

**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**

---

**4<sup>th</sup> Semi-Annual Report**

**August 1, 2002 – January 31, 2003**

---

**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**

### **Dedication**

On September 13, 2002, Dr. Ion Socican passed away. Dr. Socican was the PFID Project Director for the Moldovan National Institute for Animal Husbandry and Veterinary Medicine. Dr. Socican's vision and consistently good nature is sorely missed by all members of the Project staff. The rest of this Project is dedicated to his memory.

## Table of Contents

Table of Contents.....	1
List of Acronyms and Abbreviations.....	3
Section I. Introduction and Summary .....	4
Section II. Objective #2: Developing Awareness of Critical Issues.....	6
Section III. Objective #3: Formulate Support Mechanisms.....	7
A. Improving Raw Material Supply .....	7
1. Accomplishments, Moldova .....	7
2. Accomplishments, Ukraine.....	8
3. Issues, Lessons Learned and Actions Planned for the Next Six Months.....	10
B. Information Systems .....	11
1. Accomplishments, Ukraine.....	11
2. Accomplishments, Moldova .....	12
3. Issues, Lessons Learned and Actions Planned for the Next Six Months.....	14
C. Association Formation.....	16
1. Accomplishments, Ukraine.....	16
2. Accomplishments, Moldova .....	19
3. Issues, Lessons Learned and Actions Planned for the Next Six Months.....	20
D. Establishment of International Institute of Food Safety and Quality .....	22
1. Accomplishments.....	22
2. Issues, Lessons Learned and Actions Planned for the Next Six Months.....	23
Section IV. Objective #4: Create Technical and Educational Capacity.....	24
A. Training.....	24
1. Accomplishments, Seafood SCP/HACCP Training .....	25
2. Accomplishments, Meat and Poultry HACCP Training.....	26
3. Accomplishments, Cold Chain Management .....	27
4. Issues, Lessons Learned and Actions Planned for the Next Six Months.....	28
B. Case Studies .....	29
1. Accomplishments, Fresh Water Fish Processing.....	29
2. Accomplishments, INZMV’s HACCP Implementation Examination.....	31
3. Issues, Lessons Learned and Actions Planned for the Next Six Months.....	32
Section V. Objective #5: Fostering Business Partnerships.....	33
A. Accomplishments.....	33
B. Issues, Lessons Learned and Actions Planned for the Next Six Months.....	36
Section VI. General Management Issues .....	37
A. Accomplishments.....	37

B. Issues, Lessons Learned and Actions Planned for the Next Six Months..... 38

Annex A. Comparison Chart – Planned and Actual Activities

Annex B. Analysis of the Ukrainian Meat Sector

Annex C. PFID Client Information Needs Survey

Annex D. Combined Training Narratives: HACCP Train the Trainer Courses

## List of Acronyms and Abbreviations

ACSA	Agency for Consulting and Training in Agriculture, Moldova
ARS	National Association of Refrigeration Specialists, Moldova
ASBA	Azov Sea Basin Association
AWP	Annual Work Plan
BISNIS	Business Information Service for the Newly Independent States
CCP	Critical Control Point
CNFA	Citizens Network for Foreign Affairs
FSIS	Food Safety Inspection Service
HACCP	Hazard Analysis for Critical Control Points
IFC	International Finance Corporation
Indcar	Alliance of Associations for Meat Industrialization
IIFSQ	International Institute of Food Safety and Quality
INZMV	National Institute of Animal Husbandry and Veterinary Medicine
ISS	Information Support System
JCS	Joint Stock Company
JV	Joint Venture
LSU AgCenter	Louisiana State University Agricultural Center
NVA	National Veterinary Association
PFID	Partnerships for Food Industry Development
SAR	Semi-Annual Report
SCP	Sanitation Control Procedures
SWOT	Strength, Weaknesses Opportunities and Threats
TTT	Train-the-Trainer
UAUR	Union of Associations “Ukraine Refrigeration”
Ukrmiasso	(Ukrainian Association of Meat Producers)
Ukrptakhoprom	(Ukrainian Association of Poultry Producers)
WFLO	World Food Logistics Organization
World Lab	World Laboratory, Ukraine Branch

## **Section I. Introduction and Summary**

This is the fourth Semi-Annual Report (SAR) and the second that primarily describes the implementation of solution strategies by the Partnerships for Food Industry Development (PFID) for the processing of meat, poultry and seafood. This Project is jointly undertaken by the Louisiana State University Agricultural Center (LSU AgCenter), the World Food Logistics Organization (WFLO), the Ukrainian Branch of World Laboratory (World Lab) and the Moldovan National Institute for Animal Husbandry and Veterinary Medicine (INZMV).

The following outline provides an overview of the program's focus, actions and outcomes:

### **1) Program Focus: Linkages and Partnerships within Industry Chain**

#### **a) Program Actions:**

- i) Formed associations in the fish industry, and linked them to markets and processors in Moldova
- ii) Linked small farmers with suppliers of quality piglets in Moldova
- iii) Formed associations in the fishing industry in Ukraine
- iv) Established a central market to sell beef cattle in Ukraine
- v) Union of Associations "Ukraine Refrigeration" (UAUR) established

#### **b) Outcomes:**

- i) Moldovan fish farmers take PFID advice and technical assistance to form an association to maximize efficiency of production, marketing, and capacity building;
- ii) Through a PFID facilitated link with a supplier of improved genetic stock, small farmers in Soroca region in Moldova raised improved breeding stock, and produced a sixteen percent increase (over 2001) of raw material supply for meat processors;
- iii) PFID helped form the Azov Sea Basin Association (ASBA), enhancing the fisheries sector in Ukraine – Members' harvest volumes increased average by twenty percent; and association members have greater access to markets in Russia, Estonia, Poland, Romania and Belarus;
- iv) Several ASBA members who formally operated in the "shadow sector" now have the means to produce at a scale sufficient for participation in the formal economy;
- v) Cost of production decreased because ASBA members shared resources and eliminated intermediaries while sales prices increased due to quality and other marketing improvements;
- vi) A beef central market is expected to increase transparency, create equal trading conditions, and improve price of raw material, which in turn is expected to stimulate production and employment in the sector;

### **2) Program Focus: Information Support for Industry**

- a) Program Actions – Information databases, not previously available, were developed to be useful to clients, wholesalers and potential investors.

- b) Outcomes:
    - i) Information is available to clients in electronic and hardcopy format;
    - ii) In Ukraine, clients in the private sector and public sector agencies have recognized this activity and its products; and
    - iii) PFID information system linked to Ministry of Agriculture in Ukraine.
- 3) Program Focus: Food Safety, Quality and Regulatory Compliance
- a) Program Actions:
    - i) Provided food safety (basic HACCP and train-the-trainer programs) training; and
    - ii) Established the International Institute for Food Safety and Quality (IIFSQ) in Ukraine.
  - b) Outcomes:
    - i) Food safety and regulatory confidence established; access to foreign markets created;
    - ii) Developed a cadre of trainers in both countries who are now certified to conduct training in-country;
    - iii) Key manuals have been translated for use;
    - iv) PFID has linked US agencies/institutions such as the FDA (which is considering an Memorandum of Understanding with the Ukrainian government) and the HACCP Alliance with Ukraine and Moldova; and
    - v) Moldovan government has mandated that processing plants be HACCP certified by January 2004 - PFID Moldova has prepared the basic needs of the industry in 2002, and plans to begin HACCP adoption by cooperating firms in 2003.
- 4) Program Focus: Post Harvest Assistance and Development of Value Added Products
- a) Program Actions:
    - i) In a processing trial in Moldova, PFID successfully collaborated with local fish processor to produce marketable products from local fresh water fish.
    - ii) Fresh water fish products were test marketed at the 2002 National Agricultural Exposition.
  - b) Outcomes:
    - i) Fresh water fish products are ready for industry level production and processing
    - ii) Demand for local fish products expected to increase.
- 5) Program Focus: Fostering Business Partnerships
- a) Program Actions:
    - i) PFID Moldova has assembled information on and analyzed the existing environment for Joint Ventures - unique constraints to JV formation in Moldova have been identified.
    - ii) PFID Moldova plans to publish an industry profile in 2003 that will have strong policy recommendation implications.
  - b) Outcomes:
    - i) Moldovan team expertise in joint venture formation established
    - ii) PFID Moldova to build capacity among business leaders

- iii) Unique constraints and environment for fostering joint ventures in Moldova identified. Extensive study indicates that there is a favorable legal basis for joint venture formation in Moldova.
- iv) PFID Moldova plans to provide joint venture policy recommendations to government.

Annex A compares the anticipated indicators of Project Activities of the last six months, as stipulated in the 2<sup>nd</sup> Annual Work Plan (AWP) with the actual results. They can be summarized as follows:

- *Results not meeting planned indicators* – Deep processing seminar, selection of WFLO Institute participants, monitoring of seafood HACCP implementation, and *explicitly designated* case studies;
- *Results conforming to planned indicators* – Support mechanisms (networks for raw material supply, information management, and IIFSQ) and seminars (seafood HACCP/SCP, cold chain management); and
- *Results exceeding planned indicators* – Association development and HACCP TTT Certification.

## **Section II. Objective #2: Developing Awareness of Critical Issues**

In developing the PFID's activity plans for Year Three (2003) the following activities were conducted:

- A November planning meeting in Chişinău, Moldova; and
- The Second Advisory Committee held in January at Kyiv, Ukraine.

At these meetings, it was decided that World Lab and INZMV will provide most of the initiative in conducting project activities, supported by LSU AgCenter and WFLO. Future Project activities will focus on meeting the Project's three implementation objectives, as follows:

- *Support Mechanisms* – Enhancement of the Information Support Systems, stakeholder associations and linkages for improving supply of raw material;
- *Capacity Building* – The International Institute for Food Safety and Quality, HACCP introduction and case studies of value-added products in Moldova and other training activities; and
- *Fostering Joint Venture Formation* – Through case studies and information sharing.

The result of the fore-mentioned activities resulted in the preparation of the third Annual Work Plan, available as a separate document.

Both World Lab and INZMV's Information Support System (ISS) will include an internet presence and collaboration with other entities to provide relevant information to stakeholders in the food industry. Such information will cover topics such as cold chain issues and food safety, as well as the meat, poultry and seafood sectors. Association enhancement activities will include capacity building, integration with the ISS, marketing assistance and support of business

proposals submitted by associations. Raw material linkages include supporting a central livestock market in Ukraine and contracts between farmer producers of improved hog breeds and one processing company.

The IIFSQ and INZMV will aim to create conditions for HACCP implementation through training, monitoring, collaboration with US food safety and quality entities, policy advocacy and the establishment of food science departments at national universities. INZMV will facilitate expansion of the freshwater fish processing to a commercial level and conduct a deep processing trial of spent hen meat.

Through continued case study preparation and dissemination, PFID/INZMV will identify Moldovan businesses with the potential to attract foreign investment and recommend appropriate strategies. General project management activities will include maintenance of the PFID web site, a Project evaluation and development of a methodic procedure to submit associate award proposals as needed.

### **Section III. Objective #3: Formulate Support Mechanisms**

#### **A. Improving Raw Material Supply**

##### *1. Accomplishments, Moldova*

To provide technical assistance on the production of porcine raw material for processing in Moldova, Dr. Sergiu Chilimar of INZMV conducted seminars for thirty-two participants (including seventeen women) in Ghindesti Village (July), Edinets Region (September) and the “Farmer 2002” Exposition (November). He also provided consultations to individual farmers and small groups and prepared and disseminated printed materials to farmers.

Technical assistance included recommendations on:

- Fostering mutually beneficial partnerships between producers of biological material (breeders of improved piglets) and farmers (suppliers of raw material to meat processors);
- The use of improved genetic stock to increase raw material supply to meat processors;
- Creating improved breeding stock in farms;
- Pig feeding and management in farms;
- Sanitary maintenance and veterinary medication; and
- Development of market relations between producers of raw material and meat processors.

Farmer training was provided in cooperation with ACSA’s and NVA’s regional centers. Seminars involved the participation of experts from Agrarian University, the Agency for Consulting and Training in Agriculture (ACSA), from the National Veterinary Association (NVA) and PFID Moldova economist Dr. M. Gheorghita. Participants were particularly

interested in ways to protect the local market from illegal imports and exporting possibilities of meat products in particular to CIS countries.

Based on PFID recommendations, “Marculesti Combi” JSC increased the number of breeding sows in 2002 and produced 11.5 thousand piglets of improved genetic stock. From these, 2100 piglets of improved genetic stock were sold to farmers from Soroca region. The favorable characteristics of these improved breeds, compared to local varieties, include more efficient weight gain (per unit of feed) and higher meat quality. In addition, PFID recommendations regarding the creation of breeders of improved biological material were considered by farmers from this region.

Farmer households, using PFID recommendations, produced and sold to “Soro Meteor” JSC, a meat processor, 2000 pigs of improved genetic stock for processing, with a total live weight of 220 tons or in average 110 kg per capita in 2002. The total value of these sales is about 1.9 million lei or almost \$140,000 USD. In Year 2002 farmers from Soroca region increased raw material supply by sixteen percent as compared to the same period of the last Year. This compares favorably with both the fifteen percent target set by INZMV and the unofficial growth rate of the national pig population (12.5%, as provided by the Moldovan Ministry of Agriculture).

In Soroca region, following PFID recommendations, twenty-four individual farmers started to raise improved breeding stock to sell to their neighbors.

## 2. *Accomplishments, Ukraine*

World Lab contends that the development of livestock auction trade can establish equal favorable conditions for market agents. It also would make pricing process more transparent and motivate livestock producers to expand production. To facilitate the development of such a market system, World Lab set the following objectives for 2002:

- Recommend adaptation of the US experience in livestock market operation to the conditions of Ukraine;
- Select an oblast with the highest potential to establish a model livestock market;
- Obtain approval from local authorities for such a model; and
- Prepare a feasibility study or business plan for further investments.

To assess the meat industry’s market condition in Ukraine, national- and provincial-level information was gathered, summarized and analyzed. This included volume of meat production and sales, production costs, prices, and profit/loss ratios. Trends of meat production and efficiency of meat enterprises were studied (Annex B). Livestock supply channels, capacity of internal consumer meat market and external turnover of meat products were assessed.

On the basis of these findings, the following conclusions were drawn...

- 1) Small-size production and irregular “shadow” channels of livestock procurement by intermediaries characterize the meat industry of Ukraine.
- 2) Irregular, small-size livestock marketing results in unfavorable prices for livestock producers, which is an obstacle to a reliable livestock supply required for the processing industry.
- 3) This situation could be improved through:
  - Increasing the transparency of the market,
  - Creating equal trading conditions for all sellers and buyers, and
  - Improving relations between livestock producers and buyers.
- 4) Organizing auctions and encouraging farmers to create formal and informal unions for joint targeting in such auctions would facilitate the fore-mentioned benefits.

For the trial organization of a model livestock auction, World Lab selected Volhyn oblast as traditionally being one of the leading provinces in this economic sector and having an established professional cadre. Furthermore, Volhyn oblast has sufficient processing capacities, a good transportation infrastructure, and developed trade with neighboring countries (i.e. Poland and Belarus). It was in this oblast where a core group of four business firms first reacted to the information about establishment of an organized livestock market. Furthermore, local government support of a livestock market became evident when the authorities promptly gave approval for the activity.

The Project supported establishment of a local Livestock Marketing Agency by the above mentioned core group. The major function of the Agency is to organize livestock auctions at five raions in the oblast. It is anticipated that five thousand head will be sold at each site annually.

A business plan that was developed so the Agency can seek investments shows that such an entity will be economically viable. The sellers could benefit from a price three to four percent higher than what they receive today, due to the removal of middlemen from the chain. Processors will reduce the cost of searching for raw material after the agency is set up due to a reduced need for procurement staff and the Agency will provide the venue for livestock producers to meet with the processing industry. Lastly, the Agency’s operations are anticipated to be sufficiently profitable for investments to be returned in two years.

Besides following the work plan, World Lab’s economists also responded to unforeseen opportunities and challenges to assist in policy formation – an original aim of PFID. They participated in the development of the regulatory document, “Provision For a Livestock and Poultry Auction Trade” (approved by the Ministry of Agrarian Policy, Academy of Agrarian Sciences of Ukraine and registered within the Ministry of Justice of Ukraine, August 13, 2002, #653/6941). The Provision defines organizing entities of an auction, their functions and responsibilities; it also specifies auction procedure, requirements, certification requirements, contract passing, accounts settlement, etc.

Project economists also participated in the expert team formed by the Ministry of Agrarian Policy to develop a Draft Law of Ukraine, “On Regulation of Agrarian Market” (working title), the provisions of which they are drafting to support the development of organized meat markets in Ukraine. Thanks to Dr. Harrison’s cooperation, the United States Farm Bill was received, translated sections of which helped economists in the elaboration of the draft’s provisions.

### *3. Issues, Lessons Learned and Actions Planned for the Next Six Months*

INZMV is confident that the introduction of improved genetic stock in Soroca can be replicated in other regions in Moldova. It plans to build on its accomplishments with the following activities planned for Year Three: monitor breeder-producer linkages established in Year Two; and promote producer-processor linkage mechanisms, including a sample contract.

Because of World Lab’s original economist’s resignation in June, the work on the livestock market was delayed, but by the beginning of the second half of the year, the replacement economists, Dr. Moldovan and Dr. Paskhaver, managed to continue and expand what was originally planned. In general, there were no significant consequences from the original economist’s resignation and work was conducted according to the Work Plan.

Building on the 2002 work, World Lab plans the following activities for 2003...

