

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

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**Eighth Semi –Annual Report (August
1, 2004 – January 14, 2005) and Final
Report for Phase I (January 15, 2001
– January 14, 2005)**

**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 Central Agricultural Market Information Bureau of Moldova**

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for Phase I (January 15, 2001 – January 14, 2005)

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List of Acronyms and Abbreviations

AA.....	Associate Award
ACSA.....	Agency for Consulting and Training in Agriculture
AWP.....	Annual Work Plan
BISNIS.....	Business Information Service for the Newly Independent States
BPCS.....	Better Process Control School
CAMIB.....	Central Agricultural and Marketing Information Bureau
CLUSA.....	Cooperative League, USA
CNFA.....	Citizen’s Network for Foreign Affairs
CSM.....	Commodity Storage Manual
CSMC.....	Certification, Standardization and Metrology Center
EBDR.....	European Bank for Development
FARMARM.....	Moldovan Branch of World Poultry Farming Organization
FAO.....	(UN) Food and Agriculture Organization
FDA.....	Food and Drug Administration
FFA.....	Fish Farmers Association
FSQ.....	Food Safety and Quality
HACCP.....	Hazard Analysis Critical Control Point
KNUTE.....	Kyiv National University of Trade and Economics
IAC.....	Information and Advisory Centers
IIFSQ.....	International Institute of Food Safety and Quality
ISS.....	Information Support System
ITF.....	Industry Task Force
JV.....	Joint Venture
KNUTE.....	Kyiv National University of Trade and Economics
LSU AgCenter.....	Louisiana State University Agricultural Center
MEPO.....	(Moldovan Department for Attracting Investments)
MCFQS.....	Moldovan Center for Food Quality and Safety
NRA.....	National Refrigeration Association
PC.....	Project Coordinator
PFID.....	Partnerships for Food Industry Development
PFID-MSP.....	PFID – Meat, Seafood and Poultry
PHT.....	Post Harvest Technology
PROSON.....	Productiecentrum Sonneneerdt
SAR.....	Semi-Annual Report
SMME.....	Small, Micro and Medium Enterprises
SSOP.....	Standard Sanitary Operational Procedures
TTA.....	Training and Technical Assistance
UAUR.....	Union of Associations “Ukraine-Refrigeration”
USAID.....	United States Agency for International Development
USAID/EGAT.....	USAID/Economic Growth, Agriculture, and Trade
USAID/RCSA.....	USAID/ Regional Center for Southern Africa
USD.....	U.S. Dollar(s)
USDA.....	US Department of Agriculture
WFLO.....	World Food Logistics Organization
World Lab.....	World Laboratory, Ukraine Branch

Section I. Summary and Introduction

This is the eighth Semi-Annual Report (SAR) and the sixth that primarily describes the implementation of solution strategies by the Partnerships for Food Industry Development for Meat, Seafood and Poultry (PFID-MSP). This report also serves as the Final Report of PFID-MSP's Phase I of Operations. Under Phase I, the Project was 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 Central Agricultural Marketing Information Bureau (CAMIB).

A. Program Highlights

The PFID-MSP program has recorded significant results in the second half of the fourth and final year of its first phase. Among the highlights for this reporting period are:

- The Ukrainian Livestock Marketing activity was expanded to include five additional sites where combined regular sales number in the thousands, as well as the consolidation of Charodiy market (the market where PFID-MSP focused its initial activities);
- PFID-MSP Information Support Systems have enabled users, including a Ukrainian quail breeder and Moldovan poultry plants, to expand their markets;
- The regional Information Advisory Centers of the Union of Associations "Ukraine-Refrigeration" (UAUR) gave over thirty consultations resulting in the adoption of improved cold chain technologies;
- Fish farmers' marketing capabilities were enhanced by both the Khmelnytsky Fish Farmers Association in Ukraine and Propiscicola in Moldova while Moldovan poultry producers benefited by market linkages facilitated by the Moldovan Branch of World Poultry Farming Organization (FARMARM) and PFID/Moldova;
- WFLO resource materials, including sections of the Commodity Storage Manual (CSM) and a Distance Learning CD-ROM were made available for dissemination;
- The International Institute for Food Safety and Quality (IIFSQ) promoted policy reform related to the harmonization of Ukrainian Food Safety standards with international norms;
- The Moldovan Center for Food Quality and Safety (MCFQS) was registered in that country and affiliated with the IIFSQ and, as a result of adopting PFID-promoted food safety practices, the Moldovan firm Free Fisheries increased its markets and hence its sales;
- PFID-promoted technology in processing spent hen meat resulted in increased sales for Rosso SL, a Moldovan enterprise and two Moldovan fish processors increased their production volume with PFID assistance; and
- PFID/Moldova's efforts in fostering business partnerships have facilitated a protocol of intention between local poultry plants and a Dutch company for production of one-day hybrid chicks with anticipated investments of 900,000 euros.

B. Program Issues

Annex A compares the anticipated indicators of Project Activities of the last six months, as stipulated in the 4th Annual Work Plan (AWP) with the actual results. Instances in which PFID-MSP activities did not meet specified indicators include the following:

- The political upheaval arising from the Ukrainian elections prevented PFID/World Lab from conducting association leadership workshops and the IIFSQ from conducting two seminars (including a training on basic certification for meat and poultry HACCP);
- The IIFSQ conducted cooperative activities with only one NIS food safety authority (the MCFQS, while collaboration with two authorities was targeted) although collaboration with Polish dairy-related projects was conducted this year;
- Thirty Moldovans were planned to be trained at a seminar on meat and poultry HACCP for but the fee resulted in a reduced number of eighteen;
- The application for seminar participants' registration and certification was submitted to International HACCP Alliance. The certificates were issued in November 2004;
- Insufficient funds at one plant and the introduction of new products at another prevented the PFID/Moldova from documenting HACCP certification at three plants.

Most other project activities have met or exceeded indicators, particularly pertaining to the ISSs. Seventeen poultry enterprises and 67 meat enterprises (as opposed to the target of five stakeholders) were updated in the Ukrainian ISS while the Moldova ISS exceeded its target of five stakeholders updating their ISS records by three firms;

Additional program information is summarized in Annex B, which lists the beneficiaries in PFID's FY 2004 Education, Training and Outreach Activities, as mandated by Title XII.

PFID-MSP drew on its experience to develop several programmatic concepts and models, as outlined in Section VI. These include the following

- Interventions in Food Safety and Quality (FSQ) should develop support from both industry stakeholders and public policy makers;
- HACCP adoption is most likely when it is promoted in conjunction with prerequisite programs such as Standard Sanitary Operational Procedures (SSOPs);
- To ensure viable marketing interventions with a positive return on investment, efforts would do well to address market mechanisms, policy reform and potential market linkages between industry representatives that were originally seen as competitors;
- Interventions targeted toward association development should address joint financial capacity, member services, continuous capacity building and lessons drawn from practical experience;
- Value added interventions that promote market linkages offer benefits to all members of the value chain;

- Interventions that promote business partnerships should include public-private coordination and business planning; and
- Successful information support systems are characterized by promotion of business linkages and collaboration with entities with compatible objectives.

C. Objective #2 – Developing Awareness of Critical Issues

The LSU AgCenter hosted a PFID-MSP advisory committee meeting from January 18-21 in Baton Rouge. Attending the meeting was the Cognizant Technical Officer from USAID/EGAT and project partners from Ukraine and Moldova. Agenda items included the following:

- A review of the last (fourth) year activities focusing on success stories;
- Summaries of program experience/concepts developed from the key activities implemented by PFID in all of Phase I (describe in detail in Section VI); and
- The plans for Phase II in Nicaragua, South Africa and Eastern Europe/Eurasia as well as the plans for a Southern Africa Associate Award.

Three work plans were submitted to USAID/EGAT, one for each of the fore-mentioned target areas for Phase II. The work plans cover start-up activities (such as sub-contracts with host country partner institutions), general management activities and activities for the Project's objectives in each of the target areas, as shown below

1) In Eastern Europe/Eurasia:

- a) Preliminary contacts to initiate expansion of the Ukraine-based IIFSQ to Moldova, Georgia and Azerbaijan, as well as training in HACCP auditing;
- b) Seminars on compliance with the US Food Security Act of 2002 and risk assessment; and
- c) A regional Better Process Control School (BPCS) to facilitate approved FDA training and provide an acceptable methodology to eliminate serious food safety concerns related to low-acid canned foods.

2) In Nicaragua:

- a) Assessment and organizational establishment relating to Food Safety and Quality (FSQ); and
- b) Assessment, identification and case study initialization relating to the promotion of improved cold chain technologies.

3) In South Africa

- a) Assessment of how a Post-Harvest Technology Center address regional post-harvest needs within the PFID-MSP's programmatic scope; and
- b) Assessment, identification and case study initialization relating to the promotion of improved cold chain technologies.

Section II. Objective #3 – Formulate Support Mechanisms

A. Producer Processor Linkages

1. Ukraine, Accomplishments and Impact

This activity was designed to develop a central livestock market model that would stabilize raw material supply to processors, ensure compliance with veterinary requirements, decrease processors' procurement expenditures and improve price efficiency. A key achievement for this activity was securing a regulatory framework for the organization and conduct of auctions. The "Provision on Wholesale Livestock and Poultry Markets" was drafted and submitted for the Agricultural Ministry's approval. This provision authorizes livestock and poultry markets of various forms, establishes rights and obligations of all participants and provides for state support for wholesale livestock trade. In addition, the Agricultural Ministry established a work group headed by Prof. Moldovan (PFID/World Lab's Activity Leader for Livestock Markets) to draft a legislative bill entitled "On Wholesale Livestock and Poultry Markets"; adoption of this bill would facilitate a network of wholesale markets all over Ukraine.

PFID/World Lab and the Livestock Marketing Agency expanded their activity to include additional districts of Volhyn Oblast. In Kivertsi Raion, two sites to weekly sell 1,400 head of young animals were established. At Volodymyr-Volhynsky site over 4,000 head of commercial livestock and young animals were sold on a regular basis.

