GEF

Global Environment Facility

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Washington, DC 20433 USA
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July 27, 2006

Dear Council Member:

We are writing to notify you that World Bank, the Implementing Agency for the project entitled, ***Ukraine: Methyl Bromide Phase-Out Project***, has submitted the proposed project document for CEO endorsement prior to final approval of the project in accordance with World Bank procedures.

Over the next four weeks, the Secretariat will be reviewing the project document to ascertain that it is consistent with the proposal included in the work program approved by the Council in April 2005, and with GEF policies and procedures. The Secretariat will also ascertain whether the proposed level of GEF financing is appropriate in light of the project's objectives.

If by August 24, 2006, we have not received requests from at least four Council Members to have the proposed project reviewed at a Council meeting because in the Member's view the project is not consistent with the Instrument or GEF policies and procedures, we will complete the Secretariat's assessment with a view to endorsing the proposed project document.

We have today posted the proposed project document on the GEF website at www.theGEF.org. If you do not have access to the Web, you may request the local field office of UNDP or the World Bank to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,

P. A. Bliss-Guest

Patricia Bliss-Guest
Deputy Chief Executive Officer

Cc: Alternates, Implementing Agencies, STAP

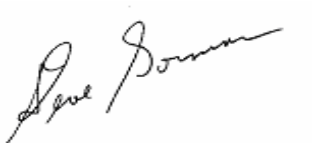
THE WORLD BANK/IFC/M.I.G.A.

OFFICE MEMORANDUM

DATE: July 12, 2006

TO: Ms. Monique Barbut, CEO, GEF

FROM: Steve Gorman, GEF Executive Coordinator



EXTENSION: 35865

SUBJECT: **Ukraine: Methyl Bromide Phase Out Project (Formally Called Methyl Bromide Production Phase-Out Project)**
Re-Submission for Final CEO Endorsement

1. Please find attached the electronic file of the GEF Project Document for the above-mentioned project that was revised to address GEFSEC comments on the versions submitted for your endorsement on May 31 and June 6, 2006. GEFSEC comments (in italics) have been addressed as follows:

   i) *The GEF grant size increase of 8% is technically justified but requires circulation to the GEF Council prior to GEF CEO endorsement.* The increase in the GEF grant amount from US$4.7 million (approved by Council) to US$5.1 million reflects the increase in the total project cost due to updated cost estimates and the inclusion of technical assistance for policy and institutional strengthening as determined at project appraisal (Section B.4, Annex 5). We are kindly requesting that the Project Document be circulated to Council for no-objection.

   ii) *Revised data on MBr consumption submitted to the Ozone Secretariat* The Project Document provides confirmation that Ukraine has re-submitted revised historical Methyl Bromide production, consumption, import and export data to the Montreal Protocol Secretariat.

   iii) *Confirmation of co-financing*. Co-financing has been confirmed and made legally binding within the negotiated legal agreements.

   iv) *STAP comments to be taken into account during project appraisal*. The government has been unable to agree to permanent dismantling of the currently derelict MBr production facility, a decision that reflects the political difficulty in being seen to publicly closing an industrial facility or discouraging industrial development through Ukraine's recent period of political uncertainty. However, the subject facility has been confirmed as inoperable and no other initiatives to develop this capacity are being pursued. Legally binding monitoring procedures of the current facility and prospective sites has been incorporated into the project and

linked to disbursement under the project in the grant legal agreements.
As undertaken in response to the recommendation of the STAP reviewer, flexibility in implementation arrangements has been incorporated in the project through the CGP to insure private sector and industry association participation in administration and supervision of the grain sector component. The STAP reviewer's suggestion of ensuring access to pilot sub-projects by others for purposes of replication is addressed by provision for dissemination of results and direct access will be provided for in sub-grant agreements under the CGP. The STAP reviewer's request to include certain technologies (recirculation and heat based techniques) has been passed on to counterparts at appraisal and the CGP supported by international TA allows flexibility for their selection by beneficiaries on a sub-project specific basis.

v) *Council comments to be taken into account during project appraisal*.
Comments from the United States were in support of the project. The US Council member raised a question related to the quality of Ukraine's reporting. This is explicitly addressed in the current revision of these reports and through the technical assistance provided under the project. The Swiss Council member review recommended the project for work program inclusion. The review concluded that while the compensation of an enterprise for permanent closure of an idle plant may be questioned in general as a policy, it is justified for this particular project based on the precedents set with other production phase-out initiative elsewhere. This issue of precedents for the CTC production closure component was also addressed within the response to GEFSEC comments at Work Program inclusion. It should be emphasized that the compensation involved is "performance based compensation" where an agreed payment is made at defined and verified milestone delivery points in the physical process of permanently closing the CTC production capacity. It is not related in any way specifically to loss of profit or lost salary.

2. Please let me know if you require any additional information to complete the review of the proposed document prior to circulation to Council. We look forward to hearing from the Secretariat as soon as possible, whether this document can now be circulated to Council for their review and receiving your endorsement of the project for Bank Board approval.

   Many thanks.

Attachments

cc: Messrs./Mmes. GEF PROGRAM COORDINATION (GEFSEC); Blarel, Tsirkunov (ECSSD); Battaglini (GEF RC); Tynan, Khanna, Wedderburn, Monier-Illouz (ENV); ENVGC ISC, Regional Files

Document of
The World Bank

Report No: 36342

PROJECT DOCUMENT

ON A

PROPOSED GRANT FROM THE
GLOBAL ENVIRONMENT FACILITY TRUST FUND

IN THE AMOUNT OF USD 5.1 MILLION

TO UKRAINE

FOR A

METHYL BROMIDE PHASE-OUT PROJECT

July 12, 2006

CURRENCY EQUIVALENTS

(Exchange Rate Effective June 5, 2006)

Currency Unit	=	Hrivnya
5.03 Hrivnya	=	US$1
US$	=	SDR 1.49

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

ACFSP	Agricultural Competitiveness and Food Safety Project
CAS	Country Assistance Strategy
CIS	Commonwealth of Independent States
CEIT	Countries with Economies in Transition
CGP	Competitive Grant Program
CQS	Selection Based on Consultant's Qualifications
CTC	Carbon Tetrachloride
EIA(OVOS)	Environmental Impact Assessment under Ukrainian Legislation
EMP	Environmental Management Plan
EU	European Union
FMR	Financial Management Report
GEF	Global Environmental Facility
GOU	Government of Ukraine
HCB	Hexachlorobenzene
IBRD	International Bank for Reconstruction and Development
ICB	International Competitive Bidding
ICC	Interagency Coordination Commission on Implementation of Montreal Protocol Regarding Ozone Depleting Substances
IPM	Integrated Pest Management
LCS	Least Cost Selection
LIB	Limited International Bidding
LLC	Limited Liability Company
MinAgrPol	Ministry of Agricultural Policy of Ukraine
MBr	Methyl Bromide
MDG	Millennium Development Goals
MOEP	Ministry of Environmental Protection of Ukraine
MP	Montreal Protocol
MPMF	Montreal Protocol Multi-Lateral Fund
MT	Metric Ton
M&E	Monitoring and Evaluation
NIP	National Implementation Plan under the Stockholm Convention
ODP	Ozone Depleting Potential
ODS	Ozone Depleting Substances
OORG	Ozone Operations Resource Group
PIST	Project Implementation Support Team

PMP	Pest Management Plan
POPs	Persistent Organic Pollutants
QCBS	Quality and Cost-Based Selection
QPS	Quarantine Pre-Shipment
SA	Special Account
SBD	Standard Bidding Documents
SEI	State Ecological Inspectorate
SOE	Statement of Expenditure
STAP	Scientific and Technical Advisory Panel
TA	Technical Assistance
UNEP	United Nations Environmental Program
UNDP	United Nations Development Program

Vice President:	Shigeo Katsu
Country Director:	Paul Bermingham
Sector Director:	Maninder Gill
Task Team Leader:	Vladimir Tsirkunov

UKRAINE
METHYL BROMIDE PHASE-OUT

CONTENTS

UKRAINE

UKRAINE METHYL BROMIDE PHASE-OUT

PROJECT APPRAISAL DOCUMENT

EUROPE AND CENTRAL ASIA

ECSSD

Date: July ___, 2006 Country Director: Paul Bermingham Sector Manager/Director: Benoit Blarel/ Maninder Gill Project ID: P085138 Focal Area: Ozone Lending Instrument: GEF Grant	Team Leader: Vladimir V. Tsirkunov Sectors: General industry and trade sector (30%); Agro-industry (30%); Petrochemicals and fertilizers (30%); Central government administration (10%) Themes: Environmental policies and institutions (P); Pollution management and environmental health (P); Regulation and competition policy (S); Rural/Agricultural Development (S) Environmental screening category: Partial Assessment Safeguard screening category: Limited Impact

Project Financing Data

[ ] Loan [ ] Credit [X] Grant [ ] Guarantee [ ] Other:

For Loans/Credits/Others:
Total Bank financing (US$m.): 5.10
Proposed terms: Grant basis; not subject to repayment

Financing Plan (US$m)

Source	Local	Foreign	Total
BORROWER/RECIPIENT	4.91	0.00	4.91
GLOBAL ENVIRONMENT FACILITY	1.10	4.00	5.10
Financing Gap	0.00	0.00	0.00
Total:	6.01	4.00	10.01

Borrower:
Ukraine

Responsible Agency:
State Ecological Inspection of the Ministry of Environmental Protection of Ukraine
82 A Turhenivska str., Kyiv, Ukraine, 04050
Tel: (+38 044) 244-3472

Estimated disbursements (Bank FY/US$m)									
FY	2006	2007	2008	2009	2010				
Annual	0.00	0.50	2.00	2.00	0.6	0.00	0.00	0.00	0.00
Cumulative	0.00	0.50	2.50	4.50	5.1	0.00	0.00	0.00	0.00

Project implementation period: Start September 2006 End: December 2009
Expected effectiveness date: September 2006
Expected closing date: June 30, 2010

Does the project depart from the CAS in content or other significant respects? ***Ref. PAD A.3***	[ ]Yes [X] No
Does the project require any exceptions from Bank policies? ***Ref. PAD D.7***	[ ]Yes [X] No
Have these been approved by Bank management?	[ ]Yes [X]No
Is approval for any policy exception sought from the Board?	[ ]Yes [X]No
Does the project include any critical risks rated "substantial" or "high"? ***Ref. PAD C.5***	[ ]Yes [X] No
Does the project meet the Regional criteria for readiness for implementation? ***Ref. PAD D.7***	[X]Yes [ ] No

Project development objective ***Ref. PAD B.2, Technical Annex 3***
The project's development objective is to contribute to Ukraine's environmental sustainability by assisting the country in meeting key international environmental obligations related to MBr phase-out with minimum economic dislocations. This specifically applies to supporting the mainstreaming of environmental considerations into the agricultural sector through integrated pest management (IPM) such that quality, productivity and economic returns in the grain sector are maintained and enhanced. This also supports sustainable economic growth in rural areas which should also positively impact poverty reduction. Similarly, the project supports improvement in the country's ability to prevent introduction of pests via imported agricultural products and ability to meet export standards in the most environmentally sound manner.

Global Environment objective ***Ref. PAD B.2, Technical Annex 3***
The project's global environmental objective is to reduce ozone depletion by eliminating MBr consumption and production, as well as the CTC production capacity in Ukraine and generally assisting the country in maintaining compliance with its obligations under the Montreal Protocol.

Project description ***Ref. PAD B.3.a, Technical Annex 4***
The project has four components covering various aspects of support required by Ukraine in phase-out MBr consumption and the production of ODS in compliance with the Montreal Protocol. These are: i) small investment sub-projects and supporting technical assistance in the grain and quarantine sector supporting elimination of MBr consumption through Integrated Pest Management (IPM) and introduction of substitute technology; ii) compensation for closure of CTC production capacity; iii) provision of institutional strengthening and capacity building technical assistance related to regulatory development, enhanced compliance capacity for international obligations, public information and technical support in implementation; iv) provision of project implementation support.

Which safeguard policies are triggered, if any? ***Ref. PAD D.6, Technical Annex 10***
Environmental Assessment (OP 4.01); Pest Management (OP 4.09)

Significant, non-standard conditions, if any:
Conditions of Negotiations: (Met for Negotiations conducted May 24-26, 2006)
Demonstration of having sufficient staff, project management capacity and resources in place with SEI to undertake the Grant processing through to effectiveness; Confirmation of inclusion of environmentally sound management of the residual by-products from historical CTC production at the "Oriana-Halev"

LLC plant as a priority within Ukraine's NIP under the Stockholm Convention on POPs; Presentation of evidence acceptable to the Bank of government budget allocation respecting co-financing (including in kind contribution) of its contribution in support of project implementation, technical assistance, and technology development/demonstration that may be included in appraised sub-projects; Project Implementation Operating Manual approved by the Bank.

Conditions of Disbursement:

No withdrawals from the Trust fund shall be made (i) in respect of payments for the CGP unless the Recipient has adopted the CGP Manual, the Sub-grants have been made in accordance with the criteria and procedures set forth in the CGP Manual and the Monitoring Plans for the Saki and the Brom Chemical Plants have been agreed to; (ii) in respect of payments under the component regarding closure of the CTC Plant facilities of Oriana-Halev Ltd unless the Recipient has provided satisfactory evidence that the CTC Production Closure Compensation Agreement has been entered into between the Recipient, and Oriana-Halev Ltd., (iii) in respect of payments under the component regarding closure of the CTC Plant facilities of Oriana-Halev Ltd., unless the Closure Verification Report attesting to the full and permanent closure of the Oriana-Halev CTC productions facilities has been issued and factual verification by the Bank in accordance with the Grant Agreement.

Covenants applicable to project implementation: Implementation arrangements including project manuals, EMP, sub-grant arrangements with beneficiaries, functions and responsibilities of the implementing entities are highlighted in detail in section C and Annex 6 of the PAD.

A. STRATEGIC CONTEXT AND RATIONALE

1. Country and sector issues

With the support of the Global Environment Facility (GEF) and Bank since 1996, Ukraine has developed a strong global environmental commitment to Ozone Depleting Substance (ODS) phase-out which is reflected in a sustained policy of expanding its international obligations under the Montreal Protocol. In November 2000, Ukraine ratified the Copenhagen Amendment thereby assuming developed (non-article 5) country obligations requiring the phase-out of Annex E (methyl bromide) ODS production and consumption by January 1, 2005 except as permitted under the Montreal Protocol. Methyl Bromide (MBr) is a chemical pesticide widely used as a fumigant for soil, seed and plant treatment.

Ukraine is currently actively pursuing ratification of the Beijing and Montreal Amendments and in March 2004 formally adopted an updated Country Program for ODS Phase-out for the period 2004-2030 under Cabinet of Ministers Resolution N256. This sets out national priorities for elimination of ODS in compliance with the Montreal Protocol, its current amendments and ultimately in accordance with the requirements of the European Union.

Ukraine has a unique status in the region as the only country that currently has the capacity to produce MBr. It has also been one of the largest historical consumers in the region due primarily to the widespread application of MBr in protecting stored grain throughout the supply and distribution system. The Saki Chemical Plant located in Crimea had a capacity to produce approximately 4,000 MT/year of MBr and in 1991, the baseline year for phase-out under the Copenhagen Amendment, 3,607 MT were produced according to the plant's production records[1]. Since that time, production has progressively declined, largely due to collapse of traditional markets including those in Ukraine. No production has taken place in Ukraine since September 2002. The Saki Plant is currently inoperative and has been partially dismantled, although a capacity to produce around 800 MT/year is retained and could be activated with relatively minor refurbishment and restoration. Similarly, a second enterprise the Olvia Chemical Plant at Krasnoperekopsk, also in the Autonomous Republic of Crimea and who was the supplier of bromine feedstock to the Saki plant, is considering developing the capability (2,000 MT/year) to produce a range of alkyl bromides which would include MBr. The Government has elected under its recently updated Country Program to retain the option of allowing MBr production for applications permitted under the Montreal Protocol, a position consistent with several other developed countries having such capacity or potential capacity.

While Ukraine was not a primary producer of Annex A and B ODS, a process plant facility for the production of carbon tetrachloride (CTC) exists within the "Oriana-Halev" LLC chemical complex at Kalush in the Ivano-Frankivsk Region of western Ukraine. This was a major producer of CTC feedstock for CFC-11 and CFC-12 production in Russia and later for Article 5 countries. It also produced a limited amount of CTC for use as a solvent. The facility operated roughly at its full capacity of 18,000 MT/year of CTC until 1993-94 and at lower output until 1998. While remaining operable, it has not been in production since 1998. In requesting international assistance for MBr phase-out, the government has asked that the Bank include GEF financed compensation for the permanent closure of this facility as part of the project scope in recognition that this would ensure complete country phase-out of Annex A and B production capacity in any form, something that is consistent with potential future control measures under the Montreal Protocol.

[1] Official Montreal Protocol Ozone Secretariat records report zero production in Ukraine for the 1991 base year. This discrepancy is attributed to a gap in reporting during the transition to Ukraine's independence and a request has been made by the Government of Ukraine to the Parties of the Montreal Protocol to correct this.

During project preparation it was found that official record keeping related to actual MBr consumption in Ukraine over the past fifteen years has been sporadic, reflecting the significant restructuring of the responsible institutions and sectors involved. This has also precluded consistent national reporting of production, export, import and consumption to the Ozone Secretariat. Research undertaken by the State Ecological Inspectorate (SEI) in Ministry of Environmental Protection (MOEP) in preparation for the current project indicates that prior to 1991, consumption levels were in excess of 2,000 MT/year, based on residual records from the various remaining fumigation service provision organizations formally operating as a state service prior to 1991. Between 1992 and 1996, consumption was in the range 600-800 MT/year but this fell to the levels of 300-400 MT in late 1990s mainly due to economic conditions. Consumption was reduced further in 2001-2004. Although authorities reported zero consumption in this period, data retroactively recovered from Saki Chemical plant, fumigation companies and various relevant agencies indicate that consumption continued at moderate levels, largely based MBr stockpiles dating from earlier years. Reductions in MBr consumption have occurred mainly as a result of economic conditions and most recently absence of supply. However, the desire to use MBr or effective alternatives remains strong due to increasing infestation. If there were no restrictions on MBr availability and use, and/or no changes in pest control practices, MBr consumption would likely rise again as the economic climate improves and in any event pressure for illegal use would increase.

The main sector that uses MBr is in post harvest applications in the grain sector. In addition, approximately 8 to 10 MT/year have traditionally been used by the General State Inspectorate on Quarantine of Plants in Ukraine in the Ministry of Agricultural Policy for Quarantine Pre-Shipment (QPS) applications considered exempt under the Montreal Protocol, although this has now declined to less than 5 MT currently due to supply constraints and introduction of alternatives. The table below represents the most recent estimates (in metric tonnes), prepared by the SEI within MOEP based on research of official files of the relevant authorities. MOEP acknowledges historical deficiencies in national reporting which led to inconsistency between the official Ozone Secretariat data for Ukraine previously reported and the data below, and have officially initiated the process of correcting it under the direction of the Minister.

Historical Methyl Bromide Production, Import, Export and Consumption (MT)

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Production	3607	2109	1793	948	1423,	633	315	315	409	282	385	136	0	0
Export	n/a	1182	n/a	n/a	n/a	952	0	0	0	25	385	160	0	0
Import	n/a	n/a	n/a	n/a	n/a	200	0	0	0	0	0	0	0	0
Consumption Production+ import-export	n/a	927	n/a	n/a	n/a	0	315	315	409	257	0	0	0	0
Actual Consumption	750	611	747	527	627	573	288	200	143	237	120	76	90	50
Estimated reserves	n/a	n/a	n/a	n/a	730	39	65	180	447	447	347	247	157	107
QPS Consumption	128	67	35	31	22	16	7	15	14	11	8	13	9	8

Notes: 1. n/a – No data
2. Based on original documents received from the Ministry of Industrial Policy, Ministry of Agriculture and the Main Bread Administration.

It is recognized that amount of MBr consumption is highly variable depending on weather conditions, infestation, yield amount, affordability of MBr, and most recently its availability. Therefore the project consumption for purposes of estimating phase-out impact is based on the consumption of five years prior

to the project preparation. Thus, according to the revised consumption data for Ukraine, the project will have the global benefit of eliminating approximately 196 tonnes (117.6 ODP tonnes) of non-QPS methyl bromide (based on annual average consumption in 1998-2002, five years prior to initiation of project preparation). MOEP also believes that while official consumption calculated in accordance with Montreal Protocol reporting procedures is zero, it continues, albeit at decreasing level, using stockpiled material. Currently these stockpiles are estimated to be 107 MT.

In summary, Ukraine is currently adjusting to the reality that its traditional dependence on MBr fumigants is not longer an option, both due to its commitment to meet its international obligations under the Montreal Protocol and the economic reality that it will not be an affordable or available option in the volumes that it might be required to maintain an acceptable level of crop or quarantine protection. This is seen as a particularly important part of the country's agricultural sector development which has significant potential for growth, something that contributes to the development of rural areas as well as the Country's continuing successful transition to a competitive market economy within Europe and globally. As a consequence, it is critical that the introduction of alternative stored product protection strategies and technologies be accelerated in the grain sector where either continuing problems with quality and productivity will occur due to infestation, or there will be pressures to return to the illegal use of MBr.

For these reasons, Ukraine is looking to the international community for assistance in supporting the modernization of its stored grain protection capacity in the area of pest management. The GEF established an Ozone Focal Area in the early 1990's to assist CEITs who, as non-Article 5 countries under the Montreal Protocol, were ineligible for support under the Montreal Protocol Multi-Lateral Fund (MPMF) but nevertheless required such support to meet their obligations under the Montreal Protocol, and specifically to those assumed under the London Amendment. In the GEF's FY04-FY06 Business Plan, this assistance was extended to CEITs that had ratified the Copenhagen Amendment for the phase-out of MBr. Ukraine as Party to the Montreal Protocol having ratified the London and the Copenhagen Amendments is eligible for such assistance. The extension of assistance to cover permanent closure of CTC production reflects support for the Country's proactive approach to ODS elimination generally.

2. Rationale for Bank involvement

The project is in line with the current World Bank operational program and represents a logical continuation of the Bank's completed operation that has successfully assisted Ukraine in phasing out primary ODS consumption. The project's overall objective is consistent with the current CAS document for Ukraine (2004-2007), which supports the goal of environmental sustainability generally and specifically meeting key international environmental obligations. Furthermore, it supports integration of environmental considerations into the agricultural sector, market based agribusiness and rural economic development.

The principal alternative to undertaking the project would be not to undertake the kind of targeted assistance proposed, and allow the global market place for agricultural commodities to force the introduction of current stored product protection techniques in Ukraine, as would ultimately be required if the country were to meet its potential for participation in high value export markets. While this strategy would likely result in elimination of MBr use over time it would defer full recovery and further development in the agricultural sector, something that is a priority for both the country and the Bank. More directly, it would have a significant negative effect on the quality and security of the domestic food supply chain resulting in a prolonged period of high grain infestation levels. It would also send a negative message to the country at a policy level in terms of continued proactive commitment to global

environmental action, something that might also stimulate non-compliance with convention requirements as a sustaining demand for MBr is maintained over a longer period.

The project could be undertaken by other Implementing Agencies, some of whom are administering GEF financed MBr phase-out initiatives in the region. However, the Bank has a competitive advantage in this case, based on its participation since the outset of Ukraine's successful ODS phase-out program to date and particularly in implementing investment oriented interventions that are supported by and integrated with technical assistance and institutional strengthening. This was the basic design of the recently completed US$23 million Ukraine GEF ODS Phase-out Project which is also used in the currently proposed project. The project will also benefit from linkages with other planned and prospective Bank operations in Ukraine, particularly the Agricultural Competitiveness and Food Safety Project where synergies with respect to enhancement of agricultural product quality and productivity as well as environmentally friendly farm practices. Notwithstanding the Bank's specific competitive advantage in Ukraine, a continuing linkage with projects undertaken by others during preparation is being maintained. This includes a GEF MBr project being undertaken on a regional basis by UNDP/UNEP, a UNDP MPMF project in Kyrgyzstan and with a bilateral project supporting certification of grain handling facilities being undertaken by the Canadian Grain Commission and the Ministry of Agricultural Policy of Ukraine (MinAgPol).

3. Higher level objectives to which the project contributes

As outlined in the CAS, attention will be given to "benefiting Ukraine of the opportunities that international agreements provide" and "the proposed Methyl Bromide Production Phase-out Project will expand the GEF activities in the area of implementation of the Montreal Protocol on Substances that Deplete the Ozone Layer".

The project objectives are closely related to the broader objectives of the CAS for the period 2004-2007, which aims to support the "European aspiration of Ukraine by continuing to facilitate the institutional developments …through reforms of institutions and policies…" As Ukraine's trade increasingly orients itself to the EU and candidate countries, the case for its industrial environmental regulations also to be structured within an EU framework becomes stronger. In relation to the Millennium Development Goal (MDG) of 'Ensuring Environmental Sustainability' the CAS notes the "urgent need to integrate environmental considerations in industrial, energy and agricultural sector."

B. PROJECT DESCRIPTION

1. Lending instrument

The project will be financed by a mixture of GEF grant funding and counterpart contributions with the legal instruments being a Letter-Agreement (Grant Agreement) under the framework of the Framework Technical Assistance Grant Agreement between Ukraine and the Bank, dated January 14, 1998, and Sub-Grant Agreements between the Government and beneficiary enterprises as applicable. For the investment related parts of the project (Component 1) co-financing will be provided by beneficiary enterprises except in possible cases where government budget finding may be allocated to support development and demonstration of local technology. For technical assistance activities (Components 1 and 3) government co-financing on an in-kind basis will apply. Co-financing commitments in principle have been obtained from the government and those enterprises where detailed sub-projects have been preliminary identified. These commitments have been incorporated into the governing legal documents applicable to the grant, namely the Minutes of Negotiations dated May 26, 2006, and will be a required component of sub-grant

agreements. GEF grant funds will finance eligible incremental, capital costs associated with goods procured in accordance with World Bank Guidelines and under the project-specific provisions set out in the Grant Agreement. The exception will be performance based compensation payments made under Component 2 where disbursements will be made against independently verified achievement of performance milestones, namely an agreed legally binding production closure plan and physical confirmation of permanent closure of the subject production in accordance with the Closure Plan. About 2 percent of grant funding is proposed for MBr production monitoring (part of Component 3) to ensure compliance with MP requirements. Violation of legally binding MBr production monitoring plans and CTC closure plan may trigger repayment of the grant proceeds in line with the provisions of the Grant Agreement.

2. Project development objective and key indicators

The project's development objective is to contribute to Ukraine's environmental sustainability by assisting the country in meeting key international environmental obligations related to MBr phase-out with minimum economic dislocations. This specifically applies to supporting the mainstreaming of environmental considerations into the agricultural sector through integrated pest management (IPM) such that quality, productivity and economic returns in the grain sector are maintained and enhanced. This also supports sustainable economic growth in rural areas which should also positively impact poverty reduction. Similarly, the project supports improvement in the country's ability to prevent introduction of pests via imported agricultural products and ability to meet export standards in the most environmentally sound manner.

Achievement of this objective will be measured by:

a) sustained country compliance with its Montreal Protocol obligations related to MBr and other controlled ODS substances;
b) ratification by Ukraine of the Beijing and Montreal amendments to the Montreal Protocol;
c) improved data collection on MBr and other ODS by the Ministry of Environmental Protection and its timely reporting to the Ozone Secretariat for the Montreal Protocol;
c) implementation of updated technical regulations and standards governing crop protection in the grain sector;
d) reduced losses and higher quality of grain within the national storage, distribution and processing system; and
e) operation of a more effective system of quarantine controls on imported agriculture products and goods as well being able to meet export requirements of other countries.

3. Global environmental objective and key indicators

The project's global environmental objective is to reduce ozone depletion by eliminating MBr consumption and production, as well as the CTC production capacity in Ukraine and generally assisting the country in maintaining compliance with its obligations under the Montreal Protocol.

Achievement of this objective will be measured by:

a) the absence of illegal MBr consumption;
b) minimization of MBr consumption in applications permitted under the Montreal Protocol, specifically for QPS applications;
c) control and monitoring of any methyl bromide production, if re-initiated, in strict compliance with the requirements of the Montreal Protocol; and

d) permanent closure of CTC production capacity in Ukraine.

4. Project components

The project has been designed with four components intended to address specific priorities identified by the country in its continuing efforts to remain current with its international ODS phase-out obligations and proactive policies in addressing this global issue, as well as ensuring the social and economic impacts of accomplishing this are effectively mitigated.

Component 1: Methyl Bromide Grain and Quarantine Sector Consumption Phase-out (US$7.21 Million Total, US$3.10 Million GEF Financed): The objective of this component is to facilitate the elimination of MBr consumption in the grain and quarantine sectors which account for all of the identified current and historical MBr consumption, and where a consequential decline in pest control is having significant negative economic and social impacts. It covers a demonstration investment and technical assistance program supporting this objective at the agricultural enterprise and responsible service provider level in the grain and quarantine sectors. The component's design prioritizes integrated pest management (IPM) techniques where emphasis is placed on prevention of infestation through improved monitoring, housekeeping and storage environment procedures. Infestation response using environmentally sound alternative chemicals, inert gas and controlled atmosphere techniques will also be financed.

Four grain sector sub-components are included for demonstration investments in the component, tailored to the needs of the four principle operational parts of the food grain supply and distribution system. Here the objective is the elimination of MBr consumption while improving the quality and efficiency of grain production through enhanced pest management. These sub-components are i) Farm Based Grain Storage; ii) Central Elevator/Terminal Storage; iii) Grain Processing Storage; and iv) Fumigation Service Providers. The project will co-finance - through a Competitive Grant Program (CGP) - a portfolio of relatively small enterprise specific sub-projects in each part of this system. The representative scope of these investments and those items of equipment financed by the GEF are detailed in Annex 4 for each sub-component, but generally they cover a range of upgraded storage, cleaning and fumigation equipment and infrastructure required for effective IPM and the use of alternative fumigation technologies that will be more efficient and environmentally sound. This portfolio will be finalized and implemented under the CGP noting that at least one candidate sub-project has been identified and undergone initial appraisal within each sub-component.

Ukraine's agricultural sector has a significant potential for scaling up elimination of MBr consumption with the help of pilot MBr consumption sub-projects undertaken through a Competitive Grant Program (CGP). The key objective of the CGP is to identify and support cost effective, sustainable and replicable demonstration sub-projects on a broader scale in Ukraine. For this purpose during project preparation a preliminary portfolio of potential sub-project beneficiaries has been identified and is described below in Annex 4. Additional potential beneficiaries will be identified during implementation through active solicitation of proposals. Initial criteria for sub-grant screening and selection, as well as arrangements for sub-grant evaluation and implementation through the Competitive Grant Program are described in Section C and Annex 6. More detailed arrangements of CGP functioning will be specified in the CGP Manual to be developed at the initial stage of the project implementation as a condition of disbursement under Component 1. In total, it is estimated that some 16-18 farm based, 14-16 elevator, 10-12 grain processing and 9-10 fumigator service provider sub-projects will be included in the final portfolio of sub-projects funded in this component. It is likely that some or most of CGP grants will be linked to the activities of Agricultural Competitiveness and Food Safety Project which is at the advance stage of preparation and which has similar objectives.

A fifth investment sub-component involves support to the General State Inspectorate on Quarantine of Plants in Ukraine in the Ministry of Agricultural Policy. Its objective is to reduce and where possible eliminate the use of MBr in quarantine operations involving mandatory fumigation undertaken at border crossings and other locations as is required for imported agricultural products, and for export products and commodities where purchasing countries require assurance of a pest free condition. The sub-component covers investment in upgraded fumigation chambers and associated application and safety equipment that will allow the safer, more efficient and reduced use of MBr as well as facilitate the introduction of alternatives where practical. This sub-project has been appraised and can be implemented immediately upon effectiveness.

The sixth sub-component covers the supporting technical assistance (TA) that will be linked into each of the five investment sub-components covering the grain and quarantine sector sub-projects. Its objective is to provide the training, technology transfer, environmental/safety tools and procedural documentation necessary to effectively utilize the equipment supplied as well as more broadly disseminate current pest control practices. The scope of this TA will cover training and demonstration at the working level of: i) international IPM practices, ii) good operating practice and quality assurance procedures related to pest control in each part of the grain handling and distribution system and for quarantine operations, iii) safe use of alternative techniques including operational Pest Management Plans (PMP) for specific chemical pesticide applications where these are required; iv) support for the introduction of emerging fumigation technologies including consultation on current Ukrainian research and development efforts in the field; and v) training in developing CGP project proposals. The delivery of this sub-component will be under the direction of international experts in the field in association with local experts using training programs based on a "train the trainer" model as well as direct interaction with enterprises, workshops and field schools. It is envisioned that this sub-component will be implemented as rapidly as possible after effectiveness and serve as technical support and sub-project identification resource for the CGP.

The descriptions of each sub-component, details of identified sub-projects, candidate sub-project portfolios and the detailed scope of technical assistance elements is provided in Annex 4.

Component 2: CTC Plant Closure Compensation (US$1.20 Million Total, US$1.00 Million GEF Financed): The objective of this component is the permanent elimination of CTC production capacity at "Oriana-Halev" LLC using a performance based compensation mechanism which includes two stages. The first stage involving 30 percent of the compensation payment is based on an appraised Closure Plan that has been agreed with the enterprise and Government. This is provided in Annex 4, Attachment A4.10 and covers the physical dismantling of key elements of the production facility, an Environmental Management Plan (EMP), along with detailed reporting, monitoring and verification requirements. The remaining compensation would be paid upon completing any outstanding measures prescribed in the closure plan and formal documentation of its independent verification by the Bank. The permanent closure and compliance with the closure plan would also be subject to long term independent monitoring with non-compliance being subject to compensation repayment under the term of the Grant Agreement. In practice, it is anticipated that this compensation will be disbursed almost immediately upon effectiveness given that the enterprise had moved ahead to complete much of the agreed dismantling and closure work at appraisal. The model for this component is the successful compensation based closure of ODS production capacity in the Russian Federation undertaken by the Bank. It is also consistent with an MPMF initiative in China that is funding closure of CTC capacity. The enterprise has undertaken an EIA (OVOS) applicable to the Closure Plan and received approval for its implementation from the State Environmental Expertise as well as being accepted by the Bank. In this regard, the EMP that forms part of the agreed Closure Plan also uses the ODS closure compensation to leverage commitments for sustaining security, monitoring and ultimately dealing with an off-site environmental legacy involving Persistent Organic Pollutants (POPs). This was associated with historical CTC production, and occurred prior to the transfer of the overall plant from state ownership to the private sector. The MOEP has provided the Bank

with a commitment letter respecting the environmentally sound management of the residual by-product stockpile of a listed waste covered by the Stockholm Convention (hexachlorobenzene or HCB) as a priority action item within the country's National Implementation Plan (NIP) under the Stockholm Convention, and has committed to maintaining environmental monitoring of this stockpile. This commitment has now been given additional substance by inclusion of the elimination of this POPs stockpile as an explicit priority component in the NIP which is under review within the Government as part of the country's decision making on ratification of the Stockholm Convention.

Component 3: Policy Development and Institutional Strengthening (US$1.25 Million Total, US$0.75 Million GEF Financed): The objective of this component is to ensure appropriate institutional and regulatory measures are in place to ensure effective and sustained implementation of MBr phase-out. It will provide support for a number of project wide policy development and institutional strengthening initiatives that will promote current and future country compliance with its obligations under the Montreal Protocol. As such the primary counterpart beneficiary would be the SEI/MOEP where technical support for monitoring of MBr production capacity, MBr consumption, and CTC production closure, technical expertise required for consumption sub-project appraisal, administration of the CGP, and general strengthening in compliance with international obligations will be supported. The latter will specifically address needed strengthening of capacity to effectively control and report ODS, particularly MBr import, export and consumption, and implementation of measures required for compliance with recent amendments to the Montreal Protocol. Additionally, it will support institutional strengthening in MinAgPol and other stakeholder agencies through updating of detailed regulations related to grain storage, certification requirements and standards associated with pest control and permitted technologies to allow full implementation of IPM and alternative pest control practices. Some technical assistance resources within this component will also be directed to a public information program targeting primarily user groups in the rural community. Annex 4 provides a scope description of each element of this component and what is to be financed.

Component 4: Project Implementation, Monitoring and Evaluation (US$0.35 Million Total, US$0.25 Million GEF Financed): The objective of this component is to provide sufficient resources for the counterpart project implementation support generally and specifically the project implementation support team within SEI undertaking project coordination, procurement and financial management functions associated with the investment sub-project portfolio and technical assistance initiatives.

The table below summarizes the structure of the project by component and sub-component along with estimated costs.

Component/Sub-Component	Total Costs (US$ m)	% of Total	Counterpart Financing (US$ m)	% of Counterpart Financing	GEF Financing (US$ m)	% of GEF Financing
Component 1: MBr Grain and Quarantine Sector Consumption Phase-out	**7.210**	**72.0**	**4.110**	**84.0**	**3. 100**	**60.8**
1.1 Farm Based Grain Storage Demonstration Investments	1.480	14.3	0.520	10.6	0.960	18.8
1.2 Central Elevator/Terminal Storage Demonstration Investments	3.090	30.9	2.310	47.1	0.780	15.3
1.3 Grain Processing Storage Demonstration Investments	0.630	6.3	0.220	4.5	0.410	8.0
1.4 Fumigation Service Provider Demonstration Investments	0.980	9.8	0.760	15.5	0.220	4.3
1.5 State Quarantine Service Capacity Strengthening	0.430	4.3	0.200	4.1	0.230	4.5

1.6 Grain Sector Operating Technical Assistance	0.600	6.0	0.100	2.0	0.500	9.8
Component 2: CTC Plant Closure Compensation	**1.200**	**12.0**	**0.200**	**4.1**	**1.000**	**19.6**
Component 3: Policy Development and Institutional Strengthening	**1.250**	**12.0**	**0.500**	**10.0**	**0.750**	**14.7**
3.1 MBr Production Monitoring	0.150	1.5	0.075	1.5	0.075	1.5
3.2 Competitive Grant Program (CGP) Preparation and Appraisal Support and CGP Administration	0.450	4.0	0.100	2.5	0.325	6.2
3.3 Regulatory Strengthening - Pest Control and Related Chemicals	0.350	3.5	0.150	3.1	0.200	3.9
3.4 Public Information	0.150	1.5	0.075	1.5	0.075	1.5
3.5 Preparation for Future Montreal Protocol Obligations	0.150	1.5	0.075	1.5	0.075	1.5
Component 4: Project Implementation, Monitoring and Evaluation	**0.350**	**3.5**	**0.100**	**2.0**	**0.250**	**4.9**
Total Project Costs	**10.010**	**100.0**	**4.910**	**100**	**5.100**	**100**

5. Lessons learned and reflected in the project design

The overall project design utilizes experience and lessons learned from several previous Bank projects in Ukraine and the region as well as international technical experience related to ODS phase-out generally and for methyl bromide in particular. The project is structured primarily as an investment operation demonstrating alternatives to MBr use supported with appropriate technical assistance and institutional strengthening, as well as capacity for dissemination of results. This follows the model successfully used in previous ODS projects in Ukraine and the region. The table below matches the specific lessons leaned in the previous GEF ODS phase-out project in Ukraine[2] and relevant aspects of the present project's design.

Lessons Learned from the Ukraine GEF ODS Phase-out Project as Reflected in Project Design

Lesson	Project Design
Placement of PIST capacity within the institutional structure implementing the project	• Counterpart project implementation support team imbedded in the responsible Ministry • Reporting relationship directly to Deputy Minister level official (Head of SEI) • Integration of financial and procurement responsibilities with the established correspondin g responsibilities and systems in SEI
Prospects for future global environmental initiatives	• Utilization of expertise and experience developed during the initial project • Greater mainstreaming of the GEF/global initiative with country priorities as reflected in the CAS and specifically parallel agricultural sector operations
Importance of counterpart commitment and financial	• Counterpart staffing and resources for the project implementation support team prior to effectiveness was a condition of negotiation

[2] Implementation Completion Report for the Ukraine Ozone Depleting Substance Phase Out Project, World Bank Report No. 32788 June 2005

contribution	• Government co-financing commitments have been explicitly included in the legal documents for the project.
Importance of enterprise commitment and financial contribution	• Investment sub-project selection/appraisal criteria requiring demonstrated counterpart financial commitment meeting a minimum of 30 percent of the sub-project cost has been agreed. • Implementation capacity assessment included in subproject appraisal
Flexibility and transparency in the use of technical assistance resources	• TA elements are defined during preparation and procurement procedures agreed in advance. • International consultant delivery of critical TA to support the investment component.
Supervision intensity of investment projects	• Procurement arrangements for the investment component based on a mechanism of centralized procurement and distribution of equipment to final beneficiaries through a small grant mechanism based on a pre-determined eligibility and investment sub-project selection criteria. • Performance based compensation arrangements for CTC production closure. • Pre-established, easily implemented monitoring procedures for CTC and MBr production capacity.

Component 1, addressing MBr consumption phase-out, targets direct enterprise level investment in basic equipment that will eliminate the need for MBr by a combination of pest infestation preventive measures and facilitating the introduction of alternative fumigation technology. This parallels the main elements of the successful ODS consumption phase-out projects in Ukraine, Belarus and Russia which have delivered about US$67 million in GEF funding to highly cost effective interventions at the enterprise level in a variety of sectors. The specific investments proposed are consistent with proven, cost effective international practice as validated by the STAP review process and are intentionally oriented to providing the basic tools in the form of detection and sampling equipment necessary to initiate effective IPM programs. Recognizing the highly distributed nature of MBr use in the grain sector, this allows the maximum coverage of potential users within the project's resources. The proven need to integrate investment with supporting training and implementation of documented practices and procedures is built into the design by including support for this within Component 1 and ensuring that its delivery is coordinated with the investment interventions. Transparency of selection and implementation of individual demonstration investments will be achieved by introduction Competitive Grant Program.

Component 2 is modeled directly on the Bank's successfully implemented Special Initiative for Closure of ODS Production in the Russian Federation. It utilizes a performance based two stage compensation mechanism that has proven to be an efficient and timely method of permanently eliminating environmentally undesirable chemical production capacity and providing a high level of assurance that this is sustained.

Component 3 incorporates the lessons learned in delivery of policy development and institutional strengthening activities within government agencies. The main one is the need to target specific priority issues that can be realistically addressed within the project time frame and for which the necessary government commitment exists and can be sustained. Targeting the updating of working level regulatory documents and standards that represent an acknowledged barrier to environmentally sound pest control is an example of this. Similarly, supporting the assumption of future Montreal Protocol obligations is consistent with stated government policy objectives. The project design in this area also recognizes the need for administration of CGP, technical support during implementation for detailed sub-project preparation and appraisal as well as support of monitoring obligations. This was noted as a limitation in several past projects.