#### 1) Economic tracking of Livestock Marketing Agency:

- Provisions of consultations by World Lab staff for improved Agency operation;
- Analysis of auction practice (the first of which is scheduled for the first quarter) to test and verify the Provision for a Livestock and Poultry Auction Trade – specifically by comparing regulatory provisions and actual operations to develop proposals on the improvement of those provisions; and
- Preparation and submission of amendments to the Ministry of Agrarian Policy

#### 2) Facilitation of establishment of local model farmer unions to take joint actions at the meat market:

- Economic feasibility study, Assistance in development of business-plan, Statute, by-laws;
- Provision of consultations;
- Organization of seminars on unions establishment issues; and
- Organization of support from public agricultural organizations.

#### 3) Development of the following recommendations:

- Working relationships with formal and informal farmer unions; and
- Recommendations on advisability of establishing a Ukrainian Association of Livestock Producers.

- 4) Organization of seminars for initiators and potential members of farmer unions:
  - “How to develop a business-plan for product distribution”; and
  - “How to create a livestock procurement and sales cooperative”.
- 5) Facilitation of:
  - Search for credit for equipping a slaughterhouse of the model farmer cooperative; and
  - Involvement of other projects, funds and organizations in collaboration with the established cooperative.
- 6) Capacity building and promotion of different types of livestock markets:
  - Preparation and dissemination of a brochure “Livestock Market Mechanisms: U.S. Experience and Prospects for Ukraine”;
  - Team lecture of American and Ukrainian economists (Dr. Harrison and Dr. Moldavan) on the same topic for post-graduates of Vinnitsa Agrarian University, Podillia Agro technical Academy, Uman Agricultural Academy;
  - Study of experience of U.S. farmers’ trade associations and placing the findings at the Project web-site and dissemination through offices of agrarian Information and Consulting Service of Ukraine; and
  - Publication in media.

## **B. Information Systems**

PFID realized the industry’s demand for information support after analyzing the results of the Stakeholder Meetings of 2001. Therefore, the major objective of an Information Support System (ISS) is to provide all food processing enterprises (regardless of ownership and capacities) with useful, science-based and unbiased information. Such information should help to address major constraints faced by industries, such as: inadequate raw material supply; poor relations between raw material producers and processors; difficulties in marketing food products; insufficient training of personnel of newly established small private enterprises; and haphazard promotion of food industry equipment and accompanying commodities.

### *1. Accomplishments, Ukraine*

In the last six months, PFID/World Lab expanded an enterprise data bank, which currently includes 408 poultry enterprises, 200 meat enterprises and 197 fish enterprises. All information provided by clients about their products for sale, with prices, amount and characteristics was put into the dynamic data bank. Initially, a message was sent to all enterprises registered in the data bank inviting them to submit information (in the established format) about the products that they offer for sale. Information received from enterprises via fax or prepared by respective associations with consideration to internal needs of each industry was introduced into the developed data bank. World Lab shared the poultry data bank with the Ministry of Agrarian Policy to be placed at the Ministry’s website.

Web pages were composed, containing information on characteristics of locally- and foreign-bred aquaculture species, fish growing technologies in different waters; and a dynamic, updateable web page with a description of regulatory documents.

To expand web-based ISS developed by World Lab, the design of separate ISS sub-systems was developed and information pages of food cold chain were composed, including:

- Technological instructions on chilling, freezing, defrosting and storage of meat and meat products, developed by the Ministry of Agrarian Policy of Ukraine, Ukrmiasso Association and Odessa State Academy of Refrigeration;
- Translation of the WFLO Q&A Bulletin (access is restricted to WFLO-affiliated association members);
- Translation of the WFLO Commodity Storage Manual (access is restricted WFLO-affiliated association members); and
- Translation of the WFLO Frozen Foods Handling and Merchandizing (access is restricted WFLO-affiliated association members).

## 2. *Accomplishments, Moldova*

In September, INZMV/PFID completed a survey measuring the information needs of stakeholders. The 160 respondents (of which forty-seven were women) included representatives of processing plants, cold chain enterprises, regulatory bodies, ACSA, academia and raw material producers.

A standard questionnaire (found in Annex C with a fuller description of results) was developed to identify the information needs of the following categories of PFID stakeholders: industry representatives, regulatory bodies and universities. The questionnaires developed for refrigeration association members and raw material producers included survey items specific to those sectors.

The Information Survey results showed that the majority of respondents use traditional public information resources: periodicals, such as newspapers and magazines (125 respondents); and television and radio, (109 respondents). Only sixty-nine respondents had access to special information resources, such as manuals and handbooks. It may be inferred that most of the clients are suffering from a lack of information, because traditional information resources do not provide specialized information on food safety, storage, processing, food quality and raw materials production issues.

This idea was confirmed by respondents' answers to following two questions:

- “Before PFID, were you satisfied with your existing information support?” – Only 34.2% responded positively; and
- “Do you need additional information support from PFID?” – 96.3% responded positively.

INZVM identified information topics of the greatest interest to selected categories of respondents. The greatest interest to those involved in processing was related to food safety issues (with a positive response rate of almost 96%) although none of the other topics (best post-harvest practices, best raw material production practices, economic issues and association development) had a positive response rate of less than 84%. The Refrigeration Survey identified that respondents' greatest interest pertained to information on the best practices of food cold storage, refrigeration equipment and especially energy conservation. Raw material (red meat, poultry and fish) producers also were surveyed regarding the information support on best practices for their sectors.

To the question: "What additional type of information do you want PFID Project provide to you?" the following types of replies were most commonly received:

- *Meat processing representatives* – Food safety/quality and post harvest technology;
- *Poultry processing representatives* - Loan system for producers and ingredients for improving poultry meat quality;
- *Fish processing representatives* – Experience exchanges;
- *Cold chain representatives* – Latest technologies, refrigeration, equipment commodity storage regulations, HACCP implementation;
- *Universities and academia representatives* – Latest achievements in the US food industry;
- *Red meat producer and poultry representatives* – Marketing and production techniques; and
- *Fish producer representatives* – Production in EU countries, methods of fish processing and production in small ponds.

Using data, tables and photos collected by its staff, INZMV prepared the following information materials:

- Five leaflets on the best practice of freshwater fish production: "First Steps to Fish Breeding", "Forming Pond Fish Production", "Growing of Fingerlings", "Commercial fish production" and "Fish nutrition - distributed to 250 clients;
- Four leaflets on the best practice of poultry production: "Incubation of Poultry", "Poultry Farming", "Guideline for Poultry Nutrition", "Poultry Slaughter" and "Poultry Meat Processing and Storage" - distributed to 100 clients;
- One leaflet on the best practice of pork production: "Use the Best Input for Pork Production" – distributed to 150 clients;
- One brochure for beef production: "Growing and Intensive Fattening of Beef Cattle";
- One brochure about PFID Project activity in Moldova – disseminated to 50 clients at the exposition "Farmer 2002";

- One database, containing the following information about 130 fish farmers: farm name, form of property, farmer's name, address, telephone, fax, e-mail, pond location, area of pond, annual volume of production output etc.

INZMV prepared four articles that were printed in Moldovan newspapers and magazines: one that gave an overview of PFID activities in Moldova and three that concentrated on freshwater fish production and processing. INZMV's Project web site was updated by including a translation of the 2001 Assessment Report and a vacancy announcement for the manager position

### *3. Issues, Lessons Learned and Actions Planned for the Next Six Months*

World Lab's analysis of the clientele and Internet access opportunities, conducted with assistance of Association leaders showed that private food industry enterprises are already computerized and have Internet access, while large state companies receive information from associations through established channels (fax, phone, mail). Therefore, two ways of disseminating information identified by the Project (via Internet and by installing ISS in Associations) could cover all PFID stakeholders.

World Lab originally planned to start developing sub-systems relating to the fish industry, because initially fish processor associations showed activity and interest in information on raw material supplies. But these processors use only imported fish and are rather reluctant to share information about their processing capacities and needs. Therefore, focus was moved to collaborate with the Ukrmiasso and Ukrptakhoprom Associations (trade associations for the meat and poultry sectors, respectively), both of which showed interest and willingness to cooperate. Information content is dictated by the industry's need of and was identified by the leaders of Ukrmiasso and Ukrptakhoprom, who are interested in electronic access to information. They were very supportive in developing ISS and identified the information that is in greatest demand.

The development of an information system with a user-friendly data-bank interface is behind schedule because a web-server is not yet available. When the Work Plan was developed, World Lab anticipated sufficient funding for purchasing a computer. However, the Project's formal accreditation by the government of Ukraine has been delayed, preventing it from purchasing major equipment at this point. But this deviation has certain advantages. The developed system can be installed at collaborating associations' offices to provide information for enterprises that do not have individual Internet access. Another corrective action was the Agreement between World Lab and the Ministry of Agrarian Policy on placing the Poultry Sub-System at the Ministry's website. In addition World Lab is currently disseminating information to stakeholders via e-mail and fax.

While World Lab's ISS work items for Year Two involved data collection and organization, in Year Three, it will concentrate on data dissemination and enhancement. Future activities will mainly include development and adjustment of client feedback and expansion of access to information available...

1) Placing of ISS in Internet:

- At both the portal of the Ministry of Agrarian Policy (to provide access for all producers, commercial enterprises and industrial establishments) and at World Lab's own server; and
- Seminars where users will be trained and accept usage terms of usage.

2) Widening of the range of information available from the site:

- Multilevel information on refrigeration technologies, including computerized procedures for design calculations of cold chain processes and selection of refrigeration systems;
- An additional sub-system "HACCP and International Institute of Food Safety and Quality" for placing reference information and to develop a user-friendly interface to access this information, allowing for consultations;
- Increased access to potential US-based suppliers through hot links to WFLO's and BIZNIS's web pages; and
- Information covering all Project activities.

3) Development and introduction of a mechanism for Internet-site support and update to provide its sustainability after the end of the Project including the following characteristics:

- Automatic update of meat and poultry data bases;
- Interactive feedback, including pages for "Buying", "Selling", "Contacts" etc.;
- Information on fish (raw material, products, volumes, prices etc.) to develop a fish database structure, interface and a mechanism of automatic update through analysis of available information;
- Registration of site visits by PFID staff; and
- Identification of users who need printed materials and preparation and dissemination of information through that medium.

Based on its Year 2 activities in establishing an information support system, INZMV has predicted an increased demand for information materials developed by the project. It wishes to increase the project's potential in information support through databases in electronic format and partnership with ACSA.

From the INZMV's information survey, respondents' suggestions regarding additional information support could be classified into the following categories:

- Raw material production for the food industry (17 clients proposed to disseminate this information);
- HACCP, safety, sanitary, safety requirements (14 clients);
- Sales markets, financial issues, loans/credits, economic issues (11 clients);
- Information about equipment, cold storage and energy saving technologies (10 clients); and
- Food processing Technologies (8 clients);

This type of information support will be provided in 2003 when the respective information materials will be collected by the project.

The following stakeholders companies agreed to place key information on the Project's web site: seven meat-processing companies, five poultry processing companies and six fish processing companies. In 2003 such key information for each stakeholder will include: company name, contact person, address, telephone, fax, e-mail, type of products and other information as agreed with clients. This will allow for global dissemination of key stakeholders' information.

### **C. Association Formation**

Slides for Mr. Seward's (WFLO) presentation on Association development, given last June in Ukraine and Moldova, were translated and disseminated to participants, along with the twelve page manual, "Frozen Food Handling and Merchandizing".

#### *1. Accomplishments, Ukraine*

World Lab is promoting active associations within the Ukrainian economy as one of the best defenses against the growth of the shadow sector and a facilitator of small and medium business development. For this project activity, World Lab's key objectives for 2002 are:

- The establishment of model associations of seafood producers in the Southern Region of Ukraine (these were the Azov Sea Basin Association and the Black Sea Basin Association); and
- Revitalization and institutional development of existing associations for increasing their capacities in providing services to their members.

The Azov Sea Basin Association of Berdiansk City in Zaporizka Oblast was established with the PFID Project's guidance and having the following major outcomes...

#### 1) Promotion of members' interests:

- The Association and PFID cooperated with local authorities on water use issues, support of governmental policy regarding commercial fish harvesting and ecological

policy - For example, the Association persuaded the Berdiansk Municipal Council to allocate land to establish a modern industrial complex for fish processing<sup>1</sup>;

- The Association was delegated by the State Department of Fisheries to obtain harvest quotas and to distribute them among its members; and
- The Association obtained authorization from the Ministry of Transportation of Ukraine for its member's vessels to call at ports overseen by the Ministry.

2) Provision of services to the members enhancing private sector within the fish industry:

- Regulation of economic links among members of an integral technological chain from harvest to consumption – Fish harvested by individual members is accumulated into large lots for further storage and sales on negotiated prices allowing those members to concentrate on harvesting (a member can either sell his products to other members, or delegate the Association to track and distribute his products to consumers);
- Provision of legal services – For example the Association and the League of Information and Legal Technologies (Kyiv) consulted with members of Association on legal issues;
- Consolidation of member's financial recourses – Through this, association members purchased several buildings of Berdiansk Sea Trading Port for further reconstruction and proposed transformation into a modern minimal-waste fish processing complex<sup>2</sup>;
- Training on new technologies and certification of products;
- Organizational activities to decrease production costs through coordination of member actions;
- Provision of market information and capacity building on business issues, food quality and safety and consumer demand trends;
- Facilitation of international market access.

As a result of these services, Association members received the following benefits:

- The harvest area for member companies was expanded;
- The Association assumed all requirements of obtaining quotas for its members and represented their interests at a higher government level, thereby freeing them from repeated contacts with lower-level state officials;
- Warehouses were shared by all association members;

---

<sup>1</sup> This process also involved securing approvals from the State Ecology and Natural Recourses Administration, the Land Resources Administration, the Architecture and City Planning Administration and the Economy Administration of Zaporizka Oblast. To obtain such approval, the Association cooperated with the Sevastopol Research Institute "Yugrybcenter" (South Fish Center) in design development with a scientific focus. Individual enterprises would not have been able to address these issues successfully.

<sup>2</sup> The ASBA has prepared a business proposal for such a complex. The proposal states that selected Association members are prepared to provide fifty percent of the necessary financing and are seeking the additional one million dollars from an outside investor.

- Selling fish in large lots became possible by consolidating member lots, facilitating greater export opportunities;
- A common professional crew (a fleet captain, technologist, safety engineer, seagoing safety engineer and environmental protection specialist) was created to serve all member companies, allowing for reduced support personnel of each company; and
- All members were provided with necessary regulations for interaction within the integral technological chain.

These benefits had the following impact on the sector:

- Year-round fish harvesting instead of seasonal fish harvesting resulting in increased production (during the second half-year of 2002, association members increased their harvest volumes by average 20%) and employment - due to expansion of the Association members' facilities, particularly harvest vessels<sup>3</sup>;
- The Association members' products have ready access to both domestic and international markets (50% of buyers are from Russia, Estonia, Poland, Romania and Belarus);
- Cost of production decreased while income increased due to optimal interaction between members and exclusion of intermediaries from the chain – for example, while pike-perch was sold by non-member fishers at average price of 4.5 hryvnas per kilo, association members sold their higher quality product at 5.5 hryvnas per kilo (refer to the next item); and
- Quality of products increased in part because member-harvested fish is forwarded to the Association, which has the facilities for proper storage – Also, the harvest contains less substandard fish, because increased quotas allows for culling at the vessel.

The role of PFID in facilitating the Association's establishment – through training, information support and assistance in registration – was especially important for small businesses. Under other conditions, using solely their own capacities, they would not be able to grow successfully. In fact, the benefits accrued to many association members have enabled them to participate in Ukraine's formal economy – a major impact for both the industry and the nation at large. As enterprises acquire the capacity to leave the “shadow economy” and commence legitimate economic operations, they increase a country's revenue base as well consumer confidence through increased control of food safety. Other benefits include a greater degree of environmental stewardship and an increased access to the global economy.

PFID/World Lab followed the recommendations of WFLO experts to enhance weak local associations by linking them with more strong and larger associations. During the second half of 2002, the number of associations collaborating with PFID increased to thirteen. For example, Ukrmiasso Association contributed to the establishment of the Model Livestock Market and

---

<sup>3</sup> Environmental consequences are minimized through quotas for year-round fish harvesting, which the Ministry of Ecology and Natural Recourses strictly regulates. In addition, the Association supports research on environmental protection conducted by scientific institutions

expansion of PFID Information Support System. Ukrptakhoprom Association was among the first to provide information for ISS. The Association of Fish Processors (Kyiv) promoted establishment of contacts with business associations through the BIZPRO Program. BIZPRO is the flagship SME development project for USAID in Ukraine and Moldova and provides business skills development to local enterprises. Ukrplemrybcenter (Ukrainian Fish Breeding Center) Association is monitoring the Azov Sea Basin Association's sturgeon reproduction project. The Association «South-Refrigeration» and Food Industry Technological and Engineering Association are active participants of PFID seminars in Odessa. Lastly, almost all Associations have participated in the establishment of the Union of Associations "Ukraine Refrigeration".

On September 19, Constituent Assembly of the Union of Associations "Ukraine – Refrigeration" (UAUR) took place. The establishment of the UAUR was not provisioned in the Second Annual Work Plan, but it appeared to be highly appropriate to unite associations of food industries on the common basis of development and implementation of new technologies, systems and networks of food cold storage. The UAUR is established to facilitate the development of refrigeration engineering and technologies applied in food industry. It unites leading associations, producers and consumers of refrigeration and is open for full membership by any food industry entity. To date, twelve regional divisions of the UAUR were established and a round table discussion of association heads from the Azov and Black Sea regions was organized to identify constraints and solutions for food cold storage.