In Gorokhiv raion, it was decided to construct a wholesale livestock market site instead of a dry-lot, as an affiliation of the Volhyn Agrarian Exchange. A market site includes infrastructure such as: weighing equipment, paved trading places, information center, veterinary service, organized waste disposal, trestle for cattle cars and animal storage¹. Most of these elements are present or are being constructed at Charodiy. During 2004, procurement of the necessary infrastructure was initiated. AgroTrade Exchange is buying ten hectares that are convenient to three neighboring oblasts: Volhyn, L'viv and Ternopol. Logistical improvements include pavement, weighing equipment, separated lots for standardized livestock and repair of water and sewerage systems.

In addition to the work mandated in the 2004 AWP, the Project facilitated development of two local livestock markets in Zhytomyr Oblast: in Lyubar and Berdychiv. Both market sites were organized by local consumer assemblies and operate two to three times a week for both commercial and young animals. The sites have basic logistical needs (paved trading places, fences, weighing equipment, etc) and sales volumes are as follows: 12,000 head, at Lyubar and 10,000 head at Berdychiv.

Charodiy Market's physical facilities were consolidated. Local authorities allotted an additional 4.5 hectares to the market, which was included in the list of enterprises that are eligible for favorable state-supported credit. PFID provided partial financial support in accreditation; it also will pay for the first lot of service materials for the veterinary lab, licensing fees and specialized literature. As a result, construction of a veterinary lab has been started. Extensive promotion of Charodiy's activities among livestock producers and processors has been done; as a result,

¹ Dry-lots typically have only enclosed paved trading places for sellers and buyers to meet.

Charodiy's geographical coverage has been significantly expanded to nine raions of Cherkasy Oblast. Currently Charodiy Market attracts buyers and sellers from six Oblasts. As a result, sales volumes have significantly increased: in 2004 they totaled 18,350 head during January – October. Ninety-seven point five percent of the livestock sold are hogs; the rest are cattle. Young animals constitute a third of the sales.

Awareness of the benefits of centralized livestock markets was increased through the following actions initiated/supported by PFID-MSP:

- A brochure “Prospects for Development of Organized Livestock Markets” was published and disseminated among all major universities;
- Prof. Moldovan gave a presentation entitled “Problems and Prospects of Formation and Operation of Agrarian Market in Ukraine – The Role of Agricultural Outreach” at a September conference for representatives of all regional Outreach Services;
- Three articles were published in Meat Business Monthly;
- A presentation entitled “Organizing Wholesale Livestock Markets in Ukraine” was given at seminars for heads of village councils and heads of agrarian enterprises of Cherkasy Oblast, at the Institute of Post-Graduate Education of NAUU and for members of the All-Ukrainian Union of Agrarian Enterprises;
- Visits to Charodiy Market by nine delegations from various regions of Ukraine – members of these delegations included local government officials, commodity traders, processors, outreach/extension officials and livestock breeders; and
- Monitoring of local consumer markets and discussions with their leadership of opportunities to expand or transform into livestock markets.

2. *Issues and Future Activities – Sustainability after the Project’s Conclusion*

Charodiy is financially sustainable and has no trade liabilities. In 2004 Charodiy operated on its own funds.

PFID/World Lab has proposed a no-cost expansion of remaining funds to identify additional models of central wholesale markets, incorporating veterinary services at a raion (district) level. PFID/World Lab has determined that the central livestock market is an ideal vehicle for veterinary control at the time of purchase and allows buyers to avoid economic loss (due to discarding unfit animals) or health risks. In addition, the centralized market allows timely communication with Oblast level veterinary authorities and distribution of important veterinary news to suppliers and buyers. A veterinary unit integrated into the market structure could provide health control of animals at the market and ensure fair pricing and conformity to buyer expectations, in terms of quality and safety of raw material. Availability of a veterinary unit at the market would be an important factor to gain the confidence of buyers and provide for further sustainable market operation. Also, an established veterinary unit will be a key step toward an appropriate infrastructure to enable trade in large lots of livestock through the auction. The market owner at Charodiy has almost completed a facility for veterinary and sanitation testing after investing the equivalent of fifteen thousand USD.

For these reasons, PFID/World Lab has received authorization to extend its Livestock Marketing Activity by six months, focusing on the following additional activities:

1. Training of two skilled veterinary personnel;
2. Purchase of the first set of supplies for analysis;
3. Accreditation of the lab with the state authorities;
4. Provision of the analysis laboratory with necessary information materials; and
5. Establishment of the communication with local and central veterinary control entities.

B. Information Support Systems

1. Ukraine, Accomplishments and Impact

PFID/World Lab increased stakeholder awareness of its Information Support System (ISS) at a series of conferences and trade shows during this reporting period. At the Fifth Ukrainian Poultry Conference in September, PFID Project presented the Poultry Sub-System of its ISS and disseminated five hundred copies of information leaflets. The ISS's Fish Sub-System was demonstrated at the Fisheries-2004 Trade Show (refer to Page 14) in which three different leaflets were disseminated among visitors.

Likewise, PFID/World Lab increased the ISS's spectrum of available information as follows:

1) Poultry Sub-System

- Poultry News page is regularly updated with announcements of activities and events organized for poultry-sector stakeholders;
- Texts of new regulations issued by governmental authorities were added to Orders, Instructions and Provisions page – it currently contains a total of 47 documents;
- The Articles page was expanded with thirteen scientific articles based on reports and presentations made at the fifth Ukrainian Poultry Conference for a total of 24 articles;
- The sub-system's *data bank* was expanded with 128 descriptions of poultry diseases, 57 new drugs, and descriptions of 40 poultry breeds.

2) Meat Sub-System

- The Data Bank of meat producers and processors was updated and currently contains 592 enterprises, including 169 breeding enterprises;
- Livestock Markets in Ukraine page was designed and placed on the website.

3) Fish and Seafood Sub-System – A *data bank* of fish producers and processors was updated and currently it contains 542 enterprises, including 145 fish-farming facilities.

4) HACCP&IIFSQ Sub-System – Detailed information on all *IIFSQ-organized events* in the reporting period was added and the *IIFSQ News page* is regularly updated.

The website <http://pfid.ubwlab.org> was registered within additional 15 catalogues and an Announcement Board and Guest Book for each of the five sub-systems: Poultry, Meat, Fish&Seafood, HACCP & IIFSQ and Cold Chain. Visiting enterprises actively use announcement boards (such as that shown below) to offer their services and products. In most cases they add information to Internet by themselves, but sometimes fax World Lab to add items to the website.

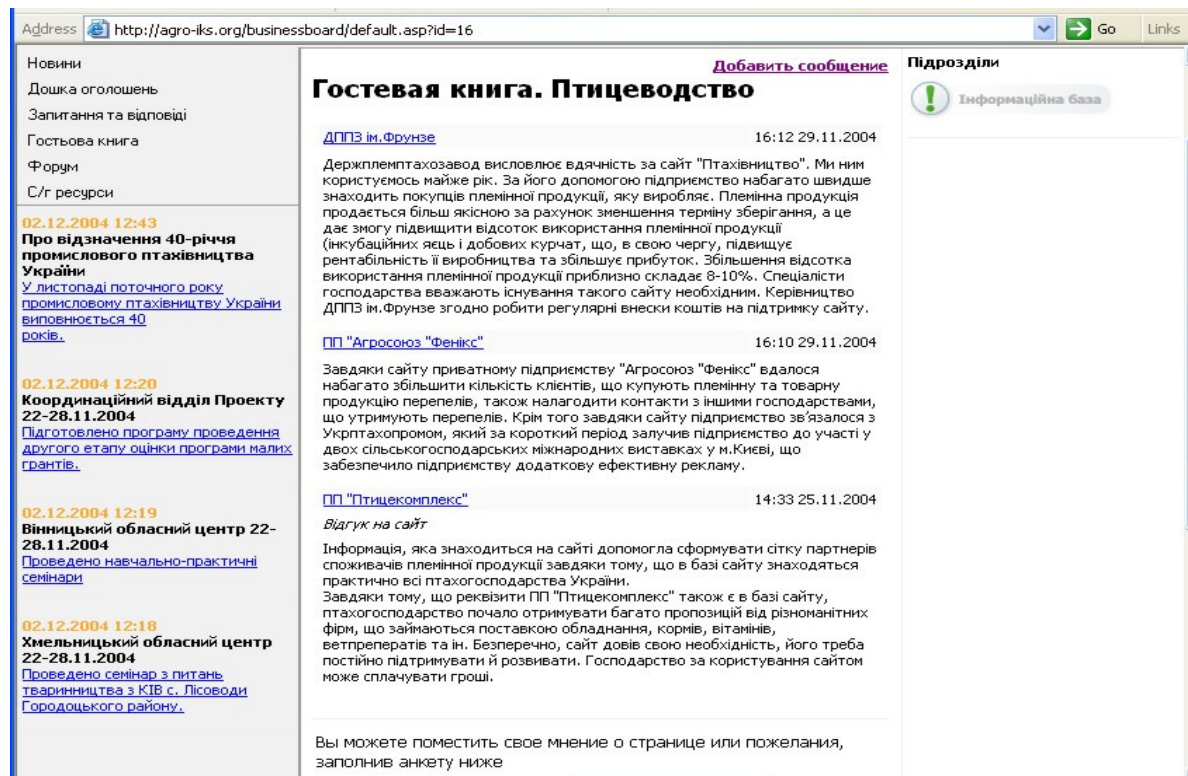


Figure 1 – PFID/World Lab – designed bulletin board

A system has been developed to collect detailed information on client activity at the site. Below is example of that system’s data for December 1, 2004:

- Total number of page visits 29,810
- Number of page visits in the data base - December 1 299
- Number of page visits in the data base - November 30 414
- Number of entries in the data base – current month: 299
- Number of entries in the data base – previous month 7,439
- Number of entries in the data base – two last months 1,4079
- Total number of visitors 936

- Number of visitors – December 1 41
- Number of visitors – November 30 115

The number of visits has grown each bi-monthly reporting period from twenty-nine during January-February to almost eleven thousand in September-October. A total of 940 users have become regular clients of PFID ISS. This implies a growing interest in ISS and that the site is an easily accessed source of useful and timely information. The most frequently visited ISS pages are those containing contact information of enterprises; this proves the value of this type of data for those who look for partners and motivates PFID/ World Lab to continuously update this section. For example, since July 2004, over 27,885 page visits are registered. Of these 22,232 page visits (79.7 percent) are for the contact information from the data banks. A good example of the business that arises from this access to information is shown at right.