The implementation arrangements also draw on experience from previous projects both in Ukraine and other country's in the region. Firstly, the project will utilize capacity developed in the previous ODS phase-out project and which will be imbedded within SEI/MOEP, something that provides both project management experience and continuity in terms of institutional memory. The project will also exploit the interagency mechanisms that have evolved in addressing global environmental issues and which are particularly important for this project. The management of Competitive Grant Program will be delegated to a competitively selected CGP administrator reporting to SEI.

6. Alternatives considered and reasons for rejection

A number of alternative design approaches were considered in discussion with counterparts.

Initially, the project was intended to focus on closure of MBr production and have a secondary focus on consumption phase-out. At that time, the understanding was that Saki Chemical Plant would be willing to permanently close production and that consumption was not a major concern, having largely been phased out according to official reporting. However, early in the project preparation process it was the realized that significant MBr demand did in fact exist in the grain sector where an immediate need for alternative pest control measures was recognized. Additionally, the Government formally elected to retain the option of continued production even though it was and remains the Bank Team's view that this was unlikely an economically viable option.

The design of the consumption phase-out component considered the option of concentrating resources on one or more large demonstration investment sub-projects that would support a domestic research and development program using, for instance, an inert gas (nitrogen) as an empty space and bulk commodity fumigant. While one of a number of emerging non-ODS fumigation technologies, evaluation of experience with it elsewhere as well as the status of its development in Ukraine indicates that concentrating resources in this technology would have significant risks. It would also not have offered the coverage and immediate benefits in the grain sector that the more broadly distributed interventions supporting a basic IPM approach throughout the sector would have.

Finally, considerable discussion with counterparts has focused on the balance between the investment integrated with practical level technical assistance, as opposed to supporting more general institutional strengthening and capacity building within government ministries. The selection of the investment oriented design while providing targeted institutional strengthening reflects a consensus that this mix provides for the most appropriate use of GEF resources, particularly given the urgency of the interventions contemplated.

C. IMPLEMENTATION

1. Partnership arrangements

The principal partnership arrangement contemplated for the project will be with other Bank operations in the Ukrainian agricultural sector where both intellectual and functional linkages exist**.** In particular synergies exist with the Agricultural Competitiveness and Food Safety Project (ACFSP) which is currently under preparation. Recognizing the broader scope and larger scale of the proposed ACFSP it is apparent that the objectives of the MBr Phase-out Project related to reversing the increasing pest impacts within the grain production, processing, handling and distribution system supports the overall ACFSP objectives related to both product quality and competitiveness as well as the overall enhancement of the

food supply system and harmonization with international standards. More directly, the focus of CGP investments in IPM and more environmentally friendly agricultural practices, particularly at the farm level is consistent with the components of the ACFSP related to support of the agriculture service sector and fostering environmentally friendly farm practices. Recognizing that the MBr project is on a more advanced processing cycle, it can usefully support the ACFSP in piloting small on farm investment programs and conversely may produce investment portfolio opportunities for future ACFSP interventions. It is hoped that the bulk of CGP investments will be linked to or associated with ACFSP activities, specifics of such association might be developed at the final stage of ACFSP preparation.

The project does not contemplate any direct financing partnership arrangements with other international organizations. However, linkages have been established with a bilateral project being undertaken by the Canadian Grain Commission (CGC) and Ministry of Agricultural Policy that targets the overall certification of grain storage facilities and establishment of a marketing system. Several of the elevator/terminal facilities that have been identified in Component 1 of this project are included in as host enterprise for demonstration projects under the CGC certification initiative. CGC expertise has also been used in the preparation of investment sub-projects included in Component 1, an arrangement that is anticipated to be continued through the project's supervision. Linkages also exist with the regional MBr phase-out project being undertaken by UNEP/UNDP in other CEITs in the region, including bordering countries in Central Europe. It is planned that the current project will facilitate participation of Ukrainian stakeholders in the range of regional technical assistance activities, specifically workshops planned under the parallel GEF project, the initial participation in such workshop is expected in the fall of 2006. Conversely, experience developed during both preparation and implementation related to grain sector phase-out are and will be shared with neighboring countries having similar issues, specifically Latvia and Poland. A similar arrangement has also been discussed with UNEP for a MPMF project on MBr phase-out in the Kyrgyz Republic. Coordination of activities will also be facilitated by participation of members of the Bank project team on the Steering Committee to be established for the regional project.

2. Institutional and implementation arrangements

The institutional and implementation arrangements for the project have been designed to balance the overall policy and regulatory interests responsible for its global environmental rationale and objective, with the need to ensure effective ownership and engagement of the primary beneficiaries principally in the agricultural sector where its implementation also serves local rural and economic development objectives. The linkage to Ukraine's global obligations under the Montreal Protocol and project's financing being derived from the GEF require the leadership of MOEP as the institutional focal point for GEF initiatives and specifically SEI as the direct responsibility for the regulation of ODS matters and fulfillment of Ukraine's international obligations. However, the project's principal funding focus in terms of both demonstration investments and technical assistance are directed at mitigating the impact on the agricultural sector of the country fulfilling its international obligations through maintaining and enhancing protection of Ukraine's food supply and its ability to export. This generally falls under either the administrative or regulatory control of MinAgPol.

The basic implementation concept proposed is to utilize an interagency body already existing within the government structure namely the Interagency Coordination Commission on Implementation of Montreal Protocol Regarding Ozone Depleting Substances (ICC) to act as the project's overall supervisory vehicle at a policy level. This will be chaired by the head of SEI who reports directly to the Minister of Environmental Protection and have representation from MinAgPol, and other stakeholder agencies and NGOs including agricultural sector associations representing the private sector. The intent would be that the overall supervisory body would act primarily in an oversight role to develop and approve policy directions in MBr phase-out and use, approve project work plans, endorse CGP sub-projects' selection, oversee compliance with sub-project eligibility criteria and sub-grant agreements with beneficiaries.

The project's working implementation responsibility with delegated authority from the supervisory body for detailed project implementation would be SEI within MOEP. This would operate under the overall management direction of the head of SEI and the direct supervision of a senior SEI deputy assigned this responsibility. This individual would directly supervise a small Project Implementation Support Team within SEI as well as coordinate the project activities with the SEI line organizational structure having the mandate within the Government for Montreal Protocol issues. The support team would consist of three professionals and one support staff financed under Component 4 and providing administrative, technical, procurement and financial administration coordination, with SEI's existing financial, accounting and procurement system. SEI will be the contracting party for goods and services procurement done in accordance with World Bank Procedures as defined in the Grant Agreement and hold the Special Account (SA). This would essentially be a continuation of the model used for the previous much larger GEF ODS project undertaken and completed by SEI. It is anticipated that experienced staff from the previous project will be available to serve in these capacities. Implementation of CGP will be supported by a competitively selected company- CGP Administrator- reporting to SEI head.

The technical oversight of technical assistance assignments will be the agency or organization for whom the technical assistance is being provided or who is most directly involved in its delivery. For provision of individual consultant support related to ODS production monitoring and strengthening of capacity to meet international obligations, this will be the line responsibility within SEI responsible for ODS. For provision of the enterprise level training and IPM procedure development in the grain sector as well as crop protection related regulatory strengthening this will be a designated authority or authorities within MinAgPol. MinAgPol will also be responsible for a public information program including the Component 3 TA resources that would support this. In all cases the agency with technical supervision responsibility will also be responsible for agreed counterpart contribution.

Evaluation and management of CGP sub-projects will be supported by CGP Administrator and individual technical consultants contracted under Component 3 through SEI but working in cooperation with an appropriate designated authority or authorities within MinAgPol. Goods procured by SEI will be transferred to a competitively selected eligible enterprises within four sub-sectors of the grain sector (farm, elevator, mill and fumigation service providers) as small equipment packages under sub-grant agreements with SEI from a portfolio of CGP sub-projects endorsed by the ICC. It is planned that a first round of selection and evaluation of CGP sub-projects will be completed within one year after effectiveness of the project. Individual CGP sub-projects endorsed by ICC will not be subject to formal "no objection" by the Bank. Bank will review eligibility of investments on the post review basis, primarily in the course of regular supervision.

The following provides the basic criteria that would be applied in selecting these sub-project beneficiaries:

- An enterprise (i) represents a significant latent consumer of MBr in terms of demonstrated historic use, (ii) has a demonstrated need for continued crop protection as a consequence of not using MBr, and (iii) has not been able to effectively replace MBr with alternative crop protection technology with its own resources or expertise;
- An enterprise demonstrated the interest to participate in the project and commitment to reach sub-project objectives formulated in the sub-grant agreement;
- The proposed investment is associated with one of four categories – farm based grain storage, elevator or terminal storage; grain processing and fumigation service provider and involves undertaking incremental capital investment in equipment that will facilitate the implementation of IPM practices and/or the utilization of alternative fumigation techniques that effective replace the need to use MBr (Indicative eligible investments are identified below);

- The proposed investment has a MBr phase-out cost effectiveness (as measured in US$/kg ODP) based on historical regulated MBr use in line with international practice but in any case better than US$30/kg ODP;
- An enterprise has demonstrated capital investments in the facility grain handling infrastructure over the last 3 years;
- The proposed investment sub-project can be demonstrated to generate a positive rate of return for the enterprise;
- An enterprise can demonstrate that it is financially viable, has sufficient implementation resources to project execution, and has the capacity and commitment to meet an agreed counterpart contribution approved by the Bank. Minimum beneficiary co-financing ratio for individual sub-projects should exceed 30 percent of the total sub-project cost; and
- The proposed investment is approved by environmental authority through EIA/OVOS procedure

More specific information about proposed sub-projects can be found in the Annex 4. The various capital items envisioned within the scope of GEF funding would include:

a) Metal bins with aeration flooring or other dedicated small scale storage facilities that would serve as isolation storage suitable for application of phosphine and potentially other emerging technologies in relatively small lots prior to mixing with bulk stores;
b) Upgrading existing flat floor warehouse/shed type storage commonly used in such operations with aeration flooring and portable air blowers;
c) Industrial cleaning equipment (vacuum cleaner, air compressor, pressure washer, tarps and sealant) that would allow warehouses to be effectively cleaned prior to use;
d) Portable monitoring instruments for moisture control and insect detection;
e) Personal Protection Equipment Set (masks/self contained breathing equipment);
f) Fumigant monitoring/ concentration testing equipment;
g) Gaseous fumigant application equipment set (pressure testing equipment, blowers, gas manifold, manometer, dosing scale, tool set);
h) Alternative fumigant application and storage equipment;
i) Modern pneumatic or electronic grain sampling systems to replace the existing manual and mechanical auger systems, thereby ensuring more comprehensive sampling of incoming loads; and
j) Phosphine tablet dispensers for installation on grain floor conveyors.

3. Monitoring and evaluation of outcomes/results

Project development objectives, outcome and output indicators formulated for the whole project and for each project component are presented in Annex 1, Results Framework. This will serve as the basis for the monitoring and evaluation (M&E) program. One of the professional project implementation support team staff will be primarily responsible for implementation of this M&E program, the review and reporting of will be part of the Bank's regular supervision and SEI's reporting to the ICC.

4. Sustainability and Replicability

Government commitment to the project is evidenced by the endorsement letters from MOEP and statements of commitment from MinAgPol and the acceptance by the appropriate government authorities of the final legal documents for project implementation. At the enterprise level, written commitment has

been received from enterprises for which sub-projects have been reviewed including enterprise co-financing. Confirmation of interest in pursuing sub-projects has also been received from enterprises identified as having candidate sub-projects. Both MOEP and enterprises involved in CTC production or possible MBr production have indicated acceptance of the Closure Plan and Monitoring Plans respectively. MOEP has committed to assumption of monitoring obligations and in the case of the CTC plant closure, addressing the related POPs land disposal facility as part of the NIP under the Stockholm Convention.

The project's sustainability is underpinned by the widespread recognition in the government and affected enterprises that major impacts on a priority agricultural sector are already resulting from Ukraine's assumption of the control measures on MBr production and consumption under the Copenhagen Amendment. Since the project offers a near term and cost effective alternative, it is seen as the optimum way to address this impact. The project will put in place effective alternatives, so ensuring that MBr phase-out will be sustainable. The design of the project offers a broadly based investment program at the level of potential users of MBr in the grain sector, will demonstrate modern approaches to MBr elimination as a component of environmentally sustainable agriculture practice and should serve to sustain the continuation of such interventions across the sector. This is further reinforced by the implementation arrangements that link the key institutional counterparts to each project component/sub-component and link the activities within them with the intention of building ownership in the result and it being sustained. This is particularly important for the technical assistance and institutional strengthening activities where the results must be accepted and implemented within the existing responsible institutions.

Within the country, the investment program and linked technical assistance addressing consumption in the grain sector is designed specifically to allow replication across each part of the grain supply and distribution system. More broadly, the approach being taken may have application in other CIS countries that have a similar history of grain protection practice, regulation and institutional structure. In particular, the Russian Federation and Kazakhstan, as major grain producing countries would be obvious candidates for replicating experience in Ukraine.

5. Critical risks and possible controversial aspects

The primary risk identified for the project relates to the stability and decision making capacity of the government. The latter has been a traditional problem for international projects in Ukraine. The former is a current issue following the 2004 presidential election and most recently the Rada elections in March 2006 and uncertainty related to formation of a new Government. However, the country has demonstrated a sustained commitment to ODS phase-out and despite the changes in institutional partners and counterparts, has achieved notable success in this area. Similarly, there is no reason to expect that the new government which appears to view European integration as a priority and has strong support in many of the rural areas that would most benefit from the project would have less commitment. The main risk would seem to be with respect to implementation timing and the ability of the government to undertake the decision making required to expeditiously process and implement the project. The Bank is well positioned generally to maintain a dialogue with the new government on this issue and the project would be part of that dialogue. The successful completion of negotiations during the period of uncertainty following the Rada election and flexibility exhibited by counterparts in the Ministries of Economy and Justice in suggesting the use of the Framework Technical Assistance Grant Agreement between IBRD and Ukraine, dated January 14, 1998 has opened the door to an expedited country endorsement process.

Lesser risks can be identified at a detailed implementation level. The investment sub-projects involve various levels enterprise or government co-financing which, notwithstanding the commitments made, inevitably has uncertainties attached to it. In large measure this is mitigated by the focus of GEF funding

on the basic IPM oriented investments that will have the desired benefits independent of co-financing investment, which is generally associated with introduction of alternative fumigants. In any event, the appraisal of investment sub-projects will include an assessment of enterprise financial capacity and ability to meet any critical co-financing requirements. This will be formalized in a legally binding form in the individual sub-grant agreements. A related risk seen in previous projects is that investment sub-project implementation will be impeded by the ability or willingness of beneficiaries to pay local taxes and duties, or by complicated arrangements covering exemptions. This has been addressed during the negotiations and provisions for such commitments being incorporated into binding obligations under sub-grant agreements have been agreed.

No controversial aspects associated with the project have been identified, except potential issues associated with the toxic by-product storage near the "Oriana-Halev" LLC plant. While this site has no direct linage to the project, being a consequence of operations under the previous period of state ownership, an association may be made since the beneficiary enterprise has custody of the site, although not ownership of the materials of concern. This has been addressed through the monitoring commitments included in the Closure Plan and the commitment by the Government to prioritize this in its National Implementation Plan under the Stockholm Convention on Persistent Organic Pollutants, something that has now been given substance through inclusion in the draft NIP being presented to the Government.

6. Grant conditions and covenants

In addition to standard conditions and covenants applicable to a World Bank Grant Agreement as incorporated into the Letter-Agreement under the Framework Technical Assistance Grant Agreement between IBRD and Ukraine, dated January 14, 1998, the following conditions are envisioned:

Conditions of Grant Negotiations:

The following negotiation conditions were met:

- Demonstration of having sufficient staff, project management capacity and resources in place with SEI to undertake the Grant processing through to effectiveness.
- Confirmation of inclusion of environmentally sound management of the residual by-products from historical CTC production at the "Oriana-Halev" LLC plant as a priority within Ukraine's NIP under the Stockholm Convention on POPs.
- Presentation of evidence acceptable to the Bank of government budget allocation respecting co-financing (including in kind contribution) of its contribution in support of project implementation, technical assistance, and technology development/demonstration that may be included in appraised sub-projects.
- Project Implementation Operating Manual approved by the Bank.

Condition of Effectiveness:

Issuance by the Recipient of a legal opinion satisfactory to the Bank of counsel acceptable to the Bank showing that the Letter Agreement has been duly authorized by the Recipient, has been executed and delivered on behalf of the Recipient and is legally valid and binding upon the Recipient.

Conditions of Grant Disbursement:

No withdrawals from the Trust fund shall be made (i) in respect of payments for the CGP unless the Recipient has adopted the CGP Manual, the Sub-grants have been made in accordance with the criteria and procedures set forth in the CGP Manual and the Monitoring Plans for the Saki and the Brom

Chemical Plants have been agreed to; (ii) in respect of payments under the component regarding closure of the CTC Plant facilities of Oriana-Halev Ltd unless the Recipient has provided satisfactory evidence that the CTC Production Closure Compensation Agreement has been entered into between the Recipient, and Oriana-Halev Ltd., (iii) in respect of payments under the component regarding closure of the CTC Plant facilities of Oriana-Halev Ltd., unless the Closure Verification Report attesting to the full and permanent closure of the Oriana-Halev CTC productions facilities has been issued and factual verification by the Bank in accordance with the Grant Agreement.

D. APPRAISAL SUMMARY

1. Economic and financial analyses

Global benefits of this project will include an incremental reduction in the present and potential future contribution of MBr to degradation of the stratospheric ozone layer. The consequential positive impacts on human health through lessening the effects of ultraviolet radiation as well as mitigation of potential biophysical ecosystem effects will have positive global economic impact. At a national and local level the project should have a positive economic impact through its contribution to increasing the viability of one of Ukraine's key economic sectors and one that that has significant potential for growth. A direct consequence of this should be increased rural incomes and general prosperity. The project preparation team has undertaken a qualitative incremental cost analysis in order to estimate the additional costs of the GEF alternative over the baseline activities of the ongoing government programs and international support (see Annex 15).

Fiscal impact of the project is felt to be positive in the long term when the relatively modest public sector contribution to the project is balanced against the likely returns in terms of increased tax revenues from a more viable agricultural sector and greater capacity to meet the requirements of export markets, and from reduced revenue transfers rural areas.

2. Technical

The technical appraisal of the project confirms that it addresses the key aspects of the MBr phase-out issue in Ukraine, namely the need to eliminate MBr consumption, both current and that associated with a latent demand for stored crop protection in the grain sector. Similarly, it addresses the reduction in MBr use in the exempt QPS section, where minimization of such application is a country obligation under the Montreal Protocol. The selected technologies and approaches to MBr phase-out are recognized internationally and their eligibility and appropriateness has been verified by an independent STAP review (Annex 16). In particular, the emphasis on basic enterprise investment supportive of IPM techniques linked to technical assistance covering training, chemical pesticide control practices and procedural development provided directly to beneficiaries is considered consistent with international best practice.

In terms of individual sub-projects managed through CGP, at least one consumption sub-project in each of the four sub-sectors related to the grain sector has been identified for demonstration purposes, inclusive of confirmation of enterprise commitment and co-financing. Similarly, the sub-project to be undertaken by the General State Inspectorate on Quarantine of Plants in Ukraine in the Ministry of Agricultural Policy related to QPS applications has been appraised inclusive of enterprise contribution confirmation. Additionally, a first batch of 39 candidate enterprises covering all four grain sub-sectors have indicated their interest in participating in the Competitive Grant Program.

With respect to Component 2, the beneficiary enterprise ("Oriana-Halev" LLC) closing the CTC production facility at Kalush was found at pre-appraisal to have substantively completed the dismantling

and associated environmental management activities set out in the closure plan developed during project preparation. At pre-appraisal this closure plan has been updated and agreed (Annex 4) and is anticipated to be formally signed in advance of negotiations, allowing the closure plan verification step to be undertaken and disbursement of compensation payments immediately upon effectiveness. Also at pre-appraisal, MOEP committed itself to include the HCB land disposal facility clean up as a priority in the Stockholm Convention and this has been substantively documented at negotiations.

The general scope and budget allocations of all the identified technical assistance components to be included in Components 1 and 3 have been agreed. Detailed terms of reference for these assignments acceptable to the Bank will be established prior to effectiveness including the required technical assistance and training required to support and implement the CGP.

The major institutional and regulatory issues associated with the project were addressed and agreed at pre-appraisal with their confirmation being set as conditions of negotiations. More specifically, MOEP has initiated the submission of revised data and requested correction of the official data recorded for Ukraine in line with current records. It is anticipated that this request will be dealt with by the Implementation Committee of the Montreal Protocol and the Parties to the Montreal Protocol during the course of its regular business in 2006 or the first half of 2007. MOEP's commitment and that of the affected enterprises respecting the limitation of any future MBr production to that allowed under the Montreal Protocol and monitoring of this in accordance with agreed monitoring plans has been confirmed Similarly, commitments respecting updating of regulations extending import, export and ODS consumption licensing to MBr consistent with the Copenhagen Amendment requirements have been made.

3. Fiduciary

Financial management

The Country Financial Accountability Assessment (CFAA) for Ukraine confirms that improvement is required in the management of public expenditures especially for the strengthening of internal and external audits. The CFAA also identified a lack of adequate control over state-owned enterprises but appropriate steps have been taken recently to improve control over these enterprises.

The Project financial management arrangements are designed to mitigate possible weaknesses in controls through the mechanism of supervisions, audits of the Project Financial Statements and periodic reporting to the Bank. The Bank's standard fiduciary requirements would apply to the Project. Financial management arrangements meet the Bank's minimum requirements. The Project Implementation Support Team will maintain a financial management system acceptable to the Bank.

The Project financial statements will be audited by independent auditors acceptable to the Bank and on terms of reference acceptable to the Bank. The annual audited financial statements, audit report and management letter will be provided to the Bank within six months of the end of each fiscal year.

Project Implementation Support Team will prepare FMRs for each calendar quarter. The FMRs will be submitted to the Bank within 45 days after the end of the reporting period. The project will be part of the risk based supervision model, which is based on the project risk assessment. It is considered that minimum number of FM supervisions is to be at least once per annum.

Annex 7 presents detailed financial management arrangements under the proposed project. Annex 7 also details an action plan for implementing a financial management system acceptable to the Bank.

4. Social

No formal social assessment has been undertaken for the project given the apparent absence of any significant social issues or potential negative social impacts.

The only issue that might have been of concern would have been the potential for local employment loss associated with the closure of MBr and CTC production. However, both facilities where there might have been a concern (Saki Chemical Plant and "Oriana-Halev" LCC) had previously shut down the subject facilities and no current employment base exists. In the case of the Saki Chemical Plant the project will have a neutral impact on future prospects with any future decisions related to re-opening the overall plant or the subject production facility being governed by public policy decisions unrelated to the project. The project's main contribution to this process has been to establish the boundary conditions under which this could occur and in this way providing some greater certainty in the public policy decision making process. In the case of "Oriana-Halev" LCC the project has already had and should have further positive impacts in it has provided the enterprise with an incentive and potentially the resources to re-establish other production capability, something that has already resulted in incremental employment with the investment in a new production unit on the site.

The other components of the project directed at the phase-out of MBr consumption in the agricultural and specifically the grain sectors should ultimately have a positive social impact through increasing the viability, sustainability and productivity of the sectors in both domestic and export markets. This should translate into higher local incomes in rural communities and make a contribution to reducing rural poverty and income disparity.

5. Environment

The environmental assessment (EA) conducted by the project team during project preparation and appraisal indicates that the project would generate significant environmental benefits and minimal adverse environmental impacts. The major positive environmental benefits from the project stem from the incremental global impact of reduced current and future emissions of two potent ozone depleting substances (MBr and CTC).

Component 1 of the project addressing phase-out of MBr consumption in the grain and quarantine sectors will have local environmental benefits which will be obtained by promotion of reduced chemical use and more sustainable agricultural practices through implementation of IPM techniques for crop protection. The supporting institutional technical assistance in Component 3 will also have benefits by removing regulatory barriers to more environmentally friendly crop protection techniques through upgrading local regulations to allow the certification and application of environmentally superior techniques and substitute technologies utilized elsewhere. While the range of small scale investments proposed in Component 1 are considered to have little potential negative environmental impact by their nature, each investment sub-projects remains subject to the Ukrainian EIA/OVOS process and other legislation governing worker protection. Nevertheless in recognition that chemical pesticides will be involved in project implementation, a Pest Management Plan (PMP) has been included in the Environmental Management Plan (EMP) and the technical assistance provided in Component 1 will include operational PMPs as specific chemical substitutes for MBr are introduced.

Component 2 of the project does entail some potential negative environmental impacts that do require management, specifically the potential for the mismanagement and spread of persistent organic pollutants that may remain in process equipment and on the site associated with the closed CTC production facility. The agreed closure plan contains an Environmental Management Plan (EMP) that addresses the capture

and secure storage of any contamination associated within the site. At pre-appraisal the project team verified that these measures had been undertaken during closure operations already completed by the enterprise, including the analysis of equipment and the site for residual contamination and the establishment of a secure monitored storage of residual CTC contaminated materials on site. While not directly related to the closure of the facility, the closure plan also makes provision for upgrading of infrastructure and monitoring of the historical underground storage facility containing HCB by-product which was produced prior to 1998 during historical CTC production. Furthermore, conditionality has been attached to the project's funding which requires the Government to both maintain monitoring of this site and to include it as a priority for action in Ukraine's NIP under the Stockholm convention. The project team has confirmed that this is included as a priority action in the draft NIP and that the Government is seeking an Implementing Agency partnership with the Bank to finance its management through a future GEF project.

6. Safeguard policies

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment (OP/BP/GP 4.01)	[X]	[ ]
Natural Habitats (OP/BP 4.04)	[ ]	[ ]
Pest Management (OP 4.09)	[X]	[ ]
Cultural Property (OPN 11.03, being revised as OP 4.11)	[ ]	[ ]
Involuntary Resettlement (OP/BP 4.12)	[ ]	[ ]
Indigenous Peoples (OD 4.20, being revised as OP 4.10)	[ ]	[ ]
Forests (OP/BP 4.36)	[ ]	[ ]
Safety of Dams (OP/BP 4.37)	[ ]	[ ]
Projects in Disputed Areas (OP/BP/GP 7.60)*	[ ]	[ ]
Projects on International Waterways (OP/BP/GP 7.50)	[ ]	[ ]

Environmental Assessment (EA/EMP): The project is rated as Environmental Assessment Category "B" (partial assessment). Based on the EA, the Project is considered to have generally positive environmental benefits. An EMP has been prepared for the project with emphasis on ensuring mitigation of any potential environmental impacts associated with Component 2 where a legally binding component EMP is embedded in the closure plan.

Pest Management: The project involves pest management and specifically the conversion to more environmentally sustainable methods of doing so. More specifically, it is directed to the elimination of a fumigant that has both negative global environmental and local health impacts. The primary alternatives promoted and financed by the project primarily related to IPM techniques, increased use of inert fumigants through application of controlled atmosphere technology, and reduced overall chemical usage in crop protection. No chemical pesticides are funded directly and where financing links to the use of chemical pesticides, this would involve phosphine, an alternative that does not have long term environmental impacts. Health related issues associated with phosphine are similar to that associated with the MBr being phased out and are addressed directly in by the project through the provision of training in its safe use, and supply of personal protection and monitoring equipment, as well as linking this to established institutions certified for this type of work and to operational PMPs to be included in the procedural development technical assistance.

7. Policy Exceptions and Readiness

The key terms of reference and technical specifications for the first year's activities will be prepared prior to effectiveness. The Project Operational Manual has been prepared. The project complies with all applicable Bank policies.

Annex 1: Country and Sector or Program Background

UKRAINE: METHYL BROMIDE PHASE-OUT

1.0 Context of ODS Phase-out in Ukraine

The Ukraine Methyl Bromide Phase-out project represents a continuation of the GEF financed initiatives undertaken by the World Bank and other implementing agencies in the various Countries with Economies in Transition (CEITs) in Eastern Europe and the former Soviet Union (FSU) to phase-out ozone depleting substances (ODS). The GEF established an Ozone Focal Area in the early 1990's to assist CEITs who, as non-Article 5 countries under the Montreal Protocol, were ineligible for support under the Montreal Protocol Multi-Lateral Fund but nevertheless required such support to meet their obligations under the Montreal Protocol, and specifically to those assumed under the London Amendment. In the GEF's FY04-FY06 Business Plan, this assistance was extended to CEITs having ratified the Copenhagen Amendment, specifically for the phase-out of Methyl Bromide (MBr).

The Soviet Union, as one of the world's largest producers and consumers of Ozone Depleting Substances (ODS) ratified the Vienna Convention and Montreal Protocol that initiated the elimination of ODS on a global basis in 1988 with this commitment being assumed by successor countries after 1992. The Russian Federation, Ukraine and Belarus as the principal producers and consumers in the FSU, all ratified the London Amendment to the Montreal Protocol as a developed (non-Article 5) country and have since successfully met their phase-out obligations for the most damaging Annex A and B ODS (CFCs and halons). In all three countries, this has been achieved with the assistance of successfully completed GEF funded projects targeting ODS consumption with the Bank acting as the implementing agency. A separate donor funded Bank operation to which GEF also contributed funds permanently closed production of Annex A and B ODS capacity in the Russian Federation.

In Ukraine, the initial GEF ODS Phase-out project involved a US$23 million GEF project that targeted industrial investments in phase-out of ODS consumption in the domestic and commercial refrigeration, refrigeration servicing, aerosol, fire protection, and solvent sectors as well as provided technical assistance for training and institutional strengthening. This project was completed at the end of 2004. In November 2000, Ukraine made the next step and ratified the Copenhagen Amendment thereby assuming obligations with respect to the phase-out of Annex C and Annex E ODS (methyl bromide). In the case of MBr this involves the complete phase-out of production and consumption by January 1, 2005 except as permitted under the Montreal Protocol. Reflecting a proactive commitment to remain current with international control measures under the Montreal Protocol, Ukraine is currently actively pursuing ratification of the Beijing and Montreal Amendments and in March 2004 formally adopted an updated Country Program for ODS Phase-out for the period 2004-2030 under Cabinet of Ministers Resolution N256. This sets out national priorities for elimination of ODS in compliance with the Montreal Protocol and ultimately in accordance with the requirements of the European Union.

2.0 Background on Methyl Bromide Production and Consumption in Ukraine

Ukraine's situation respecting the phase-out of MBr is particularly important relative to other countries in the region. It was only major producer of MBr in the region and this production capacity nominally remains. Historically, it has also been one of, if not the largest consumer of MBr in the region primarily due to the widespread application of MBr in protecting stored grain throughout the supply and distribution system. While MBr use in this sector has declined, largely for economic reasons, other methods of pest control have not been widely adopted with resulting negative impacts on quality and productivity in this important economic sector.

Production of MBr took place in Ukraine between 1964 and 2002 at the Saki State Chemical Plant, located at Saki, Autonomous Republic of Crimea. This was the only production facility for MBr in the former Soviet Union and was the primary supplier for that country and its successor states, as well as for countries in Eastern Europe. The plant at its peak capacity was rated at approximately 4,000 MT/year. In 1991, the baseline year for phase-out under the Copenhagen Amendment, 3,607 MT were produced according to the plant's records. This declined to approximately 1,400 MT in 1996 and thereafter fell off to no more than 400 Mt/year until 2000. In 2001 which was the last full year of production at the Saki Plant, 229 MT was produced. A further 137 MT was produced in 2002 until September of that year, when production ceased due to bankruptcy of the enterprise. Historically, approximately 50 percent of the production was exported, primarily to Russia and Kazakhstan with the main applications was understood to be in the grain sector.

No production has taken place in Ukraine since September 2002. The Saki Plant is currently inoperative and has been partially dismantled, although a theoretical capacity to produce around 800 MT/year is retained and could be activated with relatively minor refurbishment and restoration. Notwithstanding the phase-out requirement imposed under the Copenhagen Amendment, the Government has elected under its current Country Program to retain the option of reopening this plant for applications permitted under the Montreal Protocol. Similarly, a second enterprise the Olvia Chemical Plant (formally JSC "Brom") at Krasnoperekopsk, also in the Autonomous Republic of Crimea, is considering developing capability that could allow MBr production. This plant was the supplier of bromine feedstock to the Saki plant, has recently been fully privatized and is planning to develop capacity to produce a range of alkyl bromides. The nature of the technology used would allow an elective capability to produce MBr on a campaign basis should legal markets exist for it. The nominal alkyl bromide production capacity contemplated is 2,000 MT/year.

Official record keeping related to actual MBr consumption in Ukraine over the past fifteen years has been sporadic, reflecting the significant restructuring of the responsible institutions and sectors involved. This has also precluded consistent national reporting of production, export, import and consumption to the Ozone Secretariat. Research undertaken by the Ministry of Environmental Protection (MOEP) in preparation for the current project indicates that prior to 1991, consumption levels were in excess of 2,000 MT/year based on residual records from the various remaining fumigation service provision organizations formally operating as a state service prior to 1991. Between 1992 and 1996, consumption was in the range 600-800 MT/year but this fell to the levels of 300-400 MT in late 1990s mainly due to economic conditions. Consumption was reduced further in 2001-2003. Although authorities officially reported zero consumption in this period, data recovered retroactively from records of the Saki Chemical plant, fumigation companies and the relevant agencies various agencies indicate that consumption continues at moderate levels as consumers continue to make use of MB stockpiles dating from earlier years.

The table below shows the most recent estimates (in metric tonnes) that were prepared by the MOEP based on research of official records of the relevant authorities for this project. The Ministry representatives acknowledged historical deficiencies in national reporting which led to inconsistency between the official Ozone Secretariat data for Ukraine previously submitted and that provided below. The reasons for the inconsistencies were both the absence of an effective institutional reporting system and the misreporting of MBr consumption as being for exempt QPS applications, something that has occurred elsewhere. In fact, the overwhelming majority of MBr consumption is in the non-exempt the post harvest sector primarily for grain. The Ministry has initiated a submission of revised data to the Ozone Secretariat and request correction of the offic ial data.

Historical Methyl Bromide Production, Import, Export and Consumption (MT)

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Production	3607	2109	1793	948	1423,	633	315	315	409	282	385	136	0	0
Export	n/a	1182	n/a	n/a	n/a	952	0	0	0	25	385	160	0	0
Import	n/a	n/a	n/a	n/a	n/a	200	0	0	0	0	0	0	0	0
Consumption Production+ import-export	n/a	927	n/a	n/a	n/a	0	315	315	409	257	0	0	0	0
Actual Consumption	750	611	747	527	627	573	288	200	143	237	120	76	90	50
Estimated reserves	n/a	n/a	n/a	n/a	730	39	65	180	447	447	347	247	157	107
QPS Consumption	128	67	35	31	22	16	7	15	14	11	8	13	9	8

Notes: 1. n/a – No data
2. Based on original documents received from the Ministry of Industrial Policy, Ministry of Agriculture and the Main Bread Administration.

Based on official reporting by the Government Ukraine is in compliance with its obligations and has effectively met the full phase-out requirement applicable to non-exempt applications effective on January 1, 2005, although as has been previously indicated deficiencies are now acknowledged with this reporting that require rectification. Furthermore, it has not applied for any critical use exemptions so production, if re-started would be restricted to domestic consumption in QPS applications and export sales as permitted to other parties, either in Article 5 countries[3] or non-article 5 countries for QPS applications or having approved critical use exemptions. Of particular significance, this is understood to exclude export to the Russian Federation since this country has not ratified the Copenhagen Amendment, although this is understood to be in process.

The historical demand for MBr consumption in Ukraine as in other grain producing parts of the FSU was largely dictated by a regulatory requirement originating from inherited USSR standards that required all grain storage structures (elevators, silos and warehouses) at farms, storage terminals and processing facilities (mills) to be regularly fumigated with MBr prior to use. For grain storage this is typically annually but may be more frequent in processing facilities. This was the primary strategy used to protect the grain production and storage distribution system although MBr was also used on bulk grain stores if and when infestation occurred. The strategy generally reflected the high reliance on cheap (subsidized) chemicals that were available in a command economy and less emphasis on infestation prevention and on fumigation applied upon detection of infestation as was practiced elsewhere. While the regulatory requirement for annual empty space fumigation is still officially retained, the use of MBr has dramatically declined since the early 1990's. This is in part due to a decline in grain production during the 1990's but mainly reflects a general degradation the system of grain protection. This was attributable to a combination of the overall economic situation in the sector, its restructuring and privatization, declining enforcement of regulatory requirements, and the removal of subsidies for MBr. In recent years, it also reflects the positive impacts of sector restructuring as private sector agribusiness practices such as the more rapid turn over of grain stores and introduction of alternative grain protection techniques begin to be applied.

[3] Ukraine's eligibility for making exports to Article 5 countries would depend on the quantity it exported for this purpose (if any) in the period 1995 to 1998.

The other area where MBr consumption occurs in Ukraine is in quarantine treatment of certain agricultural commodities on import and export which would be considered exempt from Montreal Protocol control measures. Such quarantine and pre-shipment (QPS) applications of MBr include imported seedlings, fruits, vegetables, and seeds, and exported timber. This is current undertaken by General State Inspectorate on Quarantine of Plants under the Ministry of Agricultural Policy who operate fixed fumigation facilities at five seaports on the Black Sea and mobile capability in seven regional operations servicing land border crossings and other locations. The annual requirement for MBr using current and relatively inefficient practices is estimated at 8 to 10 MT/year, although a requirement for a strategic reserve of 50 MT is considered to also be required to respond to emergency situations.

In summary, Ukraine is currently adjusting to the reality that its traditional dependence on MBr fumigants is not longer an option, both due to its commitment to meet its international obligations under the Montreal Protocol and the economic reality that it will not be an affordable option in the volumes that it might be required to maintain an acceptable level of crop or quarantine protection. This is seen as a particularly important part of the country's agricultural sector development which has significant potential for growth, something that contributes to the development of rural areas as well as the Country's continuing successful transition to a competitive market economy within Europe and globally. As a consequence, it is critical that the introduction of alternative post harvest protection strategies and technologies be accelerated in the grain sector where either continuing problems with quality and productivity will occur due to infestation, or there will be pressures to return to the use of MBr illegally. For these reasons, Ukraine is looking to the international community for assistance in supporting the conversion of its crop protection capacity in this area. The proposed GEF Methyl Bromide Phase-out Project represents a key part of this initiative.

3.0 Other Residual ODS Production Capability in Ukraine

While Ukraine was not a primary producer of Annex A and B ODS[4], a process plant facility for the production of carbon tetrachloride (CTC) exists within the "Oriana-Halev" LLC chemical complex at Kalush in the Ivano-Frankivsk Region of western Ukraine. This was a major producer of CTC feedstock for CFC-11 and CFC-12 production in Russia and latter for Article 5 countries. It also produced a limited amount of CTC for use as a solvent. The facility operated roughly its full capacity of 18,000 MT/year of CTC until 1993-94 and at lower output until 1998. While remaining operable, it has not been in production since 1998. In requesting international assistance for MBr phase-out, the government has requested that the Bank include the permanent closure of this facility as part of the project scope in recognition that this would ensure complete phase-out of Annex A and B production capacity in any form, consistent with likely future obligations contemplated under the Montreal Protocol. This request is consistent with similar proactive international initiatives in other countries, notably China where MPMF funding is being provided for closure of CTC production capacity.

4.0 Overview of the Agricultural Sector

The agri-food sector in Ukraine is a large and important part of Ukraine's economy. Agriculture and food accounted for 23 percent of GDP and 28 percent of national employment in 2003.

The climate of Ukraine is temperate and roughly similar to the mid western United States. Average annual precipitation in Ukraine is approximately 600 millimeters (24 inches), including roughly 350 millimeters during the growing season (April through October). Amounts are typically higher in western and central Ukraine and lower in the south and east. The country has excellent soils, a strategic trading

[4] Production of Annex A and B ODS for end use in the Soviet Union was largely confined to seven enterprises in the Russian Federation that have been permanently closed since the end of 2000.

location between Europe and Russia, and a well educated workforce. When combined with the relatively low production and labor costs, the country enjoys significant comparative advantage in as an agricultural producer.

Of Ukraine's total land area of 60 million hectares, roughly 42 million is classified as agricultural land, which includes cultivated land (grains, technical crops, forages, potatoes and vegetables, and fallow), gardens, orchards, vineyards, and permanent meadows and pastures. Winter wheat, spring barley, and corn are the country's main grain crops. Sunflowers and sugar beets the main technical, or industrial, crops. Agricultural land use has shifted significantly since 1991 with a drop in cultivated area of about 5 percent in the 1990s, from 32.0 million hectares to 30.4 million, and area decreased for almost every category of crop except specifically sunflowers. Forage-crop area also dropped by 40 percent, as a consequence of the steep slide in livestock inventories and feed demand.

Agricultural GDP declined by 51 percent between 1991 and 1999, recovered between 2000 and 2002 and declined again in 2003. Of particular importance has been the collapse of the formal livestock sub-sector during the 1990's. 2.4 million jobs were lost in the rural areas between 1990 and 2000, representing about one third of the rural work force that remains at about 7.8 million. Out of these 2.4 million, only 504,600 were officially registered at the beginning of 2005. Consequently, rural poverty has risen sharply. However, Agri-food is now one of the fastest growing sectors in the economy, positioning it to contribute to growth, export earnings, poverty alleviation and regional development, notwithstanding the significant declines it suffered through the 1990s after independence.

4.2 Overview of the Grain Sector

The amount of land utilized for grain production is approximately 50 percent of the cultivated land base in the country that itself occupies 70 percent of the country's land area. While Ukraine has traditionally been a major producer of food and feed grains, through the latter years of the Soviet Union and 1990s, the productivity the grain sector declined significantly, tracking the general decline Ukrainian agriculture. This is generally attributed to the inefficiencies of the command economy and the decline of new investment in modern technology and techniques. However, beginning in the late 1990's the sector has shown significant improvement, something that is generally attributed to relaxation of traditional state control of the sector, initiation of land reform measures, dismantling of state and collective farms and the growth of private sector agribusiness. In particular, the grain production has demonstrated renewed growth as the sector modernizes and restructures. In 2000, grain production approached and has since exceeded 40 million tons per year and in 2001 Ukraine became a net exporter. In 2004, production was approximately 42 million tons and it is forecast that production could realistically reach a production level of 50 million MT/year in the near term. The primary grains produced are wheat, barley, and corn that account for 50 percent, 20 percent and 15 percent of production respectively with the remainder being oats, millet, rye, sunflowers, canola, buckwheat, and rice. In 2003, the utilization of grain harvest was 14 percent for food processing, 45 percent for feed, 8 percent for seed, 26 percent for export and 7 percent was attributed to losses and other uses.