## 2. *Accomplishments, Moldova*

On July 11, 2002, nine Moldovan fish farmers assembled a constituent meeting and decided to form an Association called Propiscicola to help them achieve maximum efficiency in freshwater fish production, in part through the following:

- Rational utilization of ponds and other natural resources;
- Creation of a financial and technical base;
- Coordination of Association members' operational activities for their mutual benefit.
- Research of domestic and foreign market possibilities and the identification of new marketing outlets;
- Training and information support for association members; and
- Advocacy of Association members' interests in government, state institutes, trade unions and mass media.

Mr. Emelianov Nicolai became the Association chairman and proceeded to register the Association as a public, non-governmental, non-profit organization.

On August 23, a working meeting of fish farmers from the Ungheni region was held, where twenty-four people resolved to create a regional branch of "Propiscicola" Association. On September 24th, sixteen persons in the Edinets region met to create another regional branch. On October 22nd, the decision to create a regional branch of the Association was made by 14 fish farmers in Cahul region.

“Propiscicola” Association, together with PFID, held a conference for fish farmers, attended by twenty-eight persons during the fifth international exhibition “Farmer 2002”.

Propiscicola served as a vehicle for capacity building of fish farmers. During the association building process, four seminars were conducted with regional ACSA centers, where seventy-two persons were trained, including five women. PFID, together with the ACSA regional center and “Propiscicola” Association (Ungheni Branch), created a training class on fish farming, which will serve as a fish farmers training basis for Ungheni and other neighbor regions in Alekseyevka village.

PFID assisted “Propiscicola” Association through developing a marketing support mechanism, consisting of ten marketing support protocols:

- In one protocol, marketing support is being provided for eight small farmers through the existing marketing channels of four large fish farms and one fish processing company; and
- Nine protocols of marketing analysis were drawn – these allow for monitoring of prices at Moldovan fish markets and for estimating volume of fish sales by farmers<sup>4</sup>.

Survey results showing commercial effect of marketing support mechanisms and other Association activity for fish farmers also were analyzed; these showed that, in 2002, the volume of their sales increased by 478 tons (or 51%) for an estimated value of 6.2 million lei (\$443,860 USD) relative to 2001.

PFID contributed to the creation of the Alliance of Associations for Meat Industrialization (IndCar). The newly created Association joins eighteen members: sixteen PFID stakeholder companies (meat processing, production and meat marketing companies), the Center for Research of Meat and Dairy Products Quality and the Association of Refrigerators of Moldova. To build this economic association, an initial group was organized. With PFID support, the group drafted the constituent documents and discussed them with all association members. PFID together with this group organized a constituent meeting assembling the potential members of the Association.

### *3. Issues, Lessons Learned and Actions Planned for the Next Six Months*

A major benefit of the ASBA was transfer of some members’ operations from the “shadow” to the formal economy. For example, private businessman Vladimir (full name withheld) now harvests fifty instead of fifteen tons of fish annually. Before association participation he could not afford the costs needed to receive harvest quotas or afford a crew of eight persons to maintain his vessel – forcing his business to be unsanctioned and depriving the state of tax revenue. Another businessman Ivan (ditto), through the Association, can apply for a thirty-ton harvest quota when he previously harvested illegally. The results of ASBA activities proved the feasibility of uniting participants of seafood producers into one technological chain. Prospects for further development of the Model Association will depend significantly on implementation of

---

<sup>4</sup> Indicators to be measured include a) prices for different species of fish; b) percent of fish commercialized by large fish farms, small farmers and Ukrainian imports; and c) total volume of fish commercialized in the day of the protocol’s preparation.

two business projects: “Non-Waste Complex of Fish Harvesting and Fish Products Production” and “Reproduction of Sturgeon Species”. For the first project, a business plan was developed and a BISNIS questionnaire filled out. The Business Information Service for the Newly Independent States (BISNIS) is a Project funded by the US Department of Commerce to facilitate partnerships between local and U.S. enterprises. Using questionnaires, BISNIS identifies and profiles NIS enterprises with the potential to form joint ventures. In addition, initial contacts were made between association officials and representatives of WFLO who were conducting a cold chain seminar in Odessa and who were impressed with the scope of the Association’s ambitions (refer to Page 26).

Future Activities will include further tracking and analysis of the interaction model, to disseminate experience of the Azov Sea Basin Association within the seafood and other industries. Also, World Lab will facilitate business partnerships and promotion of business proposals of the Association on a non-waste complex of fish harvesting and production of fish products and a sturgeon production complex. Association members are able to provide fifty percent of the necessary investments. Additional funding might be identified through contacts provided by BISNIS.

On December 5, 2002 the UAUR and the National Association of Refrigeration of Moldova concluded an “Agreement on Cooperation and Partnership”. The subject matter of the Agreement involves joint efforts in the following areas:

- Exchange of information on research and scientific development, consulting services on export, import and marketing;
- Search for and application of new technologies;
- Establishment of business contacts between organizations, companies, scientists from Ukraine and Moldova;
- Facilitation of establishment of representative offices of firms and enterprises of the two countries;
- Organization of seminars, workshops, scientific conferences, and trade shows in Ukraine and Moldova; and
- Professional training.

These joint activities are proposed for 2003. Other future activities related to association activities include the following:

- Sharing experience of the model associations, created within the PFID Project in the seafood industry with meat and poultry sectors;
- Enhancing the available Associations and widening the array of their services to members;
- Enhancing capacity of associations through the wide use of the Information system developed for Food Industry, seminars and training provided by the PFID Project; and

- Enhancing capacity of the "Cold Chain" participants through the services to be provided by "Ukraine-Refrigeration" Association.

Marketing support, market analysis and marketing activity of "Propiscicola" Association are issues to be addressed for Year 3 of the Project.

According to Moldovan legislation regarding entrepreneurship and commercial activity, the creation of such an economic association is possible only with the permission of the Antimonopoly Body of the Ministry of Economy. For this reason, the next step in forming the "Alliance of Associations for Meat Industrialization" was compliance of all constituent documents with the Ministry of Economy of the Republic of Moldova. This was not foreseen in the original activity planning and has delayed the Alliance's initial operations. Presently, the registration of Alliance to comply with these additional regulations is in its final stage.

## **D. Establishment of International Institute of Food Safety and Quality<sup>5</sup>**

### *1. Accomplishments*

The Year Two objectives for the International Institute of Food Safety and Quality (IIFSQ) were as follows:

1. Establish the IIFSQ as a legal entity;
2. Facilitate the development of regulations, including draft national standards on Hazard Analysis for Critical Control Points (HACCP);
3. Conduct seminars and training on HACCP, particularly, basic certification and Train-The-Trainer programs for food industry personnel;
4. Develop methodological materials on HACCP system for food industry; and
5. Organize a national system of training in development, implementation and evaluation of HACCP.

Project-affiliated experts established the IIFSQ in the form of an Association open for all interested parties. By-laws of the IIFSQ were developed and major functions were identified. Documents were submitted for official registration and Institute premises were found, including two back-up testing laboratories for physical, chemical and microbiological analyses. Lastly, Institute activity leaders were identified. The bureaucratic nature of registration with authorities delayed the IIFSQ's legal establishment but this didn't hamper the progress of other planned activities.

Because the national technical regulatory system was preoccupied with government reform, its participation IIFSQ activities became difficult, and it was decided to invite other institutes – particularly the Ukrainian State Research and Production Center for Standardization, Metrology and Certification and the Poltava Center for Standardization, Metrology and Certification – to be founders. This will enhance and expand IIFSQ capacities because the contribution of the two

---

<sup>5</sup> In future Project documents, the Institute will be categorized as a capacity building activity, not a support mechanism.

new founders will be two leading testing labs. Also, Poltava Center is a clearinghouse of state supervisory information for meat processing enterprises.

In a show of support, the Government allotted funds for food safety improvement and HACCP implementation. On the recommendation of the Institute, a State Technical Committee on HACCP Standardization (Order of the State Standards Committee of September 9, 2002, #492) was established to develop scientifically justified methodology for standardization of food safety system. A legislative proposal, “On amendments to the Law of Ukraine “On quality and safety of food and raw materials” (of October 24, 2002, #191-IV) was drafted and promoted in the Ukrainian Parliament. This draft proposes measures on step-by-step implementation of HACCP at food processing enterprises within terms set by the Government for separate types of food. The IIFSQ team also participated in the development of the Draft State Standard of Ukraine entitled, “Quality Management Systems: Management of food safety on the basis of hazard analysis and critical control points”. Scientific justification to develop other HACCP regulatory documents and other recommendations were prepared.

IIFSQ is developing HACCP training curriculum that covers Ukrainian specifics (food safety concerns and regulations), and adapting HACCP Alliances’ training materials for use at country seminars and training of national specialists in HACCP.

To disseminate HACCP knowledge and skills, IIFSQ representatives employed several avenues. Ukrainians who successfully completed HACCP Train-the-Trainer (TTT) courses gave three presentations at exhibitions and conferences, as well as lectures to auditors of the State Standards Committee regional bodies. In addition, Natalia Rudovskaya having attended basic HACCP trainings and received trainer certificate, established her own small business and intends to promote HACCP at processing enterprises.

A workshop on adult learning techniques was conducted for Ukrainian HACCP trainers. IIFSQ founding partners organized and conducted the first Ukrainian HACCP training, in which Ukrainian certified trainers made all presentations. This seminar’s primary purpose was to provide general HACCP information. At this point, IIFSQ does not yet have a curriculum certified by the International HACCP Alliance. Twenty-five meat processors (including sixteen women) attended this training in January 15 to 17. Ukrainian trainers also took part in organization and conduction of three seminars covering regulatory provision and implementation of food safety management systems on the basis of HACCP for representatives of food enterprises. In total, about one hundred persons from different regions of Ukraine attended these seminars.

## 2. *Issues, Lessons Learned and Actions Planned for the Next Six Months*

The interest demonstrated during the initiation of IIFSQ activities proved that this effort is very appropriate. Given the forthcoming approval of the Ukrainian HACCP Standard, the need in training appeared to be much more urgent than it was expected. Processors who are starting HACCP implementation feel a lack of necessary skills and experience in developing HACCP plans. Therefore, Ukrainian trainers should prepare themselves not only for training activities, but also for provision of assistance to enterprises in HACCP system development.

As IIFSQ activities are targeted at facilitating Ukrainian food safety system harmonization with international requirements, reaching of the regional and international level is required. An advantage of the IIFSQ in contrast to other efforts in representing HACCP should be the affiliation with the International HACCP Alliance and collaboration with National Seafood HACCP Alliance.

Furthermore, it was decided to expand the PFID/Ukraine Information Support System (refer to Page 11) by adding a new sub-section “IIFSQ&HACCP”, including a Register List of Ukrainian certified HACCP specialists who attended basic certification courses and HACCP trainers with contact information.

Building on the 2002 achievements and lessons, major activities for 2003 are as follows:

- Establishment of relations with HACCP Alliances (International HACCP Alliance and National Seafood HACCP Alliances);
- Facilitation of FDA expertise of the HACCP State Standard of Ukraine;
- Accreditation of the training curriculum of meat & poultry and seafood HACCP training course adapted for Ukraine at international and national levels;
- Organization of HACCP training for representatives of food processing enterprises, conducted by Ukrainian trainers;
- Provision of consultations for enterprises that opted for experimental HACCP implementation;
- US based advanced HACCP training of Ukrainian trainers, especially in verification and validation activities;
- Organization of international round tables on HACCP issues; and
- Collaboration with Universities and introduction of a pilot University training course on food safety and HACCP.

#### **Section IV. Objective #4: Create Technical and Educational Capacity**

##### **A. Training**

Information materials on economic issues, marketing and market outlets (54 pages) and slides for Dr. W. Harrison’s June presentation for marketing training were translated and disseminated to participants in Ukraine and Moldova.

To select the most qualified and appropriate participants and also to guarantee the maximum transparency of the selection process, INZMV developed a systematic selection procedure for each seminar conducted by members of the US-based Technical Team. This included announcements to a wide range of clientele and an application process.

Additional training information, particularly regarding participants and activity schedule for the HACCP Train-the-Trainer courses conducted last October, is in Annex D.

## 1. *Accomplishments, Seafood SCP/HACCP Training*

As a part of the IIFSQ activities and the INZMV's training support, additional translation and was conducted and the materials disseminated to training participants:

- A package of materials on US equivalence systems;
- Slides for Dr. Michael Moody's Seafood HACCP/SCP seminar;
- "HACCP: Hazard Analysis and Critical Control Point Training Curriculum" (240 pages);
- "Sanitation Control Procedures (SCPs) for Processing Fish and Fishery Products" (200 pages);
- "Fish & Fisheries Hazards & Control Guidance: *Third Edition*" (326 pages); and
- The Seafood HACCP Train-the-Trainer Guide.

As mentioned in the previous SAR, training in Sanitation Control Procedures (SCP) and HACCP for seafood regulators and processors was conducted on July 3-5 in Chişinău, Moldova and on July 10-12 at Odessa, Ukraine. Twenty-nine Ukrainians trained, including twenty-one women, as were thirty-three Moldovans (ten women and twenty-three men – exclusive of PFID staff).

Unfortunately, the participant evaluations for this training were not available in time for the previous SAR's submission so it is included in Annex D of this document. Almost all Ukrainian participants noted the seminar's topicality, timeliness, organization and professionalism. In the course evaluations, most participants agreed that, "the seminar is very useful for my practical work". A favorite characteristic was the practical detail provided in the handouts, specifically the three manuals, which many participants noted could be used in actual implementation of HACCP plans. According to participants, the seminar's key value was in new terms, approaches and concepts, its systematic presentation of information and its practical nature.

For Ukrainian industry participants, the most useful topics were "Development of HACCP Plans" and "Sanitation Control Procedures". Most of the consultants and regulatory government officials said they found the topic "Hazard Analysis" most potentially useful in the provision of their services. Russian participants proposed to conduct the same seminar in their country.

In Moldova, 91% of the participants evaluated both the training in general and the concepts and techniques to develop a HACCP plan as very useful; the rest rated these topics as moderately useful. All participants rated instructors as either excellent (93%) or as a whole informative (3%). For Moldovan participants, the topic perceived as most useful was "Hazard Analysis and Critical Control Points (CCPs)", followed by "Food Safety and HACCP Principles" and "Verification and Record keeping".

In early October four Ukrainian and four Moldovan participants (including three women) attended a Seafood HACCP Train-the-Trainer Course in Orlando, FL as part of the International Conference, "Advancing Seafood Technologies". The topics covered conformed to the Seafood HACCP Train-the-Trainer Guide. The first topics included the following:

- An overview of hazards;

- A description of prerequisite programs;
- Hazard Analysis;
- Critical Control Points (CCP);
- Establishment of critical limits;
- CCP Monitoring;
- Recommended corrective actions;
- Record-keeping procedures;
- Verification Procedures;
- The Seafood Regulations; and
- Sources of Information.

After some group HACCP work sessions, additional course items included a protocol for training classes, the recommended use of training materials, a presentation of an on-line HACCP course, a sanitation video demonstration. The course concluded with a review and critique.



Seafood HACCP TTT participants and translators, Orlando, FL.



Ukrainian and Moldovan delegation visiting Dr. Moody's food science class, LSU, Baton Rouge, LA

## 2. *Accomplishments, Meat and Poultry HACCP Training*

Information materials from the Food Safety Inspection Service (FSIS) web site – “Evaluating Foreign Countries for Equivalence” (3 pages) and “FSIS Process Evaluating the Equivalence of Foreign Meat and Poultry Food Regulatory Systems” (14 pages) – were translated and disseminated to participants of US-based Meat and Poultry HACCP TTT Course.

In late October, five Ukrainians and four Moldovans (including four women) participated in a Meat and Poultry Train-the-Trainer Course in Washington, DC. Course topics included the following:

- Adult learning styles and techniques;
- The relationship between HACCP and food safety;
- Good manufacturing practices;
- Identification and control of hazards;
- Presentation and discussion: The Principles of HACCP;
- Developing a flow chart of the process and product;
- Establishing critical limits for preventative measures associated with each CCP;

- Establishing CCP monitoring requirements and procedures for using monitoring results to adjust the process and maintain control;
- Establishing effective record keeping procedures;
- Establish verification procedures;
- HACCP plan implementation;
- HACCP plan maintenance;
- Relevant regulatory issues; and
- Questions, answers and course conclusion.

After the course, the participants visited the Project donor office (USAID/G/EGAT), International Policy staff members of USDA/FSIS and partner staff members at WFLO.

### 3. *Accomplishments, Cold Chain Management*

In Moldova, a national seminar on Cold Chain and Refrigeration Technologies was held. The goal of the seminar was to provide training on refrigeration technologies, equipment, energy issues and operation of refrigeration equipments. The seminar was held on the 11-13<sup>th</sup> of September and consisted of both theoretical and practical parts with a field trip to “Vitanta” JSC. Two American experts representing WFLO – Messrs. Henry Bonar II (President of Bonar Engineering) and Sam Bowden (Arkansas Refrigerated Services, Inc.) - conducted the first and the second day of the seminar. Dr. Catrofeanu of the Technical University of Moldova and President of the National Association of Refrigeration Specialists (ARS) conducted the third day of the seminar. Thirty-six people, including six women, completed the training, including representatives from academia, the ARS and processing companies. Mr. Bonar noted particular interest in refrigeration pumps so he gave a special segment, using a Power Point presentation, on how circulating pumps are applied.

