

**ENVIRONMENTAL ASSESSMENT**

**UkrAgrosystems Custom Farming & Agribusiness Training Center  
In a Joint Venture with Agro Sula**

**Lokhvystja, Poltava Oblast**

**UKRAINE**

**Under the Auspices of**

**Citizens Network for Foreign Affairs, Kiev, Ukraine**

**and the**

**United States Agency for International Development**

**Cooperative Agreement No. 121-0006-A-00-6238-00**

**Agribusiness Partnerships II Project**

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**2 September, 1998**

**USAID REGULATION 22 CFR 216.2**

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## **(1) SUMMARY**

The objective of this Environmental Assessment is to bring UkrAgroSystems' Custom Farming Agribusiness Training Center in Lohvytsia, Poltava Oblast, Ukraine, into compliance with the current and planned environmental regulations of Ukraine and pertinent regulations of the United States Agency for International Development, 22 CFR Regulation 216.2. This assessment is based on the Initial Environmental Evaluation, various CNFA/USAID reports and memorandums, inspection trips and on local authorities inspection reports.

The project is primarily a Custom Farming and Leased Land Farming Demonstration and Training operation using selected superior varieties in minimum tillage cultivation. Increasing certified seeds on leased lands will provide increased production of quality seeds in the region. Pesticides, primarily herbicides, are used in these practices.

### **1.1 Status of Environmental Assessment Process**

The Initial Environmental Evaluation for this project was written on May 5, 1998. The project had a positive determination for disposal of fuels, engine transmission and gear case oils, other waste products, the renovation of buildings and the spraying of pesticides. This Environmental Assessment (EA) examines and describes those mitigations necessary for best management practices for fuels, oils and waste products from farm machinery and training in the safe and rational use of pesticides and fertilizers. The EA also determines compliance with USAID criteria in this subject.

**The following mitigation package (1.2) begins with a discussion of general requirements in which it is strongly recommend that UkrAgroSystems comply with the basic management need for environmental protection.** Sections 6.1 and 6.2 reflect certain specific questions of USAID about the project, especially towards pesticide management and monitoring. Section 7 also contains specific mitigation requirements.

### **1.2 Recommendations and Mitigations**

The following mitigation measures are recommended for the Custom Farming and Agribusiness Training Center:

- 1) the elaboration of measures to mitigate noise from the farm machinery;
- 2) an adequate and visible emergency preparedness plan including a worker safety plan;
- 3) all permits must be in compliance with Ukrainian laws;
- 4) an adequate plan for correct disposal of waste products, i.e. oils from machinery and used pesticide and fertilizer containers;
- 5) an adequate waste water plan and sewerage; and

6) a safe and rational training plan for use with agrochemicals in the demonstration plots.

The pesticide toxicity analysis for the UkrAgroSystems project is included in the EA.

Reduction of the hazards can be brought about by careful and professional emphasis in AgroSula's training programs to assure that pesticides are managed in a safe and rational manner, including integrated pest management. This mitigation is discussed in the following section in detail. In addition, UkrAgroSystems has the primary responsibility to assure environmental safety for pesticide and agrochemical use. UkrAgro and AgroSula must work with its pesticide and fertilizer applicator contractors to guarantee proper management of the farmland, especially dosages, times of applications, worker safety and disposal. Fire control procedures must be followed as described in Section 7.4. Water monitoring at key locations near the fields is mandatory on an annual basis.

The following list of mitigations is a reiteration of AID requirements for UkrAgroSystems lease lands. UkrAgroSystems must provide applicators, operators and distributors with safety information.

- A) UkrAgroSystems must follow the USAID guidelines for chemical warehouse management as listed in Tables 1 and 2.

**Table 1: USAID Recommendations for Pesticide Storage**

1. Be located in an area far away from dwellings and surface water and not subject to flooding or shallow water tables.
2. Be shaded if possible to help regulate temperature in the warehouse.
3. Be fenced, locked, and posted with warning signs.
4. Be built of nonflammable materials.
5. Have floors of smooth concrete or other impervious material, so that pesticides will not be absorbed
6. Be well ventilated, to avoid buildup of heat and fumes.
7. Be surrounded by containment structures (ditches, berms, etc.) to prevent spills from flowing off-site.
8. Be well lit.
9. Have posted spill management instructions, spill containment and safety supplies (e.g., shovels, sand, brooms, hoses, fire extinguishers), and a water source for spill decontamination.
10. Use a first in, first out procedure is followed.
11. Store individual chemicals separately, and on wooden pallets.
12. Maintain aisles so that all chemicals are accessible.
13. Prohibit the storage or consumption of food, tobacco, or drinking water in the warehouse.
14. Make a supply of soap and water for washing available in the warehouse.