The structure of the grain sector can be characterized as having three principle operating sub-components of interest in this project. While individual operations may combine some of these operations, generically they can be described as: i) primary producers (farms); ii) elevator/terminal storage servicing farms and providing strategic reserves and sales/export distribution points; iii) grain processing facilities such as flour mills.

Up until 1992, these components operated under central control as part of the state agricultural system. Grain production was mainly centered on large state or collective farms many of which had flat floor warehouse and even elevator storage facilities within their individual or collective operations. However,

grain storage was primarily operated by a state elevator/grain terminal system with large facilities in grain producing regions and at major ports. In many cases these facilities also included downstream processing operations. In addition, a system of separate facilities provided dedicated state reserve capacity. Within urban areas, there was an additional network of downstream processing operations. Service capacity for activities like pest control and fumigation were provided by a series of regional state service organizations operating under the same central control structure within the Ministry of Agriculture. After 1992 and occurring at increasingly rapid rate, the original state structure has been steadily restructured through privatization and rationalization of operations to reflect the realities of a market economy. The following provides a general overview of the current structure of the sector by operating component:

a) ***Primary Producers:*** At the production level, the system of state and collective farms has been dismantled (2000) with farm property ownership passing to the farm workers in the form of land shares. However, most new shareholders leased their land back to newly-formed private agricultural associations. Currently there are approximately 43,000 small farms cultivating around 2.9 million hectares of arable lands, and produce in the range of 3.5 to 3.7 million MT of grain. However, the main grain producers remain large farm enterprises, based on privatized state or collective or state farms where shareholdings have been leased or acquired from the original post privatization share owners. In 2003, there were over 1,400 such agribusiness enterprises operating as large scale grain producers cultivating approximately 18 million hectares of arable lands and having annual individual production levels from 10,000 to 35,000 MT of grain. On-farm storage capacity is estimated to account for only approximately 20 percent of the overall national capacity but as in most grain producing countries, there is a strong trend to increasing this as farmers elect to store and market product directly rather than pay be for centralized storage.

b) ***Elevators/Terminals****:* The elevator/terminal system that provides an estimated 30 million MT of storage capacity has also undergone extensive privatization and rationalization, but does retain a significant element of state ownership. The largest single elevator operator are the various regional operations of State Joint-Stock Company "Khlib of Ukraine" which was created in 1996 to take over the remaining state assets in the storage and processing sector originally under the General Board for Bread Products and the General Board for Mixed Fodder Industry of the Ministry of Agriculture and Provisions. It now has a reporting relationship to the Ministry of Agricultural Policy. "Khlib of Ukraine" currently operates 80 elevators with a storage capacity of 7 million MT, as well as 34 flour mills, 6 cereal production plants and 13 fodder plants. The State Committee of Ukraine on a State Material Reserve operates a further 28 individual elevator facilities. However, the largest number of operating elevators (approximately 500) is now privately operated by different local and international firms, the majority of which are members of an industry association known as the Ukrainian Grain Association (UGA). These private facilities now account for approximately 75 percent of the national grain storage capacity. There is a current trend to consolidation of privately held elevators under national and international grain trading enterprises with 20 such firms operating between 5 and 35 storage facilities each and having cumulative storage capacities ranging from 400,000 to several million MT each.

c) ***Grain Processing Facilities:*** There are a significant number of grain processing facilities of various types in the country including 157 flour mills with processing capacities of 100 to 900 MT of grain per day. These are primarily privately operated although as noted above some remain with "Khlib of Ukraine".

d) ***Fumigation Service Providers***: The basis for the country's historical fumigation service capacity was a the system of 18 regionally based specialty organizations or "expeditions" organized in 1967 under the State Committee on Bread Products and Mixed Fodder Industry. After 1992, these organizations were privatized and while a number have broken up into small private operators, at

least 6 of these organizations continue to operate on a relatively large scale and at least four relatively large new service providers are operating. In addition a large number of individuals or small groups also provide these services with various levels of competence.

The grain sector falls under the Ministry of Agricultural Policy for purposes of policy direction and regulatory control. This overall authority is defined in recently upgraded legislation known as the Law of Ukraine, No. 37-IV "On Grain and Grain Market in Ukraine, July 4, 2002. The legal basis for regulation of grain facilities is provided under Resolution of the Cabinet of Ministers of Ukraine No. 510, "Ensuring Certification of Grain Warehouses Regarding Compliance of Storage Services of Grain and Products of its Processing, Introduction of Grain Warehouse Certificates," April 11, 2003. A set of nominally upgraded regulations supporting this were recently issued by the Ministry of Agricultural Policy designated as "The Technical Rules for Grain Warehouses" No. 228, June 6, 2004. While this overall legal and regulatory frame work is relatively recent, the majority of detailed regulations and standards named within it as applicable to the sector actually still date from the Soviet Union, particularly those governing pest control practices. Examples of these are listed below.

- "Rules of organization and management of a technological process on elevators and grain-collecting stations", Ministry of Grain Reserves of the USSR, 1984.

- "The instruction on combating grain reserves pests," Ministry of Grain Reserves of the USSR, No. 9-1-80.

- "The methodical instructions on application of a preparation PHOSTOXIN for fumigation of a grain in elevator silos"; Ministry of State Purchases of the USSR, November 14, 1980, No. 8-17.953.

- "The instruction on fumigation of the mixed fodder by a methyl bromide", Ministry of State Purchases of the USSR, July 15, 1981. No. 205.

- "Methods of definition of a contamination and degree of damage of a grain by the pests", USSR GOST Standard 13586.4-83, 1983.

- "The safety precautions regulations and industrial sanitation on enterprise on storage and processing of a grain in a grain procurement system," Ministry of State Grain Procurement of the USSR, April 18, 1988, No. 99-89.

In particular, they include a requirement for decontamination of grain storage facilities (silos, elevators and warehouse) prior to use with methyl bromide although phosphine and various contact insecticides were also approved for use under the regulations governing certification of chemicals and insecticides. Enforcement of grain standards and regulations including the physical inspection of facilities lies with State Grain Inspection, within the Central State Inspection Agency for Quality and Certification of Agricultural Products under the Ministry of Agricultural Policy.

While no official data respecting the impact of pest related losses in the grain industry is available, senior officials of the Ministry of Agricultural Policy and operators in all parts of the sector indicate that it is a serious problem and the one that is growing. Elevator operators report that up to 3 percent of incoming grain trucks received at their facilities is rejected upon entry inspection and sampling, notwithstanding relatively old and imprecise sampling equipment used. International grain traders handling export material indicate that as a policy they consider all grain received as suspect and routinely apply phosphine fumigation upon all export shipping. There are reports of Ukrainian grain shipments having to be being

rejected and destroyed due to high levels of infestation upon arrival at importing ports. In addition to the domestic economic losses, the overall reputation of Ukrainian grain in the export market is mixed, something that limits export growth and results in a significant portion of that exported being considered as lower grade feed grain. Domestically, downstream processors of grain, particularly flour mills and seed suppliers also report very high levels of infestation to the point where they simply assume this to be the case with incoming grain. In both these areas operators indicate that this has become a major economic constraint on their business in the absence of effective fumigation alternatives to MBr.

4.3 Overview of the QPS Sector

As in most countries, Ukraine maintains a practice of quarantine and fumigation of imported agricultural and other products that have potential to introduce pests into the country. Quarantine fumigation is also applied to some exported products where fumigation is a pre-condition of an importing country. Typical applications are imported seedlings, fruits, vegetables, and seeds, and exported timber and wood containers. These activities are currently undertaken principally by General State Inspectorate on Quarantine of Plants under the Ministry of Agricultural Policy who, through state enterprise, operate fixed fumigation facilities at five seaports on the Black Sea and mobile capability in seven regional operations servicing land border crossings and other major industrial centers. It is also understood that some limited contracting out of this is done with private fumigation service providers.

Annex 2: Major Related Projects Financed by the Bank and/or other Agencies

UKRAINE: METHYL BROMIDE PHASE-OUT

Sector Issue: Rapid phase-out of ODS consumption in a manner consistent with international efforts and within internationally agreed timeframes.

The GEF Ozone Depleting Substances Phase-out Project completed in 2004 assisted high ODS consumption enterprises in Ukraine to make the transition to non-ODS substitutes before ODS supplies diminish, provided technical assistance for phase-out in the halon sector, provided technology transfer associated with low Global Warming Potential (GWP) refrigerants for domestic refrigeration; and provided institutional strengthening to the Ozone Office within MOEPNS and MOEP.

Relevant lessons: (1) In projects like this the Project Implementation Support Team should be placed high enough within the operational structure of a responsible local implementing agency, to have (a) access to decision-making; (b) authority to effectively champion the project's objectives; and (c) be able to operate somewhat independently of the restrictive administrative structure. (2) This Project offers useful direction on undertaking future global environmental initiatives of this type in Ukraine. While this Project was undertaken essentially in isolation of other Bank operations, future initiatives should be integrated where possible to other sectoral initiatives. The linkage between methyl bromide phase-out and the grain sector is an example of such an opportunity. (3) This Project provides an example of the supervision intensive nature of operations involving multiple, technically diverse and complex investment sub-projects as well as supporting technical assistance. This is particularly true where grant based financing is governed by strict GEF eligibility requirements and Bank due diligence obligations related to safety and appropriate use of donor funds. Future projects of this nature should ensure that this requirement is recognized and matched to PIST capacity.

Sector Issue: ***Enhance food safety and increase domestic and international competitiveness of the agri-food sector.***

Agricultural Competitiveness and Food Safety Project (under preparation) will help agricultural producers and food business operators to increase sales as compared to the benchmark because of their ability to produce and market safer and higher quality products in compliance with international food safety requirements. The objectives of the MBr Phase-out Project related to reversing the increasing pest impacts within the grain production, processing, handling and distribution system supports the overall ACFSP objectives related to both product quality and competitiveness as well as the overall enhancement of the food supply system and harmonization with international standards. More directly, the focus of small investments in IPM and more environmentally friendly agricultural practices, particularly at the farm level is consistent with the components of the ACFSP related to support of the agriculture service sector and fostering environmentally friendly farm practices. Recognizing that the MBr project is on a more advanced processing cycle, it can usefully support the ACFSP in piloting small on farm investment programs and conversely may produce investment portfolio opportunities for future ACFSP interventions.

Annex 3: Results Framework and Monitoring

UKRAINE: METHYL BROMIDE PHASE-OUT

Results Framework

PDO	Outcome Indicators	Use of Outcome Information
Contribute to Ukraine's environmental sustainability by assisting the country in meeting key international environmental obligations related to MBr phase-out with minimum economic dislocations.	Compliance with international environmental obligations related to MBr phase-out as reflected by acceptance of country reporting by the Parties to the Montreal Protocol of production, imports, exports, stockpiles, and consumption	Monitor the elimination of MBr consumption and production, track progress in reporting compliance status and adoption of new ODS control measures, and evaluate progress in achieving improved stored product and quarantine protection
Intermediate Results One per Component	**Results Indicators for Each Component**	**Use of Results Monitoring**
Component One: Reduction and ultimate elimination of demand for MBr in the grain sector and its reduction in QPS applications, while achieving improved stored product and quarantine protection.	**Component One:** • Elimination of MBr use in the grain sector within two years and eventual elimination of potential demand within three years. • QPS MBr demand and actual use reduced by 50 percent within two years. • Demonstration of the viability of an IPM approach across the grain sector such that it can be replicated across the sector. • Measurable improvements in grain quality and productivity as measured by improved grades and reduced rejection rates in the supply and distribution system. • More effective quarantine controls applied to imported agricultural products and related goods as demonstrated by increased coverage and reduced incidence of imported pests. • More effective quarantine controls applied to exported products as demonstrated by decreased barriers to export	**Component One:** • Support compliance reporting respecting Montreal Protocol obligations, • Promote the use of an IPM approach to pest management across the grain sector. • Provide the basis for ongoing stored product protection training and operating procedure development • Enhance the marketability of higher quality Ukrainian grain on the export market. • Facilitate the development, acceptance and use of competitive emerging stored product protection technologies. • Demonstrate the practical integration of environmentally sustainable technology in the agricultural and specifically grain sector • Promotion of Ukrainian export potential.
Component Two: Permanent closure of CTC production capacity	**Component Two :** • Verified implementation of agreed Closure Plan dismantling production capacity • Effective monitoring and control of residual by-products	**Component Two:** • Support for proactive measures respecting the national commitment for total ODS phase-out. • Demonstration of performance

	from closure and past operations.	based compensation initiatives directed at elimination of environmentally sensitive chemicals. • Development of future initiatives to address POPs legacy issues under the Stockholm Convention
Component Three: Create the basis for an effective regulatory framework and with sustaining supporting institutional capacity to fully phase-out MBr and manage the assumption of future Montreal Protocol control measures.	**Component Three:** • Credible reporting related to MBr to the Montreal Protocol Secretariat • Implementation of updated regulations and standards for stored products protection in the grain sector. • Ratification of the Beijing and Montreal Amendments with supporting updating of the Country Program and regulations giving effect to these obligations. • Credible monitoring and documentation thereof demonstrating that MBr production, if any, is undertaken strictly in accordance with the countries obligations. • Delivery of public information and awareness program for potential users of MBr respecting its elimination and alternatives	**Component Three:** • Demonstrate country compliance and reporting capacity to the international community. • Support the value of country commitment to and participation in future global environmental initiatives. • Contribute to development of broader public information and awareness programs. • Support national policy toward international harmonization of regulations and standard with those adopted internationally and specifically in the European Union
Component Four: Deliver effective project management capacity to support the project's implementation and M&E, and assure ownership of by stakeholders.	**Component Four:** • Efficient, timely and transparent administration of project procurement and financial arrangements. • Effective coordination of institutional participants responsible for project components and sub-components. • Transfer of results for use and further development beyond the project.	**Component Four:** • Qualification and use of project management capacity for future international initiatives. • Expansion of project management discipline capacity within government organizations.

Detailed Project Indicators

Project Strategy and Objectives	MEASURABLE INDICATORS	OUTPUTS	ASSUMPTIONS AND RISKS
MBr consumption phase-out in the post-harvest (grain) sector	• Number of beneficiaries participating in the project. • Number of other operators in the grain sector replicating results • Elimination of use of stockpiled MBr use in empty space and bulk grain fumigation. • Development of upgraded crop protection regulations and standards. • Absence of illegally acquired MBr.	• Full portfolio of consumption sub-projects implemented within the project • Implementation of similar measures being initiated by other operators in the grain sector • Trained, licensed and accredited fumigation providers. • Demonstrated adoption of upgraded regulations and standards within the grain supply and distribution system. • Documentation on stockpile reduction/disposition at fumigation service providers and distributors. • Credible import documentation.	• Counterpart capacity to prepare, appraise and implement sub-project portfolios. • Effective dissemination of results for replication and willingness of other operators to pursue investment. • Timely implementation of current grain policy initiatives respecting certification of grain handling facilities. • Effective data collection and enforcement capacity with responsible Ministries. • Global enforcement of Montreal Protocol control measures governing import and export of MBr.
Effective and environmentally sustainable stored product protection in the grain sector	• Development of upgraded crop protection regulations and standards. • Documentation and adoption of IPM practices in operations of project beneficiaries including trained staff. • Increased use of non – ODS alternatives such as phosphine in the above applications. • Reduced rejection rates at grain storage/distribution/export facilities. • Increased production of higher grade grains.	• Adoption of upgraded stored product protection regulations and standards. • Trained operating staff using documented IPM practices in the grain supply and distribution system. • Commercial availability of certified alternative fumigation technology. • Documentation at elevators/terminals and end processors of reduced reject rates and high quality of received grain.	• Timely adoption of upgraded regulations and standards. • Commitment by operators in the grain sector to implementation of IPM practices and procedures and staff training. • Timely certification of alternative fumigation technologies. • Credible reporting of grain quality and rejection information.
Reduction of MBr demand and use for QPS applications while maintaining protection against imported pests and prevention of their export.	• Quantities of MBr used by the State Quarantine Service (directly or as contracted) decline. • Alternative fumigation technologies are demonstrated and	• Measurable reductions in demand and use for MBr both in actual use and as a stockpiled reserve. • Trained staff using alternative technologies	• Availability of accurate reporting of MBr demand and actual use. • Timely certification of alternative technologies and

Project Strategy and Objectives	MEASURABLE INDICATORS	OUTPUTS	ASSUMPTIONS AND RISKS
	introduced. • Number of treatments required is maintained per national regulations on treatment of imported commodities. • No increase and potentially a decrease in the frequency of pests from imported commodities occurs • Increased acceptance of Ukrainian products in export market	where applicable. • Reporting indicates maintenance of quarantine services. • Reporting of infestation indicates maintenance of protection standards • Expansion of export markets	maintenance of staff training. • Maintenance of budget support for the State Quarantine Service. • The country is forced to respond to emergency infestation from an imported pest.
Ensuring no MBr production except as permitted under the Montreal Protocol occurs.	• Regular monitoring reports verifying the status of existing inoperative and potential MBr production facilities by the State Ecological Inspectorate and, independently by the Bank. • Implementation of agreed Monitoring Plans when plans for re-initiation, or development of MBr production occurs. • Regular reporting in accordance with Monitoring Plans which demonstrates compliance by the State Environmental Inspectorate. • Independent verification of the above by the Banks.	• Regular quarterly reports by the State Environmental Inspectorate on the status, initiation and actual production/use of MBr as applicable. • Monitoring/verification reports and due diligence records on the status, initiation and actual production/use of MBr as applicable, by the Bank.	• Maintenance of capacity and commitment by the government to undertake monitoring.
CTC production capacity closure	• Physical verification of permanent removal of CTC production capacity in accordance with the agreed Closure Plan	• Closure verification reporting by the Bank prior to the final compensation payment. • Regular reports by the State Environmental Inspectorate respecting continued compliance with the Closure Plan inclusive of environmental conditions. • Reporting on environmental	• Maintenance of capacity and commitment by the government to undertake monitoring.

Project Strategy and Objectives	MEASURABLE INDICATORS	OUTPUTS	ASSUMPTIONS AND RISKS
		monitoring of by product stockpile storage. • The inclusion of environmentally sound management of the by-product stockpile in the NIP as adopted by the Government for submission t the Stockholm Convention.	
Upgrading of the regulatory framework governing MBr and ODS generally	• Ukraine's Ratification of the Beijing and Montreal Amendments. • Updating of the Country Program consistent with the above obligations. • Updating of existing regulations to fully cover MBr in regard to import, export and consumption licensing. • Credible reporting of MBr information for internal use and in accordance with international obligations. • Proactive consideration of response to potential future control measures under the Montreal Protocol.	• Implementation of an updated country program reflecting compliance with current amendments to the Montreal Protocol. • Implementation of updated regulations. • Documentation of MBr consumption and import information as well as licensed primary users (QPS sector) • Improved regular monitoring/verification reports and due diligence records on the status, initiation and actual production/use of MBr as applicable, by the Bank.	• Government commitment is maintained in regards to ODS phase-out and eventual elimination, inclusive of capacity in the Ministry of Environmental Protection to sustain that commitment.

Arrangements for results monitoring

		Target Values					Data Collection and Reporting		
Outcome Indicators	**Baseline**	**YR1**	**YR2**	**YR3**	**YR4**	**YR5**	**Frequency and Reports**	**Data Collection Instruments**	**Responsibility for Data Collection**
Compliance with international environmental obligations related to MBr phase-out as reflected by acceptance of country reporting by the Parties to the Montreal Protocol of:							Annually	Annual Reports to the Ozone Secretariat indicating production, import, export and consumption	SEI/MOEP
Production (MT)	0	0	0	0	0	0			
Imports (MT)	0	0	0	0	0	0			
Exports (MT)	0	0	0	0	0	0			
Stockpiles (MT)	107 MT	50	50	25	12	0			
Actual Consumption (MT)[5]	50	57	25	13	12	0			
Results Indicators for Each Component									
Component One :									
• Eliminat ion of MBr use/demand in the grain sector within four years and eventual elimination of potential demand within fivee years.[6]	198 MT	57	25	13	12	0			
• QPS MBr demand and actual use reduced by 50% within two years	8 Mt	6	4	2	1	0			
Component Two :									
• Absence of CTC production capacity	0 MT	0	0	0	0	0	Quarterly by SEI Inspection Annually by the Bank	SEI Inspection reports Bank Annual Closure plan Verification Report	SEI Bank

[5] Baseline based on Ukraine's 2004 Revised Report to the Montreal Protocol Secretariat

[6] Consumption demand elimination baseline based on project global impact estimate or Ukraine's reported consumption over the five years prior to initiating project preparation

		Target Values					Data Collection and Reporting		
Outcome Indicators	**Baseline**	**YR1**	**YR2**	**YR3**	**YR4**	**YR5**	**Frequency and Reports**	**Data Collection Instruments**	**Responsibility for Data Collection**
Component Three:									
• Credible reporting related to MBr to the Montreal Protocol Secretariat	Requires Correction	Annual report	Annual report	Annual report	Annual report	Annual report	Annually	Annual Reports to the MP.	SEI/MOEP
• Implementation of updated regulations and standards for stored products protection in the grain sector.	Requires upgrade.	Enacted	Enforced	Enforced	Enforced	Enforced	Continuous	MinAgPol enforcement reports	MinAgPol
• Ratification of the Beijing and Montreal Amendments with supporting updating of the Country Program and regulations giving effect to these obligations.	Under consideration	Ratification	Compliance	Compliance	Compliance	Compliance	Continuous	Government Resolution	MOEP
• Credible monitoring and documentation thereof demonstrating that MBr production, if any, is undertaken strictly in accordance with the countries obligations.	Periodic monitoring visits	Quarterly Visits	Quarterly Visits	Quarterly Visits	Quarterly Visits	Quarterly Visits	Quarterly inspections	Inspection Reports	SEI
• Delivery of public information and awareness program for potential users of MBr respecting its elimination and alternatives	Low awareness of MBr issues	2 information products or events	2 information products or events	2 information products or events	-	-	Periodic	Information products or events	MinAgPol

Annex 4: Detailed Project Description
UKRAINE: METHYL BROMIDE PHASE-OUT

1.0 Overview

The project has been structured with four components as follows:

a) **Component 1: MBr Grain and Quarantine Sector Consumption Phase-out** – The overall objective of this component is the phase-out of MBr consumption in the two Ukranian sectors where it is used and/or its phase-out is having significant economic impacts. The primary focus is on replacing MBr use in the post harvest (grain storage and handling) sector with integrated pest management (IPM) techniques including introduction and expanded use of substitute fumigation technologies. It also addresses minimization of MBr requirements in QPS applications. This will be accomplished by a mix of investments (including Competitive Grant Program) and technical assistance that in combination are intended to minimize chemical pest control and support the use of readily available non-ODS substitutes where necessary in the near term. In the longer term, the project should also facilitate the introduction of emerging replacement technologies.

b) **Component 2: CTC Plant Closure Compensation** – The Objective of this component is the permanent elimination of CTC production capability at "Oriana-Halev" LLC. It uses a performance based compensation mechanism linked to the verified closure of production capacity in accordance with an agreed Closure Plan and its ongoing monitoring. This component also seeks to direct the Government's attention to mitigation of legacy issues associated with a persistent organic pollutant by-products accumulated by the former state enterprise that owned and operated the facility in the past, and linkage of this to measures planned by the country under the Stockholm Convention.

c) **Component 3: Policy Development and Institutional Strengthening** – The objective of this component is to ensure appropriate institutional and regulatory measures are in place to ensure effective and sustained implementation of MBr phase-out. It provides support for a range of institutional strengthening measures within the Ministry of Environmental Protection and Ministry of Agricultural Policy related to updating national regulatory measures consistent with the country's current international obligations and international practice, as well as supporting their implementation and facilitating further national commitments to ODS phase-out. The component will also provide resources for the administration of the CGP.

d) **Component 4: Project Implementation, Monitoring and Evaluation** – The objective of this component is to provide sufficient resources for counterpart project implementation support generally and specifically the Project Implementation Support Team within the State Ecological Inspectorate in undertaking procurement and financial management functions associated with the investment sub-project portfolio and technical assistance initiatives.

2.0 Component 1: MB Grain and Quarantine Sector Consumption Phase-out – (US$7.1 million, US$3.0 million GEF)

2.1 General Scope of the Grain Component

This is the central and most complex project component which covers an investment and technical assistance program addressing phase-out of current and latent MBr consumption. It is designed to focus

on IPM techniques where emphasis is placed on preventative approaches such as improved monitoring and housekeeping procedures, and use of aeration and environmental control throughout the storage and handling process. Infestation response using alternative chemicals and techniques will be promoted inclusive of application of contact pesticides in vacant storage and expanded use of available registered chemical fumigants such as phosphine in the near term while facilitating introduction of emerging controlled atmosphere and inert gas technologies in the longer term. The primary focus of investment funding is the grain sector and within that the four principle operational parts of the sector that make up the supply and distribution system for food grains in the country. These define four investment sub-components of this component of the project, namely: i) Farm Based Grain Storage; ii) Central Elevator/Terminal Storage; iii) Grain Processing Storage; and iv) Fumigation Service Providers.

Ukraine's agricultural sector has a significant potential for scaling up elimination of MBr consumption with the help of pilot MBr consumption sub-projects through a Competitive Grant Program (CGP). The key objective of the CGP is to replicate cost effective and sustainable demonstration sub-projects on a broader scale in Ukraine. For this purpose during project preparation a preliminary portfolio of potential sub-project beneficiaries has been identified. Additional potential beneficiaries will be identified during implementation through active solicitation of proposals. More detailed arrangements of CGP functioning will be specified in the CGP Manual developed at the initial stage of the project implementation. A tentative portfolio of candidate enterprises in each sub-sector has been identified and confirmed. In total, it is estimated that some 16-18 farm based, 14-16 elevator, 10-12 grain processing and 9-10 fumigator service provider sub-projects will be included in the final portfolio of sub-projects funded in this component. It is likely that some or all CGP grants will be linked to the activities of Agricultural Competitiveness and Food Safety Project which is at the advance stage of preparation and which has similar objectives.

A fifth investment sub-component involves the General State Inspectorate on Quarantine of Plants and is directed to upgrading the efficiency of its capability in order to minimize MBr use as well as facilitate the transition to non-ODS fumigants where possible.

The sixth sub-component covers the technical assistance that will be linked into each of the five investment sub-components. It would facilitate the transfer of international IPM practices in the form of training programs and quality assurance procedures applicable to the sector and tailored to the requirement of each investment sub-component. It would also include provision for supporting the introduction of emerging technologies that are co-financed by current Ukrainian research and development efforts in the field. The introduction of the CGP at the enterprise level including its promotion and the necessary support training on developing proposals for it will be fully integrated into this component to ensure that it provides an effective vehicle for enterprises to access Component 1 funding. The following describes the scope and cost estimates for each of these sub-components.

2.2 Farm Based Grain Storage Investment Sub-Component (US$1.48 million, US$0.96 million GEF)

A priority focus of the component will be upgrading farm based grain handling and storage. This recognizes both the need to eliminate pest infestation at source and the trend to increasing on farm storage. To maximize impact and cost effectiveness, it will target investments in larger grain producers, although interventions in smaller operations would be considered. The various capital items envisioned within the scope of GEF funding would include:

a) Supplying metal bins with aeration flooring or other dedicated small scale storage facilities that would serve as isolation storage suitable for application of phosphine and potentially other emerging technologies in relatively small lots prior to mixing with bulk stores;

b) Upgrading existing flat floor warehouse/shed type storage commonly used in such operations with aeration flooring and portable air blowers;
c) Providing a set of industrial cleaning equipment (vacuum cleaner, air compressor, pressure washer, tarps and sealant) that would allow warehouses to be effectively cleaned prior to use; and
d) Providing portable monitoring instruments for moisture control and insect detection.

It is anticipated that enterprise co-financing would cover installation and infrastructure plus any supplementary investments in expanded storage, drying and handling deemed necessary and affordable.

Two candidate sub-projects have been reviewed and are described in Attachment A4.1. They include a large grain/mixed farming operation and a premium seed producer. Attachment A4.2 provides portfolio of candidate farm based sub-projects that have been identified as potential recipients of CGP grants. The overall CGP sub-component project cost is estimated as US$1,480,000 including US$960,000 in GEF funding which is estimated to cover a portfolio of 16-18 individual sub-projects.

2.3 Central Elevator/Terminal Storage Investment Sub-Component (US$3.09 million, US$0.78 million GEF)

This sub-component would be applicable to the larger central elevator/grain terminal operations that currently provide the bulk of the country's grain storage capacity. It would target both public and private sector facilities handling higher quality and value added food grain where the impact of insect infestation is the greatest. Investments would target basic upgrading of various aspects of the operations to facilitate IPM practices, improve infestation detection and allow routine exception response when infestation is found. It would also potentially facilitate the introduction of larger scale bulk grain fumigation capacity using alternative technologies.

The various capital items envisioned within the scope of GEF funding would include:

a) Supplying metal hopper type bins that would serve as isolation storage for infested incoming loads;
b) Supplying modern pneumatic or electronic grain sampling systems to replace the existing manual and mechanical auger systems, thereby ensuring more comprehensive sampling of incoming loads;
c) Supplying phosphine tablet dispensers for installation on grain floor conveyors;
d) Providing a set of industrial cleaning equipment (vacuum cleaner, air compressor, pressure washer, tarps and sealant) that would facilitate better housekeeping of warehouses, elevators and handling equipment; and
e) Providing portable monitoring instruments for moisture control and insect detection.

Parallel investment by the enterprises as part of their contribution in upgrading the sealing on some silos would be anticipated as well as potentially installing entry and hook up points for use of cylinder fumigants such as phosphine and potentially other chemical/inert gas based fumigants as they are available and registered. In addition, the installation of recirculation systems in silos may be included to improve the efficiency of phosphine treatment.

Two candidate sub-projects at large elevator facilities have been reviewed and are described in Attachment A4.3. Attachment A4.4 provides portfolio of candidate elevator facilities that have been identified as potential recipients of CGP grants. The overall CGP sub-component project cost is estimated at US$3,090,000 including US$780,000 in GEF funding which is estimated to cover a portfolio of 14-16 individual sub-projects.

2.4 Grain Processing Storage Investment Sub-Component (US$0.63 million, US$0.41 million GEF)

This sub-component would address investment in grain processing facilities operating independently of the larger elevator/terminal facilities above. However, the general scope of the proposed investment sub-projects is similar in terms of targeting support for basic IPM strategies and facilitating the longer term adoption of current emerging fumigation technologies as well as potentially the inclusion of heat based techniques.

The various indicative capital items envisioned within the scope of GEF funding would include:

a) Supplying metal hopper type bins that would serve as isolation storage for infested incoming loads;
b) Supplying modern pneumatic or electronic grain sampling systems to replace the existing manual and mechanical auger systems, thereby ensuring more comprehensive sampling of incoming loads;
c) Providing phosphine tablet dispensers for installation on grain floor conveyors;
d) Providing a set of industrial cleaning equipment (vacuum cleaner, air compressor, pressure washer, tarps and sealant) that would facilitate better housekeeping of warehouses, elevators and handling equipment; and
e) Providing portable monitoring instruments for moisture control and insect detection.

One candidate processing sub-projects at an urban based flour mill has been reviewed and is described in Attachment A4.5. Attachment A4.6 provides portfolio of candidate grain processing facilities that have been identified as potential recipients of CGP grants. The overall CGS sub-component project cost is estimated as US$630,000 including US$410,000 in GEF funding which is estimated to cover a portfolio of 10-12 individual sub-projects.

2.5 Fumigation Service Provider Investment Sub-Component (US$0.98 million, US$0.22 million GEF)

This sub-component will build on the existing network of regional fumigation service organizations that have historically provided the country with these services. The investment sub-projects would involve upgrading of fumigation application capability for alternative fumigants, specifically phosphine and phosphine/inert gas mixtures. One of the priorities would be to increase the efficiency of phosphine use. This would include personal protection equipment, fumigant monitoring equipment, and sets of application equipment and tools. The selection of alternative fumigants, arrangements for their supply and any proprietary equipment required for their application would be supplied as part of enterprise contribution. A priority in this sub-component will also be the introduction of IPM techniques to crop protection service providers with the intention that they can expand their scope to providing these services as an alternative to more conventional chemical based fumigation.

The various capital items envisioned within the scope of GEF funding would include:

a) Supplying personal Protection Equipment Set (Masks/self contained breathing equipment);
b) Providing fumigant monitoring/ concentration testing equipment;
c) Supplying gaseous fumigant application equipment set (pressure testing equipment, blowers, gas manifold, manometer, dosing scale, tool set); and
d) Providing alternative fumigant application and storage equipment.

One candidate sub-projects at an enterprise in major grain producing region has been reviewed and is described in Attachment A4.7. Attachment A4.8 provides portfolio of candidate service providers that have been identified as potential recipients of CGP grants. The overall CGP sub-component project cost is estimated as US$980,000 including US$220,000 in GEF funding which is estimated to cover a portfolio of 9-10 individual sub-projects.

2.6 Quarantine Service Capacity Strengthening Sub-Component (US$0.43 million, US$0.23 million GEF)

This sub- component is to be undertaken with the General State Inspectorate on Quarantine of Plants as the direct beneficiary and is intended to upgrade the efficiency of its operation capacity with the objective of minimizing MBr use in QPS applications through more efficient use of the fumigant as well as facilitate the transition to non-ODS fumigants where possible. The State Quarantine Service operates throughout the country with its major operations at four sea ports (Odessa, Mykolaiv, Ilichivsk, Skadovsk) and regional operations at Lviv, Volyn, Ivano-Frankivsk, Kharkiv, and Lugansk service which service land border crossings. 180 technicians are employed for the work throughout these operations. At seaports, the General State Inspectorate on Quarantine have dedicated locations for undertaking fumigation which has traditionally been done in 200 m^3 chambers of CIS manufacture. These are generally no longer serviceable and fumigation is now done using temporary structures (tents and tarped structures). In addition to being inefficient in terms of fumigant use, it also requires a more complicated regulatory approval process applicable to each operation. Similarly, land border crossing operations usually use temporary structures with similar limitations.

The proposed sub-project involves the upgrading of both fixed (seaport and border crossing operations) with custom chambers that will allow greater flexibility and efficiency as well as optimize the regulatory approval process. At the seaports, a commercial double chamber system is proposed that will allow transfer of gaseous phase fumigant from one another for re-use. It is estimated that this will reduce consumption by a factor of three. In inflatable chambers that would be used for timber export shipments is also provided for. In addition, the alternative of applying heat treatments will be investigated, noting that has been approved by FAO/International Plant Protection Convention guidelines (ISPM-15) for quarantine treatment of solid wood packaging materials, such as wooden pallets, providing an alternative to MBr. For the land entry point operations, the use of trailer mounted chambers is proposed. The sub-project will also provide for the supply of personal protection equipment, as well as sampling and monitoring equipment. As part of enterprise contribution equipment installation and support infrastructure as well as vehicles will be covered. In addition, the sub-project provides for enterprise/government financed development and testing work to be undertaken on alternative fumigants, specifically phosphine/CO_2 mixtures and inert gases.

Attachment A4.9 provides a summary of the sub-project scope and estimated incremental capital costs. The overall sub-component project cost is estimated to be about US$430,000 including about US$230,000 in GEF funding.

2.7 Grain Sector Operating Technical Assistance Sub-Component (US$0.60 million, US$0.50 million GEF)

An integral part of the project's consumption phase-out component is the provision of technical assistance in the form of training and implementation of improved pest control procedures and practices at the operational level in the two areas where consumption occurs. This would be integrated with the various investment sub-components described above such that current and future project beneficiaries are able to

fully capitalize on the assistance. The technical assistance sub-component also recognizes that there is a need to support the country's proactive interest in developing and testing substitute technologies.

On this basis, the technical assistance component is envisioned to be undertaken as a framework training and technology transfer initiative that will utilize current international experience to develop and deliver a series of training modules tailored to each of the beneficiary groups involved in the various investment sub-projects. This would be based on a "train the trainers" model with the objective of having ongoing training programs sustained by counterparts. In parallel, the component would provide for development of a similarly tailored set of practical procedural and practice manuals that can be adopted and used at an operational level.

It would also link to any bilateral international initiatives that are occurring in parallel, including the current project being undertaken by the Ministry of Agricultural Policy and Canadian Grain Commission related to certification of grain handling facilities. A linkage is also envisioned to Component 3 covering policy development and institutional strengthening within the regulatory system and specifically the technical assistance element that will address modernization of the currently dated system of detailed regulations governing pest control in the grain sector. Also within this sub-component, funding would be allocated to support development work with committed budget or industry funding that is directed at developing domestic capability in commercializing and applying emerging pest control technologies. This activity would likely require international expertise in the field.

An overall GEF funding allocation of US$500,000 is estimated for this sub-component with counterpart in kind co-financing covering costs of trainee participation and infrastructure support for its implementation, as well as long term support for sustaining it beyond the project. The following table provides a summary of the scope envisioned for this sub-component. This will be further developed such that detailed Terms of Reference covering this assistance will be available upon grant effectiveness.

Technical Assistance Element	Scope
1. Training Modules	
1.1 General IPM Training	Applicable to all beneficiary stakeholders at supervisory level. Cover introduction to IPM concepts and practice
1.2 Farm Based IPM Training	Applicable to farm operational staff. Cover farm specific IPM implementation
1.3 Bulk Grain Storage IPM Training	Applicable to farm operational staff in elevators and mills. Cover IPM implementation at storage facilities.
1.4 Fumigation Application Training	Applicable to application technician in fumigation service providers and State Quarantine Service. Cover use efficiency and conservation of alternative chemical fumigants (particularly phosphine), and health/safety practices as well as the expansion of service capacity t include implementation of IPM
1.5 Alternative Pest Control Technology	Applicable to technology developers and users. Cover current trends in pest control technology.
2. Practice/Procedure Manual Development	
2.1 Farm Operators Pest Prevention and Control	Cover basic housekeeping, monitoring, Q/A and pest response practices with emphasis on application of IPM

Manual	from field through on farm processing storage and shipping.
2.2 Bulk Grain Storage Operators Pest Prevention and Control Manual	Cover basic housekeeping, monitoring, Q/A and pest response practices with emphasis on application of IPM with each operational stage and its documentation.
2.3 Fumigation Service Providers Application Manual	Cover application practices, equipment maintenance, and health and safety measures, as well as documentation.
3. Alternative Technology Development Support	Cover provision of international technical expertise in support of domestic programs on emerging pest control technologies.

3.0 Component 2: CTC Plant Closure Compensation (US$1.1 million, US$1.0 million GEF)

This project component involves the permanent closure of the "Oriana-Halev" LLC CTC production plant in accordance with an agreed Closure Plan the implementation of which will be subject to a verification procedure and subsequently post closure monitoring. The compensation paid for this from the GEF funding of US$1.0 million will be split in two performance based payments. The advance payment of 30 percent of total compensation will be disbursed upon adoption of a legally binding Closure Plan being signed by the enterprise and government as established in a Sub-Grant Agreement between these parties acceptable to the Bank. The remaining 70 percent will be paid under the Sub-Grant Agreement upon independent verification by the Bank of its full implementation. A condition of this compensation to be set out in the overall project Grant Agreement for the project will be repayment of compensation funds should any CTC production be re-initiated in Ukraine in the future. The model for this component is the Special Initiative on ODS Production Closure in the Russian Federation undertaken by the Bank.

The agreed Closure Plan which includes background material on the enterprises and the subject production as well details of closure actions required, the environmental management plan for its implementation, as well as verification, monitoring and record keeping requirements, and applicable procedures is provided in Attachment A4.10. This Closure Plan has been agreed in principle with the enterprise and counterparts responsible for regulatory monitoring in the Ministry of Environmental Protection. The enterprise has initiated a number of the required activities on a proactive basis, including completing feedstock supply line removal, securely storing residual product inventories, and completing an EIA of the Closure Plan through to having official approval of the State Environmental Expertise. The Ministry of Environmental Protection has also provided the Bank with a commitment letter respecting the inclusion of the hexachlorobenzene (HCB) by-product stockpile (accumulated by the enterprise in the past) as a priority action item within the country's National Implementation Plan under the Stockholm Convention on Persistent Organic Pollutants. Additionally, it has accepted obligations to maintain monitoring of the HCB stockpile under the Closure Plan. Enterprise will provide a contribution to these activities by undertaking various activities specified in environmental management plan and environmental monitoring plan.

It is recognized that the eligibility of this component could be questioned on the grounds that compensation is being provided for closure of a facility that has not operated since 1998. The justification for including it is essentially based on the elimination of residual capacity that would otherwise continue to exist and represents a potential source of ODS, either for direct end use or as feedstock in illegal applications. This approach is consistent with other operations eliminating ODS production capacity, notably the Special Initiative for ODS Production Closure in the Russian Federation that included GEF funding and which covered all Annex A and B production capacity, whether operating or not. The current World Bank CTC production closure project in China funded by the MPMF represents another similar operation where excess capacity is being permanently closed.