In September 18, World Lab and the Odessa State Academy of Refrigeration conducted a seminar on cold chain management, with participation of WFLO-affiliated experts Messrs. Bonar and Bowden. The seminar was an excellent training opportunity for twenty-three (five women and eighteen men) cold chain specialists from associations, processing enterprises and other organizations of the agricultural complex. Representatives from Russia and Moldova, as well as eleven Odessa State Academy of Refrigeration post-graduate students and graduates, attended the seminar.

The seminar was used as a basis for direct dissemination of information from relevant ISS sub-systems. In particular, participants were provided with the following cold chain materials translated into Russian:

- Commodity Storage Manual (meat, poultry and seafood sections);
- Frozen Foods: Handling and Merchandizing;
- Energy Conservation Manual;
- Five editions of Q&A Bulletin;
- WFLO Membership: Publications, Products and Services; and

- Hank Bonar’s and Sam Bowden’s presentation slides.

In Ukraine, the seminar was conducted in parallel with the Second International Conference on Modern Problems of Refrigeration Engineering and Technologies. Mr. Bonar and Mr. Bowden made presentations at the plenary session of the Conference. As the seminar progressed, some people from the International Conference panels joined the PFID Cold Chain seminar.

Dr. Chumak of the Odessa State Academy of Refrigeration gave the following comment on the usefulness of such meetings: “... Professional knowledge and practical solutions proposed by our American colleagues will be especially useful for our aspirant specialists in the sphere of cold chain technologies”. In their evaluation forms, seventeen of the twenty-three participants stated that the seminar was “very useful” for them, and absolutely all stated that the speakers were “very informative” or “generally informative”. Of the twenty-three Moldovan participants who completed an evaluation percent, all found the training either very or moderately useful and the instructors either excellent or generally informative.

#### 4. *Issues, Lessons Learned and Actions Planned for the Next Six Months*

Having trained experts in meat and seafood HACCP, PFID has created in Ukraine and Moldova a core group for future capacity building in this area. In Moldova, this “Center of Excellence” will provide assistance to the following companies implementing HACCP in the Year 2003: JSC Carmez, Delifres Ltd., Free Fisheries Ltd. and Anina, a poultry plant.

Most Ukrainian participants recommended extending the duration of the seminar and provide more time for practical exercise. Participants recommended to organize practical group sessions after each topic and to provide for cross-group discussion before group reports. They recommended more details on how to determine whether a hazard is significant or insignificant.

Lastly, they suggested to have more information and handouts on Ukrainian Standards to compare them with U.S. requirements. This will be taken into consideration in Ukrainian HACCP training curriculum. The IIFSQ plans to develop two curricula: one will be the original, unchanged National Seafood HACCP Alliance curriculum; and the other, which will cover specific Ukrainian needs, will be accredited within the National HACCP Alliance for the meat and poultry sectors. The latter Alliance permits trainers to change the model curriculum, if training protocol requirements are followed. To be authorized to provide training in Ukraine, the IIFSQ also needs to certify this training curriculum within the Ukrainian Body for Certification of Personnel and Training.

Ukrainian participants felt that it would be highly appropriate to organize efforts on HACCP implementation in Ukraine through systematic and continual training of Ukrainian HACCP specialists and instructors within one specialized organization, as well as experimental implementation of HACCP system in several enterprises. Such responses do much to provide the IIFSQ with future direction. For this reason, future Project documentation will treat the IIFSQ as a capacity building activity rather than a support mechanism.

Ukrainian Participants also recommended the following courses:

- More detailed seminar on sanitation controls;

- Safety and critical control points; and
- Training courses for testing microbiologists.

Several Moldovan participants recommended more time for practical assignments and concrete examples of HACCP introduction in US processing plants. Recommended examples included CCPs on specific canned products. Other recommended topics included the gains that a plant would have after HACCP implementation and the integration of HACCP and ISO 9000. The most common recommendations for future courses were for Sanitation and Good Manufacturing Practices, followed by Quality Control. Nine participants also recommended Project support to plants for HACCP implementation.

HACCP is becoming more significant in within the Moldovan framework of food safety and quality. The Moldovan Government will require food-processing plants to implement HACCP starting in 2004, leading a large number of people to express their interest toward HACCP training that PFID can provide.

For the Moldovan participants of the cold chain seminar, the most useful topic was “Power saving technology”, followed by “refrigerating and cryogenic machines and facilities”. Ten showed interest in future courses pertaining to computer monitoring of refrigerated inventory and one suggested technical assistance in the design and repair of refrigeration equipment.

Two representatives each of the Ukrainian and Moldovan cold chain industries (all men) were selected for participation in the 2003 WFLO Institute, a four day seminar on refrigeration and related topics. The number of participants (the original amount for each country was eight) was limited by language restrictions and translator availability, as well as by World Lab and INZMV’s decision to save travel funds for other topics. This limited number will be offset when participants from both countries share their acquired skills with colleagues in round-table events.

## **B. Case Studies**

### *1. Accomplishments, Fresh Water Fish Processing<sup>6</sup>*

In Moldova, as stipulated in a protocol of intentions of April 25<sup>th</sup>, Piscicola – Gura Bicului JSC supplied 120 kg of white silver carp to Delifres Ltd as a trial batch for primary processing on 16<sup>th</sup>-18<sup>th</sup> of July. Delifres cut the carp and prepared fifty-eight kg of raw material in the following forms for further processing:

- Carcass with tail and without abdomen;
- Carcass without tail and with abdomen; and
- Fillet without backbone.

---

<sup>6</sup> In the previous SAR, this activity was described as part of INZMV’s Project activities in Association Building (a support mechanism). Since then, Project staff decided to categorize this as a technical case study.

These raw materials were sent to Free Fisheries for further processing, where seventeen new value-added fish products were produced (weighing a total of 53.23 kg):

- *Carcass with tail and without abdomen* – Cold smoked silver carp backbone meat was the final product from this source;
- *Carcass without tail and with abdomen* – Products made from this source include salted slices, salted spiced slices, cold-smoked slices, cold-smoked carcass and hot-smoked slices; and
- *Fillet without backbone, semi-canned un-smoked products* – These products are packaged in plastic containers: ten with mustard, ten with mayonnaise, ten with tomato paste and ten with horse-radish and mayonnaise;
- *Fillet without backbone, semi-canned cold smoked products* – These include ten cans with oil, ten cans with garlic, ten cans with vinegar, oil and “Vegeta” and ten cans with oil and vinegar;
- *Fillet without backbone, other products* – These include hot-smoked sticks with “Vegeta” (special spices), hot-smoked fish-rolls and cold-smoked fillet.

On August 1, a palatability test was held for sixteen of the fore-mentioned products. Participants included representatives of Free Fisheries, Delifres, Orhei, Gura Bycului and PFID. Each product was placed in one of four categories: cold-smoked silver carp, hot-smoked silver carp, semi-canned silver carp (salted) and semi-canned silver carp (cold-smoked). Product quality was evaluated by four characteristics (appearance, smell, taste, consistency) using a four-grade system (5 - excellent, 4 - good, 3 - satisfactory, 2 - unsatisfactory).

Results indicated that all the above products are high-quality items. The highest grade (4.7) was given to cold-smoked semi-canned silver carp. Within that category, the highest grade was given to semi-canned fish with garlic sauce (4.9) and fish in oil sauce and vinegar-oil sauce (4.8). The lowest grade (4.4) was given to hot-smoked silver carp. Within this category, the lowest grade was given to “hot-smoked silver carp slices” (4.3).

Predicted profitability of selected products was analyzed by “Free Fisheries” and are shown as follows:

- Hot smoked and spiced/seasoned fillet - 6.9%;
- Cold smoked fillet – 17.5%;
- Smoked carcass – 25.2%;
- Hot-smoked rolls – 44.6%; and
- Semi-canned silver carp – 60.3%.

During the fifth exposition of “Farmer 2002” held in Chişinău, PFID prepared an exhibition of freshwater fish processing, in conjunction with the fish supplier “Piscicola Gura-Bicului”, the raw material supplier “Delifres” and the processor “Free Fisheries”. The exhibition included a presentation of the partnership mechanism of those three companies, an aquarium with live fish, produced by “Piscicola Gura-Bicului” and a windowed refrigerator with fish products offered by

“Free Fisheries”. Attendees of the exhibition were allowed to conduct their own palatability test of new products and bought ninety-two kg of silver carp products, including eighty cans of semi-canned silver carp. From this, Project staff and stakeholders anticipate a high demand for these products. Later these silver carp products were presented on November 23, 2002 at the exhibition in the Republican National Palace, which was dedicated to celebration of Agriculture workers day.

PFID/INZMV’s role in this trial processing included the following:

- Solicitation of interest and participation;
- Facilitation of linkages; and
- Guidance in palatability and market testing.



Packaged and ready-to-eat products of Moldovan freshwater fish processing trial

## 2. *Accomplishments, INZMV’s HACCP Implementation Examination*

During the 24<sup>th</sup> -28<sup>th</sup> of September INZMV staff visited Romanian slaughterhouses and processing plants to analyze HACCP implementation issues in a situation similar to that in Moldovan. Based in Pashcani City, Cosarom JSC has been operating for ten years in production, slaughter, processing and marketing of pigs and poultry. This company adopted HACCP three years ago. The first two years were spent for training of employees, logistical preparations and the implementation of ISSO 9002 standard. Company specialists provided ninety percent of employee training while ten percent was by outside experts.

Currently HACCP is being implemented at all points of the company. The company’s HACCP plan is revised once a year or when a new technology or product is introduced. The company’s products are controlled for nutritional value and physical quality indices at its laboratory for compliance with HACCP requirements. Product quality is constantly controlled to comply with the necessary documentation of seasoning content, packaging etc. Quality control of meat additives and veterinary control at the company is performed by state veterinary service whose representatives are present at the plant. The efforts to comply with sanitary and veterinary norms were obvious to the INZMV visitors.

Expenditures for HACCP implementation amounted to 7-10% of the annual total production cost of the company. The Executive Director, Mr. Greshanu, mentioned that – after HACCP was implemented – the products’ quality, the company’s image and annual income has considerably improved. Mr. Greshanu estimated that the investment was paid back within one year. After HACCP implementation, company annual income increased by 25-30%.

Crevedia Poultry Company of Dimbovitsa Judets is a part of a former state enterprise. It has a modern slaughterhouse meeting the ISO 9002 and HACCP requirements. All working segments from the slaughterhouse are separated, and the employees of each part of the slaughterhouse follow strict sanitation procedures.

All products are made from frozen meat and marked according to international standards and HACCP requirements. Implementation of International Standards and of HACCP was performed without additional expenditures (HACCP principles were taken in consideration at the slaughterhouse building) and facilitated the increase of products quality, output and, ultimately, the company’s income.

### *3. Issues, Lessons Learned and Actions Planned for the Next Six Months*

The palatability commission concluded that the products were of sufficient quality to be tested on the market. However, for a better evaluation of these new freshwater products, it will be necessary to apply a comparative palatability test between freshwater and oceanic fish products. Economic analysis of the freshwater processing will be a key element of the Project activity for Year Three.

After dissemination of freshwater fish trial processing results, two other seafood-processing companies (Costesti and Veshnetsya Ltd.) expressed commitment to organize industrial freshwater fish processing and asked for PFID support and expertise.

Based on their trip to Romania, the INZMV staff made the following conclusions and recommendations:

- Recent statistics from Romanian Health Department is noting a slight reduction of food borne illnesses, which could be attributed to greater attention to sanitation and hygienic aspect of food industry processed;
- For HACCP implementation, it is necessary to prepare a preliminary technical and material planning foundation; and
- Moldovan specialists of meat and poultry processing plants should be organized for a visit to “Cosarom” and “Crevedia” Companies for HACCP familiarization in 2003.

It was originally planned that Dr. Michael Moody would conduct follow-up visits to seafood processing facilities in October and evaluate HACCP plans adopted by seminar participants. However, he decided to postpone his monitoring visit to June 2003 due to both his teaching duties at the Seafood HACCP TTT course and the opportunity to collaborate with FDA officials. Dr. Moody and the FDA officials will work together in HACCP monitoring and establishing a memorandum of understanding between FDA and the relevant government agencies in Ukraine and Moldova.

Although two cases studies each were planned for Ukraine and Moldova, World Lab has conducted no such explicitly defined activities. As the year progressed, World Lab decided that it was more appropriate to concentrate its efforts on support mechanisms (particularly association building) and training. However, the following components of previously mentioned support mechanism could be implicitly defined as case studies: analysis of the Ukrainian meat industry, legislative advocacy and a business proposal for a modern minimal-waste fish processing complex.

## **Section V. Objective #5: Fostering Business Partnerships**

### **A. Accomplishments**

In September, Dr. Maria Gheorghita, economist for INZMV/PFID, traveled to the LSU AgCenter to discuss the scheme of joint ventures case study research with Dr. Harrison, her counterpart in Louisiana. Case studies are important to the business partnership objectives of the PFID project because they are designed to provide detailed information regarding the reasons some joint ventures in Moldova succeed, and others fail. As such, they are essential to the following:

- Developing the PFID team's expertise regarding Joint Venture (JV) formation in Moldova;
- Educating, consulting, and advising business executives with respect to potential joint ventures; and
- Formulating recommendations for public policy aimed at promoting joint ventures in Moldova.

A review of informational resources highlighted key issues of foreign investments including:

- Barriers of foreign investment attraction in terms of competition for capital in the global market;
- Measures taken by the Moldovan government to attract foreign investment; and
- Requirements of an active policy able to attract and stimulate foreign investment.

Extensive review of Moldovan regulations and legislation regarding joint venture formation in Moldova led Dr. Gheorghita to conclude that there exists a favorable legal basis to attract foreign investment. Unfortunately, the Moldovan government often changes laws pertaining to JVs, depriving that framework of a consistency typically desired by investors. Other factors that were identified as attractive to investments include tax remissions, low cost of labor and a ready proximity to a consumer market, which would reduce transport costs. These are countered by other factors that hinder foreign investment attraction: a lack of policy promoting entrepreneurship, political and economical instability and complicated customs procedures and accounting systems. PFID/INZMV can use this policy to promote national policy that resolves these problems.

The five currently operating Joint Ventures in meat processing (four) and seafood processing (one) in Moldova were examined through the case study format. The initial results of the case study are presented in the following chart.

Indicators	Joint Ventures, Categorized by Industry Sector				
	Meat Processing				Seafood Processing
Name of Moldovan Joint Venture	Carmez International Inc.- LLC	York Delicatese - LLC	Pascua – LLC	DC – LLC	Free Fisheries – LLC
Primary Product	Boiled sausages and meat cans	Sausages and smoked products	Sausages and smoked products	Frozen Meat in Carcasses	Frozen fish smoked and fish plastic cans (half cans)
Co-founders					
• Moldovan	Corporate entity, JS “Carmez”	Individual	Individual	Individual	Corporate entity “Altair-S” Ltd
• Foreign	Corporate entity, Investment Group, Belgium	Individual from Austria	Individual from Italy	Individual from Russia	Corporate entity from Latvia
Share in statutory capital	50/50	40/60	50/50	100% Russian Capital	100% Latvian Capital
Contribution from foreign partner	Equipment and technical expertise	Equipment, technical expertise and circulating assets	Equipment	Basic and circulating assets	Basic and circulating assets
Sales Market	60% - export to Russia and Ukraine 40% - local market	100% - local market	100% - local market	100% - export to Russia	100% - local market
Company Management	Foreign Investors’ representative	Local partner representative	Local partner representative	Foreign Investors’ representative	Foreign Investors’ representative
Primary Motivations for Joint Ventures Formation					
• For Moldovan partner	Entry into external market	Start up own business	Start up own business	N/A	Company recovery
• For foreign partner	Penetration into new sales markets	Extension of new sales markets	Enter the market before competition	Debt repayment	Extension of new sales markets

Additional industry analysis was conducted to identify:

- Key success factors;

- Market competing forces and their bargaining power; and
- Strategic group mapping of operating companies in the sector.

The analyses showed that key factors ensuring success in the meat processing market high quality, low costs and an essential market share. Joint Venture creation should be oriented to achieve the above-mentioned key success factors through use of advanced technologies and promotion of “aggressive marketing strategies” or those joint ventures will fail.

Using Porter’s model, five market competing forces were identified and their bargaining power defined:

- Competition level in the sector;
- Bargaining power of customers;
- Bargaining power of suppliers;
- Substitutes; and
- Entrance barriers.

The analysis showed that the “market entrance barriers in the sector” (scale economy, low price cost and high quality.) have the strongest influence over a company’s efficient operation. This means that new joint ventures will be able to enter the sector and operate efficiently only if they are able to ensure high quality and unit costs that are lower than those of existing processors. This can be achieved due to economy of scale, which will permit lower fixed expenditures per units thanks to large production outputs.

A strategic map of operating companies in the sector showed that currently two companies (Carmez JSC and Basarabia Nord JSC), out of fifty-one, have the appropriate product variety and quality to control the meat products market of Moldova. One, Carmez, already has created a joint venture. All the others currently do not have a significant economic potential at present. Some companies’ economic growth could be reached through attraction of foreign investment, so PFID believes that, from these other companies, it will be possible to select potential local partners for joint ventures formation.

According to the final version of the case study Protocol, the following additional data was to be collected:

1. Data pertaining to key market segments – restaurants, small/medium grocery stores;
2. Upscale grocery stores (e.g., Green Hills, Fidesco, Elat), schools and hospitals;
3. Sales and quantity for each segment (multiple years if possible);
4. Consumer demographics (e.g., incomes, ages, family size, etc) for each segment;
5. Description of primary distribution channels for each company; and
6. Capital structure - company balance sheets and income statements

Initial information regarding market outlets and sales has been collected from three of the six JVs. Only two JVs were willing to provide balance sheets and income statements.

