

**Partnerships for Food Industry Development
A U.S./Ukrainian/Moldovan Partnership**

Leader-with-Associates Agreement No: PCE-A-00-01-00012-00

Funded by

**The United States Agency for International Development
USAID M/FM/CMP**

**1300 Pennsylvania Avenue, N.W.
Washington, DC 20523-7700**

Initial Industry Assessment Report

July 2001

Submitted by

**International Programs
Louisiana State University Agricultural Center
Baton Rouge, Louisiana**

In association with

**The World Food Logistics Organization,
The World Laboratory, Ukraine Branch, and
The National Institute of Animal Husbandry and Veterinary Medicine of Moldova**

Table of Contents
Initial Industry Assessment Report

Table of Contents 1

List of Acronyms and Abbreviations..... 3

Section I. Summary 4

Section II. Introduction and Background 5

 A. Review of Project..... 5

 B. Overview of Methodology 6

Section III. Cold Chain and Related Logistical Issues 7

 A. Standard Methodology and Approach 7

 B. Summary of Preliminary Findings..... 8

 C. Comparison of the Ukrainian and Moldovan Situation with Those of Other Developing Countries or Emerging Markets..... 9

 D. Recommendations..... 9

 1. For Further Analysis 9

 2. Initial List of Possible Project Activities 10

Section IV. Institutional Issues - Associations, Networks and Partnerships..... 10

 A. Background of Networking and Other Institutional Issues in Ukraine and Moldova 10

 B. Specific Methodology and Approach 10

 C. Summary of Preliminary Findings..... 11

 D. Comparison of the Ukrainian and Moldovan Situation with Those of Other Developing Countries or Emerging Markets..... 12

 E. Recommendations..... 12

 1. For Further Analysis 12

 2. Initial List of Possible Project Activities 13

Section V. Post-Harvest Procedures and Technical Issues..... 14

 A. Processing of Meat and Poultry 14

 B. Processing of Seafood..... 16

 C. Recommendations..... 16

Section VI. Safety, Sanitation and Standards..... 17

 A. Meat and Poultry..... 17

 B. Seafood 18

C.	Recommendations.....	18
1.	For Further Analysis	18
2.	Initial List of Possible Project Activities	18
Section VII.	Economic Issues.....	19
A.	Primary Constraints to Growth	19
1.	Domestic Demand for Meat and Seafood.....	19
2.	Trade Issues	20
3.	Fragmented Livestock Production Sector.....	21
B.	Preliminary Conclusions and Recommendations	23
Section VIII.	Summary of Recommendations.....	23
A.	Future Assessment Activities.....	23
B.	Possible Project Activities	24
Annex A: Client Profile		

List of Acronyms and Abbreviations

ACDI.....	Agricultural Cooperative Development International
BN.....	Basarabia Nord
CAC.....	Codex Alimentarius Commission
CNFA.....	Citizen’s Network for Foreign Affairs
FNFM.....	(National Federation of Farmers in Moldova)
HACCP.....	Hazard Analysis Critical Control Point
IARW.....	International Association of Refrigerated Warehouses
LSU AgCenter.....	Louisiana State University Agricultural Center
NAUU.....	National Agricultural University of Ukraine
NIAHVM.....	National Institute of Animal Husbandry and Veterinary Medicine
NRA.....	National Refrigeration Association of the Republic of Moldova
OSAR.....	Odessa State Academy of Refrigeration
PFID.....	Partnerships for Food Industry Development
PPP.....	Purchasing Power Parity
UPPA.....	Ukrainian Poultry Production Association
USAID.....	United States Agency for International Development
“Vinnitsa”.....	Support for Ukrainian Private Farming Sector and Scientific Collaboration Project
VMPF.....	Vinnitsa Meat Processing Facility
VOCA.....	Volunteers in Overseas Cooperative Assistance
WFLO.....	World Food Logistics Organization
World Lab.....	World Laboratory, Ukraine Branch
WTO.....	World Trade Organization

Section I. Summary

This report documents an initial assessment of the meat, poultry and seafood industry in Ukraine and Moldova. This assessment was performed under the auspices of the Partnerships for Food Industry Development (PFID) Program, a food industry development program focusing on meat, seafood and poultry. The PFID's Technical Committee collected the necessary information through visits with key stakeholders in the meat and seafood processing industries during an assessment trip to the two countries in May and June 2001.

Team members from WFLO observed that cold chain methodology and logistics were under-developed. They noticed a lesser emphasis placed on improved refrigeration and distribution processes, little or no use of information management systems and a poor transportation pipeline. Most frozen or refrigerated products are exported to Russia. Low income has limited domestic demand for processed meat products. The sector also is severely limited by a lack of quality raw materials. These factors resulted in processing plants and cold storage facilities operating at a low level of capacity. WFLO witnessed other challenges facing Ukraine and Moldova similar to those facing other emerging markets; such as: third-country competition, financing problems and unfamiliarity with the demand for quality. WFLO can provide analysis instruments and reference information for cold chain issues, including energy consumption patterns.

Compliance with international guidelines would be facilitated through cooperative endeavors within associations. Associations visited by the assessment team include the Ukrainian Poultry Producers Association (UPPA), the "Beza" Association of Odessa-based seafood industries, the National Federation of Farmers in Moldova (FNFM) the National Union of Meat Producers in Moldova and the members of the National Refrigeration Association of the Republic of Moldova (NRA). Academic institutions, such as the Odessa State Academy for Refrigeration (OSAR), also have links to the processing industry. WFLO suggested that a weak local association could improve by linking with a stronger and more global association. Recommendations for further analysis include an assessment survey for associations, partnerships and networks. WFLO can also conduct training of trainer courses, in collaboration with academic institutions and other development projects in the area, for association development.

In Ukraine, there are more than one thousand small meat plants and approximately thirty plants that produce more than one thousand kilograms per day. In Moldova, there are approximately a dozen meat-processing plants with daily production capacity larger than one thousand kilograms. Pork is the most highly consumed meat, with little beef or lamb consumption due to livestock supplies. A majority of the production of the large meat plants is shipped to former Soviet Union countries. Most of the meat plants have a combination of older and some newer equipment. In Ukraine, there are about 320 poultry enterprises, with thirty percent currently idle. The poultry plants seemed to have moderate to high capacities, but were limited by the numbers of birds. The Moldova poultry industry is largely dependent upon small producers.

There are limited natural fishery resources in the Ukraine. However, the Port of Odessa could serve as one of the most important hubs for seafood processing in Eastern Europe by importing raw materials for value-added food processing. It has large facilities but has suffered from neglect over the last ten years. Nearly all facilities visited were operating at only a fraction of

their production capabilities. Moldova has potential for establishment of freshwater species capable of pond culture. The team recommends identification and promotion of finished seafood products acceptable outside Ukraine and Moldova.

