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CONFIRMING
LEO EMIL WANTA

PART 1 OF 2

LEO

PROPOSAL

FOR

INTEGRATED AGRICULTURAL DEVELOPMENT PROGRAM

FOR

THE SOVIET REPUBLIC OF RUSSIA

Prepared by

AMERICAN AGRICULTURAL ASSOCIATIONS INTERNATIONAL, INC.
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Proposal & Appointment Approved & Fully Funded:--
Directeur General Leo Emil Wanta //
(cc: Dutch)

~ Russian American Agriculture Development Program
~ Organizational Chart for Global Peace Forthwith
Operation - Still Point = Global Peace !!
Russian Federation & America

# THE DEMOCRATIZATION PROCESS

The years of 1985 through 1990 will go down in history as the most important of the century since they ushered in the first big step in the Third Leap of Technology. The era of Democratization of Marxist Socialist Countries. The recognition that the Communist Central Control society could not compete with free open market societies in providing that high standard of living promised by both types of societies.

The concepts of authoritarian socialism, whether called Marxism or Planned Social Economies or any other name, have proven themselves unable to provide the production capabilities to compete with the technology driven free market economies of democracy. When everyone is equal and committee decision making is through a bureaucracy, everyone talks about his equality and the proper way of doing things and hence little is produced except discussions.

When the Soviets released the Eastern Block Countries of Poland, Romania, etc., it was unaware that the drive of democratization would be so well received or that it would become so overwhelming and irreversible. The belief in freedom and democracy has an exceedingly greater acceptance after years of central politics with its austerity, lack of production and continued call for self sacrifice. The forced denial of freedom and the material things of the free market economies is expressed in todays high demands for change. All these voices want their new goods today and they seldom realize that these goods must first be produced and then distributed in a free society. Moreover, the authoritarian mechanism of central control government agencies have inherently set in concrete certain structures that are easily maintained and easily thwart the implementation of the free market economy.

The first of these state structured agency areas is the financial money control of Central Banks that continue to restrain access to and use of exchangeable currency. Therefore the Central Bank must open all avenues for the access and distribution of currency necessary to drive a free market economy. If it does not, then a black market economy will form with its waste and inflationary forces, and worst of all, the uncontrolled idea that the Central Control need not be followed. Investment will only be made by small and medium sized businesses of production and market exchange when money and low interest loans are readily available in the Democratization Process.

Since existing Central Control regulated prices are necessarily low, the advent of a free market economy driven by new inputs of capital when combined with low production rates causes rapid inflation. Runaway inflation is dis-



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astrous in the democratization process. Therefore, price increases (inflation) must be restrained and limited to acceptable annual percentage increases guided by financial aid to production entities to provide production rates that fulfill market desire for products. The ultimate goal in a self regulating free market economy is that the high price of goods in the market place encourages new producers to enter the business of producing such goods and services. When investment capital and incentives are available then additional businesses will be formed or existing businesses expanded to provide the necessary production. Technology of production means and business management are thereby encouraged and developed by the drive in the free market economy. Central Control Financial institutions must therefore be the leaders in developing and providing access to financing new and increased production means. Where Central Control Financial Departments are unable or unwilling to provide these measures, then private financial institutions will be required if democratization is to work. If these private institutions are not developed, then the market place will develop them anyway as a black market function but in a slower pace that does not serve the smooth transition to democratization. Importing goods is a natural attempt to fulfill the demand, but this form of relief of market demand is unacceptable unless an offsetting export is available. It is unacceptable since it builds debt and not internal production which is the fulfillment of the stable free market place in the democratization process.

In Central Control economies this export capability normally is not available since it usually also exports goods needed to satisfy expanding demands of the free market economy in the democratization process. Export of raw materials in the energy field is a normal first answer i.e. oil and coal. Export of goods where excess production exists above local needs is an obvious balancing measure. Special assistance and attention must be given financial access to open transfer of funds for export and import transaction and for foreign investment capital to enter and be repaid without undue restraint. In the initial phases, barter arrangements should be encouraged.

The incorporation of the Military Generals in the Democratization process is necessary as a means of providing a smooth transition in the changeover to a free market society. In China, Deng Chow Ping offered business zones to the military leaders and effectively neutralized potential opposition to modernization. This same avenue should be followed to bring the military personnel into assisting the democratization process rather than remaining a force of opposition.



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The second area is the State control of the distribution mechanism of a free market driven society. Democratization demands not only freedom of politics but freedom of transportation of goods and services and market distribution beyond the State run outlets. One must remember that those State distribution agencies are run by people who are afraid of their future and their jobs and therefore will slow down the transfer process to a free trade economy. The natural demand will be to tighten control rather than give open access and eliminate their jobs and security. Therefore, the democratization process must not depend on these Central Control resources but must instead include them in the supply line as outlets rather than as support systems. The Central Control Congress must pass the necessary laws to permit these two competitive agencies to coexist. It is the efficiency of performance that will peacefully determine the leaders in future assimilation of new democratization institutions. Efficiency of performance will set the standard as opposed to rigid agency rules of Central Control.