Impact - The private enterprise “Phoenix Agro-Center” that produces 6 breeds of quails. This facility is included in PFID data bank, has access to Internet, and is a regular ISS user. This facility placed the following message in the Quest Book:

“Thanks to the site, our enterprise significantly expanded the number of our customers who buy breeding and commercial quail products and established contacts with other quail-producing farms. Also, thanks to your site, we initiated collaboration with Ukrptakhoprom (the Ukrainian poultry association) that led to our involvement in two international agricultural trade shows in Kyiv to further promote our product”.

Phoenix Agro-Center sells its products all over Ukraine, as well as in Russia, Hungary, Poland, and Moldova. In 2004 Phoenix Agro-Center created 10 new jobs.

2. *Moldova, Accomplishments and Impact*

As of December 01, 2004, PFID/Moldova registered 16,214 visitors to the ISS web page. One hundred and twenty-four clients (70.5%) of 176 visitors who assessed the web-based ISS through an interactive connection confirmed that the ISS was useful. Seven hundred and sixty-three people (poultry farmers, fish farmers and ACSA staff), visited Agency for Consulting and Training in Agriculture (ACSA) Regional Centers and used ISS services. Two thousand one hundred and sixty-five information materials were provided to poultry farmers and ACSA consultants and 1,253 to fish farmers.

As a result of access to the ISS, three poultry producers asked PFID to facilitate business linkages. PFID/Moldova facilitated purchases of hens, one-day chicks and incubation eggs of improved poultry breeds. The results of the transactions were documented as follows, followed by a description of the resulting impact to the stakeholder companies:

- Pasare Argentie Company purchased 25,000 hens of Hy-Line cross valued at 975,000 lei (\$81,932) from a Hungarian supplier. The hens started laying in September and the Hungarian supplier guarantees that the Hy-Line cross produces 300 eggs annually per hen – compared to Pasare Argentie’s 2003 production of 210 eggs per hen.

- In 2003 Orchidea Nani was not involved in poultry production. Having accessed the ISS, they asked PFID/Moldova to assist them in poultry meat production. As a result of this help, Orhidea Nani purchased 32,000 one-day chicks of Arbor Acres cross for meat production valued at \$10,880 from a Hungarian supplier.
- Avicola Leghorn purchased 40,000 incubation eggs from Hungary and 38,000 incubation eggs from Romania.

PFID/Moldova's ISS was updated by adding the following information:

- The Moldovan Center for Food Quality and Safety, particularly its services in HACCP training and implementation;
- FAMARM Association, particularly its services in poultry processing and production;
- WFLO activities, i.e. the Training and Technical Assistance (TTA) program (including enterprise selection criteria, activity schedule, application forms) etc;
- Guidance for business plans and investment project development;
- Updated plant information on six stakeholders, particularly:
 - Free Fisheries' HACCP system and SSOPs,
 - "Ihticom's" trial production of canned freshwater fish products,
 - Carmez International's launch of its HACCP system,
 - Cabanos Nord's renovation and upcoming HACCP implementation,
 - Avicola Leghorn's contact information and available products (including processed spent hens products), and
 - Rosso SL's contact information and products (including processed spent hens products sold to Kazakhstan).

Impact – The three poultry producers who developed business linkages facilitated by PFID/Moldova's ISS enjoyed the following benefits:

- Pasare Argentie – By November, the company produced and sold 1,900,000 eggs valued at 1,980,000 lei or \$161,000. While production for those three months meets expectations, the full laying period of the hens will not be complete until October-November 2005.
- Orchidea Nani – As a result of purchasing the improved chicks then breeding and selling, the company received a profit of 604,500 lei or \$49,146.
- Avicola Leghorn – In the three months since the beginning of the laying period of the hens hatched from the purchased eggs, the company produced 2,000,000 eggs valued at 2,362,000 lei (\$192,073, full profit data will not be available until September 2005)

The ISS was expanded by 58% of informational volume (based on clients' requests), including:

- PFID Project block was extended by 50 % by adding information on Moldovan Center for Food Quality and Safety founded within the PFID Project.
- Poultry production and processing block was extended by 8%, fish production and processing block was extended by 5 %.
- WFLO block was extended by 89% by adding information on TTA program provided by WFLO experts.
- Business Partnerships block – by 180% by including information on methods for business plans and investment project development.

A PFID/Moldova accomplishment not originally mandated in the AWP is the development of “Moldova’s Fisheries Profile” on FAO’s request. The fifth chapter of the document presents PFID/Moldova’s interventions in freshwater fish processing. The profile also describes PFID’s role in HACCP training and implementation at fish processing plants, while the “Village Development” Chapter describes PFID’s joint efforts with ACSA in providing training for fish farmers, essentially contributing to increased fish production by farms and supplying Moldovans with fish products.

3. Issues and Future Activities – Sustainability after the Project’s Conclusion

World Lab plans to regularly update the electronic component of the ISS, satisfy stakeholder information needs identified during direct communication and via feedback and introduce fees for access to some information.

CAMIB designed PFID/MSP’s ISS web page and signed a memorandum documenting its commitment to maintain the ISS after PFID’s conclusion. In return for receiving the ISS free of charge over the Project’s duration, ACSA also signed a document confirming its commitment to the ISS’s sustainable dissemination through Regional Centers.

C. Association Enhancement

1. Ukraine, Accomplishments and Impact

The Union of Ukrainian Associations, “Ukrainian Refrigeration” (UAUR) and its regional Information Advisory Centers (IACs) conducted an audit of industrial refrigeration equipment in almost all of Ukraine’s oblast and identified ways to improve efficiency, including: system decentralization, improved insulation, bio-gas generation and improved air distribution. Regional IACs gave over thirty consultations on such issues as identification of optimal refrigeration capacities, selection of refrigeration equipment for construction of new food processing facilities; environmental safety for ammonia transportation and re-processing; design of refrigeration systems, power- and resource-saving technologies. All recommendations were or are being adopted. Examples include:

- UAUR-recommended food storage techniques were applied in three supermarkets;

- Upon UAUR recommendations, Nord Company (a household refrigerator producer) built a testing facility to test ammonia and dimethyl ether systems;
- An Odessa meat processing plant received specifications for transition to low ammonia capacity refrigeration equipment;
- An Odessa port cold storage/processing facility received recommendations on safe transportation and processing of ammonia; and
- Vinnytsia Polytechnic University received consultations on heat pump application.

During this reporting period UAUR experts participated in five national conferences, workshops and seminars. UAUR experts also prepared five reports for the EU VI Framework Program for Research and Technological Development. The main focus of the Framework Program is the creation of a European Research Area to promote scientific excellence, improved competitiveness and innovation through increased cooperation. Topics in the UAUR-submitted reports included technology directions, power saving, food quality enhancement, influence of oil additives on efficiency and ammonia as a refrigerant. Olga Kulishova, the PFID/World Lab staff member responsible for Association Development published an article on UAUR in the July issue of Meat Business Monthly.

The Khmelnytsky Fish Farmer Association (FFA) has provided training to local fish farmers. In the second half of 2004 it organized a series of seminars and workshops, including fingerling production and pond stocking, marketing infrastructure, round tables, disease control and equipment. In addition to organizational support, PFID also developed eighteen informational posters and a Fish Farmer Reminder guidebook for the Fish Farmer Training Center. In September-October FFA provided consultations to members on the legal aspects of the government Land Code and land plot/pond leasing.

On October 20-23, the FFA with the Khmelnytsky Oblast Administration and the provincial Chamber of Commerce and Industry conducted a local Fish Farming 2004 Trade Show. The trade show's goal was to promote commercial fish production in Khmelnytsky Oblast through a better quality product. Major themes of the Trade Show included: production technologies, feed, veterinary control, value added processing, refrigeration, equipment and staff training. Participants received the following benefits:

- The FFA established itself at the fish markets of Khmelnytsky and other oblasts;
- Fish farmers shared experience on advanced fish production and processing technologies (such as levee construction that allow for production of channel catfish);
- At the Trade Show, two FFA members and individual and a group that operate a fish farm) sold three tons of live fish at 6 UAH/kilo (at value of 18,000 UAH), and 1.2 tons of smoked fish at an average price of 5.5 UAH/kilo (at value of 6,600 UAH); they also identified additional markets.

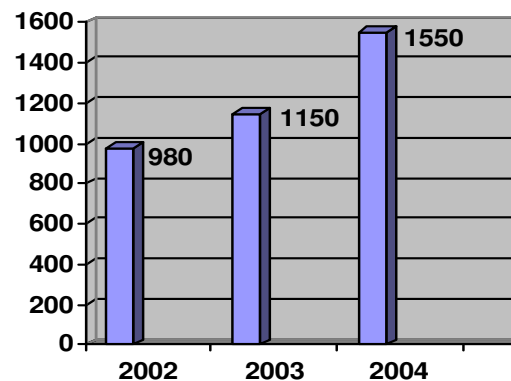


Figure 2 - FFA Sales Figures

In this reporting period, the FFA attracted 18 new members. In 2004 the FFA sold 1,550 tons of commercial fish (this is 37.3% more than in 2003). The 2002-2004 sales dynamics chart is shown in Figure 2. One FFA-established marketing channel is described at right.