4.0 Component 3: Policy Development and Institutional Strengthening (US$1.25 million, US$0.75 million GEF)

This component will provide support for a number of project wide policy development and institutional strengthening initiatives that will promote current and future country compliance with its obligations under the Montreal Protocol. As such the primary counterpart beneficiary would be the Ministry of Environmental Protection, although in most cases this will have to be done in coordination with other Ministries and agencies, particularly the Ministry of Agricultural Policy and agencies responsible for labor protection and public health. The following summarizes the technical assistance and institutional strengthening measures identified within this component:

a) ***MBr/CTC Production Monitoring:*** Ukraine's election to retain the option of MBr production at the one existing facility (Saki Chemical plant) and potentially at other facilities (i.e. Olvia Chemical Plant) necessitates the establishment of a strict regulatory monitoring program to be applied to these facilities. The basic objective of such a program would be to ensure that any steps taken to reinitiate production are carefully documented in advance and that any production of MBr, should it be re-initiated at any location, be strictly controlled in accordance with the country's obligations under the Montreal Protocol. It had been agreed by the Ministry of Environmental Protection and the two subject enterprises that this process will be undertaken in accordance with Monitoring Plans applicable to each potential production facility and that they will be agreed by the Bank for the two enterprises above as a condition of grant disbursement. As a basis for this and for finalizing these Monitoring Plans, the Government and the enterprises have agreed on the basic principles that will apply to them. These are outlined in Attachment A4.11. In addition a draft Monitoring Plan has been agreed for the existing production facility at the Saki Chemical Plant. In addition to an element of independent international monitoring undertaken by the Bank that will be provided for in the Monitoring Plans, the Ministry of Environmental Protection will be required to undertake regular formal inspection and information reporting. The Ministry of Environmental Protection has agreed to assume this responsibility and this technical assistance element is intended to support this with speciality expertise drawn from local experts.

b) **Competitive Grant Program (CGP) Preparation and Appraisal Support and CGP Administration*:*** This technical assistance element will support capability to: (i) prepare eligible CGP projects through hiring individual experts in grain handling, fumigation, farm practices; and (ii) administer the CGP inclusive of enterprise liaison support, developing recommendations for individual sub-project selection, interaction with ICC, SEI and implementation support team. CGP Administrator will ensure that selection and approval of eligible investment projects addressing MBr consumption phase-out in undertaken in line with CGP Manual and will subsequently oversee implementation of individual CGP sub-projects and required reporting.

c) ***Regulatory Strengthening - Pest Control and Related Chemicals:*** While Ukraine has the necessary overall regulatory framework to implement and enforce the measures required to meet its obligations with respect to MBr phase-out, there are significant gaps and conflicts in the detailed regulations and standards that actually govern this in practice, something that presents a barrier to implementing alternative technologies. This technical assistance element is intended to support a systematic program to do this in the following areas:

   i) *Technical Regulations and Standards Governing Pest Control of Grain:* This would address updating or replacing the dated standards from the USSR currently in force. This would be done within the framework of the "The Technical Rules for Grain Warehouses"

No. 228, June 6, 2004 and would be primarily undertaken in association with the Ministry of Agricultural Policy.

ii) *Strengthening of regulations on ODS Export-Import, Production and Consumption:* This would provide for updating the present ODS control regulations to explicitly address MBr. This would place emphasize on the licensing of MBr use, improved control of import/export transactions and give any additional regulatory authority necessary for the Ministry of Environmental Protection to meet the monitoring and control obligations it assumes under this Grant Agreement in respect to MBr production. It would also serve to strengthen the country's reporting capacity to the Ozone Secretariat, something that preparation of this project has demonstrated to have some limitations.

iii) *Clarification of Definitions Applicable to QPS and Critical Use Applications:* The definitions applicable to QPS applications would be reviewed for consistency with those operative internationally.

iv) *Alternative Fumigant Registration:* This would address any institutional barriers that may exist in expediting the registration of new non-ODs chemicals or emerging technologies that are accepted internationally, as well as support associated certification of equipment and applicators required for them. The primary counterparts would be agencies responsible for labor protection and public health. In undertaking this activity, the appropriate authorities will be encouraged to utilize the experience and results of completed registration processes in OECD countries, particularly in the EU, such that available commercial technologies can be rapidly applied.

d) ***Public Information:*** This technical assistance component will support a public information program on the phase-out of MBr. It will be targeted to user groups, specifically the agricultural community.

e) ***Preparation for Future Montreal Protocol Obligations:*** Notwithstanding Ukraine's proactive approach to assuming current obligations under the Montreal Protocol, a lesson learned is that there is the need to support the planning for the assumption of such obligations. The critical situation that the country finds itself in with respect to MBr demonstrates that as additional control measures come into effect or new ones are adopted under future amendments, the country needs to carefully assess their impact and initiate mitigation measures, including development of international support in a timely manner. This technical assistance element is intended to support this process. The current priority is completion of the ratification process for the Beijing and Montreal Amendments inclusive of ensuring that the Country Program remains current with these and potential future international steps.

5.0 Component 4: Project Implementation, Monitoring and Evaluation (US$0.35 million, US$0.25 million GEF)

This component covers support for a Project Implementation Support Team within the State Ecological Inspectorate and specifically the costs associated with the various project management functions to be undertaken by it. This function will be placed within the State Ecological Inspection, Ministry of Environmental Protection, and will utilize capacity established under the previous GEF ODS project. The Component will cover salary costs of contracted project management staff undertaking procurement and financial management functions. In particular it will provide the project management capacity for the administration of the project investment components, specifically the small sub-grants within Component 1 and the disbursement of compensation payments under Component 2, as well as the monitoring and

verification documentation required to support this and post CTC production closure. Likewise it will support the monitoring and reporting obligations assumed by Government respecting the re-initiation of MBr production.

The GEF funding allocation for this component is proposed to be US$250,000 or 4.9 percent of the overall proposed grant. In kind co-financing from the Government in the amount of about US$100,000 is estimated through provision of office space and salaries for supervisory staff with the SEI.

Attachment A4.1
Farm Based Grain Storage Investment Sub-Component
Prepared Sub-Projects

A4.1.1 Agrofirm "MAYAK" (Pischane, Cherkassy Oblast)

Enterprise Background

Mayak is a privatized collective farm covering 6,510 ha, of arable land at Pischane, Cherkassy Oblast south east of Kiev. It was established in its present form in 2000 and undertakes a range of agricultural production activities but principally grain, livestock and dairy production. Grain production occupies 4,550 hectares with annual harvest of 18,000 to 20,000 MT, of which 8,000 MT is sold as food grain and the remainder used internally as feed. The enterprise is profitable and well financed with extensive recent investment in modern Western European and North American equipment including a bulk grain drying and handling system, automated milking and hog barns.

Current food grain storage is based on two flat floor hanger type warehouses that are alternatively used as machine sheds. Current practice with respect to their preparation for storage is manual cleaning and periodic treatment with contact insecticides. Fumigation of stored grain with MBr has been undertaken in the past but no estimates of consumption are available.

Sub-Project Description

The proposed sub-project involves the addition of two 500 MT isolation bins equipped with aeration flooring that would receive grain from the existing dryer for testing and possible fumigation if infestation were found. Since the enterprise provides contract drying to other local farm operations these would also allow treatment of other infested grain as part of that service. The two warehouses would be upgraded with aeration flooring and side containment walls. In addition, air blowers and mechanized cleaning capability in the form of industrial vacuum, compressed are and pressure washing equipment would be introduced. Quality control and monitoring capacity would be upgraded with the supply of moisture and pest monitoring instrumentation. Table A4.1.1 below provides a summary of the capital investment contemplated and its distribution between GEF financed items and enterprise contribution. The overall cost of the sub-project is estimated to be US$272,019 including US$79,860 in GEF funding. The enterprise also plans approximately US$80,000 in associated investment in supplementary grain cleaning, drying and handling equipment.

A4.1.2 Elite-Seed Agrofirm "MRIYA" (Kapustynzi, Kyiv Oblast)

Enterprise Background

Mriya is a large grain cultivation operation located at the village of Kapustynzi in the Volodars'ky district of Kyiv Oblast. It primarily produces seed for domestic commodity wheat producers, but also produces seed for other crops including corn, barley, buckwheat and pulse crops. In 2004, it has 10,000 ha under cultivation and produces approximately 6,500 MT of seed grain as well as 9,500 MT of wheat, 1,200 MT of corn, 750 MT of barley and 630 MT of buckwheat. It operates a hanger type warehouse of reinforced concrete construction (12,000 m^3), grain elevator (1,500 MT capacity), and grain cleaning/calibration plant.

Current practice with respect to preparation for storage in the warehouse storage is manual cleaning and periodic treatment with contact insecticides. Fumigation of stored grain with MBr is undertaken as required in the elevator storage, although no recent consumption estimates are available.

Sub-Project Description

The proposed sub-project involves the introduction of hermetic storage units to provide 300 MT of storage suitable for efficient gaseous phase fumigation with phosphine and potentially phosphine/CO_2 mixtures. The alternative is equivalent storage in metal bins to provide for isolation storage. The improved housekeeping would be supported in the warehouse and elevator storage facilities through financing of mechanized cleaning capability in the form of industrial vacuum, compressed are and pressure washing equipment. Quality control and monitoring capacity would be upgraded with the supply of moisture and pest monitoring instrumentation. The Table A4.1.2 below provides a summary of the capital investment contemplated and its distribution between GEF financed items and enterprise contribution. The overall cost of the sub-project is estimated to be US$72,435 including US$51,700 in GEF funding.

Table A4.1.1: Scope and Incremental Capital Costs for Farm Based Grain Storage Investment Sub-Project at Agrofirm "MAYAK"

Equipment / Activity	Estimated Capital Cost (US$)				Notes
	Unit costs	GEF	Enterprise	Total	
Metal bin storage including aeration flooring, suitable for isolation fumigation treatment with phosphine	US$36/MT US$2,000 for flooring per bin	40,000		40,000	2-500 MT bins receiving grain (two products at once) from dryer
Site preparation and installation of metal bin storage	US$200/bin		400	400	Assume concrete pad.
Basic cleaning equipment and sealing set for preparation of existing storage	US$3,000	3,000		3,000	1 set per sub-project
Portable blowers or equivalent aeration equipment (max 120000 m^3/hr.)	US$1,500/ Unit	3,000		3,000	2 units – one for each warehouse.
Warehouse aeration flooring	US$7.80/$m^2$	23,600		23,600	Based on two existing warehouses, 24 m x 72 m and 18 x 72 m.
Installation of flooring and side walls	US$60,000/ Warehouse		120,000	120,000	Covers installation of side containment, floor installation and all other works required.
Testing equipment (Moisture/Insects)	U$3,000	3,000		3,000	Moisture tester and basic capacity to evaluate infestation
Engineering/technical support	US$2,000		2,000	2,000	Local consultants.
Regulatory approvals	US$2,000		2,000	2,000	Local consultants
INVESTMENT CAPITAL COST		72,600	124,400	197,000	
TAXES and DUTIES			50,290	50,290	Apply 35 percent to imported costs, 20

					% to local costs
CONTINGENCY (10 percent)		7,260	17,469	24,729	
TOTAL SUB-PROJECT CAPITAL COSTS		79,860	192,159	272,019	

Table A4.1.2: Scope and Incremental Capital Costs for Farm Based Grain Storage Investment Sub-Project at Elite-Seed Agrofirm "MRIYA"

Equipment / Activity	**Estimated Capital Cost (US$)**				**Notes**
	Unit costs	**GEF**	**Enterprise**	**Total**	
Multiple hermetic structures suitable for bagged seed; capacity 300 MT Alternative: Metal bin storage (including aeration flooring, suitable for isolation fumigation treatment with phosphine	US$13/MT Alternative:US $36/MT US$2,000 for flooring per bin	39,000		39,000	Based on competitive procurement hermetic storage structures. Alternative may use small isolation bins for equivalent grant
Basic cleaning equipment and sealing set for preparation of existing storage	US$3,000	3,000		3,000	1 set per sub-project
Testing equipment (Moisture/Insects)	U$5,000	5,000		5,000	Moisture tester, basic capacity to evaluate infestation, and atmospheric conditions in hermetic storage
Engineering/technical support	US$1,000		1,000	1,000	Local consultants.
Regulatory approvals	US$1,000		1,000	1,000	Local consultants
INVESTMENT CAPITAL COST		47,000	2,000	49,000	
TAXES and DUTIES			16,850	16,850	Apply 35 percent to imported costs, 20 percent to local costs
CONTINGENCY (10 percent)		4,700	1,885	6,585	
TOTAL SUB-PROJECT CAPITAL COSTS		51,700	20,735	72,435	

Attachment A4.2
Candidate Portfolio of Potential Farm Based Sub-projects.

Enterprise	Location	General Description
LLC "NOVA NYVA"	Volodarka District, Donetsk Oblast	Cultivated land base: 5,189 ha. Winter wheat and sunflower production of 7,500 MT
Agrofirm "Stepnaya"	Dnipropetrovs'k	
Agrofirm "Kolos"	Chervone, Bars'ky District, Vinnitsa Oblast	
LCC "DNIPRO"	Vasiutyntsi, Chernobaev District, Cherkassy Oblast	
Agrofirm "Proskuriv"	Khmel'nytskiy	Cultivated land base: 3,046 ha. 2,000 MT silo type storage capacity.
JSC "Ukraine"	Mostove, Domanivs'ky District, Mykolaiv Oblast	
JSC "AGROTON"	Lugansk	Production, processing, and storage of grain and oilseeds. Cultivated land base: 30,000 ha, including 12,200 ha in grain production, mainly wheat (8,300 ha) Grain production: 20,000 MT/year.
Farm "ORBITA"	Berezneguvats'ky District, Mykolaiv Oblast	Seed and general grain production. Cultivated land base: 2,060 ha. Wheat and sunflower.
Agrofirm "MYRIV"	Nemyriv, Vinnitsa Oblast	

Attachment A4.3
Central Elevator/Terminal Storage Investment Sub-Component
Prepared Sub-Projects

A4.3.1 State Enterprise "ZLATODAR" (Zolotonosha, Cherkassy Oblast)

Enterprise Background

State enterprise "Zlatodar" is one of the largest enterprises in the State grain reserve system. In addition to providing strategic grain reserve capacity it provides the general range of services that most central elevator/terminal operations do with respect to grain clearing, drying, and storage, as well as operating a 220 MT/day flour mill and subsidiary feed processing operations. It handles approximately 100,000 MT of grain/year which is considered to be approximately 80 percent of capacity (133,900 MT). 33,000 MT of this capacity located in a silo type elevator complex and the remainder are a large number of pit type warehouse stores. The enterprise is a continuing user of MBr and maintains a practice of annual empty space fumigation of elevators and some warehouses although contact insecticides are also used. Annual consumption is reported to be 2.9 MT/year.

Sub-Project Description

The proposed sub-project involves a replicable menu of GEF funded investments covering pneumatic or electronic grain sampling equipment, two metal hopper type bins for isolation and exception fumigation of incoming grain, phosphine dispensers for grain flour conveyers, cleaning equipment and monitoring equipment. The enterprise is proposing parallel funding for upgrading of 10 elevator silos to allow isolation fumigation of bulk grain. This would involve the sealing of the silos and installation of entry and hook up points for use of cylinder fumigants such as phosphine and potentially other chemical/inert gas based fumigants as they are available and registered. A state budget financed element would demonstrate the use of nitrogen and potentially other inert gas based fumigation technologies. The Table A4.3.1 below provides a summary of the capital investment contemplated and its distribution between GEF financed items and enterprise/government contribution. The overall cost of the sub-project is estimated to be US$362,075 including US$51,920 in GEF funding.

A4.3.2 Khlib of Ukraine, Shpolyansky Grain Elevator (Spola, Cherkassy Oblast)

Enterprise Background

Khlib of Ukraine, Shpolyansky Grain Elevator is one of the major elevator terminal facilities serving Cherkassy Oblast which is one of Ukraine's principal grain production regions, the facility was built in 1971 and provides 75,000 MT of storage capacity primarily in a silo type elevator complex although six flat grain warehouse stores are also used. The enterprise is a continuing user of MBr and maintains a practice of annual empty space fumigation of elevators and some warehouses although contact insecticides are also used. Annual consumption is reported to be 3.1 MT/year.

Sub-Project Description

The proposed sub-project involves a replicable menu of GEF funded investments covering pneumatic or electronic grain sampling equipment, two metal hopper type bins for isolation and exception fumigation of incoming grain, phosphine dispensers for grain flour conveyers, cleaning equipment and monitoring equipment. The enterprise is proposing parallel funding for upgrading of 10 elevator silos to allow isolation fumigation of bulk grain. This would involve the sealing of the silos and installation of entry and

hook up points for use of cylinder fumigants such as phosphine and potentially other chemical/inert gas based fumigants as they are available and registered. The Table A4.3.2 below provides a summary of the capital investment contemplated and its distribution between GEF financed items and enterprise contribution. The overall cost of the sub-project is estimated to be US$160,545 including US$48,620 in GEF funding.

Table A4.3.1: State Enterprise "ZLATODAR": Scope and Incremental Capital Costs for Central Elevator/Terminal Storage Investment Sub-Project

Equipment / Activity	Estimated Capital Cost (US$)				Notes
	Unit costs	GEF	Enterprise	Total	
Pneumatic or electronic grain sampling system	25,000	25,000		25,000	Installed at truck reception gate
Site preparation and installation of sampling system	$500/unit		500	500	
Metal bin (welded hopper type) storage for isolation fumigation	US$72/MT	7,200		7,200	Assume two 50 MT bins.
Site preparation and installation of metal bin storage	$1,500/bin		3,000		
Phosphine dispensers for grain floor conveyers in the elevators	US$3,000/ grain floor conveyor	6,000		6,000	Two grain floor conveyors to be equipped.
Installation of phosphine dispensers	@ $200/unit		400	400	
Basic cleaning equipment and sealing set for preparation of existing warehouse storage	US$3,000/ Set	6,000		6,000	2 sets assumed
Testing equipment (Moisture/Insects)	U$3,000/set	3,000			Moisture tester/ infestation monitoring device
Silo fumigation capability for gaseous phase fumigants (silo sealing, application entry points, facility for cylinder fumigant application, connecting piping and instrumentation)	Indicative cost US$6,500/ Silo		113,000		Assumes 10 isolation silos
Equipment/installation of speciality gaseous phase fumigation capacity based on nitrogen (nitrogen generator, compressor, atmosphere control system	Counterpart design quotations		81,155	81,155	Nitrogen installation financed by enterprise and state budget
Engineering/technical support			10,000	10,000	
Regulatory approvals			3,000	3,000	
INVESTMENT CAPITAL COST		47,200	211,055	258,255	
TAXES and DUTIES			70,904	70,904	Apply 35 percent to imported costs, 20 percent to local costs
CONTINGENCY (10 percent)		4,720	28,196	32,916	
TOTAL SUB-PROJECT CAPITAL COSTS		51,920	310,155	362,075	

Table A4.3.2: Khlib of Ukraine, Shpolyansky Grain Elevator: Scope and Incremental Capital Costs for Central Elevator/Terminal Storage Investment Sub-Project

Equipment / Activity	Estimated Capital Cost (US$)				Notes
	Unit costs	GEF	Enterprise	Total	
Pneumatic or electronic grain sampling system	25,000	25,000		25,000	
Site preparation and installation of sampling system	$500/unit		500	500	.
Metal bin (welded hopper type) storage for isolation fumigation	US$72/MT	7,200		7,200	Assume two 50 MT bins.
Site preparation and installation of metal bin storage	$1,500/bin		3,000		Assume two 50 MT bins.
Phosphine dispensers for grain floor conveyers in the elevators	US$3,000/ Conveyor	6,000		6,000	Two gain floor conveyors to be equipped.
Installation of phosphine dispensers	@ $200/unit		400	400	
Basic cleaning equipment and sealing set for preparation of existing warehouse storage	US$3,000/ Set	3,000		3,000	1 set assumed
Testing equipment (Moisture/Insects)	U$3,000/set	3,000			Moisture tester and basic capacity to evaluate infestation
Silo fumigation capability for gaseous phase fumigants (silo sealing, application entry points, facility for cylinder fumigant application, connecting piping and instrumentation	Indicative cost US$6,500/ Silo		65,000		Assumes 10 isolation silos
Equipment/installation of speciality gaseous phase fumigation capacity based on Phosphine/CO_2 mixture			Not determined		Considering Phosphine/CO_2 or Nitrogen.
Engineering/technical support			2,000	2,000	
Regulatory approvals			1,000	1,000	
INVESTMENT CAPITAL COST		44,200	71,900	116,100	
TAXES and DUTIES			29,850	29,850	Apply 35 percent to imported costs, 20 percent to local costs
CONTINGENCY (10 percent)		4,420	10,175	14,014	
TOTAL SUB-PROJECT CAPITAL COSTS		48,620	111,925	160,545	

Attachment A4.4
Candidate Portfolio of Central Elevator/Terminal Storage Investment Sub-Projects

Enterprise	Location	General Description
JSC "Kherson Bread Producing Complex"	Kherson	Storage capacity: 100,000 MT Latent MBr demand: 3.3 MT/year for elevators, 2.5 MT/year for export shipments.
Krolevetz Bread Producing Complex (Khlib of Ukraine)	Krolevets, Sumy Oblast	Storage capacity: 54,000 MT 500 MT/day flour mill Latent MBr demand: 1.8 MT/year for elevators, 1.1 MT/year for bulk grain
JSC "Novomirgorods'kiy Elevator"	Novomirgorod, Kirovograds'kiy Oblast	Storage capacity: 130,000 MT Latent MBr demand: 4.4 MT/year for elevators/warehouses, 0.8 MT/year for bulk grain
JSC "Lipovetskiy Elevator"	Lipovets, Vinnitskiy Oblast	Storage capacity: 51,000 MT Latent MBr demand: 1.7 MT/year for elevators/warehouses, 0.25MT/year for bulk grain
JSC "Lyudmilovskiy Elevator"	Lyudmilovka, Lyudmilovka,. Bratskiy District, Nikolaevskiy Oblast	Storage capacity: 91,000 MT Latent MBr demand: 3.45 MT/year for elevators/warehouses, 0.45MT/year for bulk grain
Velykolepetys'ky Grain Elevator, (Khlib Ukraine)	Velyka Lepetykha Village, Kherson Oblast	Storage capacity: 51,000 MT Latent MBr demand: 1.7 MT/year for elevators/warehouses, 1.28 MT/year for bulk grain Cultivates 8,133 ha with 23,000 MT of grain production
State Enterprise "Kirovograd Bread Producing Complex No.2" (State Reserve)	Kirovograd	Storage capacity: 46,700 MT Latent MBr demand: 1.56 MT/year for elevators/warehouses, 0.40 MT/year for bulk grain
JSC "Djankoi Elevator"	Djankoi, Crimea	Storage capacity: 85,000 MT Latent MBr demand: 2.83 MT/year for elevators/warehouses, 0.50 MT/year for bulk grain
JSC "Pologivs'ky Bread Producing Complex"	Pology, Zaporizhzhya Oblast	Storage capacity: 85,000 MT Latent MBr demand: 4.18 MT/year for elevators/warehouses, 0.63 MT/year for bulk grain
Uman'sky Elevator (Khlib of Ukraine)	Uman	Storage capacity: 90,000 MT 2004 Actual MBr use: 2.4 MT Latent MBr demand: 3.00 MT/year for elevators/warehouses, 0.45 MT/year for bulk grain
Odessa Port Grain Elevator (Khlib of Ukraine)	Odessa	Storage capacity: 100,000 MT Latent MBr demand: 3.33 MT/year for elevators/warehouses, 2.50 MT/year for export shipments
Izyums'ky Bread Producing Complex(Khlib of Ukraine)	Kapitolivka Village, Izyumsky District, Kharkiv Oblast	Storage capacity: 49,700 Latent MBr demand: 1.25 MT/year for elevators/warehouses, 0.25 MT/year for bulk grain

Attachment A4.5
Grain Processing Storage Investment Sub-Component
Prepared Sub-Projects

A4.5.1 JSC "KYIVMLYN" (Kyiv).

Enterprise Background

JSC "KYIVMLYN" is a large flour mill in Kyiv with a production capacity of 600 tons of flour per day and production of up to 180,000 Mt of flour per year. The facilities operate silo storage with 40,000 MT for grain and 30,000 MT for flour storage. This is generally turned over rapidly which under older regulations required frequent fumigation.

Sub-Project Description

The proposed sub-project involves a basic menu of GEF funded investments covering pneumatic or electronic grain sampling equipment, cleaning equipment and monitoring equipment. The enterprise is proposing parallel funding for upgrading of 10 elevator silos to allow isolation fumigation of bulk grain. This would involve installation of entry and hook up points for use of cylinder fumigants such as phosphine and potentially other chemical/inert gas based fumigants as they are available and registered. Table A4.5.1 below provides a summary of the capital investment contemplated and its distribution between GEF financed items and enterprise contribution. The overall cost of the sub-project is estimated to be US$52,720 including US$34,100 in GEF funding.

Table A4.5.1: JSC "KYIVMLYN": Scope and Incremental Capital Costs for Grain Processing Storage Investment Sub-Project

Equipment / Activity	Estimated Capital Cost (US$)				Notes
	Unit costs	GEF	Enterprise	Total	
Pneumatic or electronic grain sampling system	25,000	25,000		25,000	
Site preparation and installation of sampling system	$500/unit		500	500	.
Basic cleaning equipment and sealing set for preparation of existing warehouse storage	US$3,000/ Set	3,000		3,000	1 set assumed
Testing equipment (Moisture/Insects)	U$3,000/set	3,000			Moisture tester and basic capacity to evaluate infestation
Equipment/installation of speciality gaseous phase fumigation capacity based on Phosphine/CO_2 mixture			Not determined		To be determined latter
Engineering/technical support			1,000	1,000	
Regulatory approvals			1,000	1,000	
INVESTMENT CAPITAL COST		31,000	2,500	33,500	
TAXES and DUTIES			11,350	11,350	Apply 35 percent to imported costs, 20 percent to local costs
CONTINGENCY (10 percent)		3,100	2,770	5,870	
TOTAL SUB-PROJECT CAPITAL COSTS		34,100	18,620	52,720	

Attachment A4.6
Candidate Portfolio of Grain Processing Storage Investment Sub-Projects

Enterprise	Location	General Description
JSC "LUGANSKMLYN"	Lugansk	Mill capacity: 1,000 MT/Day Storage Capacity: 105,000 MT Actual MBr Consumption (2003) 1.7/year
JSC "DNIPROMLYN"	Dnipropetrovs'k	Mill capacity: 900 MT/Day Storage Capacity: 46,700 MT Actual MBr Consumption (2003) 5.0 MT/year Latent MBr demand: 4.70 MT/year (elevators/warehouses), 1.56 MT/year (bulk grain)
JSC "PIVDENMLYN"	Nova Kakhovka, Kherson Oblast	Mill capacity: 100 MT/Day Storage Capacity: 20,000 MT Latent MBr demand: 0.50 MT/year (elevators/warehouses), 0.40 MT/year (bulk grain)
JSC "ZAPORIZHZHIA-MLYN"	Zaporizhzhia	Mill capacity: 500 MT/Day Storage Capacity: Not Known Latent MBr demand: 2.60 MT/year (elevators/warehouses)
JSC "RIVNE-BOROSCHNO"	Rivne	Mill capacity: 200 MT/Day Latent MBr demand: 2.90 MT/year (elevators/warehouses)
JSC ""Mlybor"	Chernigiv	Mill capacity: 500 MT/Day
"Bila-Cerkva Bread Product" Collective Enterprise	Bila Cerkva, Kyiv Oblast	Mill capacity: 500 MT/Day Storage Capacity: 97,300 MT Latent MBr demand: 3.75 MT/year (elevators/warehouses), 1.00 MT/year (bulk grain)
Agrofirm "RUBANIVS'KA"	Rubanivka Village, Velyka Lepetykha District, Kherson Oblast	Mill capacity: 100 MT/Day Storage Capacity: 5,000 MT Latent MBr demand: 1.20 MT/year (elevators/warehouses), 0.30 MT/year (bulk grain)
Agrofirm "AGROSERVIS 2000"	Zaporizhzhya	Mill capacity: 150 MT/Day Latent MBr demand: 2.90 MT/year (elevators/warehouses)

Attachment A4.7
Fumigation Service Provider Investment Sub-Component
Prepared Sub-Projects

A4.7.1 JSC "Cherkassy Expedition" (Cherkassy)

Enterprise Background

JSC "Cherkassy Expedition" is the main fumigant service provider in the major grain producing area in an around Cherkassy Oblast and also provides services in Poltava and Kirovograd Oblasts. It was originally one of the state service organizations established in 1967 to service the grain industry but was privatized under employee ownership in 1997. The enterprise undertakes pest control primarily for the grain sector and specifically for grain and grain product elevators, warehouses, industrial premises, empty railway cars and containers, and bulk products. Traditionally MBr has been the primary fumigant used but phosphine and other registered insecticides such as deltametrin are used, particularly in recent years. Annually, the enterprise typically fumigates directly or as empty storage capacity for 350,000 to 380,000 MT of grain. Reported historical MBr use is as follows: 1997 – 33.6 MT; 1998 – 19.0 MT; 1999 – 8.0 MT; 2000 – 6.7 MT; 2001 – 8.9 MT; 2002 – 8.1 MT; 2003 – 2.2 MT; 2004 – 1.1 MT. This is representative of the general decline in MBr use, which is largely attributed to economic conditions and now the availability of the chemical. The enterprise is currently utilizing a modest stock of MBr but this will be exhausted in 2005.

Sub-Project Description

The proposed sub-project involves a basic menu of GEF funded investments in upgrading of fumigation application capability for alternative fumigants. This would include personal protection equipment, fumigant monitoring and detection equipment, and sets of application equipment and tools. The enterprise has chosen to pursue the use of a proprietary phosphine/CO_2 mixture which it will arrange for directly with the supplier as part of its contribution. Table A4.7.1 below provides a summary of the capital investment contemplated and its distribution between GEF financed items and enterprise contribution. The overall cost of the sub-project is estimated to be US$98,340 including US$22,000 in GEF funding.

Table A4.7.1: JSC "Cherkassy Expedition: Scope and Incremental Capital Costs for Fumigation Service Provider Investment Sub-Project

Equipment / Activity	Estimated Capital Cost (US$)				Notes
	Unit costs	GEF	Enterprise	Total	
Personal Protection Equipment Set (Masks/self contained breathing equipment)	$3,000/set	6,000		6,000	Based on two sets
Fumigant monitoring/ concentration testing equipment	$4,000/set	8,000		8,000	Phosphine concentration instrument and detection monitors.
Gaseous fumigant application equipment set (pressure testing equipment, blowers, gas manifold,	$6,000/set	6,000		6,000	Based on one set supplementing existing

manometer, dosing scale, tool set)					equipment
Phosphine/CO_2 blending system	$20,000/pkg.		20,000	20,000	Based on acquiring equipment under sole source fumigant supply arrangement
Registration of phosphine/CO2 fumigants			10,000	10,000	Through fumigant supply arrangement
CO2 storage	$20,000		20,000	20,000	Enterprise preference rather than commercial supply in cylinders
Engineering/technical support			1,000	1,000	
Regulatory approvals			1,000	1,000	
INVESTMENT CAPITAL COST		20,000	52,000	72,000	
TAXES and DUTIES			17,400	17,400	Apply 35 percent to imported costs, 20 percent to local costs
CONTINGENCY (10 percent)		2,000	6,940	8,940	
TOTAL SUB-PROJECT CAPITAL COSTS		22,000	76,340	98,340	

Attachment A4.8
Candidate Portfolio of Fumigation Service Provider Investment Sub-Projects

Enterprise	Location	General Description
JSC "Agrocontrol"	Kyiv/Odessa	
JSC "KHLIBOZACHYST"	Vinniza	Latent MBr demand: 50 MT/year
JSC "Odessa Expedition"	Odessa	
JSC "Poltava Expedition"	Poltava	Latent MBr demand: 60 MT/year
JSC Dnipropetrovs'k Expedition"	Dnipropetrovs'k	Latent MBr demand : 70 MT/year
JSC "KHLIBOZACHYST"	Mykolaiv	Latent MBr demand: 70 MT/year
JSC "L'viv Expedition"	L'viv	Latent MBr demand: 40 MT/year

Attachment A4.9
Scope and Incremental Capital Costs for Quarantine Service Strengthening Investment Sub-Project

Equipment / Activity	Estimated Capital Cost (US$)				Notes
	Unit costs	GEF	Enterprise	Total	
Stationary fumigation chambers in double chamber configuration and fumigant transfer capability	$17,500/unit	70,000		70,000	4 units to be installed at Odessa, Mykolaiv, Ilichivsk, Skadovsk
Installation of stationary chambers	$2,000/unit		8,000	8,000	
Mobile fumigation chambers for land border points of entry	$5,000/unit	35,000		35,000	7 units based in Lviv, Volyn, Ivano-Frankivsk, Kharkiv, and Lugansk
Trailer and vehicle set for mobile chambers	$15,000/unit		30,000	30,000	Assume two additional sets required
Inflatable fumigation chambers for exported timber	$7,000/unit	35,000		35,000	5 units assumed. Subject to clarification of EU requirements
Personal protection equipment	$200/set	20,000			Assume 100 sets
Monitoring and MBr/Phosphine detection. equipment and instrumentation - Sampling tubes for MBr/Phosphine identification (600 units) - Portable electronic phosphine gas analyzer (1 unit) - Hand held electronic phosphine gas analyzer (15 unit) - Recovery containers for MBr and Phosphine gas (800 units)	Sampling tubes: $15/unit Portable electronic analyzer: $3,200/unit Hand held electronic analyzer: $900/unit Containers:$30 /unit	49,700		49,700	
Development and testing of alternative gaseous phase fumigants			50,000	50,000	(phosphine/CO2 mixtures and nitrogen)
Engineering/technical support			5,000	5,000	
Regulatory approvals			5,000	5,000	
INVESTMENT CAPITAL COST		209,700	88,000	297,700	
TAXES and DUTIES			90,995	90,995	Apply 35 percent to imported costs, 20 percent to local costs
CONTINGENCY (10 percent)		20,970	17,900	38,870	
TOTAL SUB-PROJECT CAPITAL COSTS		230,670	196,895	427,565	

Attachment A4.10
Closure Plan
Carbon Tetrachloride/Perchloroethylene Production Facility
"Oriana-Halev" Limited Liability Company (LLC)

1.0 Closure Undertaking

Under this Agreement, "Oriana-Halev" LLC undertakes to permanently shut down and render inoperable its capacity for the production of carbon tetrachloride (CTC), located near Kalush, Ivano-Frankivsk Region, Ukraine on or before *(Insert date of grant effectiveness)* in accordance with the following Closure Plan.

2.0 Closure Plan Background, Objectives and General Scope

The CTC production facility which is the subject of this Closure Plan was established in 1973 for the production of carbon tetrachloride and perchloroethylene (PER). Its nominal design production capacity is 30,000 MT/year with a product mix of 18,000 MT CTC and 12,000 MT PER, although this could be varied within limits depending on market demand. It operated at more or less full capacity until 1993-94 and at lower output until 1998. Its sales were principally CTC for feedstock in the production of CFC-11/12, mainly in the Russian Federation, with smaller sales of PER and CTC as cleaning solvents within the countries of the former Soviet Union and elsewhere.

The CTC/PER production was based on the widely used "Stauffer" process involving the direct chlorination of hydrocarbon feedstocks (principally methane). There was an associated stream using ethylene feedstock, which was used to scrub a chlorine/HCl by-product stream and to return the resulting 1,2-dichloroethane to the main chlorination reactor. The principal raw materials were methane from an external utility supplier and chlorine delivered by elevated pipeline from the adjacent chloro-alkali plant. The main by-product of interest was hexachlorobenzene (HCB).

The CTC production facility is located within the site of the former large state owned chemical plant complex originally known as the Kalush Chemical and Metallurgical Plant. The assets of this complex are now distributed among various owners, the major one being Lukor, who operate a chlor-alkali plant and associated PVC production facilities. The CTC production facility along with other processes was taken over by the present private sector owner ("Oriana-Halev" LLC) in 1999 after CTC production stopped. While remaining operable, the process units were decommissioned at that time by "Oriana-Halev" LLC. This involved draining and flushing all vessels and piping. Any stocks of CTC and PER were sold. However, solutions containing CTC, PER and other by-products such as dichloroacetylene, 1,2-dichloroethane and hexachloroethane (so-called "raw CTC") remained on site. Currently, 102.779 MT of this material remains and is stored in a designated secure storage tank on-site.

In addition to the subject CTC/PER production facility, "Oriana-Halev" LLC has a number of adjacent chemical production and other facilities. Some of these are inactive, some are utilized by other enterprises and several have been or are planned to be reactivated for new products. This includes the current development of a 1.2-dichloroethane (EDC) production facility immediately adjacent to the subject CTC/PER facility and conversion of ethylene production distillation units for hydrocarbon fuel and solvent production near the current secure residual CTC contaminated material storage. The assets of "Oriana-Halev" LLC also include the physical infrastructure associated with a waste by-product land storage facility utilized by the original state owned chemical complex, primarily for by-product HCB from the CTC/PER production prior to 1998. It is located on land leased from the municipality 5 km away from the main plant site in a delineated plot area of 5.15 hectares, and monitored by local sanitary authorities.

The original CTC/PER production facility and supporting infrastructure covered by this Closure Plan includes the following plant areas.

- Plant Area No 516: Units for chlorination, distillation, unloading of hexachlorobenzene, absorption of chlorinated hydrogen, boiler facility, neutralizing pump facility and drying of final products;
- Plant Area No 516a: Unit for collection and treatment of waste water and residual wastes
- Plant Area No 518: Pumping unit for by-products and hydrochloric acid;
- Plant Area No 518a: Storage of chlorohydrocarbon raw material, vessels for off-specification products, raw materials, final products, vessels for hydrochloric acid;
- Plant Area No 518e: Waste residue neutralization unit;
- Plant Area No 526a: Storage Tank No 290/2 containing accumulated inventory of solvent mixtures containing CTC;
- Plant Area No 572: Packaging of CTC and PER, storage of final products;
- Plant Area No 852: By-product land storage facility; and
- Plant Area No. 541: Administrative and amenity building

The overall objective of this closure plan is to ensure that the CTC plant of "Oriana-Halev" LLC is rendered incapable of production on a permanent basis, in a manner that can be reliably and independently monitored. The more specific objectives of this closure plan are to ensure that:

(a) the CTC plant of "Oriana-Halev" LLC is made permanently incapable of any undetected resumption of production;

(b) the possible presence of hazardous contaminants on portions of the CTC plant and its equipment – notably persistent organic pollutants (POPs) under the Stockholm Convention in the form of hexachlorobenzene (HCB) but possibly also small quantities of polychlorinated dibenzodioxins and dibenzofurans (PCDDs and PCDFs) are contained in an environmentally sound manner;

(c) the disposition of any residual CTC inventory (including any CTC-containing mixed solvent) occurs in a manner consistent with Ukraine's obligations under the Montreal Protocol; and,

(d) the land storage facility located outside of the CTC plant site whose infrastructure is under the control of "Oriana-Halev" LLC and which contains by-product hexachlorobenzene (HCB) from historical CTC production and other hazardous wastes continues to be operated and monitored in accordance with applicable Ukrainian regulations inclusive of monitoring and security acceptable to the World Bank, and that provision for the removal and destruction of these wastes is addressed in the context of Ukraine's National Implementation Plan under the Stockholm Convention.

The overall scope of the closure plan intended to meet these objectives will involve:

- disconnecting and sealing key process equipment;
- disconnection and removal of chlorine supply to the CTC plant;
- removal of plant process controls;
- disconnection, isolation and sign posting of those items of equipment (including but not limited to process equipment and piping) most likely to be contaminated with POPs;
- inventory monitoring of residual CTC;
- ensuring that there is no access to any such items except by authorized personnel who have been made aware of the potential hazards resulting from such contamination.; and
- upgrading the site monitoring and security provided for the HCB land storage facility.

In 2002 after initial contacts with the Ministry of Environmental Protection on its potential inclusion in the current GEF project, the enterprise initiated plans for dismantling of the CTC production facility and as of appraisal by the World Bank (October 25, 2005) had substantially completed the dismantling and removal of all major equipment associated with CTC/PER production, inclusive of documenting these closure actions. This Closure Plan reflects the condition of the facility effective October 25, 2005.

3.0 Designation of Enterprise Responsibility

The General Director of "Oriana-Halev" LLC is the designated "Oriana-Halev" LLC representative with overall responsibility for permanent closure of CTC production capacity.

4.0 Schedule of Closure Activities for CTC Production

The following defines the specific closure activities that have been agreed to be undertaken by "Oriana-Halev" LLC. This is defined in this Closure Plan under the headings: a) Plant Modifications, b) Environmental Management Plan; and c) Record Keeping. Equipment referenced in closure activities is listed in Table 4-1. Agreed procedures and guidelines covering sealing of equipment, record keeping, and access for monitoring are contained in Clauses 6.0, 7.0 and 8.0 of this Closure Plan respectively.

Section A. Plant Modifications			
Item	**Activity**	**Description**	Agreed Date of Completion
4.A.1	Removal or permanent disabling of key vessels and support structures within Plant Area 516 constituting the process area for CTC production (Plant Area 516)	• Chlorination Reactors (Equipment # 112 and 113) to be disconnected from chlorine and hydrocarbon feed lines; and either removed from the site or permanently disabled and sealed in place with blind flanges to be installed at each remaining vessel and a uniquely defined lock installed through one bolt hole on each flange connection per Clause 6.0.	**Completed at Appraisal:** Reactor #113 removed and sold, Reactor #112 in place but prepared for removal and sale
		• Process Ignition Electrodes (2 per each of Reactors 112 and 113) to be removed and where the vessel remains blind flanges to be installed at vessel and uniquely defined lock installed through one bolt hole on each flange connection per Clause 6.0.	**Completed at Appraisal:** Electrodes removed and scrapped
		• Remove piping between each chlorination reactor ((Equipment # 112 and 113) and the quench column (Item 130).	**Completed at Appraisal:** Piping removed and scrapped
		• Feed lines to quench column (Equipment # 130) from Equipment # 112, 113, 131, 132 and 127 are disconnected, blind flanges installed at remaining vessels and uniquely defined lock installed on one bolt hole	**Completed at Appraisal:** Feed lines and quench columns removed and scrapped

		on each flange connection per Clause 6.0.	
4.A.2	Removal of chlorine supply to plant (Plant Area 516 and Lukor site)	• Remove of chlorine supply pipeline between the chlorination reactors and a point where the Lukor chlorine supply line has been re-positioned so that it can feed a new chlorination reactor for the production of 1,2-dichloroethane from an ethylene stream also arising from Lukor's operations and located in Plant Area 518.	**Completed at Appraisal:** Chlorine supply pipeline removed from Plant area 516
4.A.3	Disabling process controls in the control room (Plant Area No 516)	• Removal of all controls and connections to the CTC process units	**Completed at Appraisal:** All process connections to Plant Area 516 removed and control room dismantled
4.A.4	Sealing of the storage tank containing remaining inventory of solvent mixtures containing CTC	• The remaining inventory of solvent mixtures containing CTC shall be consolidated in Tank 290/2 in Plant Area 526a, all piping connections to the tank shall be removed, all valves shall be closed and blind flanges installed and uniquely defined lock installed through two opposing bolt holes on each flange connection per Clause 6.0.	Solvent mixtures containing CTC consolidated in Tank 290/2 in Plant Area 526a Piping remains connected and locks yet to be installed. It is agreed that this will occur by March 30. 2006

Section B. Environme ntal Management Plan

The agreed-to Environmental Management Plan (EMP) described herein addresses the potential environmental impact that may be created by the permanent closure of the CTC production plant of "Oriana-Halev" LLC. This primarily relates to ensuring that process equipment and piping being removed will be analyzed for any residual contamination and where required by local regulations will be captured or contained. The EMP also makes provision for ensuring the capture and secure storage residual CTC contaminated materials retained on the "Oriana-Halev" LLC site pending legal and environmentally sound disposal, and the environmental sound operation and monitoring of the historical by-product HCB land storage facility used by the original state owned enterprise operating the CTC/PER production facility and which is maintained by "Oriana-Halev" LLC. Such storage, operation and monitoring shall be in accordance with Ukrainian regulations, and, in the case of stored HCB, the removal and destruction of these by-product wastes are to be addressed in the context of Ukraine's National Implementation Plan under the Stockholm Convention. The EMP also covers the undertakings of "Oriana-Halev" LLC respecting public consultation prior to, during and following closure, the timely application for local environmental permits and the social aspects of closure related to consultation with and the re-assignment of any staff affected by the shut down.