The third area is communication and access to media to let prospective customers know what the free market has to offer. Naturally food products are of first importance and outlets must be readily available to expand free market participation by both seller and buyer. Other manufactured goods (clothing, dry goods, etc.,) must also have access to consumer distribution outlets, and in turn need the addition of communication with the consumer. This communication media takes many forms from the wall posters to printed media, radio, and TV. Therefore, to implement the democratization process the Central Government must open the mass media advertising process to the new emerging businesses and should do so free of charge if possible or at very low costs.

The benefit to the Central Government is that it is the most visible showing that the democratization - the Glasnost the Perestroika process is alive and working. If the communication systems were overwhelmed it will be the best measure of success for the Central Government democratization process. The Central Control Agency must respond with growth to encourage this vital sector and should permit private entities to participate in an orderly manner.

The fourth area is agricultural production. The best evidence of a successful Central Governing Body is the availability of a broad variety of food at reasonable prices. Food is a perishable and therefore processing by canning, drying and freezing are required as well as fresh food. Most protein crops take over 100 days to raise. Therefore, the initial cost of production is very important. Producing food crops well and efficiently takes more skills than any simple merchandise business. The farmer must know his land, water, season, animals, feeds, fertilizer, seeds, insects, disease,

harvesting, grading, sorting, storage, carpentry and building, equipment repair and mechanical maintenance, and marketing as well. Therefore, to make democratization work effectively and increase food production, the Central Government must do several things. The cost of production capital must be made available at low interest rates, land ownership or long term leasing must be available because of the heavy investment in agriculture improvement, facilities, equipment and supplies. If certain cooperatives are to change to free agriculture production then the government must help in the process with assistance and not restraint. If it does not then, a large downturn in production will occur before an upturn can be spurred by very high food prices. Its the worst scene for the Central Government and should be avoided at all costs. The failure of five year plans run by Central Control is evidence enough of what can go wrong. The most immediate means of implementing the democratization process is to place into private hands a parallel distribution system that assists the State Control outlets. Again, competition of performance will lead the way to assimilation in the future. The new distribution system needs a most important additional segment. That important segment is to establish the raw food receiving and processing stations. This should be in the hands of the private sector for many reasons. The most important is that most foods are perishable and swift processing action must be made to properly market and store the highest percentage of food production.

In agriculture marketing the food production of red and white meats, milk products, vegetables, fruits, berries, tubers, pulses, etc., should have three major segments:

1. Agriculture Production

   The most efficient structure provides the farmer-producer to be left to production of the crops and animals. A reliable source of seeds, materials, fuel, equipment is necessary.

2. Agriculture Processing

   The Processing facilities must be structured to receive all types of agriculture products and process them into marketable products. These facilities should be of modest size and located strategically in farm production areas. Modest sized slaughter houses for red and white meats and fish. Milk processing, poultry and eggs, grading, sorting, packaging, canning, drying and freezing facilities. This is the most important economic item in implementing the democratizing process. It removes the processing, distribution and marketing problems from the agriculture food producer and allows him to concentrate on food production. It maximizes the

efficient economic exchange to the food producer, because he gets paid immediately on delivery. It utilizes agriculture wastes to their highest economic return because it allows recycling into other useful products. It provides immediate revenue to the growers and allows forward contracting for secured revenue and programmed production. It reduces food waste and maximizes food production and allows economies of scale to work in the free marketplace. Canning, drying, and freezing allow added shelf life for greater utilization and availability of food for consumers. The creation of food processing capability and storage facilities makes many new jobs necessary to implement the free market economy. This can provide jobs for ex-military personnel.

3. Agriculture Distribution

When the food production is handled and delivered into the fresh food and processed food sectors, the distribution into free marketing outlets is facilitated. The distribution system includes delivery to both State outlets and restaurants. The greater variety of food products allows establishing meat markets, vegetable, and fruit markets, preserved food markets, dairy product markets and various combinations including supermarkets. The availability of good fresh, prepared and preserved food products allows the formation of many new small and medium businesses. A good steady supply of products extends seasonal earnings and promotes business success. This type of distribution system allows the interchange of many individual investments and business enterprises that are required to form the backbone of a free market economy. When these new businesses are created, many jobs in the service industries are created. In the U.S. about three jobs are created in support services for every direct job in production and manufacturing. The millions of jobs this creates remove these people from the responsibility of the Central government control and relaxes the pressure on newly productive institutions of Central Government. Therefore, the transition in the democratization process becomes orderly and the freedoms of the self regulating democratic functions of society appear as if by magic. The major threat to the democratizing process is from the monopoly of central government control and from private groups or unions working solely to protect their perceived interests. The self regulating features of a free market economy are best initiated and maintained by the freedoms enjoyed and exercised by the many small and medium businesses. The antithesis of the free market place economy is the unrestrained implementation of the concept "Bigger