2. *Moldova, Accomplishments and Impact*

In 2004, PFID/Moldova and Propiscicola exceeded their capacity building targets; they conducted fifteen seminars (as compared to seven that were initially planned) for 330 people (276% of the target). PFID/Moldova, Propiscicola and ACSA conducted eight seminars on preparation and maintenance of fish wintering in ponds. The seminars involved practical training on determining oxygen content in the water and 1,253 information leaflets were disseminated at the seminars. The 179 participating fish farmers will be able to control oxygen content under the ice during the winter. These seminars enhanced fish farmers' capacity and their increased production. In addition, seventy-seven farmers received scientific consultations in hydrochemistry, fish diseases and production technologies. These seventy-seven include fifteen farmers who availed of the services of Drochia Lab, established with PFID assistance in 2004.

When PFID and ACSA launched this activity, members' sales volumes of fish were 615 tons, increasing to 958 tons in 2003 and then to 1,500 tons in 2004. PFID/Moldova maintains that the Propiscicola members' capacity development resulting from their participation in the PFID/ACSA programs is the main reason for this increased volume. With PFID assistance, Propiscicola increased its membership from 47 to 76 members in 2004. The further development of fish farming includes fingerling production by some individual fish farmers. Toward this end, PFID/Moldova assisted in publishing of the book entitled "Fish Farming" to be a manual for fish farmers involved in fingerlings production.

PFID and Propiscicola facilitated contacts between fish farmers and the Piscicola Gura Bicului Plant resulting in nineteen fish farmers purchasing 10,590,000 fingerlings valued at 158,850 lei (\$13,238). This contributes to the sustainable fingerling stock for fish farmers. These 10,590,000 fingerlings led to a production of 39.75 tons of one-year fish valued at 1,193,000 lei (\$99,416); the anticipated net profit from 2005 sales will be 596,000 lei or 31,382 lei for each farmer. PFID and Propiscicola Association also facilitated sales of freshwater fish from fish farmers to Ihticom and Vesnicia plants for processing as shown at right.

Impact - In 2004 FFA initiated establishment of a pilot market channel through local supermarket chains. PFID recommended the idea and assisted seventeen farmers to receive a grant on construction of aquariums in the supermarkets. This market channel promotes highly effective market presentation of fish as it is stored in aquarium, maintains high quality and obtain a better price: 8-9UAH/kilo as opposed to 7 UAH/kilo at open air markets. Through Furshet supermarket FFA sold 2.1 tons of fish at 18,900 UAH, and, through Sil'po supermarket, 1.4 tons at 12,600 UAH.

The increased income for the seventeen farmers was only about approximately \$100 each. However, the channel they established ensured consistent and reliable sales. Such market consistency is as important for farmers as production consistency.

Impact – Sixteen farmers supplied 47.2 tons for processing to Ihticom (valued at 660,422 lei or \$53,260), and three farmers supplied nine tons to Vesnicia (valued at 108,000 lei or \$8,710).

With PFID/Moldova and ACSA assistance, the Moldovan Branch of the World Poultry Farming Organization (FAMARM) initiated two model farms for hens, two model farms for quails and one model farm for geese (shown in Figure 3). Based on poultry farmers' request in the Creuleni region, a model farm with a capacity for 18,000 hens was established. PFID/Moldova facilitated the model farm's formation and provided business contacts for input and equipment purchases. An individual farmer provided the funds and management for the model farm operations, which will include the annual production of some four million eggs. The on-site farmers training will be coordinated by ACSA. PFID/Moldova's recommendation to install four-floor cell equipment for the up-keep of spent hens was adopted. PFID/Moldova also recommended one of the most productive poultry crosses and assisted in introduction of feeding technology.



Figure 3 – FAMARM's Model Goose Farm

Through participation in the FAMARM-sponsored model farm, poultry farmers now have the opportunity to exchange poultry production experience, attend training and strengthen association participation. The farm produces 360,000-400,000 eggs monthly, at an average price of \$1.00 for ten eggs. Five new jobs appeared as a result of the model farm creation. The farm provides a venue for the exchange of experience between members. The model farm itself became a member of FAMARM and receives services from the Association.

With PFID/Moldova assistance, a model goose farm also was established. A demonstration and a seminar were held at the model farm for twenty-four farmers. The seminar was focused on the geese feeding for foie gras aimed at value-added production, which farmers adopted. Visitors to the model farms expressed their willingness to be admitted as members of FAMARM association. Goose meat has the second highest level of production (15%) in the Moldovan poultry sector. Creation of the geese model farm based on a PFID-developed technical chart will facilitate exchange of experience between member farmers.

PFID/Moldova facilitated business linkages between poultry farmers by means of the fore-mentioned ISS, seminars conducted by FAMARM at the model farms, and meetings with both Moldovan poultry farmers and foreign partners. Six business linkages between five local companies, Avicola Bucuresti (of Bucharest), Babolna Agraria (of Hungary) and Big Dutchman (of Germany) were documented. These contacts involved purchases of equipment and biological material (incubation eggs, one-day chicks, hens, and broilers) valued at a total of \$400,000. The improved breeds in these purchases are characterized by high laying rate and good feed conversion resulting in the impact shown at right.

Impact - As a result of PFID-facilitated linkages, poultry farmers involved in the business linkages increased their poultry production volumes by 15%; as of December 2004, Orhideea Nani produced 150 tons of broiler meat and created 18 new jobs.

3. *WFLO Contribution*

A full description of WFLO's assistance to the Project is found in Annex C. WFLO's Plant-Based Technical Training Assistance (TTA) program selected participants with the following criteria:

- The facility must produce red meat, poultry and/or seafood products as a primary source of revenue;
- The facility must be operating at least at 70 percent normal capacity;
- The company management must be willing and able to incorporate suggestions and recommendations from TTA experts into daily working practices, provided those recommendations are of a "no-cost" or "low-cost" nature;
- The company must be willing to release any production or quality assurance records to TTA specialists in advance of program participation and be willing to allow pre-program performance measures to be collected (these would remain confidential);
- The company must be willing to allow post-program performance measures to be collected (these would remain confidential);
- The company must provide TTA specialists with adequate support during the project; and
- The company must be willing to share generalized "success stories" (including photography and video footage) with TTA specialists, understanding that appropriate components will be shared with the local industry to demonstrate the potential impact of the program.

Between June and August of 2004, applications were received from two companies in Moldova, whereas three applications were received from companies in Ukraine. WFLO staff with local partners in Ukraine and Moldova, conducted site visits and management interview for the candidates in September of 2004. One company from Moldova was selected to participate in the TTA program. This company (Carmez International) produces processed meat products for the Moldova domestic market and for export (refers to its application for the TTA, found in Annex B). However, it was determined that none of the three Ukrainian applicants were suitable for the TTA program so efforts to locate a suitable company were initiated after the mission, using information about a facility that was known to WFLO personnel. Thus the Kremenchuck facility's officials were contacted and agreed to participate.

Due to the late selection of the facility in Ukraine, it was decided that benchmarking and goal setting for both facilities would be conducted as part of the initial phase of the TTA activity in October rather than in advance of the training program. Furthermore, it was decided that the primary TTA activity in October would focus on identifying areas of improvement, and that a second specialist would be dispatched to assist the facility in making changes and to conduct training after the October visit.

In October 2004, WFLO specialists returned to Moldova to conduct the TTA program. After spending 3 days in the Moldovan facility, generating a strategy for improvements, conducting a benchmark analysis of food safety and proposing operational changes or modifications, Mr.

Smith continued on to Ukraine to work with the selected facility in that country. As a result of the TTA, it was determined that the Moldovan facility would greatly benefit from a one-week focused training and sanitation program in advance of the final program review. As such, WFLO and the participant agreed that a specialist would work to draft a company specific SSOP plan for the company, and that training efforts would commence once the company purchased some basic (yet expensive) cleaning and water heating equipment.

The TTA program in Ukraine provided a series of recommendations to the facility for time and temperature management, and it was therefore determined that interim training and education programs were not necessary in advance of the final evaluation. As such, it was agreed that the company would work to implement the recommendations over the next few months, and that the final program evaluation would review the potential impact of the program without the need for targeted training programs.

WFLO and the National Refrigeration Association (NRA) held a Cold Chain Seminar on October 8 in Chişinău for 29 people (including 7 women) including fifteen representatives of processing plants and two heads of cold chain associations. Other participants included representatives of the Moldovan Technical University and NGOs. The seminar focused on association building and process control programs for enhanced food safety, quality and efficiency. The seminar components that generated the most interest were “Duration, Processing and Efficiency” and cold chain issues outside processing plants. WFLO disseminated fifty-eight materials on the main principles and recommendations on cold chain management at the seminar.

WFLO resource materials, including sections of the Commodity Storage Manual (CSM) and a Distance Learning CD-ROM were translated into local languages. In the past, only selected components of the CSM, specifically sections dealing with meat, seafood and poultry were translated so current translation efforts focused on the remaining sections so that a completely translated manual, in Russian language, would be available for the industry. A resource directory for the Union of Associations: Ukraine Refrigeration (UAUR) was initiated, with completion expected prior to the end of the year. Local partners at World Laboratory were responsible for working with UAUR to generate the directory, and a local printer was selected to duplicate the project. WFLO’s distance learning CD-ROM was translated into Russian language for training purposes.

Translation efforts for the CSM were completed in October, and the final manual is ready for printing and duplication. The UAUR resource directory and the conversion of the distance learning CD-ROM also were completed and the manual sent for duplication.

In Moldova, the dates for the SSOP-related training were anticipated to be in late January of 2005. The Resource Directory will be disseminated among UAUR members and interested companies in Ukraine and abroad. This will help to attract new members to UAUR and facilitate establishing business-contacts.

4. Issues and Future Activities – Sustainability after the Project’s Conclusion

PFID/World Lab-facilitated associations have demonstrated their sustainability through their continued ability to advocate corporate and social interests, implement their programs and

establish their own infrastructure. These associations have now grown into viable commercial entities. They have expanded to new regions, new sectors of the economy, and new members. For example, the FFA has proven to be a sustainable entity that improves its members' productive capacity, economic efficiency and sales volume. The FFA's marketing channel was successfully tested and aquariums are in place at Sil'po and Fursket supermarkets. Therefore, as long as farmers continue to produce fish, they can continue to apply this channel. FFA, with other oblast organizations developed a Development Program for the Fish Industry in Khmelnytskyi Oblast 2004-2010. The Oblast Council approved the Program on September 15, 2004. This program includes adoption of advanced biotechnologies, compliance with market specifications and veterinary requirements, use of local feed resources and market development. As a result of FFA's success, four additional local associations were created.