Item	Activity	Description	Agreed Date of Completion
4.B.1	Providing for capture and secure containment of residual contamination from HCB and other potentially toxic substances that may remain in equipment and piping in Plant Area 516 that is left on site or is removed for re-use or scrapping.	• For equipment and piping removed as provided for under Item 4.A.1 above and as listed below, analysis for residual contamination from HCB and other potentially toxic substances will be undertaken and as part of the removal process any contaminated residuals will be removed and securely stored in accordance with Ukrainian regulations, such activities being supported by appropriate documentation. • For equipment and piping left in place as provided for under Item 4.A.1 above and as listed below, ensure the sealing of such equipment and piping in a manner that prevents escape of contaminated residuals and allows for their management as above upon removal and scraping of the equipment and piping. • In addition to the equipment identified in Item 4.A.1 above, the following specific equipment and piping subject to these provisions: - Quench column (Equipment # 130) and piping to HCB treatment section equipment (Equipment # 115) - HCB treatment section equipment (Equipment # 115) and piping to Thickener (Equipment # 117) - Boiler (Equipment # 116) and piping to HCB treatment section equipment (Equipment # 115) - Thickener (Equipment # 117 and piping to Sedimentation and water separation unit (Equipment # 309) - Sedimentation and water separation unit (Equipment # 309) - Rectifier (Equipment # 194) and piping to the quench column (Equipment # 130)	**Completed at appraisal***:* all designated piping and equipment removed and certification of flushing and decontamination in accordance with Ukrainian regulations documented.

4.B.2	Clean up of HCB by-product packaging area (Plant Area 516 and 518a)	• Undertake clean up of residual containers and spillage, inclusive of packaging and storage of materials in accordance with Ukrainian regulations governing hazardous waste and applicable heath and safety regulations, having particular regard to the environmental and health hazards associated with the probable contaminants, which are likely to include POPs such as hexachlorobenzene and, possibly, polychlorinated dibenzo-p-dioxins and dibenzofurans.	**Partially completed at appraisal** *(Insert Agreed Date for Activity prior to effectiveness)*
4.B.3	Process equipment and piping, and on-site residuals storage signage	• A prominent notice in Ukrainian will be placed at entrance points to Plant Areas 516, 518a, and 526a indicating the potential presence of residual hazardous contamination and indicating that dismantling and/or removal of any contaminated equipment shall not be undertaken with out notification and approval of the State Ecological Inspectorate in the Ministry of Environmental Protection, inclusive of official contact information. • A notice in Ukrainian shall be placed on all equipment remaining on site as identified under Items 4.A.1 and Item 4.B.1 above indicating that dismantling and/or removal of any designated equipment shall not be undertaken with out notification and approval of the State Ecological Inspectorate in the Ministry of Environmental Protection, inclusive of official contact information.	*(Insert Agreed Date for Activity prior to effectiveness)*
4.B4	Disposition of remaining inventory of solvent mixtures containing CTC	• The baseline inventory documented in Table 4.2 of this Closure Plan and contained in an on-site storage tank No 290/2 located in Plant area 526a sealed per Item 4.A.4 above shall be monitored per Section C below and any sale or disposal shall be approved by the State Ecological Inspectorate, Ministry of Environmental Protection in accordance with Ukraine's obligations under the Montreal protocol.	*(Insert Agreed Date for Activity prior to effectiveness)*
4.B.5	Management of by-product HCB land storage facility (Plant Area 852)	• Archiving of relevant documentation, including regulatory permits, movements of materials to the site, identification of materials at the facility site, environmental monitoring records, and location of material within the facility site, at the enterprise and State Ecological Inspectorate.	*(Insert Agreed Date for Activity prior to effectiveness)*

		• Continuing environmental monitoring of emissions to water (each storage cell, external ground water and surface water for contamination, ambient air), provision of site security, and physical maintenance of the facility in accordance with prevailing Ukrainian regulations, in a manner acceptable to the IBRD, and as applicable in accordance with obligations assumed under the Stockholm Convention. This will include provision of site fencing and secure access to the site and the implementation of a complete and regular ground and surface water monitoring regime. • Reporting of future movements of waste to the site, inclusive of inventory information noted above, source of waste and appropriate regulatory approvals. • Designation of the by-product material stored at the facility site as a Persistent Organic pollutant (POPs) stockpile in the Ukraine's National Implementation Plan under the Stockholm Convention, inclusive of measures for its environmentally sound destruction.	
4.B.6	Public and staff consultation	Public consultation on the closure activities will be undertaken in the local community with the involvement of local NGO's and the local branches of the Ministry of Environmental Protection and other authorities. This will involve a project announcement inviting input, public meetings, and dissemination of information. Regular information sessions with staff affected by the closure activities will continue to be undertaken.	Ongoing
4.B.7	Regulatory approvals	Obtain the necessary environmental approvals required under Ukrainian legislation. Clearance of this closure plan by the State Environmental Expertise process is understood to be a condition for the disbursement of the second tranche of the compensation payment to the "Oriana-Halev" LLC.	**Completed at appraisal**
Section C. Plant Record Keeping and Notification It is agreed that the following records will be maintained in accordance with the procedures and			

guidelines defined in Clause 7.0 of this Closure Plan. In addition, "Oriana-Halev" LLC agrees to provide the State Ecological Inspectorate in the Ministry of Environmental Protection and IBRD with notification of specific actions related to closure activities, changes in CTC product and waste inventories, environmental monitoring data and modification or disposal of disconnected and sealed equipment defined in Section 4, in particular:		
Item	**Activity**	**Records to be Maintained**
4.C.1	Plant modification and closure records	Records of closure activities for modification, dismantling, sealing, removal or sale of equipment including: a) internal acts authorizing closure activities; b) activity log for all closure activities; c) regulatory permissions and approvals; d) photographic/videotape evidence; e) disposition of equipment, wastes, recovered materials and environmental performance records; and f) employment and staff reassignment records during shutdown period.
4.C.2	Inventory of residual solvent mixtures containing CTC	Inventory and disposition records for solvent mixtures containing CTC stored in Tank 290/2 in Plant area 526a shall be maintained on a monthly basis. In the event of disposition of this material, prior notification and approval of the State Ecological Inspectorate is required and records as follows covering the transfer of this material shall be maintained by "Oriana-Halev" LLC: a) Quantity disposed; b) Container/vehicle identification and date of transfer to them; c) Date of removal from the site; d) Destination and receiver of transferred material (to enable disposition tracing in accordance with requirements imposed by the State Ecological Inspectorate); and e) Declared storage or filling losses.
4.C.3	Disposition of waste from clean up of HCB by-product packaging area	Records of quantities, types, method of containment/transport and disposition of any clean up material from the HCB by-product packaging area (Plant Area No 516 and 518a) including appropriate regulatory approvals and permits covering transportation and disposition in accordance with Ukrainian regulations.
4.C.4	Disposition of waste from decontamination of specified plant equipment (see 4.B.1)	In the event that sealed equipment and piping remaining on site defined in 4.B.1 above are decontaminated, notification in advance of such actions shall be provided, procedures for undertaking decontamination shall be subject to approval of the State Environmental Inspectorate of the Ministry of Environmental Protection, and the details of disposition of waste materials recovered be documented and reported.
4.C.5	Public and Staff Consultation	Records of all public consultation and staff information sessions undertaken respecting the shut down including: a) Date, location and response summary of public consultation

		events; b) Date, location and response summary of individual interest group consultations, including staff information sessions; c) Media coverage; and d) Actions taken in response to the above.

Table 4.1 Identification Numbers for Equipment to be Removed, or Disconnected and Sealed

Equipment	PFD NUMBER	Serial Number/ Derzhgortekhnahliad Ref. Number	Status as of October 25, 2005
Chlorination Reactors	112,113	305517; 246993	Reactor No. 113 sold for re-use, Reactor No.112 disconnected in place but in process of removal
Quench Column	130	304485	Scrapped after flushing and decontamination
HCB treatment section	115	302994	Sold for scrap after decontamination (certified)
Boiler	116	309838	Sold for scrap after decontamination (certified)
Thickener	117	309510	Sold for scrap after decontamination (certified)
Sedimentation and water separation unit	309	303295	Sold for scrap after decontamination (certified)
Rectifier	194	309020	Sold for scrap after decontamination (certified)

Table 4.2: Baseline Inventory of Solvent Mixtures Containing CTC as of October 25, 2005

Container Identifier	Container Type/Description	Mixture Description	Volume
Tank No. 290/2 located in Plant Area 526a	Horizontal carbon steel tank with elliptical heads V=100m^3	Mixture with CCl_4 (CCl_4 – 60 percent; C_2Cl_2 – 30 percent; $C_2H_4Cl_2$ – 2 percent; C_2Cl_6 – 8 percent)[7]	102.779 MT

5.0 Closure Verification Plan

"Oriana-Halev" LLC will provide full access in accordance with Clause 8.0 of this Closure Plan to monitoring and verification inspectors representing the State Ecological Inspectorate and IBRD for purposes of the following verification activities as they may undertake at their sole discretion:

Plant Modifications		
Item	**Activity**	**Description**
5.A.1	Status of key vessels and piping removed or isolated to permanently disable CTC production (Plant Area 516)	• Verify that chlorine and hydrocarbon feed lines to CTC/PER chlorination reactors (Equipment # 112 and 113) remain disconnected and removed • Verify that the process ignition electrodes (2 per each of Reactors No. 112 and No. 113) are removed • Verify the absence of piping between each chlorination reactor ((Equipment # 112 and 113) and the quench column (Item 130). • Verify that feed lines from each reactor, recycle lines from intermediate CTC and PER vessels (Equipment # 131, 132 and 127) (Equipment # 136, 137 and 138) are removed.
5.A.2	Verification of removal of chlorine supply to plant (Plant Area 516)	• Verify that the chlorine pipeline within Plant Area 516 is removed and has been re-positioned so that it can feed a new chlorination reactor for the production of 1,2-dichloroethane from an ethylene stream also arising from Lukor's operations and located in Plant Area 518.
5.A.3	Verification of Disabling process controls (Plant Area 516)	• Verify the removal of all control devices from control panels
Section B. Environnemental Management		
Item	**Activity**	**Description**

[7] For reference: CCl_4 = CTC; C_2Cl_2 = dichloroacetylene; $C_2H_4Cl_2$ = 1,2-dichloroethane; C_2Cl_6 = hexachloroethane.

5.B.1	Verification of management of potentially contaminated equipment and piping in Plant Area 516.	• For equipment defined under under Items 4.A.1 and 4.B.1 verify the analysis and decontamination as required of removed equipment vessels and piping in accordance with Ukrainian regulations or where left in place their sealing.
5.B.2	Inspection of clean up of HCB by-product packaging area (Plant Area 516 and 518a)	• Inspect Plant Area 516 and 518a to ensure its condition does not present any continuin g or renewed environmental concern.
5.B.3	Presence of agreed process equipment and piping signage (Plant Area 516)	• Verify the presence and acceptable condition of signage installed in Plant Area 516.
5.B.4	Inspection of storage of remaining inventory of solvent mixtures containing CTC *(Tank No. 290/2, Plant Area 526a)*	• Inspect CTC storage area containing Tank No 290/2 containing any remaining inventory of solvent mixtures containing CTC and any containers of material removed from this tank and remaining on site to verify its security, consistency with records and compliance with Ukrainian regulations.
5.B.5	Inspection of by-product HCB land storage facility (area of 5.15 hectares, Plant Area 852)	• Inspect the HCB land storage facility to verify its overall physical condition, security arrangements including adequate fencing and access control, presence and operability of monitoring systems and consistency of its state with records on it and its use with records presented for it.
5.B.6	Public and staff consultation	• Review ongoing public and staff consultation activities related to closure of the CTC facility.
5.B.7	Social Impacts	• Review current employment records related to employment associated with new investment.
5.B.8	Regulatory Compliance	• Review regulatory permits applicable to the overall plant operation and the HCB land storage facility. Consult with the local branches of the State Ecological Inspectorate and other regulatory authorities respecting any compliance issues related to this Closure Plan and their regular inspection and monitoring plan.

Section C. Plant Record Keeping.

Item	Activity	Description
5.C.1	Shutdown Records	• Review of shutdown records to confirm the list of closure activities.
5.C.2	Review of inventory records for solvent mixtures containing CTC	• Review inventory and disposition records applicable to Tank 290/2 and any other containers of solvent mixtures containing CTC held by "Oriana-Halev" LLC (on site and off site) noting changes from the base line and previous inspections.

5.C.3	Disposition of waste from clean up of HCB by-product packaging area	• Review, as required, records of quantities, types, method of containment/transport and disposition of any clean up material from the HCB by-product packaging area including appropriate regulatory approvals and permits covering transportation and disposition in accordance with Ukrainian regulations.
5.C.4	Disposition of waste from decontamination of specified plant equipment (see 4.B.1)	• In the event that sealed equipment and piping defined in 4.B.1 and 5.B.1 above are decontaminated review notification records, procedures for undertaking decontamination associated approvals, and documentation on the disposition of waste materials recovered.
5.C.5	Activities at the by-product HCB land storage facility (facility area of 5.15 hectares)	• Review records related to the movements of waste to the site, inclusive of inventory information noted above, source of waste and appropriate regulatory approvals. • Review environmental monitoring data and note any changes from previous information.

6.0 Procedures and Guideline – Equipment Sealing

Where sealing of equipment is required under this closure plant it will be done with blind flanges, inclusive of gaskets inserted at an existing flange pipe-to-vessel or pipe-to-pipe connection. In each case a one-time use cable lock bearing a unique identification designation and sealing date stamped on it shall be inserted through one or where specified two accessible and visible bolt holes. The supply and installation of blind flanges, bolting materials, and gaskets shall be the responsibility of "Oriana-Halev" LLC. The supply and installation of locks and provision for their marking will be the responsibility of the State Ecological Inspectorate and IBRD.

In the event that "Oriana-Halev" LLC wishes to utilize or dispose of equipment that has been sealed, this shall be requested in advance with notice and appropriate background on the actions being addressed to the designated representative of the State Ecological Inspectorate. Approval of such requests shall require the "no objection" of IBRD. Representatives of the State Ecological Inspectorate and IBRD shall have the right to witness the removal of seals provided the above notice is given.

7.0 Procedures and Guideline – Record Keeping

"Oriana-Halev" LLC or any successors undertakes that all records defined in this Closure Plan shall:

a) represent true and actual conditions;
b) be immediately accessible and available upon request to representatives of the State Ecological Inspection and IBRD; and
c) be maintained at the "Oriana-Halev" LLC facilities in Kalush, Ivano-Frankivsk region for a period until such time as the State Ecological Inspectorate and IBRD agree that such record keeping is no longer required.

8.0 Procedures and Guidelines – Authorization of Inspection Personnel and Plant Access

It is agreed that the following procedures will govern the access allowed to authorized representatives of the State Ecological Inspectorate and IBRD for purposes of monitoring and verification of the permanent closure of CTC/PER production facility at "Oriana-Halev" LLC as covered in this Closure Plan:

a) Formal monitoring and verification activities as defined in this Agreement will begin (Insert Agreed Date) or such earlier time as may be warranted if closure activities defined in this Closure Plan are undertaken in advance of this date;

b) Representatives of the State Ecological Inspectorate and IBRD will be provided equal and independent access to all facilities and materials covered in this Closure Plan for purposes of monitoring and verification;

c) Notice for of visits for purposes of monitoring and verification will normally be three days to ensure efficient availability of appropriate personnel and records, but the option of unannounced inspections is retained at the sole discretion of the State Ecological Inspectorate or IBRD where circumstances suggest that this is warranted;

d) "Oriana-Halev" LLC will make appropriate personnel and facilities available to Representatives of the State Ecological Inspectorate and IBRD for purposes of monitoring and verification and provide guided but unrestricted access to all facilities and records designated in this Closure plan; and

e) Representatives of the State Ecological Inspectorate and IBRD inspectors will be permitted to make photographic, videotape and tape recorded records of verification observations applicable to closure and related activities covered by this Closure Plan.

General Director of "Oriana-Halev" LLC

. _____ (Vashkevich E. B.)

Head, State Ecological Inspectorate, Ministry of Environmental Protection

_____(Kostrov N. M.)

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Attachment A4.11
Agreed Principles on the Monitoring and Control of Future Methyl Bromide Production in Ukraine

Methyl bromide (MB) is one of the two ozone-depleting substances that have been produced in recent years within Ukraine. Methyl bromide is controlled under Annex E of the 1987 Montreal Protocol as amended at Copenhagen in 1992. Ukraine ratified the Copenhagen amendment in 2000.

Accordingly, Ukraine is obligated to have completely phased out methyl bromide consumption and production effective December 31, 2004 except as permitted under the Montreal Protocol. More specifically consumption currently would be restricted to Quarantine and Preshipment (QPS) applications and to applications for which Critical Use Exemptions (CUEs) granted to specific consumer enterprises in Ukraine as approved in advance by the Meeting of the Parties to the Montreal Protocol. Production of methyl bromide is only permitted for: i) exempt applications in Ukraine defined above; ii) export to such exempt applications in Non-Article 5 countries; and iii) end use applications in Article 5 (developing) countries consistent with the phase-out requirements applicable to Article 5 countries under the Montreal Protocol[8]. No production shall occur which is intended for export to countries that are not a Party to the Montreal Protocol as amended in Copenhagen.

The Government of Ukraine has requested the International Bank for Reconstruction and Development (the Bank) acting as an Implementing Agency for the Global Environmental Facility (GEF) to assist Ukraine in meeting these obligations. Accordingly, the Ministry of Environmental Protection and the Bank jointly prepared a project to phase-out methyl bromide consumption with particular emphasis on the grain sector. However, Ukraine has elected to maintain its right to remain a producer of methyl bromide. More specifically, stated intentions have been made known that the currently inoperative methyl bromide production facility at the Saki Chemical Plant in the Autonomous Republic of Crimea may be re-started and that a new production facility is being developed at Olvia Corporation Chemical Plant (formally VAT "Brom") at Krasnoperekopsk, also in the Autonomous Republic of Crimea.

The Government of Ukraine agrees to strictly monitor and control the development and any subsequent production of methyl bromide in accordance with its obligations under the Montreal Protocol as amended at Copenhagen and to facilitate and enforce the Bank's right to access and independent monitoring of such production. Furthermore it is agreed that monitoring will be undertaken in accordance with detailed Monitoring Plans agreed by the owners and operators of any facility being developed to produce methyl bromide, such Monitoring Plans being acceptable to the Bank and legally binding upon the owners and operators of any such facility.

Monitoring Plans covering the planned production of methyl bromide at the two facilities that have announced such plans (viz. the Saki State Chemical Plant at Saki and the Olvia Corporation Chemical Plant at Krasnoperekopsk, both in the Autonomous Republic of Crimea) have been developed and agreed in principal by the Government of Ukraine and the respective enterprises.

In order to ensure that any other future production facilities for methyl bromide in Ukraine are operated in compliance with the Ukraine's obligations under the Montreal Protocol (1987) as amended in Copenhagen (1992) it is necessary to outline the technical scope and methodology of further Monitoring Plans that would cover any other facility planning or carrying out production of methyl bromide in the

[8] Ukraine's eligibility for making exports to Article 5 countries would depend on the quantity it exported for this purpose (if any) in the period 1995 to 1998.

Ukraine and to fully define the rights and obligations of the Parties, including the obligation of the Parties to provide access and monitoring rights to the International Bank of Reconstruction and Development (the Bank) acting on behalf of the donors of international grant funding from the Global Environment Facility (GEF) to the Ukraine.

It is therefore to be understood that Monitoring Plans similar in scope to those for Saki and Krasnoperekopsk would also apply pari passu to any other MB production in the Ukraine.

More specifically, these Monitoring Plans shall provide for Government of the Ukraine's provision of notice to the International Bank for Reconstruction and Development (the Bank) in advance of any plans relevant to present or future methyl bromide production in the Ukraine. In particular, such notification will include:

- Plans for starting methyl bromide production at any location in the Ukraine, including but not limited to information as to the scale and timing of the relevant investments and the anticipated production.
- Plans for modifying production facilities or production processes for methyl bromide at any location in the Ukraine.
- Plans for ceasing methyl bromide production at any location in the Ukraine (including at Saki State Chemical Plant and Olvia Chemical Plant), including plans for any stockpiling of methyl bromide to meet demand after production has ceased.

In support of this undertaking:

It is further understood that advance notice of the intent to produce methyl bromide shall be provided by the owners and or operators of any present and future methyl bromide production facilities concerned to the relevant Ukrainian authorities and at the same time to the Bank. This notification shall as a minimum contain the following information:

- Evidence that the necessary environmental approvals and permits required under Ukrainian legislation have been granted and are being complied with.
- Evidence that an environmental assessment has been carried out, and a summary of such assessment and evidence that advantage has been taken of relevant locally or nationally available environmental expertise.
- The timetable for commissioning and start-up of the production facility.
- The capacity of the facility and intended annual production.
- A description of the process to be employed, including an indication of the operative chemical stages and their chemistry as well as information as to whether the process is intended to operate continuously or on a batch basis.
- The chemical nature of all raw materials, intermediates, products for sale, by-products (whether or not intended) and wastes arising, including an approximate mass balance.
- The intended markets for the methyl bromide to be produced (broken down by major end-use application and by country of destination).

It is further understood that in the event that a facility in Ukraine initiates the production of methyl bromide, it will do so only in accordance with a Monitoring Plan agreed to in advance and addressing the following:

- *Physical Plant Monitoring*, inclusive of inspection for evidence of use and/or modification of key process components and operations such as feedstock preparation, synthesis, product finishing and filling into shipping containers, and inspection of raw material, finished product and waste inventories against established reference base lines.
- *Environmental Monitoring*, covering the condition of on-site waste storage, public and staff consultation and regulatory approvals and compliance.
- *Record Keeping*, inclusive of historical and baseline information, technical design and design modification documents, purchasing records for raw materials, regulatory records, documentation of utility consumption, process control records and production and sales records.
- *Notification and Reporting*, by the enterprise to the environmental authorities and by both to the Bank, respecting initiation of methyl bromide production, receipt, use and/or sale of designated raw materials and feedstocks, modification/dismantling/removal of designated equipment, and sales of methyl bromide including specification of its intended final destination and end use, and regulatory inspections.
- *Access Conditions* acceptable to the government and the Bank for its representatives undertaking independent monitoring.

The Government of Ukraine agreed with the above undertakings and understandings and the latter were reflected in the Letter Agreement between the Government of Ukraine and the International Bank for Reconstruction and Development (the Bank) for a Global Environmental Facility (GEF) grant provided to Ukraine for the phase-out of methyl bromide (MB) in accordance with Ukraine's obligations under the Copenhagen Amendment of the Montreal Protocol.

Annex 5: Project Costs

UKRAINE: METHYL BROMIDE PHASE-OUT

The following table summaries the overall project costs inclusive of a 10 percent contingency.

Component/Sub-Component	Total Costs (US$ m)	% of Total	Counterpart Financing (US$ m)	% of Counterpart Financing	GEF Financing (US$ m)	% of GEF Financing
Component 1: MBr Grain and Quarantine Sector Consumption Phase-out	**7.210**	**72.0**	**4.110**	**84.0**	**3. 100**	**60.8**
1.1 Farm Based Grain Storage Demonstration Investments	**1.480**	**14.3**	**0.520**	**10.6**	**0.960**	**18.8**
1.2 Central Elevator/Terminal Storage Demonstration Investments	**3.090**	**30.9**	**2.310**	**47.1**	**0.780**	**15.3**
1.3 Grain Processing Storage Demonstration Investments	**0.630**	**6.3**	**0.220**	**4.5**	**0.410**	**8.0**
1.4 Fumigation Service Provider Demonstration Investments	**0.980**	**9.8**	**0.760**	**15.5**	**0.220**	**4.3**
1.5 State Quarantine Service Capacity Strengthening	**0.430**	**4.3**	**0.200**	**4.1**	**0.230**	**4.5**
1.6 Grain Sector Operating Technical Assistance	**0.600**	**6.0**	**0.100**	**2.0**	**0.500**	**9.8**
Component 2: CTC Plant Closure Compensation	**1.200**	**12.0**	**0.200**	**4.1**	**1.000**	**19.6**
Component 3: Policy Development and Institutional Strengthening	**1.250**	**12.0**	**0.500**	**10.0**	**0.750**	**14.7**
3.1 MBr Production Monitoring	**0.150**	**1.5**	**0.075**	**1.5**	**0.075**	**1.5**
3.2 Competitive Grant Program (CGP) Preparation and Appraisal Support and CGP Administration	**0.450**	**4.0**	**0.100**	**2.5**	**0.325**	**6.2**
3.3 Regulatory Strengthening - Pest Control and Related Chemicals	**0.350**	**3.5**	**0.150**	**3.1**	**0.200**	**3.9**
3.4 Public Information	**0.150**	**1.5**	**0.075**	**1.5**	**0.075**	**1.5**
3.5 Preparation for Future Montreal Protocol Obligations	**0.150**	**1.5**	**0.075**	**1.5**	**0.075**	**1.5**
Component 4: Project Implementation, Monitoring and Evaluation	**0.350**	**3.5**	**0.100**	**2.0**	**0.250**	**4.9**
Total Project Costs	**10.010**	**100.0**	**4.910**	**100**	**5.100**	**100**

Counterpart contributions include applicable taxes that are estimated on the basis of VAT at 20 percent and import duties on foreign goods at 15 percent. The total estimated tax is US$1.36 million, distributed as follows: Component 1: US$1.26 million and Component 3: US$0.10 million. It is assumed that no taxes would apply to compensation payments in Component 2 or to Component 4.

The estimated distribution between for foreign and local costs that are GEF funded is estimated to be: Foreign: US$4.00 million, and Local: US$1.10 million. 100 percent of counterpart contribution is estimated to be local expenditure.

Overall grant cost effectiveness based on the project eliminating 196MT of MBr consumption and based on MBr related grant funding of US$4.10 million is US$34.9/kg ODP. The estimated GEF grant cost effectiveness is consistent with experience with MBr projects undertaken through the Montreal Protocol Multi-lateral Fund.

Annex 6: Implementation Arrangements

UKRAINE: METHYL BROMIDE PHASE-OUT

General

The project's primary objectives are environmental in nature and specifically linked to Ukraine's global obligations under the Montreal Protocol. Similarly, the Project's financing is derived from the Global Environmental Facility (GEF). These characteristics suggest that the appropriate principal counterpart interface should be the Ministry of Environmental Protection (MOEP) who have responsibility for the regulation of ODS, fulfillment of Ukraine's international obligations, and act as the focal point with the GEF generally.

However, the principal beneficiaries of the project will be in the agricultural sector, both in the private and public sector where the project's principal investments are directed at mitigating the impact of the country fulfilling its obligations respecting the global environmental objective. In this regard, the project objectives also include maintaining and enhancing protection of Ukraine's food supply and its ability to export. The investments made on MBr consumption phase-out that constitute about 60 percent of the GEF financing will be directed as small grants to a large number of enterprises and services under either the administrative or regulatory control of the Ministry of Agricultural Policy (MinAgPol). Similarly while a significant portion of the project's technical assistance resources will be applied to institutional strengthening and capacity building related to ODS at MOEP, a considerable part of this funding will be directed to the agricultural sector, principally at the enterprise level.

The challenge in structuring the project's implementation arrangements is balancing the legitimate interests of these two major institutional stakeholders in a manner that allows the project to proceed in a timely manner, not be burdened by excessive administrative structures and to efficiently direct resources to the final beneficiaries consistent with the project's objectives. The following outlines the arrangements developed and agreed upon to do this, along with elaboration of various key functions and components envisioned to be used.

Implementation Arrangements

The basic implementation concept agreed will utilize an interagency body already existing within the government structure (Interagency Coordination Commission on Implementation of Montreal Protocol Regarding Ozone Depleting Substances) to act as the project's overall supervisory vehicle at a policy level. This would be chaired by a senior representative of MOEP, specifically the Head of the State Ecological Inspectorate (SEI) and have representation of MinAgPol, likely the Ministry of Industrial Policy and other stakeholder agencies and NGOs including agricultural sector associations. The intent would be that the overall supervisory body would act primarily in an oversight role to develop and approve policy directions in MBr phase-out and use, approve project work plans, sub-project eligibility criteria and sub-grant agreements with beneficiaries.

The project's working implementation responsibility with delegated authority from the supervisory body for detailed project implementation would be SEI within MOEP. This would operate under the overall management direction of the head of SEI and the direct supervision of a senior SEI deputy assigned this responsibility. This individual would directly supervise a small Project Implementation Support Team within SEI as well as coordinate the project activities with the SEI line organizational structure having the mandate within the Government for Montreal Protocol issues. The support team would consist of three professionals and one support staff financed under Component 4 and providing administrative, technical, procurement and financial administration coordination, with SEI's existing financial, accounting and

procurement system. SEI will be the contracting party for goods and services procurement done in accordance with World Bank Procedures as defined in the Grant Agreement and hold the Special Account (SA). This would essentially be a continuation of the model used for the previous much larger GEF ODS project undertaken and completed by SEI. It is anticipated that experienced staff from the previous project will be available to serve in these capacities. Implementation of Competitive Grant Program (CGP) will be supported by a competitively selected CGP Administrator reporting to SEI head.

The technical oversight of technical assistance assignments will be the agency or organization for whom the technical assistance is being provided or who is most directly involved in its delivery. For provision of individual consultant support related to MBr production monitoring and strengthening of capacity to meet international obligations, this will be the line responsibility within SEI responsible for ODS. For provision of the enterprise level training and IPM procedure development in the grain sector as well as crop protection related regulatory strengthening this will be a designated authority or authorities within MinAgPol. MinAgPol will also be responsible for a public information program including the Component 3 TA resources that would support this. In all cases the agency with technical supervision responsibility will also be responsible for agreed counterpart contribution.

Technical preparation, evaluation and management of CGP sub-projects will be supported by CGP Administrator and individual technical consultants contracted under Component 3 through SEI but working in cooperation with an appropriate designated authority or authorities within MinAgPol. Goods procured by SEI will be transferred to a competitively selected eligible enterprises within four sub-sectors of the grain sector (farm, elevator, mill and fumigation service providers) as small equipment packages under sub-grant agreements with SEI from a portfolio of CGP sub-projects endorsed by the ICC. It is planned that a first round of selection and evaluation of CGP sub-projects will be completed within one year after effectiveness of the project. Individual CGP sub-projects approved by ICC will not be subject to formal "no objection" by the Bank. Bank will review eligibility of investments on the post review basis, primarily in the course of regular supervision.

Implementation Arrangements of Competitive Grant Program are detailed below.

Competitive Grant Program

Ukraine's agricultural sector has a significant potential for scaling up elimination of MBr consumption with the help of pilot demonstration MBr consumption sub-projects through a Competitive Grant Program (CGP). The key objective of the CGP is to identify and support cost effective, sustainable replicable demonstration sub-projects in Ukraine. This scheme can provide a model for wider replication on the national level. For this purpose during project preparation a preliminary portfolio of potential sub-project beneficiaries has been identified. Additional potential beneficiaries will be identified during implementation through active solicitation of proposals.

Applications for participation in the CGP will be sought from eligible farmers and business entities operating in various parts of the grain handling sector where protection from infestation is required. The applicants will need to demonstrate capacity to implement the projects, be economically viable to ensure sustainability of investments from GEF project and demonstrate a historical requirement for MBr use. The SGS will enable the participants to apply alternative environmentally friendly grain-handling techniques at the facilities and processes which have a potential for technological upgrade.

Minimum **selection criteria** applied to applicants are the following:

- The enterprise represents (i) a significant latent consumer of MBr in terms of demonstrated historic use, (ii) has a demonstrated need for continued crop protection as a consequence of

not using MBr, and (iii) has not been able to effectively replace MBr with alternative crop protect technology with its own resources or expertise;

- The enterprise demonstrated the interest to participate in the project and commitment to reach sub-project objectives formulated in the sub-grant agreement;
- The proposed demonstration investment is associated with one of four categories – farm based grain storage, elevator or terminal storage; grain processing and fumigation service provider;
- The proposed investment sub-project can be demonstrated to generate a positive rate of return for the enterprise;
- The proposed investment has a MBr phase-out cost effectiveness (as measured in US$/kg. ODP based on historical regulated MBr use in line with international practice but in any case better than US$30/kg ODP;
- The enterprise demonstrated capital investments in the facility grain handling infrastructure over the last 3 years; and
- The enterprise can demonstrate that it is financially viable, has sufficient implementation resources to project execution, and has the capacity and commitment to meet an agreed counterpart contribution approved by the Bank. Minimum beneficiary co-financing ratio for individual sub-projects should exceed 30 percent of the total sub-project cost. The proposed investment is approved by environmental authority through EIA/OVOS procedure.

The launch of the CGP will be announced based on ICC decision. The announcement and information regarding the Competitive Grant Program will be advertised in the national and local newspapers and disseminated through Internet and electronically to individuals and entities, which may be interested in competition. Additionally, its promotion will be coordinated with the technical assistance activities which will include information on the CGP and on requirement for presentation of proposals.

Organization and Management

The CGP will be administered by CGP Administrator (consultanting firm) selected through competitive process. The CGP Administrator will report to the head of SEI.

The CGP Administrator's organizational functions include dissemination of information about the CGP, coordination with the relevant TA initiatives in the project, assessment of applications against specified selection criteria, coordination of Bank reviews, consulting applicants on preparation of proposals and interpreting evaluation criteria to them, evaluation of the beneficiary project documents, developing proposals on selection of individual CGS sub-projects for ICC endorsement, and monitoring of projects implementation. The CGP Administrator shall work in close partnership with SEI, ICC and implementation support team, project proponents (organizations and individuals) to help them formulate their project proposals. The Administrator shall visit the sites of proposed activities, and ensure sound program monitoring and evaluation.

The specific tasks of the CGP Administrator are to:

(i) Publicize and promote the CGP among all interested stakeholders;

(ii) Prepare and disseminate information about the CGP, including description, selection criteria, and call for applications;

(iii) Hold workshops for the interested stakeholders to build understanding of the objectives of the CGP, its procedures and criteria for project selection;

(iv) Help applicants in the preparation of preliminary proposals and support the linkage of the program with TA training in IPM and alternative fumigation techniques;

(v) Prepare a standard format for submitting both applications and full proposals for grant funding and ensure its availability for the potential applicants;

(vi) Receive, register and file all received applications;

(vii) Provide jointly with individual consultants support in developing full proposals and all supporting documentation for pre-screened projects;

(viii) Assess and submit pre-screened full project proposals to the ICC for endorsement. Packages submitted to the ICC should include a one-page genetic evaluation check-list for each application (for quick reference/guidance of the ICC);

(ix) Provide documentation as required for the Bank review; and

(x) Monitor implementation of sub-projects and achievement of the CGP objectives.

Selection of proposals under the CGP will be carried out in two stages: applications containing brief sub-project proposals will be submitted at the first stage, then after initial evaluation and screening of the applications by the CGP Administrator, the selected applicants will be asked to submit full project proposals.

Sub-project Pre-screening

All sub-project applications received by the CGP Administrator must be registered and put into a database. The CGP Administrator is responsible for pre-screening of applications to check eligibility against the criteria outlined above. Applicants, whose applications meet the pre-screening criteria, will be asked to submit full proposal.

Full sub-project proposal formulation

Full proposal should contain the following information:

- Applicants' information (i.e. name of organization; name of individuals/executors of the project; financial status, address and contact information);
- Documentation of the historical use of MBr as required under national regulations;
- Brief description of a sub-project (goals, objectives, activities);
- Project duration;
- Amount of grant requested and amount of co-financing;
- (a) Total capital cost (goods, materials, works and services) of the sub-project; (b) breakdown of estimated costs of sub-project components and applicant's contribution against them, (iii) the beneficiary enterprise' previous investments in MBr phase-out, including practices preventing infestation; (vi) other co-financing sources and prove of their availability;
- Operating cost estimates for project implementation compared to equivalent operating costs for the use of MBr as required historically;
- Calculations demonstrating cost effectiveness of grant financing;
- Expected economic and environmental benefits;
- Request for technical assistance and training (if needed);
- Illustration of how the proposed activities meet the goal and objectives set for the CGP; and
- Information on the activities to be carried out after the completion of the project (if possible).

Priority Ranking of Pre-Selected Sub-project Proposals

The CGP Administrator is responsible for pre-screening and ranking of project proposals. For each pre-selected sub-project, the CGP Administrator provides a resume which outlines strengths and weaknesses of the proposal. Proposals will be ranked in order of priority of their funding based on the criteria of the estimated latent methyl bromide phase-out, cost effectiveness and con-financing commitments. Based on pre-screening results, the CGP Administrator will make recommendations to the ICC about sub-project selection.

Project Evaluation and Endorsement

The ICC review project proposals and recommendations of CGP Administrator and endorse (or modify) them. ICC members familiarize themselves with the pre-screened sub-project proposals and evaluation analysis. The ICC's meetings will be called as needed but not less than once in a quarter. As a rule, ICC Grants competitive selection meetings will be closed sessions. The Chair will facilitate the meetings and in case of his/her absence meetings will be headed by the Deputy Chair.

The CGP Administrator will also participate in all meetings of the ICC. The decision of the ICC meeting will be entered in minutes, which then will be signed by the Chair.

Before the meeting each member of the ICC will sign the conflict of interest statement; thus if at that stage, any member of the ICC has a conflict of interest regarding a specific sub-project proposal he/she

will mention this and exclude himself/herself from that part of the meeting where the said proposal will be considered.

When a sub-project proposal is approved, the CGP Administrator will agree the schedule for payments, reporting requirements and other specific conditions with an applicant. The schedule for payments will correspond to the project category, the project timeframe and its expected cost.

Categories of Sub-Projects

The following items are considered to be eligible for GEF funding:

Sub-Component 1.1 Farm Based Grain Storage Investment

The various indicative capital items envisioned within the scope of GEF funding would include:

a) Supplying metal bins with aeration flooring or other dedicated small scale storage facilities that would serve as isolation storage suitable for application of phosphine and potentially other emerging technologies in relatively small lots prior to mixing with bulk stores;
b) Upgrading existing flat floor warehouse/shed type storage commonly used in such operations with aeration flooring and portable air blowers;
c) Providing a set of industrial cleaning equipment (vacuum cleaner, air compressor, pressure washer, tarps and sealant) that would allow warehouses to be effectively cleaned prior to use; and
d) Providing portable monitoring instruments for moisture control and insect detection.

It is anticipated that enterprise co-financing would cover installation and infrastructure plus any supplementary investments in expanded storage, drying and handling deemed necessary and affordable.

Sub-Component 1.2 Central Elevator/Terminal Storage Investment

This sub-component would be applicable to the larger central elevator/grain terminal operations that currently provide the bulk of the country's grain storage capacity. It would target both public and private sector facilities handling higher quality and value added food grain where the impact of insect infestation is the greatest. Investments would target basic upgrading of various aspects of the operations to facilitate IPM practices, improve infestation detection and allow routine exception response when infestation is found. It would also potentially facilitate the introduction of larger scale bulk grain fumigation capacity using alternative technologies.

The various indicative capital items envisioned within the scope of GEF funding would include:

a) Supplying metal hopper type bins that would serve as isolation storage for infested incoming loads;
b) Supplying modern pneumatic or electronic grain sampling systems to replace the existing manual and mechanical auger systems, thereby ensuring more comprehensive sampling of incoming loads;
c) Providing phosphine tablet dispensers for installation on grain floor conveyors;
d) Providing a set of industrial cleaning equipment (vacuum cleaner, air compressor, pressure washer, tarps and sealant) that would facilitate better housekeeping of warehouses, elevators and handling equipment; and
e) Providing portable monitoring instruments for moisture control and insect detection.

Parallel investment by the enterprises as part of their contribution in upgrading the sealing on some silos would be anticipated as well as potentially installing entry and hook up points for use of cylinder fumigants such as phosphine and potentially other chemical/inert gas based fumigants as they are available and registered. In addition, the installation of recirculation systems in silos may be included to improve the efficiency of phosphine treatment.

Sub-Component 1.3 Grain Processing Storage Investment

This sub-component would address investment in grain processing facilities operating independently of the larger elevator/terminal facilities above. However, the general scope of the proposed investment sub-projects is similar in terms of targeting support for basic IPM strategies and facilitating the longer term adoption of current emerging fumigation technologies as well as potentially the inclusion of heat based techniques.

The various indicative capital items envisioned within the scope of GEF funding would include:

a) Supplying metal hopper type bins that would serve as isolation storage for infested incoming loads;
b) Supplying modern pneumatic or electronic grain sampling systems to replace the existing manual and mechanical auger systems, thereby ensuring more comprehensive sampling of incoming loads;
c) Providing phosphine tablet dispensers for installation on grain floor conveyors;
c) Providing a set of industrial cleaning equipment (vacuum cleaner, air compressor, pressure washer, tarps and sealant) that would facilitate better housekeeping of warehouses, elevators and handling equipment; and
d) Providing portable monitoring instruments for moisture control and insect detection.

Parallel investment by the enterprises as part of their contribution in upgrading the sealing of silos and materials transfer ducting would be anticipated as well as potentially installing entry and hook up points for use of cylinder fumigants such as phosphine and potentially other chemical/inert gas based fumigants as they are available and registered.

Sub-Component 1.4 Fumigation Service Provider Investment

This sub-component will build on the existing network of regional fumigation service organizations that have historically provided the country with these services. The investment sub-projects would involve upgrading of fumigation application capability for alternative fumigants, specifically phosphine and phosphine/inert gas mixtures. One of the priorities would be to increase the efficiency of phosphine use. This would include personal protection equipment, fumigant monitoring equipment, and sets of application equipment and tools. The selection of alternative fumigants, arrangements for their supply and any proprietary equipment required for their application would be supplied as part of enterprise contribution. A priority in this sub-component will also be the introduction of IPM techniques to crop protection service providers with the intention that they can expand their scope to providing these services as an alternative to more conventional chemical based fumigation.

The various indicative capital items envisioned within the scope of GEF funding would include:

e) Supplying personal Protection Equipment Set (Masks/self contained breathing equipment);

f) Providing fumigant monitoring/ concentration testing equipment;

g) Supplying gaseous fumigant application equipment set (pressure testing equipment, blowers, gas manifold, manometer, dosing scale, tool set); and

h) Providing alternative fumigant application and storage equipment.

Parallel investment by the enterprises as part of their contribution in acquisition of fumigants, vehicles, handling equipment, design and approvals of facilities and registration of products would be anticipated.

Annex 7: Financial Management and Disbursement Arrangements

UKRAINE: METHYL BROMIDE PHASE-OUT

1. Introduction

The task team conducted an assessment of the adequacy of the project financial management systems at PIST established within the State Ecological Inspectorate (SEI), a unit within the Ministry of Environmental Protection (MOEP). Financial management arrangements meet the Bank's minimum requirements.