Source: USAID 1991

**Table 2: USAID Recommendations for Pesticide Application**

1. The label should be written in the local language.
2. The applicator should follow the directions on the label, including the use of protective clothing and respirator.
3. Never leave pesticides unattended in an unsecured place.
4. Never transfer pesticides to containers other than those designed to hold that pesticide.
5. Never work alone with pesticides.
6. Inspect containers for leaks before moving.
7. Keep food, drink, tobacco, and eating utensils away from the work area.
8. Never eat, drink, smoke, or rub your eyes when handling pesticides.
9. Always have soap and plenty of water available at the work site.
10. Thoroughly wash protective clothing after handling pesticides, separate from other clothing.
11. Dispose of any heavily contaminated clothing.
12. Workers should immediately stop work and wash if pesticide spills on them.
13. Keep unauthorized persons, especially children, away from pesticides.

Source: USAID 1991

Fertilizers must not be stored with pesticides in the same warehouse compartment.

- B)** Seed Sources: Apparent inconsistencies in seed sources and consequently convert varieties and quality can lead to crop and marketing failures. CNFA policy group may be able to create a dialogue with UkrAgroSystems to prevent such mishaps.
- C)** Where village labor is used, they must receive correct training in the safe use and management of pesticides.
- D)** There must be guaranties that leased lands will not be degraded by UkrAgroSystem activities. The source of fertilizers must be determined. Any batches of fertilizers from Belarus must be tested for total radiation, and if radioactive above standards, other sources must be located.

## **(2) PURPOSE**

The purpose of this project is to provide Poltava Oblast with quality custom farming services through an agribusiness training center, training Ukrainian farm teams and personnel on the latest techniques for higher yields combined with environmentally sound grain and other crop protection practices.

### **(3) DESCRIPTION OF THE PROJECT**

UkrAgroSystems, L.L.C. is a limited liability company organized under the laws of the District of Columbia, USA. JSC AgroSula is a Ukrainian joint stock company and a subsidiary of UkrAgroSystems. UkrAgro has invested over \$3.8 million in development of the organization, business plan, equipment, and support facilities. It has set up offices in Washington, D.C., Kyiv, and Lokhvytsja, Poltava Oblast.

The investment company UkrAgroSystems, L.L.C. and its Ukrainian subsidiary JSC AgroSula will provide farms in Poltava Oblast with custom farming services and materials. These services and supplies will enable farmers in the area to farm their land, which lately they have been unable to do because of their chronic indebtedness. By leasing unused land, AgroSula will provide an income for the farms and their villager-shareholders.

The agricultural tillage and harvesting operations of AgroSula will be expanded by the AP-2 development contract into extension and training. The extension will show the benefits of improved agricultural operations on a large area as opposed to a trial plot scale. An agricultural and agribusiness training facility will be set up in Lokhvytsja village to provide technical training of 75-100 agronomists, machinery repairers and operators, and others in the agricultural and farm management sector over the life of the project. Outstanding students of the agricultural training center will be trained as trainers in the USA. Eventually, if experience warrants and resources are available, the company hopes to develop the training facility into a residential training and conference complex for on-going training beyond the life of the project.

The core business will produce higher yields of crops than are possible under current agricultural conditions in Ukraine, expand the total acreage being farmed by providing the materials and supplies (fertilizers, seeds, pesticides and machinery) to cultivate land that is currently fallow, provide a practical demonstration of what can be achieved by using modern technology, introduce new crops and improved varieties and provide income to landowners who currently receive nothing.

The AP-2 development activities will train agriculturalists in modern production technology and business management techniques which will enable them to continue to operate a sustainable agricultural and agro-industrial economy in the Poltava region.

### **3.1 Project Design and Feasibility**

One of the most important aspects of UkrAgroSystems business will be to bring fallow agricultural land back into production. The company will train regional farmers in the

techniques it will employ, as well as provide exposure to the most modern agricultural materials and the results that can be achieved through proper farm management. When the benefits of the new technology and inputs are felt by local farmers, it is hoped that this will stimulate an increase in demand for AgroSula's services and training, and for the seed, crop protection products and machinery that AgroSula will make available to them. In this way, AgroSula will develop two sources of revenue from the provision of customer services and the sale of agricultural supplies.

### **3.2 Current Situation**

At present, AgroSula has a staff of 40 that includes a small administration unit based in the Ukraine Hotel in Lohvytsja. They would like to add a vegetable specialist and a farm machinery specialist in the near future.

AGCO Corporation is working in conjunction with AgroSula to train farm machinery technicians. AgroSula is working towards registration as an AGCO service agent working in cooperation with ECOPROD, the AGCO dealership in Donetsk which has only 6 service staff to cover a large area. Because previous training programs have not included diagnostic training, there is a serious deficiency of technicians for diagnosing service problems.

Individual Collective Agricultural Enterprise (CAE) shareholders have chosen to lease their land to AgroSula rather than let the Collective Agricultural Enterprise (CAE) farm it on their behalf. AgroSula has a 10 year lease of 1,050 hectares (ha). An additional 750 ha are being leased for three years with the understanding that it can be returned to the title holders at the end of any one of the three years. The contract drafted assures the conservation of the land by saying in Section (2) 2.1: The Lessee (AgroSula) bears responsibility for preserving the found condition of the Object at Lease (rented land), except for cases when in compliance with current legislation (it is) the Lessor's obligation to preserve the Object of Lease, as well as national calamities and/or third parties actions (English translation).