Slaughter equipment was generally less modern than processing equipment, requiring additional care and sanitation practices. In the Ukraine, it was indicated that the government has regulatory personnel assigned to each plant. There was considerable indication of a high regard and concern for product sanitation but a need does appear for Hazard Analysis Critical Control Point (HACCP) and sanitation training. Sanitary practices can be further assessed through chemical, physical, and microbiological analyses. A translation of governmental standards for specific chemical, physical, bacteriological, and radiological compounds, as well as testing procedures, would be useful for the technical team. The sanitary condition of the air and ventilation, water, and other inputs, as well as official standards for such conditions and the frequency of testing for both countries, should be examined. HACCP pre-course preparation activities also could serve as a final assessment of training needs. Improved temperature controls of products would be warranted to maintain product safety and quality. The bulk of seafood training should be concentrated in Ukraine and focus on sanitation and standards. This process would begin with train-the-trainer workshops with cooperators followed by workshops for seafood processors in Ukraine and Moldova.

The economic constraints to food processing in Ukraine and Moldova are linked to weak domestic markets, export markets that are closely tied to the unstable Russian economy and lack of good quality animals for processing. The weak demand can be traced to low incomes relative to food prices and a high inflation rate. The health of the Russian economy has an excessive impact on its neighbors. Most livestock are owned and raised by the smaller operators who have limited capacity to improve the raw product. These factors result in the underutilization of processing and cold storage capacity. Further development of export markets may increase the demand for processing but will require marketing plans. The supply of raw products could be improved with a “model” central livestock market and forward contracts.

All recommendations by the assessment team are summarized at the end of this document.

Section II. Introduction and Background

This report documents the results of an initial assessment, undertaken by the PFID’s Technical Committee, of the meat, poultry and seafood industry in Ukraine and Moldova. In doing so, it addresses the Project’s first objective, that of investigating the industry’s current status.

It is evident that after the demise of the Soviet Union in August of 1991, Moldova and Ukraine have attempted to address the demands of the transition to democratic governance and a market economy. Ukraine and Moldova have been in transition for nearly 10 years, and structural reform elements seem now in place, although there are many deficiencies in the system.

A. Review of Project

The Louisiana State University Agricultural Center (LSU AgCenter), World Food Logistics Organization (WFLO), the World Laboratory, Ukraine Branch (World Lab), in Kyiv, Ukraine, and the National Institute of Animal Husbandry and Veterinary Medicine, Chisinau, Moldova

(NIAHVM) presented a proposal. This was in response to USAID's Request for Applications for The Partnerships for Food Industry Development (PFID) Program. The program presented was anchored on the following themes: 1) industry awareness; 2) support mechanisms; 3) post-harvest and processing technologies; 4) capacity building; and 5) business partnerships.

The partners to this proposal planned a four-year food industry development program focusing on meat, seafood and poultry. They believed that the above themes would provide a solid foundation for success of the program. The implementation approach involved a five-stage process: 1) industry assessment/crosscutting analysis; 2) assembly of key stakeholders; 3) identification of critical issues, prioritization of needs, and impact on local cultures; 4) development of solution strategies; and 5) implementation of strategies. Resulting commercial gains for the food industry would include improved food plant efficiencies, plant capacity utilization, and product quality. These impacts were expected to increase the demand for the raw product, which in turn will enhance incomes of agribusinesses and small farmers. The program would reinforce USAID mission strategic objectives.

Preliminary information gathered in Ukraine and Moldova indicated concerns regarding to standards and quality control management for processed meat products. As both nations aspire to join the World Trade Organization (WTO), the program's efforts would focus on assisting in the development of proper standards that are consistent with Codex Alimentarius Commission (CAC) guidelines. This initiative is expected to assist Ukraine and Moldova to regulate this Category I industry as well as facilitate their entry into WTO.

The management structure for this program was designed with the guiding principles of communication and collaboration. To this end, a simple and effective approach was proposed to ensure systematically articulated and coordinated implementation without compromising accountability and oversight.

B. Overview of Methodology

As previously mentioned, the Project aimed to conduct an initial assessment of the food industry in Ukraine and Moldova. The PFID's Technical Committee collected the necessary information during an assessment trip to the two countries from May 27 to June 5, 2001. The Technical Committee consists of the following members who contributed to the assessment:

- Dr. Michael Moody of LSU Ag Center's Department of Food Science, who recorded technical and safety issues relating to the processing of fish and seafood;
- Dr. Kenneth McMillin of LSU Ag Center's Department of Animal Science, who noted technical and safety issues relating to the processing of meat and poultry;
- Dr. Wes Harrison of LSU Ag Center's Department of Agricultural Economics, who analyzed the economic situation facing the food industry; and
- Mr. Bill Hudson and Mr. Brinkley Seward of WFLO, who assessed issues pertaining the cold chain, industry associations and logistics.

The Program Director and the Program Coordinator of LSU Ag Center's International Programs accompanied the Technical Committee and concentrated on assessing partnerships and networks

in the industry. Lastly, USAID/Washington's Global Bureau provided a representative to participate in the assessment.

Information was gathered through visits and informal interviews with key stakeholders in the meat and seafood processing industries. These included representatives of the following organizations:

- Representatives and affiliates of the PFID's host national partners - World Lab of Ukraine and the NIAHVM of Moldova;
- Meat and poultry producers in Ukraine – Kiev Meat Processing Plant and Vinnitsa Meat Processing Facilities and three poultry plants (Havrylivka, Kerchinsky and Bershadski);
- Meat and poultry producers in Moldova – Carmez of Chisinau and Basarabia Nord (BN);
- Seafood producers – Illytchevsk Fish Factory of Odessa Cannery and Costesty Fish Enterprises in Moldova;
- Academic institutions – Ukrainian University of Food Technologies, Odessa State Academy of Refrigeration (OSAR), National Agricultural University of Ukraine (NAUU), Vinnitsa State Agrarian University and the Department of Food Processing at the National University of Moldova;
- Trade associations – Meat Producer Association of Ukraine, Ukrainian Poultry Production Association (UPPA), the National Federation of Farmers in Moldova (FNFM), Moldovan National Union of Meat Producers and the National Refrigeration Association of the Republic of Moldova (NRA);
- USAID offices in Kiev, Ukraine and Chisinau, Moldova;
- Wholesalers and Retailers - Billa Supermarket of Kiev, Ocean Retail Market of Odessa, and Taur Commercial Wholesaler of Chisinau; and
- Other organizations – The President's Committee for Productive Forces (Ukraine), Kiev-Atlantic, Odessa Port Cold Storage and Citizen's Network for Foreign Affairs (CNFA).

In most of the processing plants, the technical team met with the Director General. The technical team was allowed to discuss and ask questions regarding production and business practices of each enterprise. Usually, visual inspection of processing facilities was also allowed. From these interviews, each team member acquired information relevant to his area of expertise, which has been synthesized in this document.

Section III. Cold Chain and Related Logistical Issues

A. Standard Methodology and Approach

It is WFLO's goal to broaden and promote more efficient warehouse and distribution services and to promote the business of product protection and integrity. Team members from WFLO assessed cold chain methodology and logistical issues, summarizing its findings with a

comparison of Ukraine and Moldova in their current state to other emerging markets. This section will conclude with recommendations for further analysis and future project activities.