is Better". The advent of large businesses that can dominate the free market system ultimately means a return to authoritarian control both politically and economically. Agriculture is and always will be the largest industry in society. Therefore, it should be the best understood and have the highest priorities in structuring any society. The Democratization Process is the means of providing the highest yields from self-governing societies built on a free market economy. It is the means of providing the highest standard of living and the greatest freedom of human rights. It is also the greatest means of building and maintaining strong family groups. Strong family groups are necessary in maintaining the freedoms and strengths of an open democratic society producing and distributing its gross national product through an open free market economy. This is the best system yet devised by mankind

Technology is the greatest power in politics because indeed it is what politics is all about. It is the means by which all forms of production of mankind are ordered into effective production and distribution. In the Third Leap of Technology, only those who know what technology is and how it can influence decision making at every level of society will be able to be effective leaders in both the political and the economic arenas. Those countries who accept the responsibility of embracing technology in all the diverse disciplines now showered upon society will survive. Those who do not accept the Third Leap of Technology will soon be left behind within decades just before us. The best means of utilizing and distributing the benefits of the Third Leap of Technology is the democratization process with its open free market economy. It is the only way in which the disparity between "Haves" and "Have nots" can be evened out. The societal changes motivated by new technology are already in motion and should not be delayed. They can be delayed by vested interests such as rigid central control bodies but in the end democratization will win out. Conflicts of nationalism and ethnicity will cause cause further delays but these differences will also be examined in the technology of open communications and will be resolved by the establishment of the technology of the open and free market place economy. The greatest motivating force for democratization progress will be the fear of being left out or left behind. The dissatisfaction of not having the freedoms of democracy and the better things of life associated with human rights must be satisfied now that technology has made their benefits known. Mankind's progress in the next several decades will be phenomenal and historians will look back and express amazement that such leaps forward were achieved in such a short time. These advances will be achieved in both the political and the economic spheres of influence.



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It begins with the knowledge brought to us by the technology of utilizing today's resources for the nurturing of mankind even-handedly and not for his destruction. Mankind has only begun to recognize his potential and what he really can accomplish in a democratic governing process driven by an open free market economy. The world will not become smaller, but man's stature in this world will grow enormously through democratic freedoms and observance of equal rights, honesty and openness of purpose.



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## I. INTRODUCTION

An abundance of natural resources exist in temperate climate areas of the world. The abundance of daylight together with water and seasonal temperatures give rise to yearly growing seasons and therefore the landmass has a large capability for production of cellulosic biomass matter. This combination of natural resource ingredients to produce cellulosic matter should be harnessed to produce the desired food crops, animal feed and materials needed in today's modern civilization.

In a properly integrated agricultural development program all forms of plant protein can be produced which in turn can be used to produce energy products, industrial chemicals and building materials that are needed to elevate the level of living in today's modern world. Man can produce today's food requirements for himself and his animals including all forms of protein and amino acids and also expand his daily living capabilities by having energy in a variety of forms of electrical, liquid hydrocarbons, fuel for his vehicles, fertilizers to improve his crop production, pharmaceuticals for maintenance and betterment of his health. All of these can be produced through an integrated agricultural development plan that can open his vision for an expanded and better life.

Mankind has performed all of the individual segments in this proposed integrated agricultural development program but has seldom integrated them together in a totally planned and directed program.

Sugar beets are raised in nearly every temperate zone in the world and the cultural practices are well established. Under an integrated agriculture program both animal feeds, human foods, ethanol and other chemicals can be produced.

This agriculture program is specifically structured to use the ability of growing plants to produce hydrocarbon materials to produce food for both man and his animals. All types of plant and meat protein will be produced. Poultry meat, eggs, pork, beef and fish in all their fresh and processed forms; dairy milk both fresh and in all its forms of yogurts, cheeses, etc; vegetables and fruits will also be produced in this program. The droppings from the chickens and other animal manures will be processed with other wastes of the agriculture processing plants to provide feed for the piggery, dairy and beef animals as well as food for fish farms. Vegetables of all kinds will be raised in rotational programs to assist in controlling plant disease and pest problems. Fruits of all kinds will be included, with the wastes again going into fermentation processes with manures, etc., to generate methane gas to produce electric power. The

solid residue will be used as animal feed and as fuel to produce energy. The liquids will be processed to produce an organic chelated broad base liquid fertilizer for improved crop production. The heavier agriculture wastes and wood biomass will be used to produce industrial chemicals and charcoal which will be used for domestic heating and cooking fuel, and for electric power generation. The wood chips can also be used to produce fiber board building materials for local building needs.