Within a 40 km radius of Lohvytsja, AgroSula is carrying out custom farming consisting mainly of corn and sunflower. Barley was planned, but due to the wet spring, no small grains are being planted. In the autumn of 1997, approximately 10,000 ha of crops were harvested and 4,000 ha were plowed by AgroSula.

The staff is receiving job training with the agronomist from the CAE being trained as a supervisor. One machinery technician has been sent to England to receive training on AGCO equipment. AgroSula and AGCO are initiating an aptitude test to select suitable trainees. The best of these trainees will be sent to the US to receive more extensive training to utilize them as trainers. The University of Minnesota and Louisiana State University have been contacted for this training.

Audio Visual aids are being used in training, especially videotapes of practical operations. Ridge till cultivation of row crops will be introduced as a soil conservation technique. A

small area of land will be ridge tilled as a demonstration in 1999 and, if successful, will be extended in later years. Fifty per cent of the land will be ridge tilled with the balance sown to wheat using a mixture of conventional and minimum tillage. Other soil conservation techniques being utilized are one pass cultivation/drilling and contour plowing. There are areas where terracing or tile drainage may be appropriate, but as so much land is available, it is not yet economically viable. Corn and soybean will be alternated as ridge or row crops. The less desirable rotation of corn and sunflower may be grown with winter wheat as part of the rotation in the future if the corn and soybean are not suitable.

Advanced planning of operations is another area in which training is being provided. It is possible to obtain sufficient materials and supplies of reasonable quality if operations are planned in advance. Some problems that have been encountered due to lack of planning and foresight are:

1. the local Ryagrochym does not understand the importance of timely application of farm chemicals, nor is there an adequate supply when needed; the Ryagrochym insists on taking holidays that fall during peak work periods;
2. the local distributors of imported machinery deliver on their own time rather than meeting the customers schedules; planters ordered and paid for have been held in dealer stock for three months were just being prepared for use;
3. seed purchased from a Ukrainian JV company was delivered in bags printed with the Pioneer trademark, but the labels were from the competing Novartis company; the seed is probably neither the type nor grade specified. This is in direct opposition of international law. Samples will be sent for independent testing in Austria before forwarding formal complaints to both Pioneer and Novartis. The supplier, the Ukrainian JV company has been informed.

### **3.3 Environmental Considerations**

#### **3.3.1 Fertilizers, Pesticides, and Fuels**

At present no pesticides are being stored on site. They are being delivered directly from the supplier's warehouse to the field. Whenever possible, growth accelerator pesticides are being used rather than phyto-toxins and application rates are kept low. Typically the application rates are 50 grams per ha. Fertilizers are being supplied and applied by a contractor and AgroSula does not handle them in any way.

Fuels are being supplied by a local fuel distributor who is re-fueling machines in the fields twice per day, so no fuel is stored on the farms. However, care must be taken not to spill fuels in the fields. Lubricants are stored in 40 gallon barrels in the machinery building where the

spare parts are stored.

All staff who are handling hazardous substances are supplied with Tyvek coveralls, gloves of the appropriate specification and respirators fitted with particulate and vapor filters. The fuel distributor, who is not an Agro Sula employee, is also appropriately outfitted. Field staff were observed using respirators when handling dressed seeds.

The crop sprayer operators receive 2 days of instruction from Michael Cooper who is the Agricultural Business Advisor for UkrAgroSystems. These instructions are based on US legal requirements with the effects of pesticide application being covered, including synergistic effects. For example 10 lbs. of ammonium nitrate fertilizer is being mixed with Roundup when applied to corn. Village labor will be used for growing and processing of a trial crop of vegetables on 20 ha. The first crop could be onions, however spring conditions have not been very good.

### **3.3.2 Soil Type**

The soils on the farm are non glaciated forest soils with a Cation Exchange Capacity (CEC) rating of 17-25. A good Indiana soil has a CEC rating from 28-32. Although the soil on the AgroSula farm has nutrients in the form of oxides and sulfates, neither form is available to the plants. Potassium is non-existent as a free element and the accessibility of nitrogen depends on the availability of water. Trace elements of zinc and molybdenum will be applied by AgroSula. They will also monitor progress by plant tissue analysis and mid season soil testing. Chlorophyll meters will also be used.

Much of the land has been lying fallow for up to 10 years. There are 30,000 ha available for farming. However, a large portion of the land is infested with *Agropyron repens* (couch grass or quack grass). An eradication program is needed but cannot be carried out effectively until autumn.

### **3.3.3 Machinery Base**

Space is rented in a factory yard in Lokhvytsja for machinery storage and a workshop. Being stored are three MF 38 combine harvesters, two MTZ 80 wheel tractors, one Amazone row crop seeder, one MF/Hesston 128 conventional baler, one MF/Hesston round baler and a Spra-Coupe self-propelled crop sprayer. In addition, there are stocks of spare parts including wheels and tires for all machines, filters, belts and chains. There is also a good supply of plow parts.

