program was appropriate for the target audience, and*
- establish a database, which can assist in making decisions about the programs.*

*Although there are other purposes of evaluation, these are the most important ones. Evaluation purposes should be considered prior to developing the evaluation plan because the purposes will often determine the scope of the evaluation, the types of instruments used, and the type of data collected.*

*For example, when an ROI calculation is planned, one of the purposes would be to compare the cost and benefits of the program. This purpose has implications for the type of data collected (hard data), type of data collection method (performance monitoring), type of analysis (thorough), and the communication medium for results (formal evaluation report). For most programs, multiple evaluation purposes are pursued.” (Jack J. Phillips, 2001)*

It is important to evaluate a potential financial development venture from a human resource perspective, but other factors need to be assessed just the same.

A baseline must be established and then a financial development firm or project must track the impacts that happen after change is made. So ROI from a human resources perspective can be calculated using the established baseline and determine the bottom line of the



organization in regards to increases or decreases as investments are made into the system, keeping a regional perspective in mind all the while.

On a broader scale of the state, we can see the number of people that are being employed and the number that are unemployed as a direct or indirect result of financial development activities. We can also see the level of employment that people are at and the income that they are deriving from that employment. We can set a baseline on a local and regional level and then use that baseline to help determine if an investment into that market (through providing capital to entrepreneurial projects) has an effect on employment numbers, level of employment, and the ability of the employed to provide an ROI to the state in the form of taxes on that new or enhanced wage.

On a micro-economic scale this could be seen very easily in a small rural village if an entrepreneur started a successful business and began hiring their neighbors to fill positions as the business grows due to access to capital. As an example: if the village had 100 employable people and there were 25 employable people who could not find work (25% unemployment is average across rural Alaska) and the entrepreneur opens shop and employs himself, family members, and friends; each person that he hires increases employment 1% in the village.

Alaska and other rural areas in America are full of innovators; it is necessary for survival in harsh and sometimes cruel environments for innovation to flourish, but not if it is forced upon them by those with no regional perspective; this goes for rural areas and misunderstood economies as a whole that have heavy out-of-area influence by third parties.

There are many businesses that can thrive in rural America even with the limiting factors of location and environment. But we have done a poor job of assisting those innovators so that they can become successful, and access to risk capital is perhaps the biggest stumbling block in the way of innovation.

Innovation creates jobs and raises profitability for the private sector while increasing the tax base for government. So the answer to economic development (as opposed to simply economic growth) seems to be heavily reliant on access to capital: whether it is from banks, the government, or the private sector. Therein lies the rub, access to capital funds, whilst properly investing in human capital, and having an understanding of a local environment and the human needs there within.

However, access to capital does not mean the success of a business, in fact with proper training, education, and management before capital expenditure, simply having access to capital, can be detrimental to almost any business. The authors Christensen and Raynor discuss the problems inherent with access to capital for most innovators.

*“Getting funded is an obsession for most innovators with a great idea; as a result, most research about raising capital has focused on how to get it. For corporate entrepreneurs,*

writers often describe the capital budgeting process as a cumbersome bureaucracy and recommend that innovators find a well-placed "champion" in the hierarchy who can work the system of numbers and politics in order to get funding. For start-ups seeking venture capital, much advice is focused on structuring deals that do not give away too much control, while still allowing them to benefit from the networks and acumen that venture capital firms offer.

Although this advice is useful, it skirts an issue that we think is potentially more important: The type of money that corporate executives provide to new-growth businesses and the type of capital that managers of those businesses accept represent fundamental early choices when launching a new-growth business. These are critical fork-in-the-road decisions, because the type and amount of money that managers accept define the investor expectations that they'll have to meet. Those expectations then heavily influence the types of markets and channels that the venture can and cannot target. Because the process of securing funding forces many potentially disruptive ideas to get shaped instead as sustaining innovations that target large and obvious markets, the very process of getting the money to start a venture actually sends many of them on a march toward failure.

We have concluded that the best money during the nascent years of a business is patient for growth but impatient for profit. Our purpose in this chapter is to help corporate executives understand why this type of money tends to facilitate success, and to see how the other category of capital—which is impatient for growth but patient for profit—is likely to condemn innovators to a death march if it is invested at early stages. We also hope this chapter will help those who bankroll new businesses understand the forces that make their money good or bad for nurturing growth.

The most commonly used theories about good and bad money for new-growth ventures have been based on attributes rather than circumstances. Probably the most common attribute-based categorization is venture capital versus corporate capital. Other categories include public versus private capital, and friends and family versus professionally managed money. None of these categorization schemes supports a theory that can reliably predict whose money will best help new ventures to succeed. Sometimes money from each of these categories proves to be a boon, and sometimes it becomes the kiss of death.

We've already demonstrated why the money that funds a newgrowth business needs to be patient for growth. Competing against nonconsumption and moving disruptively up-market are critical elements of a successful new-growth strategy—and yet by definition, these disruptive markets are going to be small for a time. The only way that a venture can instantly become big is for existing users of a high-volume product to be enticed to switch en masse to the new enterprise's product. This is the province of sustaining innovation, and start-ups rarely can win a sustaining-innovation battle. Money should be impatient for growth in later-stage, deliberate-strategy circumstances, after a winning strategy for the new business has emerged.

*Money needs to be impatient for profit to accelerate a disruptive venture's initial emergent strategy process. When new ventures are expected to generate profit relatively quickly, management is forced to test as quickly as possible the assumption that customers will be happy to pay a profitable price for the product—that is, to see if whether real products create enough real value for which customers will pay real money. If a venture's management can keep returning to the corporate treasury to fund continuing losses, managers can postpone this critical test and pursue the wrong strategy for a long time. Expectations of early profit also help a venture's managers to keep fixed costs low. A business model that can make money at low costs per unit is a crucial strategic asset in both new-market and low-end disruptive strategies, because the cost structure determines the type of customers that are and are not attractive. The lower it can start, the greater its upside. And finally, early profitability protects a growth venture from cutbacks when the corporate bottom line turns sour.*

*In the following sections we describe in more detail how good money becomes bad. We recount this process from the point of view of corporate investors, with the hope that this telling of the story will help managers who are seeking funding to know good and bad money when they see it, and to understand the consequences of accepting each type. We hope also that venture capital investors and the entrepreneurs whom they fund will be able to see in these accounts parallel implications for their own operations. Bad money can come from venture and corporate investors—as can good money.*

*Those working to build disruptive growth businesses within established corporations sometimes look longingly at the green grass on the other side of the corporate fence, where innovators who build independent start-ups not only can avoid the encumbrances of corporate bureaucracy but also have the freedom to fund their ideas with venture capital. The belief that venture capitalists can fund start-ups much more effectively than corporate capitalists is so pervasive, in fact, that the venture capital investment arms of many corporations refuse to participate in a deal unless an independent venture capital firm will co-invest.*

*We would argue, however, that the corporate-versus-venture distinction isn't nearly as important as the willingness or inability to be patient for growth. Just like Honda, most successful venture capital firms had precious little capital to invest at the outset. The lack of money conferred on their ventures a superior capability in the emergent strategy process. When venture capitalists become burdened with lots of money, however, many of them seem to behave as corporate capitalists do in stages 3, 4, and 5 of the growth-gap spiral.*

*In the late 1990s venture investors plowed huge sums of capital into very early-stage companies, conferring extraordinary valuations upon them. Why would people with so much experience have done something so foolish as to invest all of that money in companies before they had products and customers? The answer is that they had to make investments of this size. Their small, early-stage investments had been so successful in the past that investors had shoveled massive amounts of capital into their*

*new funds, expecting that they would be able to earn comparable rates of return on much larger amounts of money. The venture firms had not increased their number of partners in proportion to the increase in the assets that they were committed to invest. As a consequence, the partners simply could not be bothered with making little \$2 million to \$5 million early-stage investments of the very sort that had led to their initial success. Their values had changed. They had to demand that the ventures they invested in must become very big, very fast, just like their corporate counterparts.*

*And just like their corporate counterparts, these funds then went through steps 3, 4, and 5 that were described at the beginning of this chapter. These venture funds weren't victims of the bubble—the collapse in valuations that occurred between 2000 and 2002. In many ways they were the cause of it. They had moved up-market into the magnitudes of investment that normally are meted out in later deliberate strategy stages, but the early-stage companies in which they continued to invest were in a circumstance that needed a different type of capital and a different process of strategy. The paucity of early-stage capital that continues to prevent many entrepreneurs with great disruptive growth ideas from getting funding as of the writing of this book is in many ways the result of so many venture capital funds being in their equivalent of step 5 of the death spiral—retrenching and focusing all of their money and attention to fix prior businesses. We often have been asked whether it is a good idea or bad idea for ~ corporations to set up corporate venture capital groups to fund the creation of new growth businesses. We answer that this is the wrong question: They have their categories wrong. Few corporate venture funds have been successful or long-lived; but the reason is not that they are "corporate" or that they are "venture." When these funds fail to foster successful growth businesses, it is most often because they invested in sustaining rather than disruptive innovations or in modular solutions when interdependence was required. And very often, the investments fail because the corporate context from which the capital came was impatient for growth and perversely patient for profitability." (Clayton M. Christensen, 2003)*

Economic diversification, financial sector stimulation, state tax base growth, and private sector revenue are all reliant on that last, crucial, line: *"very often, the investments fail because the corporate context from which the capital came was impatient for growth and perversely patient for profitability"*.

This means that an organization that funds a venture can, and often is, being driven by a strong need for quick growth so that the share price of the stock or general value of a new enterprise could be leveraged and possibly sold and that they did not care if the organization that they funded ever became profitable. This is a reality that is often tied to one of, if not the largest, of America's funding sources when it comes to seed capital for new enterprise, venture capital firms.

Most venture capital organizations require 5X growth in three years and 10X growth in five years, but the average time period that it takes for a start-up organization to reach profitability is 5-7 years.

Venture firms just can't wait that long for the return on their investment to come in the form of earnings on that investment. The stress and strain that this scenario puts on the organization receiving capital is often more than they can bear. This makes the typical "one successful investment out of ten" for the venture firms a generally unacceptable method for economic diversification in any developing state as it provides growth for only a select few and has no vision for the long term growth of a states economic infrastructure, only their own immediate gains; a successful economic development plan must create a win-win-win scenario between public sector tax base growth, private sector economic development, an overall increase in job growth, and business relocation incentives; and a successful economic development plan must also consider unique geographical, sociological, environmental, and economic opportunities and risks with the ability to provide the most appropriate local and, if needed, out-of-state management possible; all of this with the added ability to assess new business opportunities within a state without strong bias or agendas to fulfill other than that of pure economic development.

So the role of government from a combined Keynesian and Austrian (80% Austrian 20% Keynesian) perspective would be that the government create the environment in which innovative businesses can flourish on both a local and international stage and then provide the access to risk capital necessary for entrepreneurs to get started and grow, with responsible and appropriate monitoring to ensure there is no "malpractice"; and then remove themselves from the picture allowing for private sector entrepreneurial prowess to provide strategic and well educated support; upon the transition to private sector control, however, power must be regulated and coordinated with public and private interests in mind and there must be no investment made with the drive being immediate/enormous financial return, only the states long term economic development.

This is how economic "clusters" can be enhanced in America's modern day economy; region specific public/private collaboration for the long term economic diversification of existing and eventually new enterprise.

## **The Economics of Agriculture in the Global Market and the United States**

The economy of the international community is a complex network of different specialists with different livelihoods. In order to understand any particular local economy, international communities and ideas must be considered.

Technology has been a blessing and a curse in the global community. The surge of new technologies in the past few decades has made way for great advancements, but in other ways it has increased the sense of ownership and propriety in today's countries, leading to divisions which threaten our global economic stability and agricultural sustainability.

The system cannot succeed without a reform of ideas and of process. With new technologies must come new philosophies. The world community must interact, trade and share resources, all with the singular goal of better tools, better ideas and better technologies for every community. This communal approach will bring about greater efficiency in business.

## **Why Clusterization of the Agricultural Industry?**

Over the last decade, clusters have attracted substantial attention from policy makers, legislatures, business leaders, academics, economic development practitioners and development agencies. Cluster development strategies have been implemented in many parts of the world. Thirty countries, thirty-two American states and all of the Nordic countries have implemented cluster initiatives to position their economies and local entrepreneurial development to meet the challenges of the ever changing economy. Clusters are present in the economies of developed and developing nations, large and small, urban and rural, and across jurisdictions (e.g., nations, states, metropolitan areas, regions and cities) and can exist to aid almost every industry if collaboration can be aggregated from within regional market sectors.

Governments and private businesses alike with widely differing ideologies and philosophies have instituted cluster promotion policies and programs. In the United States and Canada, liberal and conservative governments have adopted cluster-based strategies. They are being employed in Europe by governments across the spectrum; right to left. In the Asia Pacific region, national and local governments from Australia and Malaysia, to New Zealand and Singapore have adopted cluster strategies.

This makes the cluster model very attractive for a states or regions that are not undergoing new economic development/growth by ensuring multi-industry involvement, government support, and a focus on the needs of micro-economics and import substitution to allow for more money to stay within the state and be invested in new enterprise.

For Alaska's agricultural sector a number of important factors will need to be considered in order for success, including: the availability of venture capital; critical mass; technical infrastructure; presence of higher education and research institutions; entrepreneurial drive; influence of champions; presence of an anchor firm(s); networks; quality of linkages; social capital; government program/grant availability; synergy; and, diversity. An intriguing aspect is

that the factors that distinguish 'over achieving' from 'under achieving' clusters are so-called intangible assets, such as social capital. (Porter, 1998)

### **The Importance of Import Substitution**

Import substitution is a trade and economic policy based on the premise that a country should attempt to reduce its foreign dependency through the local production of agricultural value-added products. This is an important aspect of economic diversification and the enhancement of agricultural “clusters” in Alaska, the U.S., and the micro-economic regions of the world because its main focus is for both public and private sectors to establish and support local entity co-operation and build internal economic strength, as opposed to lending strength to other, out-of-region economic clusters.

Import substitution also increases domestic employment; resilience in the face of a global economic shocks (such as recessions and depressions); less long-distance transportation of goods (and associated fuel consumption, toxic emissions, and food spoilage). It is an idea that is the focal point of proper “clusterization” in an economic climate that does not exhibit strong economic diversification or collaboration between existing industries. Although, as mentioned before, the capital structure of society is never immune to outside market forces, but instead driven by a series of local, regional, state, national, and international market demands; if goods and services are created that a local market does not desire, the investment is completely at risk to penetrate any other market layer and clusterization will fail.

The key to successful creation of sustainable agricultural development stems from the manufacturing of, what will ultimately become, value-added products. Manufacturing combines the effort of many different industries to achieve overall success, thus improving economic cooperation through multiple layers of any economic “cluster”. For example, even a bag of oranges that is properly labeled, approved, marketed, and coded for sale, will inherently have a higher value than the same quantity of oranges by themselves because they are not “market ready” or in anyway ready for distribution.

Manufacturing is such an important aspect of our nation because it has a very multi-business centric effect on local, state, and national levels. There are those who extract agricultural products from the ground, trees, bushes, pastures, fields, and etcetera; those who process the cattle, milk, eggs, barley, berries, fruits, vegetables, and etcetera into “first stage” value added products; those who ship the processed materials; those who create “second stage” or advanced value-added products such as cheese, cereal, multivitamins, extracts, various beverages, and etcetera; those who market and sell those products; and finally those who consume or utilize the final products.

Along this entire cycle of the manufacturing “cluster” activity, monetary exchanges are made, which then, penetrate multiple aspects of human activity and provide for human motivation and sociological as well as economic fulfillment.

This manufacturing “cluster activity is insurmountably difficult in Alaska due to the fact that agricultural activities are not only owned and operated by separate entities with no immediate collaboration but they also focus agricultural efforts on differing crops/livestock in differing locations across the state. Essentially, without a tremendous effort to promote and sustain import substitution Alaska’s agricultural industry will continue to merely subsist economically, sacrificing the very key to the creation of industry “clusters”, a focus on micro-economics, not broad “one size fits all” economic programs.

It should be noted, as well, that import substitution does not mean import elimination: as a state or regional economy industrializes, it begins to import other kinds of goods which become necessary for its industry, such as the produce, meats, and animal byproducts it may lack. The real objective of import substitution is therefore not to eliminate trade, but to leverage instate food products, facilities, land, workforce, government, and private enterprise to create lucrative systems of internal commerce that can spread to national and international markets through the mechanism of selling value-added products originated from the collaboration of resources inside a state or regions micro-economic clusters.

If import substitution strategies are able to help prevent capital from leaving the local economy and provide more dollars that could potentially be spent locally, can Alaskan’s know for sure whether that money actually will be spent locally?

### *Oregon Marketplace*

*In the 1980s, without the communication efficiencies of the internet, Alana Probst of Eugene, OR asked 10 local businesses to list 40 items which they purchased from out of state. Armed with this list of 400 items, she went to local businesses in search of potential bidders. In its first year, Oregon Marketplace (<http://www.oregonmarketplace.com>) generated over 100 new jobs as well as 2.5 million dollars in contracts. One example of its use involved an airline company which used to purchase chicken for its meals from Arkansas despite several growers just outside Eugene. In 1987, once computers were brought into the system, the program was implemented statewide to similar success (<http://www.mtnforum.org/resources/library/kinsm97a.htm>).*

Certainly, programs such as the Oregon Marketplace make it easier for businesses to spend locally, but can Alaskans expect, for example, consumers of the local Alaskan marketplace to use the money they gain from the yearly PFD to be spent on local products? This remains an unanswered question, but it seems reasonable to assume that, as a state, an economy cannot



rely solely on people's good will to purchase locally especially when many locally produced goods are far more expensive than alternatives.