ACSA has committed to replacing PFID/Moldova in conducting eight seminars next year. However, Moldovan fish farmers still are not fully convinced of scientific consultation's value to the degree that they are willing to pay for them; only free information support generates great interest. Additional seminars might change their attitude in this matter. Therefore, continued training should promote sustainability of information and scientific services through the provision of chargeable services.

Fingerling sales to fish farmers have proven to be a profitable and hence sustainable process after PFID Project's conclusion. In 2005 Ihticom's operations will result in the annual production of thirty tons of fingerlings, fifteen of which will be sold to fish farmers. Victoria/Edinet plant will also increase fish production, specifically production of pikeperch fingerlings under the auspices of the investment project developed by Free Fisheries. Fish farmers are seeking additional market channels and processing plants are willing to increase their purchases from fish farmers. For example, Ihticom is ready to increase its processing volume up to three tons in 2005 and up to two thousand tons in the medium-term future. This increased production and increased sales for fish processing show the viability and therefore sustainability of long-term contacts between fish farmers and processing plants. The model hen farm also is a commercially viable enterprise and the manager has agreed with FARMARM to continue providing a training venue. The linkages facilitated within the FARMARM framework will have final results for a complete success story in 2005. FARMARM has the human resources and ACSA has the funds to continue conducting poultry seminars after PFID's conclusion.

PFID efforts on cold chain could have had an essential contribution in Moldovan livestock processing as early as in 2005 and in 2006 Citizen's Network for Foreign Affairs (CNFA) will finance similar cold chain activities for fruits and vegetables. The CNFA-administered project also is currently the only possible funding source to continue the NRA's training activities. At this point further establishment of the cold chain in livestock product processing is contingent on further outside funding. As such sustainability is not yet achieved. This might change in the near future as PFID assisted in the development of cold chain investment projects for Free Fisheries and Ihticom.

Section III. Objective #4 – Create Technical and Educational Capacity

A. Food Safety and Quality

Dr. Kenneth McMillin of the LSU AgCenter’s Technical Team provided technical assistance to both the International Institute for Food Safety and Quality (IIFSQ) and the Moldovan Center for Food Quality and Safety (MCFQS). His trip report describing this assistance in full is provided in Annex C.

1. IIFSQ, Accomplishments and Impact

During the second half of 2004 IIFSQ continued its activities in three major areas: training, consulting, and influence on policy formulation. IIFSQ continued collaboration with specialized committees of the Parliament of Ukraine. In particular, Dr. Myroniuk, the IIFSQ’s Director and Professor Prytulska of the Kyiv National University of Trade and Economics (KNUTE) attended a meeting of the Committee on Social Policy and Labor, where a Draft Law “On General Safety” was discussed. Drs. Myroniuk and Prytulska provided recommendations on improving that draft law. IIFSQ opinion was that with approval of this law, the sector’s regulatory framework would achieve full compliance with international practice.

The IIFSQ drafted a similar regulation that, based on technical concepts of HACCP Principles, is designed to guide state policy in Food Safety Management. The IIFSQ considered acquired input for the draft’s final text from representatives of state authorities through a series of discussions at sectoral conferences. Three government agencies are currently reviewing the draft regulation: the Ministry of Health, the Ministry of AgPolicy, and the Committee for Technical Regulations and Consumer Protection. A related article “Who Shapes State Policy in the Area of Food Quality and Safety?” was written and sent to the Ukrainian Legal Review.

IIFSQ continues its regular work on information and scientific seminars and workshops in the area of food safety, expanding its geographical coverage and increasing number specialists aware of HACCP:

- On July 6-7 in Cherkasy, IIFSQ and the Cherkasy Regional Certification, Standardization and Metrology Center (CSMC) conducted a two-day seminar on development and implementation of HACCP in the alcohol industry for twenty-six participants²;
- On July 13-15 in Ternopil, IIFSQ, the Ternopil CSMC and the Assembly of Dairy Enterprises of Ukraine conducted an information seminar on HACCP implementation for dairy processors for over 40 representatives of dairy enterprises and regional regulatory bodies;
- On August 19-20 in Donetsk, IIFSQ conducted a conference entitled “Modern Requirements to Meat Safety and Quality”, featuring presentations by Dr. Kenneth

² Individual IIFSQ personnel and HACCP trainers have previous experience and knowledge in this sector. Using this knowledge, as well as information literature review of these commodities, IIFSQ supplemented the HACCP knowledge it gained at PFID-administered seminars to the specifics of beverages/drinks industry.

McMillin of the LSU AgCenter (placed at PFID web-site) for over 100 representatives of meat processors and regulators;

- On September 8 in Kyiv, IIFSQ and UkrMetrTestStandard conducted a seminar on HACCP development and implementation at branch enterprises for fifteen participants;
- On September 22 in Kyiv, IIFSQ and UkrMetrTestStandard conducted a seminar for heads of seventeen regional CSMCs on the role and prospects of regional centers in HACCP implementation – upon IIFSQ’s, Mr. Stephan Denvert, a technical specialist of the WTO-Sanitary and Phyto-Sanitary Project, gave presentation about European certification systems.

The August IIFSQ Food Safety Conference was held at the Donetsk Center for Standardization and Metrology. The Center Director’s opening of the conference received media coverage by two local television stations. Dr. McMillin’s presentations were “U.S. regulations for Quality and Safety of Meat and Poultry” and “Meat and Poultry Modified Atmosphere Packaging”, given after preliminary presentations by the Center director and Dr. Myroniuk on food safety training. The conference continued with presentations by IIFSQ staff on food safety and overview of HACCP. Dr. McMillin then presented “Problems and Solutions for HACCP Implementation.”, after which conference was concluded.

Irina Uryupina, who through PFID-MSP is a certified HACCP Trainer, consulted the fish processing company “Southern Manufactory Proliv” (Kerch city, Crimea) on HACCP implementation. As a result of these consultations, Proliv implemented a HACCP plan at one of its processing departments, which involved a redesigned processing area and improved sanitation. Proliv has developed a package of documents in anticipation its HACCP system’s approval by a third party. Consultations and training also were provided to fish processors JSC “Pleyady” (Boyarka town, Kyiv Oblast), and JSC “SOV Gavan” (Kyiv) on development of HACCP documents. They are currently in the process of implementing HACCP and plan to receive certified approval of their HACCP system in 2005.

On December 15 IIFSQ and UkrMetrTesStandard conducted the first HACCP certification procedure on behalf of JSC “Akvavit”, a seafood processor and key PFID stakeholder. Upon development of National Standard of Ukraine on Food Safety DSTU 41-61 by PFID-trained HACCP trainers it had become necessary to develop an approval or certification system³. Responding to this need, HACCP trainers drafted the “Food Safety Certification (Approval) Procedure”, which was approved by the State Committee on Technical Regulation and Consumer Protection this past August. Under this approval, the Committee appointed auditors authorized for conducting a HACCP system approval procedure. The Personnel Competency Certification Body determined that the most important qualification for an auditor was certified HACCP training given by PFID-MSP or IIFSQ. Eight IIFSQ-sponsored HACCP trainers and twenty-two Regional CSM Center staffs members who received basic HACCP certification were appointed as auditors. This represents Ukraine’s efforts in meeting international standards for a national approval or certification system. While there is no International HACCP Standard yet

³ DSTU has become the most easily and widely accessed source of information about HACCP. It is both a guide and a statutory regulation for FSQ.

(in future, ISO 22000 will play this role), countries can recognize approval decisions of each other upon special agreements.

As mentioned in the seventh SAR, Ms.Barbara Montwill of FDA and Dr. Moody of the LSU AgCenter advised Pocherk enterprise on facility registration and prior notice procedures that are currently required to export food to U.S. Following those recommendations, Pocherk fulfilled the requirements of Bio-Terrorism Act; it is registered with the FDA and submitted prior notice for a trial lot of aquarium fish feed (100 packages, 14 grams each). Currently Pocherk representatives are staying in the U.S. to conclude contracts on regular shipments. This is a very promising business for Pocherk, as the price for one ounce of fish feed is \$1.00 - \$3.50, resulting in significant profit. IIFSQ also consulted with the export/import company Back-on-Track (Uzhgorod city) and “Vinni-Fruit” juice processor on procedure of exportation of food products to the US, with regards to the new requirements of US regulations (Bio-Terrorism Act)

IIFSQ supports the study of food safety and HACCP system by future processors and regulators during their University study; it maintains close collaboration with Kyiv National University of Trade and Economics (KNUTE). In the fall of 2004, HACCP lectures were included in the following courses of KNUTE’s Chair (academic department) of Food Commodity Science and Expertise:

- Food microbiology;
- Expertise of food products;
- Legal aspects of consumer rights; and
- Sensor analysis

That October (for the third time), the IIFSQ Director participated in the state commission on graduate exams and diplomas at KNUTE’s Chair of Food Commodity Science and Expertise. On December 9-10, IIFSQ also attended KNUTE’s International Conference entitled “Trade and Science”. Later that month, IIFSQ conducted a series of lectures for graduate students of KNUTE on practical aspects related to HACCP. The goal of these lectures was to provide the students with most of the information that would be necessary for preparing master degree papers on HACCP.

As a part of cooperation with a European project: Europe Aid WTO-SPS, the IIFSQ Director attended a September workshop entitled “Presenting International Food Certification Systems” held at the Kyiv National University of Food Technologies. There, he described current and future IIFSQ activities as well as collaboration with other projects. In November IIFSQ began to collaborate with the internationally known consulting organization “Bureau Veritas”; HACCP trainers (Alexandr Averkiev, Oksana Dorofeeva) were invited to the team that provided consulting and training services to three Ukrainian food processors. IIFSQ also participated in workshops dealing with the following issues: intellectual property, HACCP for poultry and fish processing enterprises and food safety system audit training.