In the fields were one MF 9240 tractor with disc harrows, one MF 9240 with an 8 meter Lemken cultivator, one MF 8160 with a 7 furrow Dowdeswell reversible plow, and two MTZ-80 with an Accord 8 row vacuum planters.

In the 8 days of operations in the spring of 1998, AgroSula fertilized 800 ha, plowed 1000 ha and cultivated and planted 140 ha in 2 days with one planter. The second planter arrived in the field during our visit and a third was in the process of being prepared.

Mechanical breakdowns occurred due to:

- 1) operator error (25%); e.g. tires were damaged by turning the tractors too tightly and tire valves were being torn off through incorrect starting;
- 2) lack of operator knowledge (25%); e.g. not knowing what action to take when a warning lamp lights;
- 3) normal mechanical and electrical failures (the remaining 50%). Downtime has been caused by lack of communications between farm staff and suppliers and the lack of trained dealer staff in Ukraine.

### **3.4 A Short Background of AgroSula's Contractor**

Lokhvytsja Silgospchimia was established as an Open Joint Stock Company in 1996 and has been cooperating with HydroAgriUkraine (HAU) since March, 1998. HAU has purchased 64% of the voting shares of the company. Silgospchimia has 85 employees, but many are on leave of absence without pay.

This Open Joint Stock Company (OJSC) enterprise has been involved in supplying both fertilizers and agrochemicals to farms and providing services to them by delivering and applying fertilizers for cash and agricultural products in a barter system. Silgospchimia supplies kolhozes and CAEs against the State Contract thru AgroChimCenter. The OJSC enterprise receives, stores and distributes HAU's fertilizers on a commission basis. In 1990 there were 80,000 ha of arable land in Lokhvitsa Rayon. There are now 72,000 ha of arable land. 35,000-38,000 tons of mineral fertilizers were distributed and 500,000 tons of organic fertilizer were applied annually in the early 1990's.

The OJSC enterprise has been providing \$200,000-400,000 of credit each year (including \$100,000 of herbicides). They provided nearly \$350,000 of credit in 1998 (through May), but they failed to sell any agrochemicals this year. The farm credit outstanding amounted to \$750,000.

Lokhvytsja Silgospchimia works directly with 12 private farmers, each buying 2-3 tons of fertilizers, and all 23 CAEs in Lokhvytsja Rayon and some Kyiv Oblast farms. The OJSC enterprise also supplied fertilizers and provided farming custom services to AgroSula (a subsidiary body of UkrAgroSystem), which is also located in Lokhvytsja. Silgospchimia also applied fertilizers on 1,700 ha for AgroSula. This area includes the sum of multiple applications for many fields.

Table 3 shows the volume of fertilizer sales of the Silgospchimia in 1998 (through April of 1998).

**Table 3: Fertilizer Sales in Tons**

Fertilizer Sales in tons				
	Superphosphate	Ammonium nitrate	Potassium magnesium sulfate	Mixed-compound (N-P-K-Mg rate is 6-28-12-5)
Total	800	637	500	226
To AgroSula (HAU's)	500	400	500	-

Lokhvytsja Silgospchimia has an office just outside Lokhvytsja. It is comprised of an administrative building with soil analysis laboratory, a fleet of machinery, a repair workshop and fueling station on the 4.5 ha site. The mechanized fleet is comprised of 38 units, including 29 tractors and 3 fertilizer applicators with a capacity up to 200 ha/day each.

The warehouse facility is located 20 km from the office on a 1.5 ha area and consists of:

- 1) a 1,600 m<sup>2</sup> warehouse with 4 separate compartments for bagged fertilizers and pesticides; the warehouse has brick walls and a long rail spur running on one side of the building and is now holding 250 tons of ammonium nitrate;
- 2) a 1,080 m<sup>2</sup> storage area capable of storing 500 tons for storage of bulk fertilizers with an asbestos roof and walls; it now contains 68 tons of potassium magnesium sulfate fertilizers; and,
- 3) 8 tanks of 400 tons each for liquid fertilizers, however only 3 tanks are in good condition.

#### **(4) ALTERNATIVES INCLUDING THE PROPOSED ACTIONS**

With its temperate climate and rich soils, Ukraine has the potential to produce substantial yields of high quality crops. The agricultural sector is probably the greatest resource of the country. However, unsustainable techniques and intractable fiscal policies have left the whole economy, particularly agriculture, in a deep depression. Over the past five years, agricultural production levels have declined to the point where wheat production is 33% lower than its peak. Sugar beet has declined by 76% and soy beans by 89% from their former levels.