Instead, consumers must both have an understanding of the impacts of their purchases on the local economy and also find real value in the goods that are locally available; and this is why the public and private sector must promote the importance of import substitution to help create better value, better products, and more employment through direct investment into Alaska's many potential agricultural economic "clusters".

## **Current Agricultural Elements of the United States and the World**

### **The Global State of Affairs**

Much can and must be done, by those nations with food surpluses and with dollars to spend, to save the drought-ridden and diseases-ridden nations of the world. Allowing these crippled nations to prosper once again, and eventually to produce their own crops, will deal a significant blow to world hunger and help keep the global economy thriving.

When it comes to agricultural policy in the corporate world, there are a multitude of different operational behaviors with regards to geographic location, food, costs and labor. The solutions that do function to provide food for the masses are becoming more and more dependent on debilitating corporate practices, and everyone is suffering. The economy of the United States, as well as other nations, will continue to bear the costs of these corporate malfeasances until a global agricultural philosophy is adopted.

In order to stave off food inequality and food shortages, the global community must draw and adopt a consensus regarding the manufacturing and transportation of goods from producer to consumer, and the greedy corporate practices of self-serving institutions must not be allowed to continue.

The global consensus must be this: any agricultural policy must be based upon the three basic concepts of economic feasibility, social fairness, and environmental sustainability. For the global economy to benefit, these concepts must be at the forefront of any of all agreements between nations and between communities.

Feasibility must also be an important focus in any agricultural effort, because although social interests may seem the most justifiable means of ensuring a project gets started, that project cannot and will not receive the funding it needs without a demonstration of value. Agricultural projects must show what value is added to a community, and where and how that value is integrated into the current system and how differing levels of an agricultural cluster can take advantage of current operations. In other words, an agricultural project must illustrate the inefficiencies in a community's agricultural value stream and provide time, cost and resource-saving alternatives.

Feasibility is important because it determines a project's potential for success and its positive impacts on a community.

### **Agriculture Centralization and Industry Sustainability**

In so many agricultural communities around the world, natural resources are going to waste; soil is being underutilized, poisoned, or abused to its breaking point; and the effects are almost irreversible. Yet, we live in the country with the lowest point of sale consumer cost for food in the world. We also live in the most centralized zone of corporate food control, with an ever smaller group of local producers and distributors consolidating our nourishment into market shares through the efficiencies of vertical integration. Much of the food that enters this chain of distribution is grown and transported great distances to reach our tables.

This combination of centralization and wide geographical sourcing has focused on driving costs down and profits up, while never looking beyond the ledger sheet toward safety or sustainability. In practical terms, we are living in a time when a single failure in our food production and distribution chains could eliminate a tremendous percentage of our available foods, while driving costs up on the remaining food source options. In this situation our model of cost efficiencies, which have undoubtedly reduced point of sale costs in the short run, would collapse in much the same way that that mortgage funding has since being faced with the realities of issuing unsustainable loans.

Losing our food sources would certainly rival the loss of our homes. How would we approach a solution if there were no local sources from which to draw for our basic nutritional needs? In the case of home loss, there are options for rental of a temporary space, or cohabitation with other family members or friends. In the case of food, we would have to create a local solution to source our foods.

This move to local sourcing would not be quickly accomplished if our local options had in fact been closed down during the agricultural centralization of recent decades. Where would this leave us, living as we do, in the rural portions of Maine? I hesitate to follow this to the destructive conclusion it would engender, but it is high time we had the courage to address food in precisely this manner.

The issues in food safety and security are admittedly complex, starting with the overuse of antibiotics in farmed livestock operations, lack of proper disposal techniques for soaring concentrations of animal waste products that are reaching and polluting our water supplies, and perhaps the greatest danger being presented by the decimation of support for local and family farms in favor of huge agribusiness conglomerations. If we had supported our family farms and local agricultural operations over the past quarter century, we would not be facing the prospect of a centralized industry collapse based entirely on profits being reaped by a very small portion of our corporate sector, and in abeyance of the rights of a vast majority of our population. (Rockefeller, 2008)

In order to help slow the dangers associated with agricultural centralization, research is essential to stopping agricultural project mismanagement. Much research has already been accomplished which shows resource misallocations and misuses, and more must be done in the future. However, it is important to accept the hard truths research has presented, and to reform the way things are done to make our communities sustainable.

The growing demand for food in the 1970s led to an increase in food production. This increase allowed the inflated demand to be quickly satisfied, but the processes involved were harmful to the environment, and they severely damaged much of the world's farmland. The demand has only continued to increase, and will double in the next few decades. What, then, can the world community do to ensure agricultural sustainability?

The CGIAR (Consultative Group on International Agricultural Research) is one organization researching this problem. The CGIAR researches the best ways to manage natural resources and the most efficient ways to harvest and manufacture food products while protecting the Earth's soil. This research will prove vitally important in coming years, as different communities will begin to apply the CGIAR's findings to their agricultural efforts and attempt to make their operations feasible and environmentally sensitive.

It is important to focus on research projects, such as the ones undergone by CGIAR, in order to determine the best ways to create a sustainable, food-rich agricultural economy for all nations of the world.

After all, agriculture is the gateway to economic prosperity because without it our very lives would be dependent of foreign imports. History has demonstrated that a community's economic prosperity hinges upon its ability to achieve agricultural stability. Without the agricultural sustainability a community needs, that community will begin to fail in other areas as well. Food is the most important element of any society's survival, and without sustainability, that survival cannot be ensured.

Unfortunately, all communities are dependent upon their output and their input for sustainability, and communities with larger populations have greater production requirements in order to meet demand. However, in communities where only a fraction of the population contributes to agricultural development, the demand will likely not be satisfied. It is important for every member of a community, whether in an agricultural field or not, to understand their responsibilities and the ways they can contribute.

One of the most important contributions to agricultural sustainability comes in the form of investment. This investment can come from the private sector and from state and local government, and can take many forms; new technologies, human capital, biological capital, performance enhancements for industry, and supportive economic policies are the five main

investment opportunities for agricultural developments. Each community member must assess the ways they can contribute to the community's sustainability efforts.

Unfortunately, on a global scale, creating reforms that will benefit all communities equally is difficult, especially when each country has its own political agenda. It is important to use neutral language and appeal to the general economic principles and environmental principles that all countries can agree on, in order to affect a universal prerogative.

40% of the world's crop and pasture land is already degraded or degrading, and an estimated 20 million hectares of cropland will go completely out of production each year. New technology must be put in place to create responsible agricultural developmental methodologies to secure agricultural profitability.

A "silver bullet" approach cannot work. Many investors have tried to reform a single aspect of the agricultural "cluster system" or value stream, such as transportation or supply, to create sustainable communities. Unfortunately, this approach has not proven effective, as it does not take all economic growth inhibitors into account. All levels of private and public business, from corporations to governments, must participate in agricultural reforms to ensure that the entire agricultural value chain ("from plough to fork") undergoes lasting and sustainable reforms.

Advancing agricultural technological practices within regions inclines others, through the competitive nature of business, to better their own technologies, creating an agricultural process which utilizes the best possible ideas and technologies. However, premature government regulation often stifles the development of these technologies. Certain regulations are necessary to ensure developers create safe, efficient and feasible products for consumers. However, over-regulation burdens the development process and often halts any future progress on a project. Business and government institutions must be aware of the hindrances of over-regulation in the agricultural industry.

### **Farmer Collaboration and Public/Private Sector Involvement**

New advances in biotechnology and science happen every day. With each new day, inventions are being finalized and ideas are being scribed. However, there is a lack of awareness in the public and private sectors. What new technologies exist? How can these technologies be applied in various fields? What new ideas exist to increase efficiency in business and agriculture?

Public debate about new ideas and technologies is integral to sharing these advancements with the world. The scientific community must bring about more public debates to increase awareness and to allow others to build upon their inventions.

World agricultural sustainability cannot be achieved without co-operation, cooperation between not just the policymakers but the thinkers and inventors as well. Ideas should not be kept private, especially when these ideas have the potential to save a starving community or

diversify a nation's food supply. These ideas must be shared in a public setting so that all may benefit.

The issue of sustainability involves input and output from a variety of groups: policymakers, inventors, producers, consumers and communities. Each group must benefit from new developments and policies in order to ensure their success. An important group, and an often-neglected group, is farmers. An agricultural policy, program, or development cannot succeed in the long-term without accounting for farmer's needs.

Public sector involvement benefits farmers, however, public sector support must come not only through incentives, but through rural development policies and bills that support farmers. When farmers are denied funding to expand their operations, oftentimes the community as a whole loses out due to the fact that public entities generally only fund farming activities to a point of bare subsistence. This keeps farmers from completing the many expansions and crop variegations that would have benefited the community. And unfortunately, commercial lending institutions have not stepped in and funded continued growth, therefore leaving local farmers no opportunities for much needed expansion.

Farming needs to be a national endeavor with support programs going beyond helping the individual farmer, and it must also promote farming collaboratively. Legislators and investors should not simply throw money at the problem; untargeted money is generally mismanaged and misspent. Instead, they should fund opportunities by encouraging technological growth in the agricultural sector coupled with agricultural cluster enhancement programs.

There are many downsides to being a farmer today. Many farmers do not have access to capital to invest in their industry, whilst others do not have community support for their efforts, and still others do not adequately market to restaurant chains and other potential buyers. Farmers must receive support from their communities and begin to collaborate in order to market effectively and increase consumer awareness of their products and processes. It is essential to the sustainability of the farming industry.

The collaboration of private and public entities to help manage and fund training/operations for rural farmers to better utilize land resources throughout an entire state or country instead of utilizing very few human resources to provide huge yields and destroy agricultural lands in an unsustainable way is paramount. Much of the legislation that has purported to help farmers has proved successful. This shows the necessity of a state-by-side review and appropriation of funding and collaborative efforts (farmers markets, etc) in order to provide better quality and profit-generating products to all communities.

As it is, marketing on behalf of rural farmers to promote new investments by public or private entities has been almost nonexistent. This is an area of farming that could benefit enormously from an outpouring of investment from both sectors. Farmers require not only investment in their industry but an understanding of their processes and the hardships they face. The farming industry faces constant ridicule due to the current political climate, and many policymakers in

the United States believe the farming should be blamed for rising food prices around the country.

# Farmer's Share of Retail Food Dollar

Did you know that farmers and ranchers receive only 20 cents of every food dollar that consumers spend on food at home and away from home?

According to USDA, off farm costs including marketing, processing, wholesaling, distribution and retailing account for 80 cents of every food dollar spent in the United States.

**Bacon**  
1 Pound



Retail: \$3.29  
Farmer: \$0.37

**Top Sirloin Steak**  
1 Pound



Retail: \$7.99  
Farmer: \$0.88

**Bread**  
1 Pound



Retail: \$2.69  
Farmer: \$0.22

**Fresh Carrots**  
2 Pounds



Retail: \$1.89  
Farmer: \$0.32

**Beer**  
6-Pack Cans



Retail: \$4.06  
Farmer: \$0.11

**Cereal**  
18 Ounce Box



Retail: \$5.05  
Farmer: \$0.16

**Cheddar Cheese**  
1 Pound



Retail: \$5.49  
Farmer: \$1.87

**Eggs**  
1 Dozen



Retail: \$3.49  
Farmer: \$1.31

**Flour**  
5 Pounds



Retail: \$3.49  
Farmer: \$1.08

**Boneless Ham**  
Price per Pound



Retail: \$2.99  
Farmer: \$0.42

**Lettuce**  
1 Head (2 Pounds)



Retail: \$1.49  
Farmer: \$0.39

**Milk**  
1 Gallon, Fat Free



Retail: \$3.99  
Farmer: \$1.54

**Potato Chips**  
Lay's Classic, 13.5 oz.



Retail: \$3.49  
Farmer: \$0.08

**Fresh Potatoes**  
Russet, 10 Pounds



Retail: \$3.29  
Farmer: \$0.71

**Soda**  
Two Liter Bottle



Retail: \$1.49  
Farmer: \$0.07

Farmer's share derived from USDA, NASS "Agricultural Prices," 2007.  
Retail based on Safeway (SE) brand except where noted.



The thinking that corporations and farmers should work individually for their own gain is not only antiquated; it may very well contribute to the breakdown of the entire agricultural sector. However, a community of farmers, business and governments working together, sharing knowledge and resources to profit the community as a whole, will help the world agricultural community become prosperous and profitable, while similarly improving international relations, repairing hectares of damaged cropland and creating a system of long-term, sustainable agricultural growth.

Support for the agricultural sector suffered in recent years from a combination of waning public interest, declining investments, pervasive urban bias, poor performance, and inappropriate and weak institutions. The 1980s and 1990s saw a precipitous decline in funding for this area as donors transferred resources to other sectors and as developing country governments also turned their interests elsewhere. Fortunately, there is a renewed focus on the imperatives of broad-based rural development. It is to be hoped that this is a signal of a trend towards placing agriculture once again in a prominent place on the development agenda of developing countries.

Agricultural development is a crucial step to take in developing sustainable, successful economies around the world. For agricultural development to occur, the entire system of manufacturing, transportation, and sale of product must be identified and reformed collaboratively on a local and national level.

It is not possible for lasting reforms to occur without education and collaboration between producers and consumers in all communities. Education and understanding of the process and its proper management will bring about sustainable development and trade between communities and nations. Due to mismanagement and lack of transportation, education and investment in farming communities, many growers are near bankruptcy, while much of their product spoils or does not reach its intended consumer.

This disastrous economic situation can be stymied, but it requires a renewed surge of investment, technology-sharing and government support. The situation is not untenable; changes can and must be made.

Sustainable agricultural development around the world is certainly a goal that can and must be met, by producers and consumers. Achieving the result of a sustainable world community requires a varied level of contribution by all members of the agricultural community, such as farmers, NGOs, government organizations, and the private sector.

The organization for sustainable Water, Energy, Health, Agriculture and Biodiversity (WEHAB) has defined the contributions that each party must make, which include expanding rural infrastructure, developing new educational methods and technologies, and investing in rural communities. Communities have failed to produce adequate profits when the infrastructure fails as a method to enjoin producer and consumer. Appropriate transportation, storage facilities and markets for sale must exist for an agricultural effort to be economical and

profitable. Infrastructure, in turn, requires a vested interest of financial capital provided by both the private sector and government support.

Lastly, for long-term sustainability and growth, new technologies and methods must be discussed within the community and developed by every means to ensure the greatest efficiency in the marketing, production, sale and transportation of product. Agricultural development requires a system of communication and dialogue between communities so that a consensus may be reached to fulfill the needs of all communities.

Unfortunately, the steps to be taken in pursuit of sustainability have not been historically agreed upon by varying communities. Discussions have oft ended in disagreement and frustration, because the approach that has been taken has focused on a single new technology or idea versus a broader-reaching approach. This stagnation indicates a need for not only new technologies and approaches on a small scale, but a complete renovation of the ways communities envision the end result of sustainable agriculture.

Complete agricultural sustainability is not a single-step process: it requires great investments of time, labor, and financial capital from a variety of sources to develop solutions. However, the simple goals of each member of the world agricultural community are one and the same: to create economically feasible, profitable, and environmentally conscious communities in an integrated, managed system around the globe, creating profits for all members of all communities; this, can be achieved, through clusterization.

Agricultural sustainability is the success every member of the global agricultural community favors, but the approaches to achieving that success have been eclectic and thoroughly challenged by different institutions and groups. The lack of consensus in the community regarding the specific methods for every community to take is a problem. Therefore, the debate must not only focus on specific ideas but on broad-reaching concepts as well. Nearly every agricultural community in the world agrees that there are five basic principles which must be in existence in order to classify an ecosystem as “sustainable”.

Marketing, soil quality, water quality, pest management, and biodiversity are the five inalienable standards for sustainability, and communities may draw upon these simpler ideas in order to develop more specific standards for each community without hindering communities around them or obfuscating the global objective. These elements will allow for sustainability if and only if proper connections can be made to proper utilize the results of the previously mentioned five elements.

In addition to a consensus upon global standards and a vibrant discussion and debate regarding the most economical methods for success, the governments themselves must increase their investment in global agricultural stability. Government support in the financial and political arenas will contribute greatly to the successful cultivation of new technologies and the generation of profits for all communities around the world. In turn, a greater agricultural presence in the world community shown by any nation or government would then become a



source of profit for that government as well. Therefore, the benefits affect not only the community farmers and growers and manufacturers and consumers, but government institutions, whole nations, and the world at large.

Sustainable development is codicillary upon not only a standardized system and community coalition, but the investment and sharing of capital, technology, education and management resources at every level. At the center of all communication and exchange belies an understanding of the best ways and means to benefit all levels of the agricultural community in a positive way.

Therefore, education is an absolute requisite for progress in the agricultural sector to occur. As education upon agricultural principles becomes more and more readily available and marketable, communities have greater opportunities to utilize youthful, informed advisors and laborers in the pursuit of the three basic principles: agricultural sustainability, economic feasibility and social equality.

An educated, open-minded community better facilitates the administration of new ideas and new technologies in pursuit of all agricultural communities living up to the principles and achieving success.

While the current food-processing and manufacturing methods are profitable for some, these methods cause harm to farming communities that cannot support their members, consumers who have no or inadequate access to food, and nations and governments that cannot support their flailing economies.

The individual manufacturing and sale of goods to other individuals is therefore not a viable option for the future, and the enjoinder of individual farmers, farmers markets, consumers, nations, NGOs, the private sector and the global community, is the absolute best and only approach to achieving agricultural sustainability around the world, while at the same time repairing many fractured “state” economies whose resources have been needlessly plundered by greed, mismanagement, and lack of accountability.