2. *MCFQS, Accomplishments and Impact*

The Moldovan Center for Food Quality and Safety (MCFQS) was registered with the state bodies and launched activities in HACCP training and facilitation of HACCP implementation at

Moldovan meat, poultry and seafood processing plants. With PFID assistance, MCFQS performed the following activities in 2004:

- Two seminars on basic HACCP, resulting in the certification of thirty-two specialists;
- Facilitation of HACCP plans for three plants, as well as in establishing contacts between processing plants and certifying bodies;
- Submission to the Moldovan government of a Concept Paper on National Policy regarding HACCP introduction, which is currently under consideration by the office of the First Deputy Prime Minister responsible for the industry development (no official feedback has yet been received);
- A seminar entitled “Strategies for Restructuring of State Veterinary Service”, conducted with the Food Supply Program, the European Committee to Moldova, and the Ministry of Agriculture and Food Industry; and
- Admission as an affiliate member of IIFSQ.

The MCFQS is currently the only Moldovan organization that can provide training accredited by the International HACCP Alliance and National HACCP Alliance. Ms. Barsucinaia, a HACCP trainer and an active member of MCFQS activities, was involved in development of the Law on Food Products №78-XV adopted on March 18, 2004 mandating that, beginning with January 1, 2007, all food processing plants shall operate on HACCP-based safety system.

On August 15, Dr. Kenneth McMillin, along with key PFID/Moldova staff, first discussed the future FSQ program in Moldova and the activity schedule for that week’s introductory HACCP training course. He then held a briefing on the introductory HACCP training course for the instructors, whose HACCP TTT instruction was sponsored by PFID-MSP. This briefing covered the readiness of materials, course participants, overall training objectives and addressing difficulties with groups and room logistics.

The introductory HACCP training course was conducted on August 17 and 18. Dr. McMillin presented an overview of food safety and regulations. Each of the HACCP trainers presented various parts of the HACCP training curriculum, including Moldovan standards, the seven HACCP principles, HACCP plan preparation, and (physical, chemical and micro-biological) hazards. Course materials included instructions for workgroups, forms for group exercises (product description, ingredients, flow diagram, hazards, hazard analysis, HACCP plan, and evaluation sheet), PFID program description, guidebook for preparation of HACCP plans, and a meat and poultry product hazards and control guidebook.

Eighteen people, including seven women participated in the seminar. These included: eight representatives of processing plants, five representatives of regulatory agencies and other public institutions, and five representatives of NGOs. The representatives of the plants plan to implement the HACCP system at their plants. For example, three people from Carmez International became members of HACCP team and implement HACCP at their plants. NGO representatives plan to assist in HACCP system implementation and representatives of regulating bodies may more effectively control and perform their mandated duties. The seminar participants were certified by the International HACCP Alliance.

MCFQS-assisted HACCP plans were developed for the following:

- A HACCP plan for Cabanos Nord was developed for two categories of products: boiled sausages (4 products) and summer sausages (10 products) – one specialist of the plant was certified at the August 2004 seminar;
- A HACCP plan for Avicola Shaver, a plant involved in poultry slaughtering and cutting, was designed for 9 products of boiler meat.
- A HACCP plan for Ihticom was developed for three freshwater fish meat products – four employees were HACCP certified by PFID and MCFQS from 2002 to 2004.

Free Fisheries also completed HACCP implementation at its plant (shown at right). The plant's HACCP system was audited and certified by "ProEra Grup", an Austrian company. The resulting impact also is shown at right.



Figure 4 - Free Fisheries HACCP-compliant operations

The HACCP plan for Carmez International

was revised due to the launch of two new products. Under the WFLO-conducted TTA program it was found that the plant fails to meet labor separation requirement. PFID Project also established contacts with the Moldovan branch office of a German Company called TUV Quality and with International Technical Organization "Bureau Veritas". The two companies are ready to audit and certify implemented HACCP systems upon applications resulting in recognition of Moldovan food safety systems in international markets. Given Bureau Veritas' reputation as an international leader in the certification of quality and safety systems (580 offices in 150 countries), it was suggested that Carmez International conclude a contract on HACCP system certification with this entity.

Impact - As a result of HACCP system certification, the firm gained new access to foreign markets, particularly Romania and Russia. During the first six months of 2004, Free Fisheries' sales volume of processed fish increased by \$ 452,783. i.e. 51.8%, in comparison to 2003. This is primarily due to increased market access to Romania and Russia as a result of their documented HACCP-based safety plan of operations.

Lastly, three representatives of Cabanos Nord, Carmez International and Vulagroplus, - recommended by PFID – were selected for the US Department of Agriculture (USDA) Cochran Program to gain practical experience on HACCP implementation at meat and poultry processing plants.

3. *Issues and Future Activities – Sustainability after the Project's Conclusion*

Given the upcoming end of the Project's Phase I, the IIFSQ's activities emphasized sustainability and shaping plans for the extended three years under Phase II. As mentioned in the previous

SAR Dr. Myroniuk (IIFSQ) and Prof. Prutyńska (KNUTE) attended the Better Process Control School (BPCS) at LSU in Baton Rouge and completed the course entitled “Canned Foods: Principles of Thermal Process Control, Acidification and Container Closure Evaluation”. Upon agreement with FDA and Institute of Food Technologies (USA) it was decided to conduct BPCS in Kyiv in May-June of 2005. This will be one of the milestones of the Phase II activities for 2005-2008.

To continue to be sustainable, IIFSQ should adequately respond to challenges and needs of food industry. That is why it is necessary to expand the area of its activity by including:

- New commodity types;
- Audit training and implementation;
- Bio-security and risk assessment; and
- Expansion to countries in the region with similar problems.

After MCFQS-assisted renovation Cabanos Nord will be ready for HACCP system certification, while Carmez International will complete certification of HACCP system in 2005. Avicola Tochile's HACCP plan was developed but the plant is not yet ready for certification because it needs to reequip based on SSOP and HACCP requirements.

The Ministry of Agriculture and Food Industry asked PFID/Moldova for assistance in conducting HACCP informational seminars for specialists of the ministry and food processing plants. However, due to restructuring of the Ministry of Agriculture and Food Industry and staff reduction, the issue was postponed. It is planned that MCFQS will conduct the seminars in 2005.

Initially, MCFQS planned to train thirty people but only eighteen people secured the necessary training fees. In spite of this, MCFQS will continue to charge for HACCP seminars, and for technical assistance in HACCP systems planning and implementation. PFID is confident that recent government policy will increase the demand for such services. Furthermore, affiliation with IIFSQ will increase MCFQS's prestige and its potential for future activities.

B. Case Studies - Post Harvest Technology

1. Moldova, Accomplishments and Impact

PFID/Moldova conducted a number of activities related to value added Post Harvest Technology (PHT) including such commodities as goose meat, which has the second largest production level in the Moldova poultry sector. However, the industry does not significantly process this meat so farmers often have to sell live geese in the open markets. To increase market opportunities for this product, PFID established linkages between poultry farmers and processing industry. As a result of such linkages, Avicola Banesti slaughtered 100 head of geese with a total live weight of 417 kg. Two hundred and fifty-eight kilograms of eviscerated meat were given to Anina Agrofirma, which cut the goose meat into eight kinds of semi-finished products. These were further processed into two kinds of canned products for a total of 350, 525-gram tins: goose meat in its own juice (200 tins) and goose pate (150 tins).

The palatability test of canned goose meat products was held in compliance with instructions by the Department of Standardization and Metrology. Five experts who participated rated the products on the following criteria: appearance, consistency, color, taste, flavor, transparency, and dressing quality. Given a five-point scale, the products were rated from 4.1 to 4.7 for goose meat in its own juice and from 4.0 to 5.0 for goose pate. PFID/Moldova outside specialists performed an economic feasibility analysis of goose meat deep processing. The findings were that deep processing would increase profitability of the goose sector by 28-30 percent. Another advantage of goose processing is both farmers and processors receive goose fluff and feathers, which are in high demand for clothing manufacture.

The 2003 trial processing case study of spent hens (egg laying hens that are no longer productive) demonstrated potential profits that encouraged additional plants to participate in the process. In 2004, PFID/Moldova monitored the processing of spent hens at a commercial level in Moldova. As documented in the previous SAR, poultry farmers were able to dispose of spent hens in a single lot instead of waiting up to a month before they could sell the hens on the open market. This greater speed of disposal enabled the farmers to save on feed expense and other costs. In 2004 four poultry plants were able to quickly sell 69,300 spent hens for processing increasing their profit by 437,932 lei due to savings in disposal costs (this was documented in the 7th SAR). The findings of this activity's total profitability were incomplete because they did not include the sales of the canned product. Three of the firms (Tirnovu, Rasarea argintic and Vadul lui Voda) supplied meat to Basarabia Nord. While the hen meat was processed, Basarabia Nord did not provide sales data to PFID/Moldova. As a result of this refusal by Basarabia Nord, full profitability of this activity only can be determined for the spent hens provided by one of the four companies, as shown at right.

Impact - "Rosso SL JSC" supplied 26,800 spent hens or 28,100 kg of meat for processing (in which each slaughtered hen weighed approximately 1.05 kg). From this meat, 86,400 cans were produced. Moldovan plants used to supply canned meat in the former Soviet Union, with the armed forces being a significant customer. "Rosso SL" succeeded in regaining this market by supplying a consignment of canned spent hen meat products to Kazakhstan, resulting in sales valued at \$100,759 (an average of \$1.17 per can). Rosso SL's profit was \$10,973 from the sales or 136,065 lei at the current exchange rate (for a unit profit of 12.7¢ per can).

The total increase in profitability due to the processing of the Rosso spent hens is as follows:

$224,900 + 136,065 = 360,965$ lei –
where 224,900 lei is due to the disposal savings from supplying the spent hens for processing (as documented in the previous SAR) and 136,065 lei was profit from can sales.