The WFLO team members repeatedly asked the following questions to obtain the information found in this section:

- What was the degree to which value was added to the original product by processors?
- Why was storage, particularly of locally produced raw materials, under capacity?

B. Summary of Preliminary Findings

Cold chain efficiencies and methods, as observed by the assessment team, were under-developed. The team also noticed a lesser emphasis placed on improved refrigeration and distribution processes for better preservation of the food commodity. For example, the Director of the Odessa Corporation of Poultry Industries stated that all six poultry units in Odessa Oblast are currently un-operational, primarily due to lack of deep freeze storage. According to the National Refrigeration Association (NRA), ninety percent of refrigeration in Moldova is based on freon systems, not the more efficient ammonia systems. Lastly, it was observed that there was little or no use of information management systems in tracking product for enhanced efficiencies. All of these limitations were due to a lack of capital.

One of the great detriments to any commerce in Ukraine is the transportation pipeline. The roads are in disrepair, limiting vehicular transportation. The rail system was not studied in detail but the track system appears satisfactory from observations of moving trains.

Ukraine and Moldova traditionally salt and dry meat, poultry, and fish products. Dr. Igor Chumak of OSAR noted that the Academy has researched cooling, freezing, and storage of packaged and single fish but that there is no extensive use of cooling and freezing in warehouses. The cold storage warehouses are now used to store the salted and dried produce. Dr. Gennady Palshin of World Lab stated that only three of sixteen refrigeration plants in Ukraine are currently in operation. These included 145 refrigeration units in Ukraine, most of which were obsolete with a minimum of fifty percent depreciation. According to the Ukrainian Poultry Producers Association (UPPA), most of its members' products are chilled, not frozen, and marketed to supermarkets and restaurants. No similar figures were available for Moldova.

Dr. Palshin added that most meat, seafood, and poultry products that are frozen or refrigerated are exported to Russia. An average monthly family income is not sufficient to provide adequate demand for processed meat products (such economic issues are discussed later in this report). This explains why meat consumption is down and why forty to seventy percent (depending on the location) of meat is sold without processing. One must conclude that the value added to refrigerated and frozen products is not relatively important in the target sites and therefore, the capacity of processed product was limited by the low demand.

The production and processing sector also is severely limited by a lack of quality raw materials. For example, Taur wholesaler of Moldova stores meat and milk with fairly modern compressors but only at twenty-five to thirty percent capacity. The Director wants to increase the capacity by storing fruits and vegetables. The fish and poultry sector are both suffering from competition in

the market from imported products. Ukraine and Moldova are able to import the chicken, fish, and seafood products less expensively than local product can be produced.

As a result of this lack of raw material, the processing plants and cold storage facilities were stated to be at twenty percent capacity, but were more realistically at ten to fifteen percent capacity. As such, processing issues per se appeared to be of lower priority compared to production. Generally, those emphasizing food safety in the many discussions held in Moldova and Ukraine, were those of the assessment team. Production was paramount, quality and value added were of second importance.

C. Comparison of the Ukrainian and Moldovan Situation with Those of Other Developing Countries or Emerging Markets

WFLO has witnessed many of the same challenges that face Ukraine and Moldova in other emerging markets. These challenges and observations include:

1. Weak purchasing power of the majority of the population;
2. Exporters must establish close business relationships with local importers/agents;
3. Infrastructure, including ports and cold storage facilities, are poorly developed;
4. Third-country competition remains strong, financing remains a problem as banking system remains weakened by the impact of the financial crisis that began in 1991;
5. Global purchasing organizations buy from the cheapest acceptable source;
6. Sites tend to be in remote areas where transportation and lack of infrastructure presents barriers to cost-efficient distribution of imported food products; and
7. Many producers and processors are unfamiliar with the demands for quality food products and tend to emphasize price over quality.

The Ukrainian consumer population prefers domestic refrigerated poultry, which is considered fresher than imported frozen poultry. Management at the Kerchinski and Bershadski poultry plants both supported this conclusion by stating that each supplies products to seventeen sites throughout the Ukraine. As pointed out, the upper three to five percent of the public consume twenty to thirty percent of the processed products. As in the emerging markets of Southeast Asia and Central and South America, production prices and cold storage are high as it relates to purchasing power of the people adding to the cost, but western influence is gaining. With the proliferation of television, tourism, and two income families, the use and convenience of refrigerated and frozen products continue to rise.

D. Recommendations

1. For Further Analysis

WFLO and its sister organization, the International Association of Refrigerated Warehouses (IARW), can provide several instruments for cold chain analysis, including technical assessment and production efficiency. These instruments could be based on surveys conducted by IARW on operating ratio, safety and productivity benchmarking. An in-depth analysis of energy

consumption patterns could be useful to assess how processors address this critical issue in the industry.

2. Initial List of Possible Project Activities

Developing a relationship with WFLO would be helpful to any food processing enterprise. The WFLO reference library contains information on food quality and safety, product processing and packaging, process safety management, energy conservation, proper storage, etc. Energy was a recurring concern; for example the Carmez processing company of Moldova complained of high-energy costs. The WFLO suggested that warehouses could alleviate this problem by switching to ammonia-based refrigeration systems. This could be facilitated through collaboration with the European members of IARW.

Section IV. Institutional Issues - Associations, Networks and Partnerships

A. Background of Networking and Other Institutional Issues in Ukraine and Moldova

Ukrainian and Moldovan organizations that derived under Soviet control were designed to implement decisions handed to them from central authority. Individual adaptation and initiative were not institutional characteristics that were encouraged under this model. Ten years after the fall of the Soviet Union, Eastern European businesses have not yet completely developed those characteristics. This is reflected in their networks and associations.

There have been measures to establish networks that facilitate the increased capacity of the agricultural sector. Aginukraine.com (<http://www.aginukraine.com/>) is a Canadian company that electronically links agricultural enterprises that operate in the Ukraine. It aims to be an integrated source facilitating contacts between independent business owners, multi-nationals or institutions. Its marketing focus is North American firms and Ukraine. The services provided include web consultation, e-commerce facilitation, a business directory, and advertisement.

The site's commercial partners are businesses offering products, equipment, or services through the website. Commercial partners are provided greater access to potential buyers. Products, equipment or services are offered to independent business owners (IBOs) at discount prices. Retail customers make purchases through an IBO. Aginukraine.com offers commercial partners from outside of Ukraine a way to access the market in Ukraine without creating their own independent infrastructure to do so. Ukrainia.com, a directory of Ukrainian-related web sites, has rated Aginukraine.com as the most popular site in its field.

B. Specific Methodology and Approach

The assessment team members from WFLO and the Ag Center's International Programs Office addressed the importance of associations and association building as it applies to Ukraine and Moldova. During the initial assessment exercises, trade associations, retailers, warehouseers and the CNFA were seen as having information that was particularly relevant for the assessment of associations, networks and partnerships in the target countries.