Which brings us back to the need of having a clusterized approach in order to bring the global agricultural community together to benefit all communities and economic/sociological conditions there within.

A common and oft-successful element of clusterization in the agricultural sector is the bringing of farmers together with farmers markets, which allows for individual farmers to not only have a single, marketable venue to sell their product, but to tailor the transport, manufacture and sale of their products to fit their specific needs and maximize profit.

As farmers in local communities join together and strengthen their products, ideas and profit margins, so then may communities join with other communities in trade and resource-sharing in order to benefit the state, the nation and eventually the globe.

The fundamental goal of agricultural sustainability in the global economy relies on the contribution of ideas and resources by a conglomeration of private and public entities. The supply of such resources is vitally important to the sustainability of any agricultural development.

Not only must the private sector promote the development of farming coalitions and education about new methodologies and technologies, but so too must the local, state and national governments contribute funds to ensure continued stable growth in the industry.

One method governments may employ to support the agricultural community is investment in food development and dispersal and investment in agricultural ventures such as rural small businesses and farming co-operatives. In previous years, government support has affected a measurable impact upon the success and efficacy of rural operations, and has allowed rural businesses the resources to develop new technologies, expand and diversify product lines and

grow healthier foods in greater quantities.

#### ***The Public Health Impact of the Food Protection Plan***



#### **Food Safety and Sovereignty**

The United States food regulatory system has developed piecemeal over the last century, generating new rules and regulations in response to

emerging food problems. As a result, an organizational structure allocates to various government agencies differing responsibilities for specific food safety concerns. A key to effective regulation within this complex and fragmented system is interagency cooperation and cooperation between these agencies and public and private stakeholders.

In the pursuit of a singular, definitive plan of action to increase profits and develop sustainable agricultural communities around the world, a range of factors must be addressed, from food transportation and spoilage issues to international trade relations and government and corporate food policies.

One of the most critical issues of concern to local and national communities is the safety of its food products, whether they be imported or locally grown. It is vitally important for each agricultural community to develop food standards that keep products safe and healthy for consumers, and for these standards to be strictly and universally upheld by farmers, manufacturers and markets throughout the community.

The recent trend towards the convenience of “fast foods” in many countries has brought about products that are more easily contaminated and more artificially manufactured. These “fast foods” are produced using large amounts of pesticides and unnatural ingredients which the

human body cannot naturally exorcise; this leads to a greater risk of heart disease, obesity and other health problems. A reversion to less “processed”, naturally grown foods could alleviate these health risks substantially.

Therefore, the incorporation of strict, universal standards and protections on all food products, as well as the reduction of chemical and pesticide use in food production, is a key component in creating longer-lasting, tastier, healthier food products for all consumers.

Food must be safe, healthy and readily available for any community to prosper.

Around the world, needless amounts of resources are mismanaged and food products wasted while greater numbers of consumers go without adequate nutrition and/or food variety, in urban and rural areas alike.

This unfortunate situation is worsened by a growing reliance on food convenience, especially in larger cities, which leads to the consumption of mass quantities of unhealthy, chemically-treated products.

*“For the man who is extremely and dangerously hungry, no other interests exist except food; he dreams food, he remembers food, he thinks about food, he emotes only about food. He perceives only food and he wants only food.... For our chronically and extremely hungry man, Utopia can be defined simply as a place where there is plenty of food... But what happens to man’s desires when there is plenty of bread and when his belly is chronically filled? At once, other (and higher) needs emerge, and these, rather than physiological hungers, dominate the organism and when these in turn are satisfied, again new (and still higher) needs emerge and so on.” (Maslow, Motivation and Personality (New York: Harper & Row, 1954), pp. 82-89.*

Food sovereignty is the fundamental right of every community. Growing and farming units benefit from self-reliance, as well as through trade and the exchange of resources with other sovereign communities on the local and national levels. However, food sovereignty is not merely about self-reliance.

For a community to achieve food sovereignty, it must have the capacity and means to adopt policies and laws which tailor specifically to the needs to that community.

The needs of one community often do not equate to those surrounding it. Certainly, the concept of a single organization or nation shaping the policies and guidelines for every local community in the world without customization is in need of some reform.

Giving farmers the ability to reach other markets by having localized programs and branding so that their products are actually recognized and bought based on brand awareness.

Sadly, the concept of complete sovereignty for every nation and producing community is an extreme which will never be an economic reality, in part because the world organizations which dictate policy will never completely resign their authority, and in part because a complete subversion of power to the local level would lead to a lack of cohesion in the system, and glaring inefficiencies in trade and resource exchange.

One of the largest factors of food sovereignty is price fluctuations on food products, especially “staple” products, and high prices can negatively affect the agricultural sector. These “staple” products account for a huge amount of food consumed around the world, but prohibitively high prices due to corporate and government interference (forcing Haiti to cut the tariff on imported rice hugely, for example) have made it so that consumers can’t afford their local products.

Also, since it’s seemingly not profitable for corporations or governments to help impoverished nations get back on their feet, and since trade between nations is so complex and the farmers and working poor tend not to benefit from these trade agreements, surplus foods are destroyed in certain areas, and people are eating dirt to stay alive in others.

Agricultural sustainability is a food equality and survival issue, because it helps impoverished nations feed themselves and thriving nations diversify their goods.

### **Co-Ops and Collaborative Marketing**

Farming co-operatives are superior to independent farming for these reasons: 1. Farmers can collaborate on new ideas and technologies, and therefore glean faster, better methods for harvesting and selling from each other’s experiences. 2. Collaboration means a greater diversity of products can be invented and/or marketed. 3. Instead of a single farmer selling his crop to a limited group of people (a group which may not always need his product), farmers come together to help each other extend their sales to different areas and work together to form a network which brings about awareness in the community of their products.

Co-operatives have come a long way from how they operated in the past, when they existed on a much smaller scale. Profits could not go as high as they can in today’s market. This is due in part to International Co-operatives spanning wide ranges of products and utilizing market strategists to get their products to the widest variety of markets possible.

Building a co-op presents a challenge to farmers, as choosing the right co-op and choosing its location are important decisions, but a co-operative can make farming in many communities more feasible and more profitable.

Cooperatives and farmers markets are generally very receptive to new producers, and will do all that they can to help get a new producer some profit quickly and provide financial security. Also, in a group-based establishment, each member of the group not only works to sustain

himself but works to sustain the group as a whole, and this benefits not only the individual but the entire group.

Co-operatives all over the United States are earning record profits for their members, and more individual farmers are joining farming cooperatives and selling at farmers markets to increase profits and increase public awareness of their products. There are even many different types of cooperatives that a farmer could join, based on that farmer's specific needs, financial capital, and the size and location of his or her operation.

Does collaborative marketing help farming business prosper? Absolutely. Do farmers and small business owners gain access to a variety of new resources, technologies and points-of-sale through collaborative efforts? Absolutely. Collaborative marketing is often so successful that it transforms failing businesses into successful ones in just a few years.

### **Conclusion for Land Based Farming in the United States and the World Marketplace**

Ultimately the sustainability, safety, profitability, and successful marketing of agricultural food products relies on collaboration and focus of micro-economic structures of agriculture and their overall impact on local, then regional, then statewide agricultural cluster development.

With public education, government and private sector investment and incentive programs, the United States and even its rural areas can become a net exporter, providing tremendous revenue opportunity for the nations agricultural community, and incentivizing agricultural growth in all sectors, providing in combination, a substantive economic option and a secure food supply for all Alaskan's far into the future

But with knowledge comes responsibility. To ignore that which you have learned, and allow the nations agriculture to continue down the path of atrophy and attrition that it is currently on, is to willingly and knowingly sign off on the death of agriculture in the United States.

This is an opportunity for America's legislature to make a long lasting difference. By focusing on a long neglected, but essential part of our economy, a much more diverse, nationally and internationally competitive agro-economy can be grown in many fertile geographic opportune places still underutilized or completely absent of any agricultural development; places that will be able to meet the nutritional and food security needs of our nations citizens, and significantly reduces our dependency on foreign food distributors for our own food security.

## Depth

### Why Utilize the Cluster Model in Alaska's Agricultural Industry?

The cluster model will be effective in Alaska agricultural industry for several reasons.

**First, the cluster approach is integrative, bringing coherence to disparate activities and projects.** In contrast, conventional economic development approaches, such as a sector or industry-specific strategy, are often characterized by compartmentalized and isolated activity, activities in which have proven to be ineffective in supporting Alaska's diverse agricultural and pre-agricultural operations. Clusters are defined by interdependencies and are inclusive of other economic development approaches thereby allowing local and out-of-state entities to leverage local man power, technology, resources, and capital (if it is available).

**Second, clusters drive innovation and innovation drives productivity.** "Innovation and the commercialization of new technology take place disproportionately in clusters." (Porter, 1998) The argument follows that to move a concept to a commercialized product, many organizations must co-operate and collaborate. In Alaska there is anything but collaboration in-between agricultural sector entities as they all work on behalf of separate companies, for different minerals, with different operational methodologies, poor private sector relations, and a public sector support structure that does not promote Clusterization and co-operation between sectors.

Clusters provide the critical mass for collaboration to occur by facilitating interaction by participants. Few companies, especially in Alaska's slowly developing economy, have all the necessary skills to develop unique products and services by themselves, therefore clusters, rather than single companies or industries, are the sources for income, jobs, value-added product export growth, and enhanced global market positioning.

**Third, the cluster approach is about inclusion, collaboration and co-operation and there are benefits to all participants.** The cluster approach breaks down organizational, geographic, and agriculture sector specific barriers in favor of promoting social capital and facilitates more a cohesive knowledge base in which for business to operate as it includes past failure and present opportunities understood by people and organizations within a region. All critical ingredients for a creating a virtuous cycle of sustainable economic growth/diversity are included in the race toward critical mass, something in which Alaska's agricultural industry lacks severely; the cluster approach promotes horizontal collaboration and strategic partnerships so that operations within a cluster create a win-win-win scenario between the public sector, the private sector, and end customers. It focuses on strengthening economic foundations such as infrastructure and workforce development. The cluster strategy brings coherence and co-ordination to various programs and funding at various levels of government that usually exist in isolation and lack cumulative impact.

**Fourth, clusters provide direct and indirect benefits to all stakeholders, business, and regions involved to enhance research-to-commercialization timelines.** From a major firm's

perspective, firms in a cluster share hard and soft infrastructure, energy, transportation, R&D, and health and safety standards. It provides them with access to all players, attracting brainpower, expertise and local suppliers. In turn, it makes the industry more innovative to adopt technology, enabling them to develop and export unique products and services.

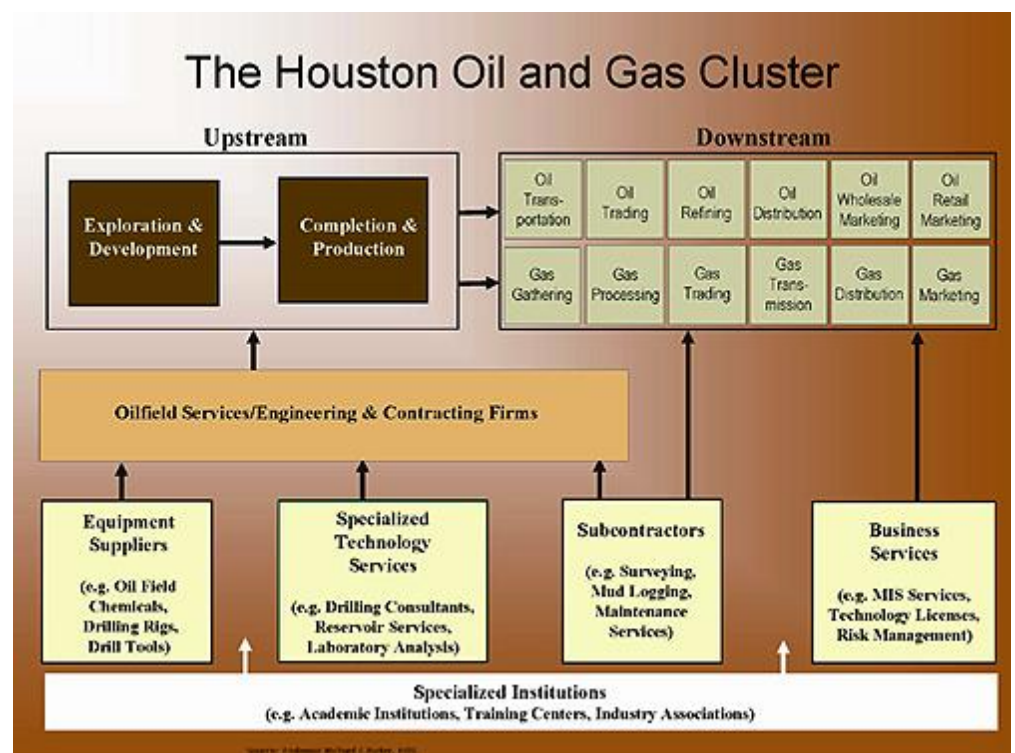
*Major multinational firms can transfer benefits of innovation to their foreign subsidiaries. Working in a cluster brings benefit to firms in terms of their being viewed as good corporate citizens. Businesses in a cluster have a stronger voice compared with individual firms in targeting government funding for R&D, infrastructure, skills development, legislation and so forth.*

*From an educational institutions and research point of view, clusters provide critical mass for brainpower, talent, funding for R&D and access to industry. The Research Triangle Park at the University of Duke, North Carolina State University at Raleigh, University of North Carolina at Chapel Hill and Biotechnology Clusters at University of California at San Diego strengthened research capabilities and promoted entrepreneurship. Being part of a cluster allows universities to translate concepts and ideas into commercialized products. (Cluster, 2010)*

An Example:

*The Houston oil and gas cluster is an excellent example of a cluster that grew out of a natural resource: oil. It provides just one example of how a cluster that began from a comparative advantage-driven approach can evolve to be competitive advantage-driven. The Houston example is provided to show that a natural resource-based cluster can create sustainable growth and provide a positive identity to the region. However, it must be noted that the wealth does not come from the resource itself but from the value-added products and services that develop around it.*

*Today, when one thinks of Houston, skyscrapers more than super tankers come to mind. The discovery of gushers like Spindletop, 70 miles away in Beaumont, Texas, helped to turn Houston into a major source of oil and natural gas destined for many parts of North America*



*and the world. Petroleum drilling and delivery are much less important than the value-added services that continue to develop with Houston as their home base. Exploration and engineering firms, equipment suppliers, financing syndicates, petroleum trading and many other knowledge-based services have successfully converted Houston's understanding of petroleum into a more than sustainable cluster of companies whose salaries average well above Houston's and the national average. This has yielded a much more stable standard of living for the community than was the case in the days when more wages were tied directly to the highly volatile price of oil. Diagram 4 depicts the interrelationship of the Houston Oil and Gas Cluster industries, service sectors and other organizations. (Cluster, 2010)*

### **Agriculture in Alaska**

A disconnect between the manufacturers and their potential markets exists in many communities. For farmers and communities to attain an agricultural system that benefits all participants positively, the pricing structure of all produce must be considerate of regional differentiations in cost and infrastructure. It is also this disunity between producer and consumer which stifles many farmers from setting reasonable prices for their products and creates an unsustainable economic reality in which products are undervalued, farmers can no longer afford to farm and communities do not have sufficient access to fresh and healthy foods made here in Alaska.

Another important issue is that of trade and export. Many communities around the state, due to lack of knowledge, willpower, and resources, do not take advantage of potentially lucrative export markets, even in cases where there are enormous profits to be made. This problem is an economic one, and it can be remedied by stimulating foreign demand for products through the engagement of global markets and proper support and management.

Certain Alaskan communities operate under the assumption that there is little to no export demand for their products. Many communities also lack the knowledge and wherewithal to consume time and manpower campaigning in foreign markets. However, with an organized, communal effort, demand for local products in foreign markets could be actualized. It is first essential to create foreign demand, once there is a significant demand, foreign markets must be targeted proactively and tactfully to offset the initial inflated costs of accessing and supplying to foreign markets with the support of the entire cluster infrastructure available.

Once these steps have been taken, the export possibilities are limitless, and profit margins substantial.

### **Current Infrastructure**

First let it be known that the state of Alaska has vast and varied opportunities for agricultural growth and prosperity. While agricultural products compose so little of the state's earnings currently, Alaska's many unique qualities make it a wellspring for opportunistic, targeted investment.



Alaska's unique economy makes it less susceptible to disease and insect infestation, and is perfectly situated for the development of larger, more nutritious food crops due to the extremes in weather and isolation from other states. Alaska also supports a variety of wild fish and game, which are seasonally marketed and sold by fisherman and hunters all over the state.

Alaska's history has demonstrated the potentially tremendous profits to be accrued in the efficient use of agricultural resources. For instance, greenhouse operations have flourished from efficient production of flowers, vegetables, and other plants that benefit from Alaska's unique growing environment. However Alaska is far from having any organized and sustainable agricultural cluster's anywhere throughout the state. Alaska is dotted with farms and growing operations that typically have a life expectancy of less than 2 years before they are either entirely dismantled or turned into private use for personal sustainment.

For Alaskan agriculture to expand and flourish, Alaska needs a consistent measure of support from the private sector, by way of investments in agricultural expansion programs and support for infrastructure building. Alaska's transportation, production and marketing industries are still vastly underdeveloped; these industries must be supported by local businesses and government in order to enjoin producer and consumer and make the production, transportation, marketing and sale of products cheaper, more expedient and more efficient for communities throughout the state.