The program includes the training of the human resources to provide the necessary capability to build, maintain, manage, operate and fully staff all levels of the work force required in this integrated plan.

The expanded needs of the many different level of skills opens new vistas for local population. The increased opportunity for individual growth and personal dignity is a foundation benefit to all who become involved in this program.

The economic benefits speak for themselves and again are fundamentally sound and enduring over the long term. For countries leaving socialist regimes and installing democratic governing processes the need to initiate free market economies is imperative. The speed with which these fundamental free market economies are put into operation will determine the success of the democratization process. The agricultural processing and marketing distribution components of this proposal are the key means of establishing the free market - distribution operation.

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## II. THE INTEGRATED CONCEPT

When modern market based business talks about integrated programs it means that it has reviewed the resources used in the products it produces and has structured a near total use of raw materials and the wastes of one phase into useful byproducts and subsequent usefulness in an overall program.

In agriculture these steps of integrated use have been successfully applied for many years in the United States. In recent times, larger production of wastes in food processing plants has led to many new innovations in using waste products. The first use of such wastes occurred when the local barnyard manure was spread upon the cropland as fertilizer. Another integration occurred when the vegetable wastes and wheat straw and corn stalks were fed to the animals after harvest. Human wastes and animal wastes are used in agriculture in many parts of the world and now the effectiveness of fermentation processes to reduce and change biomass under controlled conditions from one form to another are seen as the logical means to achieve additional economical benefits. The use of microorganisms to change carbohydrates and sugars into alcohol and high protein residues for animal feeds opens new challenges in the future as these processes are better understood and applied. Environmental considerations are now a serious part of all agriculture, commercial and industrial production.

In the early part of this century, wood was placed into retorts and burned in chambers relatively free of oxygen and the resins and oils were taken out in the gases and the remaining charcoal served as fuel for domestic cooking and industrial fuels. Turpentine is a well known wood chemical and gave rise to the paint industry many years ago. In the 1930's, when petroleum resources became more available the economics changed such that wood biomass chemical industries were virtually shut down. Today there is valid reason to reintroduce pyroligneous acid retorts for the processing of biomass waste and other cellulosic waste to produce renewable energy, industrial chemicals and enhance recycling of wastes for environmental protection. With today's rise in petrochemical and fuel costs, the old reliable sources of biomass production integrated with agriculture food production must again be reviewed. This renewable resource must be upgraded with improved technology using fast growing trees on marginal lands and field boundaries. They must be more closely utilized in the relations and interdependence of people and their activities within a community structure.

This Integrated Agricultural Program is a system description on how this may be achieved. The Program has special application for countries in the democratization process. The needs and methods for establishing free market economics are answered by the processing facilities, storage

facilities and distribution systems provided. The greatest need for countries in the democratization process is to establish the means of processing, storing and marketing food production. If this means of interchange is not developed early in the economic process, the whole democratization process will fail through chaos and confusion. Food is a perishable commodity and therefore orderly grading, sorting, drying, freezing, canning and packaging is the first step, then storage, movement to market and distribution sales. There must be an orderly process. This program provides the equipment and technology for those vital steps.

## III. RESOURCE UTILIZATION

The resources used in this integrated program are the land, water, mineral and people resources. The base in this project is the sugar beet production. The improved technology of beet production, processing into sugar, ethanol, chemicals, high protein human food, animal feeds, and waste conversion produces many products. Improved technology provides the fermentation process to either sugar or alcohol, prepares beet pulp into animal feed, the gases are separated and converted to chemicals or burned for energy. The ethanol is converted into Ethyl Tertiary Butyl Ether (ETBE), the new oxygenated alternate automobile fuel with greatly reduced emissions. The leaves and other wastes can be fermented into methane for use as process energy and the residue can be used as fertilizer and animal feed. The generation broad spectrum fertilizers is used for improving land fertility and permits increased production of many other crops. The synergistic effect of more animal feed availability means the capability of more animal meat production of beef, pork, fish and poultry. The use of renewable wood biomass as building materials means better housing for people and the building materials for confining animals in housed feedlot conditions where improved meat production can be realized. It also means that the general collection of animal wastes for reuse in fermentation processes, methane production, animal feed, and fertilizer is also realized. The Program provides for the highest percentage use of the agriculture products raised and utilizes all wastes and recycles them into useful products that go into the economy. The intent is to use the resources in an integrated structure benefiting the standard of living and protecting the environment.