2. Summary

Detailed financial management questionnaire will be included in the project files. A summary of the conclusions are as following:

Financial Management Assessment	***Rating***
1. Implementing Entity	Satisfactory
2. Funds Flow	Satisfactory
3. Staffing	Satisfactory
4. Accounting Policies and Procedures	Satisfactory
5. Internal Audit	N/A
6. External Audit	Satisfactory
7. Reporting and Monitoring	Satisfactory
8. Information Systems	Satisfactory
OVERALL FINANC1AL MANAGEMENT RATING	Satisfactory

3. Country Issues

Previous Bank diagnostic and other Economic and Sector Work (ESW) concluded that significant improvement is required in the management of public expenditures, especially strengthening of internal and external audits in the public sector. The CFAA also identified a lack of adequate accountability arrangements for state owned enterprises. While there has been some progress, since the publication of Bank reports, in terms of bringing modern technology in the PFM area, major reforms in the institutional area, such as restructuring of the fragmented and overlapping functions, pose a major challenge. The next phase in public sector institutional reforms is expected to focus on deepening the existing reforms and widening the scope of the reform agenda. This entails significant changes in institutional structures and realignment of various.

The 2002 Report on Observance of Standards and Codes (ROSC) on Accounting and Auditing identified weak regulatory arrangements for the audit profession, differences between National Accounting Standards and IFRS, and weak capacity in the country to implement IFRS financial statements and ISA audits.

The project financial management arrangements are designed to mitigate possible weaknesses in controls through the mechanism of supervisions, audits of the Project Financial Statements and periodic reporting to the Bank.

4. Risk Analysis

A summary of risk assessment for the project is as following:

Inherent Risk	Risk	Comments
Country Financial Management Risk: weaknesses in the public sector financial management	Moderate	Based on CFAA report dated 2001, and update of assessment performed in 2004.
Project Financial Management Issues	Moderate	The SEI has successfully implemented GEF Ozone Depleting Substances Phase-out Project. The FMS has sufficient knowledge and experience in project implementation and World Bank FM and reporting requirements.
Overall inherent risk	**MODERATE**	

Control Risk	Risk	Comments
1. Implementing Entity	Moderate	The implementing entity, Project Implementation Support team within SEI. While Project Implementation Support Team is new (except for the FMS), SEI has previously implemented GEF Ozone Depleting Substances Phase-out Project.
2. Funds Flow	High	The funds will flow mainly either directly from the Grant account (direct payments) or from the special account in USD, managed by SEI, to the final contractors/suppliers. However, some minor payments will be made from UAH account of SEI in Treasury.
3. Staffing	Moderate	The FMS has been selected, but not yet contracted for the PIST within SEI. The FMS has acceptable qualifications.
4. Accounting Policies and Procedures	Moderate	The accounting policies and procedures are set out in the accounting policy of the SEI accounting department. The policies and procedures for Bank's reporting are set out in the FM manual.
5. Internal Audit	N/A	Although the Ministry of Agriculture has internal audit function, the Bank will not rely on it, as the approach is transaction based rather than control based.
6. External Audit	Moderate	Auditors acceptable to the Bank will audit the project financial statements for this Grant. Audit will be performed under acceptable TOR.
7. Reporting and Monitoring	High	Reports will be prepared based on data extracted from the automated accounting

		system of SEI. The automated reports will be modified and translated to USD to conform with the Bank requirements to reporting.
8. Information Systems	High	Integrated accounting systems will be used for accounting for the Grant by SEI accounting unit. The FMS will also use Excel to modify and confirm the reports to the Bank requirements.
Overall Control Risk	**MODERATE**	

5. Risk Mitigation Strategy

The project financial management arrangements will be designed to mitigate the inherent risk through a combination of Bank supervisions, audits and monitoring of periodic reports, as well as a sound system of internal controls in SEI, as also described in the sections below:

(1) Quarterly progress reports on the project accounts will be provided to the Bank. They will be subject to at least annual supervisions of the Bank.
(2) Annual external audit reports on the Project financial statements shall be provided to the Bank along with management letter.
(3) Although the technical direction of the assignment and effective contract holder will be the agency or organization for which the technical assistance will be provided, all payments will be made centrally by SEI.
(4) Co-financing providing by the small participating enterprises and entities will be accounted by the SEI, to ensure compliance of the participating organizations and agencies with the terms of co-financing stipulated in the sub-Grant agreements.
(5) As payments through treasury accounts of SEI entail significant risk of delay or refusal of disbursement, majority of contract will be in USD, and payments will be made directly from the special account of SEI to supplier/contractor.

6. Strengths and Weaknesses

SEI within MOEP will be contracting party for administrative purposes, but the technical direction of the assignment and effective contract holder will be the agency or organization for which the technical assistance will be provided. However, all payments will be made centrally by SEI. SEI would impose sufficient controls over disbursement of Grant funds. Thus, segregation of duties is built in the project design.

The proposed PIST FM specialist and the accounting staff of the SEI have prior experience of accounting and reporting for Grants, administered by the Bank.

7. Implementing Entity

The primary counterpart for the Grant implementation is SEI (a separate legal entity), a subunit of MOEP. However, the principal beneficiaries will be small enterprises and agencies under the administrative or regulatory control of Ministry of Agricultural Policy (MinAgPol). The implementing responsibility will be with Project Implementation Support Team in SEI within MOEP under overall management direction of the head of SEI. The Project Implementation Support Team consists of the head of PIST (employee of SEI), FMS, procurement specialist (both hired as consultants). Other consultants may be hired as necessary. Implementation of Competitive Grant Program (CGP) in the Component 1 will be supported

by a competitively selected CGP Administrator reporting to SEI head. Grant agreement will be concluded with the SEI, sub-grant agreements will be concluded with the small enterprises and agencies (beneficiaries).

The supervisory body at a policy level will be the interagency body already existing within the government: Interagency Coordination Commission on Implementation of Montreal Protocol Regarding Ozone Depleting Substances (ICC), chaired by the head of SEI. ICC would act primarily in an oversight role to develop and approve policy directions in MBr phase out and use, approve project work plans, sub-project eligibility criteria and sub-grant agreements with beneficiaries. SEI will report to the ICC on the appropriate use of funds by the beneficiaries in agreed reporting. The use of funds by the beneficiaries shall be in accordance with the agreed procurement plans.

Various Components will have a variety of other institutional counterparts as described below.

Component 1: For consumption investment and the technical assistance activities related to the grain and quarantine sector, the primary institutional counterpart will be various organizations within or associated with the Ministry of Agricultural Policy and include State Inspectorate of Plant Protection, Inspectorate of Bread Product Quality, and Klhib of Ukraine.

Component 2: The primary institutional linkage for CTC production closure would be the Ministry of Environmental Protection, and specifically the State Ecological Inspectorate.

Component 3: The policy development and institutional strengthening initiatives have a primary institutional linkage to the Ministry of Environmental Protection but will also require participation of other agencies in its various targeted initiatives.

8. Funds Flow and Disbursement Arrangements

A special account for the purpose of the Grant will be set up in USD by Ministry of Economy in one of the acceptable to the World Bank banks. The SEI director (first signature) and accountant will be granted by the MoE the authority to disburse funds from the Grant account to the Special Account in USD. The SEI will also make disbursements from the Special Account or from Grant Account (direct payments) to final suppliers/contractors in USD following the regular procedures established by the Bank. Ministry of Economy will co-authorize (second signature) with SEI direct payments to final suppliers/contractors and the disbursement of funds from the grant account of the Bank to the Special Account. For some minor expenses which will be required to be made in UAH, a Treasury Account of SEI in UAH will be used. In this case, funds will be transferred to the UAH accounts of SEI in advance, to allow sufficient time for Treasury to make the payment.

The authorized signatories will be the director of SEI and the chief accountant of SEI. Prior approval from the PIST's head and PIST's FMS will be required.

Allocation of Grant proceeds is as following:

Expenditure Category	Amount in US$ million	Amount of the GEF Trust Fund Grant Allocated	Financing Percentage
Component 1: MBr Grain and Quarantine Sector Consumption Phase Out	7.21	3.1	100%
Component 2: CTC Plant Closure Compensation	1.2	1.0	100%
Component 3: Policy Development and Institutional Strengthening	1.25	0.75	100%
Component 4: Project Implementation, Monitoring and Evaluation	0.35	0.25	100%
Total Project Costs with Bank Financing	10.01	5.1	

Use of Statements of Expenditure (SOEs):

Bank funds would be disbursed under the Bank's transactional procedures including: (1) direct payments; and (2) SOEs

(1) The Bank may require withdrawals from the GEF Trust Fund Grant Account to be made on the basis of statements of expenditure for expenditures under contracts for: (a) goods costing less than $100,000 equivalent per contract; (b) services of individual consultants costing less than $100,000 equivalent per contract; (c) services of consulting firms under contracts costing less than $200,000 equivalent per contract, (d) auditing servcies, (e) CGP, (f) Training, and (g) Incremental Operating Costs, all under such terms and conditions as the Bank shall specify by notice to the Recipient.

(2) Disbursements below these thresholds, and all contracts for training and study tours, would be made according to certified Statement of Expenditure (SOEs). Supporting documentation for SOEs including completion reports and certificates would be retained by the MOF, PCU and regional PITs and made available to the Bank during project supervision. This documentation would be retained for at least one year after receipt by the World Bank of the audit report for the year in which the last disbursement was made.

Special Account:

For the purposes of the project, a central Special Account (SA) will be opened and managed in one of the commercial banks acceptable to the Bank. The ceiling of the SA will not exceed $900,000. The first signatures would be delegated to the representatives of the SEI: the Director and the Chief accountant or her deputy.

Replenishment for the SA would follow IBRD procedures. The SEI would submit a replenishment application monthly, or sooner if desired, but quarterly at the latest. A bank statement and reconciliation of the SA against World Bank records would support the replenishment applications. The minimum amount for applying for direct payment and for special commitment would be 20 percent of the authorized allocation to the SA.

9. Staffing

PIST group includes several individuals, including FMS. The FMS has been proposed, but formally not contracted. The selection of the FMS will follow standard consultant selection procedures. The FMS who worked at the previous Bank-administered GEF grant, possesses sufficient technical experience and qualifications.

SEI chief accountant and accountants will be maintaining all accounting for the project in the "Parus" accounting software in accordance with the statutory requirements. The FMS will prepare withdrawal application to the Bank, periodic reports to the Bank and perform budgeting functions.

10. Accounting Policies and Procedures

The project accounting in accordance with statutory requirements will be performed by the accounting unit of SEI, staffed with chief accountant and two accountants.

The accountants have prescribed job descriptions and accounting policies, however, these policies do not envisage segregation of duties in making accounting entries due to small number of accountants. The arising risk is mitigated by appropriate authorization of all documents and review of accounting data conducted by Project FMS at the time of compiling quarterly reports.

The progress reports will be prepared based on extracts from the integrated accounting system, modified to meet the Bank requirements. Cash basis of accounting will be used, with disclosure of commitments. The progress reports will be subject to approval of the PIST's and SEI director.

The financial management manual has been prepared, which outlines the accounting and reporting policies and procedures.

11. Internal Controls in the Grant Program

A number of internal controls have been designed to strengthen the control framework for the award of grants. As a first step, implementation of the Competitive Grant Program (CGP) will be managed and supervised by a competitively selected CGP Administrator reporting to SEI head. Minimum **selection criteria** have been laid down clearly for the applicants. The announcement and information regarding the Competitive Grant Program will be advertised in the national and local newspapers and disseminated through Internet and electronically to individuals and entities, which may be interested in competition. Selection of proposals under the CGP will be carried out in two stages: applications containing brief sub-project proposals will be submitted at the first stage, then after initial evaluation and screening of the applications by the CGP Administrator, the selected applicants will be asked to submit full project proposals. Based on pre-screening results, the CGP Administrator will make recommendations to the ICC about sub-project selection. The ICC will review project proposals and recommendations of the CGP Administrator and endorse (or modify) them. Before the meeting of the ICC to decide the selection of beneficiaries, each member of the ICC will sign a conflict of interest statement. Goods procured by SEI will be transferred to a competitively selected eligible enterprise as small equipment packages under sub-grant agreements with SEI from a portfolio of CGP sub-projects endorsed by the ICC. The Bank will review eligibility of investments on the post review basis, primarily in the course of regular supervision.

12. Internal Audit

The internal audits of the PIST accounting and reporting for the project will be performed by the internal audit and revision department of the MOEP at least annually. As SEI is a budget organization, it will also

report and be periodically checked by MoE, State Treasury, and MOEP. However, as the internal audit uses transaction-based, rather than controls-based approach, no reliance will be placed on the internal audit.

13. Reporting and Monitoring

The Financial Monitoring Reports (FMR) will be prepared quarterly by FMS in the PIST and will be submitted to the Bank no later than 45 days after the end of the quarterly period. The FMRs will be prepared by the PIST FMS and approved by the director and accountant of the SEI.

14. Information Systems

Accounting software "Parus" is used by the accounting department for accounting and reporting purposes. This is standard off-shelf software, often used by state organizations. "Parus" is integrated accounting software will be used to account for all transactions of the Grant, and to report to relevant authorities. Data will be extracted from this software and modified to produce reports which would follow the Bank requirements for reporting.

Although the current proposed design of information systems is found acceptable for purposes of Grant accounting and reporting, the project team might consider fully automating the reporting process by building in additional reporting modules to the existing system. This potential change will be considered during project implementation. This may require involvement of consultants/programmers in close cooperation with the PIST FMS and SEI accountants.

15. Supervision Plan

During project implementation, the Bank will supervise the project's financial management arrangements in two main ways: (i) review the project's quarterly financial management reports as well as project's annual audited financial statements and auditor's management letter; and (ii) during the Bank's supervision missions, review the project's financial management and disbursement arrangements to ensure compliance with the Bank's minimum requirements.

16. Audit

Acceptable to the Bank auditors will perform audit of the Project financial statements under requirements of International Standards on Auditing. The audited Project accounts will include project balance sheet, sources and uses of funds and the special account statement.

The external auditors will report in a separate management letters on any weaknesses internal control and risk management systems.

17. Action plan

Action	Responsible	Dates
Consider developing and implementing integrated modules to the existing accounting system of SEI "Parus", which would enable the PIST FMS to produce reporting, required by the Bank, in this system.	PIST	During project implementation

Annex 8: Procurement Arrangements

UKRAINE: METHYL BROMIDE PHASE-OUT

Procurement Arrangements

A. GENERAL

Procurement for the proposed project would be carried out in accordance with the World Bank's "Guidelines: Procurement Under IBRD Loans and IDA Credits" dated May, 2004; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated May 2004, and the provisions stipulated in the Legal Agreement. The various items under different expenditure categories are described in general below. For each contract to be financed by the Grant, the different procurement methods or consultant selection methods, the need for pre-qualification, estimated costs, prior review requirements, and time frame are agreed between the Borrower and the Bank in the Procurement Plan. The Procurement Plan will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

A General Procurement Notice (GPN) will be published in the March 2006 issue of the *Development Business* and in *dgMarkets* announcing goods and consulting services to be procured and inviting interested eligible suppliers and consultants to express interest and to request any complementary information from the Borrower. Specific Procurement Notices (SPN) will be published in the on-line edition of the Development Business for all ICB contracts, and in the printed edition at the option of the Borrower. For goods to be procured through ICB, individual bidding opportunities would also be advertised in a major local newspaper on the same (or within 5) day(s) of the on-line publication. The local advertisements will be in the English language and, at the option of the Borrower, will also be in the local language. For consultants' contracts above US$200,000, SPN/Request for Expression of Interest will be advertised in on-line edition of the Development Business and in at least one major national newspaper of wide circulation (in the national and English languages). Civil servants can be hired as individual consultants or as members of a team with financing under the Grant provided they are on leave of absence without pay and they have not been working for any of the Beneficiary Agencies immediately prior to taking leave of absence.

Procurement of Works: Works procured under this Project would be undertaken by Component 1 sub-project beneficiaries as part of their contribution and would include installation of GEF financed equipment and rehabilitation of existing grain storage structures. Where applicable completion of reconstruction or site preparation works required to receive and use GEF financed equipment will be required a precondition to the release of any new equipment financed by the Grant to the sub-project beneficiaries under the framework goods contracts described herein. As it is envisaged that works will be financed by the sub-project beneficiaries local procedures may be used, however, if for any reason Grant Funds are used then procurement will be done using the Bank's Standard Bidding Documents (SBD) for all ICB and National SBD agreed with or satisfactory to the Bank. For any refurbishments and preparation works which relatively small (less than US$100,000 equivalent per site) a shopping procedure (see below) may be used.

Procurement of Goods: Goods procured under this project would be almost entirely directed to Component 1 (Methyl Bromide Grain and Quarantine Sector Consumption Phase-out) and involve distribution of similar packages of equipment to various qualified sub-project beneficiaries under sub-grants between the main beneficiary contract holder assigned by the Government and sub-project beneficiaries. The goods involved cover: i. various items of grain handling and storage equipment for

farm, elevator and mills (US$1.6 million); ii. grain sampling equipment for elevators and mills (US$1.0 million); iii. fumigation equipment for fumigation service providers and the State Quarantine Service (US$0.6 million); and iv. fumigation chambers for the State Quarantine Service (US$0.3 million). Limited procurement of goods for the Project Implementation Support Team (US$0.05m) will also be carried out. In so far as possible procurement will be done using the Bank's SBD for all ICB. However, for the supply of specific specialized equipment (fumigation chambers for which only a few suppliers are known) an LIB procedure may be used.

(i) ***International Competitive Bidding (ICB).*** The majority of equipment under all components of the Project for contracts above US$300,000 equivalent per contract will be procured using ICB procedures in accordance with the Bank's Procurement Guidelines.

(ii) ***Limited International Bidding (LIB).*** Fumigation chambers for which only a few suppliers are known may be procured under an LIB procedure, which will be implemented in accordance with paragraph 3.2 of the Procurement Guidelines.

(iii) ***Shopping (SH)*** procedure will be used for readily available off-the-shelf goods, including office and computer equipment for the Project Implementation Support Team. All items would have standard specifications, estimated to cost less US$100,000 equivalent per contract. This procedure will be based on obtaining and comparing price offers from at least three suppliers from at least two different countries in accordance with paragraph 3.5 of Procurement Guidelines. It is recommended that the World Bank shopping site should be used to draw up shortlists for simple computer equipment.

(iv) ***Direct Contracting.*** Where certain goods are available only from a particular supplier or in cases where compatibility with existing equipment so requires goods may be procured under Direct Contracting (Single Source) have obtained prior approval from the Bank (in accordance with para. 3.6 of the Procurement Guidelines).

Procurement of non-consulting services: At this stage it is not foreseen to procure any non-consulting services

Selection of Consultants: Contracts for Consulting Services will be packaged to combine related skills and services in order to make them attractive for competition and reduce the number of contracts to be administered taking into consideration the size of the Project Implementation Support Team. To the extent practicable, training activities would be incorporated with consulting services contracts. Consultant services consist of short-and long-term assignments to be contracted to firms and/or individuals (national and/or foreign or jointly) depending on the nature and duration of the assignments. Selection procedures will be managed through competition among qualified short listed consultants. The short lists for consultant services contracts with firms shall comprise six firms with a wide geographical spread, and with no more than two firms from any one eligible country. This requirement may be reduced with prior agreement of the Bank. The procurement of consultant services contracts financed under the Grant will be in accordance with the provisions of the Consultant Guidelines. For consulting assignments exceeding US$200,000 equivalent per contract, expressions of interest will be obtained by advertisement in the Development Business (on-line), supplemented with notices issued in the national press.

Consultancy services will be required to support the project through the supply of technical assistance, development of public information programs, technical services related to regulatory development and technology certification, audit services and provision of local experts. The principal training, technology support and procedure/practice development (US$600,000) will be contracted with an international

consulting firm selected using a QCBS procedure. Assignments for CGP Administrator, pest control / grain storage regulatory development, technology approvals / chemicals registration and public information product development will be procured using CQ procedures. LCS procedures are foreseen for the hiring of a Project auditing firm.

Individual consultants will be hired to provide specialist technical support to the primary beneficiary agencies for ODS production facility monitoring, grain sub-project preparation/appraisal, and support related to Montreal Protocol obligations.

Short lists of consultants for services estimated to cost less than US$100,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

The following procurement procedures will be used for selection of consultant services:

(i) ***Quality and Cost Based Selection (QCBS)*** procedures, as described in Section II, paras 2.1 to 2.31 of the Consultant Guidelines will be used if necessary for assignment under all Components of the Project.

(ii) ***Least Cost Selection (LCS)*** procedure would be used for selection of an auditor to carry out audit of the Financial Statements of the Project.

(iii) ***Selection Based on Consultants' Qualifications (CQ)*** will be used for contracting firms for certain assignments under all three components of the project for which the value of the assignments is estimated to cost less than US$200,000 equivalent per contract and where it is considered that a small team of specialists would be more beneficial than a single individual.

(iv) ***Individual Consultants (IC)***. Many specialized activities where specific skills are needed for short period of time at scattered intervals and which would not be practical to package with the assignments for consulting firms described above, would be best served through the recruitment of individual consultants (both foreign and national). Selection of individual consultants will be carried out in accordance with Section V of the Consultant Guidelines. Individuals will be selected on the basis of their qualifications for the assignment by comparing the CVs obtained in response to an advertisement in the national press or Development Business. Additional Project Implementation Support Team staff would be selected as individual consultants.

(v) ***Sole Source (SS)***. The method will be used for certain individuals with the prior approval of the Bank in accordance with paras. 3.9 to 3.13 of the Consultants Guidelines.

Training Activities: Training is an integral element of the project's capacity building objective. The Grant will finance training programs, including training workshops, study tours and local training. Such training programs would be included in larger TA contracts with firms to reduce administrative burden on the Project Implementation Support Team. Expenditures related to such training activities include: a) for local training and workshops – per diems of participants to cover transportation, lodging and subsistence; minor organizational expenses (stationery, handouts, training materials, coffee breaks); and b) for international study tours – international travel and visa costs, per diems (lodging and subsistence) and course-related expenses (fixed tuition or participation fee). Design of the training courses and study tours will be under relevant QCBS, CQ and/or IC procedures depending on the value of the assignment as described above in this Annex. It is currently foreseen that training including any provision for study tours and events will be part of the single technical assistance QCBS contract for an international consulting firm and the CQS contracts for pest control/grain storage regulatory development, technology

approvals/chemicals registration and public information product development. The Project Implementation Support Team would be responsible for administration of a small number of local workshops (including project launch, mid-term and completion workshops) and participation in any project related study tours, international meetings and in country travel for the beneficiary Agency and Project Implementation Support Team specialists, including that arranged under the above single technical assistance QCBS contract.

The Project Implementation Support Team would be expected to prepare and agree a training plan with the Bank every year. Estimated budget, list of participants and draft agenda for each training event will be subject to Banks prior review. Expenditure items for training activities, including study tours, would be reported under SOEs. The status of the training plan would be included as part of the quarterly progress reports, and would be updated and/or modified as may be mutually agreed between the coordination units and the Bank.

Operating Costs: These costs are to be covered by Component 4 in the allocation made under the project consistent with GEF practice for Project Implementation Support Team expenses and will be matched by beneficiary contribution. Detailed itemized budges for Project Implementation Support Team expenses will be reviewed by the Bank and will be spent in accordance with procedures acceptable to the Bank.

Others: No Special Arrangements

The procurement procedures and SBDs to be used for each procurement method, as well as model contracts for works and goods procured, are presented in the Project Operational Manual.

B. Assessment of the agency's capacity to implement procurement

Country Issues

A Country Procurement Assessment Review (CPAR) for the Ukraine was finalized in 2001 and indicates a "high" risk based on the assessment of the country's national procurement system. However, the CPAR is currently undergoing an update which will be finalized in the Final Quarter of FY06, in April 2006. This will focus on an assessment of the most recent amendments to the Public Procurement Law (PPL), national procurement strategy (institutional review), regulations, procedures and practices with respects to a gradual movement towards eventual certification for use of country systems under World Bank financed projects. Currently, use of country systems is not possible for Bank financed projects due to shortcoming concerning the following fundamental issues:

a) lack of clarity in respect of the current institutional structure of procurement;
b) lack of in-country training capacity and therefore capacity of procurement staff;
c) lack of standard bidding documents;
d) lack of recognition of consultancy services in the PPL;
e) lack of clear written procedures for tendering, evaluation and contracting;
f) lack of standard contract forms;
g) overuse of restrictions, exemptions and exceptions from PPL thus restricting competition;
h) unrestricted use of a merit points system leading to ineffective, un-transparent and costly procurement; and
i) lack of status of the Public Procurement Department.

The Government of Ukraine is addressing a number of these issues with the assistance of the Bank and is in the process of presentation of a development strategy through the Cabinet of Ministers.

The most recent changes in the PPL (August, 2005) were in the opinion of the Bank been detrimental to the current situation and the Bank through its update to the CPAR is addressing some of the more serious issues, as a result the current threshold may be revised depending on the Bank assessment of current practices and implementation of the PPL. Furthermore the Bank will address any procedures and provisions which are at significant variance with Bank policy and may adjust the NCB provisions in the Grant Agreement.

There is also a concern regarding the ability of the local marketplace to provide a robust competitive bidding environment at the current NCB thresholds, if during implementation it is shown that only one or two Bidders are in a position to participate in the Bidding process, the Borrower may ultimately face higher costs from lack of competition. Therefore the Bank will need to address the issue of marketplace capacity as evidenced in the results of Bidding in the first year of the project. Robust competition may result in consideration to raise the thresholds even higher. However by contrast, evidence of a limited market may indicate a need to scale back and lower thresholds, thus allowing greater opportunity for international competition where local markets are sparse.

An assessment of the capacity of the Implementing Agency to implement procurement actions for the project has been carried out by a Procurement Accredited Specialist (PAS) assigned to the project during pre-appraisal November 2005. The assessment reviewed the organizational structure for implementing the project and the interaction between the project's staff responsible for procurement and the Ministry's relevant central unit for administration and finance. The beneficiary agency is a lower spending unit receiving budgetary allocations for the Ministry of Ecology. The unit has its own tender Committee of 5 persons, this is the minimum allowable by Law and is conditioned by budgetary constraints which means that more members cannot undergo the mandatory training. The members are familiar with national methods of open tendering and shopping, however, have no experience of Bank procedures. It is expected that the Project Implementation Support Team will be staffed by a single FM/Procurement specialist familiar with Bank procedures. It is suggested therefore that a short-term Consultant may be required to assist with the ICB documentation.

The key issues and risks concerning procurement for implementation of the project have been identified and include lack of experience and familiarity with Bank procedures. The corrective measures which have been agreed include hiring of short-term specialists, as required. In addition the following Action Plan to strengthen the conduct of procurement and the capacity at the Implementing Agency is recommended:

- procurement and management staff would be given the opportunity to attend intensive procurement training in either English or Russian language, offered by ILO Turin;
- consulting services for assistance in preparation of Bidding documentation would be provided;
- the project will be subject to intense supervision by the Bank with close monitoring of activities;
- initiating a Project Launch Workshop before effectiveness, as part of the project implementation/capacity building initiatives, especially in procurement. This would be supplemented by further training for procurement staff and members of Evaluation Committees; and
- conduct of annual joint reviews of the Procurement Plan and review of contracts that would be subject to prior review.

The overall project risk for procurement is High.

C. Procurement Plan

The Procurement Plan contains all the relevant procurement information, including prior review thresholds for Bank financed contracts. For procurement under the Grant, the Borrower will use the Bank's latest Standard Bidding Documents (SBD), Standard Form of Consulting Contracts and Request for Proposals (RFP), and Standard Bid Evaluation Report Forms. For NCB procedures acceptable Bidding Documents will be agreed. Sample procurement documents and forms developed in ECA Region for small value procurement would be adapted to suit the Project needs for procurement as outlined in the POM.

The Borrower, at appraisal, developed a procurement plan for project implementation which provides the basis for the procurement methods. This plan has been agreed between the Borrower and the Project Team on May 26, 2006 and is available at the offices of the Project Implementation Support Team. It will also be available in the project's database and in the Bank's external website. The Procurement Plan will be updated in agreement with the Project Team annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

D. Frequency of Procurement Supervision

In addition to the prior review supervision to be carried out from Bank offices, the capacity assessment of the Implementing Agency has recommended two supervision missions per year to visit the field to carry out post review of procurement actions. It is envisaged that 2 out of every 5 procurements will be reviewed ex-post

E. DETAILS OF THE PROCUREMENT ARRANGEMENTS INVOLVING INTERNATIONAL COMPETITION

1. Goods, Works, and Non Consulting Services

(a) List of contract packages to be procured following ICB, Shopping and direct contracting:
See Procurement Plan (below)

(b) ICB contracts estimated to cost above US$300,000 equivalent per contract (for Goods), and all direct contracting will be subject to prior review by the Bank. The first Shopping contract for Goods will also be subject to prior review. All ICB contract for Works, and first Minor Works contract shall also be subject to Prior Review

2. Consulting Services

(a) List of consulting assignments with short-list of international firms:
See Procurement Plan (below)

(b) Consultancy services estimated to cost above US$200,000 equivalent per contract for firms and US$100,000 equivalent per contract for individuals and single source selection of consultants will be subject to prior review by the Bank. The first CQ contract and first two IC contract irrespective of price will also be subject to Prior Review

(c) Short lists composed entirely of national consultants: Short lists of consultants for services estimated to cost less than US$100,000 equivalent per contract, may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

PROCUREMENT PLAN

I. GENERAL

1 Agreed Date of the procurement Plan
Original May 26, 2006
Revision 1:……..

2. Date of General Procurement Notice: estimated July 2006

II. GOODS AND WORKS AND NON CONSULTING SERVICES.

1. Prior Review Threshold: Procurement Decisions subject to Prior Review by Bank as stated in Appendix 1 to the Guidelines for Procurement. All Terms of Reference and Technical Specifications shall be subject to Prior Review:

	Procurement Method	Prior Review Threshold	Comments
1.	ICB and LIB (Goods)	> $200,000	First ICB and all subject to Prior Review
3.	Shopping (Goods)	< $100,000	First Goods contracts subject to prior review
4.	Direct Contracting*	-	All subject to Prior Review
5.	ICB (Works)	> $3,000,000	All subject to Prior review
8.	Minor Works	< $100,000	First works contract subject to prior review

* All contracts subject to justification.

2. Pre-qualification. Bidders shall be pre-qualified in accordance with the provisions of paragraphs 2.9 and 2.10 of the Guidelines (No pre-qualification is envisaged)

3. CDD Procurement Manual. Project components to be carried out by community participation in accordance with the provisions of paragraph 3.17 include: No CDD is envisaged

4. Any Other Special Procurement Arrangements: None. However, it is recognized that Ukrainian authorities require equipment to be certified for use in Ukraine, to this end any special arrangements that need to be undertaken by companies wishing to participate in bidding and offer goods that have not so been registered in Ukraine will be indicated in the GPN. Foreign companies will not be prevented from participation based on non-certification of goods at time of Bidding and adequate time will be given to these companies for arranging any required formalities. All reasonable assistance in completion of such formalities will be afforded to winning Bidders.

5. Procurement Items with Methods and Time Schedule: See below

III. SELECTION OF CONSULTANTS

1. Prior Review Threshold: Selection Decisions subject to Prior Review by Bank as stated in Appendix 1 to the Guidelines Selection and Employment of Consultants:

	Selection Method	Prior Review Threshold	Comments
1.	Competitive Methods (Firms) QCBS	> $200,000	All subject to prior review

2.	Competitive Methods (Firms) LCS	Any amount	First contract subject to prior review
3.	Competitive Methods (Firms) CQ	> $200,000	First contract subject to prior review
4.	Individual Consultants (IC)	> $100,000	First 2 contracts subject to prior review
5.	Single Source (Firms and Individuals)*	-	All subject to prior review
6.	ToRs for Consulting Contracts	All methods/values	All subject to prior review

*all Contracts subject to justification

2. **Short list comprising entirely of national consultants**: Short list of consultants for services, estimated to cost less than $100,000 equivalent per contract, may comprise entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

3. **Any Other Special Selection Arrangements:** None

4. **Consultancy Assignments with Selection Methods and Time Schedule:** See below

IV. Other

1. **Ex-Post Review:** All other contracts below Bank's prior review threshold are subject to Bank's selective ex-post review. Periodic ex-post review by Bank staff will be undertaken during regular supervision missions. Procurement documents, such as bidding documents, bids, bid evaluation reports and correspondence related to bids and contracts will be kept readily available for Bank's ex-post review during supervision missions or at any other points in time. Bank missions will review at least 2 out of every 5 contracts which are subject to ex-post review.

2. **Record Keeping:** The Project Implementation Support Team will maintain complete procurement files which will be reviewed by Bank supervision missions. All procurement related documentation that requires Bank prior review will be cleared by Procurement Accredited Staff (PAS) and relevant technical staff. No packages above mandatory review thresholds by RPA are anticipated. Procurement information will be recorded by the Project Implementation Support Team and submitted to Bank as part of the quarterly (FMRs) and annual progress reports. A simple management information system with a procurement module would be established to assist the Project Implementation Support Team procurement specialists to monitor all procurement information.

Project Procurement Plan

		Type	Lots	Proc. Meth	Doc	Review	Total est. costs incl. taxes and cont.	Bank financing	Prep BD/ RFP*	SPN*	Sub. BD/ RFP*	NO to eval*	Contract Start*	Contract Finish*
1a	Grain Storage/Handling Equipment	G	6	ICB	HG	Prior	1,578,605	1,169,230	Sept.06	Nov.06	Nov.06	Feb.07	May.-07	Dec.08
	Lot 1a.1 Grain Storage Bins													
	Lot 1a.2 Hermetic Storage Units													
	Lot 1a.3 Aeration Warehouse Flooring													
	Lot 1a.4 Portable Air Blowers													
	Lot 1a.5 Industrial Cleaning/Sealing Equipment													
	Lot 1a.6 Moisture/Insect Test Equipment													
1b	Pneumatic Grain Samplers	G	1	ICB	HG	Prior	1,002,375	742,500	Sept.06	Nov.06	Nov.06	Feb.07	May.07	Dec.08
1c	Fumigation Equipment	G	5	ICB	HG	Prior	617,315	457,270	Sept.06	Nov.06	Nov.06	Feb.07	May.07	Dec.08
	Lot 1c.1 Phosphine Tablet Dispensers													
	Lot 1c.2 Personal Protection Equipment													
	Lot 1c.3 Fumigant Concentration Monitoring Equip.													
	Lot 1c.4 Gaseous Fumigant Application Equip													
	Lot 1c.5 MBr/Phosphine Detection Equip./Instrumentation													
1d	Fumigation Chambers	G	3	ICB	HG	Prior	311,850	231,000	July.06	Aug.06	Aug.06	Nov.06	Feb.07	Dec.08
	Lot 1d.1 Stationary Fumigation Chambers													
	Lot 1d.2 Mobile Fumigation Chambers													
	Lot 1d.3 Inflatable Fumigation Chambers													
1e	Grain Sector IPM Technical Assistance	CS	1	QCBS	RFP	Prior	600,000	500,000	May.06	June.06	June.06	Sept.06	Nov.06	Oct.09
	Total Component 1						*4,110,145*	*3,100,000*						
3a	MBr/CTC Production Monitoring - Chemical Process Expert	CS	1	IC	ITQ	Prior	60,000	35,000	June06	July06	July06	Sept.06	Oct.06	Sept.09

3b	MBr/CTC Production Monitoring - Environmental Expert	CS	1	IC	ITQ	Prior	60,000	40,000	June06	July06	July06	Sept.06	Oct.06	Sept.09
3c	CGP Administrator	CS	1	CQ	RFP	Prior	230,000	200,000	June06	July06	July06	Sept.06	Oct.06	Sept.09
3d	CGP Preparation Support-Grain Handling/Processing Expert	CS	1	IC	ITQ	Prior	30,000	30,000	June06	July06	July06	Sept.06	Oct.06	Sept.07
3e	CGP Preparation Support-Fumigation and Pesticide Safety Expert	CS	1	IC	ITQ	Prior	30,000	30,000	June06	July06	July06	Sept.06	Oct.06	Sept.07
3f	CGP Preparation Support- Expert-Farm Practice Expert	CS	1	IC	ITQ	Prior	30,000	30,000	June06	July06	July06	Sept.06	Oct.06	Sept.07
3g	CGP Preparation Support-Financial Expert -	CS	1	IC	ITQ	Prior	35,000	35,000	June06	July06	July06	Sept.06	Oct.06	Sept.07
3h	Pest Control/Grain Storage Reg. Develop.	CS	1	CQ	RFP	Prior	120,000	100,000	July06	Sept.06	Sept.05	Nov.06	Jan.07	Dec.08
3i	Chemicals Registration Support	CS	1	CQ	RFP	Prior	120,000	100,000	July06	Sept.06	Sept.05	Nov.06	Jan.07	Dec.08
3j	Public Information	CS	1	CQ	RFP	Prior	90,000	75,000	July06	Sept.06	Sept.05	Nov.06	Jan.07	Dec.09
3k	Support for Current/Future Montreal Protocol Obligations Regulatory/ODS Expert	CS	1	IC	ITQ	Prior	54,000	45,000	June06	July06	July06	Sept.06	Oct.06	Sept.09
3k	Support for Current/Future Montreal Protocol Obligations Regulatory/ODS Expert	CS	1	IC	ITQ	Prior	36,000	30,000	June06	July06	July06	Sept.06	Oct.06	Sept.08
	Total Component 3						*780,000*	*750,000*						
4a	PIST Equipment Package.	G	1	SH	ITQ	Prior	30,000	20,000	July06	Aug,06	Aug.06	Sept.06	Oct.06	Nov.06
4b	Audit	CS	1	LCS	RFP	Prior	80,000	60,000	Dec.06	Jan.07	Jan.07	Mar.07	April.07	Mar.10
	Total Component 4						*150,000*	*85,000*						
	Total costs						**5,000,145**	**3,930,000** (See Note 1)						

Note 1: Excludes US$1,000,000 for CTC Plant Closure Compensation (Component 2) and US$170,000 in Project Implementation Support Team staffing and operating costs

* Note 2: To be confirmed on effectiveness.

Annex 9: Economic and Financial Analysis
UKRAINE: METHYL BROMIDE PHASE-OUT

Not required for this GEF Project.

Annex 10: Safeguard Policy Issues

UKRAINE: METHYL BROMIDE PHASE-OUT

Environmental Assessment

1.0 Introduction

In accordance with the World Bank environmental assessment policy, the proposed project was assigned Environmental Category "B" requiring partial environmental assessment. The assessment was undertaken by members of the project team during the course of project preparation and has been documented in the following along with the overall environmental management plan (EMP). The Bank safeguard policies, requirements, and procedures, particularly those related to Environmental Assessment (OP 4.01), Pest Management (OP 4.09) and Disclosure of Operational Information were applied during project preparation as appropriate. Those policies, requirements, and procedures were explained and communicated to counterparts.

2.0 Overall Assessment

The overall conclusion of this assessment is that the project generates significant environmental benefits while creating minimal adverse environmental impacts and minor environmental risks. The principal positive environmental benefits from the project stem from the incremental global impact of reduced current and future emissions of two potent ozone depleting substances (MBr and CTC), as well as the replacement of MBr in the grain and quarantine sectors with Integrated Pest Management (IPM) techniques and chemical alternatives that entail reduced application/exposure impacts due to both the extent and nature of their use. The environmental risks that are directly associated with project activities involve the management of potential contamination and residual by-product inventories potentially generated by the dismantling of a carbon tetrachloride (CTC) production facility. These risks are substantially eliminated by inclusion of provisions for environmentally sound management of these materials through embedding an Environmental Management Plan (EMP) in the legally binding closure plan, compliance with which is the foundation the performance based compensation payments.

3.0 Global Environmental Assessment

The overall objective of the project is to phase-out the use of a potent ODS depleting substance as well as ensure that the latent capacity to produce it and another ODS are permanently eliminated in Ukraine. Based on historical usage, it is estimated that 196 MT/year (117.6 MT ODP) of MBr will be phased out along with a latent demand of approximately 2,000 MT a year that would otherwise exist if outdated fumigation standards continued to be used in the country's grain sector in the absence of the Montreal Protocol's Copenhagen Amendment provisions. This represents a significant global benefit which incrementally contributes to the overall reversal and restoration of stratospheric ozone layer depletion. This is reinforced by the strict monitoring of the country's latent and prospective MBr production capacity (approximately 1,680 MT ODP) and the elimination of CTC production capacity (19,800 MT ODP). Based on this the assessment, the project is considered to have a significant positive global impact.

The only identified environmental risk that might be identified in relation to addressing global environmental issues is that the country would fail to comply with its international obligations and revert to the use and production of the subject ODS. The mitigation provided by the project for this is the provision of independent monitoring for the ODS production facilities, imposition of payment obligations in the event of reverting to production, support for the development and enforcement of regulations

governing the import, export, consumption and production of MBr, and financing for effective alternatives. Overall this risk is considered to be negligible.

4.0 Assessment of Component 1

Component 1 of the project supports the physical phase-out of MBr consumption in the grain and quarantine sectors through small scale demonstration investments in improved sampling, storage, handling and fumigant application equipment which support both the use of an IPM approach to pest management and the safer, more efficient use of environmentally equivalent or superior chemical substitutes. IPM practices promote infestation prevention through better house keeping, upgrading infestation monitoring and more efficient climate and storage environment control, particularly using controlled atmosphere technologies. Where alternatives involving chemical use are supported, these will involve internationally accepted and certified products with established standards for use and exposure health protection. This will include phosphine and particularly preparation for the use of a dilute gaseous form that combines with the inert atmosphere properties of CO_2. The investment sub-projects undertaken in this component will be in the form of small enterprise specific sub-projects undertaken on farms, at grain storage facilities (elevators and terminals), grain processing facilities such as flour mills with pest management service providers, and state authorities undertaking quarantine operations. The latter two sub-components include specific provision for the supply of concentration monitoring and personal safety equipment to be used where alterative fumigants are used. Component 1 also includes provision of technical assistance designed to support the small grant beneficiaries and the broader sector with training and procedure development related to IPM, alternative fumigants and their safe use.

The assessment of this component indicates that the project will have an overall positive environmental benefit through reduced use of high concentration fumigants and general promotion of more sustainable agricultural practices. The supporting institutional technical assistance in Component 3 will further promote this by removing regulatory barrier's to more environmentally appropriate crop protection techniques through upgrading local regulations to allow the certification and application of environmentally superior techniques and substitute technologies utilized elsewhere. In this regard, the project design is considered consistent with the Bank's safeguard policies related to Pest Management (OP4.09), in its use of IPM and adoption by reference of guidance provided by the World Health Organization and the Food and Agricultural Organization of the United Nations (FAO) respecting the selection, application, human exposure and handling of pesticides. While the range of small scale demonstration investments proposed in Component 1 are considered to have little potential negative environmental impact by their nature, each investment sub-project's remains subject to the Ukrainian EIA/OVOS process as described in Section 6.0 below and other legislation governing worker protection. Similarly, where applicable, procurement specifications will require compliance with Ukrainian and international standards governing certification, environmental performance and safety.