Alaskan products have been shown to be larger, healthier, and more desired by consumers than imported products. "Alaskan Grown" products are markedly preferred by Alaskan shoppers, and in many cases, consumers even pay exorbitant premiums to get their hands on Alaskan produce, even when the transportation costs are high. However, the lack of a unified transportation system to get products from Point A to Point B leads to food spoilage and insufficient supply and leaves many potential markets no choice but to accept imported goods.

In past years, road building and expansions have led to substantial growth in the fruit and vegetable industries, both in variety of product and quantities produced and sold. However, the advances in Alaska's road, rail, and water traffic systems are woefully insufficient in making the state agriculturally sustainable. More roads must be built. More rail must be laid. The private sector and local government must invest in more ways for products to reach consumers so that Alaskan products can reach the consumers who greatly desire them.

Another challenge Alaska faces is food storage. Many Alaskan grown products suffer spoilage due to lack of facilities to preserve and house them. A single facility to maintain Alaskan's vegetables and other produce is a necessary part of ensuring those products make it to market.

### *The "Alaskan Brand"*

Alaska's isolation from other agricultural communities does provide certain advantages, in that it protects Alaskan crops from diseases and infestation and leads to the growth of larger, longer-lasting food products. However, Alaska's isolation also provides unique challenges to its agricultural sustainability. Many of the larger industries throughout the state have their own methods for conducting their business, and unfortunately these methods do little to make

Alaska more sustainable and food-independent as a state; they serve mostly to profit small, private operations.

Alaska requires a single, unifying vision for its agricultural future, which profits all industries within an agricultural cluster and eliminates the state's reliance on foreign imports by supporting import substitution methods.

There have been success stories. In the marketing sector, an overwhelming number of Alaskan consumers have indicated their preferences for "Alaskan Grown", or Alaskan-produced products, so much so that most consumers would pay a premium for such goods (See Seeds of Change Demand Study, Attachment 1). Why, then, are there are not more "Alaskan Grown" food items available for sale? Because the lack of a single, cohesive agricultural cluster in the state has led to the inability of farmers and vendors to harvest, manufacture, transport their products, and set reasonable prices. Because of this price inequality, cheaper, substandard products from Seattle and the Pacific Northwest stream into the state, and account for a vast majority of store product.

This economic situation is not untenable. Private sector investment in the agricultural community, as well as a unified vision for expanding infrastructure and marketing in-state products, is essential to Alaska's independence as a food producer. Yet currently, agriculture does not bear notable profits for Alaska. The industry accounts for a very insignificant portion of state earnings, as state technology and resources continue to be invested in the oil and gas industry. However, Alaskan farmers produce some of the richest, most bountiful produce in the United States. Why, then, are Alaskan consumers not able to purchase Alaskan-grown products, and Alaskan farmers unable to turn a profit?

The simple answer is lack of investment. An investment of financial capital and an investment of educational resources, technologies and manpower; these things must exist to make Alaska's agricultural economy sustainable.

Many untapped markets have been uncovered. The APPDC has indicated potential markets throughout Alaska, including schools, prisons and local stores. A show of support from the community, through investment in government and local agri-expansion programs, could bring Alaskan products to these underutilized markets and stimulate Alaska's economy to push for agricultural expansion into the consumer market until clusters throughout the state finally reach critical mass.

### *Potential Sustainability of Agriculture in Alaska*

Alaska shows enormous potential as an agricultural producer, but the state also suffers from debilitating corporate monopolies which threaten to devastate its food production. For example, McKinley Meats & Sausage, a single company, retains universal control over Alaska's cattle stock and Alaskan cattle ranchers. If McKinley Meats & Sausage were to go under, pork producers and cattle ranchers throughout the state would have no alternative production and

storage sites for their products and many would be forced to shut down their operations; or like has been done in the past, start independent fledgling operations that would, most likely collapse or revert to a state of individual subsistence. This would result in an immediate and devastating loss of Alaskan agricultural products.

It is vitally important to Alaska's agricultural future that investments are made by the private sector and by government entities to secure viable means of storage and production for Alaska's staple industries, thereby ensuring Alaska's food security. The success of an entire industry must not be left in the hands of a single entity; the state of Alaska, therefore, requires alternatives to ensure its economic security and development through a more sustainable system.

#### METHODS AND APPROACHES FOR SUSTAINABLE DEVELOPMENT IN ALASKA

PREPARED FOR Alaska Conservation Alliance; PREPARED BY, Eric Larson, Institute of Social and Economic Research, University of Alaska Anchorage, December, 1998  
[www.iser.uaa.alaska.edu/projects/SustainableDevelopment/index.htm](http://www.iser.uaa.alaska.edu/projects/SustainableDevelopment/index.htm)

##### ***"D. Integrate Economy and the Environment***

*Some sustainable development programs have adapted approaches that move beyond traditional economic analyses that treat the economy and environment as separate and distinct entities. They have found approaches that incorporate views of the economy and ecology simultaneously are more accurate, constructive, and useful when developing sustainable development policies.*

*One alternative approach, called "Ecological Economics," attempts to integrate the disciplines of economics and ecology. This approach tries to look at the economy as an integrated part of the environment instead of a separate entity. It analyzes the full ecological impacts of economic development – accounting for the effects of economic growth on extracted resources as well as the degradation of the environment due pollution and waste disposal. Instead of looking only at small marginal changes, it attempts to measure the full reliance of the economy and people on the services provided by the environment.*

*Ecological economics attempts to measure the "ecological footprint" of an economy by measuring the total amount of land, resources, and environmental services needed to sustain an existing economy over time. This reliance includes the need for resources, food, waste disposal, clean air, and other life support services. This approach provides a broader context that places an economy within -- and dependent upon -- an ecosystem.*

*Ecological economics also analyzes whether the "ecological footprint" of an economy exceeds the carrying capacity of an ecosystem. The carrying capacity is a measure of how many people and how much development a given ecological region can sustain without impairing its ability to regenerate. When the carrying capacity is exceeded, the ecosystem is not able to regenerate and the amount or quality of the natural capital*

*begins to decline over time. By looking at the ecological footprint of an economy and the carrying capacity of an ecosystem, Ecological Economics attempts to integrate economic and ecological approaches together instead of viewing them as separate.*

#### **E. Broad Public and Business Support**

*Most sustainable development programs have found it imperative to involve a broad range of interest groups and encourage grass-roots public involvement. Sustainable development programs are rarely implemented by a single-issue interest group that tries to persuade others of the efficacy of their vision for development.*

*Most successful sustainable development programs we reviewed began at the local community level. At the local level, individuals are more likely to become involved with discussing and planning what sort of development they want because the issues are more immediate and personal. In a smaller community where people know each other and it is also easier to find consensus about what they mean by “well-being” and “sustainable” than in a broader region, state, or country.*

*Many programs have also found it necessary to include those who are most involved in economic change. To this end, many programs include the Chamber of Commerce, business organizations, and industry trade groups. Business groups contribute their expertise, offer guidance on how to achieve specific development goals, develop initiatives for businesses to monitor their effects on natural, social, and human capital, and develop strategies for enhancing the quality of the community and environment in order to enhance their businesses.*

#### **IV. Conclusions**

*Sustainable development proposes that each generation have the same opportunity to meet its needs. We can do this by ensuring that each generation has access to the same capital and assets as our generation. We need to provide them with natural capital, human capital, and manufactured capital so that they can provide for all types of wellbeing – including economic, environmental, and community health.*

*The many sustainable development programs started over the past ten years provide numerous examples that Alaska can draw upon. We can initiate indicator programs at the community level to measure all aspects of well-being in our communities – including economic, social, and environmental health. We can measure the sustainable output of our economy in order to keep track of how we are depleting our non-renewable resources. We can assess the full costs of development projects to ensure that the social and environmental costs are consistent with our development goals. A sustainability program will be most successful if it begins at the community level and involves the people and interest groups most interested in the progress of their communities. Successful programs are able to move beyond adversarial and confrontational relationships that have pitted the economy and environment against each other.*

*Communities that are able to respectfully discuss all types of capital assets and include a wide range of participants are the most successful at implementing sustainable development programs. (Larson, 1998)*

Different communities have different needs. The precepts one community deems necessary for success may not align with the necessities of others. This “variegated need” principle also applies to agricultural sustainability. An integrated approach to sustainability must be defined, one that is sensitive to the needs of all communities.

The basic principles of sustainability are well-defined: to achieve sustainability, an agri-project must

- A. Involve community interaction from the local to the federal level;
- B. include investment and support from the private sector;
- C. positively impact all appropriate industries;
- D. and behave in a manner that is environmentally conscious and economically feasible.

These basic principles serve as a foundation for Alaskan communities to adopt sustainable cluster programs to grow their economies, and to serve the interests of all Alaskans.

Alaska’s sustainability effort has been ongoing for decades. Small businesses, farmers, and greenhouse operators have taken steps to make their business more sustainable by making them more efficient and environmentally safe. Many of these operations have resulted in lower long-term costs for these businesses and a greater quantity and variety of products. In Fairbanks, Cyndie Warbelow-Tack, a greenhouse operator, experiments with a variety of methods to make her greenhouse more environmentally friendly.

She uses varieties of unique pest controls, bacteria, and even solar panels to raise the healthiest variety of plant life while conserving energy. Cyndie’s solar panels are a hefty investment at the outset, but she believes that this energy conservation technique will actually save her money in the long-term. Cyndie’s greenhouse operation is but one example of the many creative ways an individual can conserve resources to build a sustainable environment (See Below). Her philosophies can easily be applied to community sustainability efforts around Alaska.



(continued from page 1)



are most efficient at low temperatures. In the Interior of Alaska, March and October are best for generating power. Cyndie took me to see the electric meters, an upper one for energy being used and a lower one for energy generated by the panels. We then went into the storage building to read the LCD control panels. As of January 2008, 582 pounds of COS have been saved and 331,000 watts of electricity generated.

Cyndie is also taking on other environmental practices. One of her goals for 2008 is to move the business toward being more earth friendly, which equates with using less plastic, more organic culture methods and always keeping an eye on the concept of sustainability. If this philosophy costs more dollar-wise, Cyndie feels it is probably still worth pursuing. She believes that being *more sustainable* can actually mean being *more economical* over the long run.

The business has, for the past five or six years, continued using biological pest control in the form of lady bugs, parasitic and predatory wasps, and other beneficial organisms instead of pesticides. From Cyndie's perspective, this has not only been a safer, more pleasant and more effective way to grow their plants pest free, but also it allows the business to produce plants that perform well when they leave the greenhouses and go out into the "real world."

The Plant Kingdom will again brew and sell compost tea starting about June 1 this year. The compost source is humus from the Anchorage area. The fungi and bacteria it provides are ones that occur naturally in our native soils. The compost tea is analyzed at an Oregon laboratory each spring and that information is posted next to the compost tea dispenser so that gardeners may know the active components of the tea.

This season some of the plants at The Plant Kingdom will be grown in Ellepots, a growing system developed in Denmark and used to date in this country primarily for wholesale growing. However, in Canada and the United States, there is an increasing number of retail growers who are incorporating Ellepots into their programs. Cyndie had the opportunity



to meet with one of these growers in Edmonton, Alberta, this past fall, and has had phone conversations with others involved in these efforts. The end result is The Plant Kingdom will grow some herbs, some vegetables and perhaps some flowers in Ellepots.

The Ellepots come pre-filled with the growing mix of choice, and the covering or "container" is a paper product that biodegrades. Root growth and general plant vigor is rated very high for plants grown in Ellepots. Like a number of other retail greenhouses scattered around the country, this will be a "test-the-waters" project this spring and Cyndie will be very interested in her customers' evaluations of this growing method. She also plans to grow some plants in Biopots, which are pots made from rice hulls. These, too, are biodegradable, but they maintain their structural integrity for a season or more.

Another new direction for The Plant Kingdom this spring will be the use of Daniels Plant Food as part of the fertilizer program. Daniels technology involves a patented process whereby the natural nutrients from seeds are extracted and incorporated into an all-purpose liquid fertilizer. The success of this fertilizer comes in part from the fact that seeds contain organic and mineral substances that are not found elsewhere.

Daniels Plant Food, with a nutrient analysis of 10-4-3, is already being used in a number of commercial greenhouses, especially those trying to institute a more sustainable growing program. The Plant Kingdom plans to rotate Daniels within its traditional fertilizer rotation, with the goal of eventually switching to it entirely. Daniels Plant Food is available in various retail packs and will be

for sale as a fertilizer option so customers have access to this seed extract-based nutrient.

I hope this glimpse at sustainable practices will encourage others to share what they are doing. Please let me what you are doing by e-mailing me at [ffmah@uaf.edu](mailto:ffmah@uaf.edu).

Cyndie's closing comment was, "Other alternative energy sources are definitely constantly under consideration." ☺



Fairbanks is not the only community benefiting from greenhouse operations today. Communities all over Alaska are experimenting with new ways to harvest and market their crops, and new education methods and technologies are helping communities thrive. Communities have been able to utilize their newly successful greenhouses and gardening operations to grow their economies. These greenhouse success stories indicate a need to integrate programs such as these into the statewide sustainability effort.

### *Programs*

The diversity of successful conservation efforts and sustainable community greenhouses demonstrates Alaska's potential. However, in order to mirror the successes of local efforts at a statewide level, serious economic issues must first be addressed. For Alaska, food security and food travel are particularly relevant concerns.

First off, there is the issue of food security. Alaska's current food storage levels are disastrously low. In most communities, there is a two or three-day supply of food at most; in the event of an emergency, villages and towns throughout the state stand to face malnourishment and starvation. Also, due to Alaska's dependence on out-of-state imports, the infrastructure does not yet exist to provide Alaskan products as an alternative; communities must rely on food from the "Lower 48." This issue requires immediate discussion and action to secure Alaska's economic future.

Food travel is also a concern, because it relates directly to the health and well-being of Alaskans. Due to the great distance food must travel and the growing reliance on faster, cheaper food products, food in Alaska is becoming less nutritious and more expensive. Also, Alaskans cannot simply purchase healthier, Alaskan-grown alternatives, because the infrastructure has not been put into place to transport, store and market these products efficiently. Therefore, consumers are left with no choice but to rely on substandard, overpriced produce which only serves the interests of other states, while doing nothing to support Alaska's producers or consumers.

In conclusion, Alaska is not prepared to weather a sudden loss of food supply. The state requires infrastructure and food storage, investment capital and a statewide food policy, under the consultancy of Alaskan farmers and producers, in order to protect its food supply and achieve agricultural sustainability.

The state of Alaska has an opportunity to support its local industries and protect its producers by developing a statewide food policy. The collaboration between communities with variegated needs and the input by policymakers from every Alaskan industry can aid in the development of this all-encompassing policy.

A statewide food policy will benefit Alaskans in numerous ways. It will encourage more Alaskans to grow their own products and educate them on methods for doing so. It will determine feasible locations for expansion projects that benefit whole communities, and determine feasible sites for recycling and other waste reduction efforts. Most importantly, it

will determine funding sources for each and every agricultural project around the state, and determine methods of attaining this funding and utilizing it efficiently.

### *Education is Not Enough*

The Talloires Declaration marks an historic event in Alaska's history: it is the first significant push by universities to encourage commitment to environmental sustainability in all facets of higher education. Hundreds of universities around the globe have signed on to the Talloires Declaration, seeking to reduce wasteful practices and enlighten current and future business-owners about the benefits of sustainable practices.

Universities are taking laudable steps to ensure Alaska's future through responsible, conservative business policies. However, Alaska cannot be made sustainable through education alone. Alaska's agricultural lifeblood, its farmers and growers, are declaring bankruptcy all over the state.

Alaska's agriculture stability cannot possibly be attained without its producers, and many of its producers are being forced out of business due to lack of demand for products, insufficient government support, and a lack of infrastructure to transport their products to market.

Farming in Alaska remains a constant struggle. Extremes in weather make the cultivation of certain products very limited, and others impossible. Also, because of the lack of dairy farms, prices for Alaskan milk are so high that it is cheaper to go with imported product from Seattle; this imported product severely hinders Alaskan dairy farming.

There are many unique obstacles the Alaskan farmer must contest to survive, and achieving sustainability is all but impossible.

In order for Alaska to achieve agricultural independence as a producer, the state must support its farmers and the entities that support them; Alaska must support agricultural clusterization.

### *Summary*

The state of Alaska needs infrastructure first, before other developments can be made. New infrastructure will drastically reduce costs in all aspects of agricultural production.

There are far too few roads connecting the various production sites, especially in rural areas. Railways in Alaska are insufficient, and only connect a few major hubs, and as such are underutilized by producers. Loading and unloading facilities can be built to allow for cheaper transportation of certain goods, further reducing costs. Other alternatives may be considered in the pursuit of cost-conservation, such as the utilization of natural gas instead of fossil fuels.

Production infrastructure is a necessity, especially in markets already flooded with retail supermarkets. These supermarkets stifle any ability for small producers to make a profit, as they are forced to market themselves individually, and most producers are working with limited



resources. Production infrastructure would allow Alaskan producers to compete with retail giants like Wal-Mart, and bolster Alaska's agricultural community.

Infrastructure is the first step on the road to sustainability, and the private sector and the state must act quickly to protect Alaska's interests and secure its independence.

Alaska's interests are in no way served by dependence on imported product. The agricultural community of Seattle, from where most of Alaska's products originate, continues to levy considerable taxes upon all its products, and their products are substandard and occasionally carry diseases. However, Alaska is not yet prepared to refuse substandard or overpriced product, because there is little, if any, competition from in-state producers.