## IV. COMMUNITY IMPACT

The favorable impact on the community is, of course, enormous. The availability of feed and building materials for housing dairy animals means more milk protein in the diet, cheese, yogurt and baby food, all leading to improved health in the community. The production of sugar, wood chemicals, charcoal, ethanol, fish, meat, fertilizer, molasses, building materials, animal feeds, vegetables, fruits, etc., all improve the economic viability of the community.

The production of building materials; electric power; charcoal; beef, pork, fish and poultry; industrial chemicals; fruits and vegetables; etc., provide housing, utilities, jobs, food and the utilization of resources that will improve the standard of living for the entire area and the people living in it. The standard of living is improved dramatically and new vistas of personal performance and achievement are opened that can only be dreamed of now and normally require leaving the area and immigrating to industrialized countries.

Educational opportunities are opened and the human mind can be expanded to be capable of doing tasks and achievements now thought to be almost unrealistic today.

The security of life and improved living can then be realized because there is food and shelter, jobs and work challenges, better health will result with an improved protein diet and food sufficiency. The dream of every parent to give the children a better world in which to live can now be realized and the fears of life with its shortness and coarseness can be replaced with the dignity and self respect that comes with the knowledge that man has a real measure of control on his destiny. The democratization process can really be achieved.

The finest part of the political impact of this integrated agricultural development program is the tremendous power for stability and peace that it brings to an area.

The greatest foreign policy that any nation can have is the export to developing countries of the technology and assistance to produce food to feet itself and industrialization to give jobs, house man and animal, and the training and education to utilize the resources in its environment without destroying it.

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## V. AGRICULTURE SECTORS

### 1. Sugar Beets

In the temperate climates of the world the crop plant known as sugar beets grows exceedingly well. Fodder beets have been a standard crop for animal feeds in Europe for over a century. Cross bred hybrids of sugar beets and fodder beets are now available to improve the production of total biomass tonnage per hectare as well as the sugar content. Improved varieties are programmed to be in this integrated agricultural resource development program. A continuing program for improving varieties for local conditions must be carried out. Modern harvesting equipment is scheduled to reduce hand labor and utilize beet tops. Improved soil amendments and fertilizer programs are scheduled to maximize production.

The concept of total resource utilization is used throughout the program and therefore the chopping of beet tops is provided since the tops will have between 5% to 7% sugar content. A portions used in the fermentation section of the plant and the residue used for animal feed and fertilizer. A portion of the beet tops is made into silage for localized animal feed.

Where conditions permit, continuous production will be programmed year-round. The Program is structured to first produce local consumption needs and then examine export potentials for sugar, ethanol, ETBE fuel, chemicals, etc. A development program is provided for beet seed production and hybridizing improved varieties. Future goals would be 75 tons of beets per acre and 1,500 gallons of ethanol, 15 tons of high grade silage and 15 tons of high protein beet pulp animal feed pellets.

Since the sugar beet production and the attendant existing community structure already concentrates people in the area, adequate planning of the production area must be made to accommodate the civil and ethnic considerations of the growth of the people in the area. The planning of the integration of other crops of vegetables and fruits, animal feedlots and housing, water distribution and handling, housing and civil administration, industrial processing plants, recreational and educational facilities, maintenance facilities, etc., must all be programmed. These exist now to some degree and should be used as far as feasible while providing additions as needed. The land preparation and planting is a first priority requirement and existing production should be continued to reduce the impact of improvements programmed. Of high priority is the agriculture processing plant facility. This facility should be established as the first step after reviewing present

production. The local agriculture production is scheduled to be received at this facility and farmers paid immediately. The facility grades, sorts and packs for the fresh food market. Where drying, canning, freezing are needed the facility provides such capability and expands production through contracting with growers to fill market needs.

2. Dairy

Milk protein is an essential element in a balanced diet. This program provides for the improvement of local beef type animals with hybrid varieties having high milk-meat ratios and livability for the area. Completely new breed introductions will be made where practical via the use of embryo transplant from high production Holsteins to gain immunity to local diseases through mother-host cows. Where feasible, pregnant Holstein heifers will be shipped in by air and housed in confined areas and given balanced feed rations and animal care to maintain health and milk production. The use of local stock adapted to the area should be used wherever practical. Improved breeding will be made available to improve production goals.

All milk animals will be provided extra care to give an extended life and therefore complete veterinary facilities will be provided.

Replacement calf rearing will be initiated with individual cabanas with free choice feeding of colostrum milk fortified with medication and nutritional additives to maintain and improve healthy growth. Selection and culling will be on a continuous program to assure an improving herd performance.

Breeding will be by selected bulls, artificial impregnation, and embryo implants to maintain and improve milk production.