Since independence, links between farmers and farm machinery suppliers have been

disrupted by the economic situation. This has caused a severe shortage of machinery and spare parts. In 1996, Ukraine had an inventory of 86,000 harvesters and 440,000 tractors. However, the number of actual functioning machines is much lower. Under normal conditions, between six and eight thousand combines and 60-65,000 tractors would be replaced each year, but, because of the economic situation, replacements are running at less than 10% of that level. It is estimated that 75%, or 330,000, of all the tractors in Ukraine need to be replaced at this time. Most farms are unable to afford either new or used equipment or even to buy fuel to operate the machines which they currently own.

Many farms cannot afford the supplies and materials required to cultivate all of their arable land, even though the harvest from this land could repay the cost of those inputs. Few supplier companies are willing to extend credit to these farms, many of whom are not creditworthy. Debt restructuring is not a common practice.

Few companies that offer agricultural services are available to farm the land and give landowners an income. Declining quantities of reduced quality seed, fertilizers and pesticides and deteriorating machinery stocks have depressed production yields and have made many farms insolvent. The state grain orders and state owned and controlled elevator systems have taken excessive amounts of the produced crops without fair remuneration. Although many such farms are due to be privatized, or have been nominally privatized, they are unattractive to investors because of their indebtedness, and are unable to support the rural community which, as a result, is rapidly disintegrating.

The present production methods, which are commonly practiced in Ukrainian agriculture, were developed under former regimes that ignored the cost of fertilizers, pesticides and seeds. These methods are inefficient, ineffective and wasteful when compared with those practiced in other parts of the world.

Because of this, merely providing supplies of machinery and supplies to farms will not fully address the problems of declining production. There is no base of skilled staff in the industry who are familiar with modern crop production techniques. Training in all aspects of agriculture, from basic cultivation through crop selection, management and storage, is essential to revive the viability of agriculture.

Restoring Ukrainian farms to production is critical to halt the decay of the rural economy and to utilize the enormous productive capacity of the rich Ukrainian chernozem soils. Because of the sector's economic decline, the agricultural infrastructure has collapsed. Arable farm land has been abandoned to weeds and pests, machinery has been neither maintained nor replaced, agricultural development and research activities have halted and agricultural workers have left the land. As a direct result of the lack of quality feedstuffs, the livestock sector has also declined at a catastrophic rate necessitating the import of meat and other livestock products. This directly affects the financial and political stability of the country.

UkrAgroSystems and JSC AgroSula plan to attack these problems by offering a range of custom farming agricultural services, training, supplies and equipment (with possible financing), and to introduce a contemporary business management culture.

To return the land to production and generate income for the farm, JSC AgroSula will concentrate on providing custom farming services, cultivating some or all of their clients land in return for a percentage of the harvest or for a negotiated fee. JSC AgroSula will supply agricultural supplies of seeds, fertilizers, pesticides, fuels, lubricants and equipment. Initially, sales of these supplies and equipment will be made to those able to pay cash or the equivalent. As JSC AgroSula gains confidence from its clients and is able to obtain financing from suppliers and finance enterprises, it will offer credit to established customers.

JSC AgroSula will offer its clients a package of materials and supplies designed to obtain high productivity. They will introduce low-till and no-till farming techniques aimed at lowering farm operating costs, generating more income and enabling clients to repay existing debts while buying more products in the future. To help farms obtain maximum benefit from these inputs, JSC AgroSula intends to offer a training program dealing with low till and no till practices for effective crop production. This training program will accelerate both JSC AgroSula's and the client farms' business by enabling them to generate greater margins earlier.

**A no action alternative for this project would hinder the opportunity of rescuing agriculture from its present state of collapse. The promotion and adoption of more effective and environmentally sound use of agricultural chemicals, fuels and lubricants, the training of farm customers and introduction of no-till and low-till farming techniques in custom and lease farming operations in Ukraine as activated by the UkrAgro project is a preferred alternative.**

## **(5) AFFECTED ENVIRONMENT**

### **5.1 Project Location and Geography**

UkrAgroSystems operates in Ukraine through JSC AgroSula in Lokhvytsia, Poltava Oblast which is about 225 km due east of Kyiv. Agro Sula is carrying out custom farming within a 24 km radius from Lokhvytsja (near the Lusenki village).

Poltava Oblast is located in Central Ukraine and was formed as an administrative-economic territorial unit on September 22, 1937. Unemployment is very high, perhaps more than 30%. The region is crossed by 89 rivers with a total length of 5,453 km. with the Dnipro being the main waterway. All the rivers, including the longest ones, the Voksla, Sula, Psyol, Oril, belong to the Dnipro basin and are its eastern tributaries. In the south and south-west, the oblast is washed by waters of the Kremenchuk and Dnieprodzerzhinsk reservoirs with many artificial water bodies and lakes. Their total area encompasses twenty-one thousand ha. Railway lines and a developed network of motor roads cross the oblast.

The city of Poltava is the regional center with a population of 323,600 people. The largest cities of secondary importance are: Kremenchuk-247,700, Lubny-60,800, Komsomolsk-58,400 and Myrhorod-47,700 people. The total population of Poltava Oblast is 1,762,800 people.