"Food miles" may not necessarily be as singularly significant to high prices as some might claim. Many factors contribute to higher prices, such as a lack of infrastructure, retail monopolies and greater consumer demands for "convenience" products.

However, the issue of "food miles" affects different communities in different ways. Alaska may well be more greatly affected than other states by the issue of food travel. Alaska's isolation from the contiguous United States and its lack of supply market diversity have brought about unique challenges. The issues of food travel and the root causes of higher prices are especially important to Alaskans, because our agricultural economy is in a state of crisis.

Some communities do not require agricultural self-sufficiency. In communities with multiple avenues of supply and multiple markets for demand, it is not necessarily feasible or even practical to focus on local supply for local demand. However, the state of Alaska is, again, in a state of economic crisis, and therefore we must begin to develop community projects and food policies in order to ensure Alaska's economic growth and stability.

In Alaska's fragile economic state, not only food travel but any issue poses a threat to economic stability. Therefore, inclusive solutions must be developed to address Alaskan problems.

There is no question that the food travel, as well as its origins and markets, all affect a product's price in stores. However, in many communities, a product's journey to market is not as impactful as its production. This issue is an environmental one and an economic one, as it seeks to address global health and energy efficiency.

Again, infrastructure is a key element to Alaska's independence as a food producer.

First, Alaska requires a commodity food warehouse. The USDA designates commodity food warehouses as a central location for the shipping and storage of food products in times of emergency. However, Alaska does not have a commodity food warehouse, so food must come from Seattle. In the event of a food crisis, Alaskans must rely on Seattle for aid, and if the supply lines are cut off, there will be no food left! A commodity food warehouse for Alaska is essential to ensure Alaskans are protected in an emergency.

Second, a terminal market must be designated. Alaska currently relies on a Seattle-based terminal market to determine the prices the USDA will pay for food products. Due to the added costs of purchasing and shipping food from Seattle to Alaskan ports, processors have little incentive to bid on Alaskan product. The designation of an Alaskan terminal market would revitalize Alaska's agricultural markets completely, because it would make Alaskan prices competitive and therefore create demand all over the state.

A commodity food warehouse and a terminal market are both essential steps to Alaska's freedom: freedom to choose Alaskan products, and freedom from the monopolistic practices of import markets.

Third, co-ops must be supported. Farmers in Alaska are declaring bankruptcy at an alarmingly high rate. Farmers cannot afford to compete with imported products packed onto the shelves of retail giants like Wal-Mart and Safeway, and they cannot afford to make their operations more efficient because they cannot invest in their own success.

Farmers in Alaska cannot afford to continue to operate on their own; they must have an organization to help them out in the lean times and to provide resources, ideas, technologies and reinvestment opportunities, so that they can make their farming operations feasible and profitable.

The formation of a farming co-operative in the state is essential to the survival of the Alaskan farmer. A farming co-operative will allow farmers to share ideas, market collaboratively, create standard points of sale for a particular product or product type, and allow farmers to invest their earnings and/or value into the co-op fund, generating greater eventual profits for the fund and for the farmer.

A farming co-operative (such as a New Generation co-op) will help sustain Alaska's few remaining farmers, but what of the agritourism industry? Can this industry's success generate significant earnings for the state of Alaska?

The answer is: absolutely.

Fourth, Alaska needs to support its agritourism industry. Agritourism has begun to expand in so many venues throughout Alaska. Alaska is already marketed as an agriculturally-rich, diverse and beautiful environment by the tourism industry, and this image attracts greater and greater numbers of tourists each year.

Alaska's tourism industry is already significant to the state's earnings, but agritourism has much potential to bring greater profit.

The local agritourism efforts around the state have shown that agritourism is marketable and profitable within the state. All the industry requires is a modicum of state funding and private

sector investment and help expand the agritourism industry into a major profit center for Alaska.

The expansion of agritourism is a vital element of Alaska's agricultural success. Another important element is food quality. Alaskan-grown foods are the freshest, the least contaminated, and the highest quality produce any Alaskan consumer would desire. By contrast, imported Seattle-based foods are more often diseased, substandard, and significantly more chemically contaminated.

Moving Alaskans away from imported foods and focusing Alaska's grocers upon an in-state supply is beneficial not only to Alaska's economy, but to the health and well-being of its consumers.

The lack of infrastructure in Alaska continues to drive prices upward and producers out of business. The tyrannical practices of the Seattle markets on which Alaska relies will only worsen with time. What can be done about this crisis?

The APPDC is an organization working to solve the agricultural problems and get Alaskan products to Alaskan consumers. The APPDC has fully outlined the specific problems Alaskan producers face, and also a few steps to solving them.

However, the APPDC requires investment to make their vision for Alaska a reality. The state has the resources and the power to make the APPDC a successful entity, which will, in turn, strengthen Alaska's agricultural independence.

Also, Alaska needs to invest directly in its local producers and growers. Local farmers cannot compete with retail superstores choking out demand, huge taxes on products and impossible standards set by insurance agencies. Therefore, producers are forced to market and sell on their own, which is often only feasible in the summertime, and in many cases cripples a producer's ability to make a profit. Direct investments in Alaska's local producers could allow them the resources to sell higher volumes and market their products more efficiently.

In conclusion, Alaska's food independence is not only a safety issue, but an economic one. Alaska must become independent; there is no alternative. And with investment in infrastructure building and a show of support from the state and from private business, agriculture in Alaska could be feasible, competitive and sever to supply strategic micro-economic statewide clusterization of the agricultural industry.

## Application

### Securing Alaska's Agricultural Sustainability, Promoting an Economical Viable Production Environment, and Assuring Food Security: An Alaska Specific Solution

#### Introduction

In the two previous segments, we explored the ramifications of mismanagement and singular mindset to agricultural economies worldwide, and we discovered how the agricultural problems and innovations around the world are reflected in Alaska. This segment will delve much deeper into Alaska's own agricultural problems, and into exactly how they can be resolved by focused application of solutions and technologies from around the world to help form micro-economic clusters throughout the state.

In order to achieve clusterization of agriculture in Alaska we must support activities that assess:

1. Agricultural development and marketing;
2. Board of Agriculture & Conservation;
3. Plant Materials Center(s);
4. Agricultural Revolving Loan Funds;
5. Sustainable agricultural resources and services;
6. Outreach, education, and recruiting;
7. Planning;
8. Research ;
9. Energy;
10. and Infrastructure.

A good example of applicable similarity is Finland. Finland sits at Latitude 64 North, Approximately the same as Fairbanks Alaska. To travel through their agricultural history is to travel along a rough road. Not long ago, Finland's agricultural community was in shambles. They were in a difficult environment, relatively isolated from the primary European markets, and the agricultural community had been largely ignored, and was on its last leg.

Today, Finland proudly hosts one of Europe's top agricultural economies and exports products around the world. Finland's government paid attention. They saw the problem, realized the long term consequences, and made a proactive decision to invest in their agricultural community and agricultural clusters.

Alaska can learn from Finland and other nations from extreme latitudes around the world that have gone through similar transformation. But it takes an awakening; a conscious effort to realize that oil and gas are not the end all be all for Alaska, and that oil and gas is a finite resource, with pricing that is at the mercy of those who do not always have our best interest in mind. It takes a comprehensive long term view of Alaska's economy, the needs of its people, and the value of having world class, independent food production capabilities; of being a net

exporter of agricultural products, while simultaneously seeing significant increases in our import substitution abilities.

Alaskans have much to be proud of; our “Alaska brand” is coveted around the world. It takes but a small leap in logic to realize how valuable our agricultural products are, and what can happen to the “Alaska brand” if our state can properly collaborate some effort into growing and nurturing this tremendous asset.

### Summary of Problem

Once, long ago, agricultural endeavors throughout many communities in Alaska were sufficient to serve the populations they contained. The population was very small, and most everyone had their own horticultural or agricultural endeavors, sized and designed to fulfill the bulk of the needs of their family and small community. Tastes were much simpler, and wild resources such as moose, salmon, and caribou, were more readily accessible to help supplement nutritional needs. Less was known about processed foods’ effects on health, so staples such as beans, flour, sugar, bacon, and salt, were abundant, cheap to import, and sufficient for many.

Then Alaska grew up. After WWII, the military established a major stronghold in Alaska, resulting in the 1950’s and 1960’s providing Alaska’s two greatest decades of population growth increases with percentiles in the high 70’s. This was followed by the oil boom of the 1970’s, which brought another significant increase in our population, this time, accompanied by and an influx of new tastes for that which did not grow in Alaska, and their accompanying increases in market demands. Decade average growth continued in the 30 percentile range throughout the 1980’s and 1990’s, and then slowed to the teen percentiles throughout the first decade of this new century, leaving Alaska with a population today that continues to outstrip our agricultural, infrastructure and production abilities

Alaska’s agricultural endeavors meanwhile, were largely ignored and increasingly stressed during these growth periods. This was because the driving forces behind these two large population spurts, the military and oil companies, were accustomed to importing their own products and supplies as needed rather than buying local, and most of Alaska’s people and governmental entities where focused was on serving these lucrative industries and reaping the economic rewards, thus plunging Alaska into the Neo-Colonial economic structure it exhibits today. Little thought was given to the Alaskan farmer; money was abundant, and importing goods was the norm.

Consequently today, Alaska’s agricultural industry is under extreme stress, and in fact, in danger of complete collapse. A combination of product volume and variety demand, that far exceeds Alaska’s under developed agricultural community’s ability to meet, and the cost of agricultural production in Alaska significantly exceeding the cost of both production and shipping products from large, corporate driven, lower 48 farms, are at the center of our current dilemma. Our underfed and malnourished agricultural industry has in some areas, atrophied from lack of use, while in other areas, strained to the point of breaking.

Further “de-incentive” comes from Alaska’s unique seasonal conditions and climate which allow for very few crop productions year-round. Alaska’s cold, dark winters and often un-arable soil

allow for only seasonal farming output, and the state's summer growing season is, depending on crop choice, only three or four months long. This leaves farmers unable to generate product and profit to fill the other six or seven months? It is virtually impossible for local producers to generate enough revenue to satisfy their debts to the state, pay their service providers and lease their land and equipment through the year to the next summer season.

Although Alaskans are willing to pay more for Alaskan grown products, and Asia has shown an interest in Alaska branded products, our dysfunctional marketing and transportation systems have yet to find a way to engage the wholesale markets in Alaska, or the commodity markets elsewhere, leaving producers little option other than very limited direct marketing in a largely un-orchestrated manner.

Similarly, Alaska's agricultural transportation and processing infrastructure is minimal at best. Most producers are left to their own devices for importing the commodities needed for production, and for transporting their products to market, and no consistent and centralized destination. This lack of market and transportation coordination results in a high spoilage rate, significant waste, and underfunded farmers.

One solution would be to have value-added processing that can take the produce that cannot be rapidly sold in its whole form, and processes it into forms and combinations that are more durable, more marketable, and better packaged for shipping and storage. Unfortunately very few value-added processing entities exist in Alaska, thereby eliminating the ability to reach clusterization of the agricultural industry. Those that do exist are focused on trying to fulfill demand in the Alaskan market, and are missing significant branding opportunity outside of Alaska, again, leaving major holes in the Alaskan agricultural market potential and consequent incentive to produce.

Ironically, while many of Alaska's agricultural products are languishing and spoiling for lack of market, many of Alaska's potential agricultural markets are not being utilized by local producers. Historically, in other states public and private school systems, hospitals and eateries have generated enormous revenues buying up locally-grown product, and which are grossly underserved here, forcing these institutions to settle for substandard, Washington and California based goods

Meanwhile, Alaska's largest dairy sector in South Central Alaska, was just recently pulled back from the brink of total annihilation. A combination of poorly thought-out government mandates on dairy farm startups, access to only one creamery, and pricing so cheap in Washington and California, that that creamery preferred to use their milk product rather than Alaskan grown, caused a cascade effect that impacted Alaska's dairy farmers to the point where the majority of them could not be self sustained and had to leave the state.

Each time a dairy farmer left the state, there was a ripple effect felt throughout the entire agricultural community. Grain producers, hay producers, machinery distributors, and others farmers of all types all felt the impact of yet another failed farm, through the natural price fluctuations that come with consequent fluctuations in supply and demand.

Thankfully, when the only creamery in the area finally closed, a handful of farmers, who had been struggling for several years under deficit pricing, got together and opened a new creamery, adopted new operating and marketing strategies, and pulled Alaska's dairy industry back from the brink. But that industry has a long way to go yet before it can be considered healthy, and until then, is in constant danger of potential disaster pushing it once again over the edge.

Meanwhile, Alaska's real value, diversity, has been grossly overlooked, and has received no unified or orchestrated support, growth, or cultivation efforts. Alaska is blessed with some very unique products such as shellfish with reputations for size, purity, and taste that exceeds anything found elsewhere in the world, wild plants that have evolved exceptional nutritional profiles as a coping mechanism for the extreme environments in which they grow, and could readily feed a increasing global demand for healthy all natural solutions for nutraceutical and pharmaceutical industries.

Again, lack of cohesive and comprehensive marketing, transportation, community and government support, have left Alaska's agricultural community in a poor state of health, the Alaskan population underserved, and the Alaskan brand underutilized. Both the banking industry and the insurance industry, tools that are available to Lower 48 farmers, are non responsive to farmers' needs, and government loan agencies have failed to modify their terms to meet the unique needs of the Alaskan farmer, often leaving bankruptcy and an exodus from the state, as the only option for distressed farmers.

In another but related vein, Alaska's reliance on the lower 48, not only for its general food needs collaterally results in Alaska relying on the lower 48 for its emergency food supply. Therefore, in the event of an emergency, most Alaskans have little alternative to Lower 48 goods, which means that if the supply lines are severed by either man made, or natural disaster, the food supplies in Alaska's major population hubs will disappear rapidly. Experts predict that in the event of a food crisis, the state of Alaska has no more than two to three days of supply to feed every Alaskan. What happens after day three?

## **Solution**

In order to secure Alaska's agricultural sustainability, promote an economical viable production environment, assure our food security, and create an environment conducive to clusterization three things must happen:

- I. Centralized destination and distribution with increased market access
- II. Sustainable out-of-season production ability
- III. Production enhancement

Below is a discussion about each of these steps, followed by a conclusion that will tie all three together and show the synergy that can serve our state in providing comprehensive solutions to our agricultural issues.

## I. Centralized Destination

Throughout the first two sections of this dissertation, disastrous results from the lack of well thought out local, regional, and national marketing endeavors around the world, have been well illustrated. Depending on where you are in the world, you can witness everything from diminished agricultural capacity and lack of healthy locally provided options, to devastated economies and full on starvation as a result of the prevalence of dysfunctional one dimensional approaches to agriculture.

Alaska's agricultural community suffers from this same malady. Our lack of fulfillment in developed capacity, brand recognition, market penetration, market fulfillment, agricultural sustainability and independence, and product variety and availability to local consumers are all manifestations of Alaska's lack of a cohesive, unified marketing endeavor. Similarly, our continued reliance on the Lower 48 for daily consumables, and emergency food supplies, are both the consequence of an underdeveloped local agricultural system, which again, can be directly linked to the issues of market.

The question then becomes one of how to develop an economy of scale that works for both a diverse population of independent producers and geographically distributed consumers. The only cost effective solution that will see rapid results in decreasing all of the above deficits, is the establishment of a centralized agricultural destination point.

This destination point must provide producers with a centralized, well equipped location to deliver product, provide consumers with a destination for buying healthier locally produced products in reliable and more consistent quantities, and provide resources for unified marketing endeavors that take the entire agricultural communities needs into consideration.

Accomplishing all of this requires the formation of a co-op that avoids the pitfalls of mismanagement found in the Mat-Su Valley Co-op of the early 70's. If the appropriate infrastructure is in place that allows a year round "farmer's market" environment, and shared resources for value added milk products such as artisan cheese, ice cream, butter, etc, the South Central market will support it. A significant portion of the Anchorage population have stated that they would gladly take the 45 minute drive from Anchorage to the Valley, if they knew they could buy farm fresh milk, cheeses, eggs, meats, seafood, and produce in a single location, year round.

Every major outlet polled has indicated interest in top quality, Alaskan made, artisan cheeses, and other value added Alaskan dairy products. And that is just one of Alaska's many diverse agricultural lines that can be made available to the buying public through this model. The Alaskan market has shown that it will respond to this co-operative effort with open pocketbooks and vigorous buying.

Something new has emerged since the 1970's style co-ops, which were primarily focused on providing producers with feed, seed, and farming equipment. This new trend is called New Generation Cooperatives (NGCs), and like the co-ops of old, they focus on providing their members with good supply and pricing on seed, feed, and equipment, but unlike co-ops of old,



they also focus on cooperative efforts in value added food processing, finding and fulfilling large contracts that co-op members help fulfill, and in ever increasing transportation efficiencies. Members of the NGCs still provide raw commodity product, but because of the cooperative opportunities they participate in larger, more stable contracts, and they increase their commodities worth by participating in the value added chain.

Whether or not the NGC model is adopted, as a recognizable centralized entity, the co-op will be well positioned to execute on the well orchestrated, unified marketing strategies that are so essential to success and sustainability. With the leverage gained by aggregating producers, the co-op will be able to proactively capture schools and other institutional consumers, national restaurant chains, local eateries, grocery stores, and a wide variety of export markets; coordinate and communicate consumer desires with producers so that producers can be incentivized to diversify and better meet demands, giving consumers more options and more reason to buy local; and provide the world a singular point of focus and branding that represents all of Alaska's agricultural industries, in a globally recognized branding effort that has exponential efficacy because of its singularity.