Lastly, PFID team had a preliminary meeting with other organizations fostering business partnerships in Moldova, such as Citizens Network for Foreign Affairs (CNFA), International Finance Corporation (IFS), BISNIS and the Agency for Investment Attraction. During these meetings, PFID's main goals were reflected and consideration was given to PFID's activity dealing with facilitation of joint venture formation. The meeting participants agreed to share relevant information regarding Joint Ventures. For example, a meeting between CNFA and a fish processing industry representative was organized where possibilities of investments attraction to increase the freshwater fish production and processing were discussed.

## **B. Issues, Lessons Learned and Actions Planned for the Next Six Months**

Because of INZMV's original economist's resignation in May, the work for this Project Activity was delayed, but by end of the year, the replacement economist, Dr. Gheorghita, managed to accomplish what was originally planned. The guidance provided by Dr. Harrison, LSU AgCenter's agricultural economist helped ensure that work was conducted according to the Work Plan.

Certain difficulties appeared while collecting additional information because the companies do not measure the amount of products sold to different market segments and also are not willing to share accounting and financial information. It is also difficult to collect information that identifies different segments of the market. These difficulties will be addressed by increasing the number of information channels and extrapolation of current data.

Current case study findings indicate that low levels of sales and technical capacity characterize JVs in the industry. These are due to the haphazard nature of the JVs' formation, the lack of management skills in technical areas and marketing and the lack of financial resources.

On the basis of last year's activity results, Drs. Gheorghita and Harrison developed a plan for future activities on joint ventures formation in meat and seafood industries of the country. This plan included the following features:

- Analysis and documentation of case studies, which will be published in appropriate outlets;
- Capacity building workshops on JV formation;
- Identification of potential local partners for future JV formation;
- Recommended strategies for public policy to aid in attracting foreign direct investment;
- Strength, Weaknesses Opportunities and Threats (SWOT) analyses for selected companies in Moldova – These analyses will determine each company's potential for JV formation and identify constraints that may be overcome through changes in private and/or public policies; and
- Published company profiles in a Meat & Seafood industry directory, including completed SWOT analyses.

Seminars will include presentations by PFID experts to disseminate information and expertise gained from case study analysis. They will include presentations and discussion panels utilizing local and foreign business partners, as well as CNFA, IFC, BISNIS, and law firms involved in JV formation. Other participants will include potential local business partners and government representatives. The presented information will include both errors and achievements of joint venture formation in the meat and seafood industries. This will help business leaders to avoid the identified errors and emulate the achievements. Technical information also will be provided through individual consultations and recommendations for government policy.

The World Lab replacement economist opted to concentrate her efforts on the central livestock marketing activity. However, World Lab did respond to an unforeseen opportunity to facilitate a business partnership in the farming and processing of valuable species of freshwater fish: African catfish and paddlefish. The partners identified include JSC Ukrybtehnologia (UkrFishTechnology) of Kyiv and JSC "Rus Gaz" of Urengoy, Russia for implementation of the joint project in Bila Tserkva (Kyiv Oblast) and Crimea. Rus Gaz has already provided \$350,000 for this endeavor, to which it will add another \$100,000. Dr. Boris Gudyma of the Ukrainian Fish Industry Department is working with World Lab to promote a new enterprise using the waste heat at power generating stations and geothermal water resources to ensure that pools are at a sufficient temperature for the raising of these species. In Soviet times, the fish farming industry used extensively the reheated water resources at thermal power generating stations to annually raise more than 14 thousand tons of valuable fish species.

The challenge will be for Dr. Gudyma to determine whether such an enterprise could succeed in today's market economy. The market characteristics of these species show promise. The meat of the paddlefish and the African catfish both are considered to be very palatable, tender, lean and easily prepared. The roe of the paddlefish is similar to sturgeon caviar and could be supplied in large quantities to both domestic and international markets.

Design plans and specifications are being developed on the two species in controlled basins of up to ten meters in diameter. The fingerlings have been purchased for the parent stock. At this moment two or three sites are planned - each one having twenty basins. Their purchase is negotiated with German financing. The newly created company is searching for an appropriate partner to address the feed formulation needs that are appropriate to Ukrainian conditions. Dr. Gudyma will submit a full feasibility study.

## **Section VI. General Management Issues**

### **A. Accomplishments**

Project staff coped with the tragic loss of Dr. Ion Socican, the PFID Project Director for INZMV. Dr. Vasile Lobcenco was named temporary Director and a country-wide search was conducted for a permanent successor. Vacancy announcements were placed in local publications and the PFID/INZMV web page. Project staff reviewed applicants' resumes based on objective criteria related to qualifications, particularly experience in the Moldovan food industry. Three finalists, including Dr. Lobcenco, were selected for interviews. These interviews also were assessed according to qualification-based criteria and Dr. Lobcenco was chosen to assume the post on a

permanent basis. Project management is confident that he is the most qualified candidate for the position.

The Project Web Page was expanded in September. Project accomplishments were updated and additional hotlinks were provided to web pages describing USAID-funded projects in Ukraine and Moldova.

## **B. Issues, Lessons Learned and Actions Planned for the Next Six Months**

PFID's responses to unforeseen circumstances show that it has developed an internal mechanism to address issues as they arise. Previously mentioned examples of this include the following:

- The systematic recruitment and orientation process employed for PFID replacement staff;
- World Lab's reactions to unanticipated opportunities to influence government policy toward livestock marketing; and
- World Lab's flexibility toward problems facing its Information Support System: its change of priorities and use of alternative equipment.

Regarding the last issue, World Lab's inability to acquire equipment stems from the delays in USAID/Kyiv and the Ukrainian Government in reaching an agreement to accredit the Project as a legally recognized entity.

## Annex A

### Summary Table Comparing 2<sup>nd</sup> Annual Work Plan Indicators with Actual Results

Activity	Planned Indicators	Actual Results	Notes: Reasons for Deviation, Corrective Action, Consequences
<i>Project Objective # 3 - Formulate Support Mechanisms and Networks</i>			
<p>Coordinate establishment of at least two of the following mechanisms: networks for raw material supply, information management, association development, and IIFSQ</p>	<p>At least three of the following are documented:</p> <ul style="list-style-type: none"> <li>• At least one linkage between livestock producers and processors has been established</li>   <li>• An information support system is established and disseminating information</li>   <li>• At least five associations have collaborated with Project by either attending association training or providing industry information to their members, facilitating their members' marketing; or promoting their members' interests</li> </ul>	<p>INZMV has facilitated the sale of 2000 pigs of improved genetic stock to a Moldovan meat processor</p> <p>World Lab has supported establishment of a local Livestock Marketing Agency to operate central auctions in Volhyn Oblast</p> <p>World Lab has developed an enterprise databank, and industry-appropriate web pages</p> <p>INZMV has distributed 550 items of information regarding raw material production and developed a fish farmer database</p> <p>Thirteen Ukrainian associations and one Moldovan association have actively participated in project seminars and/or provided services to their members as mentioned in the previous column</p>	<p>Overall indicator met</p> <p>Actual results conform to planned indicators; operational results of the central livestock auction will be evident in Year 3</p> <p>Actual results generally confirm to planned indicators although World Lab's electronic dissemination is behind schedule due to the delayed authorization to acquire a web server</p> <p>World Lab has addressed this delay by providing some information to a government website and negotiating with trade associations for similar arrangements</p> <p>Actual results exceed planned indicators</p>

<b>Activity</b>	<b>Planned Indicators</b>	<b>Actual Results</b>	<b>Notes: Reasons for Deviation, Corrective Action, Consequences</b>
Coordinate establishment of support mechanisms (cont.)	<ul style="list-style-type: none"> <li>IIFSQ is active</li> </ul>	IIFSQ is officially registered and has been active in influencing national food standards policy, developing curricula and conducting seminars	Actual results conform to planned indicators
<i>Project Objective # 4 - Create Technical and Educational Capacity among Key Institutions</i>			
Conduct seminars	Participants received instruction in the following topics: <ul style="list-style-type: none"> <li>Seafood HACCP/SCP basic certification (July)</li> <li>Cold chain management (August)</li> <li>Deep processing (August)</li> </ul>	Sixty-two stakeholders trained (including thirty-one women) Fifty-nine stakeholders trained (including eleven women) Seminar not conducted	Actual results conform to planned indicators Actual results delayed by one month but otherwise conform to planned indicators INZMV elected to delay seminar until results of processing trials are finalized
Provide US-based TTT courses in meat/poultry and seafood HACCP (November)	At least six active stakeholders in each country receives HACCP TTT certification	Nine Ukrainians and eight Moldovans (including seven women) are certified as HACCP trainers	Actual results exceed planned indicators
Identify participants for WFLO Institute Course and implement logistical requirements	At least eight active processors in each country (and two translators) are prepared to attend	Two processors (all men) from each country are selected for participation	Selectees were limited by language/translation restrictions and by World Lab and INZMV's decision to save travel funds for other topics Participants from both countries will share their acquired skills with colleagues in round-table events, thus making up for the low number of original participants

Activity	Planned Indicators	Actual Results	Notes: Reasons for Deviation, Corrective Action, Consequences
Conduct follow-up visits to seafood processing facilities in October to evaluate SCP and HACCP plans	Monitoring equipment has evaluated critical limits	Follow-up visit was not conducted	Dr. Michael Moody decided to postpone his monitoring visit to June 2003 for two reasons: <ul style="list-style-type: none"> <li>• A conflict with his teaching duties in the Seafood HACCP TTT seminar</li> <li>• The opportunity to coincide with a visit by FDA officials</li> </ul>
Conduct informational support and initial case studies for the following topics: <ul style="list-style-type: none"> <li>• Post-harvest technology/ processing: meat mass, cold chain, etc.</li> <li>• Economic issues: central markets, operational issues, market identification, etc.</li> </ul>	At least two activities for each country are conducted; findings or results are documented in reports prepared by World Lab and INZVM	INZMV has documented cases studies on freshwater fish processing and HACCP implementation in Romania  World Lab has conducted no explicitly defined case studies	As the year progressed, World Lab decided that it was more appropriate to concentrate its efforts on support mechanisms (particularly association building) and training  While World Lab conducted no explicitly-defined case studies, the following components of support mechanism activities could be implicitly defined as such: <ul style="list-style-type: none"> <li>• Analysis of the Ukrainian meat industry</li> <li>• Legislative advocacy relating to livestock marketing and food standards</li> <li>• Business proposal for a modern minimal-waste fish processing complex</li> </ul>
<i>Project Objective # 5 - Foster Business Partnerships</i>			
Conduct case studies and disseminate findings to provide the groundwork for business partnerships to be fostered	At least one case study in each country is conducted; findings are documented in reports prepared by World Lab and INZVM	Initial case study findings developed by INZMV	The World Lab economist opted to concentrate her efforts on the central livestock marketing activity  World Lab did facilitate a business partnership in the farming and processing of African catfish and paddlefish

<b>Activity</b>	<b>Planned Indicators</b>	<b>Actual Results</b>	<b>Notes: Reasons for Deviation, Corrective Action, Consequences</b>
<i>General Project Management</i>			
To update the Project web site on the Internet twice in 2002	Internet site expanded with 40% more web pages	Web page expanded in March and September	Actual results conform to planned indicators
To prepare associate grants for necessary activities beyond the scope of the leader grant	At least one proposal is prepared and submitted to an authorized USAID funding office	Proposal for Kharkiv Oblast in Ukraine submitted	Actual results conform to planned indicators

## Annex B

### PFID Project (Partnership for the Food Industry Development) in Ukraine Analysis of the Ukrainian Meat Sector (English Translation)

#### Table of Contents

Section I. Ukrainian Meat Complex in the First Half of 2002 .....	2
A. Current situation and Trends .....	2
B. Livestock Population and Productivity .....	2
Table 1. Head of Livestock in Ukraine .....	3
Table 2. Comparison of Livestock raised and sold in Ukraine in 2001 and 2002 .....	4
C. Production Costs, Prices and Profitability .....	4
Table 3. Primary Cost of Livestock Raising and Selling for Agricultural Enterprises .....	4
Table 4. Prices and Profitability of Livestock Raised in Agricultural Enterprises .....	5
D. Meat Processing Industry .....	5
Table 5. Meat Production in Ukraine .....	5
E. Meat Product Consumption .....	6
Table 6. Annual consumption pattern (per person, kg.) .....	6
Table 7. Prices on Meat Products in Retail Network (Hrn/kg) .....	6
Table 8. Consumption of Food Products in Households by Ten-Percentile Income Groups, Depending on the Average Cumulative Expenses per Person in 2001 .....	7
F. International Trade in Meat Products .....	8
Table 9. Foreign Trade in the Meat Sector (mln \$) .....	8
G. Conclusions .....	8
Section II. Meat Complex of Ukraine in the Third Quarter of the year 2002 .....	9
A. General Macroeconomic Situation. ....	9
B. Livestock Population and Productivity .....	9
Table 10. Total Livestock Population in Ukraine .....	10
Table 11. Breeding and realization of livestock in Ukraine .....	11
C. Costs of Livestock .....	11
Table 12. Total Volume and Prices of Sales of Industrial-level Farms Livestock and Poultry for January – September of 2002 .....	13
Table 13. Costing of Livestock through the Regions of Ukraine .....	14
D. The Consumption of Meat Produce .....	15
Table 14. Prices of Meat Products in the Trading Network (Hr per kg) .....	15
Table 15. Changing Prices and Volume of Meat Products, Sales at the Municipal Markets of Ukraine .....	15
E. Meat-processing industry .....	16
Table 16. Produce of Meat Processing Industry of Ukraine .....	16

## **Section I. Ukrainian Meat Complex in the First Half of 2002**

### **A. Current situation and Trends**

Although some indications of revived production and consumption of meat products have been noticed lately, the overall situation is still very difficult. Annual consumption of meat per person in Ukraine is 30 kg on the average, while the average norm of a balanced diet is 83 kg and the minimum norm is 52 kg. Significant deviation between population categories with different incomes is shown in addition to the low average rate of consumption. In classification of the population according to its average costs, the disparity in consumption between high and low quantity of potatoes and grain products is divisible by 1.5-2, of the meat products- by 6-7. A considerable part of the Ukrainian population suffers from “albuminous hunger”. That is why the consumption of meat is today a key problem of the country’s nutritional status.

The main reason for the meat industry’s decline is an abrupt downfall in the purchasing power of the population over the years of economic crisis. Though the share of expenditures on foodstuffs in the individual budgets have increased from 33% up to 65%, the total foodstuff consumption has decreased by twenty-five percent and the share of meat has decreased by two thirds. The capacity of the meat market also decreased, because a considerable part of meat output is produced for own consumption. Almost a quarter of consumption of meat products (and in a village nearly 60%) does not pass through the market. That is why small-scale enterprises have mainly the same volumes of meat output as it was before the economic crisis.

The meat production at large-scale enterprises has suffered most of all. The demand economy did not allow meat prices to rise in proportion to the inflation of expenditures and the output of meat declined. As a result, large-scale agricultural enterprises have decreased their output of meat eight times during the years of crisis (1999-2000).

The changes for the better started in the year 2001. A considerable rise of prices on meat blockaded the consumption of meat products, but also resulted in lower un-profitability indicators and created hopeful prospects for producers. This positive tendency stabilized and even began to intensify in the first half- year of 2002.

### **B. Livestock Population and Productivity**

The first indication of improvement in meat production is considered to be an end to the decreasing livestock population, which was observed until the year 2000. In 2001 the cattle population stabilized, that of pigs grew by 9.4%, and poultry by 10.6%. Acceleration of these dynamics (Table 1) occurred in the first half of 2002. Significant rates of growth are noticed in the population of pigs and poultry in the agricultural enterprise category. This rise testifies the appearance of favorable business-expectations in the meat complex.

**Table 1. Head of Livestock in Ukraine**

	As of July 1 (thousands of heads)		Year 2002 in % to the year 2001
	2001	2002	
<b>All categories of producers</b>			
Cattle	2578.5	5300.0	100.4
Pigs	8240.8	9415.5	114.3
Poultry	167013.3	186590.0	111.7
<b>Agricultural enterprises</b>			
Cattle	3481.6	3281.3	94.3
Pigs	2656.5	3356.5	126.4
Poultry	32732.3	43528.4	133.0
<b>Private farms</b>			
Cattle	1796.9	2018.6	112.3
Pigs	5584.6	6059.0	108.5
Poultry	134281.0	143061.6	106.5

Together with the growth of the livestock population, an increase in its productivity took place. The average daily gains in weight for the cattle increased from 296 g up to 310 g, for the pigs from 164 g up to 204 g in the first half a year 2002 (as compared to the same period of the previous year). Also weight characteristics of the sold cattle have improved. Average live weight per head of cattle sold by agricultural enterprises to the meat industry, has grown from 344 kg in the first half a year 2001 to 357 kg in January-June 2002, while per hog it grew from 113 kg to 123 kg.

The simultaneous increase in quantity and productivity of the livestock had impact on figures of livestock raised and meat products sold (Table 2). The total amount of all kinds of livestock raised in one year increased 10.4%, while sales increased 6.3%. Especially notable are very high rates of growth in a sector of agricultural enterprises, wholly oriented on commodity production for sale. The reason of such positive tendency is the improvement of financial indicators in meat industry.