During those interviews, the following questions specifically related to institutional development were asked:

- What are potential areas for collaborative research?
- Is there any communal activity or potential in the areas of marketing, exports and logistical issues?

C. Summary of Preliminary Findings

WFLO realized that the professionals in Moldova and Ukraine recognized the essential need and use of international standards and that the differences in cold-chain approaches must be harmonized through using global standards. As noted in discussions, WTO membership in three to five years will depend heavily on compliance with international guidelines on proper handling and refrigeration of product. The achievement of such goals would be facilitated through cooperative endeavors.

During the course of the assessment exercise, various associations were identified as being in varying stages of institutional viability. For example, the Meat Producers Association, with 115 members in Ukraine, evolved out of a government agency.

The Ukrainian Poultry Producers Association (UPPA) offers services to its members in the following fields: marketing, promotion, breeding coordination, chick supply, other inputs, joint stock issuance, advocacy/lobbying and technical assistance. The UPPA's Deputy General Director states that it facilitates contracts with foreign and domestic corporations for equipment and technical assistance. It also acquires technical assistance through attending international expositions. UPPA coordinates between members, retailers, wholesalers and oblast offices. According to the Director, the UPPA's members produce twenty percent of the country's total poultry supply. Active members include six large, vertically integrated enterprises, fifteen small-scale producers and 185 egg producing enterprises. The Association has a representative office, often operating independently, in each oblast. Contracts between the Association and its members result in fee transfer. Unfortunately, thirty percent of the UPPA's officially listed 320 members are currently idle due to closed market links and increased input prices (particularly in feed and energy). This has resulted in decreased participation in the Association. The Deputy also noted some conflict with redundant government programs, particularly regarding breeding.

The Director of the Illytchevsk Fish Factory and Cannery in Odessa stated that he relied on informal contacts for marketing. The Ocean seafood market in Odessa sources its product from individual suppliers. The Odessa State Academy of Refrigeration has a provisional list of fifty-two seafood producers and processors as a result of a state directive. These enterprises are located on the Black Sea coast, lakes and rivers. This list facilitates access for training and dissemination of information. Within this list, eighteen enterprises form an association called "Beza" for joint promotion and networking (others might be informally affiliated). The academy also has worked with port warehouses in design assistance and technical consulting.

Its President described the National Federation of Farmers in Moldova (FNFM) as an umbrella of twenty-nine smaller organizations, with 56,000 members in 814 rural communities. It manages seven consulting centers. Services include advocacy, training, organizational and

cooperative development, informational sharing, model farmer programs, networking with potential buyers, and the promotion of international markets. The National Union of Meat Producers in Moldova coordinates regulation of food processing. Its goals are to mobilize producers to consistently achieve standards. Some members are also processors. Although farmers seemed well organized through the Farmer Federation, the food processing industry in Moldova is decentralized and does not appear to have a solid organization.

The members of the National Refrigeration Association of the Republic of Moldova (NRA) have a maximum combined capacity of seventy thousand tons. The NRA provides the following services for members: international contacts, networks, technical and marketing assistance. The Director is a colleague of Vice Rector Chumak at OSAR. NRA has 200 office staff and its dues-paying members have a combined total of 3,000 employees.

Unfortunately, the organizational capacity of associations to provide useful services to member processors is not always apparent. For example, Basarabia Nord, the second largest (and possibly most progressive) meat processor in Moldova, sees no reason to enter in such formal networks. By the same token, associations often lack a broad-based membership; the Director of the Ukrainian Poultry Producers Association stated that this was a constraint to his organization's capability.

D. Comparison of the Ukrainian and Moldovan Situation with Those of Other Developing Countries or Emerging Markets

WFLO's experience with associations in emerging markets is comparable to those in Moldova and Ukraine. They are typically weak, not living up to their full potential. In many situations, there are only a few participating members and they lack the financial resources and technical wherewithal to lift the membership as a whole. This is also reflected in their governance in which only a few individuals attempt to address all the management concerns of a loosely structured body. If a weak local association can link with a stronger and more global association with a broad-based membership, much can be accomplished. Domestic associations can then be empowered with a greater transfer of knowledge, methodology, techniques, changed attitudes and marketing opportunities.

By working through a larger association, networks and partnerships occur more readily. For example, the recently created Vietnam Cold Chain Group and the newly formed Egyptian Cold Chain Association have greatly benefited through their new relationship with IARW and WFLO. Ukraine and Moldova could reap similar benefits in receiving the needed technical and educational benefits and services, which in turn makes the member stronger, thereby making the domestic association healthier.

E. Recommendations

1. For Further Analysis

US-based Project Staff will prepare an assessment survey for World Lab and NIAHVM to conduct with associations, partnerships and networks involved in processing meat, poultry and seafood, including those mentioned previously in this report. In addition, the following specific information should be obtained:

- World Lab should learn of the operations undertaken by the UPPA's oblast representative offices;
- World Lab should obtain the list of affiliated seafood processors from OSAR, and survey the relationship between the Beza Association and the Academy;
- NIAHVM should translate the points of reference of NRA.
- The degree to which the FNFM networks with processors for selling its members' products should be explored.

2. *Initial List of Possible Project Activities*

Even with basic constraints to growth in the refrigerated warehouse business, WFLO sees great potential in its role as educator and disseminator of information through developing a relationship with producer and processor associations. These would include the Meat Processing Association, National Union of Meat Processors, Odessa State Academy of Refrigeration and the Poultry Producers Association of Ukraine, as well as the National Federation of Farmers and the National Refrigeration Association of Moldova. It was conveyed to the team that there is a lack of qualified trainers working within professional organizations. WFLO can play an essential role in "training the trainer" to alleviate this lack. It was noted that education and training, coupled with the commercial function, makes for a successful program for a complementary association. The need exists to create such a complementary association, as have been established in developing countries around the world. WFLO has helped develop such associations in Vietnam, China, Japan and Egypt.

OSAR's ability to contact up to fifty seafood enterprises for training access, as well as marketing, makes it a potential partner for the promotion of capacity building. It also provides degree courses for four specializations in refrigeration at bachelor and graduate level but suffers from a lack of facilities. Another potential linkage is the Department of Food Processing at Moldova's National University, which provides formal educational programs and wishes to include practical internships. Unfortunately, the Department's Chairman complained of a lack of willing processors to accept interns (he stated that international processors are more willing to participate). The challenge, particularly in such a difficult employment market, would be for the Department to show processors what they can offer as an inducement to participation in their internship program.

Strong associations enable the industry to improve standards and advance the interests of its member and to the community at large. Such organizational development also will facilitate more efficient warehousing services. It allows for collection and sharing of statistical information and exchange of ideas. This practical concept has been proven to expand networking opportunities among the membership, which in turn improves business. For example, the Odessa Seafood enterprises do not have the capacity to effectively market their individual production. This limitation could be overcome if they were to coordinate their marketing endeavors.