As recommended by PFID/Moldova, Ihticom's 2004-year activities were focused on development of their own raw-material supply with PFID's technical assistance. Ihticom confirmed that the share of on-site supply in its total processing volume increased to 35.16 percent, specifically thirty-four tons. This current share of on-site production compares to the 22.47 percent share of supplies from large fish plants and 42.2 percent from individual farmers. The plant's own raw material allowed for more uniform operations during the summer period, as well as a lower dependence of expensive imported marine fish. As recommended by PFID/Moldova, Vesnicia plant also decided to process freshwater fish, the volume of which

totaled 82.9 percent of the plant's total processing volume (in 2003 processing volume of freshwater fish was 66.7%). Farmers supplied 31% of the freshwater fish supply.

Ihticom's processing volume (illustrated in Figure 5) increased by 58.8 tons, while the sales volume totaled 1,625,000 lei (\$131,048), a 14.17% increase over 2003, with the product's value being increased by an estimated 40.5% as a result of the processing. Vesnicia increased its processing volume of freshwater fish to 29 tons, with a sales volume of 565,100 lei (\$45,569). This is an increase of 93.3% over 2003, with the added value over raw material being the same as at Ihticom.

2. *Issues and Future Activities – Sustainability after the Project's Conclusion*

The efficiency of goose meat processing was verified through an economic analysis. Processors received a profit even at this small scale of production. As such, most participants in this case study are interested in continuing on a commercial level.



Figure 5 – Value-added processing of Freshwater Fish at Ihticom

Furthermore, the results (including economic feasibility and contact information of plants that have the appropriate equipment) were placed on the ISS web page. This will promote the activity throughout the sector.

As a result of PFID/Moldova's interventions in the linkage between aquaculture and freshwater fish processing, at least two other fish processing plants will develop their own on-site supply. This activity's profitability (due to the local products competitiveness relative to imported marine fish) will ensure its sustainability. However progress in this area will be limited without significant investment (this issue was discussed with the Project Economist).

Section IV. Objective #5 – Fostering Business Partnerships

A. Moldova, Accomplishments

Under this activity, several policy initiatives were undertaken to improve the policy framework for joint venture formation in Moldova, particularly through the PFID-initiated Industry Task Force (ITF). The primary output from these initiatives was the October passage of Law №350-XY to amend the following two statutes, as advocated by the ITF:

- Article Nr 49 "Fiscal benefits to investors" of the Fiscal Codex №1163 –XIII – under this amendment, enterprises with a minimum capitalization of \$250,000 are exempted from 50% income tax for a 5-year period (this benefit that was previously granted only to investments that exceed \$1,000,000 now benefits small and middle-sized enterprises);
- Article 28 of the Law on Customs Duties № 1380 – XIII – under this amendment, equipment of more than 1,000 lei per item imported as fixed assets are considered as

being investment and exempted from custom duties, enabling small and middle-sized enterprises to save five percent of the imported assets price.

Ernst & Young, an ITF member, developed proposals to the Law on Leasing that were submitted by the ITF (the Ministry of the Economy approved the majority of the proposals developed by the ITF). Under this proposal, the financial leasing period will be more than seventy-five percent of fixed assets' service life resulting in significant savings for plants. Draft amendments to the law are under government's consideration.

The Industry Task Force discussed the PFID/Moldova-developed "Cost of Doing Business" analysis. Based on this review, the ITF developed a number of proposals on time and cost reduction by the economic agents, including those with foreign capital. For example, a proposal on improving the business registration procedure was developed. The proposals will be submitted to the Ministry of the Economy's consideration in the near future.

The adopted amendments to the Law on Fiscal and Customs Duties Benefits will save at least 50% of the foreign-capital small and medium-sized enterprises' profit within five calendar years (50% being the rate of the tax benefit), thus increasing funds that can be allocated in reinvestments or into work capital. This makes enterprises more competitive and improves Moldova's investment climate.

PFID/Moldova and the ITF developed a register of meat, poultry and fish processing enterprises and submitted it to three organizations that facilitate business partnerships formation. These organizations now have information about the enterprises of the meat, poultry and fish processing industries that are most attractive to foreign investment. As a result, the Moldovan Department for Attracting Investments (MEPO) contacted one enterprise in the register, called "ROMA", with the proposal to develop an investment project and include it with the list of projects within the framework of the Investment Project, while BISNIS informed the enterprises on the current proposals from the US companies in terms of equipment supplies.

On October 20 PFID/Moldova conducted a seminar on the development of investment projects for thirty-three participants, namely industry representatives. At the seminar, the participants were provided with the following information:

- The importance of business plans for the enterprises' strategic development – such plans should include financing for improving current operations and initializing new ones; and
- Business plan development for attracting investment.

PFID further assisted in business plan development through an agreement with the Dutch Organization "PROSON" (Productiecentrum Sonneneerd). This agreement pertained to the development of several business plans aimed for potential partners to form a JV and create new jobs for physically disabled people. The Dutch government may give grants to Moldovan plants for their operational development should their authorized capital contain at least 25% of Dutch funds. PROSON Holland initiated the search for a Dutch partner and recommended to the Moldovan Society for the Blind that it develop an investment project for JV formation.

PFID/Moldova's activity leader is assisting the Moldovan Society for the Blind in the development of two investment projects:

- For JV formation in packaging for meat and poultry processing (as well as other) industries; and
- For joint production of sausages clips as an alternative to those currently imported from Germany.

PFID/Moldova facilitated and monitored other negotiations between stakeholder enterprises and potential partners. "Avicola Nord", a poultry production plant, signed a protocol of intentions pertaining to JV formation with the Dutch company GK Holding. PFID/Moldova contributes to the assessment of the plant's commercial operations and financial status. Based on this assessment, the decision on investments will be taken. The European Bank for Development (EBDR) and Reconstruction plans to make investments into ORHEI-VIT aimed new products, including canned meat for baby food. At present PFID and CAMIB participate in assessing the plant's financial status and commercial activities. Based on this analysis EBDR will decide whether an investment is justified. Should EBDR decide to invest in "ORHEI-VIT", the first production of canned meat for baby food will be undertaken in Moldova, providing an alternative to imports.

Some Dutch representatives attended the PFID-organized seminar and, as a follow-up, PFID/Moldova and FAMARM facilitated an exchange of visits between the Dutch representatives and selected Moldovan poultry plants. The Dutch Partner decided to seek a local partner with PFID assistance. As a result of these efforts, "Anina" plant signed a protocol on intention pertaining to JV formation with the Dutch company "GK Holding – Center" for production of one-day hybrid chicks. The anticipated investments will be 900,000 euros. The project will involve three Dutch enterprises that will supply equipment, breeding stock and feed supplements.

This partnership will result in the local production of one-day hybrid chicks. At present the republic annually imports some two million one-day chicks from Hungary with the average price of \$1 or 12.5 lei. The price of locally produced one-day chicks will be seven lei, leading to unit savings of 5.5 lei and total savings of eleven million lei. This partnership also will create at least 25 additional jobs and an anticipated annual sales volume of fourteen million lei.

B. Issues and Future Activities – Sustainability after the Project's Conclusion

At present, members of the Industry Task Force are working on a strategy for small and medium-sized business development aimed at facilitation of foreign investments in the sector. The Industry Task Force will be continued after PFID's conclusion because its members are representatives of organizations that perform sustainable activities to attract investment. Its membership may vary, attracting new members from organizations involved in investment attraction. This includes CAMIB itself, which is committed to the future coordination of the ITF's activities. In addition, organizations that foster investments in the republic will continue to be able to use the information provided in the register.

PFID/Moldova also anticipates that participating enterprises will apply knowledge acquired in the field of business planning and MEPO will continue to apply the Models on facilitating of foreign investments attraction.

Section V. General Management Issues

A. Program Design, Accomplishments

The LSU AgCenter and its partner institutions submitted a proposal for a PFID Associate Award (AA) that was accepted by the Regional Center for Southern Africa of USAID (USAID/RCSA). As a result, PFID-MSP received an additional \$2.7 million for the promotion of processing in South Africa, Zambia, Namibia, Moçambique and Malawi. For better implementation, the project will be conducted under a two-tiered approach with South Africa and Zambia in Tier I; and Namibia, Moçambique and Malawi in Tier II.

The LSU AgCenter assembled a partnership of university and private sector collaborators. With the proven cold chain and association expertise of the WFLO, the LSU AgCenter has partnered with the Schaffer Associates International Ltd., a U.S. private sector partner with wide experience in Africa in project financing and investment. These partners complement the LSU AgCenter's research, education and outreach capability in food science, agribusiness and agricultural marketing. National partner institutions contracted to manage PFID-MSP's day-to-day operations in their respective countries will form a university-NGO consortium that will serve as a centralized resource for the region's food industry.

Under this AA PFID-MSP Project will assist small, micro and medium enterprises (SMMEs) to promote quality products to private sector buyers. PFID-MSP anticipates establishing the centralized resource for linking small-holders and SMMEs with buyers so that these suppliers can meet buyer requirements in terms of price, quality and safety. The LSU AgCenter/PFID program is also expected to interface with government agencies to develop appropriate infrastructure and regulatory requirements. Finally the cold chains in the target countries will be assessed, recommendations made for improvement, and assistance provided to producers and processors to make investments in cold chain infrastructure.

The PFID-MSP Project will conduct two major groups of activities:

- Activity Group I, Technology/Safety/Quality/Regulatory Activities – Including food safety, quality and security compliance, value-added technologies, plant-based technical assistance, cold chain improvement and information support/outreach.
- Activity Group II, Business/Market Activities – Including association development as a way to promote group marketing, producer-processor-market linkages and investment support.

B. Other Accomplishments

To initiate the activities funded in the Region under both the USAID/EGAT-provided core funding (mentioned in the previous SAR) and the USAID/RCSA-funded AA, LSU AgCenter staff traveled to six countries in the Southern African region: South Africa, Namibia, Botswana, Zambia, Malawi and Moçambique.