It is recognized that the project will directly and indirectly involve the use of alternative chemical pesticides, albeit on a more selective basis and in more dilute forms. This will take the form of expanded use of products already registered and in use, principally phosphine, or which may be introduced in the future, recognizing the likely availability of new internationally certified substitutes. To proactively ensure compliance with OP 4.09, a project specific Pest Management Plan (PMP) will be prepared by negotiations and be adopted to supplement the measures included in the overall EMP detailed below. This PMP will emphasize the provision of training in the safe handling of phosphine in fumigation applications and on the provision of appropriate personal protection and monitoring equipment. It will also outline measures to be undertaken within the project and by the government respecting any institutional strengthening and capacity building required in relation to the registration of pesticides and their control during use. During project implementation, as part of the grain sector technical assistance (Component 1.6), operational level PMPs will be included in the training and operational procedures to be developed.

5.0 Assessment of Component 2

Component 2 of the project involves the permanent elimination of the dormant (since 1998) but formally operable CTC production capacity at the "Oriana-Halev" LLC chemical complex located near Kalush, Ivano-Frankivsk Region of Western Ukraine. Physically this involves the removal of the key process units and supporting infrastructure (reactors, piping, controls, feedstock supply) in a manner that precludes any return to production and which can be readily monitored. The mechanism used for this is the establishment and agreement on a closure plan setting out the physical activities to be undertaken, the records to be retained and maintained and the procedures for monitoring these activities and records. The closure plan also sets out the Environmental Management Plan (EMP) to be applied in undertaking and maintaining the closure activities. The disbursement of compensation for the closure is performance based with payment occurring after agreed activities are completed and verified, and inclusive of repayment provisions in the event of non-compliance.

This project component does entail some potential negative environmental impacts due to the nature of the production process, its product which is a chlorinated chemical associated with environmental risks if released, and the kinds of potential contaminants that could be retained in dismantled equipment and within the active area of the site. The latter could include hexachlorobenzene (HCB) and possibly trace amounts of other contaminants which are considered persistent organic pollutants (POPs) under the Stockholm Convention. As a consequence, the dismantling activities undertaken require provision for the evaluation of potential contamination and its capture and safe storage pending environmentally sound treatment and disposal. To this end the agreed and legally binding closure plan has a component specific Environmental Management Plan (EMP) embedded in it that addresses the capture and secure storage of any contamination associated within the site. The project team has verified that these measures had been undertaken during closure operations already completed by the enterprise, including the analysis of equipment and the site for residual contamination and the establishment of a secure monitored storage of residual CTC contaminated solvents remaining on site. Additionally the EMP in the closure plan makes provision for employee and community disclosure and obtaining all regulatory approvals required under Ukrainian legislation. In this regard, the enterprise undertook an EIA/OVOS of the closure plan and has received approval from the State Environmental expertise, a process that requires public disclosure and consultation. Copies of the approval of the closure plan by the Oblast State Environmental Expertise and Minutes of Public hearings are available.

It should also be noted that the EMP that forms part of the agreed closure plan also uses the ODS closure compensation to leverage beneficiary commitments respecting an off-site environmental legacy involving Persistent Organic Pollutants (POPs). This was associated with historical CTC production, and occurred prior to the transfer of the overall plant from state ownership to the private sector. It involves a land based storage facility located approximately 4 km. from the "Oriana-Halev" LLC plant site on land owned by the by the local municipality. It contains approximately 11,000 MT of HCB by product from the pre-1998 production of CTC, something that occurs with the inefficient operation of such processes. The CTC by-product storage facility is constructed in line with Soviet era standards involving an underground concrete containment cell in which barrels of the by-product material are stored and covered with a liner and low hydraulic conductivity material. Twelve such cells exist, ten of which were filled. The site is equipped with shallow ground water monitoring wells that are maintained by the local health authorities who also monitor surface water. This monitoring is undertaken on an annual basis and at present shows not spread of contamination.

The EMP in the closure plan makes provision for sustaining security, monitoring and ultimately dealing with this site through requiring upgrading of site infrastructure and security by "Oriana-Halev" LLC and for the recognition of the site as a major past environmental liability by the Government, something that

will be reflected in the conditionality of the Grant. The Ministry of Environmental Protection (MOEP) has also provided the Bank with a commitment respecting the sustained monitoring of the site and the provision of environmentally sound management of the residual by-product stockpile of a listed waste covered by the Stockholm Convention (hexachlorobenzene or HCB). This has been designated as a priority action item within the country's National Implementation Plan (NIP) under the Stockholm Convention. The draft NIP priority action list has been prepared and reviewed by the project team and it is anticipated that the NIP will finalized in Quarter 2, 2006. Additionally, MOEP has indicated that it will be seeking an Implementing Agency partnership with the Bank to finance its management through a future GEF project.

6.0 Overview of the Ukrainian Environmental Assessment and Pesticide Regulatory Process

Since declaring its independence in 1991, Ukraine has established its own system of environmental laws. Environmental review and impact assessment of existing and proposed activities in Ukraine are governed by its state ecological *expertiza* procedure. The 1991 Law on Environmental Protection established the framework for this procedure. The legislation provides for the execution of state ecological *expertizas* and EIA documentation for both planned and existing activities that impact the environment.[9] Although the Cabinet of Ministers of Ukraine, government of Crimea, local Radas, local executive bodies, institutions of the Ministry of Health, and other state executive bodies are to participate in Ukraine's state ecological *expertiza* system,[10] primary responsibility for the organization and execution of these *expertizas* until recently falls with the Ministry of Environmental Protection of Ukraine (MOEP), its local agencies, and their subdivisions. In certain cases, other institutions, experts, organizations, and individuals were permitted to participate.

The ecological *expertiza* is just one of many kinds of *expertiza* conducted to assess the compliance of economic activities with Ukrainian laws and regulations.[11] In addition to state ecological *expertizas*, the law also authorizes public organizations, independent specialists, and local governments to conduct public ecological *expertizas* on their own initiative. If drafted, the conclusions of public *expertizas* serve as recommendations to the agency conducting the state ecological *expertiza* and to those submitting the proposal. Further, Article 9 of the Law on Environmental Protection confers the right on the citizens of Ukraine to take part in discussions about, and to submit comments on, draft legislation and materials relating to siting, construction, or modification of objects that might negatively affect the environment.

The role of environmental impact assessment was further defined by the 1995 Law on Ecological *Expertiza*, which declares that state ecological *expertizas* are mandatory for "activities and facilities posing an increased ecological hazard," as defined by the Cabinet of Ministers of Ukraine in a *List of Activities and Objects Which Constitute an Increased Ecological Hazard.* This list was compiled and approved soon after the Law on Ecological *Expertiza* was enacted. For these activities and objects, the law directs the ecological *expertiza* to define the degree of environmental risk and safety of a planned or current "object" of ecological *expertiza*; to conduct comprehensive scientifically-based assessments of the objects and their impacts on environmental conditions and public health; to ensure compliance of *expertiza* objects with environmental, public health and building standards and regulations; to evaluate the sufficiency of environmental and public health measures; and to prepare unbiased, well-founded conclusions. The conclusions are based in large part on "documentation" submitted to the ecological

[9] Law of Ukraine on Environmental Protection, Articles 26-30, 51. Please note that all references to Ukrainian law are to English translations of the law and may not reflect the exact meaning of the Ukrainian legislation.

[10] Law of Ukraine on Ecological *Expertiza*, Article 20.

expertiza by the proponent of an activity or project on its environmental and other impacts ("EIA documentation").

The Ukrainian system of laws and regulations regarding production, transportation, use and other types of handling pesticides and agrochemicals includes the Law of Ukraine on Pesticides and Agrochemicals (1995) and resolutions of the Cabinet of Ministers of Ukraine on various issues, related to testing and registration, inventory, licensing of handling and phase-out, disposal or destruction of these substances. In accordance with this legislation application of methyl bromide alternatives will take place only after necessary testing and registration of chemicals has occurred and operators have necessary licenses for handling pesticides and agrochemicals, issued by Ministry of Environmental Protection of Ukraine. Key principles of the state policy regarding handling of pesticides and agrochemicals ensure: a) priority of human and environmental health; b) state control over imports to Ukraine; c) registration of all types of handling (production, storage, transportation, sale and application); and c) justification of applications and minimization of use through application of environmentally-friendly methods (non-chemical methods of plant protection).

7.0 Project Environmental Management Plan

The following tables summarize the overall project EMP in terms of the mitigation and monitoring plans based on the above assessment, including the requirements contained in the Component 2 closure plan EMP.

UKRAINE: METHYL BROMIDE PHASE-OUT
Environnemental Management Plan

A. Mitigation Plan			Cost		Institutional Responsibility		Comments (e.g. secondary impacts)
Component/Phase (See Note)	Environmental impact	Mitigating Measure	Install	Operate	Install	Operate	
Component 1: MBr Consumption Phase-out							
Construction	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Operation	• Worker/public exposure to alternative fumigants	• Expanded use of IPM to reduce chemical pesticide use • Use of lower impact and dilute formulations • Upgraded containment for storage, handling and application • Supply of monitoring and personal protection equipment • Provision of training • Operational PMPs for alternative pesticide applications	N/A	US$500,000 (TA in Component 1.6)		Beneficiaries/ MinAgPol	Increased grain production may stimulate additional intensive livestock production which will have environmental impacts.
Decommissioning	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Component 2: CTC Plant Closure Compensation							
Construction	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Operation	• Potential contamination from off-site HCB waste by-product storage (Associated/Non Project Impact)	• Inclusion of upgrade security and site infrastructure in closure plan EMP • Inclusion of monitoring commitments in closure plan EMP • Government commitment to prioritize in EMP.	N/A	$US50,000 (Enterprise) plus regulatory inspection and analytical costs.	N/A	Enterprise/Min. of Health/SEI.	N/A

Decommissioning	• Potential spread of residual contamination from HCB and other substances that may remain in equipment, piping and soils in the plant area.	• Analysis for residual contamination • Containment and secure on-site storage as required by Ukrainian regulations. • Workplace precautions • Site security • Public and staff consultation • EIA/OVOS/Expertise approval of closure plan	N/A	US$100,000 (Enterprise)	N/A	Enterprise	N/A
	• Disposition of remaining inventory of solvent mixtures containing CTC	• Removal to secure onsite storage in designated, permitted, locked and monitored storage tanks. • Maintenance of inventory records • Sale and disposal requiring regulatory approval.	N/A	US$25,000 (Enterprise – Establish storage facilities)	N/A	Enterprise	N/A
Component 3: Policy Development and Institutional Strengthening							
Operation	• Potential impacts of substitute fumigants	• Technical assistant provided to strengthen capacity for registration of introduced pesticides and their control.	N/A	US$200,000 (TA in component t3.3)	N/A	MinAgPol	N/A

MinAgPol – Ministry of Agricultural Policy SEI – State Ecological Inspectorate

B. Monitoring Plan						**Cost**		**Responsibility**	
Phase	**What** *parameter is to be monitored?*	**Where** *is the parameter to be monitored?*	**How** *is the parameter to be monitored/ type of monitoring equipment?*	**When** *is the parameter to be monitored- frequency of measurement or continuous?*	**Why** *is the parameter to be monitored (optional)?*	**Install**	**Operate**	**Install**	**Operate**
Component 1: MBr Consumption Phase-out									
Construction	Appropriate environmental requirements in applicable equipment technical specifications	Bidding documents	SEI review/Bank "NO"	Bidding document prior review	Ensure equipment fit for purpose respecting environmental requirements	Minor SEI costs	N/A	SEI	N/A
	Training and operational PMP provisions respecting IPM and fumigant handling in TA Consulting TORs	RFP TORs	SEI review/Bank "NO"	RFP TOR prior review	Ensure appropriate scope for IPM, fumigant application training, and application specific operational PMP documentation	Minor SEI costs	N/A	SEI	N/A
Operation	Qualifications and practices of grain sector pest management and quarantine operations	At sites of grain production, handling and processing operations and quarantine operations	Regulatory inspection	During regular regulatory supervision and certifications	Ensure implementation of sustainable safe pest management practices in accordance with the operational PMPs and maximization of IPM	N/A	Minor Regulatory enforcement costs	N/A	MinAgPol
Decommissioning	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Component 2: CTC Plant Closure Compensation									
Construction	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Operation	Ground and surface water.	Off-site HCB storage site owned by others	Chemical analysis.	Annually	Ensure no spread of contamination and flag need for corrective action by Government	N/A	Regulatory costs for sampling/ analysis	N/A	SEI/Min. of Health
	Condition of site infrastructure and security	Off-site HCB storage site owned by others	Regulatory inspection	During regular regulatory supervision	Ensure the site is not disturbed or utilized for illegal dumping	N/A	Routine regulatory costs	N/A	SEI
Decommissioning	Closure Plan implementation: • Secure storage of inventories of contaminated material and stored product • Site condition and signage • Regulatory compliance	"Orinia-Halev" Site	Regulatory Inspection/ Bank monitoring visits	Quarterly regulatory visits. Annual Bank monitoring	Ensure closure plan compliance	N/A	Routine regulatory Costs Bank supervision costs	N/A	SEI
Component 3: Policy Development and Institutional Strengthening									
Operation	Regulatory Strengthening - Pest Control and Related Chemicals	MinAgPol and enterprises	Regulatory changes as applicable and inspection records	During regular regulatory supervision and certifications Ongoing	Ensure any new chemicals introduced are safe, environmentally acceptable	N/A	Routine regulatory Costs	N/A	MinAgPol

MinAgPol – Ministry of Agricultural Policy SEI – State Ecological Inspectorate

C. INSTITUTIONAL STRENGTHENING

C1. Training/Study Tours

Technical assistance provided in Component 1 provides for training and exposure to international experience respecting IPM approaches, alternative fumigation technologies, and safe handling of chemical alternatives (operational PMPs) where applicable.

C2. Consultant Services

A range of consulting services are funded under the project that directly or indirectly relate to supporting the EMP. The principle one is a large international consulting assignment technical assistance in the form of training, upgraded pest management practice and support for implementation of substitute fumigation technologies with an emphasis on IPM techniques. In addition, the monitoring of ODS production facility closure including the implementation of the closure plan EMP is funded under the Component 3 covering institutional strengthening and capacity building. Component 3 also provides resources for consultant support to the Ministry of Agricultural Policy (MinAgPol) in upgrading grain protection regulations to remove barriers to more sustainable and lower environmental impact pest management practices, and to the State Ecological Inspectorate (SEI) for strengthening of regulations and enforcement capacity sustaining country compliance with its Montreal Protocol obligations.

D. SCHEDULE

The schedule for undertaking mitigation, monitoring and training activities is integrated into the overall project implementation schedule and in some cases the beneficiary's fulfillment of conditions of effectiveness. In some cases implementation of activities has been proactively undertaken by counterparts in advance of project initiation based on project preparation results. The following provides a general list of miles stones for these activities.

Activity	Schedule
1.0 Mitigation Activity	
Mitigation related to minimizing worker/public exposure to alternative fumigants	Will occur through out the anticipated three year project implementation period as sub-projects are committed and implemented. Training related to IPM and safe alternative fumigant use to be undertaken through out the project but primarily in the first year of implementation.
Environmentally sound management of residual contamination that may remain in equipment, piping and soils in the plant area associated with CTC plant closure.	These activities have been proactively initiated by the enterprise in advance of the project's initiation and are anticipated to have been completed upon grant effectiveness in mid 2006.
Secure storage and environmentally sound disposition of remaining inventory of solvent mixtures containing CTC	Secure storage of residual onsite solvent mixtures has been established proactively now and is subject to monitoring. Environmentally sound disposition will occur when qualified treatment capacity is available.
Upgrading of infrastructure at the	To be completed upon grant effectiveness anticipated in mid 2006

off-site HCB waste by-product storage	
Maintenance and clean up of off-site HCB waste by-product storage site (Associated/Non Project Impact)	Monitoring of the facility for potential contamination is ongoing and covered by government commitments that are conditions of grant effectiveness. Longer term clean up is addressed in the Stockholm Convention NIP scheduled for formal adoption in mid 2006 and with action on it subject to scheduling of future international assistance.
Technical assistant provided to strengthen capacity for registration of introduced pesticides and their control.	Undertaken through out the project but primarily in the first year of implementation.
2.0 Monitoring Activities	
Ensuring equipment fit for purpose respecting environmental requirements	Undertaken during the ICB procurement process anticipated to be with six months of grant effectiveness (Q3/4 2006).
Ensuring appropriate scope for IPM, operational PMPs, and alternative fumigant application training	Undertaken during the QCBS TOR review process anticipated to occur prior to grant effectiveness (Q2 2006).
Ensuring implementation of sustainable safe pest management practices and maximization of IPM	Ongoing regulatory over site as sub-projects are implemented.
Monitoring of closure plan implementation at CTC plant through provision of secure storage of inventories of contaminated material and stored product, inspection of site condition and signage, and regulatory compliance	Has been initiated and will continue quarterly through SEI inspection visits indefinitely and through annual Bank verification missions through the project implementation period.
Monitoring of condition of site infrastructure and security at off-site HCB waste by-product storage site	Has been initiated and will continue quarterly through SEI inspection visits indefinitely and through annual Bank verification missions through the project implementation period.
Ground and surface water monitoring at off-site HCB waste by-product storage site. (Associated/Non Project Impact)	Ongoing and to be done annually by regulatory authorities for as long as the site exists.
Ensure any new chemicals introduced are safe, environmentally acceptable	Ongoing regulatory over site as sub-projects are implemented and when new alternatives are proposed.
3.0 Training	
IPM and safe alternative fumigant training	Training related to IPM and safe alternative fumigant use to be undertaken through out the project but primarily in the first year of implementation, inclusive of operation PMPs.

E. INSTITUTIONAL ARRANGEMENTS

The overall project will be implemented under the supervision of an established interagency body within the government structure (Interagency Coordination Commission on Implementation of Montreal Protocol Regarding Ozone Depleting Substances) This is chaired by the Head of the SEI within MOEP and have representation of MinAgPol and other stakeholder agencies and NGOs including agricultural sector associations. The intent would be that the overall supervisory body would act primarily in an oversight role to develop and approve policy directions in MBr phase-out and use, approve project work plans, sub-project eligibility criteria and sub-grant agreements with beneficiaries. Its terms of reference cover oversight of environmental matters.

The project's working implementation responsibility with delegated authority from the supervisory body for detailed project implementation will be SEI within MOEP. This will operate under the overall management direction of the head of SEI and the direct supervision of a senior SEI deputy assigned this responsibility. This individual will directly supervise a small project implementation support team within SEI as well as coordinate the project activities with the SEI's line organizational structure having the mandate within the Government for Montreal Protocol issues. The support team will consist of three professionals and one support staff financed under Component 4 of the project and providing administrative, technical, procurement and financial administration coordination, within SEI's existing financial and procurement system. The technical support capability in the support team will have direct responsibility for environmental matters including implementation of the EMP and reporting on mitigation and monitoring activities. A concise description of procedures, responsibilities and decision making steps for implementation of the grant activities will be developed and approved by SEI prior to negotiations.

Contracting for services and goods (in accordance with World Bank Procedures as defined in the Grant Agreement) will be done by SEI as the contracting party. This will include responsibility for ensuring the environmental aspects of technical specifications and the training requirements in technical assistance assignments are as required upon presentation to the Bank for "no objection".

The implementation principle to be applied for technical assistance assignments will be that, while SEI acts as the contracting party for administrative and processing purposes, the technical oversight of the assignments will be the agency or organization for which the technical assistance is being provided. For provision of individual consultant support related to ODS production monitoring and strengthening of capacity to meet international obligations, this will be the line responsibility within SEI responsible for ODS. For provision of the enterprise level training and IPM procedure development in the grain sector as well as crop protection related regulatory strengthening related to registration and control of alternative chemical pesticides this will be a designated authority or authorities within MinAgPol. MinAgPol will also be responsible for a public information program including the contract of TA services that would support this. In all cases the agency with technical supervision responsibility will also be responsible for agreed counterpart contribution. SEI will be the contract holder for individual consultants supporting preparation and appraisal of Component 1 sub-projects.

Social Assessment

No formal social assessment has been undertaken for the project given the apparent absence of any significant social issues or potential negative social impacts.

The only issue that might have been of concern would have been the potential for local employment loss associated with the closure of MBr and CTC production. However, both facilities where there might have been a concern (Saki Chemical Plant and "Oriana-Halev" LCC) had previously shut down the subject facilities and no current employment base exists. In the case, of the Saki Chemical Plant the project will have a neutral impact on future prospects with any future decisions related to re-opening the overall plant or the subject production facility being governed by public policy decisions unrelated to the project. The project's main contribution to this process has been to establish the boundary conditions under which this could occur and in this way providing come greater certainty in the public policy decision making process. In the case of "Oriana-Halev" LCC the project has already had and should have further positive impacts in it has provided the enterprise with an incentive and potentially the resources to re-establish other production capability, something that has already resulted in incremental employment with the investment in a new production unit on the site.

The other components of the project directed at the phase-out of MBr consumption in the agricultural and specifically the grain sectors should ultimately have a positive social impact through increasing the viability, sustainability and productivity of the sectors in both domestic and export markets. This should translate into higher local incomes in rural communities and make a contribution to reducing rural poverty and income disparity.

Annex 11: Project Preparation and Supervision

UKRAINE: METHYL BROMIDE PHASE-OUT

	Planned	Actual
PCN review	02/23/2006	02/23/2006
Initial PID to PIC	03/08/2006	03/08/2006
Initial ISDS to PIC	03/08/2006	03/08/2006
Appraisal	03/15/2006	02/23/2006
Negotiations	05/24/2006	05/24/2006
Board/RVP approval	06/29/2006	06/29/2006
Planned date of effectiveness	09/15/2006	
Planned date of mid-term review		
Planned closing date	06/30/2010	

Key institutions responsible for preparation of the project:

- Ministry of Environmental Protection and State Environmental Inspectorate
- Ministry of Agricultural Policy

Bank staff and consultants who worked on the project included:

Name	Title	Unit
Vladimir Tsirkunov	Sr. Environmental Spec., TTL	ECSSD
Alexei Slenzak	Sr. Operations Officer, Co-TTL	ECSSD
Emilia Battaglini	ECA GEF Coordinator	ECSSD
Daria Goldstein	Sr. Counsel	LEGEC
Anna Wielogorska	Sr. Procurement Spec.	ECSPS
Andrina Ambrose-Gardiner	Sr. Finance Officer	LOAG1
Irina Babich	Financial Management Spec.	ECSPS
Darejan Kapanadze	Operations Officer	ECSSD
Katerina Timina	Team Assistant	ECCUA
Richard Cooke	Technical Consultant	
Mike Harris	Technical Consultant	
Blain Timlick	Technical Consultant	

Bank funds expended to date on project preparation:

1. Bank resources: $249,523.38
2. Trust funds: 0
3. Total: $249,523.38

Estimated Approval and Supervision costs:

1. Remaining costs to approval: 0
2. Estimated annual supervision cost: $80,000.00

Annex 12: Documents in the Project File

UKRAINE: METHYL BROMIDE PHASE-OUT

World Bank Reports

Country Assistance Strategy for Ukraine 2004-2007, World Bank Report No. 26448-UA, September 2003 http://lnweb18.worldbank.org/ECA/ukrainecas.nsf/0/4F5B1FD860742855C2256DC9001DD804?Opendocument

Implementation Completion Report for the Ukraine Ozone Depleting Substance Phase-out Project, World Bank Report No. 32788 June 2005

Project Appraisal Document: Special Initiative for ODS Production Closure in the Russian Federation, World Bank Report 20038-RU, March 2000

Implementation Completion Report for the Russian Federation ODS Consumption Phase-out Project, World Bank Report No. 30981-RU, December 2004

Georgia, Competitive Grant Program for Agricultural Research, Extension and Training, Training Manual, October 2002

UNEP/Ozone Secretariat Source Documents

Production and Consumption of Ozone Depleting Substances 1986-2000, UNEP Ozone Secretariat, April 2002
http://hq.unep.org/ozone/Publications/6iv_publications%20others.asp

2002 Report of the Methyl Bromide Technical Options Committee, Technical and Economic Assessment Panel, UNEP, 2003
http://hq.unep.org/ozone/Publications/6vi_publications_assessment_reports.asp

Handbook on Critical Use Nominations for Methyl Bromide, Technical Options Committee, Technical and Economic Assessment Panel, UNEP, November 2004
http://hq.unep.org/ozone/Publications/6ii_publications%20handbooks.asp

Regional Policy Development Workshop Report to Assist Methyl Bromide Phase-out in Eastern and Central Europe - Warsaw, October 2000, UNEP-DTIE, http://www.unepie.org/ozonaction/

Regional Workshop Report on Methyl Bromide Alternatives in Post Harvest Treatments - Sofia, May, 2002, UNEP-DTIE http://www.unepie.org/ozonaction/library/training/mbrcee.pdf

Case Studies on Alternatives to Methyl Bromide, Volume 2- Technologies with low environmental impact in countries with economies in transition" (UNEP/GEF, 2002)
http://www.unepie.org/ozonaction/library/tech/mbcasest2.pdf

Handbook on Methyl Bromide Data Reporting under the Montreal Protocol" (UNEP/MLF, 2002)
http://www.unepie.org/ozonaction/library/datareporting/mebrdrh.pdf

Sourcebook of Technologies for Protecting the Ozone Layer: Alternatives to Methyl Bromide" (UNEP/MLF, 2001)
http://www.unepie.org/ozonaction/library/tech/mbrsourcebook.pdf

Ukraine Agriculture Sector Documents

Ukraine: Agricultural and Rural Investment Strategy, World Bank Paper, July 2005

Ukraine: Agricultural Competitiveness and Food Safety Project, Project Concept Document, May 2005

Ukraine: Agricultural Overview, USDA, December, 2004
http://www.fas.usda.gov/pecad/highlights/2004/12/Ukraine%20Ag%20Overview/

Country Profile: Ukraine, Agriculture and Food, World Resources Institute, 2005
http://earthtrends.wri.org/text/agriculture-food/country-profile-187.html

Achieving Ukraine's Agricultural Potential: Stimulating Agricultural Growth and improving rural life, OCED/World Bank, September 2004
http://www.oecd.org/document/29/0,2340,en_2649_37401_33745821_1_1_1_37401,00.html

Methyl Bromide Phase-out Project Documents

MPMF Project Document: Technical Assistance to Install Alternatives and Phase-out Methyl Bromide in Kyrgyzstan, UNDP, December 2003

GEF Project Document: Total Sector Methyl Bromide Phase-out in Countries with Economies in Transition, UNEP/UNDP, December 2004

Methyl Bromide Consumption in Eastern European CEITs : the Emerging Picture coming out of the First Regional Medium-Sized Project "Initiating the Phase-out of Methyl Bromide Through Awareness-Raising, Policy Development and Demonstration/Training Activities". Summary Report on GEF First Regional MSP on Methyl Bromide in CEITS, UNEP/UNDP 2003

International Standards and Guidance Documents

Guidelines for Regulating Wood Packaging Material, International Standards for Phytosanitary Measures, Publication No. 115, FAO, March 2002.
https://www.ippc.int/servlet/CDSServlet?status=ND0xMzM5OS4xNjI1OSY2PWVuJjMzPXB1YmxpY2F0aW9ucyZzaG93Q2hpbGRyZW49dHJ1ZSYzNz1pbmZv#koinfo

International Code of Contact on the Distribution and Use of Pesticides, FAO, November 2002
http://www.fao.org/ag/AGP/AGPP/Pesticid/Default.htm

Grain Storage Techniques, FAO Agricultural Services Bulletin No. 109, FAO, 1994
http://www.fao.org/documents/show_cdr.asp?url_file=/docrep/t1838e/t1838e1g.htm

Ukrainian Regulatory Documents

Ozone-depleting Substances Manufacture and Utilization Termination Program for 2004-2030, Regulation of the Cabinet of Ministers of Ukraine, No. 256, March 2004

Ensuring Certification of Grain Warehouses Regarding Compliance of Storage Services of Grain and Products of its Processing, Introduction of Grain Warehouse Certificates, Resolution of the Cabinet of Ministers of Ukraine No. 510, April, 2003.

"The Technical Rules for Grain Warehouses" No. 228, Ministry of Agricultural Policy, June 2004

"Rules of organization and management of a technological process on elevators and grain-collecting stations", Ministry of Grain Reserves of the USSR, 1984.

"The instruction on combating grain reserves pests", Ministry of Grain Reserves of the USSR, No. 9-1-80»

"The methodical instructions on application of a preparation PHOSTOXIN for fumigation of a grain in elevator silos"; Ministry of State Purchases of the USSR, November 14, 1980, No. 8-17.953;

"The instruction on fumigation of the mixed fodder by a methyl bromide", Ministry of State Purchases of the USSR, July 15, 1981. No. 205.

"Methods of definition of a contamination and degree of damage of a grain by the pests", USSR GOST Standard 13586.4-83, 1983.

"The safety precautions regulations and industrial sanitation on enterprise on storage and processing of a grain in a grain procurement system": Ministry of State Grain Procurement of the USSR, April 18, 1988, No. 99-89.

Project Preparation Documents

Analytical Note: Gradual Phase-out of Methyl Bromide Production and Consumption and Utilization of Carbon Tetrachloride Production in Ukraine, Ozone Office, State Environmental Inspectorate, Ministry of Environmental Protection of Ukraine, January 2004.

A Project to Phase-out Methyl Bromide in Ukraine, Ozone Office, State Environmental Inspectorate, Ministry of Environmental Protection of Ukraine, October 2004

Ukraine Phase-out of MeBr, Technical Review, Blaine Timlick, Canadian Grain Commission October, 2004

Annex 13: Statement of Loans and Credits

UKRAINE: METHYL BROMIDE PHASE-OUT

Project ID	FY	Purpose	Original Amount in US$ Millions				Cancel.	Undisb.	Difference between expected and actual disbursements	
			IBRD	IDA	SF	GEF			Orig.	Frm. Rev'd
P074972	2004	PAL 2	250.00	0.00	0.00	0.00	0.00	172.50	0.00	0.00
P076338	2004	DEVSTAT	32.00	0.00	0.00	0.00	0.00	32.00	7.43	0.00
P074885	2003	E-DEVT TA	5.00	0.00	0.00	0.00	0.00	4.94	2.14	0.00
P057815	2003	ST TAX SERV MOD PROG (APL #1)	40.00	0.00	0.00	0.00	0.00	38.43	2.43	0.00
P069857	2003	TB/AIDS CNTRL	60.00	0.00	0.00	0.00	0.00	59.15	17.40	-0.23
P035777	2003	RURAL LAND TITLING & CADASTRE	195.13	0.00	0.00	0.00	0.00	192.36	0.73	0.00
P069858	2002	SIF	50.21	0.00	0.00	0.00	0.00	41.42	-8.29	0.32
P054966	2002	PRIV SEC DEV (APL #1)	30.00	0.00	0.00	0.00	0.00	28.25	-1.45	0.00
P048790	2002	AZOV-BLK SEA CORR BIODIV CONSV (GEF)	0.00	0.00	0.00	6.90	0.00	7.76	4.08	2.89
P035786	2001	LVIV WATER/WW	24.25	0.00	0.00	0.00	0.00	20.82	16.27	1.84
P055739	2000	KIEV PB ENERGY EFFIC	18.29	0.00	0.00	0.00	0.00	6.02	5.93	2.43
P044832	1998	KIEV DISTRICT HEAT	200.00	0.00	0.00	0.00	40.00	110.09	150.09	3.40
		Total:	904.88	0.00	0.00	6.90	40.00	713.74	196.76	10.65

UKRAINE
STATEMENT OF IFC's
Held and Disbursed Portfolio
In Millions of US Dollars

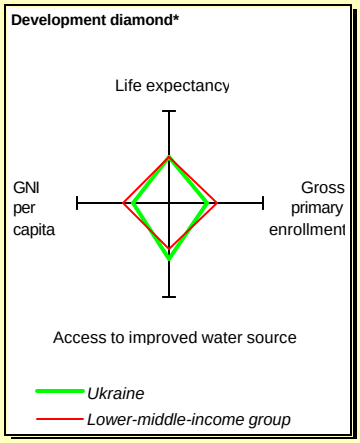
		Committed				**Disbursed**			
		IFC				**IFC**			
FY Approval	Company	Loan	Equity	Quasi	Partic.	Loan	Equity	Quasi	Partic.
2004	First Lease	2.00	0.00	0.00	0.00	1.70	0.00	0.00	0.00
1996	FUIB	0.00	5.00	0.00	0.00	0.00	5.00	0.00	0.00
1998/03/04	HVB Bank Ukraine	0.00	0.53	0.00	0.00	0.00	0.51	0.00	0.00
2000/04	MBU	8.50	1.02	0.00	0.00	7.00	1.02	0.00	0.00
2004	Mironovsky	20.00	0.00	10.00	0.00	20.00	0.00	10.00	0.00
2004	Nova Liniya	0.00	0.00	5.00	0.00	0.00	0.00	2.50	0.00
2004	RZB Ukraine	30.00	0.00	0.00	0.00	30.00	0.00	0.00	0.00
2004	Sandora	10.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00
1994/96	Ukraine VC Fund	0.00	0.15	0.00	0.00	0.00	0.15	0.00	0.00
	Total portfilio:	70.50	6.70	15.00	0.00	61.70	6.68	12.50	0.00

		Approvals Pending Commitment			
FY Approval	Company	Loan	Equity	Quasi	Partic.
2005	Aval	0.02	0.00	0.02	0.00
	Total pending committment:	0.02	0.00	0.02	0.00

Annex 14: Country at a Glance

UKRAINE: METHYL BROMIDE PHASE-OUT

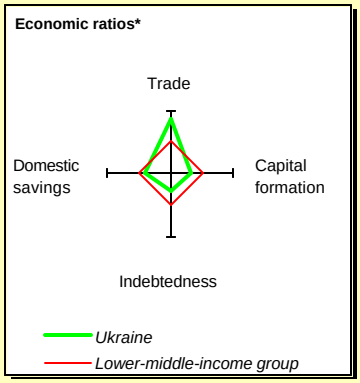
POVERTY and SOCIAL	Ukraine	Europe & Central Asia	Lower-middle-income
2004			
Population, mid-year *(millions)*	48.0	472	2,430
GNI per capita *(Atlas method, US$)*	1,260	3,290	1,580
GNI *(Atlas method, US$ billions)*	60.5	1,553	3,847
Average annual growth, 1998-04			
Population *(%)*	-0.8	-0.1	1.0
Labor force *(%)*	-0.2	-0.5	0.7
Most recent estimate (latest year available, 1998-04)			
Poverty *(% of population below national poverty line) /a*	20	..	..
Urban population *(% of total population)*	67	64	49
Life expectancy at birth *(years)*	68	68	70
Infant mortality *(per 1,000 live births)*	15	29	33
Child malnutrition *(% of children under 5)*	3	..	11
Access to an improved water source *(% of population)*	98	91	81
Literacy *(% of population age 15+)*	99	97	90
Gross primary enrollment *(% of school-age population)*	93	101	114
Male	93	103	115
Female	93	101	113



KEY ECONOMIC RATIOS and LONG-TERM TRENDS

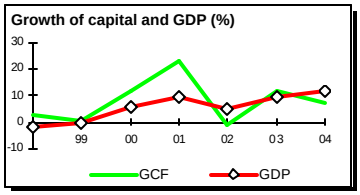
	1984	1994	2003	2004
GDP *(US$ billions)*	..	52.5	50.1	65.1
Gross capital formation/GDP	..	35.3	20.2	19.1
Exports of goods and services/GDP	..	35.4	57.8	61.0
Gross domestic savings/GDP	..	32.2	22.7	26.3
Gross national savings/GDP	..	32.6	25.9	29.3
Current account balance/GDP	..	-2.2	5.8	10.4
Interest payments/GDP	..	0.2	1.1	0.8
Total debt/GDP	..	10.7	32.5	27.5
Total debt service/exports	..	1.9	12.6	4.9
Present value of debt/GDP	..	..	31.7	..
Present value of debt/exports	..	..	54.2	..

	1984-94	1994-04	2003	2004	2004-08
(average annual growth)					
GDP	-7.9	1.7	9.6	12.1	5.9
GDP per capita	-8.1	2.5	10.4	12.9	6.7
Exports of goods and services	..	6.3	10.3	18.1	5.2

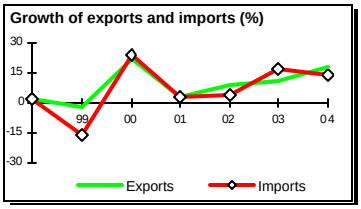


STRUCTURE of the ECONOMY

	1984	1994	2003	2004
(% of GDP)				
Agriculture	..	16.2	12.2	12.1
Industry	..	47.5	35.9	37.0
Manufacturing	..	39.0	21.6	23.4
Services	..	36.2	51.9	50.9
Household final consumption expenditure	..	48.5	57.1	54.5
General gov't final consumption expenditure	..	19.4	20.2	19.2
Imports of goods and services	..	38.6	55.2	53.7



	1984-94	1994-04	2003	2004
(average annual growth)				
Agriculture	..	-0.2	-9.9	19.4
Industry	..	2.3	15.0	13.0
Manufacturing	..	..	..	..
Services	..	0.5	11.1	10.3
Household final consumption expenditure	..	3.7	12.0	16.2
General gov't final consumption expenditure	..	0.0	14.8	4.7
Gross capital formation	..	2.1	11.9	7.0
Imports of goods and services	..	3.7	16.4	13.6

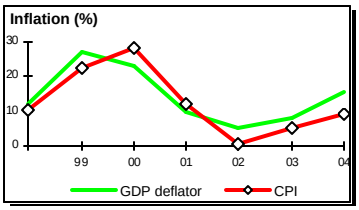


Note: 2004 data are preliminary estimates. a. PULSE study.

* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

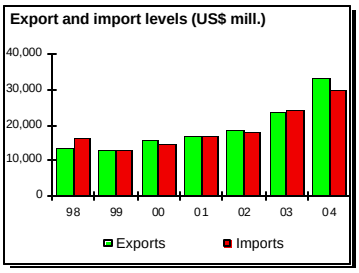
PRICES and GOVERNMENT FINANCE

	1984	1994	2003	2004
Domestic prices				
(% change)				
Consumer prices	..	891.1	5.2	9.0
Implicit GDP deflator	..	953.5	8.0	15.4
Government finance				
(% of GDP, includes current grants)				
Current revenue	..	41.9	35.5	34.5
Current budget balance	..	-5.1	3.1	1.6
Overall surplus/deficit	..	-8.7	-0.9	-4.3



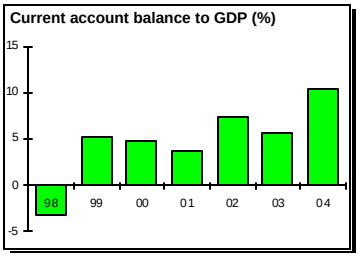
TRADE

	1984	1994	2003	2004
(US$ millions)				
Total exports (fob)	..	13,894	23,739	33,432
Ferrous and non-precious metals	..	3,875	8,501	13,051
Mineral products	..	1,737	2,732	3,492
Manufactures	..	2.744	4.726	5.425
Total imports (cif)	..	16,469	24,008	29,691
Food	..	588	2,174	1,908
Fuel and energy	..	6,329	8,342	10,161
Capital goods	..	2,671	5,716	5,301
Export price index *(2000=100)*	..	96	124	149
Import price index *(2000=100)*	..	79	119	132
Terms of trade *(2000=100)*	..	121	104	113



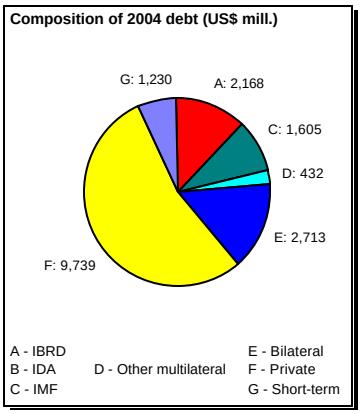
BALANCE of PAYMENTS

	1984	1994	2003	2004
(US$ millions)				
Exports of goods and services	..	16,641	28,953	39,719
Imports of goods and services	..	18,007	27,665	34,846
Resource balance	..	-1,366	1,288	4,873
Net income	..	-344	-581	-645
Net current transfers	..	547	2.184	2.576
Current account balance	..	-1.163	2.891	6.804
Financing items (net)	..	1.709	-846	-4.578
Changes in net reserves	..	-546	-2,045	-2,226
Memo:				
Reserves including gold *(US$ millions)*	..	..	6,937	9,525
Conversion rate *(DEC, local/US$)*	..	0.2	5.3	5.3



EXTERNAL DEBT and RESOURCE FLOWS

	1984	1994	2003	2004
(US$ millions)				
Total debt outstanding and disbursed	..	5,636	16,309	17,887
IBRD	..	102	2,271	2,168
IDA	..	0	0	0
Total debt service	..	328	3,686	1,970
IBRD	..	0	193	222
IDA	..	0	0	0
Composition of net resource flows				
Official grants	..	97	..	..
Official creditors	..	137	-183	-385
Private creditors	..	209	1.831	1.956
Foreign direct investment (net inflows	..	151	1,411	1,711
Portfolio equity (net inflows)	..	0	-922	-76
World Bank program				
Commitments	..	500	490	..
Disbursements	..	102	95	33
Principal repayments	..	0	130	166
Net flows	..	102	-35	-133
Interest payments	..	0	62	56
Net transfers	..	102	-97	-189



Annex 15: Incremental Cost Analysis

UKRAINE: METHYL BROMIDE PHASE-OUT

Normally, the determination of incremental cost for MBr phase-out in MLF projects in Article 5 countries is based on the incremental cost conversion from MB to alternatives (i.e. additional equipment/materials necessary for alternatives; training and policy development) and the additional operating costs (if any) of alternatives calculated for a four-year period. The situation with methyl bromide is somewhat different for non-Article 5 countries, particularly for CEIT's such as Ukraine where a January 1, 2005 phase-out deadline applies. In Ukraine's case, it has become evident that the MBr reductions to date were accomplished at some cost, because effective alternatives were not put in place. This is particularly important because of the economic importance of grain and the vulnerability of the post harvest (grain) sector to pest infestation.