Bull calves will be raised for meat purposes in the beef sector of this program.

All milk will be processed in the creamery plant for maximum use and storage capability. Butter, pasteurized and homogenized milk, cheeses, yogurt, baby food and ice cream will be made at this facility. Complete packaging and storage facilities will be provided. Marketing and distribution will be made in the entire agricultural area to assure the availability of this vital food protein to everyone.

3. Piggery

Pigs have the excellent ability to convert a broad range of biomass feeds to a pork meat form widely accepted and used throughout the world. The animal feed usable by pigs is broad and it therefore provides an acceptable conversion of biomass forms to meat protein in these areas.

To obtain maximum production of meat from these animals, modern housing of a piggery is programmed. Veterinary care will be provided to assure maximum livability and meat gain on the animals. Clean housing, feed and water are essential to the good health and disease free production of these meat animals.

The animal wastes will be collected and cycled into the methane fermentation process. The residue will be used as ingredients in animal feeds and fertilizers.

The young animals will be progressed through a modern system of rearing pens. Breeding stock will be continuously selected and maintained for maximum yield in meat production.

Animal feeds will be prepared in the feed mill and supplements with medication, grain and mineral supplements. Biomass wastes will be selected to reduce disease problems.

Finished animals will be of a moderate fat type and go to the central slaughter house for processing and subsequent delivery into the local market. Considerations on planning are given for shipping to outside markets after domestic needs are met. Cured meat products will be processed in the slaughter house facility.

4. Poultry

Production of poultry meat will be accomplished by high quality leghorn chickens selected for egg production and hybrid crosses for broiler meat production. A complete facility for egg production and handling is scheduled. A complete facility for broiler production and handling is scheduled and includes breeding stock and hatchery segments.

Chinese weeding geese are scheduled for farm crop cultivation and meat production. Breeding stock, hatchery housing and rearing facilities are programmed. The wastes of all the poultry will be gathered and added to the animal feed production, fermentation process and fertilizer segments.

Complete veterinary facilities will be provided to maintain healthy birds, continued flock management and improvement.

Domestic needs will be met first and then external marketing done on an integrated programming basis to coordinate agricultural production of feed supplies to support this segment of the program.

5. Beef

Beef animals are scheduled in this program and the effort begins with upgrading local varieties and by introduction of breeds that are suited to the climate and disease parameters of the area.

Embryo transplants will be used to improve the local breeds and gain disease and parasite immunities from host mother cows.

A major portion of the supply of beef animals will be from the bull calves from the dairy herd. these will be reared in confined areas until old enough to be put on pasture. Rearing on grass pastures sequenced with rotational crop planting to break disease and insect cycles.

Complete veterinary care is scheduled and a thorough vaccination program will be applied.

Finishing of animals for slaughter will be made in a feedlot prior to slaughter. Production goals will be a moderately fattened animal tending to the lean side. Finished animals will be sent to the slaughter house and the meat prepared for fresh meat domestic use and chilled or frozen for domestic and external market use.



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6. Tubers

The integrated farming program includes tubers of potatoes, sweet potatoes, artichokes and other root crops.

A rotational sequence cropping plan will assist in reducing disease and insects. The crops will be processed first for the local needs and second for external markets.

Fresh produce packing and sorting sheds will be built with associated storage areas to fully utilize food quality and marketing capabilities. Canning factories and dehydrators will process both tubers and other vegetables into other foodstuffs having longer shelf life and additional market capability.

Wastes from the operation will be used in the fermentation plants and cycled into animal feeds and fertilizers.

Plant breeding and pathogenic laboratories will be used to maintain disease resistant varieties and to cross and select improved strains. Disease and insect problems will be monitored and appropriate insecticides and herbicides used for improved crop quality and production.

7. Fruits and Berries

The integrated plan schedules the planting of all types of fruit and berries. Apples, pears, peaches, cherries apricots, nectarines etc., are scheduled in this plan. Improved varieties will be added to local standards. Where feasible berries of all types will be raised for the fresh food market and processed food markets for both domestic and export market.

Harvesting will be programmed over as long a period as possible and the crop harvest will be processed in the packing and sorting facilities and then sent to market. Certain portions will be sent to the juicing and canning facility. A full line of juice and canned food items is scheduled.

Wastes from the operations will be gathered and used for processing into pelletized animal feeds, methane production and fertilizers.

Disease control for root rot, scab, mites, etc., and other insects and diseases will be monitored and controlled through trained horticulturists and active programs of agricultural sprays and fertilizers. Propagation of disease resistant varieties are planned as a part of the program and a complete propagation nursery is included.

Prepared baby foods are scheduled as part of the processed food line. A complete line of soft drink juices is included. Frozen juice concentrates are also included. Dehydrated products will also be included in this plan.