The economy of the Oblast is diversified in industry and agriculture. The Oblast's share of the state industrial products is 3.6%, and 5.1% in agricultural products. Industry is the leading force in the economic structure of: fuel and food industry 18.6%, machine building and metal working 15.2 %, black metallurgy 11.4%. Mining, oil and gas are intensively developed.

For the last five years the economy has been reorganized on the basis of property reformation. Today there are 397 collective farms are in operation in the agricultural sector.

The agricultural lands comprise a total 2,180,700 hectares, with 90% of the area being composed of chernozem soils. The yields of agricultural products in the Oblast in 1997 (in thousands tons) were: grains, 1659; sugar beets, 1425; sun flower seeds, 117.5; potatoes, 158.5; vegetables, 24.7; and fruits, 115.7. Cattle breeding is also a traditional agricultural in Poltava Oblast.

### **5.1.1 Physical Environment**

Agriculturally, Poltava Oblast has great potential. Extensive plantings of wheat, sugar beets, corn, sunflowers and soybeans cover vast acreage. The Oblast is distributed in the forest-steppe-zone. Forests cover 7.4% of its territory. Soils are mainly medium humus chernozems. Agricultural lands in Poltava are concentrated in Priazovsko-Prychernomorskiy and on the Crimean high steppes. Some Rayons have Center pivot irrigation.

The Oblast is geographically flat. Natural landscapes are classified as agricultural lands, flood plains, pine and wide deciduous-pine forests, meadow-marshlands, various pools, ponds, small lakes, higher elevation forests, timber landscapes with both deep fertile chernozems and infertile podsolich soils. Around the villages are extensive individual gardens, where many varieties of fruits and vegetables are cultivated.

The climate is temperate, ranging from about 47-49 degrees latitude and about 36 degrees longitude east. The winter is medium in length with mean winter temperatures between 4 and 6 degrees Centigrade, with lows of -34. High temperatures during the summer can reach 37-38 degrees Centigrade. Precipitation ranges between 350 ml and 675 ml. annually. Soil types are relatively uniform, being almost all chernozem types.

### **5.1.2 Biological Environment**

Agriculture has almost completely replaced native vegetation. Habitat removal and hunting have almost eradicated the native plants and animals except for domestic species and

some common vertebrates. Of particular interest botanically in Poltava is a complex mix of wild flowers, forbs, herbs and grasses. A profusion of remnant species exist from the past glacial age. There are also some remnants of the Middle European pine and wide deciduous pine forests. Habitat fragmentation and destruction by agriculture has caused a large number of rare and endangered species to be present in the Poltava area (see Appendix E).

In cities and their immediate surroundings, the following fauna species are common: wild cats and dogs, turtle doves, black rats, white storks, blue-grey colored doves, pigeons, Syrian woodpeckers, house martins, little house owls, black thrush, blackbirds, chaffinch (*Athene noctua*) and others. Near weirs, dams, and mill ponds are musk rats, beaver, otter, European and American mink, white tailed eagles, chicken hawks (hen harrier) and marsh harrier, plus different species of hawks and several kinds of herons, (great, small, white, red and others) gray geese, fox, water hens (coots), stint magpie, sand pipers, small striped woodpeckers, titmouse, whiskered calidris, marsh turtles, green lizards, multicolored lizards, water-snake, ordinary adder (viper), steppe viper, two kinds of tritons, grass toads and others.

In ravines and the forests of the steppe one can find spotted deer, foxes, hawks, pheasants, big eared owl, small striped woodpecker, magpie, rook, green lizard, grass-snake. On agricultural lands dwell field mice, grey hamsters, steppe cranes, larks, and partridge.

## **(6) SPECIAL CONCERNS of USAID**

### **6.1 Pesticides**

This section is presented in an abbreviated form because USAID funds were not used for the procurement of the pesticides listed in this report. However, USAID has requested that this section be included in the EA. AgroSula lists five pesticides used on their site and are listed in Table 4. All of the pesticides listed in Table 3 subsequently have passed through that country's testing and registration process.

### **6.2 Monitoring and Evaluation**

Regulation 216 of 22CFR requires that monitoring be completed on those projects where a significant negative environmental impact is foreseen (216.3)(a)(8). Following extensive dialogue with USAID, the following monitoring plan is to be followed by UkraAgro.

#### **Frequency of mitigation efforts or potential impacts.**

**Response:** UkraAgro is required to report quarterly to CNFA as to the state of the progress in attaining all mitigations listed in section 1.2 and 7 of this Environmental Assessment. Once mitigations are in place, no further mention of that particular mitigation is required unless new unforeseen events occur. At the end of the project, UkraAgro will certify in writing that mitigations were

completed, and a full justification for failure to mitigate will be forwarded to CNFA and USAID where mitigations were not completed..

**Who is responsible for doing specific kinds of monitoring.**

**Response:** The contracting parties of Ukragro are responsible for monitoring. CNFA Environmental Office will review progress including periodic visits to the sites of project activities. CNFA will track progress and report quarterly to USAID.