**Table 2. Comparison of Livestock raised and sold in Ukraine in 2001 and 2002**

Cattle and poultry raised in a live weight, thousand of tons	January-June		Year 2002 in % to the year 2001
	2001	2002	
All categories	1132.1	1250.2	110.4
Agricultural enterprises	302.3	372.3	123.2
Private farms	829.8	877.9	105.8
<b>Cattle and poultry sold to slaughter in a live weight, thousand of tons</b>			
All categories	1054.2	1120.6	106.3
Agricultural enterprises	237.7	298.2	125.5
Private farms	816.5	822.4	100.7

**C. Production Costs, Prices and Profitability**

The statistics available compare with the primary cost of livestock production and prices on meat products for the agricultural enterprises on an annual basis. That is why the information about primary cost and profitability for the first half a year of 2002 is not available, but one could assume, that the tendency in reduction of primary cost, noted in the year 2001 is likely to be kept (Table 3).

**Table 3. Primary Cost of Livestock Raising and Selling for Agricultural Enterprises**

	Prime cost of raising, Per 100 kg of live weight, Hrn			Prime cost of sales, Per 100 kg of live weight, Hrn		
	2000	2001	Year 2001 in % to the year 2000	2000	2001	Year 2001 in % to the year 2000
Cattle	599.98	605.79	101.0	372.32	448.22	120.4
Pigs	803.50	736.19	91.6	594.39	681.89	114.7
Poultry	508.56	429.03	83.2	563.57	546.88	97.0

The breakdown of agricultural enterprises indicates a significant dependence between the primary cost and productivity of livestock. The improved figures of productivity and low rates of inflationary rise in prices for means of production cause an essential downturn of the primary cost of swine and poultry gain. However the primary cost of the livestock sold continued increasing.

Nevertheless in 2001 a financial situation of meat industry improved due to a sharp increase in selling prices (Table 4). With a general 20% growth in cost of all kinds of livestock, the price has risen on 75%, resulting in a more than 70% decrease of average un-profitability and 3.3-fold growth of the share of profitable enterprises. This positive trend was seen in figures of the year

2002. Though no information on the primary cost and profitability of meat products in the current year is available so far, the selling prices remain at the level of the last year, and this makes for the increase in livestock sales.

**Table 4. Prices and Profitability of Livestock Raised in Agricultural Enterprises**

	Price for 100 kg in live weight, Hrn.			Profitability (+) or (-)		Share of profitable farms (%)	
	2000	2001	Year 2001 in % to the year 2000	2000	2001	2000	2001
Cattle	214.81	352.39	164.0	-42.3	-21.4	12.0	22.4
Pigs	330.94	633.15	191.3	-44.3	-7.2	12.5	70.3
Poultry	376.57	537.62	142.8	-33.2	-1.7	27.2	38.8
Total	237.18	412.35	173.9	-42.4	-16.5	10.5	34.7

Though the share of agricultural enterprises in sales of livestock grows, the household producers still remain the principal source (52%) of meat supplied for commercial processing. In Ukraine there are 1100 purveyance centers, purchasing the livestock from private producers. State subsidies, mandated to support the livestock production, have been established in Ukraine since the first half a year of 1999. These interventions led to a higher selling price for the producers and since they are not included in the final consumer price, it does not restrain the demand. In the first half of 2002, the subsidies run to 632 hryvnas per one ton of livestock in live weight, or 16% of the overall price. Subsidies are allowed to all livestock suppliers (enterprises and household producers).

#### **D. Meat Processing Industry**

The crisis in production and consumption of meat products that lasted in Ukraine from 1990 to 2001 has resulted in sharp drop of all indicators the meat industry. The output of meat decreased by 75% and the output of products for industrial processing by more than 83% (Table 5).

**Table 5. Meat Production in Ukraine**

	1990	2001	Year 2001 in % to the year 1990	First half of year 2001	Second half of year 2001	First half of year of 2002	First half of year 2002 in % to the first half of year 2001
Meat, thous tons	1946	236	12.1	113	123	164	145.2
Cooked meats, thous tons.	811	150	18.5	71	79	85	118.9
Canned meat, mln. cans	91.5	25.3	27.6	12.2	15.4	20.8	170.4

The worst indicators for the meat industry were observed in the first half of 2000. The growth featuring the second half of the same year accelerated in the first half of year 2001. These rates of growth are explained by the fact of the prices on meat products being stable in the first half a year 2002 and this enabled the increase in demand. The meat industry, having large backup capacity used the favorable market situation rather quickly.

## E. Meat Product Consumption

Being the most expensive component of a daily meal ration, meat and meat products deficiency used to be perceptible before the crisis. The drop in living standards under the crisis has resulted in not only the overall reduction of food consumption, but that the most meaningful cut was in meat consumption as the most expensive component in a diet (Table 6). Such cuts can be explained by price inflation that, with which consumers could only cope in the second half of 2002. Stabilization of prices (Table 7) and the average household increase of 23% in the first half a year 2002 have resulted in substantial expansion of the market capacity and consequent significant growth of meat production and processing industry as mentioned above.

**Table 6. Annual consumption pattern (per person, kg.)**

	1990	2001	The year 2001 in % to the year 1990
Meat and meat products	668.0	30.0	44.1
Milk and milk products	373.0	205.0	55.0
Eggs	272.0	175.0	64.3
Fish and fish products	17.5	9.0	51.4
Sugar	500.0	38.0	76.0
Oil	11.6	9.4	81.0
Potatoes	131.0	138.0	105.3
Vegetable and melon	102.0	102.0	100.0
Fruits and berries	47.0	25.0	53.2
Grain products	141.0	130.0	92.2

**Table 7. Prices on Meat Products in Retail Network (Hrn/kg)**

	June 1999	June 2000	June 2001	June 2002	Year 2002 in % to the year 2001
Beef	5.01	7.35	12.19	12.12	99.4
Pork	6.26	8.79	15.39	15.04	97.7
Poultry	6.67	8.93	12.18	9.84	80.8
Lard	4.86	6.39	11.72	10.15	99.9
Baked sausages	12.12	15.15	20.78	20.75	99.9

Differentiation of food consumed by groups of population with different income levels, as well as regional differences in consumption patterns, is a very important social and economic issue. Table 8 shows the biggest variation to occur in differentiation of meat product consumption by groups. Second, this table proves that three quarters of Ukrainians consume less than 52 kg of meat a year per person, which is less than the minimum prescribed. In 2001 the individual consumption of meat products was 20 % higher in big cities as compared to the small ones and the rural areas. Breakdown of Ukrainian regions ranked by this parameter looked as follows: meat consumption in 8 regions was less than 30 kg per person a year, and in 15 regions - less than 40 kg, in 2 regions, Kiev and Sebastopol this figure was more than 40 kg a year per person.

**Table 8. Consumption of Food Products in Households by Ten-Percentile Income Groups, Depending on the Average Cumulative Expenses per Person in 2001**

	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>	9 <sup>th</sup>	10 <sup>th</sup>
Meat and meat products	0.8	1.5	1.9	2.2	2.5	3.0	3.4	3.9	4.8	6.1
Milk and milk products	8.8	11.9	13.3	15.3	17.1	18.5	20.4	21.8	24.9	29.5
Eggs	8.0	12.0	13.0	14.0	17.0	17.0	19.0	20.0	21.0	23.0
Fish and fish products	0.6	0.8	0.9	1.1	1.3	1.3	1.7	1.9	2.3	2.8
Sugar	1.6	2.3	2.6	2.9	3.3	3.3	4.0	4.2	4.8	5.5
Oil and vegetable oil	1.2	1.5	1.7	1.8	2.0	2.0	2.2	2.4	2.6	2.8
Potatoes	9.1	10.1	10.1	11.0	10.9	10.9	12.1	12.4	12.4	13.0
Vegetables and melons	5.1	6.5	7.0	8.3	9.0	9.0	10.4	11.2	12.4	14.2
Fruits, berries, nuts, grapes	0.8	1.3	1.4	1.8	2.1	2.1	2.6	3.0	3.7	5.0
Bread and grain products	7.8	9.0	9.7	10.2	11.1	11.1	11.8	12.1	12.8	13.2

Following the routine schedule the official statistics on meat product consumption and differentiation for the year 2002 will be available by August 2003. But no essential changes should be anticipated with reference to differentiation of meat and other food consumption, since the task of fighting the poverty requires the entirely different social policy to be implemented.

The USA provides food support programs for poor groups of population. Food coupons, free breakfasts at schools, food assistance for large families and other free food distribution programs embrace dozens million of people and substantially help to fill up the gap in food consumption between the wealthy and poor groups of population. The expediency of such mechanism is already recognized in Ukraine, though not yet being implemented.

## F. International Trade in Meat Products

The agricultural complex of Ukraine is a key economic branch, which employs more than a quarter of working population. That is why exports of the foodstuff and agricultural raw materials are an important component of the national export potential. In 2001 this component ran to two billion US dollars, or 12 % of the general commodity export. After accounting for agricultural imports, the positive balance of foreign trade in food products and agricultural raw material exceeded 700 million dollars.

To characterize the external trade in meat products in the first half a year 2002, Table 9 shows the dynamics of appropriate parameters by comparable periods in the preceding years.

**Table 9. Foreign Trade in the Meat Sector (mln \$)**

	Export				Import			
	Jan-May 2000	Jan-May 2001	Jan-May 2002	2002 in % to 2001	Jan-May 2000	Jan-May 2001	Jan-May 2002	2002 in % to 2001
Livestock	2.9	0.7	1.6	228.6	1.0	2.4	1.6	66.7
Meat	51.5	55.0	74.0	134.5	14.4	6.6	13.9	210.6
Products from meat and fish	8.0	4.9	4.6	93.9	9.8	7.8	8.5	109.0
Leather raw materials	34.1	44.5	52.1	117.1	11.3	18.1	14.6	80.7
Products of leather	2.3	4.6	4.7	102.2	4.4	2.7	3.3	122.2
Total	98.8	109.7	137.0	124.9	37.9	37.6	41.9	111.4

Livestock and processed meat products exported in the first half a year 2002 accounted for about 7 % in the overall exports of food products and agricultural raw materials. The positive balance of the foreign trade amounted to 95 million dollars, or 14 % of positive balance of the international trade in food products.

The first half a year 2002 was marked by positive figures of the growth rate, i.e. 21 % of the turnover growth and almost 25 % of the export growth. At the same time, the raw materials are worth to be noted as having the biggest share in the Ukrainian food product exports, while the share of the processed products is not significant.

## G. Conclusions

- 1) Review and analysis of statistical data allow stating that the first half a year 2002 was marked by essential qualitative changes, which occurred in the meat complex of Ukraine. The decline was replaced by growth stage, both in agricultural and in industrial components the complex. As compared to the respective period of the last year the livestock head increased by 6% (as

calculated in conditional heads), while in live weight it grew by 10.4%. The meat processing industry has shown an even higher rate of growth.

- 2) Increased consumer demand should be regarded as the main reason for the Meat Industry revitalization. The policy of deflation in conjunction with the significant growth of nominal income raised substantially the purchase ability of the nation. One of the consequences was an expanded capacity of a domestic meat market. A trend for the growth of meat product exports was favorable for the national producers. It is difficult to say, whether this situation will keep on, especially after the rise of prices for oil products in summer. However, for the short term the positive tendencies in the Meat Complex development will likely to continue.
- 3) Large excess capacities formed in the meat complex caused by the economic crisis still allow for satisfying the growing demand without essential investments. However, the available technical and engineering base of the meat complex is outdated and outworn. The national meat complex is not competitive by the livestock productivity, resources consumption and labor productivity. The favorable situation (if sustained) will assure the meat industry attractiveness for investment, which will be necessary for its technological refurbishment.

## **Section II. Meat Complex of Ukraine in the Third Quarter of the year 2002**

This analysis has been done in addition to the preceding materials about the development of the stock-raising complex in Ukraine in the first nine months of 2002.

### **A. General Macroeconomic Situation.**

The principal economic progress indices of Ukraine for the first nine months of 2002 year were favorable. With deflation at a level of 3.3%, the gross internal output in Ukraine increased by 4.1%. The indices of the living standard of Ukrainian population have generally improved – the nominal incomes of the population increased by 21.1%, the foodstuff prices decreased by 6.1% - which has raised the limit of solvent demand considerably.

The fore-mentioned trends have had a positive effect of the agricultural and food industries. Although no increase of the harvest has been registered in the current year, the internal output of the agriculture has increased 3% against the corresponding period of last year. The output of the stock-raising industry took place in both sectors: the of industrial level farms sector increased by 12%, the household farm sector by 7%. The rate of growth of produce registered in the food industry for the last nine months was 8.8%.

### **B. Livestock Population and Productivity**

The tendency towards the growth of total head of livestock is in progress in the current year. For nine months of 2002 year there has been an increase of 2.7% in the number of productive livestock against the corresponding period of last year, while the number of livestock of meat line has increased 5.8%. The structure of total head of livestock has changed considerably as regards the kind of livestock (Table 10).

The agricultural farms continue to reduce the total population cattle, whereas they increase the number of pigs and poultry at a rapid pace, thus have its specialization on the meat produce with

a short growing period. In the household farms, there are signs of more rapid pace of growing of total head of cattle, goats and sheep.

**Table 10. Total Livestock Population in Ukraine<sup>1</sup>**

	On the 1 <sup>st</sup> of October, thousands of heads.		2002 in % of 2001.
	2001	2002	
<b>All categories of farms</b>			
Dairy Cows	5,031.6	4,919.5	97.8
Other cattle	4,881.0	4,929.1	101.0
Pigs	8,668.2	9,705.8	112.0
Goats and sheep	2,076.3	2,202.1	106.1
Poultry	164,532.4	176,955.9	107.6
<b>Industrial Level Farms</b>			
Dairy Cows	1,790.6	1,546.6	86.4
Other cattle	3,206.5	3,029.8	94.5
Pigs	2,937.4	3,560.3	121.2
Goats and sheep	422.3	396.3	93.8
Poultry	36,363.8	42,405.9	116.6
<b>Household Farms</b>			
Dairy Cows	3,241.0	3,372.9	104.1
Other cattle	1,674.5	1,899.3	113.4
Pigs	5,730.8	6,145.5	107.2
Goats and sheep	1,654.0	1,805.8	109.2
Poultry	128,168.6	134,550.0	105.0

<sup>1</sup> Source: The Manufacture of Main animal Products for January – September of 2002, State Committee of Statistics, pg 2

A simultaneous increase in both total population and productivity occurred as shown by the considerable rate of growth of breeding and realization of meat stuffs (Table 11). Especially high rates of growing of living weight are to be observed in agricultural farms where over nine months, the produce of pork has increased 46%, while the poultry produce by 62%. Due to the fact of such rates of growing the share of agricultural farms in sum total of rearing produce has increased, at the same time being up to the level below 30%.

**Table 11. Breeding and realization of livestock in Ukraine<sup>2</sup>**

	For January-September		2002 in % to 2001
	2001	2002	
<b>Breeded livestock and poultry in living weight, thousands of tons</b>			
All categories of farms	1799.1	1962.5	109.1
Agricultural farms	484.6	571.8	118.0
Private (owned) farms	1314.5	1390.7	105.8
Share of private farms, %	73.1	70.9	-
<b>Realized livestock and poultry in living weight, thousands of tons.</b>			
All categories of farms	1521.3	1632.6	107.3
Agricultural farms	383.3	477.6	124.6
Private (owned) farms	1138.0	1155.0	101.5
Share of private farms, %	74.8	70.7	-

Most likely, such natural development must depend on sufficient available grain-crops resources of big farms.

Special notice should be taken of the indices pertaining to the realization of livestock. All slaughtered cattle is considered a realization, independent of the end product, thus not every realization is a sale for money. The production of higher marketable surplus by the agricultural farms is evident, but there also are non-monetary ways of realization (natural pay of salaries, natural pay of rent, barter). In the private (owned) farms the consumption by the population is considered an important way of realization. And so evaluating the real market of meat products, one must take notice of the fact, that the monetary receipts are not proportional to the statistical index of realization. For example, for nine months 2002 year, the processing plants of meat industry purchased 51% of raw materials at the household farms and 48% at the industrial-level farms and 1% by other ways. After evaluating the dynamics of indices of number the productivity, meat stuff production and realization volumes, one must admit that the favorable tendency to growing in the meat industry has been maintained for the second year running.

### C. Costs of Livestock

The data of the provisory calculation of primary cost of livestock breeding is expected to be published in the end of November.

<sup>2</sup> Ibid, p.2

The producers' prices in the industrial complex of Ukraine have increased by 5.3% in the current year, whereas the prices in the agricultural sector have decreased considerably. For nine months of 2002 year the average sale prices at the agricultural farms (including all avenues of realization) have reduced 15% against the corresponding period of 2001 year; in the cost of livestock and poultry (live weight) has decreased by 10%. The price falling has its positive and negative consequences. On the one hand, the price reduction decreases the profitability and has a negative incentive on production. On the other hand, such price fluctuation enlarges total market volume and solves the problem of sale. At the industrial-level farms the following situation is observed: the rate of increase of realization volume is higher than the rate of price falling. It may cause increased profits, but it also could reduce the profitability rate.

In the third quarter of 2002 the new mechanism of subsidies on the meat production continued, in regards to industrial-level and household farm sales to meat-processing factories. The total sum of transfer was equal to 187 million of hrivna (98% of extra changed sum), that caused the price increase of 17%.

The observed wave of livestock prices in different regions of Ukraine has considerable range (Table 13). It is caused partially by the produce composition and quality and partially by the regional markets' situation in relation to meat produce.