8. Vegetables

Fresh vegetables of all kinds are provided for in the program. Fresh beans and peas and pulses of all kinds are included for the fresh food market, canning and dry food market. Green leaf vegetables, root crops of carrots, beets, etc., cabbages, eggplants, tomatoes, melons, squash, cucumbers, and corn for the fresh food market, canning and dry corn for animal feed is included. Sunflowers for both human and animal food as well as cooking oils are included. Grain production is also included.

Wheat is included for both human and animal use. Crop rotation is scheduled to break disease and insect cycles and to minimize losses from these causes.

Weeding geese will be used to cultivate these row crops and will produce meat as well as provide a cropping service. A complete laboratory for maintaining disease and insect vector control is included.

Fertilization practices will include the use of chelated organic fertilizers generated as part of the fermentation processes and will also include NPK but in reduced quantities. Foliar applications will be made as a regular treatment. A strong fertilizer component is made from carp and other trash fish from aquaculture programs. Soil amendments and innoculants will be used to provide high organic activity in the soil to maintain maximum soil fertility.

Water resource development will include collection and distribution systems to maintain control of excessive water, initiate proper drainage of farmland areas and supply water for continued production during the dry seasons.

A net work of fish rearing ponds will be established for fish meat production and additional integration of resources. A system of aquaculture for production of fish protein from various waste products will not only produce fish fertilizer from waste products but it broadens the base of the diet of people involved in this program.

The food processing system will include sorting and packing for fresh fruits and produce. These will be prepared for both the domestic needs and for external marketing. Dehydrating, juicing and canning plants will also process part of the crops.

9. Aquaculture

In a fully integrated agricultural program, the use of fish and crustaceans in aquaculture production of protein can not be overlooked. Fish have the highest conversion ratio of biomass feeds to meats of all meat producing animals. Crustaceans are scavengers and eat the fish waste. Additionally, they can make this conversion on feeds that have heavy ratios of vegetable matter to meat proteins. The aquatic or marine cycle of biomass conversion and growth is used little today in food production but holds promise of being one of the highest producers of human and animal protein food needs.

Man has selected animals for domestication and crossbred them for thousand of years. The one area where he has done practically no selection and crossbreeding is in aquaculture The little effort that has been spent has produced dramatic results. In this integrated agricultural development program emphasis is placed upon the use of aquaculture to utilize wastes from other processes to both cultivate marine growth for feeds in a marine bio-chain as well as pelletized feed-stuffs for the aquaculture meat production segment. Again, the wastes from the processing will be used as animal feed especially poultry feed for full integration results.

Fish breeding and rearing ponds will be established and the fish crop harvested on a continuous basis. Sorting and packing facilities and storage facilities will be used to maintain quality and quantity for both domestic use and for external marketing. Canning facilities will be used for preparing the fish and crustaceans for long term storage and marketing. Dehydrators will also be used for processing a portion of the aquaculture production.

10. Equipment Needs

In this integrated agricultural development plan, modern equipment for land preparation, seed bed preparation, planting, cultivation, harvesting, spraying, etc., will be used. Reverse rotary drill rigs for reliable water sources both domestic and agriculture will be used. Irrigation pumping barges and land portable units will be used for water control. Mechanical power plants run on alcohol fuel will be used and electrical power where feasible and after domestic needs are met.

Complete maintenance and spare parts facilities are an essential part of the program. Training of personnel will be part of the plan and be an ongoing activity as the project is expanded. Both permanent and portable classrooms will be operated to assure adequate training of personnel in all phases and jobs in this integrated plan.

A complete transportation infrastructure is planned and engineered to service both civil and agriculture needs. Farm to market communications and transportation are essential requirements for a successful operation.

The processing plants for sorting and packing; collection and use of wastes; storage and shipping; dehydrating, canning, juicing processing plants; wood processing, fermentation plants; dairy processing plant; methane processing plant; ethanol fermentation plant; fertilizer processing plant; pelletizing feed mills; electric generating plants; building materials plants; and all maintenance and spare parts facilities are provided.

Complete community facilities are set by and integrated with present ethnic and cultural practices. In an integrated societal area of the future, democratization will provide more civil participation and more leisure time and therefore such facilities will be enlarged and provided to meet the needs of the area and desires of the people.

## 11. Agricultural Supplies

A vital necessary part of this integrated agricultural development program is the supply of agricultural chemicals and supplies. The production capability of disease organisms and weed crops can be an ominous competitor with domestic crops. Throughout the world crops are lost every year and the battle against crop losses goes on unrelentlessly. The answer to winning the battle lays in having the proper agricultural supplies to combat these many problems of disease and insects.