**Source of monitoring information. and contribution to a regional, national or other monitoring effort.**

**Response:** Sources of monitoring will come from official government passport licenses, UkraAgro staff observations, and periodic site visits by CNFA personnel. In the case of water monitoring, CNFA will arrange for this process. No regional, national or other monitoring effort exists in Ukraine. CNFA is willing to share monitoring information with interested parties with permission from UkrAgro. Some information is public domain such as rare and endangered species lists which are planned to be distributed to Oblast officials by the end of the AP-2 project.

**Table 4: Technical Specifications of Pesticides for UkrAgroSystems LLC Custom Farming and Agribusiness Training Center**

Product Name	EPA Registration	EPA Toxicity Category				Personal Protective	Environmental Indicators				
		Oral	Inhalation	Dermal	Eye		Equipment & Handling	Fish LC50	Bird LD50	Leaching	Absorption
Roundup (herbicide)	Conditional Use	III			II	II	230 mg/l		XS/e	L/e	
Dual (herbicide)		III	IV	III	IV	II	T	PNT	S	L	EPA lists as possible human carcinogen
Titus (herbicide)		IV	III				>2000 mg/kg rainbow trout	>390 mallard ducks			No eye and skin irritation
Fastac (Insecticide)	Not registered in the US	II		III		II	T	LH			
Buctril (herbicide)	Restricted Use	III		III			HT	HT	M		Suspected teratogen. Inh-bits nitrifying bacteria.
Santurion											
Zellek (herbicide)		II-III rats		do not cause skin	mild eye irrita		1.8 mg/l for rainbow	>2,150 mg/kg mallard			Haloxfop forms are non-irritating to skin and do not cause skin

				sensitization	nts		trout	ducks			sensitization.
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- |  |  |
|--|--|
| <p>1. Toxicity Rankings:</p> <p>I. Danger e.g., oral LD50 &lt;50 mg/kg protection, protective eyewear</p> <p>II. Warning e.g., oral LD50 - 500 mg/kg protection, protective eyewear</p> <p>III. Caution e.g., oral LD50 500-5000 mg/kg gloves</p> <p>IV. Caution e.g., oral LD50 &gt;5000 mg/kg gloves</p> | <p>2. Personal Protective Equipment and Clothing</p> <p>I. Coveralls, long-sleeved shirt, chemical resistant footwear, gloves, respiratory</p> <p>II. Coveralls, long-sleeved shirt, chemical resistant footwear, gloves, respiratory</p> <p>III. Long-sleeve shirt and long pants, socks and shoes, chemical resistant</p> <p>IV. Long-sleeve shirt and long pants, socks and shoes, chemical resistant</p> |
| <p>3. VHT Very Highly Toxic    ST Slightly Toxic</p> <p>HT Highly Toxic            PNT Practically Non-Toxic</p> <p>T Toxic                      MT Moderately Toxic</p>   | <p>4. L Large            E Reasonable Estimate from Range of Values</p> <p>M Medium</p> <p>S Small    EX Extra Small</p>   |

**How the results will be used and with whom will results be shared, either for information purposes or because action needs to be taken;**

**Response:** With monitoring information available, CNFA will advise UkraAgro on those means to achieve environmental protection. USAID will also be advised in quarterly reports as to progress.

- **How environmental monitoring is to be incorporated into the overall Agri- business partner monitoring plan.**

**Response:** The original contract between UkrAgro and CNFA included 22CFR regulation 216. Therefore, the monitoring is already incorporated.

## (7) ENVIRONMENTAL CONSEQUENCES

### 7.1 Agrochemical Impacts

USAID's policies on pesticides provide a framework from which to assess the status of agricultural chemical management in Ukraine. USAID's pesticide policies are summarized in the following excerpt from *AID Policy Paper: Environment and Natural Resources (1988)*:

“ Also essential to environmentally sound and sustainable agriculture is the proper application, storage, and disposal of agricultural chemicals. A.I.D. policy is to support more natural pest control efforts through integrated pest management efforts to: a) reduce the use of chemical pesticides to the fullest extent practicable; b) use only those pesticides which are safest to the environment and people; c) discourage general requests for pesticides, and assure that pesticides are used with natural control programs; d) develop infrastructures in developing countries for all aspects of proper pest and pesticide management, including regulation of manufacturing, labeling, distribution, work and public exposure levels, application, storage, and disposal; e) communicate U.S. policies and experience on pest control and pesticide problems to other nations and international organization; and f) promote the use of supplementary or alternative methods of vector control which are not dependent on the use of toxic chemicals.”

Other pathways for agrochemical entry into ecosystems have been described in the earlier EA on the GAME/Sumy Oblast of AP-II projecst, and will not be repeated here.

### 7.2 Public Health and Safety

Public safety and health are of vital importance about the possible contamination of the ground water due to spillage of chemicals. The correct use of pesticides is a top priority. Pesticide materials cannot be allowed to contaminate the ground nor surface water. Empty containers must not be re-used. These should be covered under the Emergency Preparedness Plan (see Section 7.11 Pesticides for more information concerning this matter).