A relationship with Agricultural Cooperative Development International/Volunteers in Overseas Cooperative Assistance (ACDI/VOCA) also would improve development of networks and associations. ACDI/VOCA has considerable experience in association development, having

promoted food fairs and seminars in processing in Ukraine. They are currently concentrating in the country's west and central region. The potential benefit for exchange activities between the staff and clientele of the Project and ACDI/VOCA is significant. Likewise, collaboration with the Citizen's Network for Foreign Affairs (CNFA), which conducts USAID-sponsored activities in Moldova, would also prove useful. Such collaboration could include sharing technical information, networking, and joint programming in meat processing. In joint programming, PFID could offer technical expertise while CNFA provides their established contacts and experience with Moldovan associations. Other institutions with which the Project could cooperate include the following:

- The East West Management Institute, which is conducting a project on policy, cooperative development, dissemination and training; and
- Development Alternatives International, which has activities in association development and credit facilitation (currently in Ukraine with a possible expansion to Moldova).

Lastly, networking with research institutions will be very useful. Food science research, in which WFLO is routinely involved, is greatly needed in Moldova and Ukraine. WFLO team members observed opportunities in assisting in the training through in-country food science and technology seminars similar to those recently completed in Egypt and Greece. This will attract producers, processors, warehousemen, and retailers.

The assessment team noted that strong industry associations with depth of membership are few and their development will be vital to business networking and general industry improvement. WFLO can assist in forwarding the thought that proper management can make a business profitable. Strong association ties can aid in analyzing the food processing chain and needed investment. WFLO can advise, through its members, on business alternatives and food industry data to assist small Ukrainian and Moldavian companies to progress. The Ag Center could also expand the information system developed by World Lab for the Support for Ukrainian Private Farming Sector and Scientific Collaboration Project (the "Vinnitsa" Project – after the oblast where it is located), a cooperative agreement between the LSU Ag Center and USAID. Such an expansion would facilitate the access to processors of information useful for business decisions, availability of capacity building activities, dissemination or technical information, etc.

It is WFLO's intention to collaborate with the existing associations to enhance post harvest/processing technologies; standards and regulatory compliance; food safety and sanitation of products; processing strategies; cold chain availability market potential, and other infrastructure demands. Such a network could include academic institutions, such as the NAUU, which can help develop laboratory facilities for food quality control.

Section V. Post-Harvest Procedures and Technical Issues

A. Processing of Meat and Poultry

The Director of the Ukrainian Meat Producers Association informed the assessment team that, in Ukraine, there are more than one thousand small meat plants producing less than one thousand kilograms per day. Up to fifty percent of this meat is consumed without passing through an

officially documented marketing channel. There are approximately thirty plants that produce more than one thousand kilograms per day. These plants are mostly slaughter and processing plants, although World Lab staff stated that about seventy percent of the meat consumed in Ukraine has not been processed as a value-added or sausage product. One plant near Kiev was capable of producing ninety tons of meat per day, but currently is producing thirty-six thousand tons of sausage, seven thousand tons of value-added products, and three thousand tons of canned meat annually. The Director of the Kiev Meat Processing Plant stated that four of the plants in the Kiev area have total slaughter capacity in excess of thirty thousand head per day. There are five large plants in the Vinnitsa area. According to one of them, VinnitsaMeat, they have a combined capacity of more than eighty thousand tons per year. Pork is the most highly consumed meat, with little beef or lamb consumption due to livestock supplies (Dan Sweery of Kiev-Atlantic).

Mr. Sweery stated that perhaps fifty to seventy percent of the production of the large meat plants is shipped to Russia or former Soviet Union countries. Most of the meat plants have a combination of older (twenty years or more) and some newer (less than five years) equipment. The products that were viewed appeared competitive in workmanship and overall composition with those produced in Europe, Asia, and North America and those that were sampled had excellent palatability characteristics. Most plants were judged to be capable of producing sausages of different varieties with minimal changes in equipment and to produce value-added intact or restructured products with minor changes in procedures and moderate equipment expenditures. One plant had very modern dry sausage greening and fermentation rooms. Plants vary in their analytical expertise, with the larger plants able to maintain on-site testing laboratories for quality control.

There are about 320 poultry enterprises, with thirty percent currently idle. There are approximately 250,000 tons of poultry meat produced by large processors, those with integrated operations from chicks to meat, and about 290,000 tons of broiler meat produced by smaller operators annually (UPPA). The poultry plants seemed to have moderate to high hourly production capacities, but were limited by the numbers of birds produced. Poultry plants seem to be expanding their production faster because of the shorter production cycle from egg to product than for red meat species. Several of the poultry plants had broilers of similar genetics and were achieving similar production targets (i.e. 42 days to 2.2 kg) to Europe and North America integrators.

In Moldova, there are approximately a dozen meat-processing plants with production capacity larger than one thousand kilograms per day. The number of smaller plants is unknown. Almost twice as much pork is produced as beef and mutton production is one tenth that of pork (NIAHVM). The Taur meat slaughter plant that was toured had some very old, but functional, equipment in the abattoir, while the sausage and processed meat production areas were relatively modern. Two larger slaughter and processing plants had much greater capacities. Carmez SA, with capabilities of 1,200 swine and 500 cattle per eight-hour shift, was producing about forty percent of the current meat supply in Moldova. Basarabia Nord had a capability of producing fifty thousand tons per year, but was producing four thousand tons per year. The sausage production areas had sufficient modern equipment and the sampled products had excellent palatability in comparison to other meat products marketed around the world. The technological capabilities appear sufficient to provide processed meats of high quality.

The Moldovan poultry industry is largely dependent upon small producers. There are fewer than a dozen integrator companies and these usually produce broilers and eggs for markets (NIAHVM). The Floreni plant is producing in excess of thirty thousand tons of broiler meat per year. Russia and former Soviet Union countries are the major export markets. Most of the poultry plants seemed to have modern equipment and to be capable of efficient plant operations if sufficient birds were available for processing. The products were of generally high quality.

B. Processing of Seafood

There are limited natural fishery resources in the Ukraine. However, this is not a limiting factor in developing a substantial value added seafood processing industry in Ukraine. On the contrary, the strategically important Port of Odessa could serve as one of the most important hubs for seafood processing in Eastern Europe. Many countries import raw materials for value-added food processing and are quite successful. For example, the US depends heavily upon importation of seafood raw materials (60% of all seafood products consumed in the US are imported) for its significant seafood processing industry. Odessa has historically served the former Soviet Union as a focal point for seafood processing and the adequate processing facilities are still in place. The facility is capable of freezing, smoking and canning fish or fishery products. The facility is large but has deteriorated from neglect over the last ten years. Nearly all facilities visited were operating at only a fraction of their production capabilities, as was mentioned in the previous section on Cold Chain. The greatest limiting factor, and our greatest challenge, will be attracting investment capital.