**Table 12. Total Volume and Prices of Sales of Industrial-level Farms Livestock and Poultry for January – September of 2002<sup>3</sup>**

	Livestock and poultry		including:					
			Livestock		Pigs		Poultry	
	thsds tons of living weight	price, griven for a ton	thsds tons of living weight	price, griven for a ton	thsds tons of living weight	price, griven for a ton	thsds tons of living weight	price, griven for a ton
Total sales volume	536.6	3816	312.3	3091	98.3	5455	118.4	4405
Including the following ways of realization:								
• to produce processing industry	150.5	3871	112.6	3444	36.5	5198	0.9	3886
• consumers` cooperatives	3.5	2807	3.1	5701	0.3	4085	0.0	5700
• to the population on account of salaries	80.4	4020	53.9	3138	20.7	6236	2.9	5460
• to share-holders on account of rent	4.5	5130	2.8	3950	1.3	7895	0.2	5343
• at the market	123.7	3521	65.3	2632	16.4	5197	39.8	4317
• at commodity exchange or by auction	0.0	4171	0.0	3811	0.0	5333	-	-
• by other ways	173.8	3871	74.5	2909	23.2	5228	74.7	4414
• including by barter	6.2	3843	3.7	3026	1.3	5593	1.0	4648

<sup>3</sup> The realization the products by the agricultural farms for nine months of 2002 year. Source: State Committee of Statistics, 2002, p. 49-60

**Table 13. Costing of Livestock through the Regions of Ukraine<sup>4</sup>**

	Price of live weight, (grive for a ton).					
	Livestock		Pigs		Poultry	
	Processing Industries Price	Market Price	Processing Industries Price	Market Price	Processing Industries Price	Market Price
The Autonomus Republic of Crimea	3788	2685	3955	5320	5022	4784
Vinnitska	3369	2524	5336	5307	4683	5442
Volynska	3363	2451	7330	5799	3851	3750
Dniepropetrovska	3990	2805	4983	4902	4381	4056
Donetska	3767	2832	5163	5114	4194	3675
Zchytomyrska	3355	2555	5238	5153	3653	5053
Zakarpatska	2770	2738	6286	6261	8504	4300
Zaporizska	3537	2902	5242	5220	5424	4649
Ivano-Frankivska	3183	2756	5929	6464	4452	7936
Kiyvska	3434	2946	5520	5119	4039	4416
Kirovogradska	3382	2395	5174	4910	9927	7520
Luganska	3499	2733	4763	5221	4387	3646
Lvivska	3337	5353	5750	6236	4145	3691
Mykolaiivska	3569	2508	4959	5201	4867	4208
Odesska	3394	2728	5150	4564	4187	3721
Poltavska	3580	2594	5077	5452	2847	3406
Rivnenska	3736	2538	6000	5571	5467	4017
Sumska	3472	2507	5094	5774	2888	3776
Ternopil'ska	3116	2340	6169	6857	3988	4611
Kharkiv'ska	3723	2779	5146	5483	4000	4014
Kherson'ska	3841	2800	4495	5279	4829	4911
Khmelnitska	3399	2424	5353	5412	6900	6195
Cherkaska	3542	2590	4584	5461	4215	4959
Chernivetska	3426	2777	5476	6010	-	6800
Chernigiv'ska	3245	2685	5386	5532	3969	4938
Ukraine	3444	2632	5198	5196	4414	4317

<sup>4</sup> Ibid

## D. The Consumption of Meat Produce

The considerable increase of the population profits with the simultaneous falling of price of meat and cooked meats have increased the population demand (Table 14). The indices of meat consumption are going up now. According to the budget investigations of house-keeping in the first six months of 2002 year the cooked meats consumption per head has increased 10,7%. For the same period of time in the trading networks sale of meat and poultry has increased 16,6%, the sale of canned meat 28,8%, the sale of smoked sausage remains at the level of the preceding year.

**Table 14. Prices of Meat Products in the Trading Network (Hr per kg)<sup>5</sup>**

	September of 2000	September of 2001	September of 2002	2002 year, in % of 2001
Beef	8.68	12.97	11.75	90.6
Pork	11.26	16.33	14.55	89.1
Poultry	10.11	11.68	9.82	84.1
Fat	9.35	12.57	9.68	77.0
Smoked sausages	17.07	21.41	20.63	96.4

The statistics of municipal markets, where in most cases the produce of private (owned) farms is put for sale, demonstrates very high susceptibility of demand to the price level (Table 15). The table information of the last month about the abrupt falling of prices, that caused an abrupt jump of demand.

**Table 15. Changing Prices and Volume of Meat Products, Sales at the Municipal Markets of Ukraine<sup>6</sup>**

	Price index (in % of the corresponding period of the last year.		Sale index (in % of the corresponding period of the last year.	
	January-September of 2002	September of 2002	January-September of 2002	September of 2002
<b>Meat products</b>	95.9	81.1	105.4	120.2
• Beef	96.4	83.8	108.9	118.5
• Veal	93.0	80.7	114.6	127.6
• Pork	97.5	82.0	105.9	126.6
• Pork fat	90.4	68.0	104.0	119.3
• Poultry	96.6	92.1	96.1	100.6

<sup>5</sup> Statistical Bulletin for January-September of 2002 year, State Committee of Statistics 2002 year, p. 95

<sup>6</sup> Statistical Bulletin for January-September of 2002 year., State Committee of Statistics 2002, year. p88.

The dynamics of foreign trade of cooked meats also testifies the enlargement of internal market volume. For the examined period of time, the export of industrial cooked meats has decreased by 21%, whereas the imports have increased by 9.3%. The import of meat has increased nearly 47%.

### **E. Meat-processing industry**

The meat processing plants, the production capacities of which have been used after the crisis with great underloading, have made a successful use of the market situation and have increased the production volume essentially and rapidly (Table 16). The increase of production have been used to satisfy the raising internal needs, but at the same time the export of meat and subproduce has increased (28%, equal to 27 mln.\$).

**Table 16. Produce of Meat Processing Industry of Ukraine<sup>7</sup>**

	Average monthly output		2002 in % to 2001
	2001	9 months of 2002	
Meat (including subproducts of the 1 <sup>st</sup> category), thousands of Tons	19.7	28.7	145.7
Cooked meat, thous. Tons	12.5	15.2	121.6
Canned meat, mlns of conv. tins.	2.1	3.3	158.3

The results obtained for nine months of the current year give grounds to confirm the available positive tendency in the development of production and consumption of meat products. For the meat complex the current year will be successful.

---

<sup>7</sup> Ibid, p. 12, 13

## Annex C

### PFID Project (Partnership for the Food Industry Development) in Moldova PFID Client Information Needs Survey

In September, INZMV/PFID completed a survey measuring the information needs of stakeholders. The 160 respondents (of which forty-seven were women) included the following:

- Sixteen representatives of meat processing companies, nine of poultry processing companies and fifteen of seafood processing companies;
- Twenty-one refrigeration association representatives and engineers;
- Sixteen representatives of regulatory bodies: Moldova Standard, veterinary inspection, Center of Meat and Milk Quality Testing, fish inspection, etc.;
- Eleven consultants of ACSA’s Regional Centers;
- Fifteen faculty members of universities and academic institutes; and
- Thirty-two red meat farmers, thirteen poultry farmers and twelve freshwater fish farmers.

A standard questionnaire (Table 1) was developed to identify the information needs of the following categories of PFID stakeholders: industry representatives, regulatory bodies and universities. The questionnaires developed for refrigeration association members and raw material producers included survey items specific to those sectors.

**Table 1. Standard Survey Questionnaire**

	Questions	Answers		
1	Company name			
2	Contact person			
3	Address, tel., fax, e-mail			
4	What sources of information do you use? <ul style="list-style-type: none"> <li>• Newspapers, magazines</li> <li>• Radio, TV</li> <li>• Guidelines, manuals</li> <li>• Other (specify)</li> </ul>			
5	Does the volume of information that you receive satisfy you?	Yes	No	Partial
6	Is there need improve your access to information?	Yes		No

	Questions	Answers	
7	PFID Project can provide following information:	Will this information useful for you?	
	HACCP, Sanitary and Food Quality manuals, Standards	Yes	No
	Best processing, storage, refrigeration and transportation practices	Yes	No
	Development of market plans and other economic issues	Yes	No
	Development of Associations	Yes	No
	Information for the best practice of meat, poultry and fish production	Yes	No
8	What additional information do you want PFID Project provide for you? Give your proposals please.		
9	Do you agree that the following information about your company will be put on PFID web site: company name, contact person, address, telephone, fax, e-mail, offered products?	Yes	No
	What additional information about your company would you like to include in Project web site? This allows disseminating of information about you company in global scale.		

Date \_\_\_\_\_

Signature \_\_\_\_\_

### Findings

The Information Survey results showed that the majority of respondents use traditional public information resources: periodicals, such as newspapers and magazines (125 respondents); and television and radio, (109 respondents). Only sixty-nine respondents had access to special information resources, such as manuals, handbooks. Other information resources included: Internet resources (eighteen respondents); standards, instructions and legislative acts (13 respondents); seminars and conferences (7 respondents); advanced information material (four respondents); brochures (three respondents); ACSA (three respondents); and “every possible and available information resource” (six respondents). It may be inferred that most of the clients are suffering from a lack of information, because traditional information resources do not provide specialized information on food safety, storage, processing, food quality and raw materials production issues.

This idea was confirmed by respondents' answers to following two questions:

- “Were you satisfied with the existing information support?” – Only 34.2% responded positively; and
- “Do you need improved information support from PFID?” – 96.3% responded positively.

Table 2 shows respondents' impressions regarding the utility of information materials provided by PFID. The greatest interest is shown in food safety issues although none of the other topics (best post-harvest practices, best raw material production practices, economic issues and association development) had a positive response rate of 84%.

**Table 2. Stakeholders' responses to the question, “Will the following information proposed by PFID Project be useful for you or not?”**

Information proposed by PFID	Respondents considering the proposed information useful for them	
	<i>Number</i>	<i>%</i>
HACCP, Sanitary and Food Quality manuals, Standards	69	95.8
Best processing, store, refrigeration, transportation practice	68	94.4
Information for the best practice of meat, poultry and fish production	67	93.1
Development of market plans, economic issues	63	87.5
Development of Associations	61	84.7
Total number of respondents to this question: 72 persons		

The Refrigeration Survey identified respondents' interest in information on the best practices of food cold storage, refrigeration equipment and especially energy conservation (Table 3).

**Table 3. Cold chain representatives feedback at the question: “Will the following information proposed by PFID Project be useful for you or not?”**

Information proposed by PFID	Respondents considering the proposed information useful for them	
	<i>Number</i>	<i>%</i>
Energy saving technologies	21	100.0
Issues of food products store through refrigeration	20	95.2
Refrigeration equipment	20	95.2
Issues of associations development	15	71.4
Total number of respondents: 21 clients		

Raw material (red meat, poultry and fish) producers also were surveyed regarding the information support on best practices for their sectors. Table 4 provides responses of these clients category towards information materials proposed by PFID.

**Table 4. Reaction of raw material producers at the question: “Will the following information proposed by PFID Project be useful for you or will not?”**

Information proposed by PFID	Respondents considering the proposed information useful for them	
	<i>Number</i>	<i>%</i>
<b><i>Red meat producers (pork, beef)</i></b> - Total number of people surveyed – 39 (32 farmers + 7 ACSA consultants)		
Brochure “Beef production Technology”	39	100.0
Leaflet “Pork production – the key to success”	39	100.0
Seminar: “Usage of the best genetics for raw material production”	39	100.0
Seminar: “Raw material production and price cost reduction”	37	94.9
<b><i>Poultry farmers</i></b> - Total number of surveyed – 13		
Leaflet “Poultry breeding”	13	100.0
Leaflet “Guideline for poultry nutrition”	12	92.3
Leaflet “Operation factors of poultry incubation”	12	92.3

Information proposed by PFID	Respondents considering the proposed information useful for them	
	<i>Number</i>	<i>%</i>
Leaflet “Technology of poultry slaughter and poultry meat handling”	12	92.3
<i>Fish farmers - Total number of surveyed – 15 (12 farmers + 3 ACSA’s consultants)</i>		
Leaflet “Best practice of fish production”	14	93.3
Leaflet “Fish nutrition and the most effective use of natural nutrition resources”	12	80.0
Leaflet “Issues of legal activity of fish farms”	12	80.0
Seminars on above mentioned issues of fish farming	11	73.3

To the question: “What additional type of information do you want PFID Project provide to you?” the following replies were received...

1) Meat processing representatives:

- *Food Safety and Quality* - Sanitary requirements, HACCP implementation in CIS meat processing plants, biological hazards control methods in meat products etc;
- *Post Harvest Technology* - Advanced equipment for raw material processing, energy and water conservation and canning.
- Meat marketing outlets; and
- Recommended technologies for raw material production.

2) Poultry processing representatives:

- Loan system for producers; and
- Ingredients for improving poultry meat quality.

3) Fish processing representatives:

- *Experience sharing* – of fish processing and freshwater fish production and frog production;
- Practical implementation of HACCP;
- Purchase sources of equipment; and
- Sale markets and exports.

4) Cold chain representatives:

- *Latest technologies* - Energy saving technologies, computerization, deep freezing, carbon dioxide freezing, US sausage and smoked meat production

- *Refrigeration equipment* - Information about leading American producers of commercial refrigeration equipment, long-distance refrigerated transport and;
- *Commodity Storage* – Under what conditions should smoked products be stored in vacuum packs;
- Main issues address by WFLO and IARW;
- *Regulations* – for products cold storage, regulatory bodies’ representatives, EU directives and their application in the Moldovan meat industry, compliance with US requirements, accepted ingredients in sausage production, detailed information about US legislative base and regulatory requirements, harmonization with international requirements;
- *HACCP implementation* – Best practice methods, implementation in other companies’ plants; and
- Current status of food industry in Moldova;

5) Universities and academia representatives:

- *Latest achievements in the US food industry* - Meat and poultry production, commercial fish production;
- Information about experience of HACCP implementation in US and other countries; and
- Financial issues of association and company operations.

6) Red meat farmers representatives:

- *Dissemination methods* – Additional seminars similar to those already conducted, other information channels (such as radio, newspapers and magazines), ;
- *Marketing* - Integration of raw material producers and meat processors, animal sale for slaughter how to sell meat profitably;
- *Meat production* – Growing and fattening of cattle, cost price reduction and meat quality improvement by farmers; and
- Hybridization in pig breeding.

7) Poultry farmers representatives:

- Grants and loans;
- *Dissemination methods* – In addition to seminars it is desirable to receive information on posters, leaflets etc.
- *Poultry production* – New technologies, disease prevention;
- *Marketing*, sale markets of chicken, geese and duck meat;
- Exotic birds;

8) Fish farmers representatives:

- Fish growing in EU countries and methods of fish processing;
- Conduct practical training;
- Fish growing in small ponds (1-2 ha).

**Annex D**  
**Combined Training Information: June – November 2002**  
**Table of Contents**

Item I.	SEAFOOD HACCP/SCP TRAINING – BASIC CERTIFICATION (July 9-12, 2002 at Odessa, Ukraine): SUMMARY OF PARTICIPANT EVALUATIONS .....	2
A.	General Reaction to Training.....	2
B.	Topics of Most Use.....	2
1.	Industry .....	2
2.	Consultants.....	2
3.	Government.....	3
C.	What to Improve .....	3
Item II.	AFDO / ALLIANCE SEAFOOD HACCP TRAINING PROGRAM (July 3-5, Chişinău, Moldova): COURSE EVALUATION FORM.....	5
A.	Assessment Ratings .....	5
B.	Suggestions for Improvement:.....	7
Item III.	PFID/INZMV TRAINING EVALUATION FORM, COLD CHAIN TRAINING SEMINAR.....	8

**Note:** The synthesis of evaluations for the Cold Chain Training in Ukrain is adequately presented in the main body of the Semi-Annual Report

**Item I. SEAFOOD HACCP/SCP TRAINING – BASIC CERTIFICATION (July 9-12, 2002 at Odessa, Ukraine): SUMMARY OF PARTICIPANT EVALUATIONS**

**Conducted by:** Dr. Mike Moody (LSU), Dr. Mary Snyder (FDA), Dr. Myronyuk (State Committee for Standards), World Lab, Odessa Center for SCM

**Number of participants:** 29, including 5 industry representatives, 5 consultancy representatives, 19 representatives of regulatory agencies (State Committee for Standards, Centers for SCM, Institute of Quality).

A total of 26 evaluation forms submitted.

**A. General Reaction to Training**

Almost all participants emphasized the topicality and timeliness of the Seminar, as well as good organization, high level of teaching and way of presenting materials, apprehensiveness of information. Common opinion was “Seminar is very useful for my practical work”. Significant advantage of the training was its demonstrativeness due to handouts, specifically three manuals, which, as many participants noted, would be used in actual implementation of HACCP plans at enterprises. According to participants, specific use of the seminar was in new terms, approaches and concepts, in systematization of information, as well as in its applied nature.

**B. Topics of Most Use**

*1. Industry*

For industry people the most useful were the topics “Development of HACCP Plans” and “Sanitation Control Procedures”. They also named the following topics: “US HACCP Regulation (Export/Import issues)”, “Hazard Identification and Analysis”, “CCP Identification”. Absolutely all industry representatives stated that they would apply the knowledge acquired at their enterprises.

*2. Consultants*

Consultancy people found the topic “Hazard Analysis” the most useful for them (mentioned in 4 of 5 evaluation forms).

The topics of interest for this category of participants also were “Development of HACCP Plans” (3), “Record-Keeping Procedures”, “Sources of Information”, “Sanitation Control Procedures” and “HACCP Regulation”.

Consultancy people are going to implement the knowledge acquired in their advisory-expository activities, provision of consulting services on HACCP implementation to fish processing enterprises, in contracting, auditing, and diagnostics of parasitic diseases.