### **7.3 Fertilizer Use**

Fertilizers are being supplied and applied by a contractor so Agro Sula is not handling them at all. UkrAgro still is responsible for the current application on its leased land. Some problems have already been encountered: the local Ryagrochym does not understand the importance of timely application nor is there an adequate supply when needed, and the Ryagrochym insists on taking holidays which fall during peak work periods. Therefore, UkrAgro and AgroSula must resolve these problems to avoid environmental degradation.

Fertilizers that are used at the site consist of:

- 1) Ammonium nitrate
- 2) Single phosphate
- 3) Sulphate of magnesium

### **7.4 Fuel Use and Fire Control**

Fuels are being supplied by a local fuel distributor who is re-fueling machines in the fields twice per day, so no fuel is stored on the farms. However, care should be taken not to contaminate the field by spillage. Lubricants are stored in 40 gallon barrels that are in the machinery base with the spare parts stock.

Overall, the organization of the system of prevention measures in Ukraine is as follows:

1. every business, industry, factory, etc. must have a specific fire precautions plan based on state regulations that includes the quantity and quality of substances that may cause fires; also included should be a plan of action in case of fire, evacuations, the appropriate number and location of pertinent fire extinguishers, etc. and all employees must have access to this plan;
2. every factory, industry, etc. must appoint one employee (usually an engineer of safety measures) who is in charge of fire-prevention measures; at the same time, every facility must appoint one person in charge of fire precautions;
3. every employee must be trained and instructed before he begins work in the use of the rules for fire prevention and how to take appropriate action in order to extinguish fires; every employee is obliged to pass the exam on fire prevention measures at the facility on a yearly

basis; and

4. state inspectors regularly visit the facility, checking the implementation of fire-prevention measures.

### **7.5 Quality and Quantity of Air Emissions**

Air emissions arise from the transfer of chemicals from storage tanks to sprayers and fuel tanks on vehicles, during operation of motors on various vehicles and farm machinery, evaporation from spills, should they occur, dust produced from tilling the earth during cultivation and during travel on rural dirt roads. Most emissions from vehicles occur early in the morning during start up, testing and warm up of engines. These emissions are not abnormal and should not cause significant negative impacts.

### **7.6 Quality and Quantity of Solid Wastes and Potential Impacts from their Disposal**

Most of the solid wastes are from crop input packaging from seeds or chemicals. The selection of technologies to be employed in the project are not expected to generate significant wastes. However, it is important that the containers not be re-used as this could be a source of pollution in the form of poisonings if they were used for water or other consumable substances.

### **7.7 Potential Noise Levels From the Facility**

Noise emissions are similar to air emissions at the farm service center, and are not abnormal for this industrial zone. Driving slowly on the entry road will reduce noise.

### **7.8 Effects on Aesthetics and Visual Quality**

The small administration unit of Agro Sula Service Center is based at the hotel in Lokhvytsja. Machinery is located in a light industrial area next to a railroad, and is next to the road surrounded by trees and a fence that affords visual screening. No visual degradation will occur. Extra traffic on the roads from farm machinery and trucks can be considered a visual sign of a recovering economy and considered to be a welcome sight.

### **7.9 Ability of Local Community or Government to Provide Emergency Response Services**

Agro Sula is carrying out custom farming within 24 km from Lokhvytsja. The town of

Lokhvytsja, Poltava Oblast is well equipped for emergencies with ambulances, hospitals and fire departments. JSC AgroSula has 5 vehicles, one in each field, and in case of emergency, can provide quick transportation to Lokhvytsja hospital, which is 20-30 min from the field area. Lusenki village does not have a hospital but has a water pump in case of fire. The village fire department is staffed with volunteer fire personnel.

#### **7.10 Identification of Potential Contaminant Migration Pathways of Possible Environmental Releases and Potential Receptors**

This item was fully described in the GAME AP-I EA.

#### **7.11 Pesticides**

Table 4 in Section 6.1 describes some of the toxicity variables for the pesticides used in the UkrAgroSystems spray regime. The technical information given in the appendices for the pesticides used in the project sufficiently describe potential contaminant migration pathways. The relative low doses of pesticides used would tend to ameliorate negative effects. As with fertilizers, fuels and lubricants, UkrAgro must accept liability for the use of pesticides on leased lands.

#### **7.12 Impact of the Service Center on Water and Power Supplies**

The UkrAgroSystems project would have no foreseeable impact on power supplies. However the impact on water supplies is significantly positive, since thousands of hectares devoted to no till or minimum tillage agriculture will save millions of tons of topsoil which would otherwise be washed into the already overburdened water system, as well as conserving substantial amounts of soil water, thus increasing crop growth. Periodic water monitoring at key locations for pesticides on the leased land is mandatory.

#### **(8) LIST OF PREPARERS**

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## **(10) APPENDICES**

- A. Initial Environmental Evaluation
- B. Photo Album of the Sites
- C. Site Locations Map
- D. USAID Regulations for Pesticide Use
- E. Endangered Species List