An examination of Odessa's port storage facilities is encouraging. The Port allows excellent facilities for the import of raw materials and access to nearby processing plants. In addition, the port will facilitate export of finished products. On-going renovations show improved freezer and cold storage on the docks. There was a multi-story frozen warehouse storage capable of storing substantial product.

Moldova has no access to a seaport and is, consequently, greatly limited in export capability. There is aquaculture potential for establishment of landlocked seafood processing. This processing needs to focus primarily on the freshwater species capable of pond culture. Of particular significance is pond culture of paddlefish, carp and perhaps trout. Dr. Moody believes that the potential for catfish culture is limited. Like Ukraine, most processing facilities were not in operation at the assessment team's visit but the infrastructure seems to be in place. Overall equipment appears to be well maintained but underutilized.

C. Recommendations

Recommendations for further analysis include a survey of meat and poultry plants to determine their total capacity, current operating volume, types of products and customers. Such a survey has been designed and sent to World Lab and NIAHVM for translation (refer to Annex A) Follow-up surveys could determine the following additional information: marketing plans for potential or future customers; plans expansion or reduction of production; and information and technical needs in processing techniques, marketing strategies and worker training.

An associate award proposal could be prepared for a marketing study to compare the following:

- Meat and poultry product types and wholesale prices in areas of Western Europe; with
- Product types and shipped product costs of products made in Ukraine and Moldova.

This would allow determination of their competitive status in regards to technical production and economic viability for export to geographically close and economically stable countries.

Dr. Moody recommends that an associate award proposal be prepared to conduct research on finished seafood products acceptable to regions outside Ukraine and Moldova. This research would identify available fishery products, including imports, and recommend the development of products that would be acceptable to other nations. He believes that these products should be displayed in both the Boston Seafood Show and the Tokyo Seafood Show by 2003-2004. He would be willing to assist in the preparation of a booth at both shows that would provide information on seafood processing opportunities in Ukraine and Moldova.

Section VI. Safety, Sanitation and Standards

Slaughter equipment was generally less modern than processing equipment, requiring additional care and sanitation practices to insure proper standards of cleaning and sanitizing. Facilities were typically twenty to forty years old, but of construction typical of that era to allow adequate cleaning and sanitization. Such standards could be achieved if preventive maintenance would be conducted to prevent deterioration of walls, ceilings, and floors in processing areas. Utility areas such as stairwells, offices, and auxiliary areas were generally less well maintained than processing areas. Instances of insufficient lighting due to power shortages were commonly observed. This makes facility, personnel, and product inspection very difficult.

A. Meat and Poultry

In Ukraine, it was indicated that the government, presumably national, has veterinary personnel assigned to each meat and poultry plant to inspect animals and products. Each raion has jurisdiction over sanitation control. The Director at the Kiev Meat Processing Plant stated that Chemical, bacteriological, and radiological tests are required of meat sold in Ukraine.

The plant manager at BN indicated that the plant had ISO 9001 certification. ISO 9001 refers to certification by a 3rd party that the plant does conform to the standards that the 3rd party believes are required by the ISO 9001 guidelines. The manager added that the stores owned by BN would sell products from other food companies if they produced a certificate of quality, but not necessarily of ISO 9001 designation.

Most plants are twenty to thirty years old. Walls commonly were constructed of materials such as tile or plastic board that could be cleaned and sanitized. Floors were often concrete that had worn in some places, preventing proper cleaning. Product contact surfaces were generally stainless steel, allowing for effective microbiological control.

The appearance of products, the personal hygiene of plant line workers, the sanitary requirements for plant visitors, and the attitude of the supervisory personnel would generally

reflect that there is a high regard and concern for product sanitation and quality. The level of training will probably vary from plant to plant and the degree of implementation will be proportional to the monetary requirements, urgency, and market standards for the required level of sanitation.

B. Seafood

Dr. Moody's visual inspection of the facility at the Port of Odessa indicated to him a need for sanitation and good manufacturing training. Since most facilities in Ukraine were not operating, it was difficult to get a clear picture of food safety and sanitation knowledge. However, most of the processors met by Dr. Moody seem to at least have a basic understanding of good manufacturing practices. There appears to be a great need to provide Hazard Analysis Critical Control Point (HACCP) and sanitation training to bring facilities personnel up to international standard. Examination of the quality control facilities in Odessa revealed a well-equipped laboratory and seemingly knowledgeable personnel.

Because the fish processing facilities in Moldova were not operating at the time of this assessment trip, it is difficult to determine manufacturing and sanitation practices. However, discussion revealed at least a basis for understanding.

C. Recommendations

1. For Further Analysis

Safety of products and sanitary practices can be assessed through chemical, physical, and microbiological analyses, which were not available at this time. The governmental standards for specific chemical, physical, bacteriological, and radiological compounds were unknown; a translation of such standards would be useful for the technical team. Information regarding the chemical, bacteriological, and radiological testing situation in Moldova should be provided to the Technical team. The sanitary condition of the air and ventilation, water, and other inputs could not be determined at the time of the assessment trip. These, as well as official standards for such conditions and the frequency of testing for both countries, should be examined.

Dr. Moody has recommended that pre-course preparation activities, conducted to maximize the applicability of an HACCP training course to local conditions, could serve as a final assessment of information and technical needs in food safety, standards and grades, and the various export requirements. Such a course is mentioned in the next sub-section.

2. Initial List of Possible Project Activities

Observations of practices, equipment, facilities, and overall hygiene indicated that there was capability of producing very safe products, but improved temperature controls of products would be warranted to maintain product safety and quality.

Dr. Moody recommends that the bulk of seafood training efforts should be concentrated in Ukraine and focus on sanitation and standards issues. In his proposed work plan, Dr. Moody recommends the conduct of seafood HACCP and sanitation train-the-trainer workshops with cooperators in Ukraine and Moldova during May to June of 2002. The train-the-trainer

workshops would last three days for HACCP and one day for sanitation. An extra day will be provided for university lectures on the topics and to wrap up discussion.

In May-June of 2003, Dr. Moody recommends conducting Seafood HACCP and Sanitation Workshops for seafood processors in Ukraine and Moldova. These would follow the same general itinerary as the train-the-trainer workshops. He suggests that these trainings be followed by plant evaluations for seafood processors and the facilitated preparation of HACCP plans. He anticipates that most of this work will be conducted in Odessa.

All training in Odessa should be coordinated through the OSAR. Our point of contact at the Academy is the Vice Rector, Professor Victor Mazur. Kiev is also a key location for HACCP and Sanitation training. The city provides a central training location for the rest of the country, excluding the Odessa area. The National Agricultural University is an ideal HACCP and Sanitation training site. Professor Dmytro O. Melnychuk, Rector of the National Agricultural University, stated a willingness to host the training. Dr. Moody suggests holding a single HACCP and Sanitation training session in Chisinau. The NIAHVM's fisheries specialist, Dr. Vitalii Lobchenco, will serve as the primary contact in this endeavor.