Staff members first gave an orientation to Stellenbosch University in South Africa to help it meet its responsibilities as PFID's partner in that country⁴. The orientation included guidance on the proposed subcontracts (primarily for the(Phase II) core extension), programmatic emphases, project management, and future program design possibilities. Staff then explored further programming possibilities by interviewing potential collaborators in the Cape area, Pretoria and Bloemfontein. They received various information including additional contacts and programmatic possibilities, many of which reflected USAID/RCSA's interest in market linkages for small-scale producers. FSQ, Post Harvest Technology and Association Development were other PFID program areas that generated significant interest. As with other Missions, USAID/South Africa, showed interest in PFID but would not yet commit funds to leverage the current awards.

The travel in the five additional countries in the region included visits to USAID Missions, potential host country partners and industry representatives. As a result of these interviews, Project staff developed a list of recommendations pertaining to project activities, operational setup and programming possibilities.

PFID-MSP's Project Coordinator (PC) traveled to Nicaragua, primarily to establish the PFID-MSP project (under the USAID/EGAT-provided core funding, Phase II) in that country. Specifically, his duties during that trip included the following:

After interviewing the two Nicaragua candidate institutions that submitted an application, the PC recommended that the Cooperative League, USA (CLUSA) Nicaragua be selected as the Host Country Partner Institution. His recommendation was approved and he conducted an organizational orientation at CLUSA's offices.

He also established food industry contacts for the Project to conduct its assessments and subsequent work items. Such contacts included both potential stakeholders and collaborating organizations. One of the key questions for each contact regarded was as follows, "In which of the three following PFID-MSP activities would you most likely want to participate":

- Food Safety Quality and Bio-Security Compliance;
- Post Harvest Technology (PHT) for Alternative Products; and
- PHT, Cold Chain.

Section VI. Lessons Learned/Models Developed

As a result of PFID-MSP's experience and accomplishments over the past four years, the staff members have developed a number of programmatic concepts relating to the food industry and described in this section. The project would recommend the replication of these models to similar projects as well as their expansion across the Ukrainian and Moldovan food industries.

⁴ Since then the Zambian Agri-business Technical Assistance Centre (ZATAC) and the University of Namibia have been selected as host-country partner institutions for their respective countries as well as the Universidade de Eduardo Mondlane for Moçambique.

A. Food Safety and Quality

The IIFSQ facilitated food industry development through consumer protection, expansion of export opportunities, improved reputations resulting in greater investment opportunities for food processing enterprises and harmonization of the regulatory framework with international requirements.

The results of four years of PFID activities in Ukraine demonstrate applicability and sustainability of IIFSQ's model of addressing key food safety issues in other countries. The following items support this contention:

- 1) Due to IIFSQ contribution, Ukraine's food industry appreciates primary importance of food safety, which is evidenced through:
 - a) Harmonization of national legislation to international requirements; and
 - b) Development of National Concept dedicated to this issue.
- 2) Confirmed advantages of HACCP implementation for food processors, as it was demonstrated, for example, by Akvavit surimi processor:
 - a) Higher profits;
 - b) Increased employment opportunities; and
 - c) Increased market access.
- 3) IIFSQ features:
 - a) High demand for IIFSQ services – IIFSQ receives at average 5 phone calls weekly from enterprises with requests for consultations on HACCP implementation;
 - b) Qualifications for training;
 - c) Availability of training materials and well-established contacts with authorizing organizations (HACCP Alliances, FDA, etc) – the last example is a recent Letter of Recognition from National HACCP Alliance by which it officially recognizes translation of three Seafood HACCP and SCP manuals made by PFID;
 - d) Cost-sharing with stakeholders, e.g., training courses participants cover course registration and pay certificate fees (\$100 for course registration and \$30 per certificate).

As correspondence with other food safety projects shows, IIFSQ's staff currently has the highest competency and expertise of HACCP in the country. Nevertheless, IIFSQ still realizes the need to constantly improve its knowledge to keep its leading position.

The Moldovan food industry needs expanded MCFQS activities to include the milk, fruits, vegetables, and wine sectors. MCFQS began to provide fee-for-service training, but the low attendance of the first two chargeable seminars showed that the majority of food industries do not appreciate the importance of training for their specialists to the degree that they are willing to invest their capital. PFID/Moldova believes that Law # 78-XV will persuade food industry representatives of the need for such investment. It should be admitted that within the first year of

its activities, MCFQS could only fully perform its activities with PFID Project support (MCFQS used PFID-rented facilities). Therefore, to ensure its continued operations, MCFQS requires additional funding sources (PFID is currently exploring such sources). To date, two applications have been developed for various projects. The International Research & Exchanges Board denied the first application and CAMIB is currently bidding with COWI (a Danish consulting company) for a framework contract on Agricultural Development and Food safety.

The main problem PFID/MCFQS faced in HACCP implementation was with regard to prerequisite programs, specifically SSOPs and international sanitary requirements. For example, while Avicola Tochile and Avicola Shaver developed HACCP plans, obsolete equipment prevented the implementation of those plans' in order to achieve sanitary compliance. Such equipment requires investment. Furthermore, there are no specialists in Moldova currently trained in SSOP's development, as well as those of GMPs and other prerequisite programs.

B. Economic Empowerment of Stakeholders

1. Marketing Interventions

In PFID Ukraine's livestock efforts, despite the national trend of decreasing livestock sales, sales volumes have increased at Charodiy, achieving a return on investment. This shows the viability of selling livestock at a wholesale market as well as its value in bringing a significant part of regional livestock trade into the legitimate economy. PFID-MSP components of this activity that warrant replication include information and training related to market mechanisms and policy reform.

Business contacts between Moldovan fish farmers and fish production plants have required PFID and Propiscicola's intervention because most fish production plants consider fish farmers to be their competitors. PFID and Propiscicola have persuaded those plants that fish farmers have great potential as customers for fingerlings – the plants' main sale items. While Piscicola Gura Bicului is still the Moldovan leader in fingerling production and the main supplier for Propiscicola members at least three other plants have begun to explore this market.

2. Association Development

Association development is another mechanism that PFID-MSP used for economic empowerment. PFID/World Lab experience shows that for development and enhancement of associations, special attention should be paid for the following issues:

- Expansion of financial capacity of associations;
- Continuous expansion of services;
- Provision of training for association management and members; and
- An association development process based on concrete experience and on-going recruitment.

The model hen farm has significantly increase Moldovan interest in the development of poultry farming due to increased poultry production, profits and jobs. Taken the price for feed, energy and the price of eggs sold in Moldova as of December 2004, the average return per employee is

some \$2,000 (which will typically include base salary, income tax and social funds), while the average salary of a Moldovan is some \$100 per month.

3. Value Added Post-Harvest Technology

In Moldova, increased production of freshwater fish led to increased processing volume of freshwater fish and the number of farmers sell pond fish for processing - 2.5 times as many in 2004 as in 2003. PFID/Moldova's experience leads staff to conclude that there is room for both plants to increase their own raw material sources as well as purchase a higher volume from fish farmers. Development of plants' own raw material supply also makes those plants operations more uniform. Still, the development of fish processing industry in Moldova is not yet complete. The freshwater fish volume is 1.18% of the total fish processing volume in the republic of 11,063 tons. The potential of commercial canning and cold chain in the fish industry is not yet complete either.

Also in Moldova, the trial processing of goose meat further demonstrates the advantages of involving both poultry farmers and processors in linkages within the value chain. Such linkages increase production and employment opportunities in both participants.

4. Fostering Business Partnerships

In Moldova, the Industry Task Force promotes networking between organizations that facilitate investments in the republic (MEPO, Ministry of Economy, The Chamber of Commerce and Trade, etc). Priority activities include coordinating efforts to improve the investment climate and attract foreign investment.

Using the knowledge provided by PFID/Moldova, stakeholder plants should use a more effective approach to business planning and development. Such an approach will include risk management. This will improve economic efficiency of the enterprises and to make them more attractive for investments, as well as improve their ability to submit proposals to potential investors.

To achieve such efficiency and attractiveness, PFID/Moldova advocates the following procedure (as recommended in the November Investment Forum):

- a) A potential Moldovan partner should develop a business plan focusing on a clearly outlined initiative that requires investments;
- b) A foreign partner is identified to whom the business plan is to be submitted – at this stage, various organizations that foster investor matches may assist the plant;
- c) The foreign potential partner analyzes the business plan and assesses the Moldovan plant's current status (financial, technical, staff competence, etc.);
- d) Meetings and negotiations on JV formation are held between potential partners; and
- e) The JV is registered, should the partner be satisfied with the results of the mentioned above activities.

C. Information Support

In both Ukraine and Moldova the PFID ISS has facilitated partner-customer networks in the poultry industry. PFID/World lab has observed that enterprises added to its web-site have started to receive offers and requests for raw material, equipment, feeds, vitamins, veterinary drugs, etc., resulting in significant saving of time, effort and money as well as increased sales.

PFID/Moldova's analysis has shown that the most frequently visited pages contain enterprise contact information; the popularity of this type of data motivates World Lab continuously expand and update such information. This has led to a steadily increasing interest in the ISS.

PFID/Moldova's ISS model is the first of its kind in the Moldovan food industry. The ISS materials dissemination through the Internet and collaboration with ACSA allowed PFID/Moldova to increase its ISS clientele, thus increasing PFID Project impact on the food industry. The ISS's sustainable operation benefits CAMIB's and ACSA in that it enhances their capacities to provide information to their clients in the area of production and processing (for meat, poultry and fish), HACCP introduction, cold chain issues and business partnerships.

PFID/Moldova's experience, based on more than 33 regional seminars from 2002 to 2004 has shown the need to conduct seminars on a wide range operational problems facing fish farmers, such as licensing for pond rent, fish production technologies, fish diseases, wintering, etc. Seminars on such aspects generate interest to other aspects. As a result, training has been shown to progress from general issues to more specific cases. The need for adoption of the principles promoted at the WFLO seminars has also led the NRA to focus on capacity building for its members. There is a strong need in the seminars on cold chain for vegetables and fruits – an activity that will likely be conducted through a CNFA-administered project.

PFID/Moldova assisted in creation of the model farm, which operates as a viable commercial concern as well as a training venue. This will help FAMARM to more fully perform its functions in developing its members' capabilities.