Chemicals are necessary to help in controlling both disease and undesired weeds. Organic fertilizers including a broad spectrum of elements and NPK are a necessary additive to the soil since the importance of NPK in the plant nutritional scheme is that they are the catalyst through which other nutritional elements and molecules are transferred throughout the growing plant system. Therefore, the presence of NPK results in a faster transfer of the nutritional elements in a plant and it therefore grows faster and can reach a higher degree of its genetic potential or in the farmers language it produces more crop per hectare.

The source of NPK for the plant to use in its growing cycle is important. It may be added as an agricultural chemical fertilizer such as urea, ammonium sulphate, etc., or it is preferably supplied by a broad spectrum organic fertilizer.

The best source is from the humus of growing plants or animal wastes or fermented biomass residue. When one speaks of a fertile soil it always means a soil having a high humus content. The old standard of fertile land was called the "river bottom land". In Egypt this important humus fertilizer was the river silt that was left after flood waters retreated and was carefully gathered and applied to the crop land as fertilizer. Included in this silt are fine grains of the various elements which are consequently used as a source of iron, manganese, calcium, boron, etc.. Microorganisms free these nutritional elements from the silt and humus and utilize them in the makeup of new chelated molecules used in the plant nutritional processes.

In this integrated agricultural development program high emphasis is placed upon the use of wood products and other biomass wastes to produce fuel gases, wood distillation by-products and residual humus. These by-products are released when wood or suitable biomass wastes are processed to produce fuel gasses, residual humus, and wood distillation by-products. These products are generated in fermentation processes and are released when wood or suitable biomass is

burned in an exothermic reaction (without oxygen) in a retort. The wood exothermic process is used throughout the world to produce charcoal but little attempt is made to catch the distillates given off in the hot vapors. The products of this charcoal making process is a complex liquid called pyroligneous acid, tar, wood oil and certain non-condensible gases. The heavy condensates can be easily taken out of the retort gases and used further in the industrial chemical process discussed herein. The gases also can be treated with higher temperatures to give Carbon dioxide, Carbon monoxide, methane, nitrogen and hydrogen. Carbon dioxide can be treated to make ammonium bi-carbonate for fertilizer and in subsequent processes can be made into urea. Carbon monoxide (CO) can be combined with hydrogen under pressure to make methanol or can be reacted with methanol to make acetic acid. About 10% of the gas can be recovered as methane, a gas that can be used for heat purposes or made into acetylene, carbon disulphide, formaldehyde, etc. With the production of carbon dioxide and carbon monoxide begins the complete chain of chemicals we know today as industrial chemicals. This pyroligneous product was the first raw material used in chemistry and the interchanges that can be made are what we call modern chemical industry. These materials can even be processed into pharmaceutical use in modern day medicine and into acetate for making rayon or other synthetic fibers for clothing etc. Therefore, in summary, the distillates and gases from the biomass retorting can be used in this integrated agricultural plan to provide the chemicals for fertilizers for agriculture production, processing food, energy for heating and drying, producing electricity, a complete spectrum of agriculture agri-chemicals, pharmaceuticals, acetates for clothing, etc.

Agriculture is the first industry of the world not just because it produces food but because it can produce just about everything man needs for a modern comprehensive standard of living.

12. Training

Man has lived for many thousands of years on this earth. There is no good reason for anyone to die of starvation or to be left in ignorance about how to use the resources about him to enjoy a better life.

Every country of any size usually has most of the resources man needs. The only major thing that must be done is to train and educate the people in the proper integrated use of these resources to provide the needs of a better life. There is no restraint in training and educating people to use the resources about them to improve their life except the willingness to begin. Finances can be a restraint but these matters can normally be resolved where there is production in using the resources.

The training program must begin with the organization of initial cadres of people already educated in certain basics. This will be accomplished by the Company in implementing this program.

A review of the land, water, mineral and human resources available is the first step. The Program must be built upon the use of already existing production and facilities. Programming the use of these resources is the second step. An integrated agricultural program is then established utilizing the format of Exhibit A. In the case of a democratization process, the greatest need is usually the facilities for taking present agriculture production into a proper facility for grading, sorting and packaging and then creating a basic effective market economy of distribution to the consumer.

Then the introduction of improved or new uses for existing resources is initiated, each with its provision for training in the individual tasks that finally will be part of an integrated program. The training and education must be geared to imparting the understanding that the production of each segment will be used by other segments and in turn these segments will produce items that in turn will be used in an integrated structure whereby all can benefit substantially. The training will encompass the menial tasks to the sophisticated positions as scientists in chemistry, engineering, management etc. All types of employment are opened up in this agriculture development program. The program is profit oriented and the demands and rewards of a free enterprise system are structured to work in bringing out the best capability in people and rewarding them for their contributions, abilities and effort.