This allows Alaska to fully develop its agricultural potential and diversity. It can accommodate all forms of Alaskan agricultural products, and all forms of buyers, both local and distant. And capturing those distant buyers, or those few locals who decide to stay home, will be facilitated by the creation of a well constructed web site, with full e-commerce capabilities, and search engine optimization, making the co-op easy to find and easy to buy from anywhere in the world.

Answering many of the transportation issues facing Alaska's agriculture, the co-op will also have its own pickup and delivery trucks, sized to accommodate both large and small loads, for product pickup from farmers who have difficulty with their own delivery mechanisms, and for fee based, store to door delivery to individual and institutional customers from all of South Central and Interior Alaska. This logistics segment of the co-op will also be responsible for e-commerce order fulfillment, and will grow in ability and capacity as demand grows, and will include shipping product to distant markets by air, sea, and ground,

Spinoff industries such as agro-tourism are a natural result of a centralized agricultural destination point. Tourists, both individually and in large groups will have an easily accessible, well appointed, thematically appropriate destination to go to, for a close up look at Alaska's finest agricultural products, displays that show the historical growth of Alaska's agricultural industries, and the science that explains why Alaska's agricultural products are so unique and healthy. They will be able to purchase products both in raw form, and in value added and packaged form that can be shipped out from the co-op, to the address of their choice, right then and there...and of course they will be welcomed into the co-op as a buying member, with privilege to place on-line orders from their home at any time.

Another such spinoff industry could be agri-tours, where people meet at the co-op, and then depart from there by bus, to tour the Matanuska Valley's scenic farmlands, with a stop at the

University of Alaska's Experimental Station, for talks by scientists and agronomists. Stops can also be scheduled at local farms, for those farmers who desire and can accommodate it.

In conclusion, with today's knowledge, skilled management, accessible technology, and adequate resource allocation, Alaska could have a world class agricultural co-op, with a full function e-commerce strategy, value-added capabilities, a full support logistics arm, the ability to develop well thought out, professionally executed sales and marketing strategies and contract negotiations, and a strategically placed destination and distribution center, that plays a key role in developing, implementing, facilitating, and growing an effective and powerful, end to end agro-food complex value chain, which will serve the producers, distributors and consumers in the best possible manner.

### *Destination Center Project Plan*

#### *Phase I - Feasibility*

\$250,000.00 will be sought through the USDA Rural Business Opportunity Grant Program to perform a feasibility study on the entire scope of this project. This feasibility study will include the assessment of the best location available for construction of the proposed co-op/destination center, the discovery of all appropriate industry specific and cross industry non specific technologies and processes that can best serve the project, the development of recruitment, outreach and educational programs that have been successful for projects serving similar demographics. Funds from this feasibility stage will also be used to develop applicable internet technology to serve the co-op's efforts for cool chain tracking, store to door sales, and out of state export.

Discussions with the Matanuska Susitna Borough indicate that they would like to participate in the project by contributing a building at the Palmer State Fairgrounds. This building would be available to the co-op for all but a month out of the year, with potential to build a new structure in the Anchorage side parking lot that can be used as a permanent and exclusive facility for the co-op project. During the month surrounding the Alaska State Fair, it was proposed that a very large tent be set up towards the front of the Anchorage side parking lot, so that all visitors can swing in to pick up fresh milk, eggs, meat products, and produce, and get information on how to use the co-op website for future orders.

Another potential location is near the Trunk Road Interchange off the Parks Highway. Initial discussions with local farmers who own the land, show a willingness to contribute and participate. Some discussion about tax liability mitigation and similar strategies were had.

A third potential location was discussed in the Point Mackenzie area, but would be reliant on the ferry and/or bridge crossing going in, to be feasible.

#### **Total time of project – 1 year**

- Location discovery and assessment
  - Identify three optimal locations
  - Obtain surveys, plats, and all legal documents on site

- Conduct perk and water table tests if necessary
- Develop potential purchase or lease contracts for each site.

**Cost - \$5,000.00**

- Discover and assess applicability of technologies and processes best suited to serve project
  - Research similar projects in similar latitudes to see what technologies used
  - Research new developments in these technologies
  - Research other technologies that might have applicability
  - Research processes and methodologies used in similar projects at similar latitudes
  - Research latest best practices, services, processes and methodologies
  - Assemble a technology, services, processes and methodologies package for project

**Cost - \$10,000.00**

- Development of outreach and educational programs for project
  - Research existing programs for outreach
  - Research existing programs for recruitment
  - Research existing programs for education
  - Develop Request For Proposal based on findings
  - Solicit for bids on development of program
  - Contract winning bidder to develop program

**Cost - \$110,000.00**

- Development of supporting internet technology \$125,000.00
  - Research existing applicable web technologies
  - Develop a set of specs needed to accomplish goals
  - Create Request for Proposal for based on findings
  - Contract winning bidder to develop program

**Cost - \$110,000.00**

## Phase II – Infrastructure

In Phase II of the Destination Center project, funding for the land and the facility will have been acquired, and both the outreach and the recruitment programs launched. Educational programs for helping producers understand the benefits of the project will be accompanying the recruitment efforts. A temporary facility may already be in use, but a permanent facility is needed.

The facility will be large enough to accommodate multiple temperature controlled zones, each ideally suited for its product type (meat, poultry, eggs, dairy products, and produce). There will be office space for management, operations, and marketing, and loading docks for delivery and distribution. Adequate temperature and humidity controlled storage will be available, and the facility will include commercial kitchens, and value added processing centers so that co-op members can participate in the entire food chain process.

Accompanying this will be a technology center, where RFID labeling can be created to enhance exportability and product freshness. Cool chain shipping technologies such as “Ted’s Box” can be constructed and repaired, and a data center where farmer’s harvest time and delivery time for food quality assurance can be imputed.

A packaging and shipping center will be located close to the loading docks, so that on-line orders can be serviced quickly and accurately, for shipping anywhere in the world, and store to door delivery can be executed.

The customer section will be well laid out, with a colonial theme indicative of the Mat-Su Valley’s colony and homesteading heritage. Ample parking, easy highway access, a café, and other amenities will be made available to customers. The design will assure an open air market feel to the facility, while still remaining warm and comfortable in the winter. In the summer, walls can be opened to enhance the open air market feel.

### Phase III – Implementation

In phase III, the land will have been acquired, and the facility constructed. The community outreach programs will already be underway, and producer recruitment efforts will have resulted in the initial participation level required to sustain the project.

The co-op will be formalized, the supporting website launched, and recruiting, education, and outreach programs will continue. The marketing division will ramp up its branding efforts and specifically target the most logistically viable lower 48 and international markets for initial penetration. They will also be working on acquiring larger contracts with national outlets, and getting production contracts in place with producers who wish to participate in the national outlets, and other contracts. Careful attention will be given to organized and well orchestrated branding efforts, which in turn will enhance and expand the marketability of co-op products.

Value added contractors will be brought in to utilize the co-op’s commercial kitchens and value added production facilities, to meet value added contracts secured by the co-op, and surplus time/space within these facilities will be leased out to entities that wish to pursue their own such endeavors.

The cool chain will be implemented, with the inclusion of RFID and other monitoring technologies in shipments, so that first waste can be minimized and quality assured through “first to expire, first out” strategy implementation. Part of branding efforts will include these types of quality controls at every stage of the food chain. Such strategies will allow the co-op to pursue higher value markets which lay outside simple commodity markets.

## II. Sustainable Out-Of-Season Production Ability

Alaska is renowned for its long cold winters. This can be great for those who like to play in the snow, but becomes a significant burden to those trying to earn a living in agriculture. Though

some livestock farming can be sustained all year, low temperatures, lack of sunlight, and arable land covered in snow and ice, force most Alaskan farmers to stop producing for 7-9 months of the year.

An obvious solution to this dilemma would be commercially viable greenhouses. The horticultural industry in Alaska thrives through the year round use of greenhouses, but they are limited in size and primarily serve the private gardening industry. Similar technology needs to be employed on a much larger scale, so that Alaska's commercial farmers can continue to produce fresh, healthful products year round.

The three most significant challenges to implementing this solution are: Energy Consumption; Land Space, and Structural Integrity. Until recently most of these obstacles were insurmountable on large scale production in Alaska.

But with the advent of new thermal capture and transfer technologies, higher output, greater spectrum LED lighting and light transfer technologies, new possibilities are available that can bring significant change to Alaska.

The municipality of Anchorage is building a new greenhouse that will be entirely heated by the waste steam from the Glenn Highway Power Plant. They have discovered that their power generation plant, generates enough waste heat, in the form of steam, to effectively heat up to 35 acres of greenhouse. This project will be an experiment to assess sustainability, costs, and the effectiveness of private and public sector enterprise working side by side in the same facility. Part of the facility will be used to grow the flowers, plants and shrubs required to fulfill much of the municipality's landscaping needs, and the remainder will be divided among various private and commercial growers. It will start out fairly small, and be built to allow easy expansion as demand rises.

Obviously, not every farmer will have access to a municipal size power source for running commercially viable greenhouses throughout the winter months. But there are other technologies that can significantly offset the cost of heating:

**Ground source heat pumps** - This is an old concept that has recently become viable for Alaskans because of newer heat transfer technologies. It can be used in any climate and with any ground type. Using the earth's natural thermal mass properties, a hydronic loop is buried deep underground, and is used to transfer the earth's retained heat to the facility where it is used. This also works in the summer, to help cool a facility. The greater the thermal difference between the surface and the depth at which the loop is buried, the more efficient the system is.

**Geothermal** – Geothermal heat is produced in areas where there is active geological forces in play that create significant heat sources. Examples are hot springs, steam vents, and geysers. Alaska's proclivity of volcanic action and earthquakes, indicates that the region is geothermally active. Little effort has been put into discovering and tapping these natural resources.

**Decomposition** - Organic composting and landfills can create capturable heat through the natural process of decomposition. Furthermore, some of these decomposition processes create useful quantities of capturable methane gas, which can be used to generate power and heat.

**Thermal Depolymerization** - Yet another source of heating can come from the use of waste biomass in processes similar to thermal depolymerization, where carbon based material is broken down and either converted to diesel fuel or off-gassed for direct injection into existing diesel generators. Recently projects have been initiated that test the efficacy of using wood chips and other natural biomass, for the production of gasses for direct injection into power generators in Alaska's extreme environment.

**Thermal Mass** - In 2001, an experimental greenhouse was assembled in Anchorage to test the efficacy of thermal mass in capturing and holding passive solar radiation from our limited winter sun. A unique new in-floor radiant heating system was being used, and at 20 below zero, with minimal insulation (all glass walls), a person could stand comfortably on the floor with bare feet. In fact the ability of this technology to absorb and store our weak winter sun's energy was so effective that you could stand there comfortably barefoot and in your shirt sleeves long after the sun set.

These and other forms of creative heat capture and production are all viable options for offsetting the cost of operating large commercial greenhouses in Alaska. When combined with hydroponics technologies their efficacy increases even more.

Hydroponic growing replaces soil with nutrient impregnated water, which flows through a system of trays or troughs, over which plants are suspended so that their roots can be immersed in the water. Nutrients are carefully calculated and dispensed throughout this irrigation system. Because hydronics (not to be confused with "hydroponics") is the most common form of heat capture and transfer, and because commonly used hydronic fluids such as glycol are ideally suited for transferring captured and transported heat loads to water through inexpensive heat exchangers, and because heating high mass material like soil takes more energy, hydroponic farming offers significant advantages to Alaskans.

Much of today's hydroponic technology is inexpensive, automated and able to be monitored and adjusted remotely. Rather than having to trudge back and forth in cold climates, a farmer could monitor his entire growing process from his home or office, with only occasional visits to the facility for inspection, plant handling, and harvest.

Another advantage to hydroponics is that the growing facilities can be erected on un-arable land, leaving the more valuable arable land available for summer season, open air growing.

And where land options are really scarce, hydroponic growing is suitable for multi-story facilities. The top floor can yield air root type plants that thrive in a mist environment rather than in actual soil or water. After passing through the air, the mist is then condensates and is dispersed to the next floor down, in a sprinkler style system for nurturing plants that need a rainy environment. From there, the rain condenses into bodies of water that are used to

irrigate traditional hydroponic systems on the floors below. Waste water is captured and run through a cleaning process, and then reheated through thermal exchanges in the ground. Waste biomass from thinning, pruning, and harvesting, is captured and composted to generate more heat, which is then transferred to the thermal mass heat storage system and used to contribute to the heat exchange process for facility heating. This enclosed system is one of most efficient system available, and can yield significant and sustainable variety year round.

Lighting is another challenge that Alaskans face when it comes to greenhouse production throughout our long dark winter months. The energy required to keep traditional high output, full spectrum lights burning long enough to be effective, is tremendous, and is only feasible in areas of abundant and cheap energy. The advent of white, high output LED lighting has changed this lighting equation significantly, and offers a much more cost effective and durable solution to providing adequate lighting during long winter months. When compared to traditional lighting, LED lighting's consumption of electricity is extremely low.

Similarly, there are a variety of technologies that are designed for light capture and transport. Strategically placed light collectors can be put in position to capture as much of the weak winter sunlight as possible, and then can use a network of "light pipes" to redistribute the lighting to where it is needed. This is extremely effective with the use of fiber optic bundles and high resolution, low distortion mirrors.

Also, with the latest advances in materials such as aerogels, one inch thick windows can now be constructed that have an R-30 insulating value. Though more development has to be done on this technology, it would allow for a glass greenhouse ideally suited for Alaska's frigid winters. And when used in combination with hydroponics, efficient hydronic in-floor radiant heat systems with high absorption thermal mass flooring, and LED lighting, very large greenhouse operations in Alaska can quickly become commercially viable.

An additional benefit to developing greenhouse technologies for extreme climates is that it offers a viable option to one of rural Alaska's most vexing problems. Many of our rural communities are extremely isolated. More often than not, the only access to them is by small aircraft or riverboat and in many way the population still lives a largely subsistence life style.

Over the years, since the introduction of the "modern world" into these communities, there has been an alarming rise in incidences of colon cancer and other health issues. Studies have shown that one of the primary contributing factors to this problem is dietary. As lifestyles change, diets change. Too many community residents have drifted further and further away from their healthful subsistence style traditional diets, and started buying their food from the grocery store. Most such food is heavily processed.

Because of logistics, fresh food is very difficult to come by in these isolated communities. The only produce available has to be shipped from Anchorage or Fairbanks, and is often that which is not in good enough condition to be saleable in these more urban stores. By the time this inferior product arrives in the village, it is usually so battered and bruised that it is almost

inedible. Many people believe that this poor nutrition is a major contributor to the native cancer rate.

Self sustained, cost effective greenhouses sized to feed the entire community, and which can be heated by waste heat from the communities diesel generator, can be a major contributor to finding a solution to these health problems. The most obvious reason is that fresh nutritious produce will be available year round, for far cheaper than they could ever get by shipping from Anchorage and Fairbanks.

Some of the not so obvious benefits include offering an educational opportunity in horticulture, marketing, and entrepreneurship. Those that participate in the first project will be in demand when the second one is implemented in another community. With this and the accompanying training, whole new industries could arise to fulfill as yet unforeseen opportunities.

It's also a great opportunity to contribute to the cultural pride movement that is being cultivated within the Alaska Native community. Rural greenhouses provide opportunity to involve our native population in the burgeoning and lucrative pharmaceutical and nutraceutical industries. Many of Alaska's plants are gold mines of unique enzymes and molecules, developed as adaptive defenses against extremes in the environment, just waiting to be turned into beneficial nutraceuticals and drugs. Some of these components can be synthesized, but some are too complex, and the plants themselves must be harvested.

What better way to accomplish this than to have the people from who's land the plants come, and from who's lore the bio-tech firms obtained the hints that pointed them out, grow and distribute these very valuable commodities. Suddenly the people in a small rural community can see that their culture has offered clues to, and their land has produced, a very profitable product that the rest of the world is clamoring for, and from which they themselves will profit, and can control.

### ***Pilot Growing Center Project Plan***

Greenhouse technology is just starting to address the needs of year round production in extreme latitudes. The Municipality of Anchorage is a perfect project for aggregating such best of industry technologies, and assembling and implementing the first very large, commercial growing center in Alaska. It's initial construction should cover about an acre of land, and should be constructed so that it can be readily expanded to cover further acreage as needed, up to the 35 acres that studies have shown can be adequately heated with existing waste steam from the Glenn Highway Power Plant. A comprehensive expansion plan should be in place before the first construction starts. This plan should take into account the lay of the land, structural needs, module sizes, and costs for each acre of expansion.



To be self sustained, this growing center would be best served by being a member of the above mentioned co-op, but could stand alone by adopting similar principles and practices. Having a well orchestrated marketing scheme that would help growers determine which markets are most viable, and what it will take to participate in, and sustain those markets, will help attract profit oriented growers.

To preclude competition from summertime outdoor growers, and create a year round, sustainable market, growers should be encouraged to grow that which is in demand, but cannot be efficiently grown outdoors in Alaska. Local markets can be well served by crops such as tomatoes, herbs, and annual and perennial plants, while export crops that leverage the Alaskan cache, such as Alaskan raspberries can be produced for global consumption.

Co-op members, and summertime farmers, should be invited to participate, and facility management should offer setup assistance services at a reasonable rate, product transportation should be arranged, and marketing should negotiate long term contracts, and assure that there is enough grower participation to fulfill contracts, all to stimulate grower participation, and to coordinate traffic in and out of facility.

Space should be set aside for hobbyists as well.

Revenue for the facility will be generated through profit sharing and user fees. If working with the co-op, the co-op will be responsible for structuring and implementing this. If not, the municipality of Anchorage, or a contracted designee will fulfill that role.