With this background, the proposed GEF funding is designed to cover a portion of the incremental cost that the country would otherwise have to assume to now put in place effective alternatives with the addition of proactive measures respecting CTC production closure that prudently anticipate future control measures on this ODS. In terms of scope, the GEF funded components related to MBr are explained in detail in Annex 4 and are consistent with conventional calculations of GEF incremental costs, i.e. the difference between the cost of activities that would have occurred in the country anyway, and the cost of additional activities necessary to achieve a sustainable elimination of ODS. The following provides an analysis of proposed GEF funding on a component by component basis.

Component 1: MBr Grain and Quarantine Sector Consumption Phase-out (GEF Grant: US$3.200 million)- The primary focus is on replacing MBr use in the grain sector with integrated pest management (IPM) techniques including introduction and expanded use of substitute technologies. It also addresses minimization of MBr requirements in QPS applications. This will be accomplished by a mix of investment and technical assistance that in combination are intended to minimize chemical pest control and support the adoption of readily available non-ODS substitutes in the near term and would facilitate the introduction of emerging replacement technologies in the longer term. All of these costs are directly incremental in that they are required as a direct consequence of not using MBr as traditionally practiced to achieve the required level of crop protection under national standards that would otherwise likely continue to apply in the absence of the control measures under the Copenhagen Amendment. The specific costs covered are all directed to replacement of the need for MBr and in ensuring that the capacity to do so exists. In the case of QPS applications, it could be argued that since this is an exempt application the proposed GEF funding is not incremental. However, the Copenhagen Amendment does place an obligation on Parties that consumption in such applications be minimized and this is the specific focus of the proposed GEF activities. The grant cost effectiveness of this component based on the estimated MBr consumption of 196 MT of MBr (Average consumption in the five years prior to project preparation) in the country and the component cost would be US$27.22kg ODP which is basically in line with comparable MP MLF projects. It should be noted that this investment should be substantially less that the economic losses incurred by the countries agricultural sector in the absence of either this intervention or the continued use of MBr in the grain sector and quarantine applications.

Component 2: CTC Plant Closure Compensation (GEF Grant: US$1.00 million) – This component is the exception to the above analysis in that it represents a proactive and anticipatory intervention covering control measures that would eventually be required under the Montreal Protocol in achieving a total phase-out of ODS consumption and production globally. As has been the case in other ODS production phase initiatives, the incremental costs funded are based on providing reasonable compensation to the owner of such production capacity. In this case, the cost effectiveness of this is US$0.06/kg ODP of capacity closed that would be lower than that achieved in comparable ODS

production closure operations elsewhere. For purposes of comparison, the cost effectiveness of ODS production capacity closure (Annex A and B CFC and Halons) in Russia was US$0.165/kg/ODP. A similar operation in China under the MPMF was US$1.875/kg ODP. The current CTC capacity closure project in China is US$4.95/Kg ODP.

Component 3: Policy Development and Institutional Strengthening (GEF Grant: US$0.650 million) - This component is intended to support a range of institutional strengthening measures within the Ministry of Environmental Protection and Ministry of Agricultural Policy related to updating national regulatory measures consistent with the country's current international obligations and international practice, as well as supporting their implementation and facilitating further national commitments to ODS phase-out. With exception of support for facilitating further national commitments to ODS phase-out, all of the GEF funded elements in this component are required in support of ensuring the phase-out is achieved and sustained. The relatively modest funding for future initiatives is considered appropriate given the country's proactive approach to date and represents an investment in supporting this.

Component 4: Project Implementation, Monitoring and Evaluation (US$0.250 million) – This component covers the normal project implementation and M&E costs that are incurred in undertaking a GEF project and by definition are considered incremental.

Annex 16: STAP Roster Review

UKRAINE: METHYL BROMIDE PHASE-OUT

STAP expert review and IA/ExA response

The project was reviewed by two technical experts addressing the Methyl Bromide production and consumption sectors respectively.

Technical Review
by Brian D Joyner, C. Chem , FRSC.
January 2005
UKRAINE
Methyl Bromide / CTC Phase-out Project
(production)

Overview

I have reviewed the GEF Project Brief and Annex documents made available to me, concentrating particularly on the "production" element. That is:-

1. Closure of the Oriana-Halev carbon tetrachloride (CTC) plant
2. Closure of the Saki Methyl Bromide (MBr) plant ; or
3. Monitoring of Production of MBr at the Saki plant or, potentially, at the Olvia or any other plant.

On the basis of the detailed information available, and on the basis of experience of other ODS phase-out reviews, I believe that the technical considerations relating to MBr and CTC plant closures are robust , and that Monitoring and Verification according to the procedures detailed in the document will yield the desired environmental assurances that ODS production capability has been closed.

With regard to potential future production of MBr, the Monitoring and Verification measures tabled in Annex B of the Project Executive Summary are sound and capable of yielding the necessary assurances.

There are clear signs that, in the preparation of this Project, the experience gained in earlier ODS production capacity closure, and production monitoring, found to be successful elsewhere, has been utilized.

I recommend the "production" element of this Project be funded.

Brian D Joyner

Technical Review:

1.	**Country**	Ukraine
2.	**Project Title**	Methyl Bromide/CTC Phase-out Project
3.	**Sector**	Global Environmental MBr - Production / Consumption CTC - Production

4. Relationship to Country Program

The Soviet Union ratified the Montreal Protocol in 1988. Subsequently, Ukraine ratified the London Amendment and, in 2000, the Copenhagen Amendment. It is currently actively pursuing ratification of the Beijing and Montreal Amendments.

The Copenhagen Amendment specifies the complete phase-out of production and consumption of Methyl Bromide (MBr) by 1 January 2005, except as permitted under the Montreal Protocol. With this possibility in mind, the Government of Ukraine has elected to retain the option of restarting MBr production. The only production facility ceased operation in 2002, and is partially dismantled but could be reinstated.
There is also another potential facility.

With regard to CTC, Ukraine was never a primary producer of Annex A and B OD substances, but was a substantial producer of CTC, primarily for supply to CFC plants in the Russian Federation but also for solvent applications. Although still capable of functioning, the CTC production unit has not been operated since 1998, and the Government of Ukraine has requested that the permanent closure of this facility should be included within the MBr Project.

5.1 Technology - MBr

a) Saki State Chemical Plant

Production of MBr commenced in 1964 and ceased in 2002. The Saki plant employed the Ammonium Bromide process in which aqueous ammonia and liquid bromine are reacted to form a solution of ammonium bromide, to which methanol and then sulphuric acid are added to produce methyl bromide. At maximum production capacity the plant had five parallel reactors with a total nominal capacity of almost 4,000 MT per year. In 1991, the baseline year under the Copenhagen Amendment, production was 3,607 MT, but production then decreased sharply with only 229 MT being produced in 2001, the last full year of operation.

Four of the production streams are now dismantled, while the remaining unit would require refurbishment and restoration if production were to be restarted. The proposed application of single-use locking devices to the inlet and outlet points of the synthesis reactor, with monitoring that these remain in place, will be adequate assurance against the re-starting of production with this process.

The Saki management state that future production would be by means of a different and more efficient process, the Sulphur Bromide route. This would still utilize the synthesis reactor but would entail the acquiring of significant amounts of new process equipment to supplement the existing production and purification train, together with a new steam generation facility. Adequate details are provided in the project documentation and need not be reiterated here.

b) Olvia Chemical Plant

The Olvia plant was previously the supplier of bromine feedstock to Saki and presumably may be so again if the Saki plant were restarted. Now in private hands, the Olvia operation is planning to develop a facility for production of alkyl bromides, which could readily include MBr if there were a legal outlet. No process details are provided but a nominal capacity for alkyl bromides of 2,000MT per year is contemplated.

5.2 Technology - CTC

c) Oriana-Halev LLC

Set up in 1973 to produce both CTC and PER (perchloroethylene) by direct chlorination of hydrocarbon feedstocks, this plant has a nominal design capacity of 30,000 MT per year, of which around 18,000 MT is CTC, and was primarily intended as feedstock supplier for CFC plants in the Russian federation, now all closed. Although still functional, the plant has not operated since 1998 and, as of January 2004, had no residual stock of CTC or PER. The principal objective of the closure plan will be the blanking off or removal of sufficient items of equipment and control systems as to ensure that the plant is incapable of further operation. The procedures proposed are modeled on those employed in the closure of CFC plants within the Russian Federation, and which have been found to be effective.

Quantities of hazardous by-products held on site, and in an off - site land storage facility, are considered below under Environmental Impact.

6. Environmental Impact

MBr

Future operation of the Saki plant will presumably be subject to the same environmental and health / safety considerations that applied during 2002 when the plant was last in operation, subject to there having been no changes in the regulatory profile since that time.

If the development plans for Olvia Chemical Corporation should result in MBr production then, presumably, the same environmental regulatory schedule will apply since both sites are within the Autonomous Region of Crimea and under Ukraine jurisdiction.

In general terms, this Project will not result in any change in environmental impact as a consequence of MBr production.

CTC

With regard to closure of the CTC operations at Oriana - Halev, the principal areas of concern are:

- a baseline inventory of 102.8 MT of mixed chlorinated solvents.

The continuing presence of this material must be routinely and carefully monitored, and disposal must be subject to authorization by the State Environmental Inspectorate, and must be in accordance with Ukraine's obligations under the Montreal Protocol - this will probably mean high temperature incineration with effective scrubbing and neutralization of exit gases.

- the likely presence of particularly hazardous contaminants in sections of the plant. These will probably include quantities of hexachlorobenzene (HCB), and possibly polychlorinated dibenzodioxins (PCDDs) and dibenzofurans (PCDFs).

All of these must be cleaned out of equipment effectively, with appropriate personal protection for the personnel involved, safely contained, and eventually destroyed in an environmentally acceptable manner - again, this probably entails high temperature incineration with effective gas scrubbing.

- the off-site waste storage facility, with a land area of 5.15 hectares, containing HCB from historical CTC production, together with sundry other hazardous wastes, unspecified.

The Persistent Organic Pollutant (POP) classification of HCB means that the management and eventual removal and destruction of these wastes falls within Ukraine's National Implementation Plan under the Stockholm Convention.

An overall impression is that all consideration of environmental impact issues within the project is sound, and well considered.

7. Project Costs

Section B.4 of the GEF Project Brief gives an estimated total project cost of US$9.46 million, out of which the figures for the "technical" elements:

CTC Plant Closure	US$1.1million
Technical Assistance & Institutional Strengthening	US$1.0

seem reasonable.

The detailing of the Incremental Capital costs associated with MBr phase-out appears to be thorough, and the estimated overall cost of the project appears to be realistic.

8. Time Schedule

The indicated timeframe of 2004 - 2007 seems to be realistic.

9. Monitoring and Enforcement

The Draft Closure Plan for CTC production at Oriana-Halev, detailed in Attachment A4.10, appears to be robust and clearly based on a knowledge of CFC phase-out projects within the Russian Federation, which have proved to be satisfactory. The two - part payment scheme, with 70 percent of the compensation withheld pending independent verification of satisfactory completion of the project, is an additional safeguard.

Monitoring of possible future MBr production provides a greater challenge.

With regard to the Olvia Chemical element, a key factor will be whether or not the enterprise proceeds with the production of alkyl bromides - if not, then all that is needed is routine verification that this situation has not changed.

A similar situation applies at the Saki plant so long as it remains incapable of further production. The application of one-time locking devices to key items of equipment, with regular monitoring that they remain in place, will be adequate assurance.

In the event that the Ukraine Government issues a licence for further MBr production, and the Saki plant is restored to an operable state, then both the Monitoring Plan and the Schedule of Monitoring and Verification Activities appear to be robust and capable of providing the necessary assurances.

It is clearly stated that the Monitoring and Verification measures detailed for the Saki Plant will be equally applicable to the Olvia Chemical operation, or to any other enterprise that should engage in MBr production.

10. Recommendation

With regards to the "production" elements of this Project the technical considerations detailed in the documentation are sound and, if applied as described, will lead to the desired outcome. In my opinion the Project merits approval.

BDJ / 01/ 05

World Bank's Response to ODS Production STAP Reviewer:

Reviewer: ***"…*** *a baseline inventory of 102.8 MT of mixed chlorinated solvents. The continuing presence of this material must be routinely and carefully monitored, and disposal must be subject to authorization by the State Environmental Inspectorate , and must be in accordance with Ukraine's obligations under the Montreal Protocol - this will probably mean high temperature incineration with effective scrubbing and neutralization of exit gases."*

Response: The Bank concurs with the concern highlighted by the reviewer and has included the monitoring of inventories in the monitoring procedures in the agreed Closure Plan. This monitoring includes regular documentation of inventories held in environmentally secure storage on site and any its future removal and disposal. Such disposal will require prior notice to and approval of both the State Environmental Inspectorate and Bank. Such approval will require it to be done in accordance with Ukraine's obligations under the Montreal Protocol and where destruction is proposed, demonstration that this is undertaken in an environmental sound manner.

Reviewer*: "… the likely presence of particularly hazardous contaminants in sections of the plant. These will probably include quantities of hexachlorobenzene (HCB), and possibly polychlorinated dibenzodioxins (PCDDs) and dibenzofurans (PCDFs). All of these must be cleaned out of equipment effectively, with appropriate personal protection for the personnel involved, safely contained , and eventually destroyed in an environmentally acceptable manner - again, this probably entails high temperature incineration with effective gas scrubbing."*

Response: The Closure Plan requires the sealing and monitoring of any potentially contaminated equipment designated in the Closure Plan. The removal of such equipment will require advance notice and prior approval by both the State Environmental Inspectorate and the Bank under the Closure Plan. This will include undertaking any such actions with appropriate health, safety and environmental protection procedures, and destruction being demonstrated to be undertaken in an environmental sound manner.

Reviewer: *"… the off-site waste storage facility, with a land area of 5.15 hectares, containing HCB from historical CTC production, together with sundry other hazardous wastes, unspecified. The Persistent Organic Pollutant (POP) classification of HCB means that the management and eventual removal and destruction of these wastes falls within Ukraine's National Implementation Plan under the Stockholm Convention.*

Response: The requirement to manage the historical stockpiles of HCBs in accordance with the Stockholm Convention is provided for through the Government's commitment to include this in as a priority activity in its National Implementation Plan.

Technical Review by
Melanie Miller M.Sc, Ph.D.,
Consultant and Member of Methyl Bromide Technical Options Committee (MBTOC),
Belgium
January 2005
(consumption)

Project title: Ukraine Methyl Bromide Phase-out

This STAP review relates to methyl bromide (MB) consumption phase-out aspects of the Project Brief dated January 2005; and specifically to the investment and technical assistance elements contained in Components 1 and 3. It does not cover the Components relating to CTC and MB production.

1. Scientific and technical soundness

The project seeks to address a significant problem: that use of MB was reduced, mainly for economic reasons, but satisfactory alternative methods of pest control were not generally adopted. This has had negative impacts on quality and productivity in the important grain sector. The project therefore aims to put in place effective MB alternatives that will allow the grain sector to control pests satisfactorily and will allow MB to be phased out.

Component 1 contains a series of appropriate sub-projects that in effect act like pilots or models for the rest of the grain sector. The project aims to install environmentally sustainable technologies where possible, such as aeration and IPM (eg. vacuum cleaning, preventing the entry of pests). Phosphine fumigation will also be used since it is the main currently registered alternative post-harvest fumigant. In the longer term the project aims to introduce additional options such as mixtures of phosphine with CO_2 or inert gases, controlled atmospheres, and new fumigants. The proposed two-stage strategy (short term, long term) is an appropriate way to address with the fact that additional pest control methods are desirable for the longer-term, to avoid reliance on phosphine alone.

The technical aspects, as presented in the Project Brief, are sound overall. Some minor detailed comments are given below in point 10.

2. Identification of the global environmental benefits and/or drawbacks of the project

The Project Brief (section B3 Global environmental objective and key indicators) states that the project's global environmental objective is to reduce ozone depletion by eliminating MB consumption and production.

The project plans to eliminate the residual MB consumption. The project impact is calculated as 188 tonnes (112.8 ODP tonnes) of non-QPS methyl bromide consumption, based on the average consumption of five years prior to project preparation. The Ministry in Ukraine also believes that about 110 tonnes of MB stocks are also available, but the project reports that this statement needs to be verified.

According to the initial project concept, the project originally aimed to decommission the MB production facilities. However, the Government, the traditional MB producer (Saki Plant) and another enterprise (Olvia Chemical Plant), want to be able to re-start MB production at a future date if they wish. Therefore the project does not intend to decommission or dismantle the MB production capacity.

There is a large over-supply of MB worldwide, with excess production capacity and large MB stocks in a number of countries. To re-start production would not make sense from an environmental or business perspective. The position in Ukraine does not fit comfortably with the government's goals as stated in the Project Brief (section A3 on higher level objectives/rationale) which aims to support the "European aspiration of Ukraine." The CAS notes the "urgent need to integrate environmental considerations in industrial, energy and agricultural sector".

The global benefits of the project would be increased if the key equipment for MB production were permanently de-commissioned and dismantled, accompanied by a commitment for no further MB production.

3. Project's context within GEF goals, operational strategies, program priorities, GEF Council guidance and the provisions of the relevant conventions

The project falls under the GEF Focal Area Ozone Depletion, and GEF Strategic Priority OZ-1 Methyl Bromide Reduction. The GEF document *GEF Support to Countries with Economies in Transition in Phasing Out of Annex C1 and E Substances of the Montreal Protocol* (GEF/C.18/Inf.6, page A4) states that:

> "In order to achieve compliance with the Montreal Protocol, a full phase-out of all reported (non-QPS) consumption (and production) needs to be achieved by the end of 2004…consumption needs to be reduced from the current levels… to zero in 2005."

In considering the eligibility of countries, GEF/C.18/Inf.6 states that the GEF Operational Strategy has determined that only countries that have ratified ***both*** the London and Copenhagen Amendments to the Montreal Protocol will be eligible for GEF assistance for phasing out MB. Ukraine has ratified both the London and Copenhagen Amendments (in 1997 and 2002, respectively).

In accordance with GEF guidelines, Ukraine (a non-Article 5 Party) is not able to receive funding from the Multilateral Fund of the Montreal Protocol, and is eligible for country assistance from the World Bank.

The project document and Annex mention, in several places, the need for Ukraine to comply with obligations under the "Montreal Protocol as amended at Copenhagen. The text should also add "and other relevant Amendments, Adjustments and Decisions of the Protocol", because the amendment made at Copenhagen is not the only relevant item. Some subsequent adjustments and Decisions are also relevant, such as changes in the MB production quantities permitted to be exported to Article 5 Parties for Basic Domestic Needs. Ukraine's eligibility for making such exports would depend on the quantity it exported for this purpose (if any) in the period 1995 to 1998 (refer to Article 2H 5bis and 5ter of the Montreal Protocol, as adjusted).

4. Regional context

The Project Brief states that the project is based on successful ODS projects undertaken in the Russian Federation and other countries in the region. The MB project will be linked to a GEF MB phase-out project in several CEIT countries (Poland, Bulgaria, Hungary, Latvia and Lithuania) being implemented by UNEP/UNDP. To assist cooperation, a representative of the World Bank Ukraine project will sit on the Steering Committee of the regional CEIT project.

The project is linked to a bilateral project being undertaken by the Canadian Grain Commission (CGC) and Ministry of Agricultural Policy in Ukraine that targets the overall certification of grain storage

facilities and establishment of a marketing system. Several of the elevator/terminal facilities that have been identified in Component 1 of this project will be host enterprises for demonstration projects under the CGC certification initiative. CGC expertise was used in the preparation of investment sub-projects included in Component 1, an arrangement that will be continued during the project.

5. Replicability of the project

Section 4 states that the investment program addressing consumption in the grain sector is designed to allow replication across each part of the grain supply/distribution system. The approach may have application in other CIS countries that have a similar history of grain protection practice, regulation and institutional structure. In particular, the Russian Federation and Kazakhstan, as major grain producing countries, would be candidates for replicating the experiences of Ukraine.

6. Sustainability of project results

Several factors in the project will support the continuation of project benefits after completion of the project, because the Components aim to build appropriate capacity and infrastructure in both the technical and policy areas.

In the ozone policy field, the project will increase the capacity of the ozone unit and relevant government bodies to control ODS, including the development and implementation of relevant regulations and policy measures.

In the grain sector, the relevant technical regulations and procedures will be amended and updated to support MB alternatives. This work will be undertaken jointly by international and local experts, operating under the supervision and sponsorship of the Ministry of Agricultural Policy, industry associations such as the Ukrainian Grain Association, and umbrella organizations involved in the grain and quarantine sector. Procedural changes will be supported by the production of practical manuals about pest control, for use at the operational level (Training Component Module 2-1-2.3). This work is also linked to a bilateral project being undertaken by the Ministry of Agricultural Policy and Canadian Grain Commission related to certification of grain handling facilities, as mentioned above.

Fumigators and other MB users will be trained how to use alternatives effectively. The training modules for each of the beneficiary groups will be based on a "train the trainers" model with the objective of establishing on-going training programs, sustained by the counterparts. Relevant officials will also be trained on technical matters.

Full stakeholder involvement and ownership is also important for sustainability. The Project Brief indicates that the government of Ukraine and stakeholders were involved in developing the project. The project states that investment sub-projects in the grain sector will be implemented under the supervision of an interagency group including all major stakeholders. Component 1 states that the Ukrainian Grain Association, an industry association representing private sector grain interests, would likely be involved – it is desirable to ensure the full involvement of all associations which are important in the grain sector.

7. Linkages to other programs and action plans at regional or sub-regional levels

The project indicates that it is consistent with Ukraine's updated Country Program for ODS Phase-out for the period 2004-2030.

The project has links with a bilateral project being undertaken in Ukraine by the Ministry of Agricultural Policy and Canadian Grain Commission related to certification of grain handling facilities, and also with

a GEF project on MB phase-out in Poland, Bulgaria, Hungary, Latvia and Lithuania implemented by UNEP and UNDP, as mentioned above.

8. Other beneficial or possible environmental damaging effects

According to Annex 4, the project will focus on IPM techniques with emphasis on preventative approaches such as improved pest monitoring, removal of pest harbourages, vacuum cleaning and housekeeping procedures, and use of aeration. The project also states that it will facilitate the introduction of controlled atmosphere and inert gas technologies in the longer term. These methods in general are more beneficial for the environment and human health.

Like MB, phosphine is a toxic fumigant gas which poses occupational safety risks to operators and those in the vacinity. However, the project intends to provide safety equipment and training for the use of this product. In the short-term and long-term the project plans to promote other less toxic alternatives.

Section B2 says that the integration of environmental considerations into the agricultural sector through IPM will maintain and enhance quality, productivity and economic returns in the grain sector. This in turn aims to support sustainable economic growth in rural areas and poverty reduction (section B2). The Ukraine grain sector will have increased capacity to meet the evolving standards required by western European markets, particularly supermarket chains that increasingly demand the use of IPM by suppliers.

9. Capacity building aspects

The project contains components that will build national capacity for the control of ODS, and assist with ratification of the Beijing and Montreal Amendments, and the development of necessary regulations and policy measures for the implementation of the updated Country Program for ODS Phase-out for the period 2004-2030.

It will also build technical capacity and know-how in the area of MB alternatives, including capacity for continued training in future, as outlined in the comments above on Sustainability of project results.

10. Detailed comments on Components

MB consumption data

The MB production and consumption data presented in the Project Brief differs from the data of the Ozone Secretariat. The Ozone Secretariat data on MB consumption and production comes from official reports made by the Ukraine government, under Article 7 reporting requirements of the Montreal Protocol. However, the Project Brief explains that all MB production was previously reported as QPS to the Ozone Secretariat when, in fact, only a small fraction of it was actually QPS. The official record keeping related to actual MB consumption in Ukraine over the past fifteen years has been sporadic, reflecting the significant restructuring of the responsible institutions and sectors. Accordingly, the Ministry has made a commitment to submit revised data to the Ozone Secretariat and request correction of the official data.

MB stocks

It would be helpful to clarify what will be done with the existing stocks of MB after alternatives have been installed. For example, would stocks be destroyed or restricted to the exempted sector (QPS)?

Components 1.1 – 1.4 (Annex 2)

Component 1 contains a series of appropriate sub-projects that in effect act like pilots or models for the rest of the grain sector. Pilots are a sensible approach for this specific situation, and the role of pilots or models could be spelled out a little more. For example, the Project Brief could identify some mechanisms by which other companies/enterprises in the grain sector can learn from and copy the pilots, such as training days at the pilot enterprises, or site visits so that others in the sector can see and learn. When sub-project agreements are made with pilot companies who receive project equipment, it would be useful to get agreement that enterprises will allow access to the new equipment/premises for training days or site visits.

Recirculation systems could also be considered for the silos. This could provide an immediate and cost-effective method for using currently registered phosphine products (such as pellets, tablets, plates). Recirculation systems are relatively easy to use.

Heat is also available, and could be considered for certain sub-sectors. Heat + IPM are an effective, existing MB alternative, which is used in mills and food processing facilities in Canada and several European countries. It provides another immediate alternative option, so that structures would not need to rely on phosphine alone. Building on links with the Canadian Grain Commission, for example, Canadian experts could assist with the adoption of heat + IPM in several mills/processing facilities and fumigation companies, as models/pilots in a couple of strategically-selected locations.

Some types of heat treatments (such as kiln drying) are also effective and suitable for timber. A heat treatment has been approved by FAO/International Plant Protection Convention guidelines (ISPM-15) for quarantine treatment of solid wood packaging materials, such as wooden pallets, providing an alternative to MB.

The Detailed Project Description (Annex 2) frequently mentions 'fumigant' when listing the technologies to be adopted. For example, fumigant monitoring/concentration testing equipment, personal protective equipment for fumigants and gaseous fumigant application equipment sets. To avoid ambiguity, it would be useful to specify in the relevant sub-Components that 'fumigant' and 'fumigation' does not include MB, but refers to alternative fumigants and non-MB fumigation.

When improving and sealing grain silos, it will be important to achieve the appropriate level of gastightness (gastight pipes, gastight aeration floor etc.).

What is the purpose of the regulatory approvals mentioned in sub-project budgets (Component 1.1 – 1.4, Annex 2)?

Component 1.4 - Fumigation service providers

A2.7 fumigation service providers: It is appropriate to have a sub-project with these service providers, because this group is very important for achieving and maintaining an effective MB phase-out in the future. It would be beneficial to extend the scope of their investment assistance to cover IPM methods and some non-chemical methods (such as heat + IPM for structures). Fumigation service companies could be encouraged to learn that they can make a living by providing IPM products and IPM services, not only by providing fumigation.

Component 1.5 Quarantine services

Which fumigant(s) will be used in: (a) the stationary fumigation chambers, (b) mobile fumigation chambers and (c) inflatable fumigation chambers?

Are the MB quarantine treatments carried out mainly for grain, timber and similar durable (dry) goods? If so, alternatives exist in most cases, and could be introduced into Ukraine. For timber treatments, there is an effective heat treatment (like kiln heating/drying). It would be preferable to invest in alternatives, rather than investing in new MB-related equipment.

For some incoming goods there may be regulatory barriers to the use of alternatives at present, if Ukraine's current regulations permit only MB. If so, such regulations could be updated as part of the relevant project Component. In the case of exported goods, if MB (only) is permitted by the recipient country as a quarantine treatment, it would be a slower process to change their requirements, but is still feasible through bilateral negotiations, with time.

Component 1.6 Grain sector technical assistance

The project will deliver a series of training modules tailored to each of the beneficiary groups, as stated in Annex 2. This will be based on a "train the trainers" model, with the objective of ongoing training programs carried out by counterparts. The project Brief confirms that the training will be integrated hand-in-hand with the investment work so that project beneficiaries are able to fully capitalize on the assistance (eg. Annex 2, Section 5.2.9).

The training modules 1.2 and 1.3 for farm-based storage and bulk grain storage appear to cover only IPM at present, but perhaps I misunderstood the table at end of section 5.2.9 (Annex 2). Many CEIT grain sectors use phosphine at present, but use it badly or incorrectly because they have not received appropriate training. Some end-users would therefore need training in the correct use of phosphine, including appropriate sealing methods, duration of treatment, phosphine resistance prevention/ management.

Training section 1.4 - Fumigation Application Training: As mentioned above, its desirable to make sure that fumigation service providers also receive training and assistance in IPM and some non-chemical methods.

Component 3 - Regulatory Development

It is likely that some phosphine formulations (eg. tablets, pellets, plates or bags) are registered in Ukraine at present, as in many countries, making them immediately available as MB alternatives. The Component dealing with registration would be expected to include key activities to help registration, such as carrying out monitored trials at some of the enterprises involved in sub-projects, in order to generate the data needed for registration. The future use of new fumigant products would only be feasible if the relevant product manufacturers are willing to supply the local market. For this reason it would make sense to target about two leading products that could be used by several sectors, rather than attempting to register a larger number. It is desirable to involve companies in the registration discussions at the early stages.

Registration of new chemical products has traditionally been a slow and expensive activity, although some countries have expedited this process by creating a fast-track procedure for registration of MB alternatives, taking account of recent registrations granted by pesticide authorities in countries which have equivalent standards of assessment.

World Bank's Response to MBr Consumption Sector STAP Reviewer

The project team reviewed the comments made by STAP Reviewer, Dr. Melanie Miller (Consumption) and basically concurred with all of them. The team found them very constructive and will use the Reviewer's recommendations to broaden the range of proposed interventions and techniques and to improve the quality of the final project document. Responses to some specific comments are presented below.

Reviewer 2. Identification of the global environmental benefits and/or drawbacks of the project

> …*"There is a large over-supply of MB worldwide, with excess production capacity and large MB stocks in a number of countries. To re-start production would not make sense from an environmental or business perspective. The position in Ukraine does not fit comfortably with the government's goals as stated in the Project Brief (section A3 on higher level objectives/rationale) which aims to support the "European aspiration of Ukraine." The CAS notes the "urgent need to integrate environmental considerations in industrial, energy and agricultural sector.*
>
> *The global benefits of the project would be increased if the key equipment for MB production were permanently de-commissioned and dismantled, accompanied by a commitment for no further MB production."*

We fully share this view. The project team tried to convince Government and enterprises that re-starting MBr production will not be economical and is somewhat contradictory to the government's long-term objective to join the EU. Yet Government decided to retain the option of re-opening MBr production facilities for applications permitted under the Montreal Protocol. The Government and the enterprises that are potential MBr producers have committed to implement legally binding Monitoring Plans which would ensure compliance with all applicable MP Amendments, Adjustments and Decisions of the Protocol. Signing of the commitment instruments constitutes condition of GEF grant negotiations and effectiveness. The project team believes that reopening MBr production is very unlikely for economic reasons. The introduction of MBr alternatives supported by the project will further reduce the likelihood that MBr production will restart.

Response: Consistent with this, it is the Bank team's intention to continue to highlight this point to the new Government and the concerned enterprises during appraisal and subsequent processing, with particular emphasis on the inconsistencies that this position has with the CAS, the Country's Millennium Development Goals and the new Government's objectives respecting European integration.

Reviewer 3. Project's context within GEF goals, operational strategies, program priorities, GEF Council guidance and the provisions of the relevant conventions

> …*"The project document and Annex mention, in several places, the need for Ukraine to comply with obligations under the "Montreal Protocol as amended at Copenhagen." The text should also add "and other relevant Amendments, Adjustments and Decisions of the Protocol," because the amendment made at Copenhagen is not the only relevant item. Some subsequent adjustments and Decisions are also relevant, such as changes in the MB production quantities permitted to be exported to Article 5 Parties for Basic Domestic Needs. Ukraine's eligibility for making such exports would depend on the quantity it exported for this purpose (if any) in the period 1995 to 1998 (refer to Article 2H 5bis and 5ter of the Montreal Protocol, as adjusted)."*

Response: We agree with this clarification and relevant changes will be introduced in all project documents and specifically into the Monitoring Plans applicable to the potent MBr production facilities.

Reviewer 6. Sustainability of project results

> …*"Full stakeholder involvement and ownership is also important for sustainability. The Project Brief indicates that the government of Ukraine and stakeholders were involved in developing the project. The project states that investment sub-projects in the grain sector will be implemented under the supervision of an interagency group including all major stakeholders. Component 1 states that the Ukrainian Grain Association, an industry association representing private sector grain interests would likely be involve – it is desirable to ensure the full involvement of all associations which are important in the grain sector."*

Response: This recommendation is fully supported by the team. Appropriate contacts with a range of stakeholders have already been established, and a mechanism of interagency and private sector cooperation has been agreed in principle. There might be a need to confirm and, possibly adjust, this agreement at appraisal after the formation of a new Ukrainian Government.

Reviewer 8. Other beneficial or possible environmental damaging effects

> *"Section B2 says that the integration of environmental considerations into the agricultural sector through IPM will maintain and enhance quality, productivity and economic returns in the grain sector. This in turn aims to support sustainable economic growth in rural areas and poverty reduction (section B2). The Ukraine grain sector will have increased capacity to meet the evolving standards required by western European markets, particularly supermarket chains that increasingly demand the use of IPM by suppliers."*

Response: The Bank team fully concur with this point and consistent with Point 2 above will underline the importance of eliminating MBr and adopting demonstrated IPM practices in the grain sector in accessing the standard that are evolving for environmentally sound practices applied to food products in European and other global markets.

Reviewer 10. Detailed comments on Components

> …*"It would be helpful to clarify what will be done with the existing stocks of MB after alternatives have been installed. For example, would stocks be destroyed or restricted to the exempted sector (QPS)?"*

Response: Options have been discussed with Government and stakeholders and the most likely scenario will be determined at appraisal. At that time, the Bank team will request counterparts to validate the claimed amount and location of such stocks and incorporate appropriate measures to demonstrate the Government's commitment to their monitoring and control management. Having said this, it is also the understanding of the Bank team that MBr stockpiled for end use prior to January 1, 2005, can be used.

Reviewer 11. Detailed comments on Components

> *Components 1.1 – 1.4 (Annex 2)*

"Component 1 contains a series of appropriate sub-projects that in effect act like pilots or models for the rest of the grain sector. Pilots are a sensible approach for this specific situation, and the role of pilots or models could be spelled out a little more. For example, the Project Brief could identify some mechanisms by which other companies/enterprises in the grain sector can learn from and copy the pilots, such as training days at the pilot enterprises, or site visits so that others in the sector can see and learn. When sub-project agreements are made with pilot companies who receive project equipment, it would be useful to get agreement that enterprises will allow access to the new equipment/premises for training days or site visits."

Response: The Bank team will incorporate this suggestion that pilot beneficiaries be required to allow access to other enterprises for purposes of demonstrating and training on the implemented phase-out measures, noting that this enhances replicability and sustainability. This will be introduced at appraisal and included in sub-grant agreements

Components 1.1 – 1.4 (Annex 2)

Recirculation systems could also be considered for the silos. This could provide an immediate and cost-effective method for using currently registered phosphine products (such as pellets, tablets, plates). Recirculation systems are relatively easy to use.

Heat is also available, and could be considered for certain sub-sectors. Heat + IPM are an effective, existing MB alternative, which is used in mills and food processing facilities in Canada and several European countries. It provides another immediate alternative option, so that structures would not need to rely on phosphine alone. Building on links with the Canadian Grain Commission, for example, Canadian experts could assist with the adoption of heat + IPM in several mills/processing facilities and fumigation companies, as models/pilots in a couple of strategically-selected locations.

Some types of heat treatments (such as kiln drying) are also effective and suitable for timber. A heat treatment has been approved by FAO/International Plant Protection Convention guidelines (ISPM-15) for quarantine treatment of solid wood packaging materials, such as wooden pallets, providing an alternative to MB.

Response: The addition of recirculation systems and heat based techniques will be discussed with enterprises at appraisal. The use of kiln drying for timber will also be raised should this proposed QPS application be pursued at appraisal, although it is understood that the application involved relates to uncut logs rather than finished timber.

Reviewer 10. Detailed comments on Components

"The Detailed Project Description (Annex 2) frequently mentions 'fumigant' when listing the technologies to be adopted. For example, fumigant monitoring concentration testing equipment, personal protective equipment for fumigants and gaseous fumigant application equipment sets. To avoid ambiguity, it would be useful to specify in the relevant sub-Components that 'fumigant' and 'fumigation' does not include MB, but refers to alternative fumigants and non-MB fumigation."

Response: The Bank team notes this comments and undertakes to revise the text as required.

Reviewer 10. Detailed comments on Components

…"What is the purpose of the regulatory approvals mentioned in sub-project budgets (Component 1.1 – 1.4, Annex 4)?"

Response: Any investment activity in Ukraine requires approvals of various regulatory agencies such as Sanitary-epidemiological service, Construction Safety agency, State Environmental Review (Expertise), etc. As such it is an incremental cost associated with an eligible phase-out investment. Our experience shows that explicit introduction of this stage in the sub-project preparation cycle is helpful in terms of decreasing delays and speeding up implementation of individual sub-projects. In all cases regulatory approvals will be done by the beneficiaries, no grant funding is allocated for this.

Reviewer 10. Detailed comments on Components

Component 1.4- Fumigation service providers

"A2.7 fumigation service providers: It is appropriate to have a sub-project with these service providers, because this group is very important for achieving and maintaining an effective MB phaseout in the future. It would be beneficial to extend the scope of their investment assistance to cover IPM methods and some non-chemical methods (such as heat + IPM for structures). Fumigation service companies could be encouraged to learn that they can make a living by providing IPM products and IPM services, not only by providing fumigation."

Response: The Bank team notes this comment and concurs that IPM techniques should also be included in the technical assistance provided for the fumigation service providers.

Component 1.5 Quarantine services

…"Which fumigant(s) will be used in: (a) the stationary fumigation chambers, (b) mobile fumigation chambers and (c) inflatable fumigation chambers?"

Response: The intent is that the fumigants(s) used would be either MBr or Phosphine with the longer term intention to use phosphine/CO2 mixtures. In the case of continued MBr use as permitted under the Montreal Protocol. This investment has allow more efficient use of the fumigant and thereby reduce the overall QPS consumption.

Reviewer 10. Detailed comments on Components

Component 1.5 - Quarantine services

"Are the MB quarantine treatments carried out mainly for grain, timber and similar durable (dry) goods? If so, alternatives exist in most cases, and could be introduced into Ukraine. For timber treatments, there is an effective heat treatment (like kiln heating/drying). It would be preferable to invest in alternatives, rather than investing in new MB-related equipment."

Response: Little MBr is used for grain quarantine treatment and this is largely limited to import of agricultural products and the export of timber. The inclusion of any investment in timber applications as eligible investments will be reviewed at appraisal and the option of using alternatives as opposed to new MB-related equipment will be prioritized.

Reviewer 10. Detailed comments on Components

…*"For some incoming goods there may be regulatory barriers to the use of alternatives at present, if Ukraine's current regulations permit only MB. If so, such regulations could be updated as part of the relevant project Component. In the case of exported goods, if MB (only) is permitted by the recipient country as a quarantine treatment, it would be a slower process to change their requirements, but is still feasible through bilateral negotiations, with time."*

Response: It is planned that elimination of regulatory barriers will be a part of Component 3 (Policy Development and Institutional Strengthening). More specifically, such activities are envisaged in the part dealing with Alternative Fumigant Registration in sub-component Regulatory Strengthening – Pest Control and Related Chemicals. Further emphasis will be given to address this concern.

Reviewer 10. Detailed comments on Components

Component 1.6 Grain sector technical assistance

"The training modules 1.2 and 1.3 for farm-based storage and bulk grain storage appear to cover only IPM at present, but perhaps I misunderstood the table at end of section 5.2.9 (Annex 2). Many CEIT grain sectors use phosphine at present, but use it badly or incorrectly because they have not received appropriate training. Some end-users would therefore need training in the correct use of phosphine, including appropriate sealing methods, duration of treatment, phosphine resistance prevention/management."

"Training section 1.4 - Fumigation Application Training: As mentioned above, its desirable to make sure that fumigation service providers also receive training and assistance in IPM and some non-chemical methods."

Response: The Bank team concurs with these comments and will ensure that the appropriate training in the use of phosphine is included and in the case of fumigation service providers, IPM techniques are also included.

Reviewer 10. Detailed comments on Components

Component 3 - Regulatory Development

"It is likely that some phosphine formulations (eg. tablets, pellets, plates or bags) are registered in Ukraine at present, as in many countries, making them immediately available as MB alternatives. The Component dealing with registration would be expected to include key activities to help registration, such as carrying out monitored trials at some of the enterprises involved in sub-projects, in order to generate the data needed for registration. The future use of new fumigant products would only be feasible if the relevant product manufacturers are willing to supply the local market. For this reason it would make sense to target about two leading products that could be used by several sectors, rather than attempting to register a larger number. It is desirable to involve companies in the registration discussions at the early stages.

Registration of new chemical products has traditionally been a slow and expensive activity, although some countries have expedited this process by creating a fast-track procedure for registration of MB alternatives, taking account of recent registrations granted by pesticide authorities in countries which have equivalent standards of assessment."

Response: Technical assistance in expanding the registration of alternatives is provided for, noting that a number of phosphine based products are registered and used in Ukraine now. The project has taken the approach that the selection of specific alternatives and their suppliers should be left to the users and service providers, with the project facilitating the capacity to identify and assess these, including optimizing procedures for their registration.

GEF Secretariat and other agencies comments and IA/ExA response.

GEF Secretariat comments at pipeline are summarized below

Sections	GEFSEC comments	IA response
Country Drivenness	The endorsement letter should provide details concerning Ukraine's contributions and domestic commitments towards phasing out MBr according to MP requirements	Commitment to comply with MP requirement letters were submitted. Pilot recipient enterprises expressed commitment to co-finance
Project Designation and Conformity	Cost effectiveness thresholds are to be taken into account in the project design	CE thresholds were taken into account in designing the project
Project Design	Non investment activities should be planned and implemented in close coordination with UNDP and UNEP. Disbursements should be scheduled according to progress in implementing domestic commitments reflected in the endorsement note (performance agreement)	UNDP/UNEP project does not envisage activities in Ukraine. Otherwise, coordination will be arranged through participation in the UNDP project Steering Committee. Done. Disbursement of compensation payment for CTC closure plant will be tied up to close progress.
Sustainability	Viability prospects of the recipient enterprise are to be verified prior to WP entry	Viability of pilot enterprises is verified. Financial viability is one of selection criteria. Viability will be appraised by beneficiary and approved by the Bank
Monitoring and Evaluation	MBr/ODS monitoring and reporting measures according to MP requirements to be integrated into project design	Done. Monitoring and reporting conditionalities are clearly specified and basically agreed upon
Financing Plan	To be developed taking into account domestic benefits and required co-financing at corresponding levels	Financing plan is developed takes into account domestic benefits and co-financing
Core Commitments and Linkages	Domestic contributions towards achieving and maintaining compliance are to be clarifies	Done. Specified in the Project Brief
Consultation, Coordination, Collaboration between IAs, IAs and EAs	TA activities are to be coordinated with UNDP's and UNEP's regional efforts	Addressed through proposed participation of Bank's team representative in the Steering Committee of UNDP/UNEP project and data exchange