Section VII. Economic Issues

The section that follows reflects the observations and preliminary conclusions of Dr. Wes Harrison of LSU Ag Center's Department of Agricultural Economics. As with the rest of this report, the reader should consider comments and conclusions to be preliminary. Where possible, selected data sources are cited in order to support observations and conclusions.

A. Primary Constraints to Growth

The primary constraints to growth and development of meat, poultry, and seafood processing in Ukraine and Moldova are linked to the following three factors: 1) weak domestic markets relative to total processing capacity; 2) export markets that are closely tied to the Russian economy; 3) lack of good quality animals for processing. The third factor results from a fragmented livestock production sector, where growth and productivity is limited by high costs of borrowed capital, poor genetics, and the lack of confined feeding. These three factors result in the underutilization of processing and cold storage capacity, which is hypothesized to result in high processing costs.

1. Domestic Demand for Meat and Seafood

A weak demand for processed meats in Ukraine and Moldova can be traced to two factors. First, consumers in both countries have low incomes relative to food prices, as was mentioned in the previous section on the cold chain. In 1998, nominal per capita incomes were approximately \$980 and \$380 USD in Ukraine and Moldova, respectively (World Bank, 2000). Adjusting these incomes using purchasing power parity (PPP) rates show real incomes for both countries to be below poverty levels. For instance, PPP annual per capita incomes in 1998 were approximately \$3,130 USD in Ukraine, and about \$1,995 USD in Moldova (World Bank, 2000). Even after adjusting for difference in domestic prices, real average incomes are well below the Europe Union (EU) and United States (US) poverty rates.

Consequently, the average consumer in Ukraine and Moldova spent about thirty-four percent and thirty one percent respectively of their PPP adjusted annual incomes on food, respectively. This compares to about thirteen percent in the US and fourteen to twenty percent in the EU¹.

Another important factor affecting demand for meats and seafood in these countries is a relatively high inflation rate over the 1990 - 1998 period. For instance, the general price level, as measured by the CPI, rose an average of 413.4% annually in Ukraine (World Bank, 2000). Inflation was more moderate in Moldova over the 1990-1998 period - only about 12.3% annually. Food prices in Moldova still rose by 98% on average over this period. In general, when a relatively high percentage of a consumer's income is spent on food, this leads to a relatively elastic demand (i.e., consumption that is quite sensitive to price) for certain foods like meat and seafood. Consequently, demand for meat and seafood has been most effected by price increases in the Ukrainian and Moldovan economies, since consumers replace relatively higher priced meats with staples such as potatoes and bread in their diets. As food prices increased in both countries, the demand for meat, seafood, and dairy products declined more than proportionally due to relatively high elasticities of demand for these type products.

2. *Trade Issues*

Since Russia has traditionally been Ukraine's primary trading partner, a significant factor effecting Ukraine's export markets is the health of the Russian economy. Consequently, the 1998 devaluation of the Russian ruble had significant effects on Ukrainian meat exports. For example, Ukraine's net exports were about 93,840 tons in 1998 (Table 1). This is a 42.7% decline relative to 1997, which can be attributed to the 1998 devaluation of the ruble. Similarly, 1997 net exports of Ukrainian pork fell to approximately 7,283 tons, and in 1998 Ukraine was a net importer of pork (1,928 tons). Most of this was due to a significant decline in exports to Russia. Moldova experienced similar trends regarding beef and pork exports over the 1997-1998 period. Note also that Ukrainian exports rebounded in 1999 - a result of some strengthening in the Russian economy.

Ukraine is a net importer of poultry products. Poultry imports increased significantly after 1995 and since have stabilized in 1999 at about 88 thousand tons (Table 1). The rise in poultry imports is one factor often cited as a reason for declining domestic production. High excise taxes and import duties were established in 1997 to help mitigate this problem. Moldova's poultry trade is relatively small (Table 2).

¹ Source: The World Bank, World Development Indicators, Published by the Development Data Center, The World Bank, Washington D.C., 2000. PPP conversion factors account for differences between international price levels and domestic prices. PPP reflects the relative purchasing power of the domestic currency given domestic price levels.

Table 1. Beef, Pork and Poultry Trade For Ukraine

Year	Exports			Imports		
	Beef	Pork	Poultry, Fresh	Beef	Pork	Poultry, Fresh
	~~~~~Metric Tons~~~~~					
1995	206,667	8,263	495	166	1,349	913
1996	188,910	10,125	290	1,846	1,316	91,465
1997	164,637	9,388	234	906	2,105	56,920
1998	96,210	1,189	75	2,370	3,117	51,469
1999	130,793	7,459	831	1,134	4,466	88,716

Source: Food and Agriculture Organization of the United Nations; FAOSTAT Agriculture Data

**Table 2.** Beef, Pork and Poultry Trade For Moldova

Year	Exports			Imports		
	Beef	Pork	Poultry, Fresh	Beef	Pork	Poultry, Fresh
	~~~~~Metric Tons~~~~~					
1995	29,579	4,948	568	672	13	134
1996	13,621	10,005	565	542	1,329	2,000
1997	18,014	15,768	3,595	1,213	2,544	1,312
1998	7,286	7,000	864	2,282	336	1,425
1999	10,623	7,059	475	936	1,111	1,846

Source: Food and Agriculture Organization of the United Nations; FAOSTAT Agriculture Data

3. *Fragmented Livestock Production Sector*

In 1999, Ukraine produced about 11.7 and 10.1 million head of cattle and swine, respectively. This represents a 53.5 and 49.5 percent decrease since 1990, respectively (Table 3.). Cattle and swine are produced on farms that range in size from small one-to-five hectare plots (referred to as home production operations) to large joint-stock farms of more than 1500 hectares. However, despite the existence of larger farms, most cattle and swine are owned and raised by the smaller operations. Most of the smaller farmers have limited access to affordable credit and purchased inputs (including feed), which limits their ability to produce adequate supplies of good quality livestock for the processing sector. For example, the interest rate on borrowed capital was about 54% and 31% in Ukraine and Moldova in 1998, respectively (World Bank, 2000). These factors have led to a steady decline in both the quality and number of livestock produced in both countries.

Poultry production is more concentrated than beef and pork, and the industry tends toward vertically integrated production systems. However, competition from lower priced imports has contributed to a steady decline in poultry production between 1990 and 1999 (51.7%, Table 3.).

Moldova's livestock and poultry sector has experienced similar trends regarding farm-level production (Table 4.). Consequently, the Moldovan meat-processing sector also suffers from lack of good quality raw materials. An inefficient and fragmented livestock production sectors in both countries results in increased procurement and processing costs for meat processors.