### 3. *Government*

Similarly to consultancy, for regulators the most useful were the topics “Hazard Analysis” (mentioned in 9 of 16 evaluation forms), “Development of HACCP Plans” (8), as well as “Monitoring Procedures” (8) and “CCP Identification” (6).

They also noted the following topics “Sanitation Control Procedures” (5), “Corrective Actions” (5), “Preventive Actions” (4), “Critical Limits” (3), “Record-Keeping Procedures” (2), “HACCP Regulations” (2) and “Sources of Information”.

According to evaluation forms, regulators will apply new skills in their work with enterprises: in inspecting enterprises for compliance with standards, and analyzing their work, in providing practical and methodological assistance for enterprises in HACCP implementation, for educating personnel of processing operations, in development of quality systems and Ukrainian standards and regulations. It was noted that general approaches and concepts, especially in sanitation control, could be applied in all sectors of food processing industry.

#### **C. What to Improve**

- 1) ***Time of the seminar.*** More than half of participants (16) recommended to extend the duration of the seminar and provide more time for practical exercise. Among specific recommendations - to provide 16 working hours (two days) for practical session, and to change the schedule of breaks: 5 minutes break after each hour and 15-20 minutes break after each 2.5-3 hours. Also was recommended not to conduct such seminars in the summertime.
- 2) ***Schedule of presentations and practical sessions.*** Participants recommended to organize practical group sessions after each topic and to provide for cross-group discussion before group reports.
- 3) ***Materials and documentation.*** Participants felt need to have more information and handouts on Ukrainian Standards to compare them with U.S. requirements.
- 4) ***Course content.*** Participants would like to be provided with more examples, and recommended to explain in more details how to define whether a hazard is significant or insignificant. They also recommended to provide more time for topics “CCPs” and “Critical Limits”.

#### **HOW YOU AND THE PROJECT CAN COLLABORATE TO FOLLOW-UP ON THIS COURSE’S SUBJECT MATTER**

According to participants, the best way of collaboration under the Projects would be further seminars, including in Russia, and exchange of information. Extremely topical, to their opinion, is ordering of efforts on HACCP implementation in Ukraine by systematic and consistent training of Ukrainian HACCP specialists and instructors within one specialized organization, as well as experimental implementation of HACCP system in several enterprises. Idea to organize Internet based conference on HACCP issues could be implemented as a part of ISS developed under the Project.

1. To conduct more seminars (8):
  - At least, annually;
  - To conduct similar seminar on the basis of mariupol center for standardization, certification and metrology to train specialists for azov sea region;
  - To repeat the seminar in 6-8 month in odessa;
  - To organize refresher courses each 2 or 3 years, using new information and own experience;
  - Participants from russia proposed to conduct the same seminar in russia.
2. Training of HACCP specialists and instructors (6):
  - Training of HACCP instructors (3);
  - To establish HACCP training center in Ukraine;
  - To form HACCP Alliance in Ukraine;
  - To introduce official list-register of HACCP specialists.
3. Exchange of information, methodological assistance and consultation services for enterprises (6).
4. Experimental implementation of HACCP system at several Ukrainian enterprises (3).
5. To organize Internet based conference on HACCP issues.

#### WHAT OTHER TECHNICAL PROGRAMS WOULD YOU RECOMMEND TO ORGANIZE UNDER THE PROJECT?

The majority of recommendations was to conduct training on HACCP implementation in other sectors of processing industry (9), first of all in cannery production (6), and also in milk/dairy, tea, confectionery, beverages and mineral water production.

Participants also recommended the following courses:

- Diagnostics of fish diseases;
- More detailed seminar on sanitation controls (sanitizers and methods of sanitation);
- Safety and CCPs;
- Internal and external monitoring of measuring laboratory;
- Training courses for testing microbiologists;
- Course on general HACCP;
- Course on microbiological hazards;
- Course on HACCP plans development.

**Item II. AFDO / ALLIANCE SEAFOOD HACCP TRAINING PROGRAM (July 3-5, Chişinău, Moldova): COURSE EVALUATION FORM**

**A. Assessment Ratings**

This evaluation is intended to improve the quality and format of the AFDO / Alliance Seafood HACCP Training Program

Please rate the items listed according to:

**1 - Excellent      2 - Good      3 - Fair      4 – Below Average      5 - Poor**

Also, please provide comments using the back of this sheet if necessary. You do not have to sign your evaluation.

Item	Ranking						Average rank	Comments
	1	2	3	4	5			
HACCP Training Manual	<b>26</b> (81.25%)	<b>6</b> (18.75%)	-	-	-	<b>1.25</b>	-	
Chapter 1: Introduction to Course and HACCP	<b>14</b> (43.75%)	<b>18</b> (56.25%)	-	-	-	<b>1.56</b>	-	
Chapter 2: Hazards – Biological, Chemical, Physical	<b>14</b> (43.75%)	<b>15</b> (46.87%)	<b>3</b> (9.38%)	-	-	<b>1.66</b>	-	
Chapter 3: Preliminary Steps and Prerequisite Programs	<b>12</b> (37.5%)	<b>20</b> (62.5%)	-	-	-	<b>1.63</b>	-	
Chapter 4: Commercial Processing Example	<b>8</b> (25.0%)	<b>22</b> (68.75%)	<b>2</b> (6.25%)	-	-	<b>1.81</b>	-	
Chapter 5: Principle 1: Hazard Analysis and Preventative Measures	<b>18</b> (56.25%)	<b>14</b> (43.75%)	-	-	-	<b>1.44</b>	-	
Chapter 6: Principle 2: Identification of Critical Point Monitoring	<b>13</b> (40.63%)	<b>19</b> (59.37%)	-	-	-	<b>1.59</b>	-	
Chapter 7: Principle 3: Establish Critical Limits	<b>8</b> (25.0%)	<b>23</b> (71.88%)	<b>1</b> (3.12%)	-	-	<b>1.78</b>	-	
Chapter 8: Principle 4: Critical Control Monitoring	<b>12</b> (37.5%)	<b>19</b> (59.37%)	<b>1</b> (3.12%)	-	-	<b>1.66</b>	-	
Chapter 9: Principle 5: Corrective Actions	<b>13</b> (40.63%)	<b>18</b> (56.25%)	<b>1</b> (3.12%)	-	-	<b>1.63</b>	-	
Chapter 10: Principle 6: Record-Keeping Procedures	<b>6</b> (18.75%)	<b>26</b> (81.25%)	-	-	-	<b>1.81</b>	-	
Chapter 11: Principle 7: Verification Procedures	<b>9</b> (28.13%)	<b>22</b> (68.75%)	<b>1</b> (3.12%)	-	-	<b>1.75</b>	-	
Chapter 12: The Seafood	<b>13</b>	<b>18</b>	<b>1</b>	-	-	<b>1.63</b>	-	

Item	Ranking						Average rank	Comments
	1	2	3	4	5			
HACCP Regulation	(40.63%)	(56.25%)	(3.12%)					
Appendix I: FDA's Seafood HACCP Rule	<b>13</b> (40.63%)	<b>15</b> (46.87%)	<b>4</b> (12.5%)	-	-	<b>1.72</b>	-	
Appendix II: NACMCF Questions and Sample Worksheets	<b>6</b> (18.75%)	<b>26</b> (81.25%)	-	-	-	<b>1.81</b>	-	
Appendix III: Hazards Found in Seafood	<b>18</b> (56.25%)	<b>14</b> (43.75%)	-	-	-	<b>1.44</b>	-	
Appendix IV: More Information on HACCP	<b>18</b> (56.25%)	<b>13</b> (40.63%)	<b>1</b> (3.12%)	-	-	<b>1.47</b>	-	
Appendix V: Models	<b>10</b> (31.25%)	<b>21</b> (65.63%)	<b>1</b> (3.12%)	-	-	<b>1.72</b>	-	
OVERALL	<b>15</b> (46.88%)	<b>17</b> (53.12%)	-	-	-	<b>1.53</b>	-	
HACCP Models	<b>15</b> (46.88%)	<b>16</b> (50.0%)	<b>1</b> (3.12%)	-	-	<b>1.56</b>	-	
FDA's Hazard Guide	<b>10</b> (31.25%)	<b>22</b> (68.75%)	-	-	-	<b>1.69</b>	-	
HACCP Practical Sessions	<b>13</b> (40.63%)	<b>17</b> (53.12%)	<b>2</b> (6.25%)	-	-	<b>1.66</b>	-	
Instructors:								
Dr. M.Moody	<b>31</b> (96.88%)	<b>1</b> (3.12%)	-	-	-	<b>1.03</b>	-	
Dr. M.Snyder	<b>26</b> (81.25%)	<b>5</b> (15.63%)	<b>1</b> (3.12%)	-	-	<b>1.22</b>	-	
Ms. G.Sushkevich	<b>13</b> (40.63%)	<b>15</b> (46.87%)	<b>4</b>	-	-	<b>1.72</b>	-	
Mr. V.Scobioala	<b>14</b> (43.75%)	<b>15</b> (46.87%)	<b>3</b> (9.38%)	-	-	<b>1.66</b>	-	
Overall Course	<b>19</b> (59.37%)	<b>12</b> (37.51%)	<b>1</b> (3.12%)	-	-	<b>1.44</b>	-	

## **B. Suggestions for Improvement:**

Participants of a training made 34 suggestions on improvement of a course in total, including:

- 9 participants suggest to increase amount of hours for practical HACCP sessions;
- 6 participants suggest to apply the examples corresponding to local raw material and technological conditions on theoretical and practical sessions;
- 5 participants consider, that process of Seafood HACCP training should be continued and deepened, including carrying out practical sessions on one of the processing plant introducing HACCP and also to acquaint with a real situation on HACCP implementation in the USA;
- At discussion of practical examples, it is necessary more attention to give for fish products;
- To give more attention to the order and quality of records keeping and corrective actions;
- In the textbook it is possible to place more illustrations to different sections;
- It is desirable to have video materials which can remain with students for the further training;
- Wider spectrum of examples and information as a whole under the program of HACCP preparation, especially for fish products;
- To involve an audience more in discussion of practical examples;
- To give more attention on definition of CCP for different kinds of production;
- To include, if it will be possible, in the program a visit on the enterprise introducing HACCP;
- The translator should be the expert in this area;
- It would be desirable for practical sessions that each participant of a training personally would have the example which would decide;
- An excellent course;
- To give more attention to control of salty and smoked fish manufacture;
- Training on groups of specialization;
- To coordinate work in groups to principles of HACCP.

**Item III. PFID/INZMV TRAINING EVALUATION FORM, COLD CHAIN TRAINING SEMINAR**

**Note:** *Synthesized answers are italicized.*

<b>IDENTIFICATION.</b>	
<i>23 training participants have returned filled in training evaluation forms</i>	
Date of Training <i>September 11-13, 2002</i>	Location of Training <i>Chisinau</i>
<b>REACTION TO TRAINING</b> – For each of the following three questions, please underline one of the enclosed choices inside the parentheses.	
The association training was (very useful / moderately useful / somewhat useful / not useful) to me. <i>Very useful – 6 participants;</i> <i>Moderately useful – 17 participants;</i> <i>Somewhat useful – 0 participants;</i> <i>Not useful – 0 participants.</i>	
The instructors for the training were (excellent / generally informative / somewhat informative / somewhat uninformative/ very uninformative and boring) <i>Excellent - 11 participants;</i> <i>Generally informative - 12 participants;</i> <i>Somewhat informative - 0 participants;</i> <i>Somewhat uninformative - 0 participants;</i> <i>Very uninformative and boring - 0 participants;</i>	
The topics of most use to me in my job were (indicate 1 <sup>st</sup> , 2 <sup>nd</sup> and 3 <sup>rd</sup> choices only – place 1,2 and 3 at the selected topics):	
___ Refrigerating and Cryogenic machines and facilities <i>In total – 8 participants, inclusive</i> <i>1 – 6 participants</i> <i>2 – 2 participants</i> <i>3 – 1 participant.</i>	___ Monitoring and Energy Audit of Refrigeration Systems <i>In total – 5 participants, inclusive</i> <i>1 – 2 participants</i> <i>2 – 2 participants</i> <i>3 – 1 participant.</i>
___ Compressors and Pneumatics <i>In total – 5 participants, inclusive</i> <i>1 – 1 participant</i> <i>2 – 1 participant</i> <i>3 – 3 participants.</i>	___ Environmental safety of refrigerating systems <i>In total – 10 participants, inclusive</i> <i>1 – 0 participants</i> <i>2 – 3 participants</i> <i>3 – 7 participants.</i>

\_\_\_ Substances used in refrigerating machines

*In total – 4 participants, inclusive*

- 1 – 3 participants
- 2 – 1 participant
- 3 – 0 participants.

\_\_\_ Thermodynamics and heat transfer

*In total – 1 participant, inclusive*

- 1 – 1 participant
- 2 – 0 participants
- 3 – 0 participants.

\_\_\_ Air conditioning systems

*In total – 3 participants, inclusive*

- 1 – 1 participant
- 2 – 1 participant
- 3 – 1 participant.

\_\_\_ Power Saving Technology

*In total – 15 participants, inclusive*

- 1 – 7 participants
- 2 – 7 participants
- 3 – 1 participant.

\_\_\_ Research, Modeling and Optimization of Process and Devices

*In total – 7 participants, inclusive*

- 1 – 2 participants
- 2 – 2 participants
- 3 – 3 participants.

\_\_\_ Recycling and Recovery machines

*In total – 2 participants, inclusive*

- 1 – 0 participants
- 2 – 1 participant
- 3 – 1 participant.

\_\_\_ Methods of efficient recovery

*In total – 2 participants, inclusive*

- 1 – 0 participants
- 2 – 1 participant
- 3 – 1 participant.

\_\_\_ Recovery equipment for liquid and gaseous phases

*In total – 0 participants*

\_\_\_ Technical maintenance of refrigeration equipment

*In total – 6 participants, inclusive*

- 1 – 0 participants
- 2 – 2 participants
- 3 – 4 participants.

Do you have any other comments?

- *It would be to cover tendencies of branch development (compressors design, auxiliaries, systems as a whole, ways of cooling, etc.);*
- *It would be better if the course was conducted for 5-7 days earlier;*
- *Professors have brought the big contribution in development my level of knowledge;*
- *During training many who asked questions could not formulate them precisely. Owing to this the lecturers could not understand what wants person asking the question. It was also because questions were too long and the translator had not time to translate it. In this connection it would be possible to offer that questions were given in written form.*

## RECOMMENDATIONS

What specific suggestions do you have for improving the association training course (please provide specific comments for each item that you check)?

\_\_\_ Times and schedules for the workshop

- 3 participants were satisfied with the times and schedules;
- It would be better to conduct workshops from 10.00 to 15.00;
- Basically convenient, but time for lectures could be reduced at 1-2 hours, having increased amount of days for the workshop.

\_\_\_ Additional or missing content

- Last day does not concern to a theme;
- A few of concrete recommendations in figures;
- Quite enough.

\_\_\_ Other

*There were not any suggestions*

\_\_\_ Pace of presentation

*4 participants suppose it was:*

- acceptable;
- excellent;
- satisfactory;
- good.

What other technical programs would you recommend for your fellow employees (please provide specific comments for each item that you check)?

\_\_\_ Computer monitoring of refrigerated inventory

*10 participants recommend this technical program*

\_\_\_ Other cold chain issues (specify)

*6 participants answered Yes for this item but only 1 specified it: It would be desirable to illustrate technologies of fruits and vegetables freezing and storage.*

\_\_\_ Other (specify)

- Steady refrigerating chain and conditions of its effective utilization;
- Refrigerating machineries of low power;
- it would be desirable to receive the documentation on modern models of heat exchange;
- New cooling agents (including freons) discovered for last 10 years, their use, interchangeability with old freons;
- Repair household and trading tight compressors, revealing and elimination of malfunctions without disassembly of compressors.

Do you have any recommendation regarding how the Project and clientele can collaborate to follow-up on this course's subject matter?

- 6 participants suggest to continue training of Moldovan specialists, inclusive: 4 recommend to train them in USA; 1 suppose it would be useful to sent Moldovan specialists in another countries which are supported by PFID Project; and 1 suppose it would be very useful to see everything showed on slides by his own eyes.
- It is necessary to involve on each seminar of experts in concrete area with the help of economic agencies and Associations;

- We are interested in the address of firm (and cost) where it is possible to buy refrigeration and cryogenic machines and equipment for fast freezing of fresh vegetables (a green peas, corn, sweet pepper, tomatoes, potatoes) and fruits (strawberry, raspberry, currant, cherry and sweet cherry) - Anna Roibu firma "Mezcom-prim";
- Rendering of the information assistance;
- Development and participation in joint regional commercial projects – 2 participants;
- Level of current cooperation is rather enough;
- Use of new refrigeration machines in practice and computerization of the entities;
- I Think, that PFID should continue cooperation with key stakeholders on the issues submitted at a workshop;
- It is necessary to give more attention to utilization of compressors and pumps;
- Project PFID can continue cooperation with Moldovan key stakeholders giving the literature on repair of household, big and small industrial refrigeration machines (in Russian with good illustrations), and also on modern tendencies in the field of designing of refrigeration equipment and using of new cooling agents.

Do you have any other recommendations?

- To expand activity of the project on storage, transportation and commercialization of fruits and vegetables;
- It would be desirable to give the information on activity of the small warehouses and firms, since problems of large industrial production are well-known in Moldova from the last;
- The workshop has the big actuality and will be very useful;
- At seminars it would be useful to organize presentations of modern manuals, periodicals (magazines) and other materials (catalogues) concerning household and industrial refrigeration technics, submitted on foreign and Russian languages with the indication of electronic addresses on which it would be possible to familiarize with the given materials.