This proposal makes the following assumptions:

1. The Municipality of Anchorage owns the power plant, the exhausted steam that it generates, at least 35 acres of usable property, and a willingness to participate;
2. The Municipality of Anchorage has a desire to privatize their horticulture department, and;
3. There are enough producers within a logistically viable radius of the proposed growing center to allow the center to at a minimum, breakeven.

Project Outline:

- Preliminary Work
  - Acquire Funding
  - Develop Recruitment Plan
  - Develop Marketing Plan
  - Develop Expansion Plan
- Management (more than one role can be served by one individual with the right qualifications)

- Facility Manager
- Operations Manager
- Expert Horticulturalist
- Staff: (more than one role can be served by one individual with the right qualifications)
  - Technology Expert
  - Building Maintenance
  - Market coordinator (if not using co-op)
  - Contracts manager
- Construction
  - Clear first acre(s) according to expansion plan
  - Excavate to grade
  - Construct first 1 acre module
    - Structure
    - Mechanicals
    - Wiring
    - Plumbing
    - Growing Layout
    - Parking
    - Loading and delivery facility
- Operations
  - Execute on recruitment
  - Execute on market strategy
  - Proactive market assessment
  - Proactive contract negotiations
  - Building operations and maintenance ongoing
  - Transportation and facility traffic coordination ongoing

(More information regarding this project can be found under the Seeds of Change Greenhouse Project section below)

### **III. Production Enhancement**

The final piece of the puzzle is production enhancements. These enhancements are usually large in scale, involve civil infrastructure, and can only be funded with state and federal resources and/or by larger corporate entities. These public and private entities must invest in the development of infrastructure, the expansion of road, rail and sea transportation for Alaskan goods, and the building of a cold-storage facility to store vegetables and other produce year-round.

These enhancements are vitally important to Alaska's agricultural sustainability, because they allow producers greater access to consumers, they allow seasonal crops to be stored in Alaska year-round, and they provide the state with a means to compete with the monopolistic import market which stifles Alaskan output.

Such production enhancements through transportation infrastructure improvements will have positive consequences that reach far beyond just the agricultural community. Other economic strata, such as manufacturing will be significantly impacted. Alaska suffers a deficit of manufacturers because of the logistics issues surrounding the import of raw products, and the export of finished products. Many of these issues will be resolved by the same enhancements that serve the agricultural community.

Another sector that would feel a positive impact is the value added sector. In Alaska's primarily natural resource extraction economy, very little effort is put into doing value added manipulation of our raw products. With very few exceptions, timber, minerals, seafood, and oil and gas, are all shipped outside of the state in raw form, and then purchased and shipped back to Alaska in value added forms, with significant increases in pricing.

The same enhanced transportation infrastructure that serves the agricultural and manufacturing communities will also provide more incentive and opportunity for economically sustainable value added projects in Alaska.

And of course the destination point co-op facility we spoke of in section I of this document can be considered a production enhancement project. Large, quality storage facilities, designed to keep large quantities of produce as fresh as possible all year long, can be located onsite, and in perfect propinquity to rail, truck, air, and other transportation avenues, that facilitate shipping of Alaska's produce to far off places, year round.

### ***Production Enhancement Project Plan***

Identifying a representative project for this category is difficult in that most such projects require larger governmental or industry assistance, and include such things as transportation infrastructure. However, a good example of a highly feasible production enhancement project that can be done in predominantly the private sector is cool chain development

This project involves a combination of strategy development and technology implementation that facilitates the chosen strategies. Strategy goals are to enhance production, minimize waste, and inject both perceived and real value into the market through the cool chain process.

Minimizing waste increases profits, increases perceived and real value from a market perspective, and encourages increased production. Consequently a "First Expired – First Out", product tracking, and product quality management system should be central to the project theme. This entire scope of needs can be summed up under the term "Quality Control".

Radio Frequency Identification (RFID) technology in combination with GPS, Temperature and Humidity tracking are instrumental in assembling a quality control system with transparency and efficacy. Running a comprehensive, cooperative system like this throughout the state, can

result in significant increases in existing markets, expansion into new markets, increases in consumer satisfaction, and significant increases in brand appeal. It also offers significant assistance in logistics planning for order fulfillment locally, nationally, and internationally.

An example of value stream enhancement would look like this:

Farmer wishes to participate in large co-op acquired contract with South Korea, for Alaskan grown carrots. The customer wishes to tap into the “mystique” of Alaskan grown products, and has a high end Korean restaurant market in mind. He insists on freshness and provable quality control measures.

The co-op assists the farmer in acquiring the requisite technology for participation in the project. The co-op also offers training and implementation assistance. The farmer receives the needed computer database program, RFID interface and label maker, and product tracking software.

The farmer plants the crop and enters the time and conditions under which it was planted, in the database. He also enters any significant factors that affect the growing season, as they occur. The data base automatically uses this data to program the data that will be included in the RFID chip found in the shipping label.

Similar steps are taken during harvest (conditions under which harvest is conducted, crop lot assignments, etc). This data is also added to the RFID tag data base. After crop is harvested and “bundled” or packaged by lot, each lot or crate is given an RFID label. This label can be easily scanned to tell anyone along the entire cool chain how the lot was grown, where it was grown, when it was planted, how it was harvested, and when it was harvested.

The shipment is then sent from the farm to the co-op storage center. These light, temperature and humidity controlled storage rooms are carefully monitored and a log of light, temperature and humidity fluctuations are kept throughout the crops stay in storage. This data is automatically added to the RFID information before the lot leaves storage for shipping to Korea.

When a shipment to Korea is called for, the co-op computer automatically calculates which crop has been there longest, and if it’s still within the agreed upon time parameters, and directs shippers to select it first (first to expire – first out). The rest of the shipment is fulfilled in the same manner...thus assuring that crops get used before they have a chance to spoil, and the client still receives fresh to spec product.

Shippers bundle entire shipment and put them in cool containers, which are self sustained by battery for up to three days, and are able to be plugged into a standard outlet on both the shipping end and the receiving end of their journey. These containers have similar monitoring equipment in them, as is found in the co-op storage facilities, and the addition of a gps tracking device.

As crops enter the container, the time, location, and current internal container conditions are automatically recorded and added to the RFID tag on each crate. Similarly each crate or pallet of crates, as it passes through the warehouse doors for loading into the containers, is

automatically scanned and the computer double checks against order requirements, to assure fulfillment accuracy (inventory control).

The container is then put in motion and RFID and container data is e-mailed to client to advise him that his order is en route. All ongoing data can be tracked in real time, online. At this point, both the shipper and the client are encouraged to monitor the product en route as they see fit. Any abnormal fluctuations in temperature, humidity, or light, will automatically be logged and red-flagged so that those monitoring can easily see what happened, how long the incident lasted, and where en route it occurred.

When the client receives the shipment, he will off load the crates, and in the process their RFID tags will again be automatically scanned, and the entire relevant history instantly made available. Any anomalies can be dealt with, and customer satisfaction is significantly increased, allowing for a superior price, and a satisfied client.

This example is oversimplified for ease of reading, but the general concept should be ascertainable. It should also be obvious how this production enhancement project can have a positive impact on the individual producer, the co-op, and the Alaska brand as a whole.

## **Possible Projects for Alaska – From Failure to Prosperity**

### ***Seeds of Change Greenhouse Project***

Seeds of Change (SOC) is seeking funding under HHS-2010-ACF-OCS-EE-001 to create an innovative and cutting edge youth-serving social enterprise business that employs at-risk youth with emotional and behavioral problems. SOC will run an energy-efficient urban agriculture greenhouse/green business program within the Municipality of Anchorage, in the state of Alaska. This project will achieve financial sustainability through a focus on earned income. It will also involve youth in all aspects of the business, providing them with significant work experience in a setting where they will acquire and practice the skills necessary to find and maintain permanent employment.

The property the greenhouse will be located on is a vacant government owned parcel on the edge of a low income area of Anchorage Alaska. There is no cost for the land used, because the Municipality of Anchorage has donated this parcel of land to the SOC project. (For complete design plans and technical details see attachment R)

The cost of heat is significantly reduced as well. The designated property for the SOC greenhouse is adjacent to the largest natural gas, power generation facility in the state, which produces enough waste heat to operate this greenhouse. This waste heat will be piped in and used as the primary source of heat, greatly reducing the cost of heating the greenhouse through traditional heating methods. This means that once the project gets to the operations phase, the major cost factor will be the people, giving this commercial growing facility a distinct advantage when it comes to its sustainability.

Land, heat, and people are normally the greatest cost factors in commercial greenhouse projects of this scale. And in extreme climates like those found in South Central Alaska, heating costs during winter months are exceptionally prohibitive.

The majority of the people hired to operate the facility will be JOLI eligible transition-age young adults. We will place them in full-time permanent employment after approximately 12-18 months of employment and job training at SOC. The project will create 32 new jobs, a minimum of 25 that will be filled by transition-age youth.

State of the art job training methodologies and processes such as TWI (training within industry), for certification in food handling safety and HACCP (Hazard Access and Critical Control Points) management, as well as extensive hands on training and mentoring in hydroponics, greenhouse technologies, greenhouse agriculture and horticulture, produce harvest, handling, and shipping, business development, commercial distribution and logistics, business operations and business management will be utilized with all project participants.

Each project participant will be evaluated to determine their level of education, their optimum learning style, and where within the organization their personal interests will best be met. This information will then be used to determine which position within the organization best suits their needs, abilities, and aptitudes, and to create an individualized transitional living plan for them. This will be developed in conjunction with each youth and will include goals in the areas of education, vocation, living situation, community involvement training, and skills acquisition plan, that will be designed to provide increases in self-esteem, employability, general knowledge, specialty knowledge, and give them the skills to allow upward mobility within the organization, all in a manner that is best suited to their individual learning style.

Project participants, as well as the surrounding low income population will also benefit from access to the SOC local children and low-income hunger-reduction food donation program, where produce from the greenhouse that is not of saleable grocery store quality, but which is still viable, will be made available for distribution to those in need.

This access to fresh local nutrition will help offset the high cost of food in Alaska for project members which can be 30-50% higher than in the “lower 48 “contiguous states. Additionally, this project takes steps to help resolve the problems in Alaska with food safety and security issues. 90% of all food consumed in Alaska is shipped into the state from outside. Spoilage rates can reach as high as 40% for fresh vegetables, and choice and volume can be sporadic, as it is dependent on the seasonality of the product in the region in which it is grown, and the availability of distribution channels to Alaska.

We plan for this to be an example program that can be replicated in other low-income communities around the state, especially rural areas with depressed economies. This includes locations with similar access to free or low cost energy and property. The need for this community revitalizing project in this state and especially in urban Anchorage is great. No other state matches Alaska in its level of illiteracy, substance abuse, inadequate transportation,

lack of child care, insufficient life skills, or health problems, not to mention the impact of the severe climate on the people and all the preceding factors.

To further assist the SOC employees in becoming self sufficient, we will partner with economic development entities and social service organizations to provide on-site financial literacy programs, independent living skills training, soft job skills training, transportation, and referrals to services that deal with mental health, substance abuse and many of the health problems this population faces. These benefits are made possible because of SOC's developing network of services and organizations who are signing on as partners and supporters for this project. (See Letters of Support, attachment I)

In summation, the SOC Community Development Corporation's greenhouse project addresses many of Anchorage's socio-economic and food security needs. It will provide fresh, year round produce to area wholesale outlets, food distribution points for the needy, and also employment and training opportunity for at-risk and vulnerable transitional youth and young adults. The project is on \$1/year leased municipal land, with access to an infinite supply of free and low cost heat, is fully sustainable, and provides benefit to all sectors of the community.

### *Delta Barley: A Grimm Story with Existing Potential*

Information courtesy of the report, "Alaska's State-Funded Agricultural Projects and Policy - Have They Been a Success?" created by Darcy Denton Davies of Fairbanks Alaska, 2007.

The Delta project was designed as an agricultural demonstration, and was intended to specialize in the production of small grains—particularly barley. The intent was to produce grains on a large scale to lower the cost of feed grains, which would in turn stimulate the livestock industry in Alaska (AAAC 1982a). Delta was selected as the site for the large-scale demonstration for a number of reasons. Most important, there was a road system, large areas of state land were available for disposal, agriculture was already practiced there, and the community specifically asked for agricultural development in the area (Lewis and Wooding 1978).

Barley was selected because it is a proven crop in Alaska and export markets had been identified to support the industry. It can mature at cool temperatures and has a short growing season in Alaska (Lewis and Wooding 1978). According to studies, Alaska land produced nearly twice as many bushels of barley per acre as the Great Plains area (Faris and Hildreth 1975). In Alaska's Agricultural and Forestry Experiment Station trials, the highest yielding varieties averaged 76 to 80 bushels per acre (Lewis and Wooding 1978). The barley was expected to be purchased by the small in-state market and eventually to a larger Asian export market (AAAC 1981). The consensus at the time was that Alaska could be competitive with other regions for the Asian markets if the quality and price of the grain was comparable (Thomas 1979).

Agricultural rights to the land of the Delta I project were sold by lottery on August 5, 1978. Twenty-two tracts were included in the sale, averaging 2,600 acres (1,052 ha) per tract, for a total project area of 60,000 acres (24,281 ha) (AAAC 1981). Pre-qualified applicants in the

lottery were required to be Alaska residents, have capital of their own to spend, and management ability (Lehne nd). After being selected in the lottery, winners were sold the agricultural rights to the land through the Department of Natural Resources Division of Lands (Division of Legislative Audit 1991). Contracts and loans for land clearing and development were established between the lottery winner and the Governor's Office, but contracts were later transferred to the AAAC. Additional loans for tract development were supplied by the Agricultural Revolving Loan Fund (ARLF). Since the landowners only purchased the 'agricultural rights' to the land, as opposed to a fee simple title, it was much harder to receive loans for capital investments (Johnson 1984). Private lenders felt that loaning money for agricultural rights was too risky because the industry was unstable.

An extension of the first Delta demonstration area was conceived in 1979 and approved by the legislature in 1981 (AAAC 1981). This extension, called Delta II, was to follow the same principles as Delta I and with the extension the state would be able to produce enough grain to support the infrastructure surrounding processing, marketing, and transportation (AAAC 1982b). On March 13, 1982, 24,600 acres (9,955 ha) in 15 tracts were sold by outcry auction (AAAC 1982c). There were no pre-qualifications in the Delta II sale because it was determined by the state court to exceed the government's authority (Engelbrecht and Thomas 1987). Originally the state had proposed a sale of 55,000 acres (22,258 ha) in the expansion, but resource conflicts prompted postponement of the western portion, called Delta II West (AAAC 1982a). There were concerns about using the land for timber, as opposed to agriculture, as well as concerns about the damage the buffalo herd could inflict on potential crops (Engelbrecht and Thomas 1987).

Clearing the land proceeded quickly, and planting crops began in 1980 (AAAC 1981). That year there were crop failures due to adverse weather conditions and predation by a local free-ranging buffalo herd, and the acreage planted produced on average 30 bushels per acre. While some farms had losses of 20 to 50 percent (Lehne nd), some averaged over 75 bushels per acre (AAAC 1981). All of the grain produced that year, which was 6,000 tons, was sold in-state as livestock feed (AAAC 1982b). The next year, weather, in the form of an early snow, again caused crop loss. Grasshopper infestations also accounted for crop losses during the formative years (Hollembaek 2007). It is probable that these events contributed to the public's doubt about the capability of the project to succeed.

As grain production increased, so did the demand for in-state livestock feed (Lehne nd). The plan was to begin export of barley once there was a reasonable surplus, but as in-state demand increased, the date for export was delayed. At this time there was still no export grain elevator, and in 1983 the Division of Agriculture (DOAg) suggested that construction of the grain terminal be put on hold until production exceeded in-state markets and Alaska barley could be competitive with the world market (DOAg 1983). In the end the Seward export terminal was never completed and the dream of a large export market was not realized.

Also during this time the price of barley, and other agricultural crops, began declining internationally (Division of Legislative Audit 1986). The drop in international prices made



imported grain cheaper than barley produced in Alaska (Lewis and Pearson 1990). Too little barley was being produced to export, and prices were too low for that to be an economical solution. As debt mounted, the number of farmers in Delta began decreasing (Division of Legislative Audit 1986). Farmers looked to in-state markets, but it was hard to compete with low prices from the lower 48 states. Some farmers thought that the state was responsible for the mounting debt because certain infrastructure, such as the export grain terminal, had never been completed and was deemed essential to the success of the farms in the University of Alaska's feasibility study and by the Alaska Agricultural Action Council. An investigation by the Division of Legislative Audit showed that farmers would be unable to have debt relieved by filing a lawsuit because the state had never guaranteed funding for additional infrastructure.

In 1990 the debt owed to the state by Delta project farmers totaled over \$53 million, in 1990 dollars (Division of Legislative Audit 1991). The state began to restructure loans with farmers to see some return on its investment. The programs for debt restructuring were generally unavailable to landowners participating in federal assistance programs, such as the Conservation Reserve Program (CRP), that paid to keep land out of production. It was felt by some that the restructuring process was very subjective, and the way it was carried out created distrust of the ARLF. By 1998 only seven of the original 37 landowners from both projects still retained ownership of their parcels (Geier and Lewis 1998). The rest of the parcels had either been sold by the original tract owner or foreclosed upon and resold by the state.