Table 3. Livestock Inventories, all farms, Ukraine

Year	Cattle	Hogs	Sheep & Goats	Poultry
~~~~~ <i>THOUSAND HEAD</i> ~~~~~				
1990	25,195	19,947	9,003	255,100
1991	24,623	19,427	8,419	246,104
1992	23,728	17,839	7,829	243,119
1993	22,457	16,175	7,237	214,578
1994	21,607	15,298	6,863	190,478
1995	19,624	13,946	5,575	164,862
1996	17,557	13,144	4,099	149,748
1997	15,313	11,236	3,047	129,449
1998	12,759	9,479	2,362	123,340
1999	11,722	10,083	2,026	

Source: State Statistics Committee of Ukraine: USDA/ERS

**Table 4.** Livestock Inventories, all farms, Moldova

Year	Cattle	Hogs	Sheep & Goats	Poultry
~~~~~ <i>THOUSAND HEAD</i> ~~~~~				
1990	1,456	1,850	1,282	24,624
1991	1,397	1,753	1,289	23,716
1992	1,373	1,487	1,352	17,128
1993	1,327	1,165	1,445	14,544
1994	1,231	1,061	1,507	14,415
1995	1,107	1,015	1,423	14,740
1996	1,002	950	1,372	13,410
1997	875	797	1,235	13,446
1997*	772	728	1,234	N/A
1998*	736	785	1,107	N/A
1999*	688	705	1,039	N/A

Source: Department of Statistical and Sociological Analysis

*Note: Moldova excluding Transnistria

B. Preliminary Conclusions and Recommendations

Growth and development of meat, seafood, and poultry processing in Ukraine and Moldova is constrained by lack of markets (both domestic and export) for primary and secondary processed meats. Domestic markets are relatively small compared to total processing capacity. This is largely due to consumer incomes, which remain low in Ukraine, Moldova, and Russia - a primary export market for both countries. Development of export markets may partially mitigate the lack of local markets. Export markets may be developed in other CIS states, but these economies are also affected by low consumer incomes. Romania may also be a possible export market. It may also be possible to develop niche markets for sausage and other processed meats in selected western European countries, but a key constraint here would be complying with HACCP regulations, label and packaging requirements, as well as other non-tariff import restrictions.

Well-developed marketing plans would be essential to expanding and establishing these niche markets. This would include analyzing potential markets, selecting target markets, and developing specific strategies for production (including HACCP), distribution, and promotion of selected meat products. A solution strategy might include providing technical assistance in developing marketing plans for carefully selected target markets both domestically and internationally. This could be accomplished through a collaborative project between the LSU/PFID team and CNFA's Agribusiness Partnership Program in Moldova and Ukraine.

The other constraint to development of the meat/poultry processing sectors is inadequate and inconsistent supply of good quality animals for processing. The disassembly of the former collective farms has resulted in very few confined feeding operations (pork or beef). This has resulted in a fragmented livestock production sector with inadequate breeding stock. Consequently, meat processors must assemble lots of animals from a geographically dispersed supply of poor quality livestock. Inadequate and inconsistent supply of raw material means that processors operate in a high cost, high-risk environment. In general, these factors result in high costs of production and low profitability, which implies that businesses are less able to attract investment capital and less able to compete in export markets.

A possible solution to this constraint may be the establishment of a "model" central livestock market that provides for assembly, grading, and sale of animals. This would provide for price discovery and improve market efficiency for both farmer and processor. Another possibility might be a pilot project where processors utilize forward contracts with price and production management specifications with selected farmers. The processor could provide some of the inputs necessary to raise good quality animals and farmer would benefit from secured markets for their animals. The LSU/PFID team could partner with World Lab and the current LSU/USAID project in Vinnitsa to implement this solution strategy.

Section VIII. Summary of Recommendations

A. Future Assessment Activities

As mentioned throughout this document, the assessment process for PFID will continue. Activities to be conducted shortly include a Client Profile, which will provide information on

processors' contacts, production, sales and employees. As well as provide useful baseline data, this profile should also form the basis of an Information Support System that will maintain linkages between the Project and its beneficiaries.

Other recommended assessment activities, as mentioned previously in this document, include the following:

- WFLO/IARW-provided instruments for cold chain analysis, including technical assessment and production efficiency;
- An in-depth analysis of energy consumption patterns;
- A survey measuring the strength of associations, partnerships and networks;
- Specific information on associations, including UPPA's oblast offices, the list of seafood processors from OSAR as well as its relationship with the Beza Association, translated points of reference of NRA, and the degree to which the FNFM networks with processors;
- A marketing study to explore marketing possibilities to Western Europe that are within the meat processing capacity of Ukraine and Moldova;
- Chemical, physical, and microbiological analyses regarding sanitary practices;
- Translation of governmental standards for specific chemical, physical, bacteriological, and radiological compounds, including testing frequency; and
- HACCP pre-course preparation activities, which could serve as a final assessment of training needs.

B. Possible Project Activities

As this document is an initial assessment, it is not yet appropriate to provide final intervention strategies. This will not happen before additional assessment activities, such as those mentioned in the previous sub-section, are conducted. However possible activities have been suggested throughout this report and are summarized below.

- IARW/WFLO is willing to developing a working relationship with any food processing enterprise that participates in this project. This will provide those participants with access to WFLO's reference information and collaboration with members of IARW.
- The PFID Technical Committee can also provide assistance to processor associations and academic institutions. This could include capacity building activities such as "train the trainer programs", internships and cooperative development programs.
- Linkages with existing projects promoting association development would be useful. PFID also could buy into the information system developed by World Lab in another project.
- Finished seafood products that can be exported could be identified and promoted in international seafood expositions.

- Improved temperature controls would better maintain product safety and quality.
- Seafood HACCP and sanitation train-the-trainer workshops are conducted during 2002, followed by general processor workshops in the next year.
- It may be possible to develop some niche markets for sausage and other processed meats in selected Western European countries. This would require compliance with HACCP regulations and well-developed marketing plans. Such accomplishments could be facilitated by collaboration with CNFA's Agribusiness Partnership Program.
- A "model" central livestock market could provide assembly, grading, and sale of animals. Another possibility to improve market efficiency might involve forward contracts between processors selected farmers. PFID could partner with the Vinnitsa Project to implement this solution strategy.

**ANNEX A
PFID CLIENT PROFILE**

Identification			ID Number	
Company Name			Address	
Key Contact Person, Name:			Title	
Phone	Fax	e-mail		
Form of ownership:				
Production				
Number of Plants beef ____, swine ____, poultry ____, seafood ____. Please provide the following information for each type of production (beef, swine, poultry, seafood):				
Type of Production	Plant Name/Location	Total Capacity (ton per day)	Current utilization of total capacity (percent)	Wear of Assets/ Equipment
(use another page if necessary)				
Characteristics of Refrigerator Equipment				
Cooling agent applied	Capacity (tons of standard units of cargo)		Chilling (tons per day)	Freezing (tons per day)
	Total	Including subzero temperatures		
Sales				
Total annual sales (for each currency)				
Hrvna:	Lei:	US Dollar:	Other (Specify):	
Sales for each product type (sausage, chilled meat, canned goods, etc.)				
Product types	Tons per year sold	Percent of total sales		
Percent sales to export ____, Percent sales to domestic market ____				
Total Number of Employees:				
License and certification				
Sources of raw material				
Proposals and necessities				
Date of Completion				