Some of the large tracts that reverted back to state ownership were then subdivided and sold, which put farmers on smaller parcels. Original project farmers who had retained ownership of their land were likely involved in the Conservation Reserve Program or had needed less initial capital investment and therefore accumulated lower amounts of debt (Hollembaek 2007). Currently there are 56 Delta farmers on 29,000 acres (11,736 ha) enrolled in the CRP received a combined annual payment of \$949,703 (Huelskotter, Pers. Comm. 2007).

Delta Junction currently has a diverse agricultural community, though it is not as was envisioned at inception of the Delta Project. There are still farms that are producing traditional crops and livestock, as well as other farms that are producing alternative livestock and niche market crops, and it is viewed as an agricultural community. The goal of a large export market for small grains was never achieved and the export elevator at Seward was never completed. This, coupled with falling grain prices, led to farmers being unable to survive economically. Original project farmers either sold their land or tried to enter different markets. Those who survived and have remained in Delta are extremely loyal to the community and are supportive of the agricultural development that has occurred there.

### *Matanuska Creamery*

The newly established Matanuska Creamery is making huge strides in Alaska's dairy production and sells its products in Fred Myers, Walmart, Safeway, New Sagaya, D&A

Shoprite, and the Sutton General Store. The following article describes their recent and growing success:

*WASILLA -- A year and a half into production, Matanuska Creamery officials say milk sales are up and they're working to make new lines -- think cottage cheese, brick cheese and half-gallon jugs -- available in Southcentral stores.*

*Karen Olson, general manager and co-owner of the creamery, said the company sells about 1,600 gallons of milk a day, about 3,000 gallons more each month than it did a year ago. The company's trademark yellow jugs are in Walmart, Fred Meyer and Carrs/Safeway stores in Southcentral, but most of those gallons are sold in the Valley.*

*"I don't know if that's because people in the Valley are more knowledgeable about it being local. We would hope that a few more people in Anchorage would realize that Point MacKenzie is pretty local," she said.*

*The Palmer-based dairy started up in 2008 after state-run dairy Matanuska Maid closed, leaving Valley dairy owners with nowhere to sell their milk.*

*The creamery used federal and state funding plus money company owners contributed to get started. Olson said the creamery wants to grow and is constantly testing new products, but it can expand only as quickly as money becomes available.*

*"We're undercapitalized," Olson said. "Sometimes people come in and they're a little impatient that we're not in cottage cheese and half-gallons."*

*Olson said the company started behind the curve. She believes some of the interest in local dairy products was lost when Mat Maid closed. But the creamery is catching up, and a growing demand for local milk is a promising sign.*

*In fact, she said, there were a few times in 2009 the company couldn't quite meet demand. Grocery stores had shipping problems that delayed deliveries from the Lower 48, and they asked for extra creamery milk to fill the temporary gap.*

*"We did what we could, but we couldn't always fill those orders," Olson said.*

*Milk provides about 90 percent of the company's income, but Olson said the creamery also sells cheese, cheese curds, ice cream, butter, half-and-half, cream and, to a few stores, ice cream base.*

*"We found that as long as the milk prices are so low and it's hard to compete on a large-scale basis with fluid milk, we've got to add some of these things to make the basic overhead," Olson said.*

*Most of those products are for sale only at the creamery's Palmer-Wasilla Highway store or at the Wednesday farmer's market at Northway Mall. Some are only offered in other stores.*

*For example, the creamery supplies gelato and ice cream bases for Wasilla's Gelato Kudrino and Anchorage's Marble Slab Creamery. A number of restaurants -- from Evangelo's Restaurant in Wasilla to Glacier Brewhouse, Sacks Café and Spenard Roadhouse in Anchorage, cook with Matanuska Creamery milk and cream. The company sells wholesale milk, half-and-half and cream to most of the coffee shops in the Valley.*

*"I really believe a lot of adults don't even drink milk unless it's with their coffee," Olson said.*

*Bricks of cheese are slowly getting onto local supermarket shelves, she said.*

*The company had to get proper labels and bar codes, but it can now be found at Natural Pantry in Anchorage, Three Bears in the Valley and at Wasilla's D&A Shop Rite.*

*Packaging is the big holdup for ice cream too, Olson said.*

*The company has 25 flavors, including birch syrup flavor made with local syrup, but can't yet afford to splurge on the special packaging required to get three or four local flavors into Alaska grocery store freezers.*

*For now ice cream is sold at the creamery store in plain white containers, or by the scoop at Pandemonium Bookstore in Wasilla.*

*Cheese curds, local butter and honey-butter (with Alaska honey) are held up by packaging also, Olson said.*

*"Things like that, that come in tubs, you have to meet special sanitation requirements," she said, citing tamper-proof packaging and hands-free machines as two examples.*

*The company hopes to solve the packaging problems this summer in time to offer cottage cheese, however. Olson said they plan to be offering half-gallons of milk by then also.*

*"Last summer we ran into the problem of the national milk dip that happens when kids are not in school. We bridged that by making more cheese. This year, we would prefer to bridge it by making half-gallons," she said. (WHITE, 2010)*

### ***Point MacKenzie – New Dairy for Alaska?***

Information courtesy of the report, "Alaska's State-Funded Agricultural Projects and Policy - Have They Been a Success?" created by Darcy Denton Davies of Fairbanks Alaska, 2007.

Point MacKenzie was designed as a dairy project to supply the Anchorage market, as well as to use the livestock feed being produced in Delta, as mentioned above (Snodgrass et al. 1982). The dairy industry depends heavily on infrastructure and other industries, so it was assumed that a revitalized dairy industry would create jobs and boost the local economy. There was once a relatively large dairy industry in Alaska, but during the 1960s many farms either consolidated or went out of business. By expanding the existing industry it was believed that the production of dairy products would become more feasible through an economy of scale (AAAC 1979). Point MacKenzie was designed as a 15,000 acre (6,070 ha) project with 31 tracts, 19 of which were designated as dairies and 12 others that were to be supplemental farms for growing feed and other crops (AAAC 1981).

A feasibility study was conducted in 1980 that estimated the productivity of dairy operations at Point MacKenzie (Lewis et al. 1980). According to the study a farm could achieve a positive cash flow by the second year in operation, assuming that the price paid to the farmers remained at or above \$16.84 per cwt (one hundred pounds of milk). The authors also stated the dairy industry could only grow if the farmers used best management practices and if the processing sector became more efficient.

The project was scheduled for sale March 6, 1981 (Fowler 1992). The lottery took place, but was later thrown out by the court based on the fact that the state had required a farm con-

servation plan or dairy farming experience to qualify, which was deemed to be exceeding the state's own authority (Englebrecht and Thomas 1987). Two tracts were not included in the lawsuit because they were Matanuska-Susitna Borough land, and remained with the original lottery winner. Another lottery was held in September 1982, and this time no previous dairy farming experience was required to be considered for the lottery. The winners signed contracts that gave them agricultural rights to the land and established deadlines for land clearing, crop production, and production of milk.

Under the contract signed for the loans, farmers were expected to clear land, begin producing crops, and start milking cows in three years (Fowler 1992). At the start of the project milk prices were high, around \$22 cwt, and farmers felt confident in their investments. By 1983 one farm had already begun producing milk and the others were clearing property in anticipation of milking cows. Milk was being sold to Matanuska Maid, the oldest milk processor in the state. Matanuska Maid is located in Anchorage and was a major catalyst in beginning the Point MacKenzie project (Lewis et al. 1980). At the end of 1983, Matanuska Maid was unable to repay its debts and filed for bankruptcy and the price paid to producers immediately dropped (Fowler 1992). These events brought public attention to instability in the dairy industry.

The loan limit from the Agricultural Revolving Loan Fund was capped at \$1 million, and some farmers were already at or near this limit (Fowler 1992). Many farmers had initially invested in expensive barns, which left little or no money for other expenses, such as cows and equipment. The increased debt load made farms less likely to be successful.

Farmers had trouble staying on schedule, but were told the schedule was inflexible. Around this time the state took ownership of Matanuska Maid, which was deemed necessary to keep the dairy industry operating (Van Treeck 2006). The ARLF previously loaned \$4.5 million to Matanuska Maid (Division of Audit and Management Services 1990), but even more compelling was the investment made in the dairies at Point MacKenzie. Without the processor, the state believed the dairy industry it was trying to create would inevitably fail (Alaska Ombudsman 1989). Matanuska Maid, because it was state owned, was required to purchase all the milk produced that met quality standards (Fowler 1992). Though most farmers faced financial challenges, milk was being produced in significant quantities by 1986, so much so that Matanuska Maid stopped importing milk, but at the same time their sales were down.

During this time the Matanuska area was going through a recession (Alaska Ombudsman 1989). Unemployment rates in the area rose to 12 percent, and bankruptcies increased 250 percent through 1984. Businesses in the area had to downsize and cut costs to survive. Local feed suppliers were unable to supply Point MacKenzie farmers because most could not afford to buy feed with cash, and suppliers were not willing to accept their credit. Farmers in the Point MacKenzie project began having problems repaying debt and keeping their dairies operating. As production decreased in 1988, Matanuska Maid began importing milk again. By 1990 over 50 percent of Matanuska Maid's milk was being imported, and coincidentally their sales began rising (Fowler 1992).

As of 1992, only two dairy producers remained at Point MacKenzie (Fowler 1992). This number has fluctuated through the years, but has stayed steady with at least one producer in Point MacKenzie at any time. The Point MacKenzie dairy project did not meet the expectations envisioned by the state. Some of the landowners at Point MacKenzie invested in the land as speculators, waiting to sell when the agricultural zones are lifted and the Knik Bridge is built (Fowler 1992).

Instead of creating a sustainable industry, the state instead became owner of the primary milk processor in south-central Alaska and watched as most of the dairy farms at Point MacKenzie underwent financial trouble and eventually failed. As dairies from Point MacKenzie defaulted on debts and went out of business, Matanuska Maid began importing more milk from out of state. Currently there are only nine grade A dairies in the state, down from sixteen at the height of Point MacKenzie's production in 1986 (Alaska Agricultural Statistics Service 1976–2006).

There is still tremendous potential in Point MacKenzie but collaboration in-between the public sector, private business, marketers, distributors, and consumers must attempt to clusterize their current operational methodologies if there is to be any future success in the area.

### *Nenana-Totchaket*

Information courtesy of the report, "Alaska's State-Funded Agricultural Projects and Policy - Have They Been a Success?" created by Darcy Denton Davies of Fairbanks Alaska, 2007.

The Nenana-Totchaket area has been considered an area with some of the most prime agricultural soils in the state (AAAC 1981). The proposed project was located west of the city of Nenana in a remote area. The original thought was that the producers would be linked to markets through the adjacent railroad, and agriculture would begin to expand westward. The Natural Resource Conservation Service (NRCS) (at that time the Soil Conservation Service) identified 175,000 acres (70,820 ha) of agricultural soils in the area between the Tanana and Kantishna Rivers. The feasibility study conducted assumed that this project would be much like Delta and be a small grain-producing area (AAAC 1982a).

In 1980 the legislature appropriated \$500,000 for design and development of the project. In 1982 the AAAC asked the legislature to fund further development of the project and that a lottery sale for 75,000 acres (30,351 ha) take place as soon as possible (AAAC 1982a). In 1983 the Division of Agriculture suggested that the sale be delayed until analysis of the previous projects had been completed, to help determine if the investments needed to complete the Nenana-Totchaket project would result in sufficient benefits to Alaska (DOAg 1983). It is possible that funding for a bridge and access to the remote location was more than the legislature was willing to do, because no more appropriations were made and the project was never completed (Lewis 2007).

Thus, leaving another opportunity for agricultural expansion in the dust because of lack of multi-industry micro-economic evaluation of potential clusterization of another area in the state. The fact of the matter is that there is still potential in this area, it is merely a matter of collaboration and access to capital to help rebuild this project allowing for import substitution and the further branding of Alaskan made products.

### *Possibility of Growing Northern Wild Rice*

Northern wild rice is a plant which has to grow each year from seed and is extremely well suited to grow in colder climates. Seeds get into the mud either naturally, as they ripen and fall off the plants, or by spreading them by hand or machine in a suitable lake or river site.

The ripe seeds fall into the water at the end of summer. They sink to the bottom of the lake or stream and stay dormant near the surface of the mud during the winter months. The seed begins to sprout in early May when water temperature is about 45° F (5° C). For the first 3 or 4 weeks of growth the young plants are under water, then long thin leaves begin to float on the surface of the water.

By the end of June, the stem and emergent leaves stick out of the water. Flowers begin to appear by mid-July and shortly after start to form seeds. The first seeds usually ripen by the end of August, but ripe seeds can be collected from the plants for several weeks. Wild rice won't grow if the water is too deep; shallow bays provide ideal wild rice habitat of which Alaska has in abundance.

Slow moving rivers can be very productive wild rice areas. The moving water stirs up the muddy bottoms and adds oxygen and nutrients, which are necessary for the wild rice seed to sprout and grow. In bigger lakes, good sites are often found in bays or sheltered areas where a stream enters or drains the lake.

The chemicals in the water are important for good wild rice growth. Dissolved salts, particularly sulphates and gases like carbon dioxide all influence the quality of the water. Wild rice will not grow well in water that is low in essential nutrients. Neither will it grow well in water with lots of salt in it.

Alaska has the perfect conditions to grow wild rice products in regions all throughout the state, although more research needs to be done to see if there is enough demand in the local, national, or international market to spark the mass cultivation of wild rice it is certainly well suited for cultivation in Alaska.

### **Conclusion**

In order to achieve clusterization of agriculture in Alaska we must support activities that assess:

1. Agricultural development and marketing;
2. Board of Agriculture & Conservation;
3. Plant Materials Center(s);
4. Agricultural Revolving Loan Funds;
5. Sustainable agricultural resources and services;
6. Outreach, education, and recruiting;
7. Planning;
8. Research ;
9. Energy;

## 10. and Infrastructure.

This purpose of the agricultural portion of the paper is to allow the reader to see the importance of agriculture from both a global and a local perspective. It was written to shed light on the magnificent complexity of one of the world's oldest economic systems, show how that economic system has evolved, where it is going, and to show its importance to Alaska's future.

With public education, government, and private sector investment and incentives programs, Alaska's agro-food complex can become a net exporter, providing tremendous revenue opportunity for the Alaskan agricultural community, and incentivizing agricultural growth in all sectors, providing in combination, a substantive economic option, and a secure food supply for all Alaskan's far into the future by creating and supporting agricultural sector clusterization.

But with knowledge comes responsibility; to ignore that which you have learned, and allow Alaska's agriculture to continue down the path of atrophy and attrition that it is currently on, is to willingly and knowingly to sign off on "the death of agriculture in Alaska".

This is an opportunity for the Alaskan Legislature to make a long lasting difference. By focusing on a long neglected, but essential part of our economy, a much more diverse, nationally and internationally competitive agro-economy can be grown here in Alaska, that meets the nutritional and food security needs of all Alaskans, and significantly reduces our dependency on the lower 48 states for our food security.

This Application Section of the study highlighted three different samples of practicable projects that must be done in order to put Alaska on a path of agricultural prosperity. Each of the projects works in perfect concert with the others, and more still can be added as time goes by. But waiting is not an option.

The first project was the Agricultural Destination Center and Co-op. It will become the center of South Central Alaska's agricultural community, and will offer infrastructure, contract acquisition, and logistics services to its members. It will be a destination point for Alaskans who wish to buy Alaskan agricultural products year round, and tourists who wish to see, feel, smell, and buy that which Alaska so uniquely produces. The center will open new markets for Alaskan producers through orchestrated marketing and a well developed on-line presence, allowing consumers from all over the world to fulfill their craving for healthful, nutrient rich products.

This project will create an estimated 150 jobs in agriculture and related areas in Alaska, and contribute an estimated \$185,000,000 to our economy through enhanced production and import substitution over a 3-5 year period.

The Municipality of Anchorage Greenhouse Project offers Alaskan agriculturalist and horticulturalists a year round source for production of high-end products that serve markets not served by summer outdoor producers. It will be a self sustained project that returns dividends to the Municipality of Anchorage, and demonstrates the efficacy of large commercial growing facilities to all Alaskans. It will also demonstrate the efficacy, under certain



circumstances, of outsourcing government obligations. Success with his Anchorage project will encourage similar projects in communities of all sizes, that have “capturable” waste heat and other “capturable” heat sources, sufficient to sustain viable projects.

This project will create an estimated 50+ jobs in Alaska, and contribute an estimated \$70,000,000 in our economy through cost savings in the government sector, increased production and import substitution over a 5-7 year period.

And the final project outlined in this study, the enhancement of production ability, illustrates how the implementation of easily adaptable technologies can enhance the effectiveness of our food supply chain, create defensible, traceable and transparent inventory and product tracking, enhance the perceived and real value of Alaskan products, impact brand recognition and adoption, and increase the quality of product to consumers. This technology is almost universally adaptable, and once the system is in place, is able to be used by all segments of our agricultural community.

This project will create an estimated 25+ jobs in Alaska, and contribute an estimated \$20,000,000 to our economy over a 3-5 year period.

Other potential and existing projects that were listed provide insight into struggling agricultural sectors within the state, and their past failures and opportunities. The diversification and clusterization of agriculture in Alaska is the key to its overall success and it will take core programs with proven results to finally close the gap on whether or not Alaska’s agricultural sector will be economically/sociologically viable.

**If you are receiving a copy of this working draft prior to the final documents release we would like to say that we at AMEP appreciate your time and look forward to your input to help create a more sustainable agricultural sector in Alaska. All input that is given will be seriously considered and integrated into the overall plan for agricultural stability in Alaska.**

**Thank you to all whom have provided input so far and those who will continue to help our state on its path to economic diversification.**

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## Attachments

### Seeds of Change Demand Study

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